XTRAMUS

NuApps-MultiUnits-RM User's Manual

USM Ver 1.5

Foreword

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Revision History

Date	Version	History
2012/04/02	1.0	First draft version
2012/04/26	1.1	1. Added new function **Tool Bar** on **Menu Bar_View**. (Page 26) 2. Amended the correct function of **LED** (1, 2,…8) of each window task. (Page 31_H) 3. Included the **Break off** as a status of window task. (Page 31_I) 4. Added new function **Upload Data to MES**. (Page 39)
2012/08/21	1.2	1. Modify Main Interface's Demo figure. (Page 20) 2. Added figure of initial option window for choosing interfaces. (Page 21) 3. Modify new figure for main interface due to LED (1~9). (Page 22) 4. Modify new figure for main interface due to LED (1~9). (Page 24) 5. Added **Empty the time information description** on Config. (Page 26) 6. Added **Input Information** on Config. (Page 26) 7. Modify the window task figure. (Page 31, 35 and 43) 8. Amended descriptions for **LED**. (Page 31) 9. Added **Option Dialog** window and description. (Page 38) 10. Added description about **Reset** and **Reset All** functions. (Page 41) 11. Modify **Select Ports** interface figure. (Page 42) 12. Modified the figure of **UC Task _ Test Procedure**. (Page 52) 13. Added description about **Broadcast/Unicast** and function **Learning Connection Check** description. (Page 52) 14. Added **Port Select…** function figure and description. (54, 60, 66, 72, 78, 84, 90, 96, 102, 108, 114, 120, 126, 132, 138, 144, 150, 156, 162, 168, 174, 180, 186, 192, 198, 204, 210, 216, 222, 228, 234 and 240) 15. Added a note describing that each selected port pair can support up to 32 tasks test. (Page 40 and 43) 16. Added new figure for **Port Map** interface and description for new function **Traffic Direction** mode. (Page 53, 59, 65, 71, 77, 83, 89, 95, 101, 107, 113, 119, 125, 131, 137, 143, 149, 155, 161, 167, 173, 179, 185, 191, 197, 203, 209, 215, 221, 227, 233 and 239) 17. Added new figure for **Packet** interface and description for new function **Enable S/N Error Check**. (Page 55, 61, 67, 73, 79, 85, 91, 97, 103, 109, 115, 121, 127, 133, 139, 145, 151, 157, 163, 169, 175, 181, 187, 193, 199, 205, 211, 217, 223, 229, 235, 241) 18. Modify 1 to Many task's **Traffic Window**. (Page 51) 19. Modify **Config** figure. (Page 26) 20. Modify 1 to Many task figure, adding Enable S/N Error Check function description. (Page 52) 21. Amend **Media Type** figure for each task test. 22. Modify **Test Report** figure, adding date on time display. (Page 247)

Date	Version	History
2012/09/05	1.3	1. Update **General Information**'s figure for selection of **Pass/Fail/Pass rate/Start time/Duration**. (Page 27) 2. Update **1 to Many_Test Procedure**'s figure for **Media Type Fails to Continue** function. (Page 53) 3. Update **Router NAT_Set**'s figure. (Page 55) 4. Update each **task_Port Map**'s figure for the word "**Apply**". 5. Update each **task_Media Type**'s figure for adding **Media Type Fails to Continue** function and description.
2012/09/07	1.4	1. Deleting the description of NuApps-MultiUnits-RM supports operation system Windows 2000.(Page 11)
2012/11/14	1.5	1. Update module cards' FPGA/Firmware support version. (Page 11) 2. Update Demo mode User Interface figure. (Page 21) 3. Update User Interface figure. (Page 23 and 25) 4. Adding **UI Style** description and figure. (Page 25 and 28) 5. Adding **Start All** description. (Page 25) 6. Update **Quick Launch Buttons**. (Page 31) 7. Update **Environment Setting** figure. (Page 38) 8. Adding **Suffix** function on **Environment Setting**. (Page 39)

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1. NuApps-MultiUnits-RM Overview

1.1. General Description of NuApps-MultiUnits-RM

NuApps-MultiUnits-RM is a utility software that displays up to 8 independent windows in 1 user interface, where each window can run different settings with an independent DUT (Device Under Test). The NuApps-MultiUnits-RM supports all XM-RM module cards and can reserve the XM-RM module card's ports on each testing window, where the testing result of each window can be showed separately on a log file.

NuApps-MultiUnits-RM is designed for Xtramus Technologies XM-RM series module cards. The table down below contains the XM-RM module cards, FPGA/Firmware/PROM versions that are supported by NuApps-MultiUnits-RM.

Module Cards Support NuApps-MultiUnits-RM		
Module Card	**FPGA Version**	**Firmware Version**
XM-RM661/671/681	V4.0b010	V1.7b032
XM-RM751/761/781	V4.0b010	V1.7b032
XM-RM731	V3.0b011	V1.7b032
XM-RM881	V2.1b006	V0.9b046
XM-RM881-2	V2.1b003	V0.9b046
XM-RM891	V2.0b003	V1.7b032

＊Note: NuStreams-2000i and NuStreams-600i are required as well.

Also, please make sure that your PC meets the requirements listed in the table down below before installing NuApps-MultiUnits-RM.

OS	**Windows XP**	**Windows Vista/Windows 7**
RAM	512MB RAM	1GB RAM
CPU	Pentium 1.3Ghz or higher	
HDD	10 GB Available Space	

＊Note: Large amount of data will be generated while running NuApps-MultiUnits-RM. It is recommended to preserve enough available Hard-Disk space to store these data.

1.2. Function Description_ Performance Task in Layer 2 (PT2)

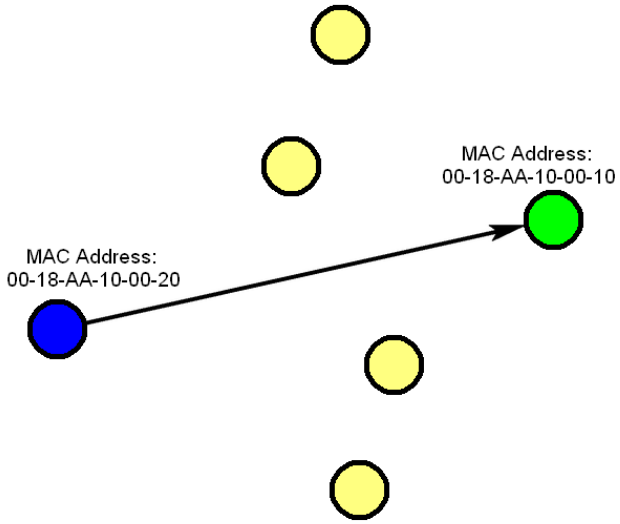
Built-in tasks in NuApps-MultiUnits-RM include **Unicast, Flow Control, Broadcast, Filter tasks and CRC error**.

1.2.1. One to Many Unicast Test (1 to Many-UC)

One to Many Unicast Full Performance Test, performing layer 2 MAC address Unicast performance tests from one source to multiple ports with different media types (such as 100Mbps and 1000Mbps Full).

1.2.2. Unicast Test (UC)

Unicast transmission is the sending of information packets to a single destination. In layer 2 test, unique MAC address is the key of single destination as illustration below.



Perform unicast test on DUT in layer2 with different speeds, mode and various configurations.

- PT2-UC-10H (10Mbps Half Duplex)
- PT2-UC-10F (10Mbps Full Duplex)
- PT2-UC-100H (100Mbps Half Duplex)
- PT2-UC-100F (10Mbps Full Duplex)
- PT2-UC-1G (1000Mbps Full Duplex)
- PT2-UC-10G (10G Full Duplex)

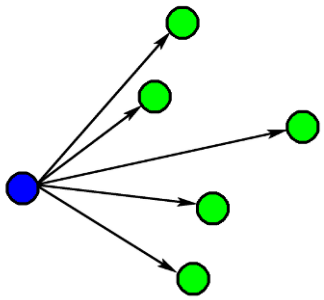
1.2.3. Flow Control Test (FC)

Perform flow control test on DUT in layer 2 with different speeds, mode and various configurations. It tests the performance when the DUT is connected to media with varied kinds of speed and direction.

- PT2-FC-10H-100H (10Mbps Half ↔ 100Mbps Half)
- PT2-FC-100H-10H (100Mbps Half ↔10Mbps Half)
- PT2-FC-10F-100F (10Mbps Full ↔ 100Mbps Full)
- PT2-FC-100F-10F (100Mbps Full ↔ 10Mbps Full)
- PT2-FC-100F-1G (100Mbps Full ↔ 1000Mbps Full)
- PT2-FC-1G-100F (1000Mbps Full ↔ 100Mbps Full)
- PT2-FC-1G-10G (1000Mbps Full ↔ 10G Full)
- PT2-FC-10G-1G (10G Full ↔ 1000Mbps Full)

1.2.4. Broadcast Test (BC)

Broadcasting refers to transmitting packets that will be received (conceptually) by every device on the network.



Perform broadcast test on DUT in layer2 with different speeds, mode and various configurations. These following tasks transmit broadcast frames (Destination Address: FF:FF:FF:FF:FF:FF).

- PT2-BC-10H, (10Mbps, Half Duplex)
- PT2-BC-10F, (10Mbps, Full Duplex)
- PT2-BC-100H, (100Mbps, Half Duplex)
- PT2-BC-100F, (100Mbps, Full Duplex)
- PT2-BC-1G, (1Gbps, Full Duplex)
- PT2-BC-10G, (10Gbps, Full Duplex)

1.2.5. Filter Test (FT)

This filter test should filter all packets with the same source MAC address and destination MAC Address. For this test, test packets sent are all with the same source MAC address and destination MAC address and the DUT should filter this kind of packet.

Perform filter test on DUT in layer2 with different speeds, mode and various configurations. The following tasks transmit frames with same DA (destination address) and SA (source address).

- PT2-FT-10H
- PT2-FT-10F
- PT2-FT-100H
- PT2-FT-100F
- PT2-FT-1G
- PT2-FT-10G

1.2.6. CRC Error Test (CRC)

Perform CRC (Cyclic Redundancy Check) error test on DUT in layer2 with different speeds, mode and various configurations for the last 4 bytes of CRC to be filtered. For normal DUT, frame with error CRC should be filtered. The following tasks transmit frames with CRC errors.

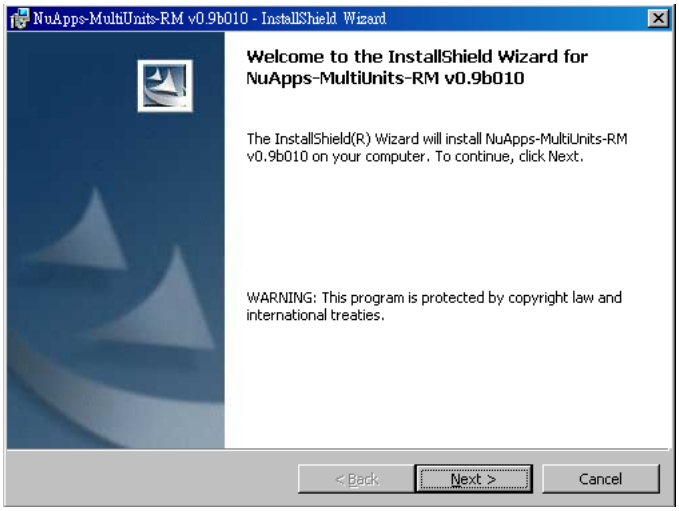
- PT2-CRC-10H, (10Mbps, Half Duplex)
- PT2-CRC-10F, (10Mbps, Full Duplex)
- PT2-CRC-100H, (100Mbps, Half Duplex)
- PT2-CRC-100F, (100Mbps, Full Duplex)
- PT2-CRC-1G, (1Gbps, Full Duplex)
- PT2-CRC-10G, (10Gbps, Full Duplex)

2. Installing and Uninstalling NuApps-MultiUnits-RM

Please follow the steps down below to install NuApps-MultiUnits-RM.

Installing NuApps-MultiUnits-RM

1. Double-click NuApps-MultiUnits-RM installation program and start the installation process.*

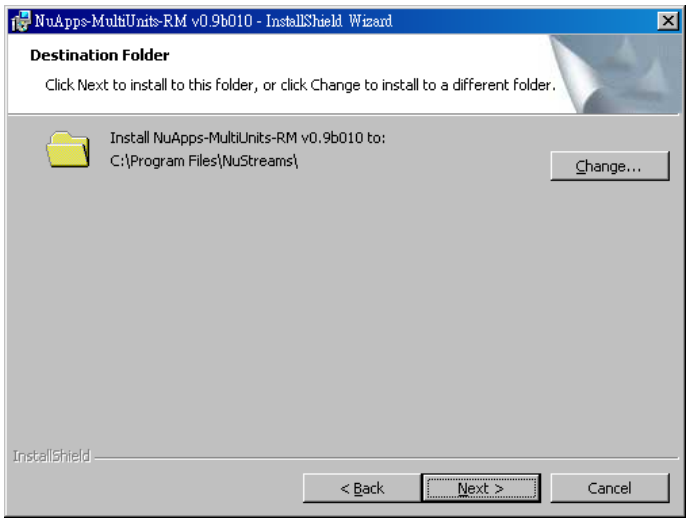


2. InstallShield Wizard is starting to install NuApps-MultiUnits-RM. If you would like to cancel installation, click **Cancel**, or click **Next** to continue installation.

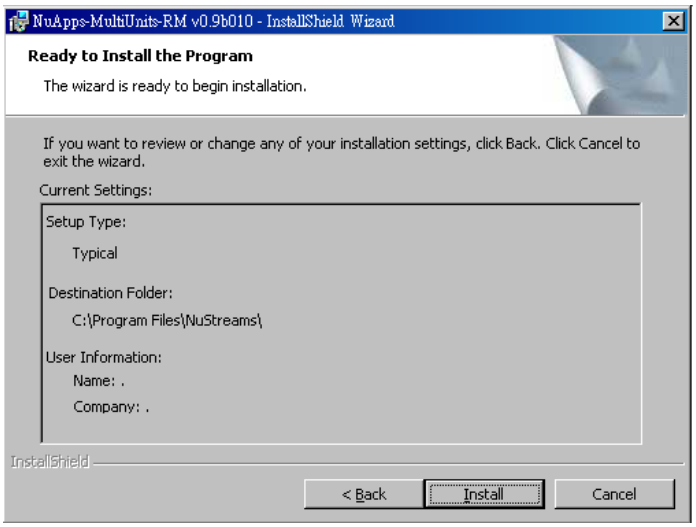
3. After reading the **End User License Agreement**, please select **I accept the terms in the license agreement**, and **Next** to proceed with the installation, or click **Cancel** to cancel installation. You may also click **Back** to return to the previous installation window.

***Note: Due to different Operating Systems or system settings, warning messages might pop up when installing NuApps-MultiUnits-RM. When this occurs, please choose the options on these pop-up warning messages that allow you to continue installing NuApps-MultiUnits-RM.**

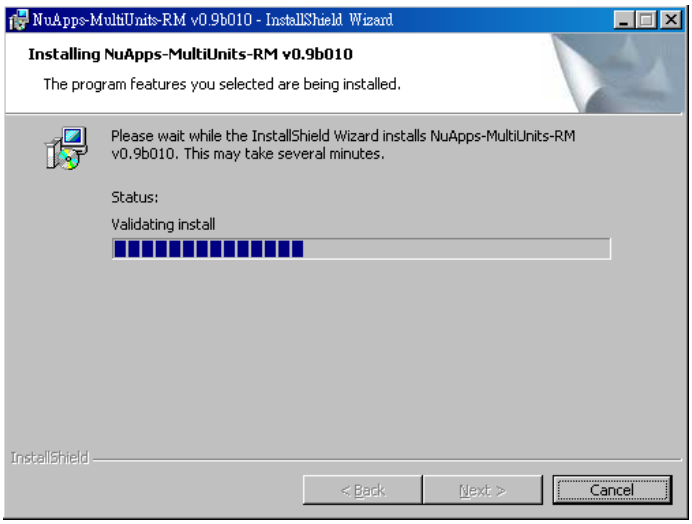
Installing NuApps-MultiUnits-RM



4. Click the **Change…** button to install the program to another folder, or click **Next** button to install the program into the default destination folder, and then continue next step. Click **Back** button to go back to the previous step to modify.

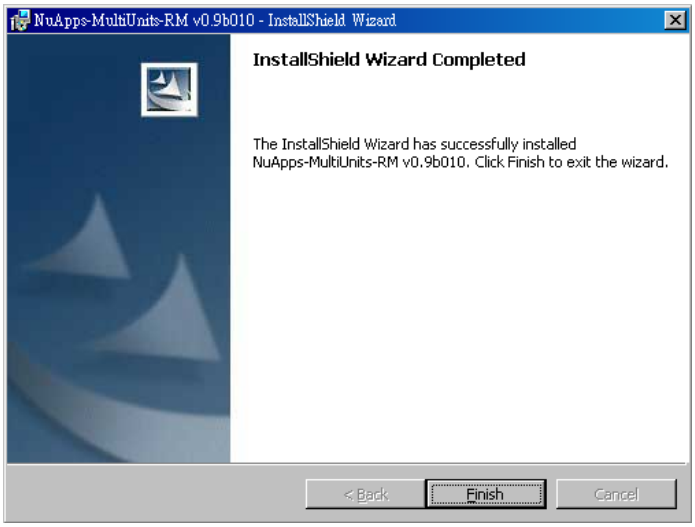


5. This window will show the settings you made so far, if anything must be amended, please click **Back** button to go back to the previous step to modify. Click **Install** button to continue.

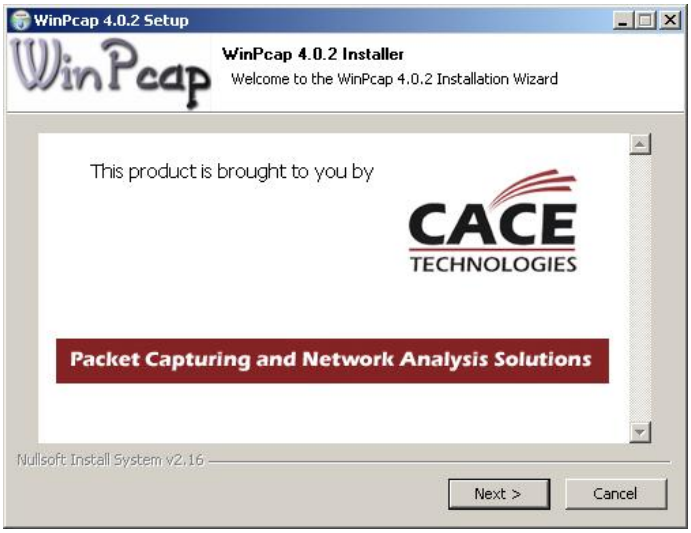


6. InstallShield Wizard is installing NuApps-MultiUnits-RM.

Installing NuApps-MultiUnits-RM



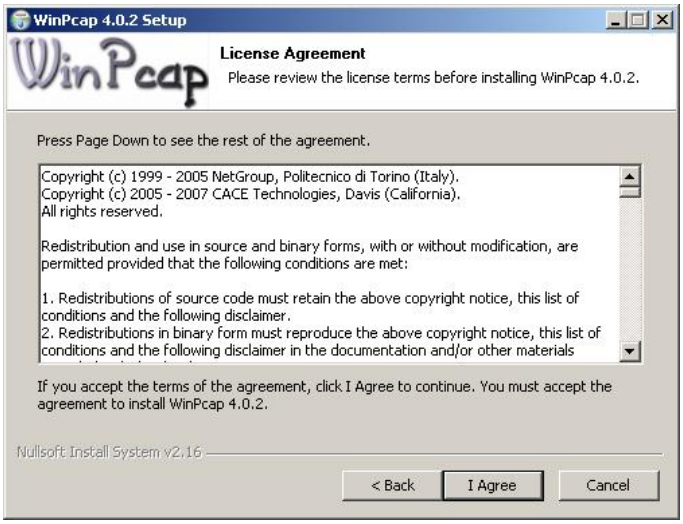
7. NuApps-MultiUnits-RM installation completes. Click **Finish** button to exit.



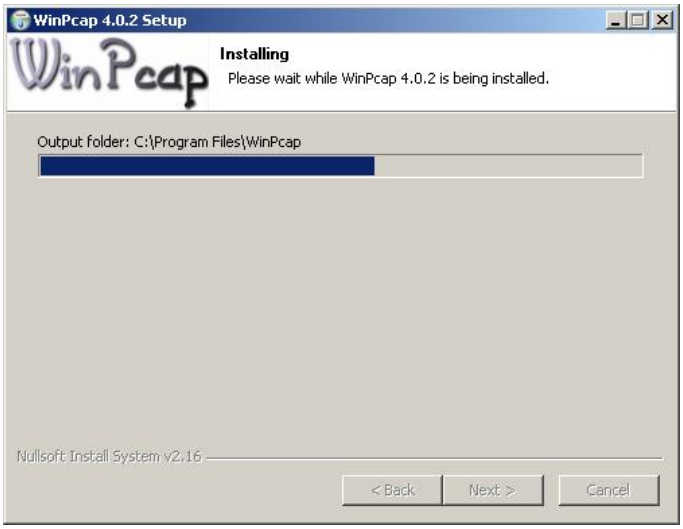
8. If your PC does not have **WinPcap** installed, a **WinPcap Installer** window will pop up. Click **Next** button to get ready to install, or click **Cancel** button to stop. For more detail information regarding to **WinPcap**, please visit their webpage at: www.winpcap.org.

9. WinPcap is preparing to install, or click **Cancel** button to stop at any time.

Installing NuApps-MultiUnits-RM



10. Review the license agreement before installing. Click **I Agree** button to continue. It is necessary to accept the agreement to install WinPcap.

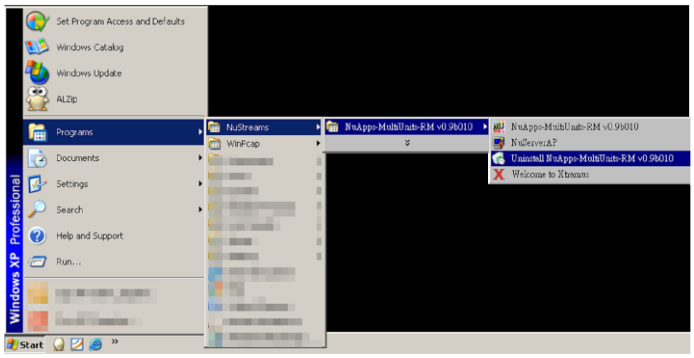


11. WinPcap is installing.

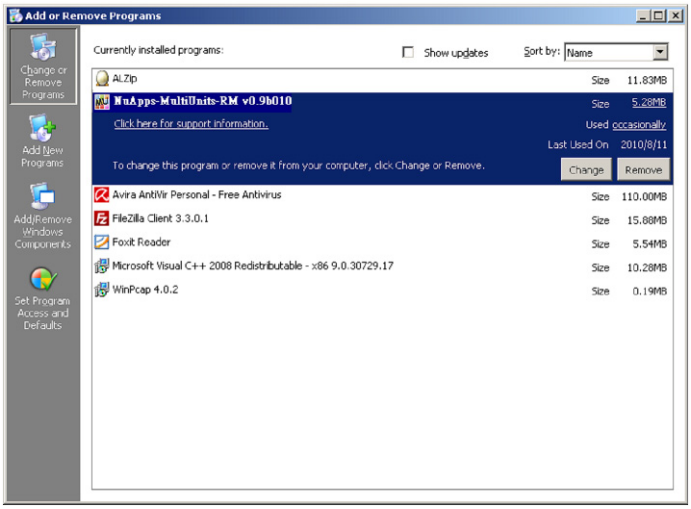
12. WinPcap installation completes. Click **Finish** button to close the wizard.

You can uninstall NuApps-MultiUnits-RM by:

Uninstalling NuApps-MultiUnits-RM



- Click **Start → Programs → NuStreams → NuApps-MultiUnits-RM → Uninstall NuApps-MultiUnits-RM**

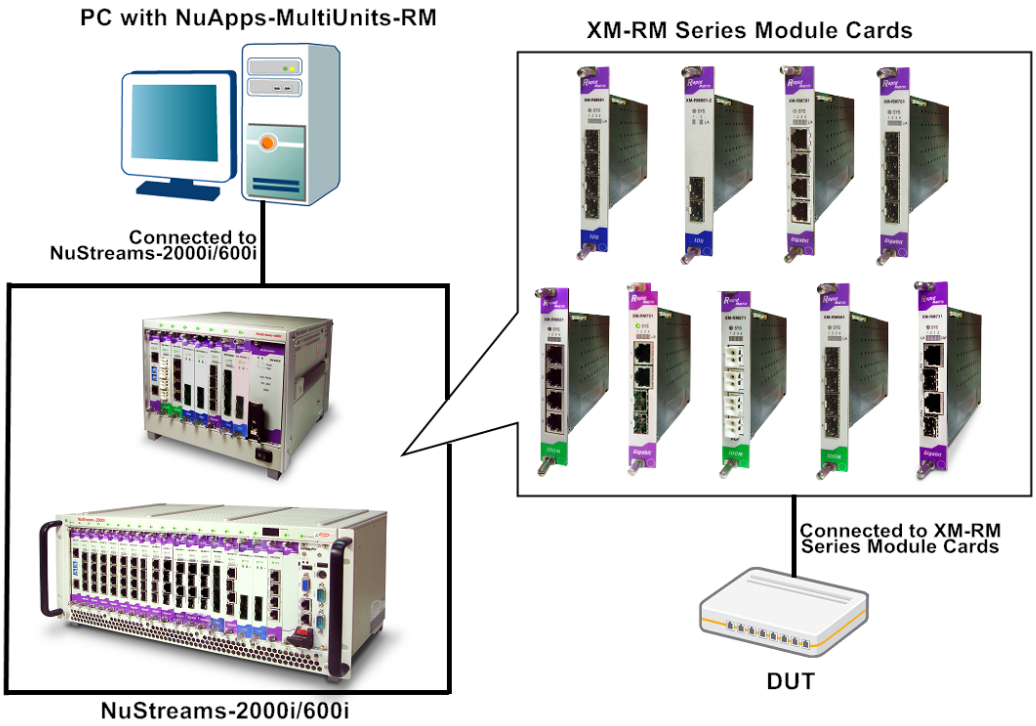


- Go to the **Control Panel**, choose **NuApps-MultiUnits-RM** from installed program list, and click **Remove** to uninstall.

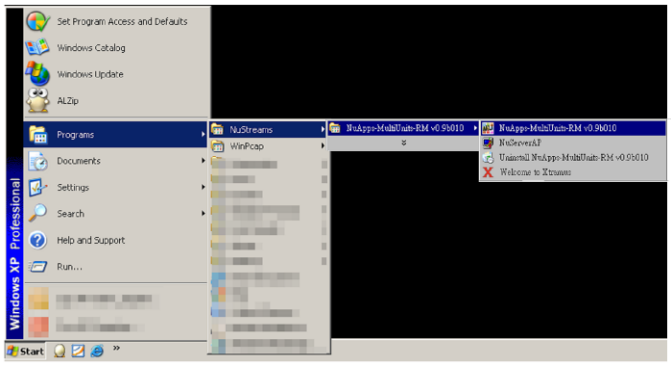
3. NuApps-MultiUnits-RM Function Overview

3.1. Starting NuApps-MultiUnits-RM

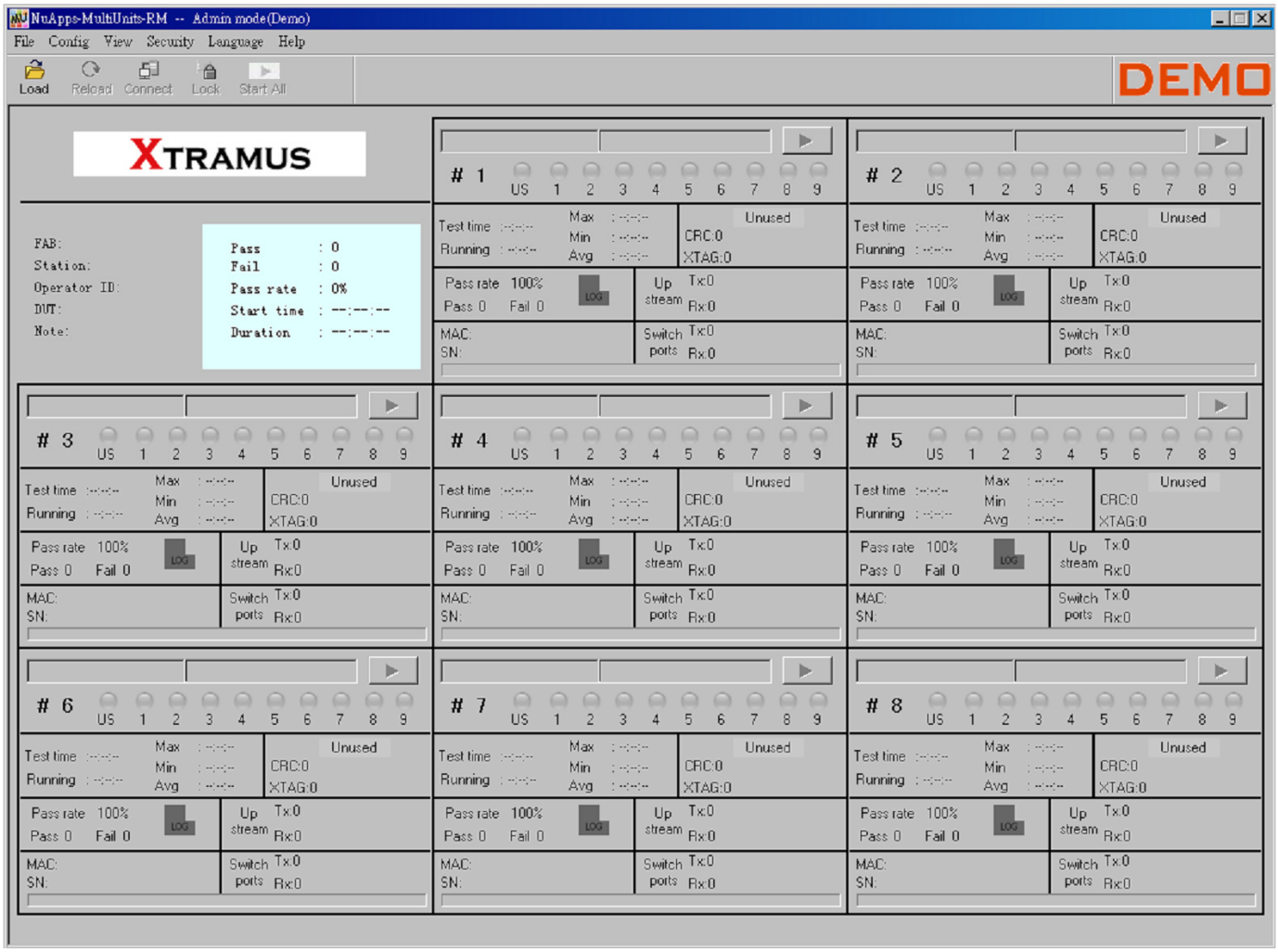
Before starting NuApps-MultiUnits-RM, the DUT, your PC, and NuStreams-2000i/600i shall be connected properly as shown in the figure down below:



There are two ways to start NuApps-MultiUnits-RM:

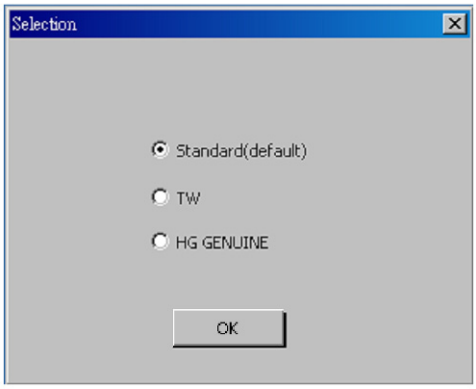
Starting NuApps-MultiUnits-RM	
	➢ Click **Start** → **Programs** → **NuStreams** → **NuApps-MultiUnits-RM**
	➢ Double-click NuApps-MultiUnits-RM icon located on your PC's desktop.

If your PC is not connected with NuStreams-2000i/600i, you can still run NuApps-MultiUnits-RM under **Demo Mode**. Almost all NuApps-MultiUnits-RM ‘s functions are available under Demo Mode. However, please note that **Demo Mode is for system demo purposes only**, and does not serve for any testing at all.



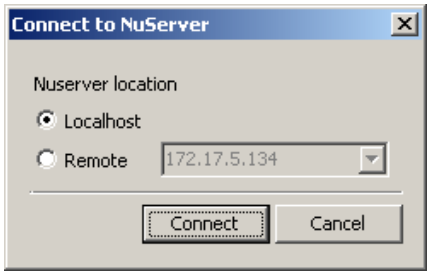
Please follow the steps down below to start NuApps-MultiUnits-RM and NuServer properly.

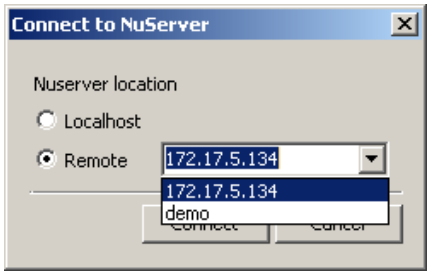
Starting NuServer / NuApps-MultiUnits-RM



When you activate the NuApps-MultiUnits-RM, the first step is to choose the right version of interface. Please choose the **Standard (default)** and click **OK** button to proceed.

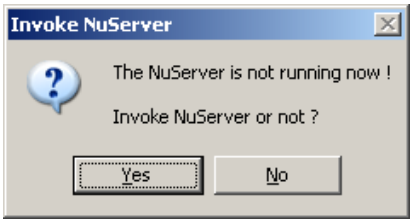
Note: If you chose a wrong interface, you can go to **C:\Program Files\NuStreams\NuApps-MultiUnits-RM v1.0bXXX** and double click the **config.txt** notepad to modify manually the correct interface. Please modify the current **Baron** to **OnInputDlg=0** for standard interface.



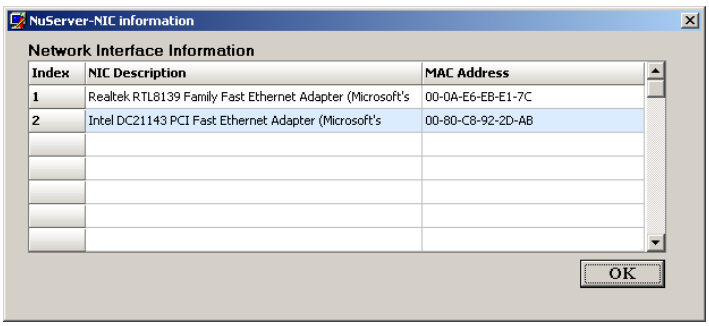


When starting NuApps-MultiUnits-RM, a "**Connect to NuServer**" window will pop up and ask how you are going to connect to NuServer.

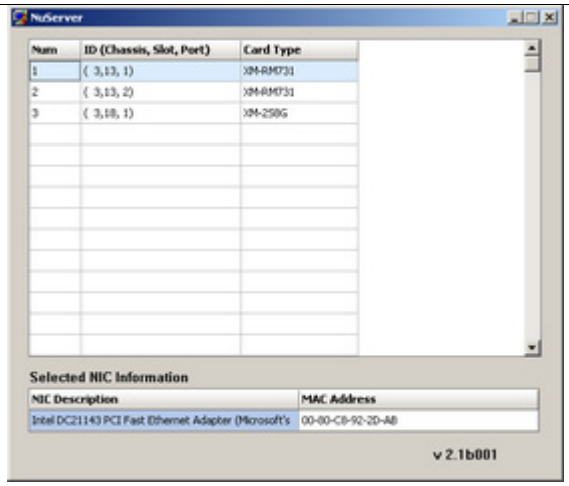
- **Local Host:** Choose this option when you're running NuApps-MultiUnits-RM from NuStreams-2000i IPC module or a PC that's connected to NuStreams-2000i/600i via an RJ45 cable.
- **Remote:** Choose this option when you're running NuApps-MultiUnits-RM from other PC located on the network. Choose the IP address which is assigned from NuStreams-2000i/600i from the scroll-down menu, or choose **demo** to enter NuApps-MultiUnits-RM's Demo Mode.
- **Connect/Cancel:** Click the Connect/Cancel button to connect to NuStreams-2000i/600i or cancel starting NuApps-MultiUnits-RM.



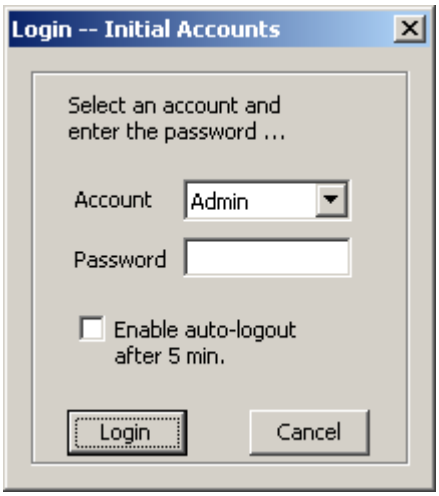
If NuServer is not running while starting NuApps-MultiUnits-RM, a window will pop up and ask if you would like to run NuServer or not. Please click **YES** to continue.



A "**NuServer-NIC Information**" window will pop up. Please select the NIC (Network Interface Card) which is connected to NuStreams -2000i/ 600i's from the **Network Interface Information** table, and click **OK**. If you're using NuStreams-2000i's IPC module, please choose "**Realtek RTL8139 Family Fast Ethernet**".



NuServer will connect to the daughter boards, and NuApps-MultiUnits-RM will start as well.



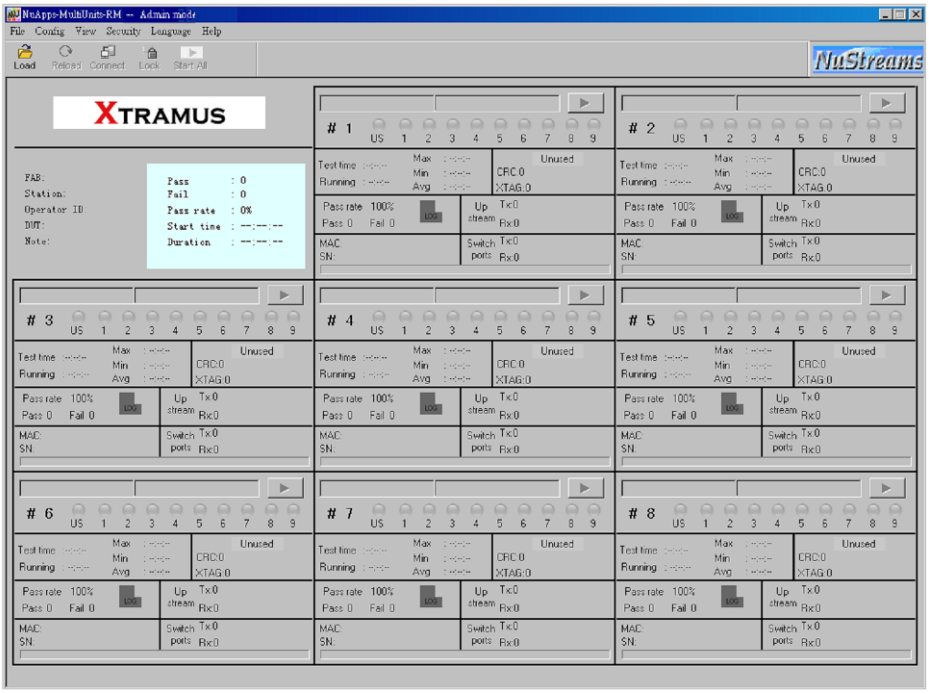
For security reasons, NuApps-MultiUnits-RM requires Account/Password to login. The default Account/Password is:

- **Account: Admin**
- **Password: xtramustech**

Please note that **the password is case-sensitive**, and shall be changed as soon as you login for the first time.

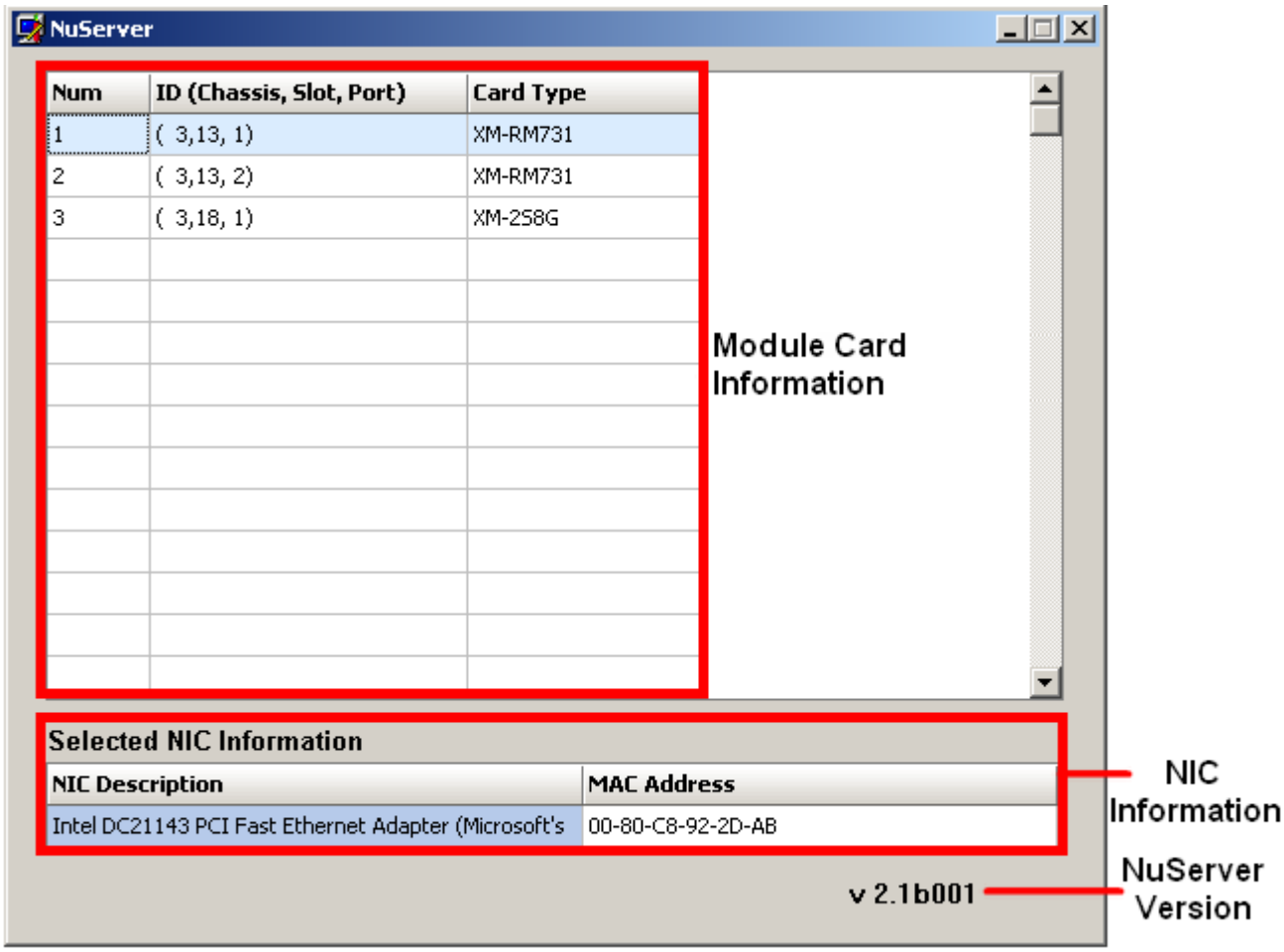
- **Enable auto-logout after 5 min:** Enable this function so NuApps-MultiUnits-RM shall automatically logout after **5** minutes.

Login/Cancel: Click Login/Cancel button to login or cancel.



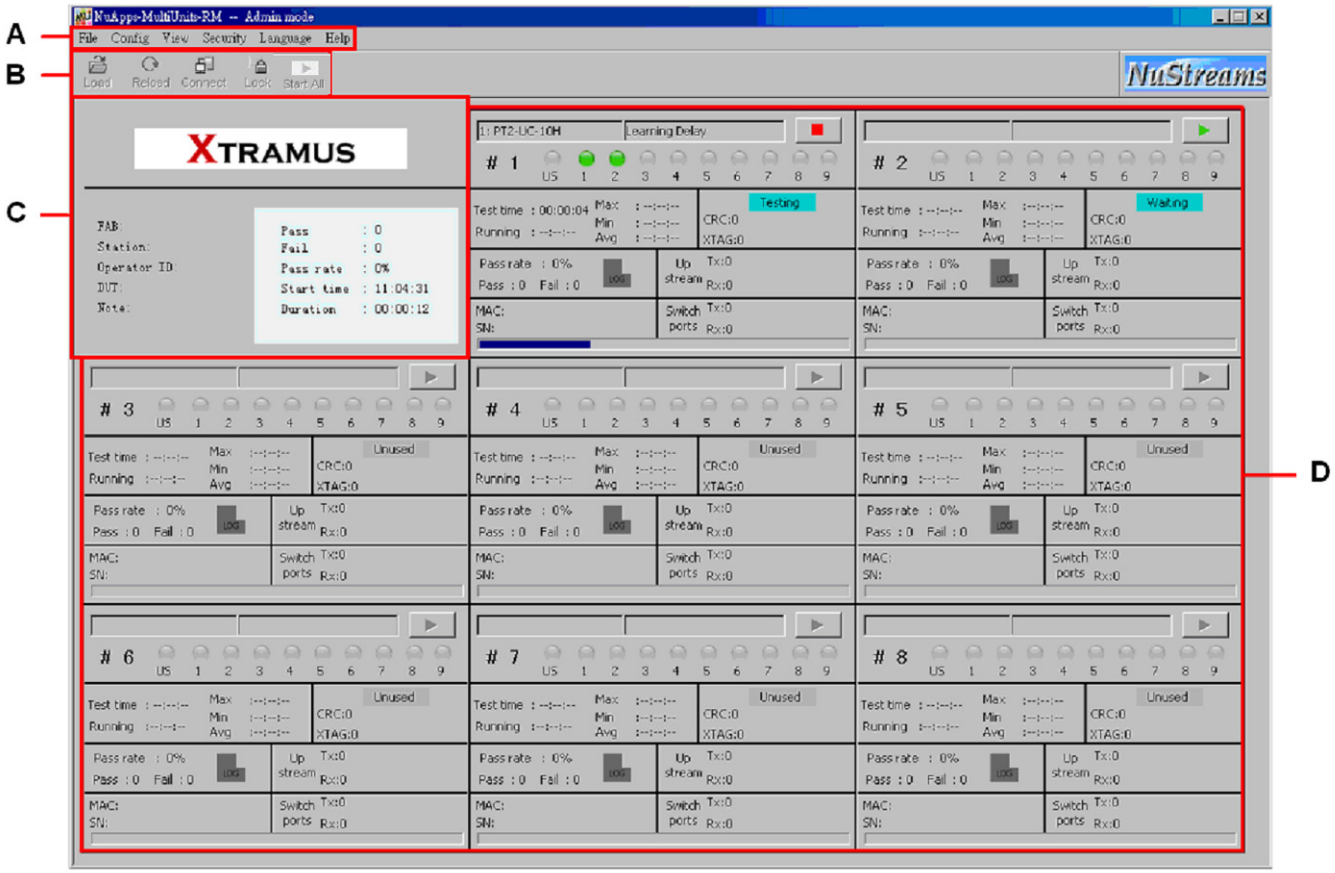
You now have access to NuApps-MultiUnits-RM's main display window.

3.2. NuServer Window



Description	
Module Card Information	This section displays the information regarding to the model cards that are installed on NuStreams-2000i/600i. Model Card IDs are showed as the format of **(X, Y, Z)** while X is the number of the chassis (which is displayed on NuStreams-2000i/600i), Y is the slot number where this model card is installed, and Z is the available port number located on the model card.
NIC Information	This section displays the detail information (including NIC Model name, NIC's MAC address) regarding to the selected NIC.
NuServer Version	This section displays the version of your NuServer.

3.3. NuApps-MultiUnits-RM Main Window

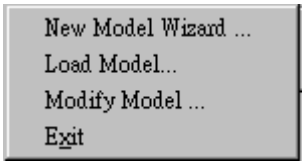


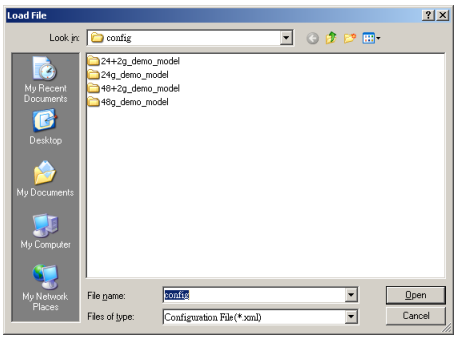
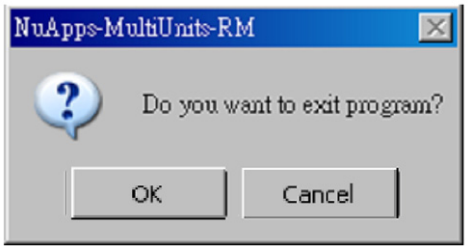
Function Descriptions		
A	**Menu Bar**	The Menu Bar allows you to manage test model settings, view test log/ model information, set/reset NuApps-MultiUnits-RM password, change language displayed, and change the User Interface style. It also shows the requirement to run this software, the version of this software and also the link to access our website.
B	**Quick Launch Buttons**	The Quick Launch Buttons allow you to load/reload test model settings, connect to the NuServer, lock test model and start all the task running.
C	**Status Window**	Shows the information of Fabrication (**FAB**), **Station**, **Operator ID**, device under test (**DUT**), any **Note** you set before, **Pass/Fail** tasks, tasks **Pass rate**, NuApps-MultiUnits-RM **Start time** and **Duration**.
D	**Task Running Windows**	This section contains 8 windows, each window shows its general information/status of the tasks that are currently running. The testing result will be shown by clicking the **LOG** button of each window.

3.3.1. Menu Bar

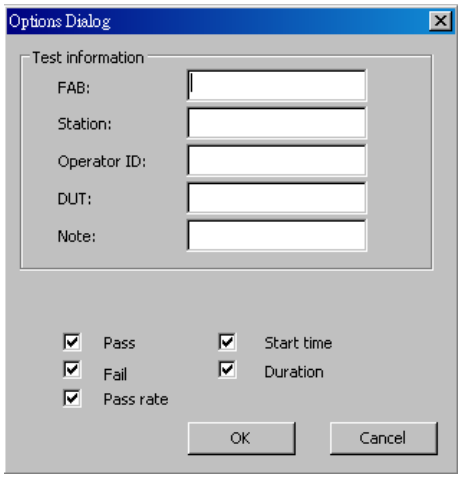
NuApps-MultiUnits-RM Menu Bar includes configuration options such as **File**, **Config**, **View**, **Security**, **Language**, and **Help**. Please refer to the sections down below for detail information regarding to each configuration option.

A. File



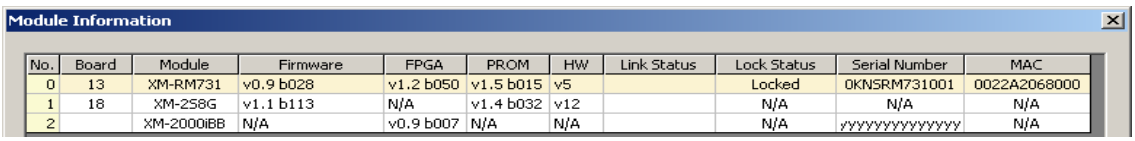
File Menu Bar Overview		
New Model Wizard	Choose this option to start the New Model Wizard. The New Model Wizard allows the users to set testing options for DUT. For detail descriptions regarding to the New Model Wizard and its settings, please refer to"**4. Creating Task via New Model Wizard**".	
Load Model		Load a previously-saved configuration file and applies these settings to NuApps-MultiUnits-RM. All the configurations you've made via New Model Wizard will be saved as a "***.xml**" file, along with several "***.cfg**" files. Please note that these "***.cfg**" files contain test settings as well. Deleting them will cause your "***.xml**" file unable to load properly.
Modify Model	Choose this option to make changes to the current test settings for DUT. After clicking this option, the previous Model Wizard will open again to allow modifying on the settings.	
Exit		A prompt pop-up window will ask if you are sure to exit NuApps-MultiUnits-RM. Click **OK** to exit NuApps-MultiUnits-RM, or click **Cancel** to cancel.

B. Config

Config Menu Bar Overview		
General Information		Click the **General Information** option to pop up the **Operation Dialog** window. You may type information for **FAB**, **Station**, **Operator ID**, **DUT** and **Note**. Please click **OK** button to save the settings or click **Cancel** to exit without saving the settings. You can also select Pass/Fail/Pass rate/Start time/ Duration to enable be displayed on main interface.
Reset Start Time	Click this option to refresh the **Duration** timer. Please refer to the **3.3.3. Status Window** for more information about **Duration**.	

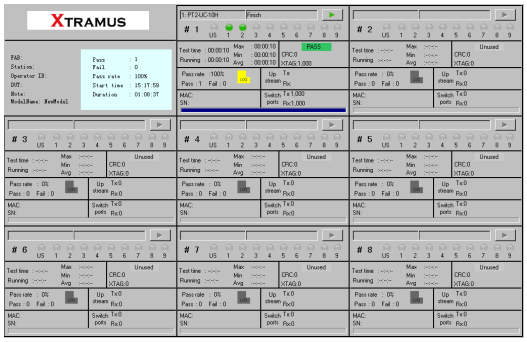
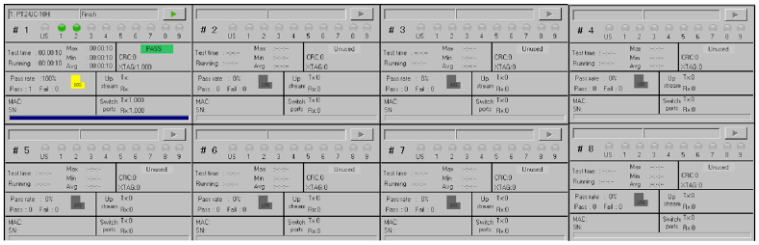
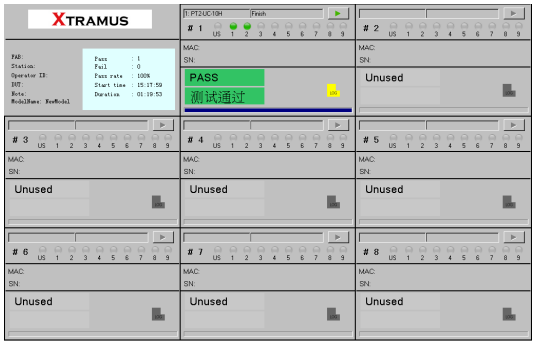
***Note: the option Input Information is not available for standard interface.**

C. View

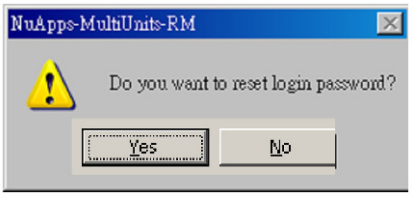
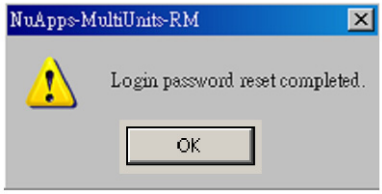
View Menu Bar Overview	
Log Folder	Choosing **Log Folder** and the folder where all the saved test logs of the current test model will be open.
Model Folder	Choosing **Model Folder** and the folder where all the DUT model configuration files are saved will be open.
Module Information	 The Module Information window displays all the module cards that are installed on NuStreams-2000i/600i and their detail information. To close the Module Information window, click **OK** button.

Module Information

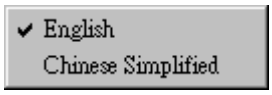
No.	Board	Module	Firmware	FPGA	PROM	HW	Link Status	Lock Status	Serial Number	MAC
0	13	XM-RM731	v0.9 b028	v1.2 b050	v1.5 b015	v5		Locked	0KNSRM731001	0022A2068000
1	18	XM-2S8G	v1.1 b113	N/A	v1.4 b032	v12		N/A	N/A	N/A
2		XM-2000iBB	N/A	v0.9 b007	N/A	N/A		N/A	yyyyyyyyyyyyy	N/A

View Menu Bar Overview	
Tool Bar	Enable or disable this function to show or hide Quick Launch Buttons bar. For more details about the Quick Launch Buttons, please refer to the **3.3.2. Quick Launch Buttons**.
UI Style	You can change the User Interface from this option. The **UI Style** available for selection includes **Standards 3*3(default), Standards 4*2, Simple 3*3 and Simple 4*2**. For more details about the UI Style, please see the figure down below for each User Interface: • **Standards 3*3(default)**  • **Standards 4*2**  • **Simple 3*3**  • **Simple 4*2**

D. Security

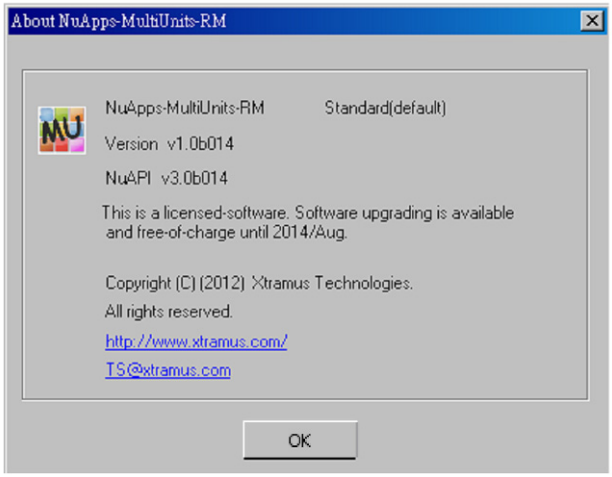
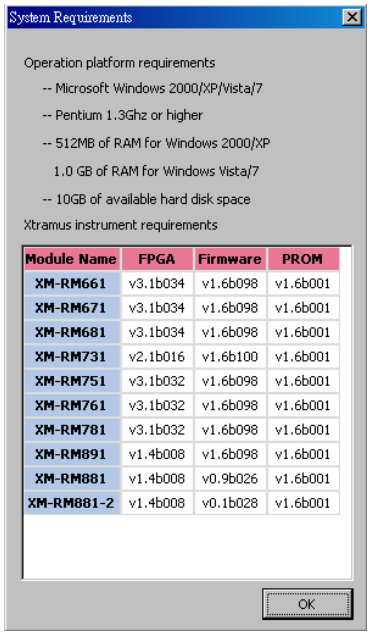
Security Menu Bar Overview	
Logout	Logout from Admin Mode and switch NuApps-MultiUnits-RM to Operator Mode.
Login/Change Account	Login to the Admin Mode.
Change Password	 You can change the password for Admin Mode here. For security reasons, it is recommended to change NuApps-MultiUnits-RM's password after your first login. • **Old Password:** Enter the old password here. • **New:** Enter the new password here. The new password should be **6~12** characters and mustn't contain special symbols. • **Confirm:** Please type your new password again for confirming. • **OK:** Apply all the changes you've made and apply. • **Cancel:** Cancel and abandon all the changes you've made.
Reset Password	  If you forget NuApps-MultiUnits-RM's Admin Mode password, you can reset the password to the default password "**xtramustech**". Click YES to reset the login password (or NO to cancel), and click OK to complete.
Always login in OP Mode	Every time when NuApps-MultiUnits-RM starts running, it will be running under Operator Mode.

E. Language



Language Menu Bar Overview	
English/ Chinese Simplified	NuApps-MultiUnits-RM has **2** different languages for its UI available. You can set the language of UI to either **English** or **Simplified Chinese**.

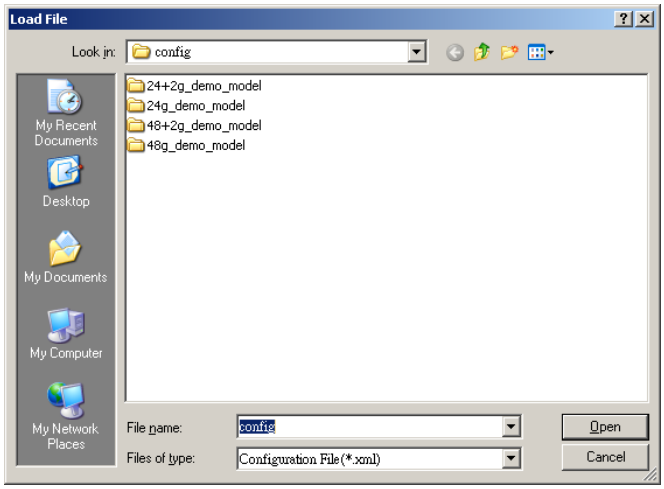
F. Help

Help Menu Bar Overview		
About NuApps-MultiUnits-RM…		An "**About**" window will pop up and show detailed system information.
Xtramus Web	Click this option to access to Xtramus official website.	
System Requirements		A "**System Requirements**" window will pop up and show the requirements for your PC and the FPGA/Firmware/PROM version limit of the module cards. Click the **Ok** button to exit the "**System Requirements**" pop up window.

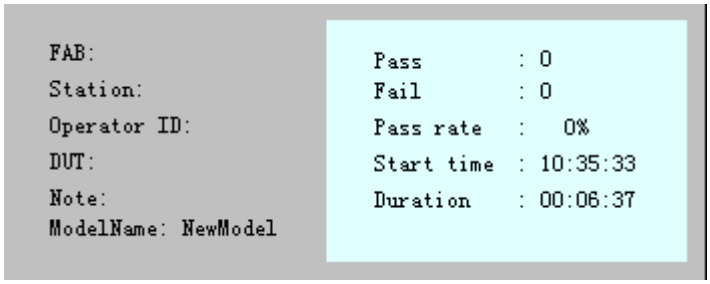
Module Name	FPGA	Firmware	PROM
XM-RM661	v3.1b034	v1.6b098	v1.6b001
XM-RM671	v3.1b034	v1.6b098	v1.6b001
XM-RM681	v3.1b034	v1.6b098	v1.6b001
XM-RM731	v2.1b016	v1.6b100	v1.6b001
XM-RM751	v3.1b032	v1.6b098	v1.6b001
XM-RM761	v3.1b032	v1.6b098	v1.6b001
XM-RM781	v3.1b032	v1.6b098	v1.6b001
XM-RM891	v1.4b008	v1.6b098	v1.6b001
XM-RM881	v1.4b008	v0.9b026	v1.6b001
XM-RM881-2	v1.4b008	v0.1b028	v1.6b001

3.3.2. Quick Launch Buttons

The Quick Launch Buttons allow you to Load/Reload DUT Model Settings, Connect to NuServer, or Lock a Module Card on the Chassis.

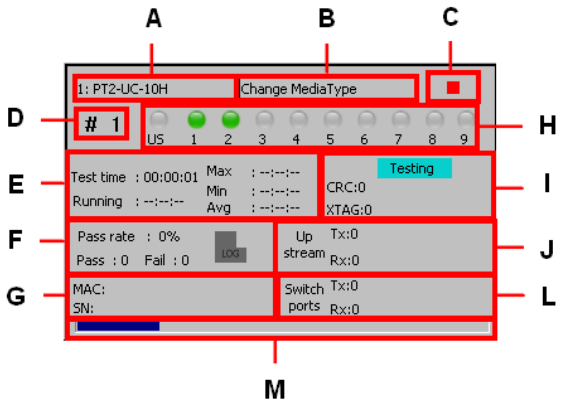
Quick Launch Buttons	
Load	 The **Load** Quick Launch Button serves the same function as **Load Model** on the Menu Bar. Clicking this button allows loading a previously-saved configuration file and applies these settings to NuApps-MultiUnits-RM. All the configurations you've made via New Model Wizard will be saved as a "***.xml**" file, along with several "***.cfg**" files. Please note that these "***.cfg**" files contain test settings as well. Deleting them will cause your "***.xml**" file unable to load properly.
Reload	NuApps-MultiUnits-RM will reload the current opened DUT model setting and apply all these settings.
Connect	The **Connect** button allows you to re-connect to the NuServer if it is not connected while initializing NuApps-MultiUnits-RM.
Lock	Clicking the **Lock** button allows the user to lock a specific module card installed on a NuStreams-600i/2000i chassis.
Start All	Clicking the Start All button will allow to start all set task running.

3.3.3. Status Window



Status Window	
FAB	Shows the fabrication note.
Station	Shows the testing station.
Operator ID	Shows the user's ID.
DUT	Shows the Device Under Test.
Note	Shows the pre set notes.
ModelName	Shows the name of the model you set for the test.
Pass	The number of the pass window task.
Fail	The number of the fail window task.
Pass rate	The rate results from the total pass window task.
Start time	Shows the starting operation time based on the time clock of your PC.
Duration	Shows the time spent since the Start time.

3.3.4. Task Running Windows



Task Running Windows	
A	This field shows the current operating task.
B	This field shows the current status of your task.
C	You can Start or Pause the current task running.
D	The number order of your window.
E	Shows the **Maximum/Minimum/Average/Running** Test time.
F	Shows the total Pass/Fail task, the total Pass task rate and the **Log** (testing result) of the task.
G	Shows the MAC and S/N of your Device Under Test (DUT).
H	Those LED (1,2,3,…,9) show the connection status between your NuStreams-600i/2000i with your Device Under Test (DUT), where gray means disconnected, dark green means 10/100Mbps connection, bright green means up to 100Mbps connection and yellow LED means test fail. The **US** will only light during One-to-Many test.
I	This field shows the number of CRC errors, XTAG and also the current status of the windows tests, which the status includes **Unused, Waiting,Testing, Pass**, **Fail** and **Break off**.
J	Shows the Up Stream's **Tx/Rx** packet number.
L	Shows Switch ports' **Tx/Rx** packet number.
M	Progress Bar.

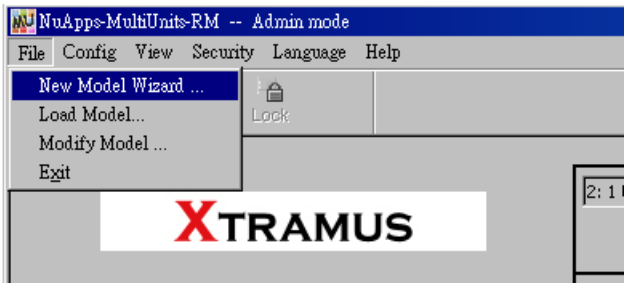
4. Creating Task via New Model Wizard

When performing tests on your DUT with NuApps-MultiUnits-RM for the first time, you have to create a new set of test settings for the DUT.

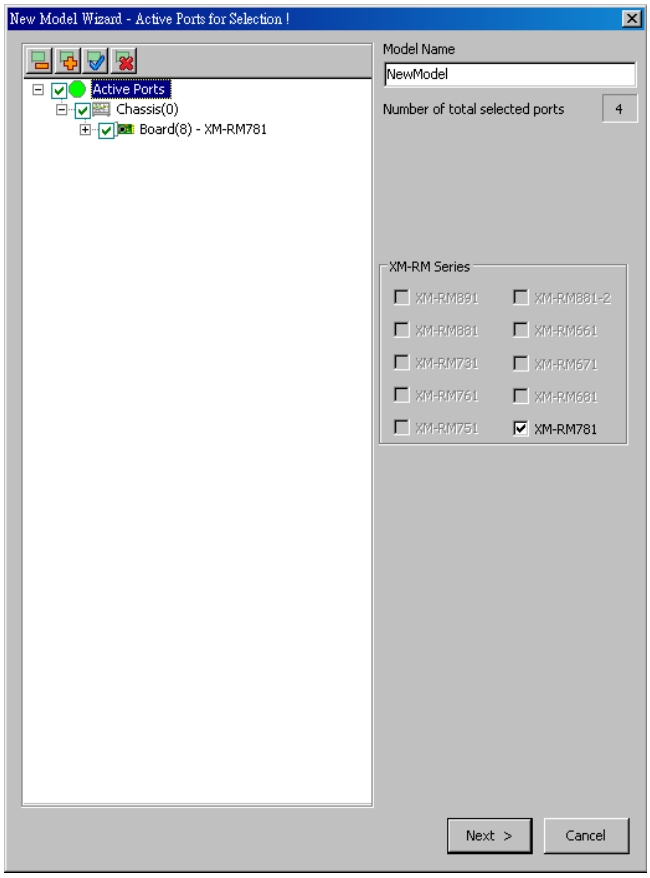
Before starting to create a new task via New Model Wizard, please be sure that:

- All module cards (such as XM-RM751, XM-RM761, or XM-RM781) are installed on chassis (such as NuStreams-2000i/600i) properly.
- The chassis (such as NuStreams-2000i/600i) is powered-on and is connected to a PC (or IPC module installed on NuStreams-2000i) according to "**3.1. Starting NuApps-MultiUnits-RM**".

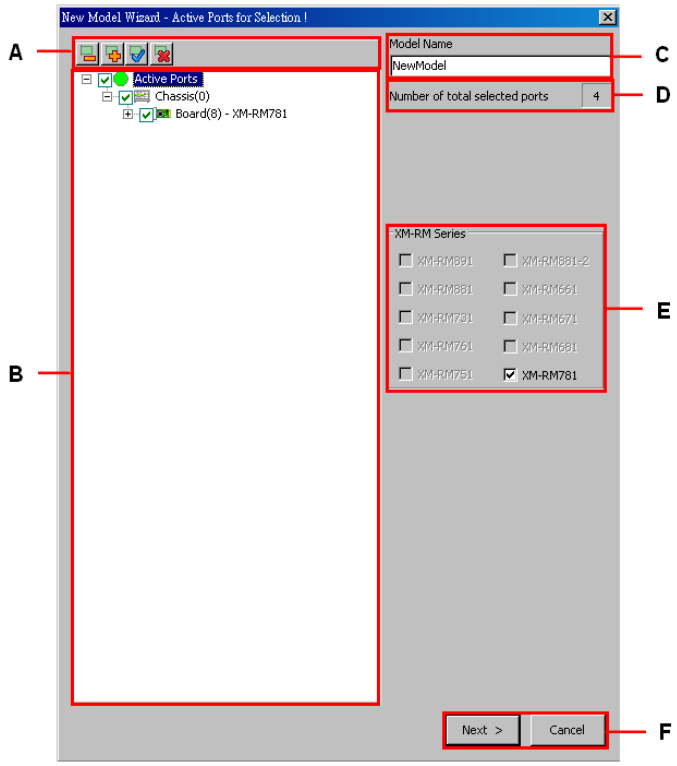
To start using New Model Wizard, please click **File** on the Menu Bar, and choose **New Model Wizard** as shown in the figure down below.



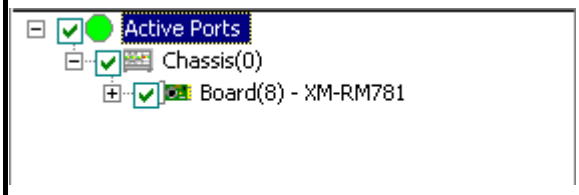
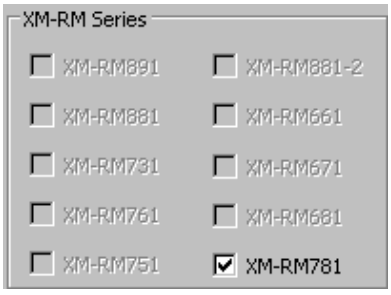
A "**New Model Wizard – Active Ports for Selection!**" window will pop up. All module cards that are installed on the chassis will be displayed here.



4.1. Selecting Active Ports from Installed Module Cards



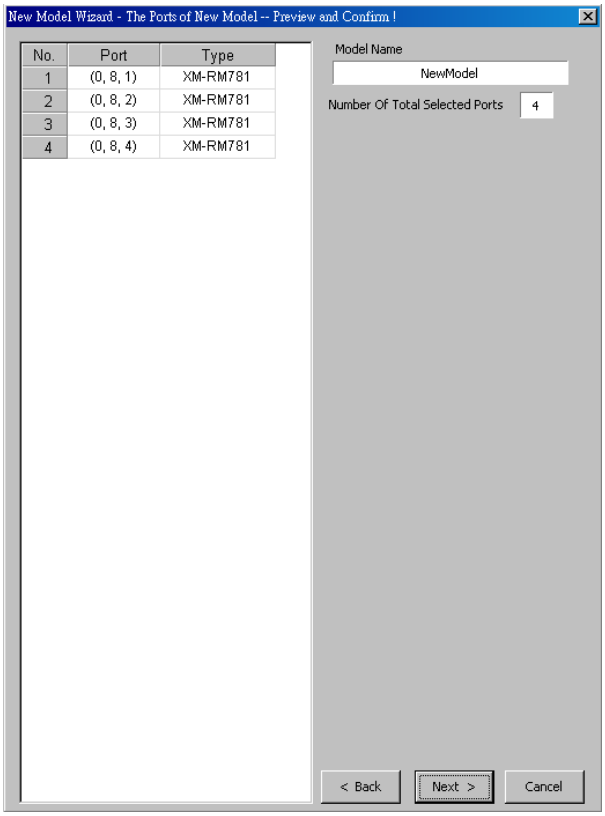
A. Tree Style Tab Buttons	
	These two buttons allow you to unfold/fold all the Active Port tree style tab displayed in **B**.
	These two buttons allow you to check/uncheck all the Active Port displayed in **B**.

B. Active Port Tree Style Tab & E. Module Card List	
	All the module cards, along with their Active Ports are listed here in this field. You can fold/unfold the tree style tab by clicking ⊟/⊞ icons. Also, you can check/uncheck the port by clicking ☑ icon. Also, you can check which module card and its Active Ports are activated for tests in **E. Module Card List** as well. Click the check box in front the module card you would like to activate/deactivate. 

C. DUT Model Name	
	You can input DUT's model name here in this field. Please note that a folder named after the model name you input here will be created under "**config**" folder inside NuApps-MultiUnits-RM's folder, and all the configuration files and test logs will be saved to that folder.

D. Active Port Count	
	This field display how many ports you've been activated for now.

F. OK/Cancel	
	Click this button to apply all the changes you've made and move on to the **Preview and Confirm** window.
	Click this button to abandon all the changes you've made and go back to the Main Window.

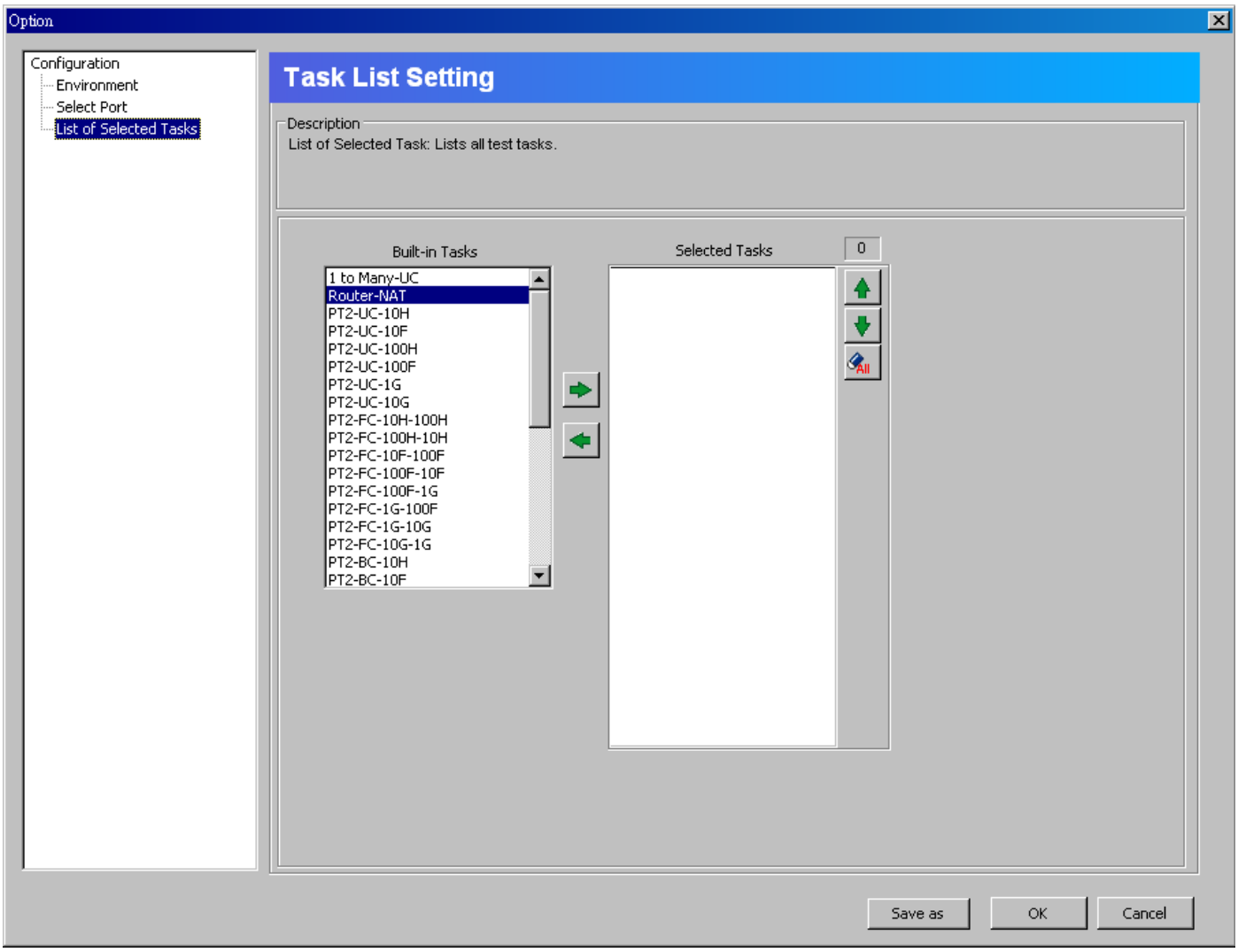


After finishing the module cards/Active Ports for the tests, you can review all the ports, module cards, and model name on **Preview and Confirm** window.

Click **Next >** to start making detail task settings or click **< Back** to go back to **Select Active Ports** window. Also, you can click **Cancel** to abandon all the changes you've made and go back to the Main Window.

4.2. Making Settings on Option – New Model Window

An **Option – New Model** window will show up after you've selected module cards and Active Ports. The **Option – New Model** window allows you to make detail test configurations.

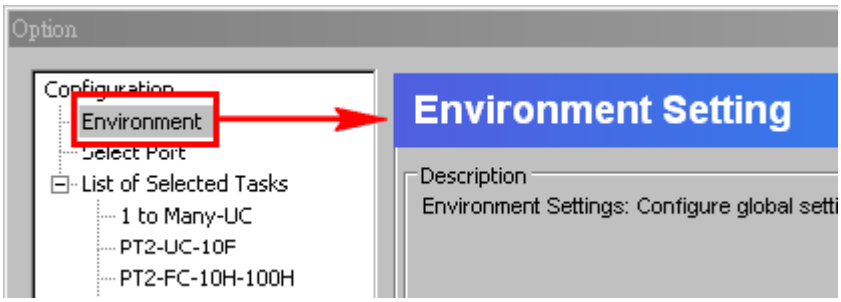


NuApps-MultiUnits-RM has two different kinds of configurations: **Environment Settings** and **Task List Settings**. All settings made in here can be saved by clicking **Save as** button, the settings will be saved in **XML** format.

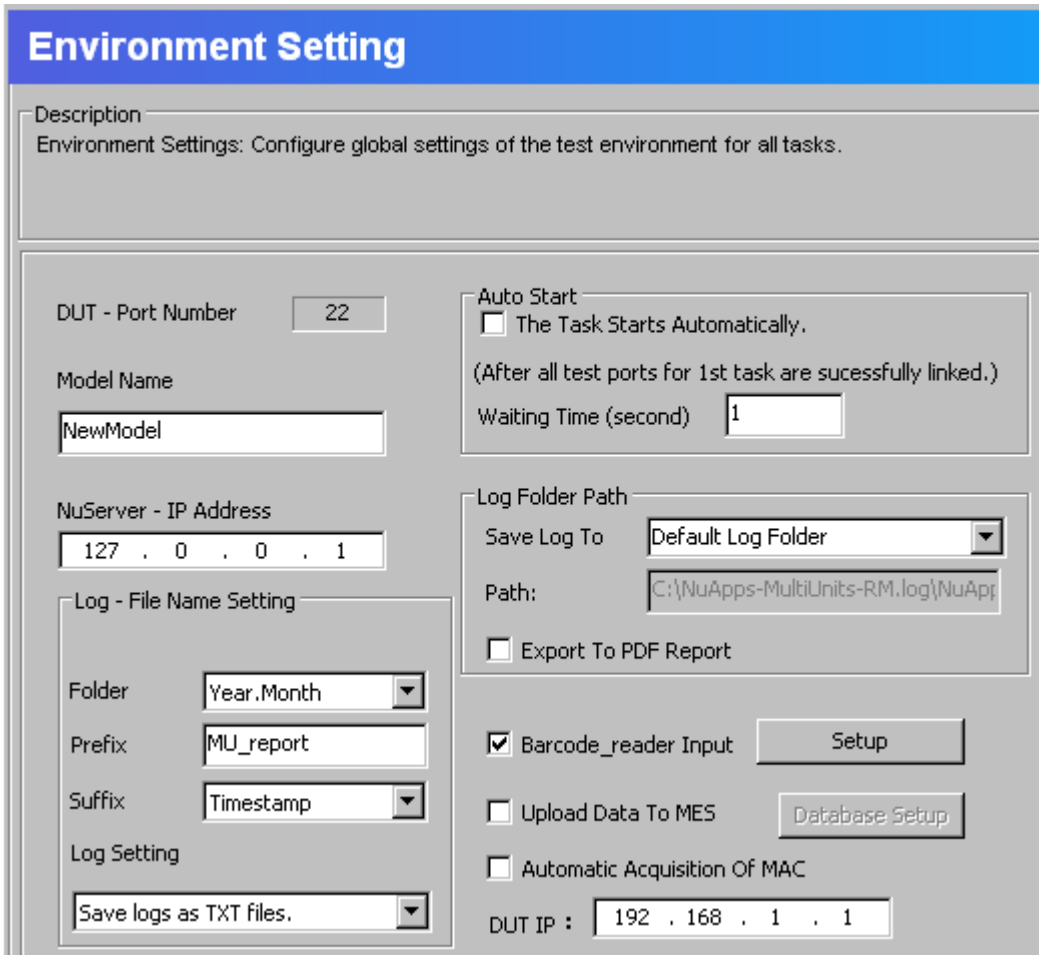
- **Environment Settings:** Configure global settings of the test environment for all tasks.
- **Task List Settings:** All test tasks are listed and categorized by groups. All tasks added to the **Selected Tasks** field will be listed under this category and can be configured in detail.

For more detail information and descriptions regarding to these settings, please refer to the sections down below.

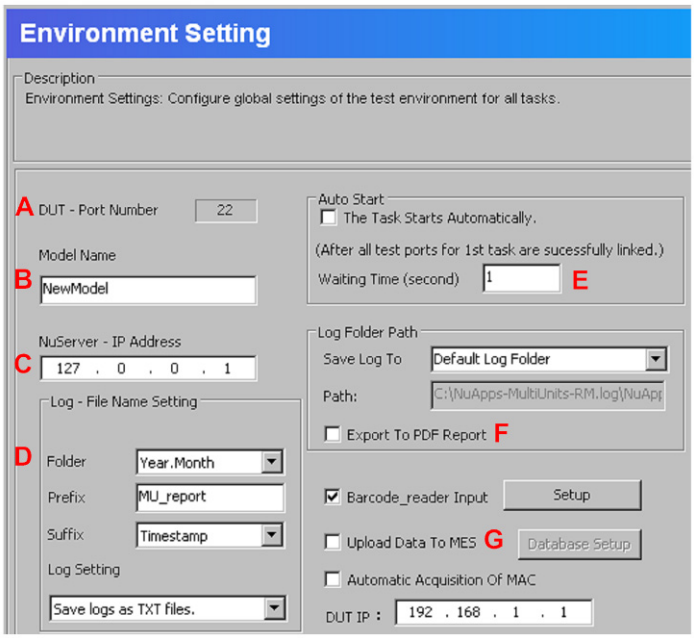
4.2.1. Environment Settings



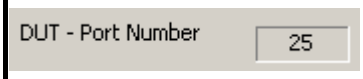
To access **Environment Settings** and start configuring global settings of the test environment for all tasks, please click **Environment** from the Configuration Tree Style Tab located on the left side of **Option – New Model** window as shown in the figure above.



Please note that all changes you've made here will be kept temporally and won't be lost if you switch to **Task List Settings**. However, you must click **OK** (located on the bottom-right part of the **Option – New Model** window to apply all the changes you've made.



A. DUT – Port Number

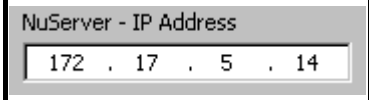


You can view the number of active ports in this field.

B. Model Name

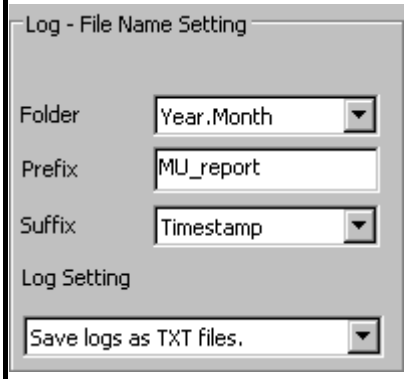
You can input or change DUT's model name here in this field.
Please note that a folder named after the model name you input here will be created under "**config**" folder inside NuApps-MultiUnits-RM's folder, and all the configuration files and test logs will be saved to that folder.

C. NuServer –IP Address



If you're running NuApps-MultiUnits-RM from other PC located on the network, you can set the IP address which is assigned from NuStreams-2000i/600i from the scroll-down menu or input the IP address manually.

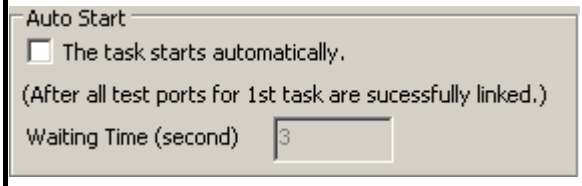
D. Log – File Name Setting



Test results will be saved as log files and named automatically after tests are completed.
NuApps-MultiUnits-RM creates test result logs and stores these logs automatically to folders named after the testing date. You can set the names that will be applied to these folders and test result logs here in **Log – File Name Setting**.

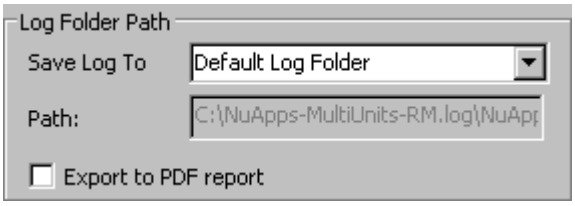
- **Folder:** You can set the name of the log folders as "**Year, Month**", or "**Year, Month, Date**".
- **Prefix:** You can input the prefix word for test result log names here.
- **Suffix:** You can set the style of the suffix word for test result log names here.
- **Log Setting:** You can choose the format of log as **TXT**, **XML** or both at same time.

E. Auto Start



NuApps-MultiUnits-RM will halt and wait for further instructions after the current running task is completed. You can click the check- box in this section so that NuApps-MultiUnits-RM will start the next task automatically. Also, you can set how many seconds shall NuApps-MultiUnits-RM be waiting before starting the next task in the field down below (**Waiting Time**).

F. Log Folder Path

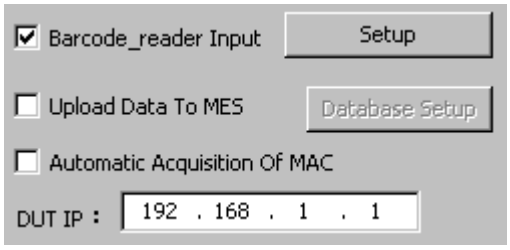


As mentioned in "**D. Log – File Name Setting**", NuApps-MultiUnits-RM creates test result logs and stores these logs automatically to designated folders.
You can set where you want to save the test logs by the scroll-down menu.

- **Default Log Folder:** Test logs will be saved to the default log folder.
- **DUT's Model Folder:** Test logs will be saved to where DUT test settings are saved.
- **User Defined Folder:** Test logs will be saved to the designated file path you input in the **Path** field down below.

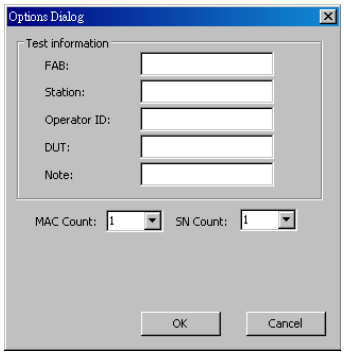
If you enable **Export to PDF report function**, you will be able to save the running result report in PDF format.

G. Others settings



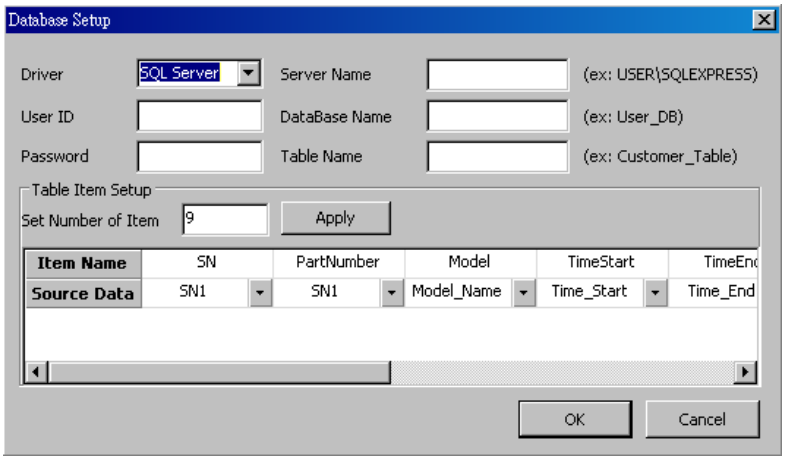
By connecting a barcode reader to your PC, you can scan pre-defined barcodes with the barcode reader. Information such as **DUT Task Settings**, **Operator ID** and **DUT MAC Address** can be read by barcode reader and input into NuApps-MultiUnits-RM.

Besides, you can enable the **Automatic Acquisition Of MAC** function for system to search for you the MAC address. And also you can set manually the device under test's IP from **DUT IP**.



If you click the **Setup** button, an **Options Dialog** window will pop up, which allows you to type your preference on **FAB, Station, Operator ID, DUT** and **Note**. Besides, you can set the number count of your DUT's **MAC** address and **S/N**.
Please click the **Ok** button when you are finished with the settings, or click **Cancel** to exit this window without saving.

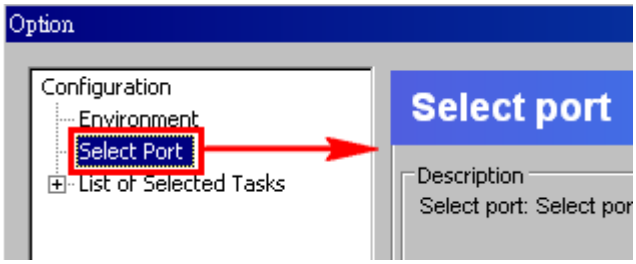
G. Others settings



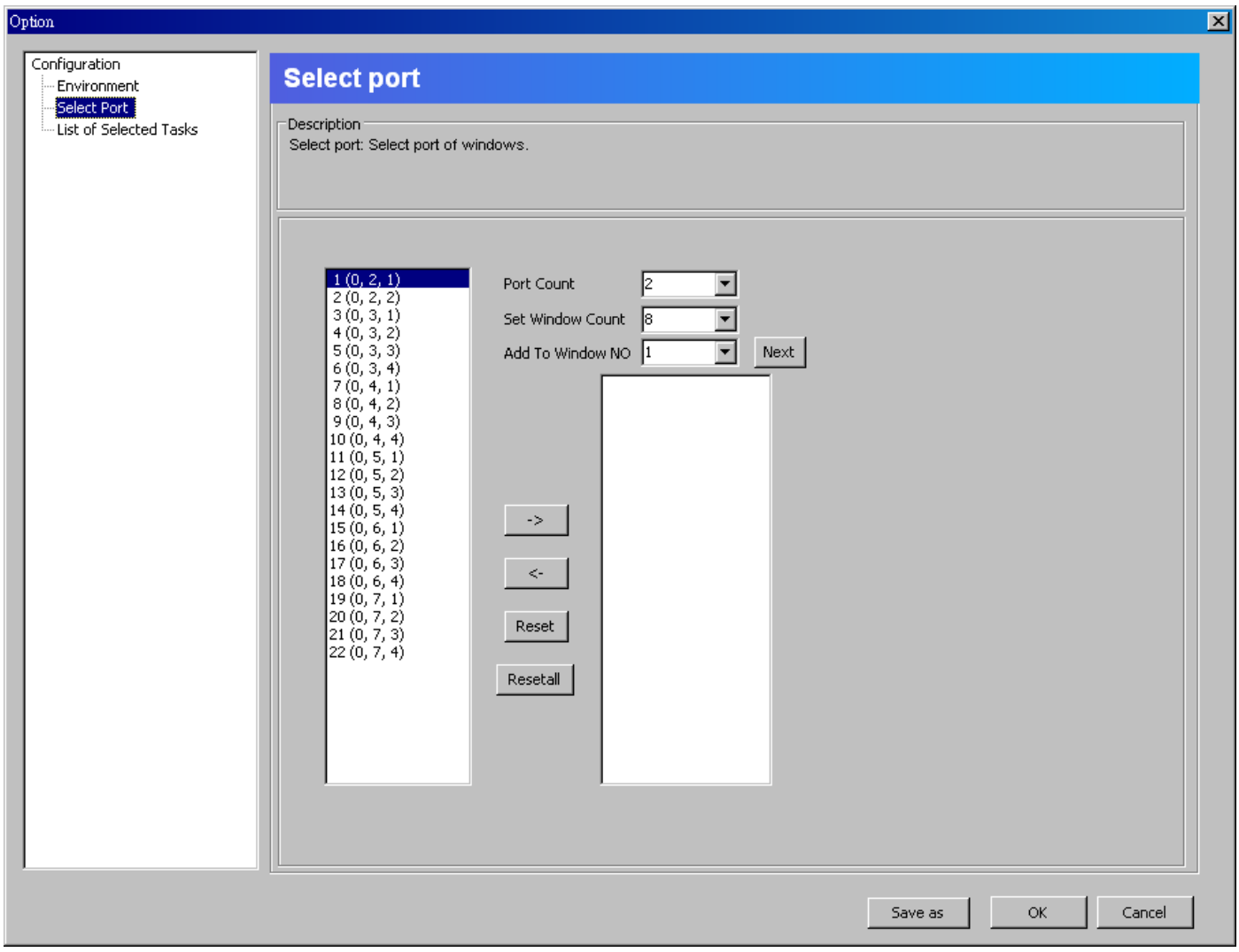
If you enable the **Upload Data to MES** function, the **Database Setup** button will be available. Clicking the **Database Setup** button will pop up a **Database Setup** window for settings.
The **Database Setup** window allows you to set your **Driver Type** and allows you to define your **User ID**, **Password**, **Server Name**, **Database Name** and **Table Name**.
Besides, you can also **Set Number of Item** (up to 20 items) to be displayed and click **Apply** button to confirm. You can define a name for each **Item Name**'s field, and also scroll down each **Source Data**'s field to indicate it as **FAB**, **SN1**, **OP_ID**, **Time_Start**, **Time_End**, **Time_Used**, **Model_Name**, **DUT_MAC** or **Final_Result**.

Note: Currently, for Driver settings there is only SQL Server option available for selection.

4.2.2. Select Port Settings



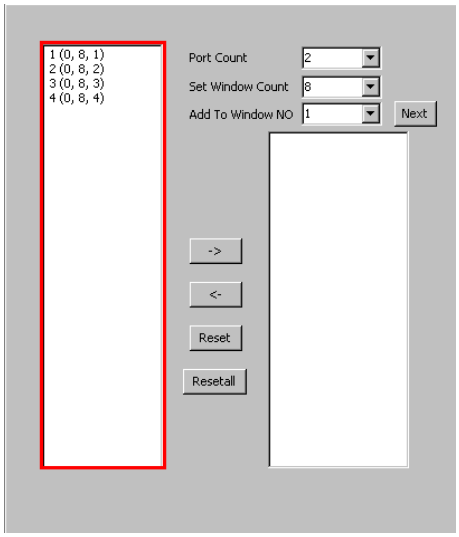
To access **Select Port Settings**, please click **Select Port** from the Configuration Tree Style Tab located on the left side of **Option – New Model** window as shown in the figure above.



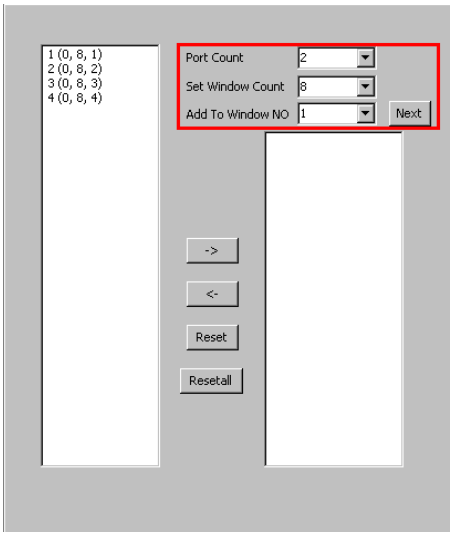
Please note that all changes you've made here will be kept temporally and won't be lost if you switch to **Task List Settings**. However, you must click **OK** (located on the bottom-right part of the **Option – New Model** window to apply all the changes you've made.

Note: Each selected port pair can support up to 32 tasks test.

Select Port Settings

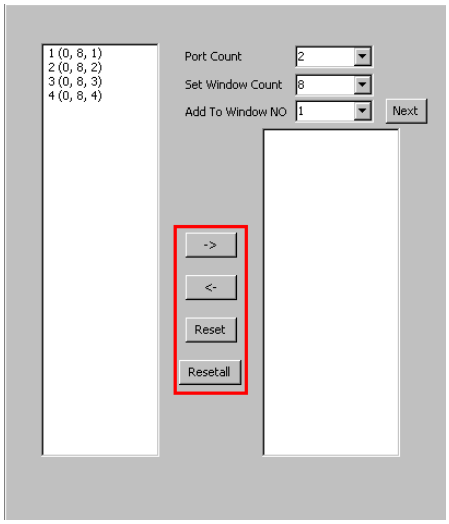


The left field shows the ports of your XM-RM module cards available on each slot of your NuStreams-2000i/600i to choose. The number order (X, Y, Z) is based on (Chassis, Board, Port).



- **Port Count:** Scroll down this field to set the number of ports that you want to be included on one task window.
- **Set Window Count:** Scroll down this field to set the number of window task that you want to submit for this time test.
- **Add to Window NO.:** Scroll down this field and select the number order of your window task to submit the **Port Count** settings.

You may click the **Next** button to skip to the next window task settings instead of scroll down the **Add to Window NO.** field.

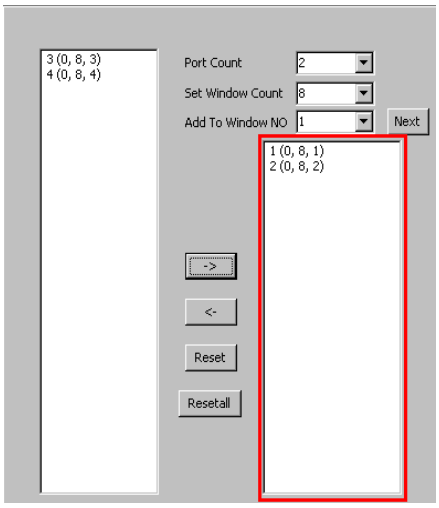


When you select a port from the left field, you have to click on **->** button to send the selected port to the right field for next steps settings.

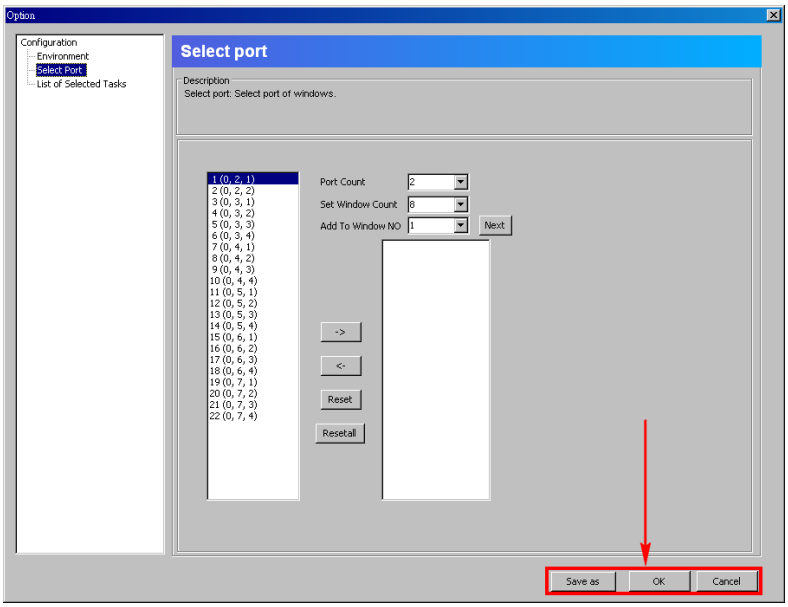
You can also select the right field port and click the **<-** button to withdrawn the previous selected port from the right field.

You can also click the **Resetall** button to cancel all the selected ports on the right field to be returned to the left field for all the windows, or you can click the **Reset** button to cancel **only** the current window settings.

Select Port Settings

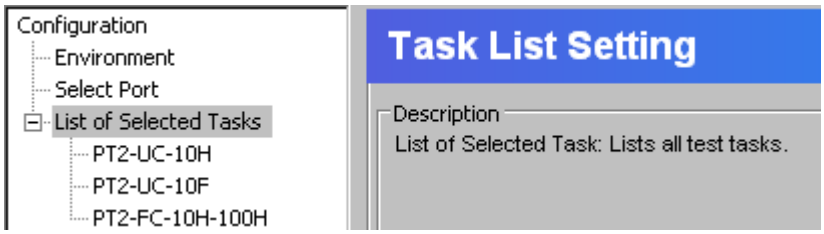


Please refer to the right field, it is an example of selected ports.

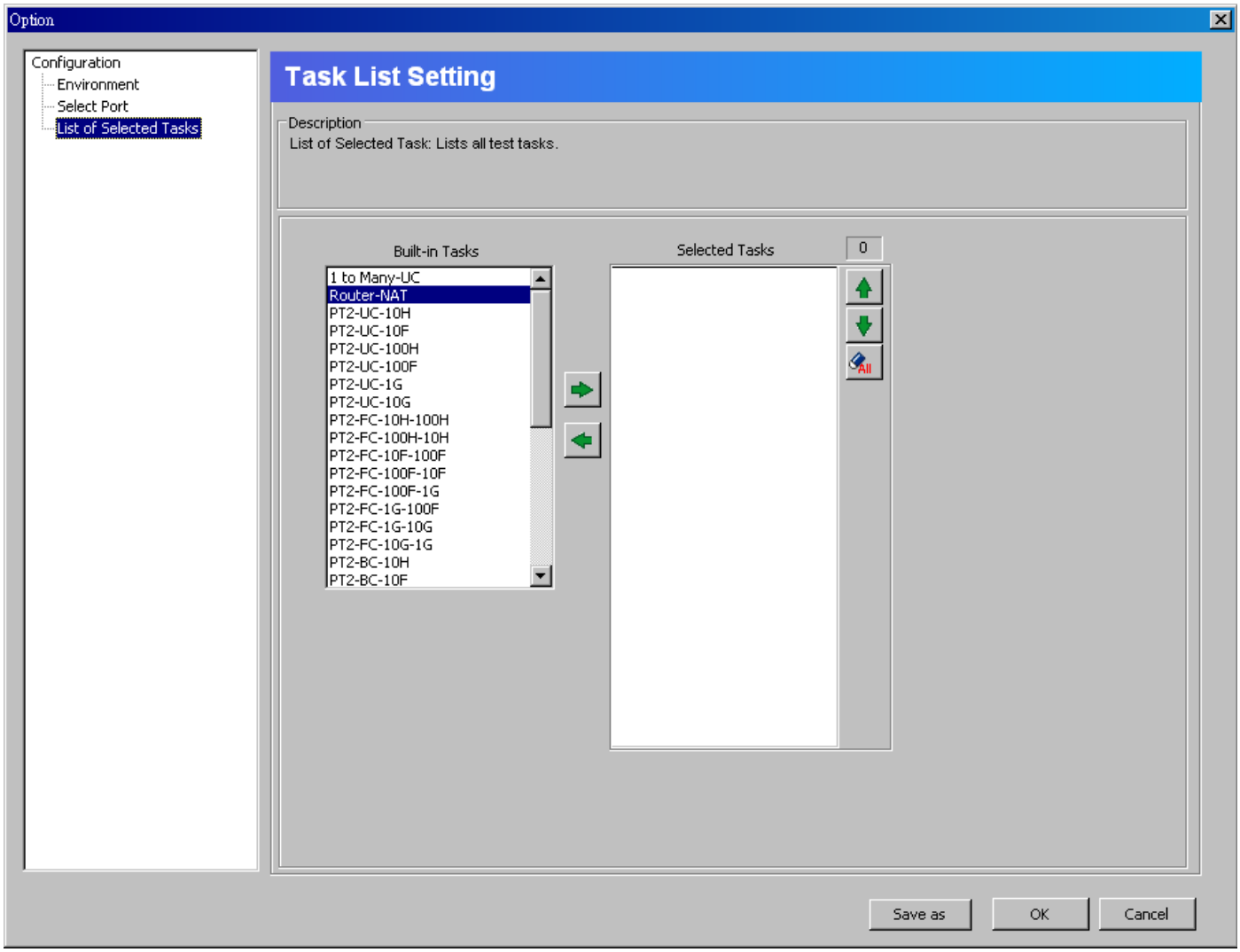


After the previous settings, please click **OK** button to confirm the settings, or click **Cancel** button to exit without saving. If you click the **Save as** button, you can save your current settings on your PC.

4.2.3. Adding/Removing Tasks via Task List Setting



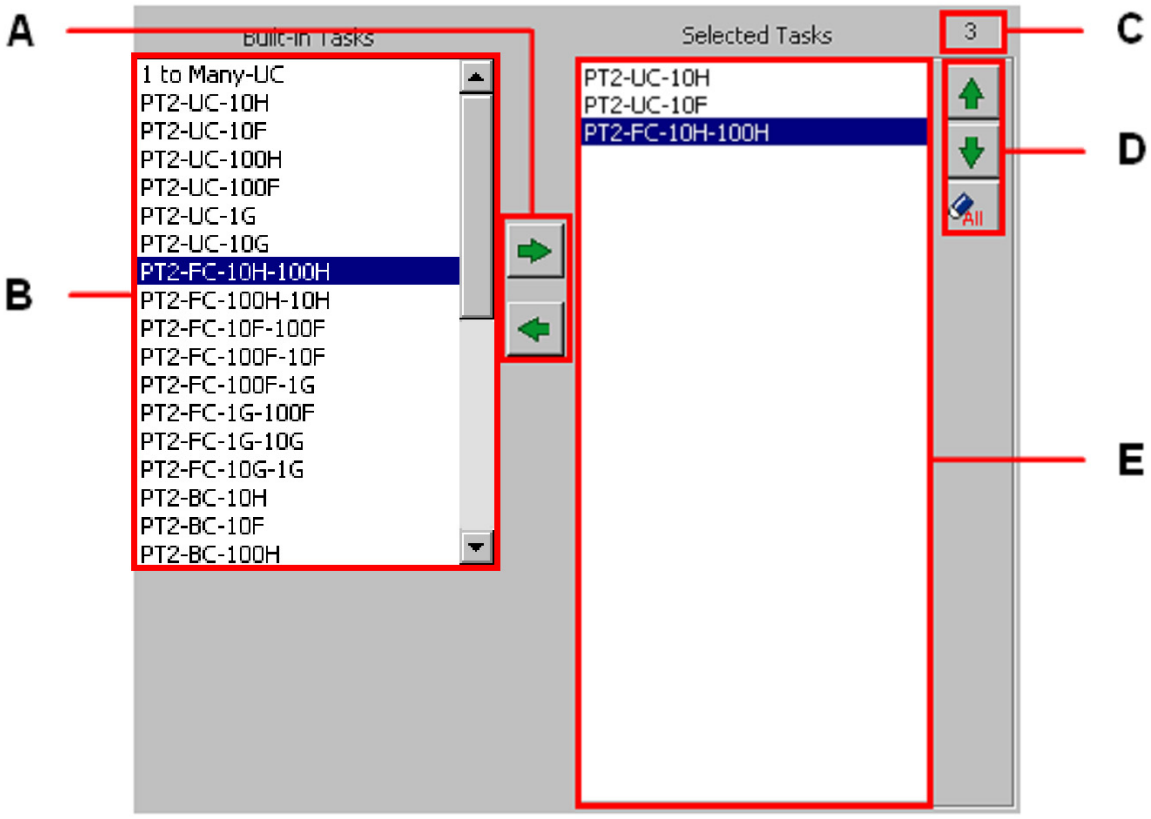
To start managing tasks for your DUT, please click **List of Selected Tasks** on the left side of the **Option – New Model**.



Under **Task List Settings**, you can:

- View all NuApps-MultiUnits-RM's available tasks according to their groups.
- Add/Delete task that you would like to perform.
- Arrange order of the tasks.

Note: Each selected port pair can support up to 32 tasks test.

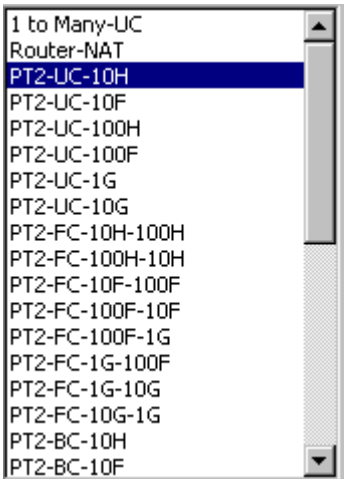


A. Task Add/Remove Buttons

The **Task Add/Remove Buttons** allow you to add or remove tasks to/from **Select Tasks**.

- By clicking button, you can add the task you've selected from **Built-in Tasks** field in the left-side to the **Selected Tasks** in the right-side.
- By clicking button, you can remove the task you've selected from the **Selected Tasks** in the right-side.

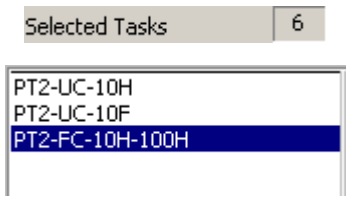
B. Built-in Tasks



The **Built-in Tasks** display tasks available in NuApps-MultiUnits-RM. You can choose which tasks you would like the system to display on **Built-in Tasks** field

To add a task to **Selected Tasks**, please click the task you would like to add in **Built-in Tasks**, and click button.

C & E. Selected Tasks



All tasks you've selected from **Built-in Tasks** field will be listed in the **Select Tasks**. The number of the tasks you chose will be shown here as well.

To remove a task from **Selected Tasks**, please click the task you would like remove here, and click button.

D. Selected Tasks Managing Buttons

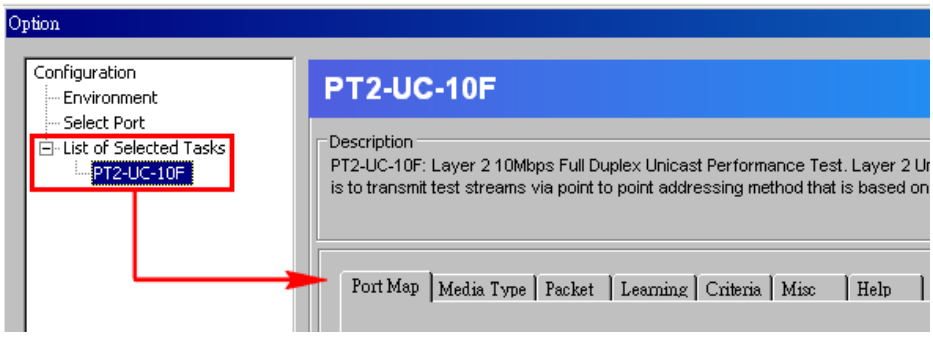
You can manage the testing order of tasks listed in the **Selected Tasks**.

To move the priority of a task listed in **Selected Tasks** up, click on that task, and click button; to move the priority of a task listed in **Selected Tasks** down, click on that task, and click button.

If you would like to remove all the tasks listed in **Selected Tasks**, click button.

4.2.4. Configuring Tasks Listed on List of Selected Tasks

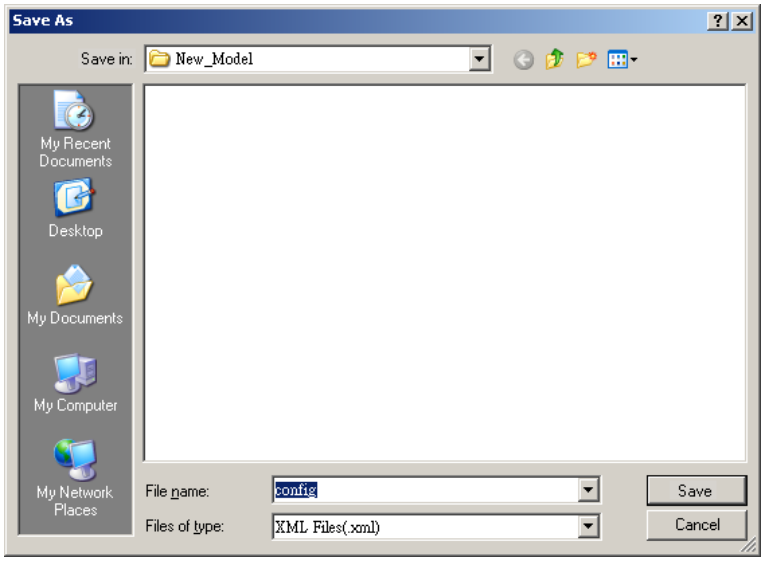
After choosing the tasks you would like to perform from **Built-in Tasks** as mentioned in "**4.2.3. Adding/Removing Tasks via Task List Setting**", you can start making detail settings with individual tasks by clicking the task you would like to configure from **List of Selected Tasks**. All the configurations for this task will be listed in the right-side section as shown in the figure down below.



Please note that the maximum number of tasks that can be selected into the **List of Selected Tasks** is **32**.

For more detailed information regarding to task settings in NuApps-MultiUnits-RM's task groups, please refer to "**5. NuApps-MultiUnits-RM Detail Task Setting**."

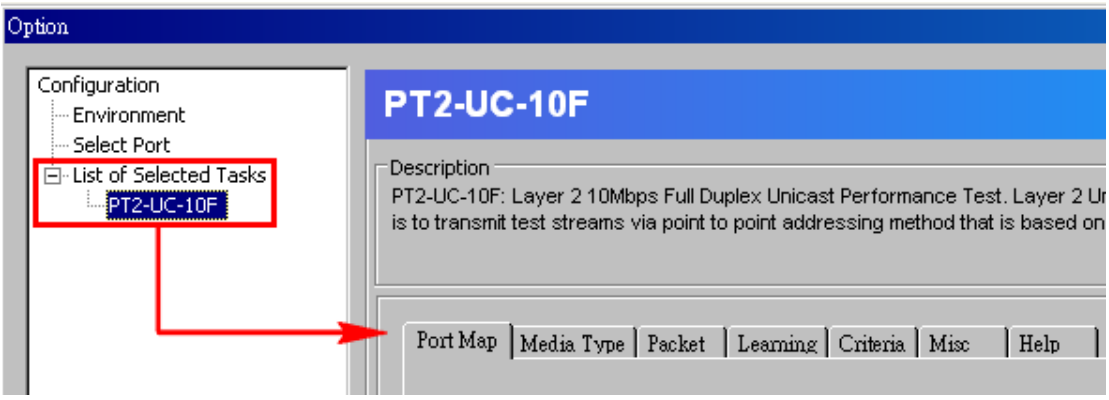
Click the **OK** button on the bottom-right side of **Option – New Model** window when all configurations are done. A "**Save As**" window will pop up and prompt you to save all the configurations you made.



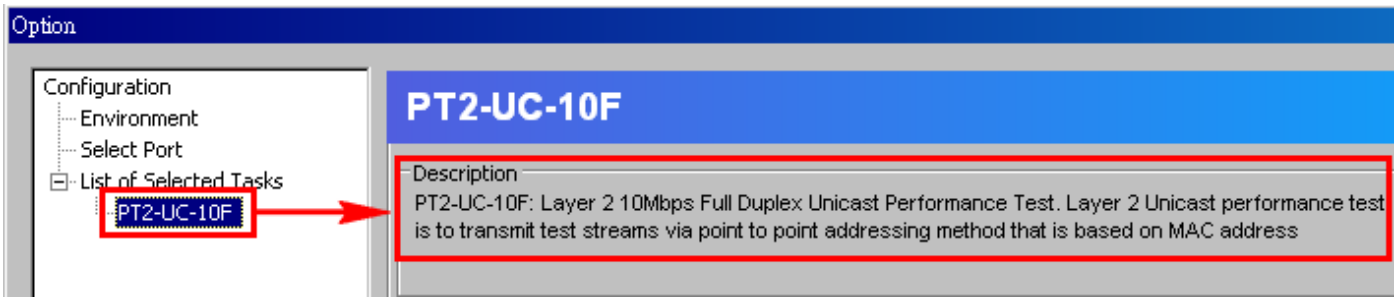
The default name for the configuration setting is "**config**" and will be saved in a folder named after the DUT's **Model Name**. All configuration setting files are saved as **XML** format, and changing configuration setting's file type may cause NuApps-MultiUnits-RM unable to load your previous saved setting file. NuApps-MultiUnits-RM will apply all the settings you've made after saving.

5. NuApps-MultiUnits-RM Detail Task Setting

As mentioned in "**4.2.4. Configuring Tasks Listed on List of Selected Tasks**", you can make detail settings with individual tasks by clicking the task you would like to configure from **List of Selected Tasks**. All the configurations for this task will be listed in the right-side section as shown in the figure down below.



All tasks available for NuApps-MultiUnits-RM can be divided into different groups **Unicast, Flow Control, Broadcast, Filter tasks and CRC error**. Please refer to "**1.2. Function Description_ Performance Task in Layer 2 (PT2)**" for descriptions. Also, descriptions for each task can be viewed on NuApps-MultiUnits-RM as well.



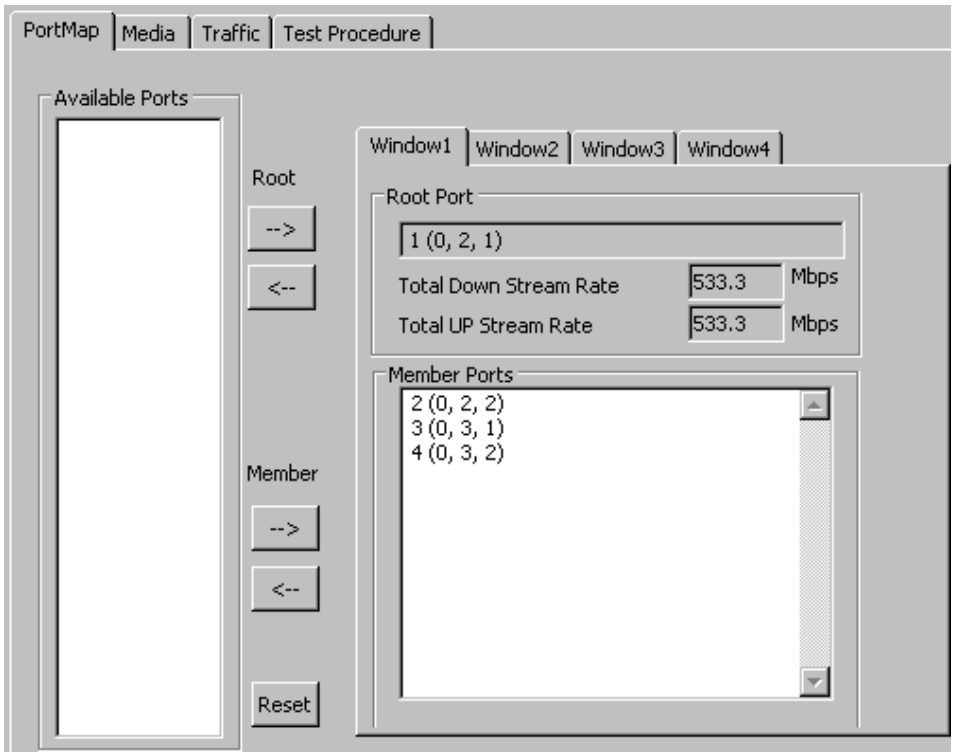
Test Tasks – Layer 2

All the Layer 2 tasks settings can be set here. For available Layer 2 tasks and their descriptions, please refer to "**1.2. Function Description_ Performance Task in Layer 2 (PT2)**."

5.1. 1 to Many-UC

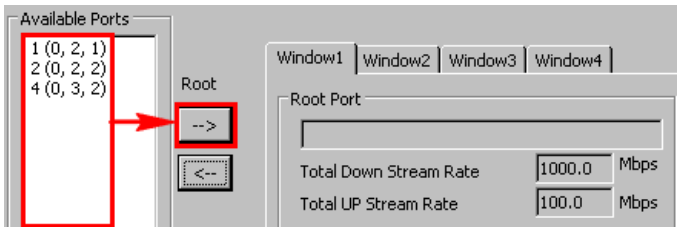
1 to Many-UC is a Unicast Full Performance Test. Performing Layer 2 MAC address Unicast performance tests from one source to multiple ports with different media types (such as 100Mbps and 1000Mbps Full).

A. Port Map

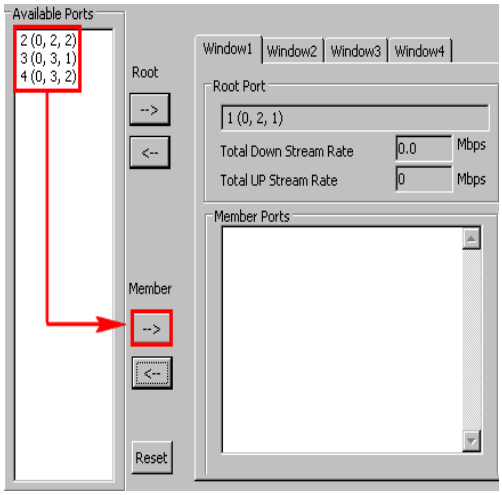


Before making any other configurations for **1 to Many-UC** test, you have to assign a **Root Port** and its **Member Ports** first.

To assign an Active Port as the Root Port, please click the Available Port you would like to use as a Root Port, and then click the → button to add it to the Root Port field located on the right side. To remove the Root Port you've assigned, click the ← button.

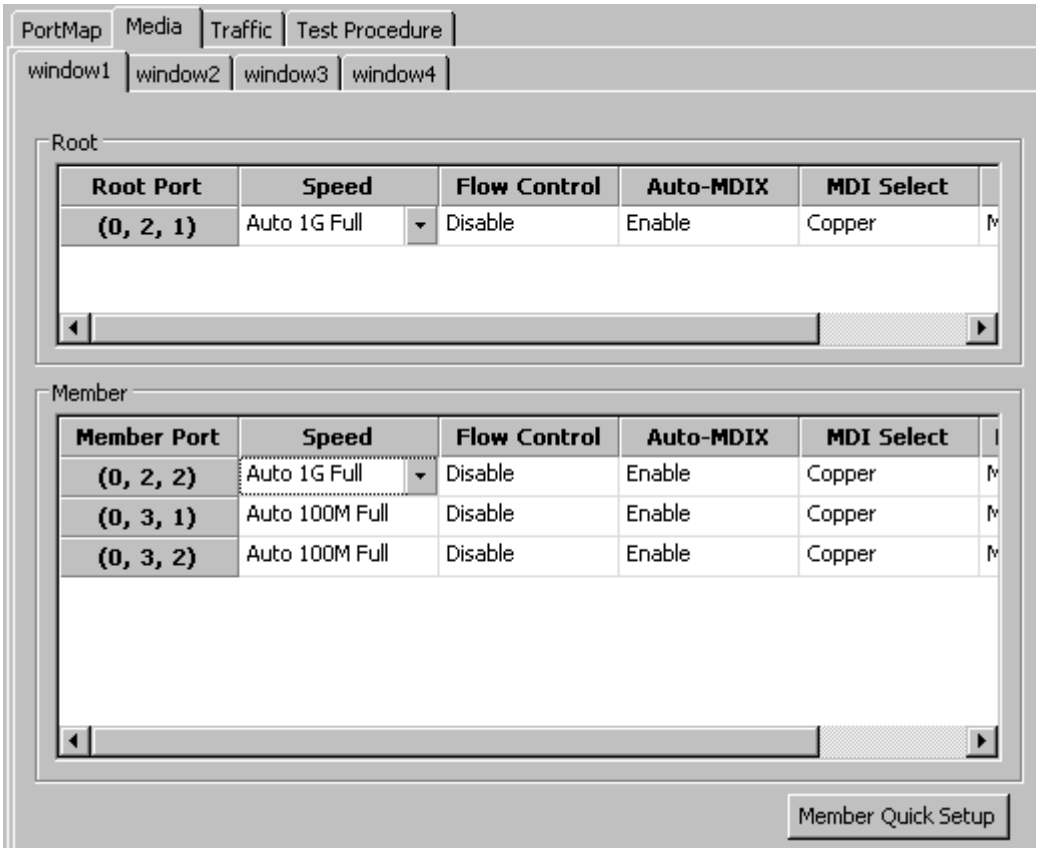


To assign Active Ports as the Member Ports for Root, please click the Active Ports you would like to use as Member Ports, and then click the → button to add it to the member Ports field located on the right side. To remove a Member Port you've assigned, click the Member Port you would like to remove, and then click the ← button.



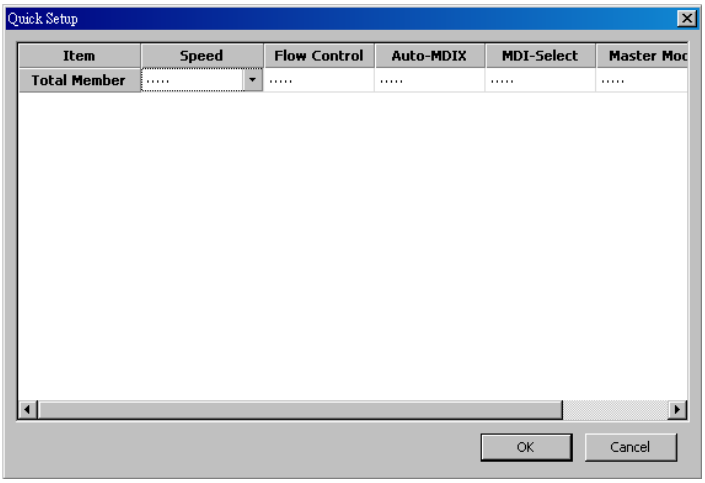
- **Available Ports:** All available Active Ports will be shown in this field. If you assign an Active Port as the Root Port or one of the Member Ports, it will be removed from this field.
- **→/←:** You can add an selected Active Port as the Root Port or one of the Member Ports by clicking the → button, or remove the Root Port or Member Ports by clicking the ← button.
- **Window:** You may configure each Window task settings by clicking the Window1, Window2,…, Window8. The number of the Windows depends on the number of **Set Window Count**, please refer to the **4.2.2. Select Port Settings.**
- **Root Port:** The port set to transfer packets to the **Member Ports**.
- **Total Down Stream Rate:** The rate of total Down Stream in Mbps.
- **Total Up Stream Rate:** The rate of total Up Stream in Mbps.
- **Member Ports:** The ports set to receive packets from **Root Port**.
- **Reset:** Click this button to remove all Active Ports that has been assigned as Root Port or Member Ports.

B. Media

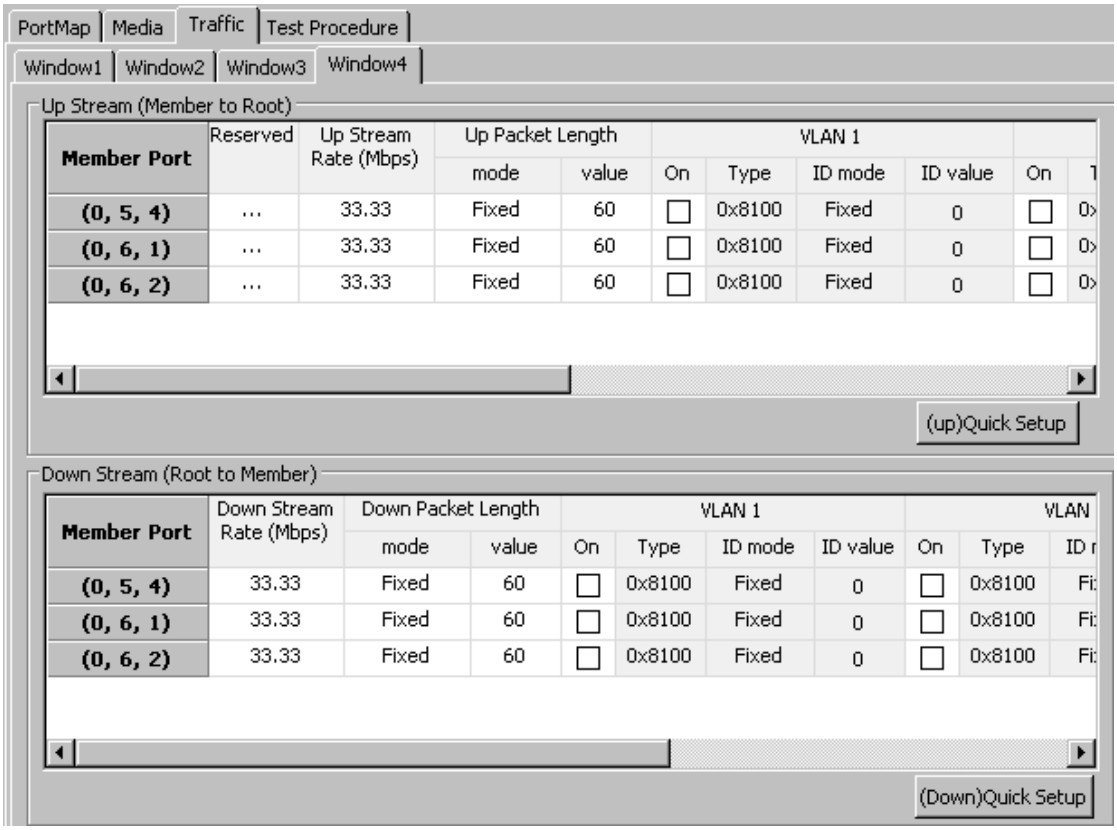


You can set the media type for all the Active Ports that's used for **1 to Many-UC** test here. The configuration for **Root Port** and **Member Port** are identical, and can be related.

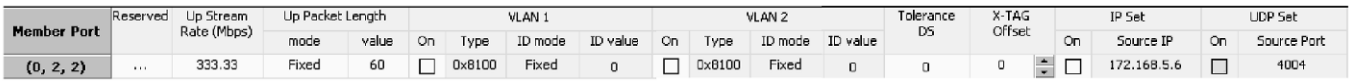
- **Root:** You can set the media type (**Speed**, **Flow Control**, **Auto-MDIX, MDI Select and Master Mode**) in this field. To configure Root Port, please double-click on the column that you would like to configure, or click the scroll-down menu located on the column.
- **Member:** You can set the media type (**Speed**, **Flow Control**, **Auto-MDIX, MDI Select and Master Mode**) in this field. To configure Member Port, please double-click on the column that you would like to configure, or click the scroll-down menu located on the column. You could also click the **Member Quick Setup** button. A **Quick Setup** window will pop up. The settings you made here will apply to all the Member Ports listed in the **Member** field.



C. Traffic

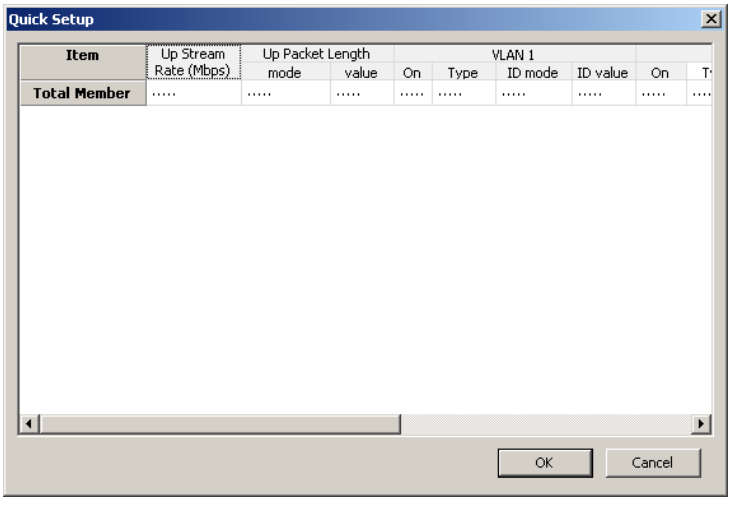


You can make **Up Stream** and **Down Stream** packet transmitting settings for all the Active Ports that's used for **1 to Many-UC** test here. The configuration for **Up Stream (Member to Root)** and **Down Stream (Root to Member)** are identical, and can be related, as shown in the figure down below:

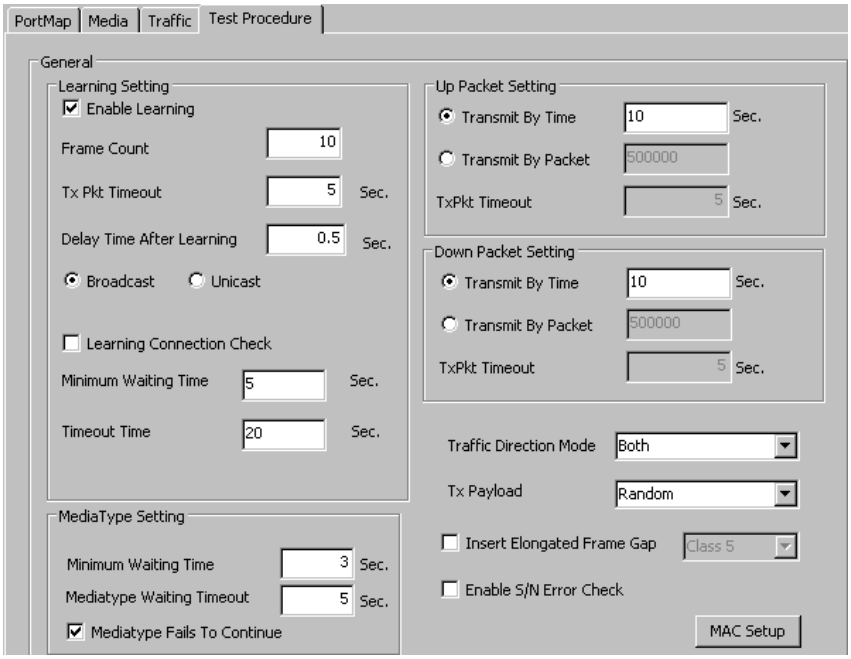


You can configure all the settings for each Active Port listed in **Up Stream** or **Down Stream** field in a one-by-one manner by double-clicking the column you would like to configure.

You can also click the **Quick Setup** button. A **Quick Setup** window will pop up. The settings you made here will apply to all the Active Ports listed in the **Up Stream** or **Down Stream** field.



D. Test Procedure

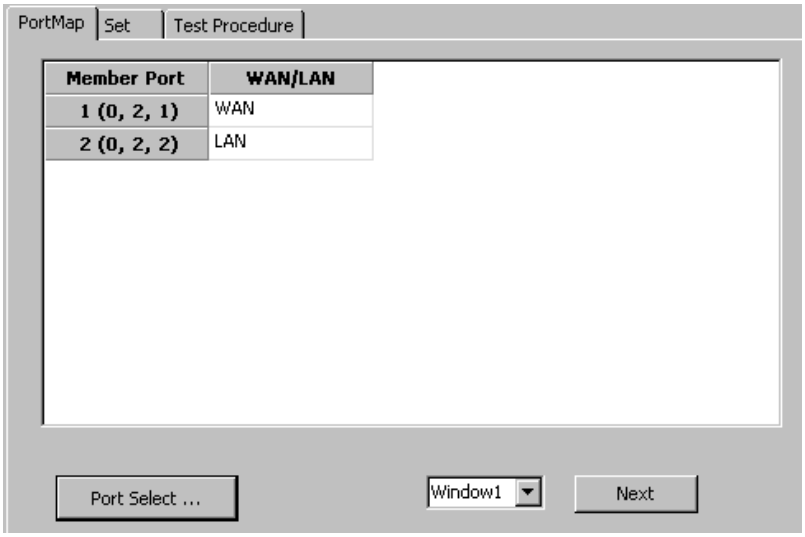


- **Enable Learning:** By activating the Enable Learning function, the **Frame Count** and **Tx Pkt Timeout** function will be enabled.
- **Frame Count:** You can set here the frame count when processing the Learning function.
- **Tx Pkt Timeout:** If the Tx packets spent for auto-negotiation exceeds the **Tx Pkt Timeout** you set here, the test will stop and the result will be fail.
- **Delay Time After Learning:** You can set the time interval between After Learning to the next process.
- **Broadcast/Unicast:** Select the learning packet mode for Broadcast or Unicast.
- **Learning Correction Check:** Enable the **Learning Correction Check** option and set the **Minimum Waiting Time** and the **Timeout Time** for operating this function.
- **Mediatype Setting:** Set the **Minimum Waiting Time** as the minimum media type auto negotiation time in this field, and set the **Media Type Waiting Timeout** for any exceeding time will stop the test and the result will be fail. Enabling the **Mediatype Fails To Continue** function to allow the continuation of task running even after reaching the media type waiting timeout.
- **Transmit by Time:** The 1 to Many-UC test will be performed for the set amount of time.
- **Transmit by Packet:** The 1 to Many-UC test will be performed for the set amount of packet.
- **Insert Elongated Frame Gap:** When enabling this function, 1 bit-time of frame gap will be inserted after a certain amount of packets are sent and decrease packet loss.
- **Traffic Direction Mode:** The packets traffic direction includes **Root to Member only**, **Member to Root only** and **Both**.
- **Tx Payload:** It includes **All0**, **All1**, **Byte increase**, **Byte decrease**, **Word increase**, **Word decrease**, **55AA**, **5555AAAA**, **8'0 8'1**, **16'0 16'1**, **32'0 32'1**, **64'0 64'1**, **UDF** or **Random**.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **MAC Setup:** When you click the **MAC Setup** button, a window will pop up enabling to set the MAC address of each port. After finished the settings, please click the **Apply** button to save the settings or **Cancel** button to cancel the settings.

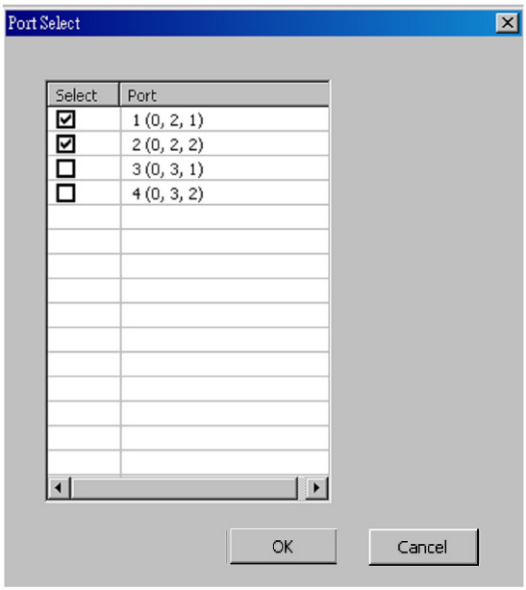
5.2. Router-NAT

This task allows the testing of the router's functions.

A. Port Map

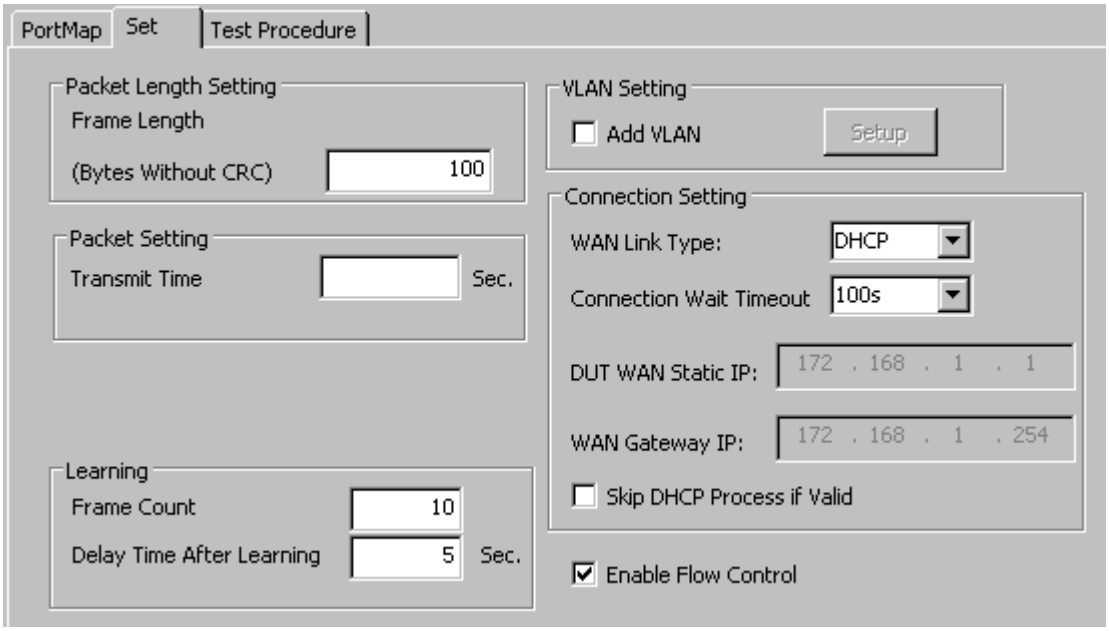


- **Member Port:** Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **WAN/LAN:** All ports set for this task will be ordered in this field as WAN/LAN ports. The first port will be auto set as the WAN port, and the others will be auto set as the LAN ports. You can change the WAN port by double clicking any LAN port on this field.
- **Window NO:** You can view each Window number's **Member Port** by scroll down this field and select the **Window No** of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Member Port**.
- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



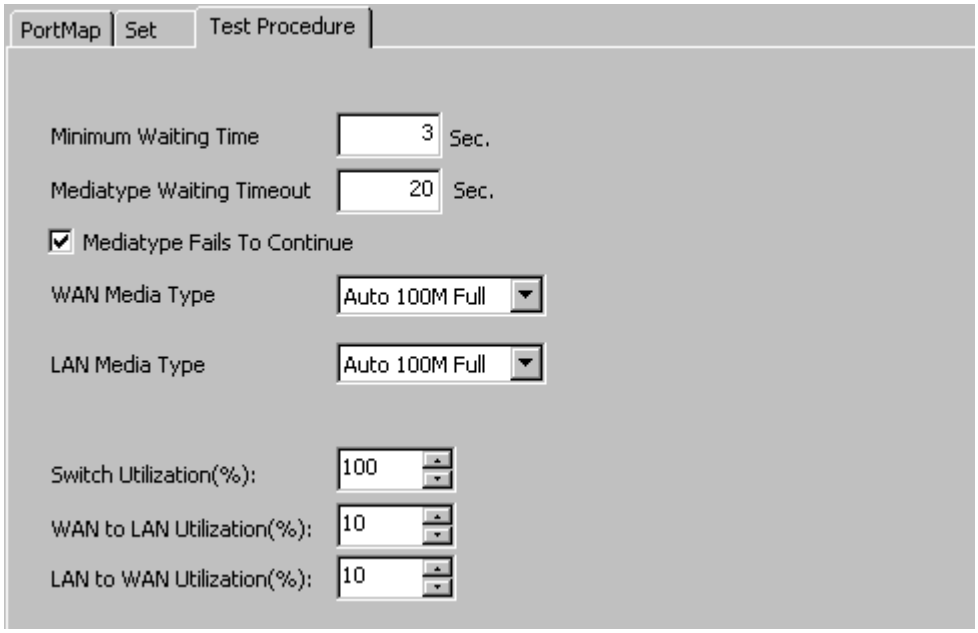
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Set



- **Packet Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length can be from 64~1518 bytes. By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 64~1518 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field down below.
- **Packet Setting:** The system will transmit packet during the set amount of time.
- **Learning:** You can set the learning condition here.
  - **Frame Count:** Repeat frame count per learning packets burst.
  - **Delay Time After Learning:** The time gap between after learning and the next process.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.
- **Connection Setting:** You can set the basic connection setting here.
  - **WAN Link Type:** Scroll down to choose between DHCP or Static IP.
  - **Connection Wait Timeout:** Scroll down to choose the value in seconds.
  - **DUT WAN Static IP:** Set the WAN IP of your DUT (Device Under Test).
  - **WAN Gateway IP:** You can set the WAN gateway IP in this field.
  - **Skip DHCP Process if Valid:** enable this function to allow the system to skip DHCP process.
- **Enable Flow Control:** enable this option to allow the flow control function.

C. Test Procedure

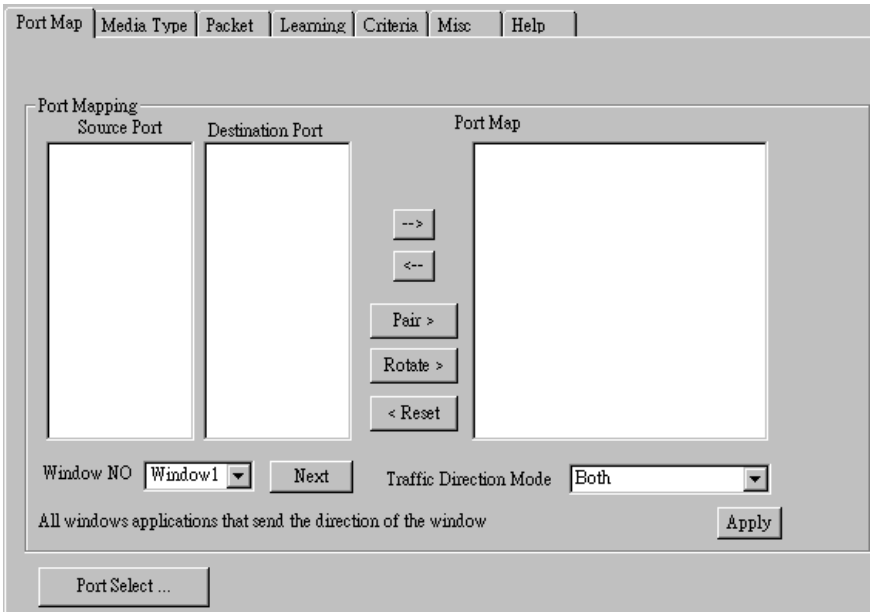


- **Minimum Waiting Time:** The minimum waiting time for link up.
- **Mediatype WaitingTimeout:** The maximum waiting time for link up.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.
- **WAN Media Type:** Scroll down to choose the media type for WAN port in auto negotiation mode.
- **LAN Media Type:** Scroll down to choose the media type for LAN port in auto negotiation mode.
- **Switch Utilization(%):** The transfer rate utilization of your module cards' port.
- **WAN to LAN Utilization(%):** The transfer rate from WAN port to LAN port.
- **LAN to WAN Utilization(%):** The transfer rate from LAN port to WAN port.

5.3. Unicast Test (UC) _ PT2-UC-10H (10Mbps Half Duplex)

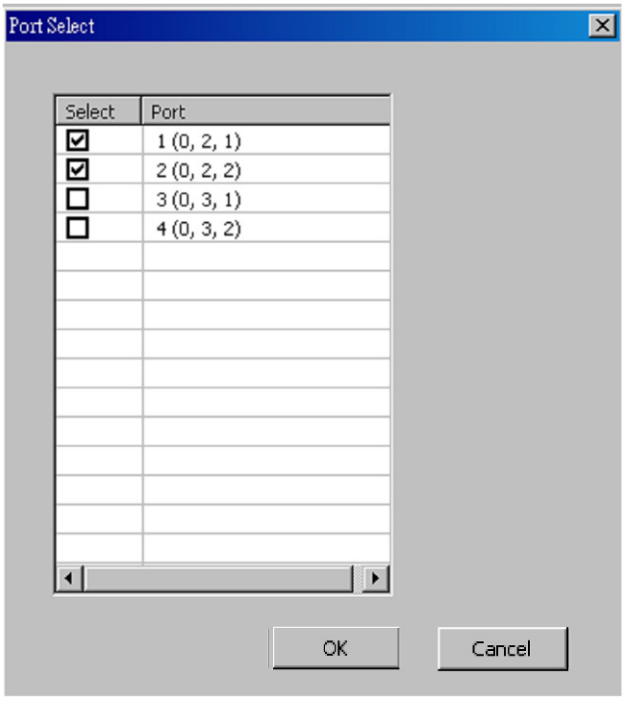
Layer 2 10Mbps Half Duplex Unicast Performance Test is to transmit test streams via point to point addressing method that is based on MAC address.

A. Port Map



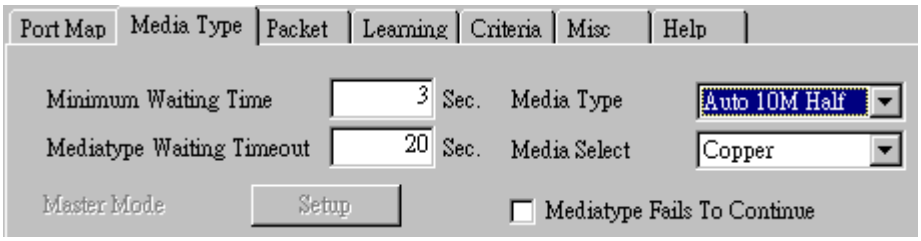
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



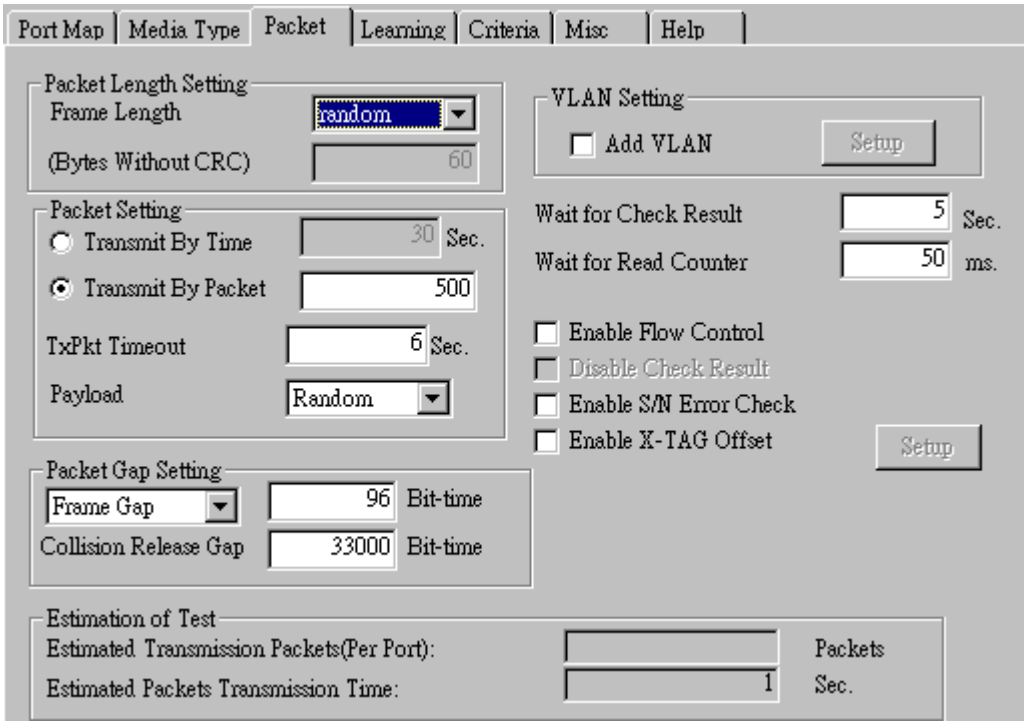
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

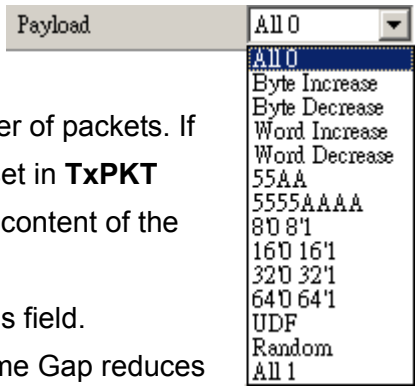
C. Packet



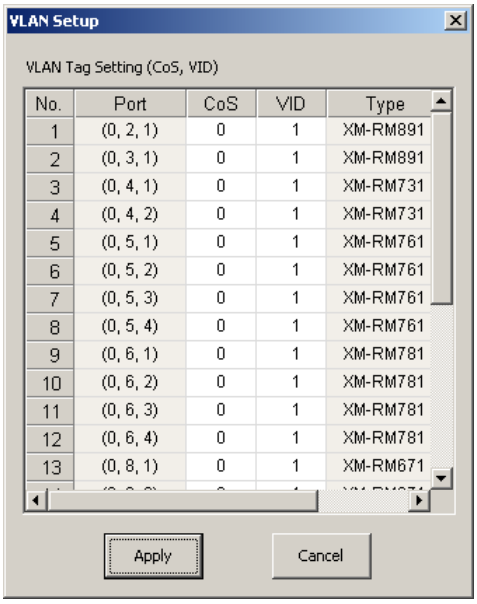
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

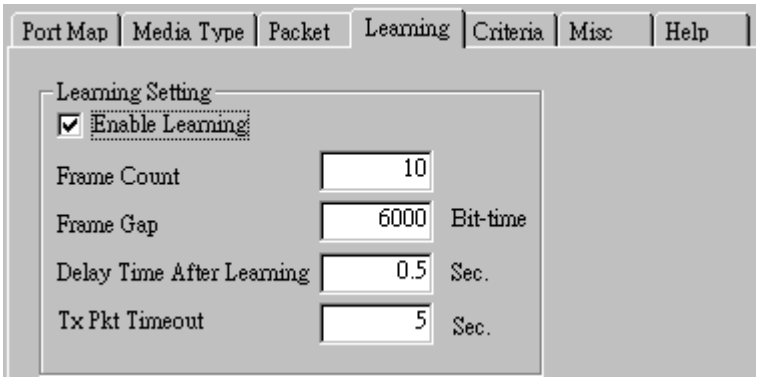


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

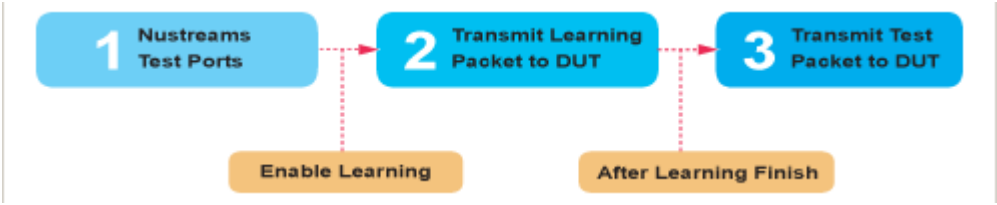


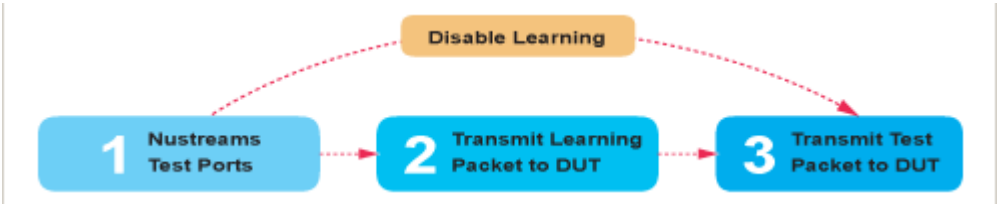
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



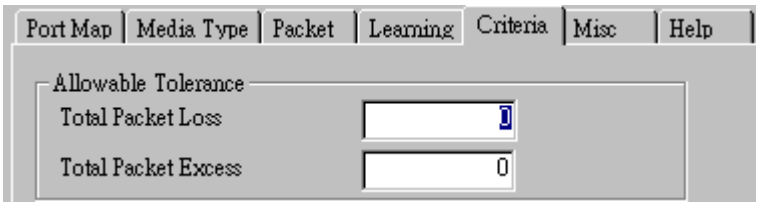
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





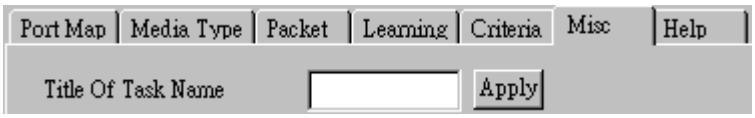
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



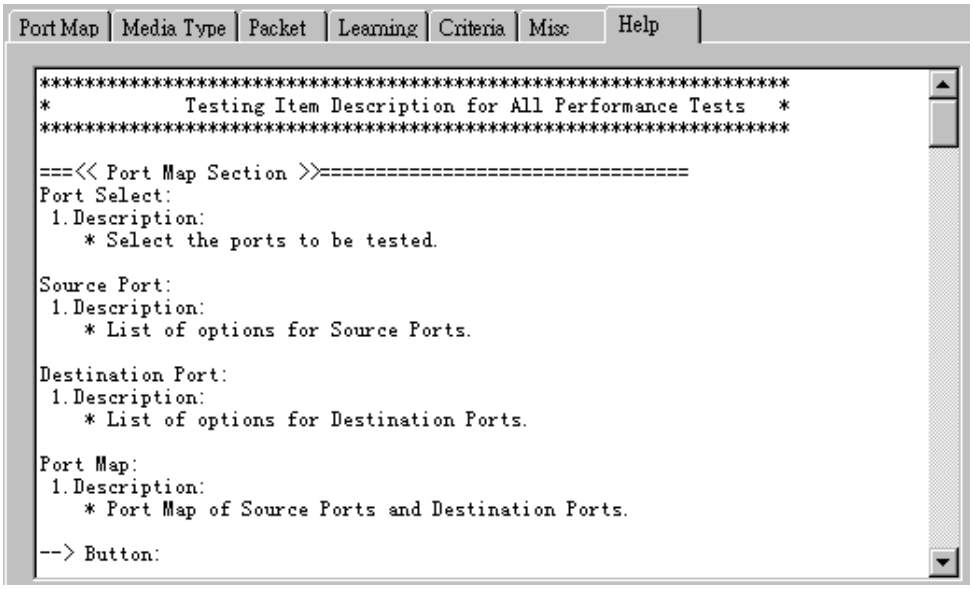
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

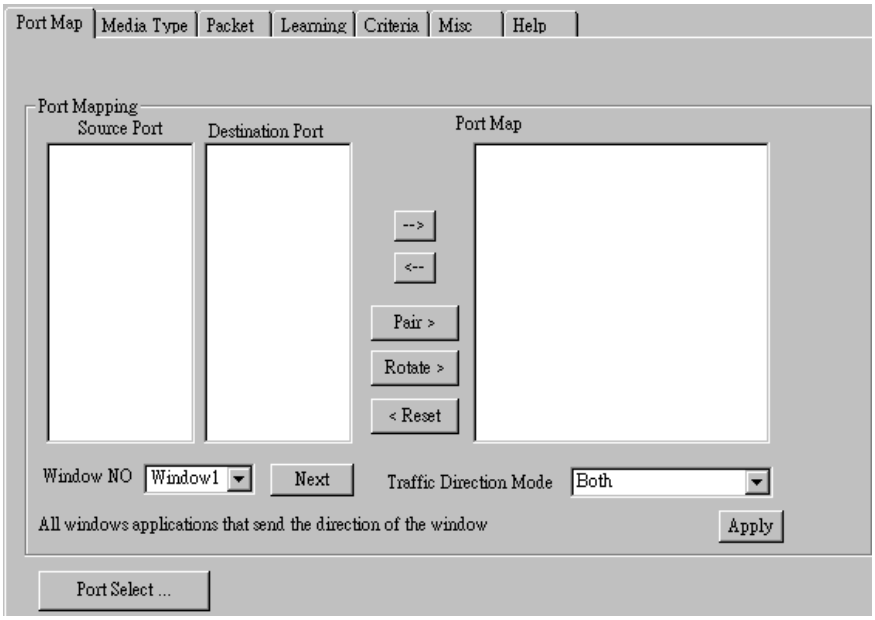


All test variables used for this task and their definitions will be listed here for reference.

5.4. Unicast Test (UC) _ PT2-UC-10F (10Mbps Full Duplex)

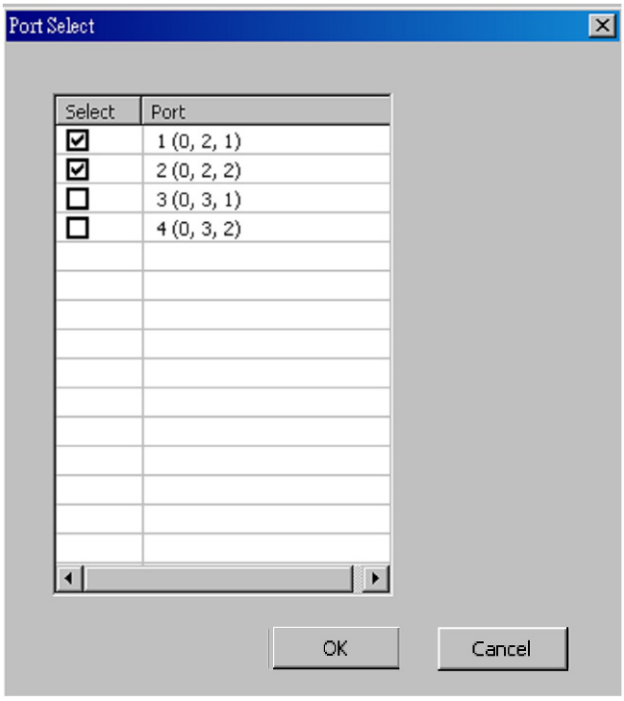
Layer 2 10Mbps Full Duplex Unicast Performance Test is to transmit test streams via point to point addressing method that is based on MAC address.

A. Port Map



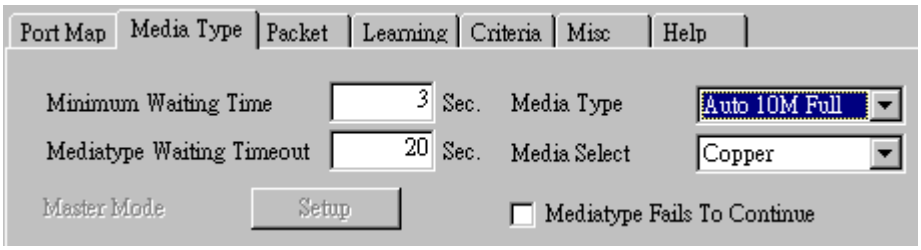
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



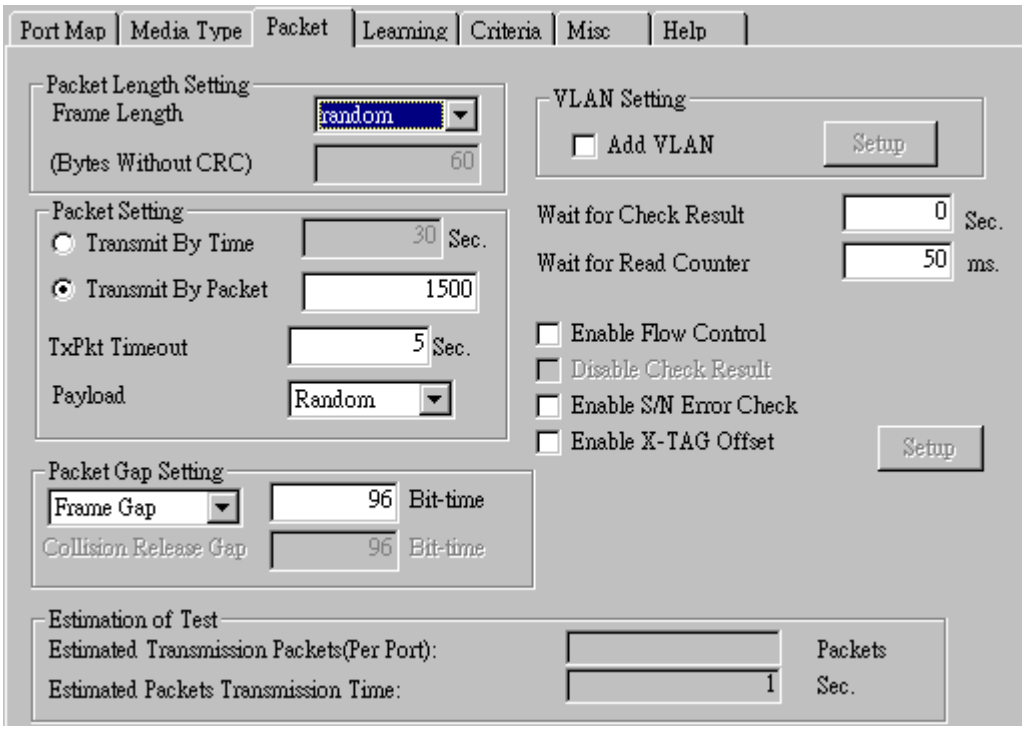
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

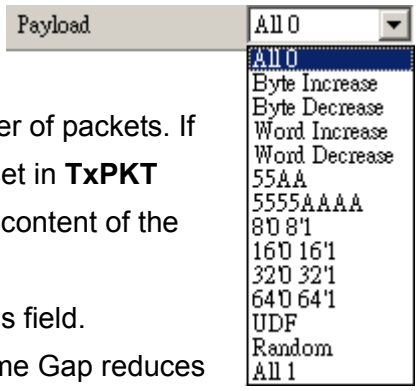
C. Packet



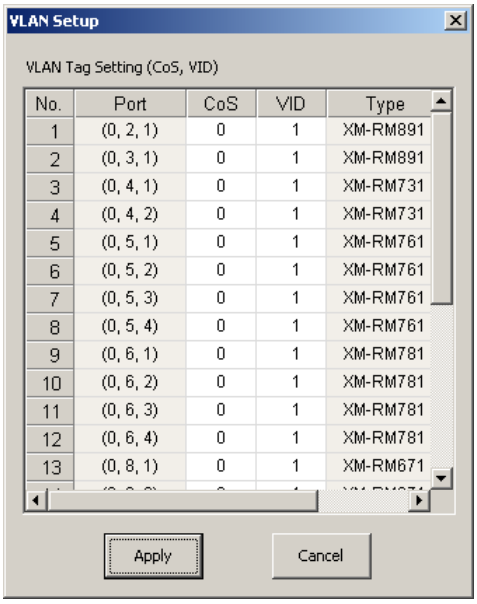
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

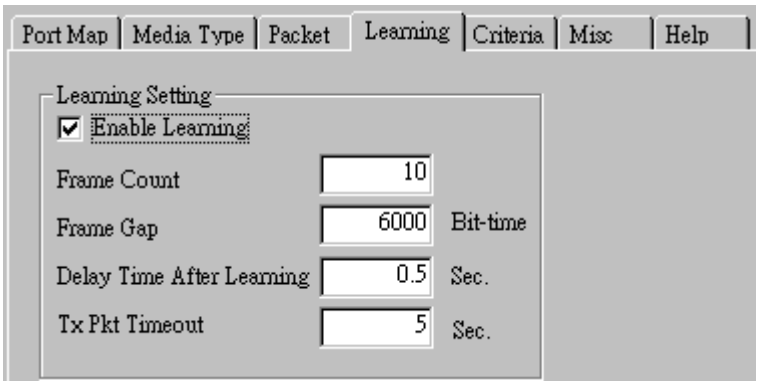


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

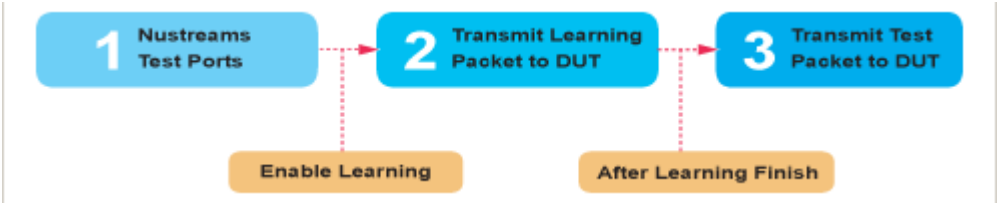


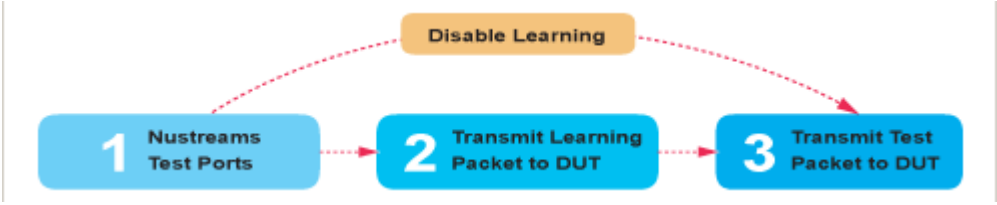
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



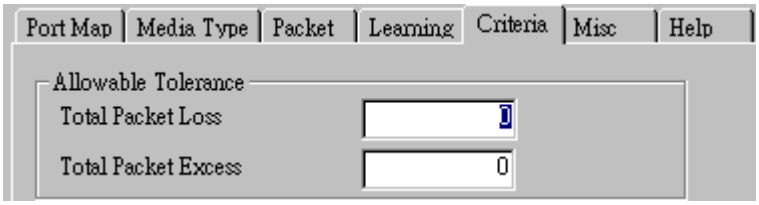
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





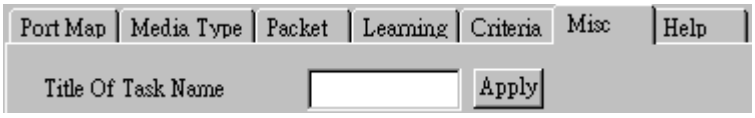
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



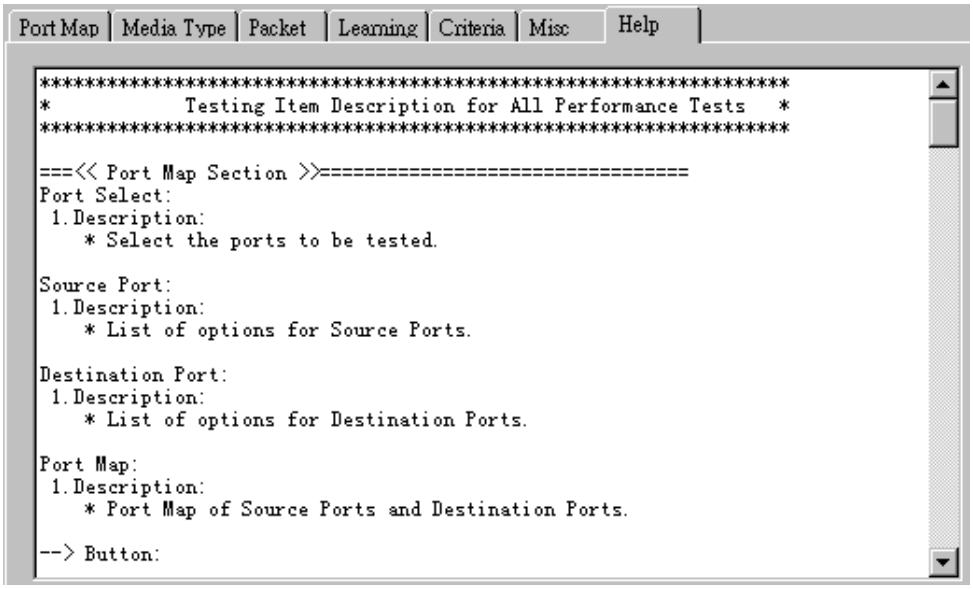
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

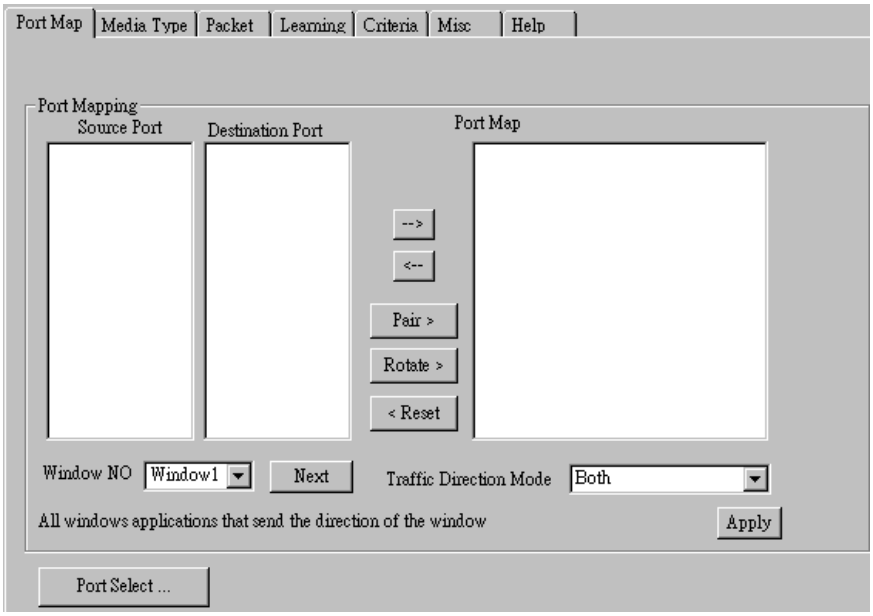


All test variables used for this task and their definitions will be listed here for reference.

5.5. Unicast Test (UC) _ PT2-UC-100H (100Mbps Half Duplex)

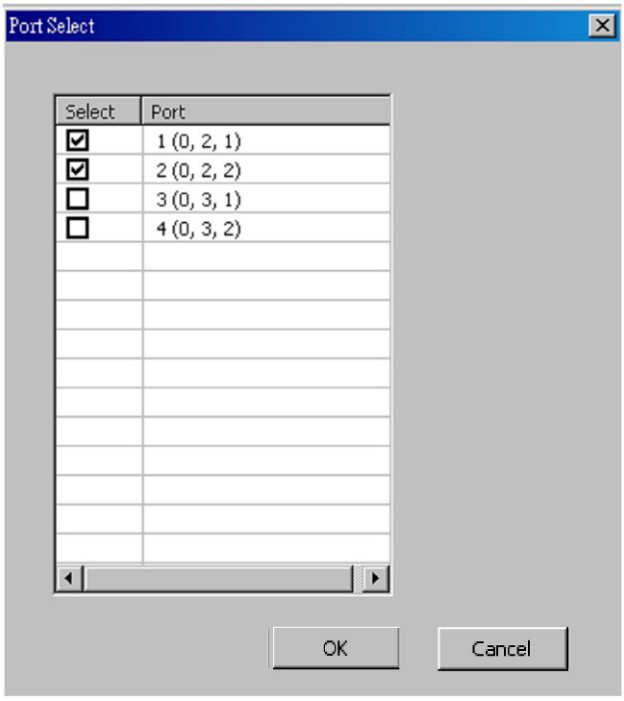
Layer 2 100Mbps Half Duplex Unicast Performance Test is to transmit test streams via point to point addressing method that is based on MAC address.

A. Port Map



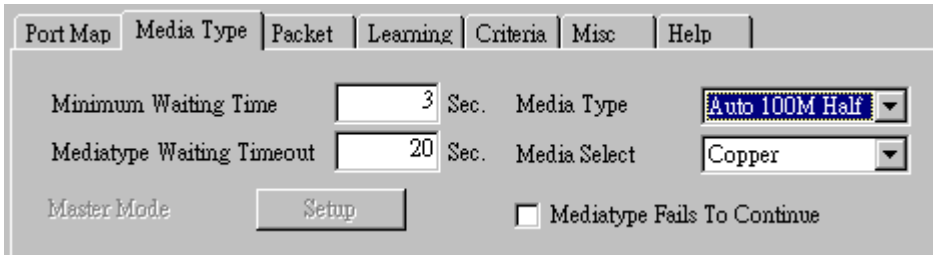
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



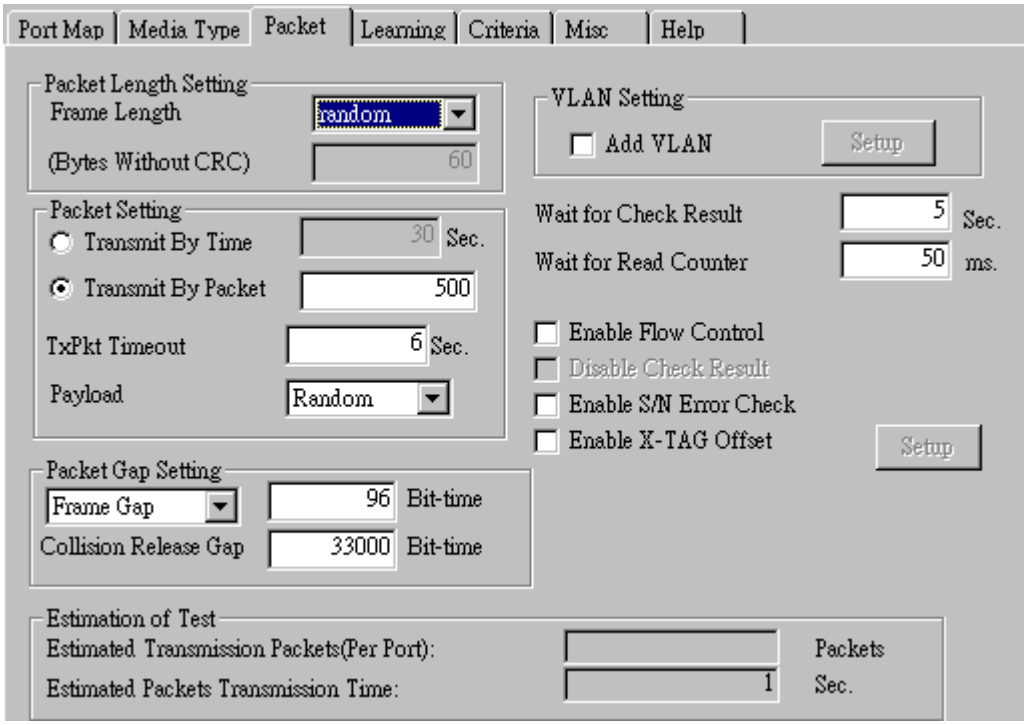
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout

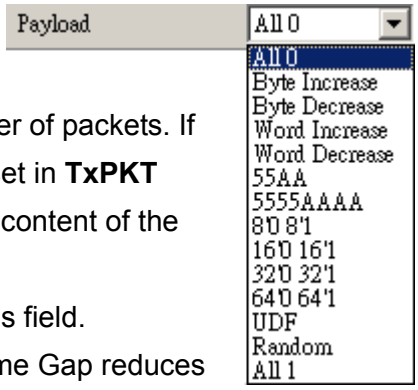
C. Packet



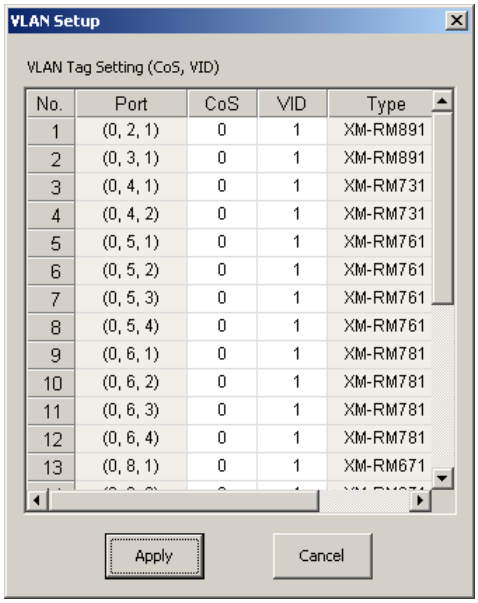
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed

number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

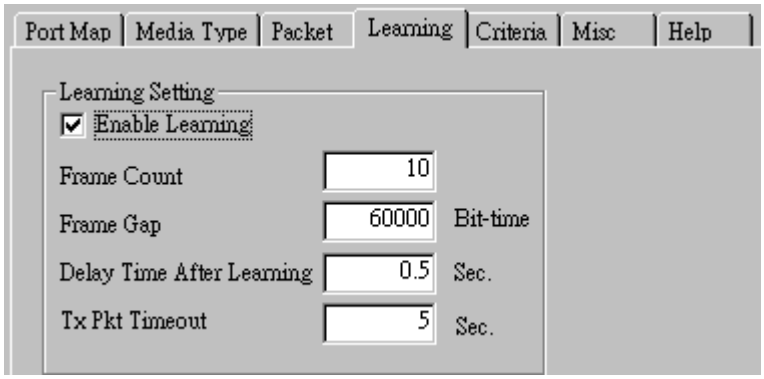


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

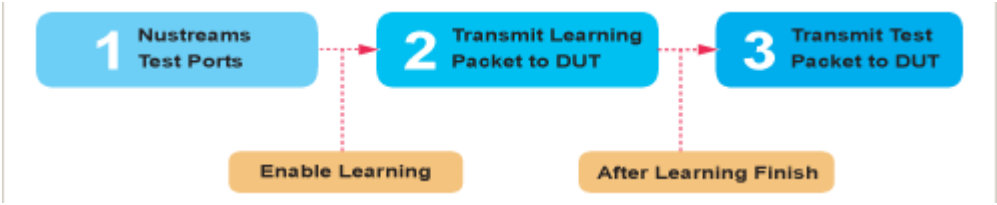


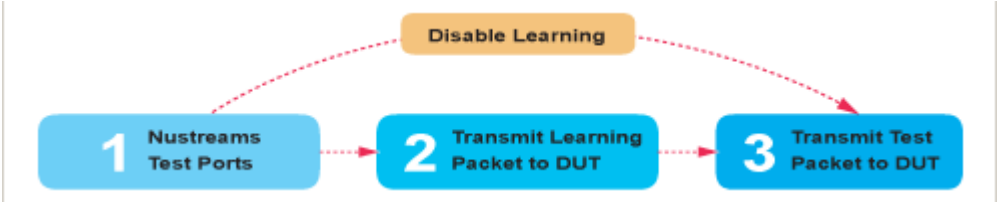
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



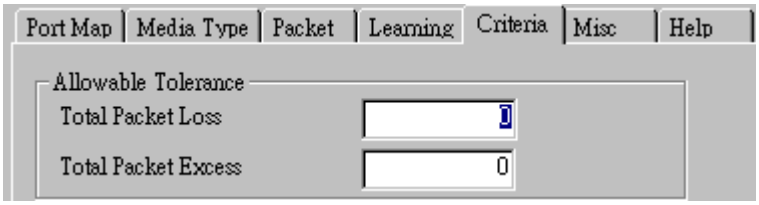
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





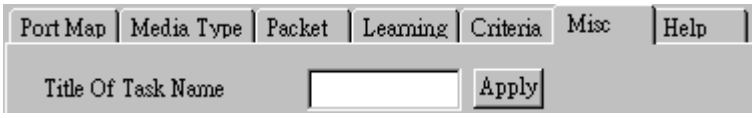
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



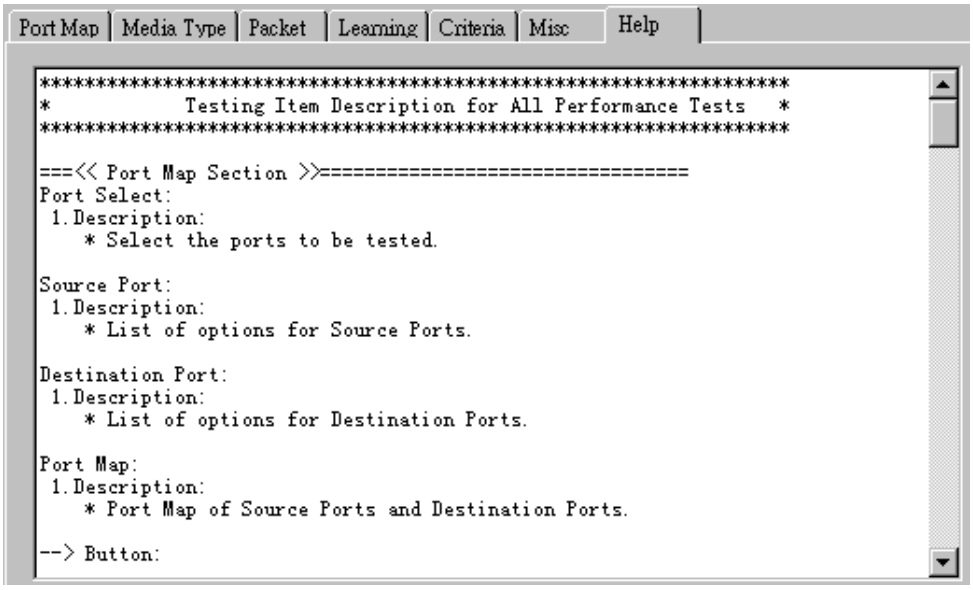
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

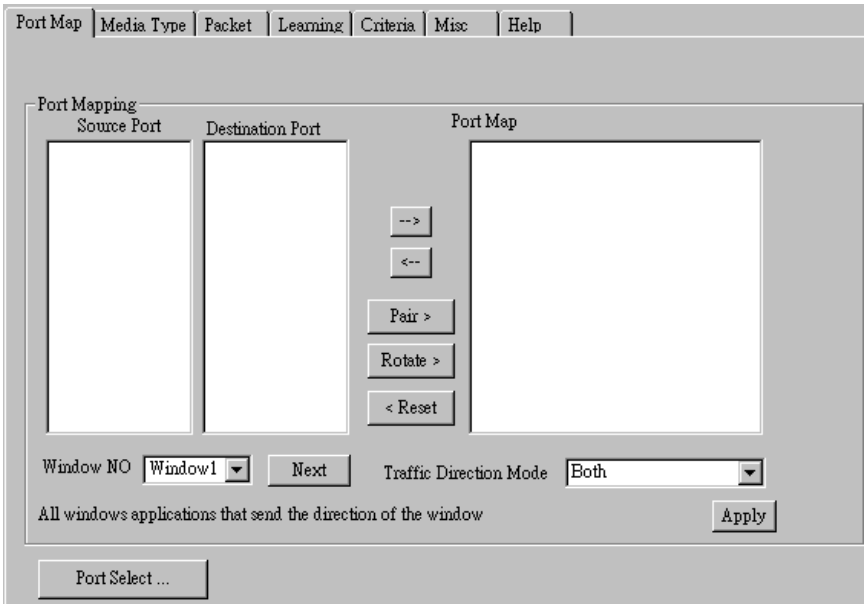


All test variables used for this task and their definitions will be listed here for reference.

5.6. Unicast Test (UC) _ PT2-UC-100F (100Mbps Full Duplex)

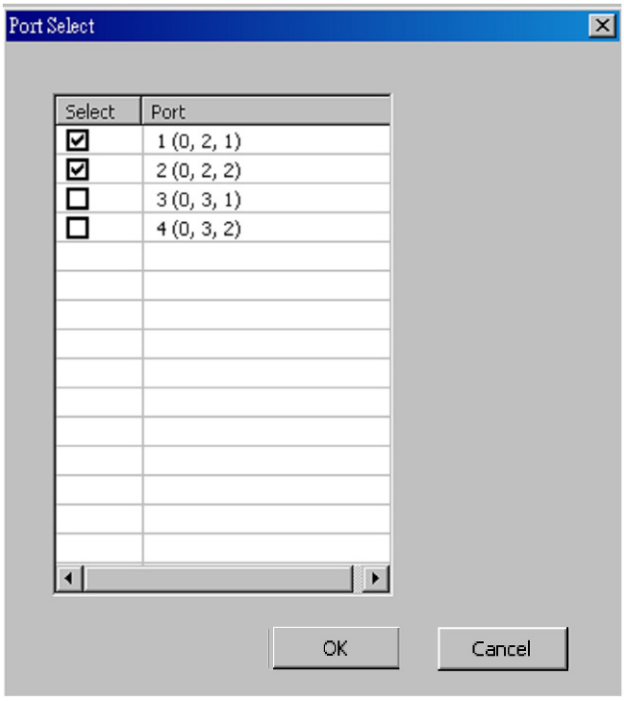
Layer 2 100Mbps Full Duplex Unicast Performance Test is to transmit test streams via point to point addressing method that is based on MAC address.

A. Port Map



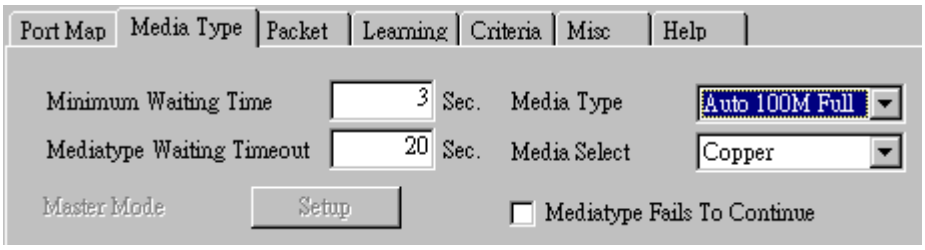
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



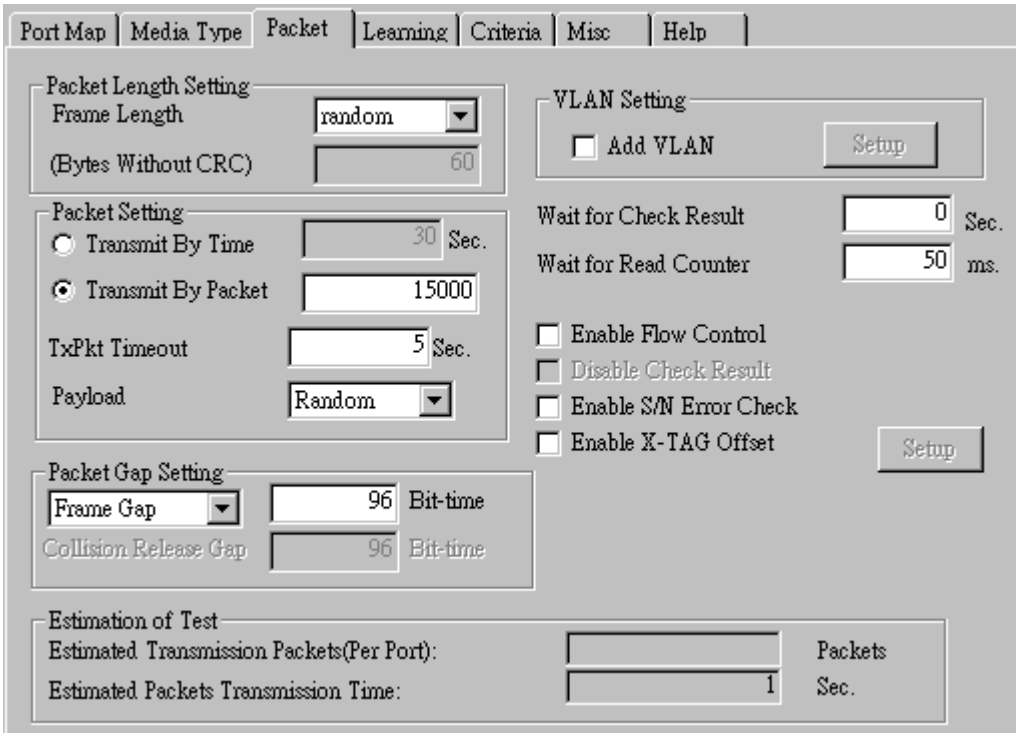
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

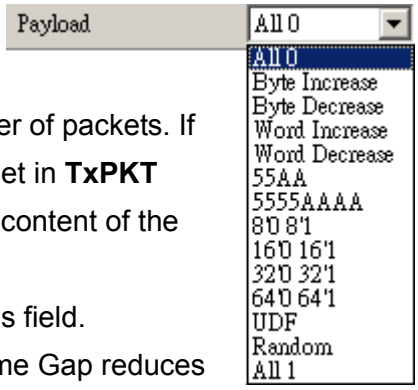
C. Packet



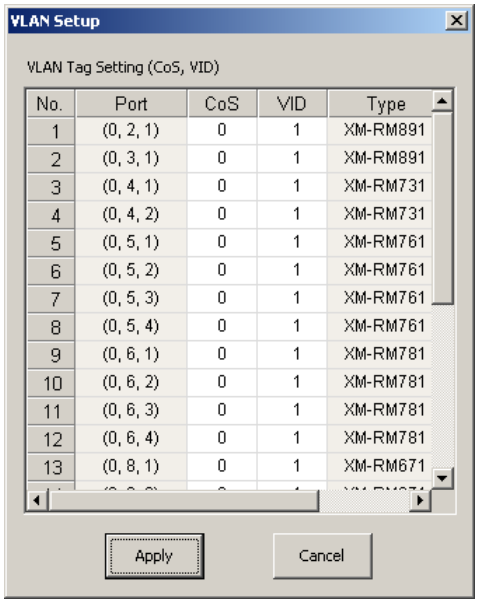
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed

number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

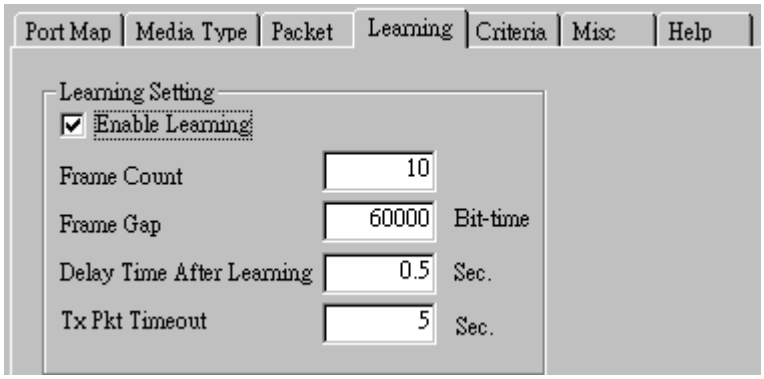


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

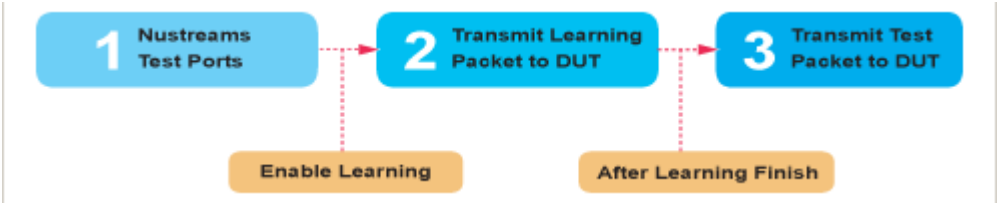


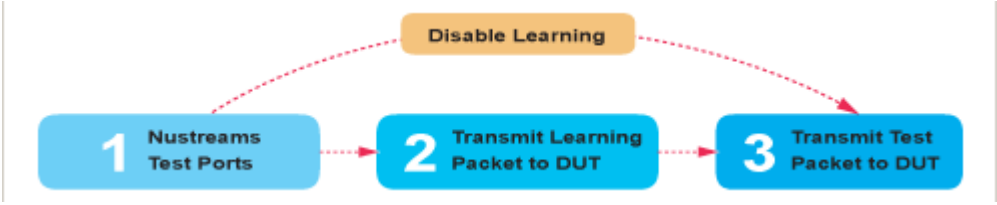
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



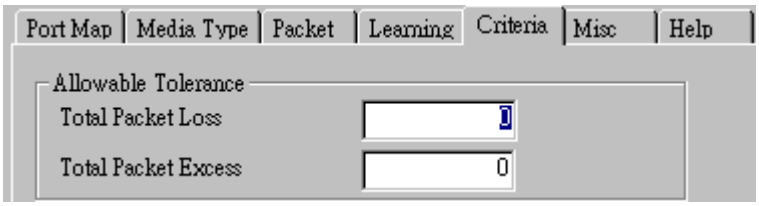
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





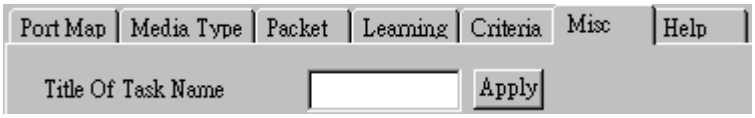
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



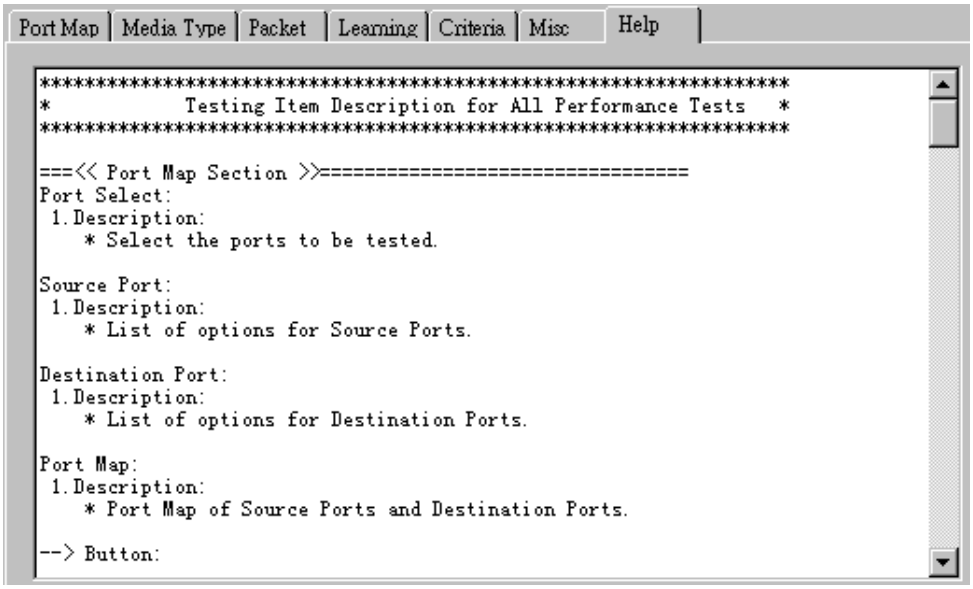
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

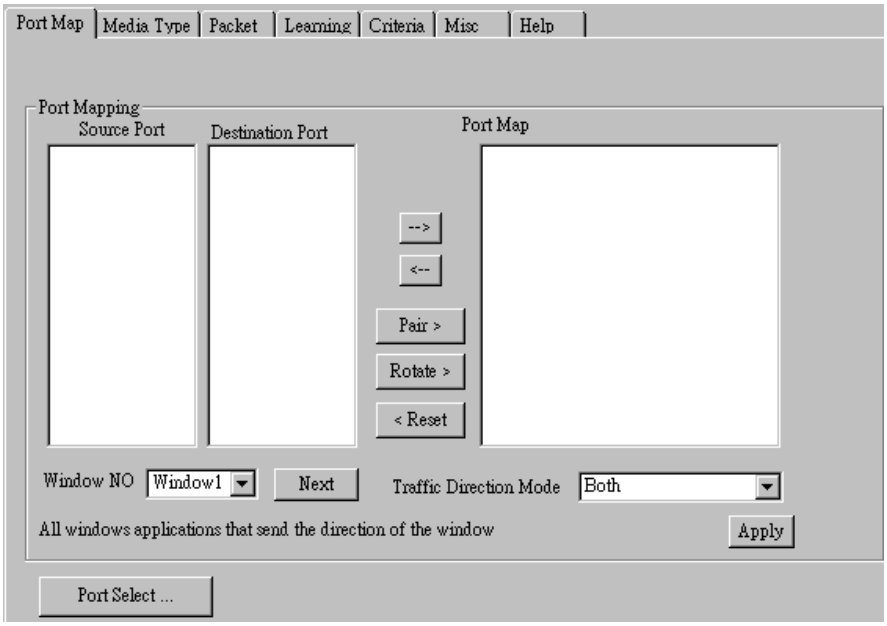


All test variables used for this task and their definitions will be listed here for reference.

5.7. Unicast Test (UC) _ PT2-UC-1G (1000Mbps Full Duplex)

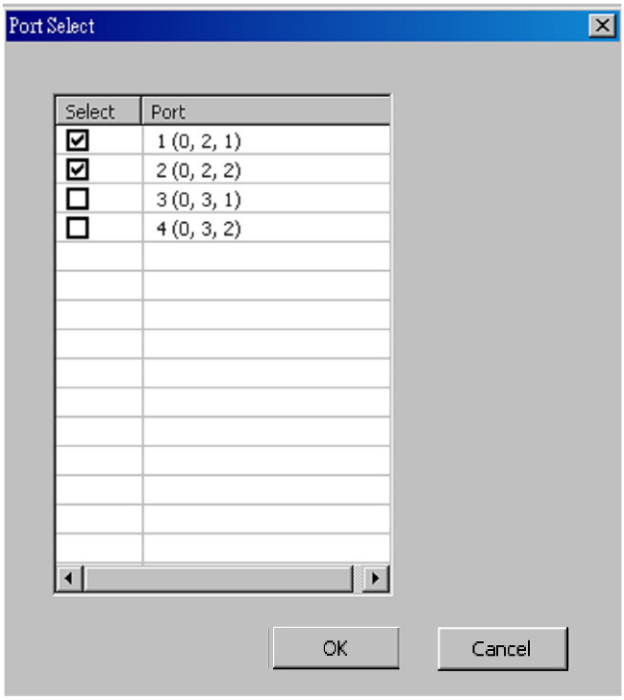
Layer 2 1000Mbps Half Duplex Unicast Performance Test is to transmit test streams via point to point addressing method that is based on MAC address.

A. Port Map



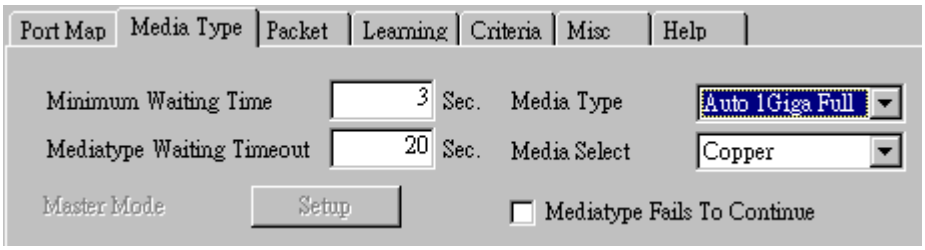
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click → button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click ← button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



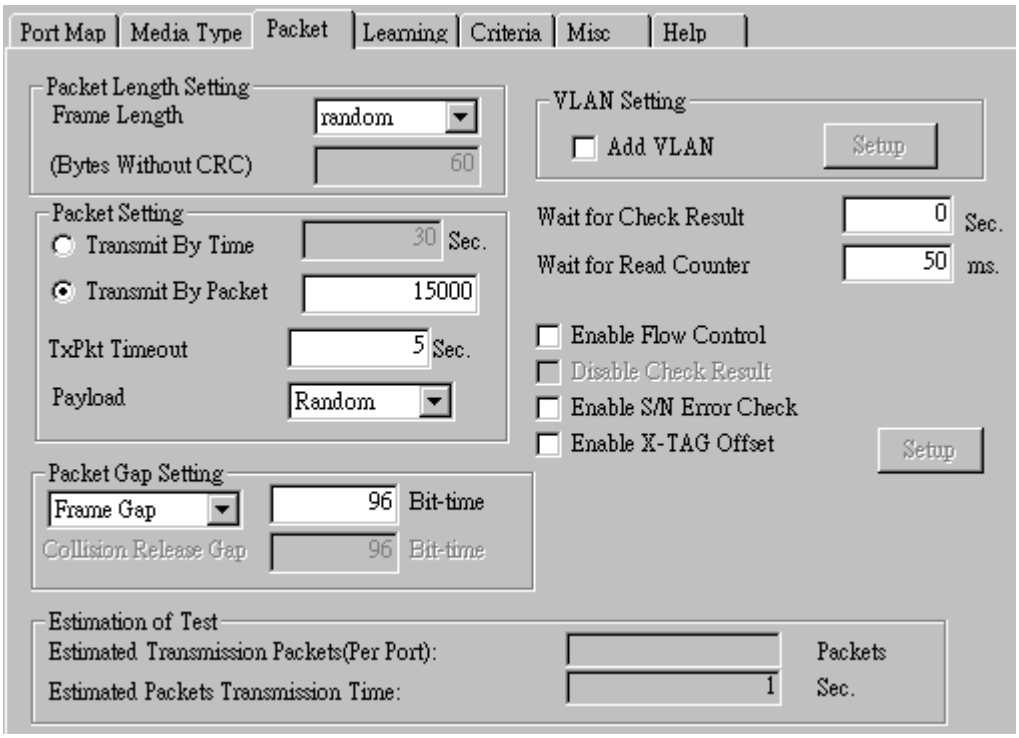
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

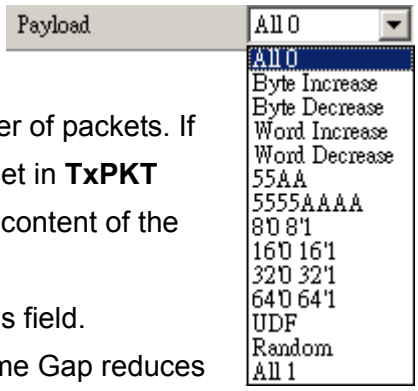
C. Packet



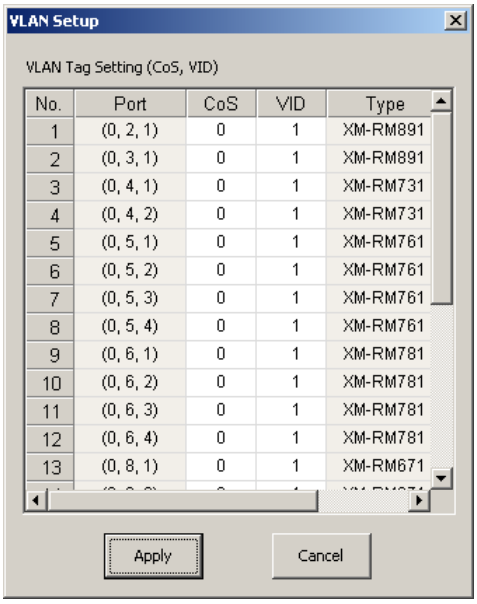
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

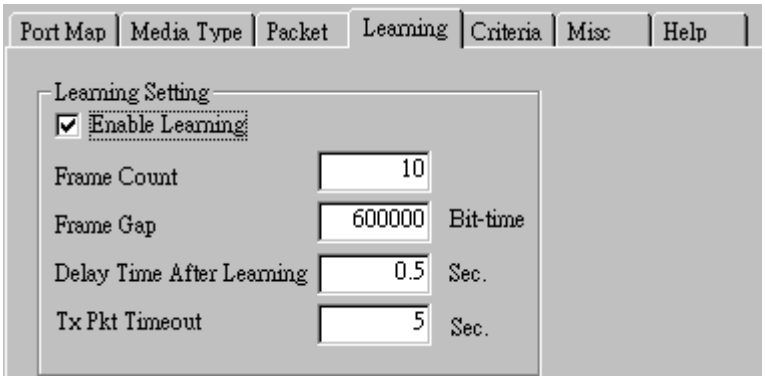


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

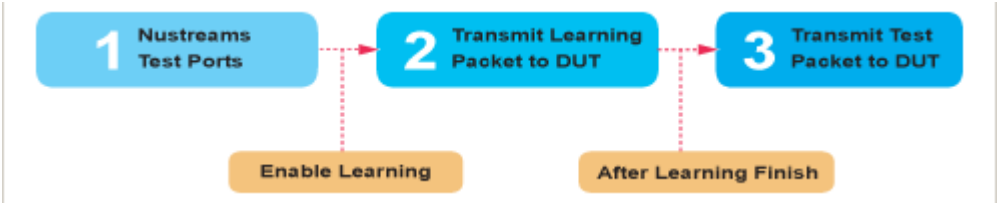


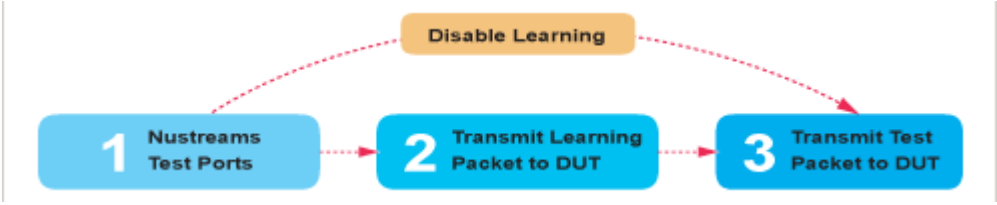
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



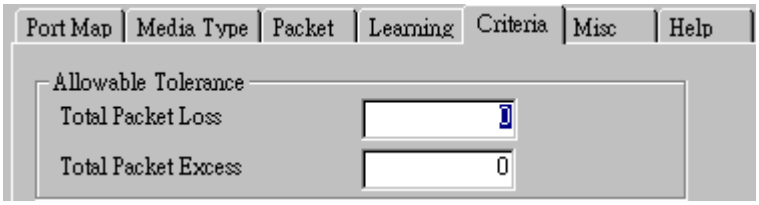
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





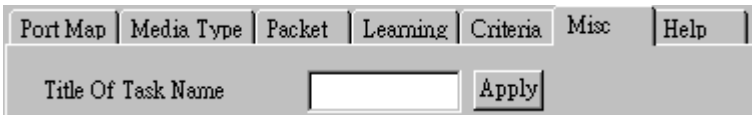
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



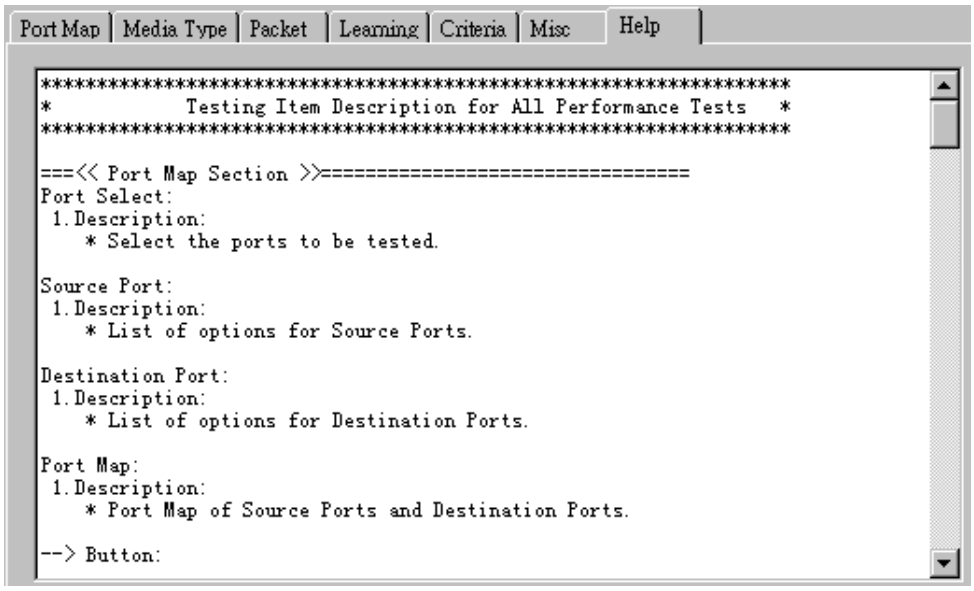
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

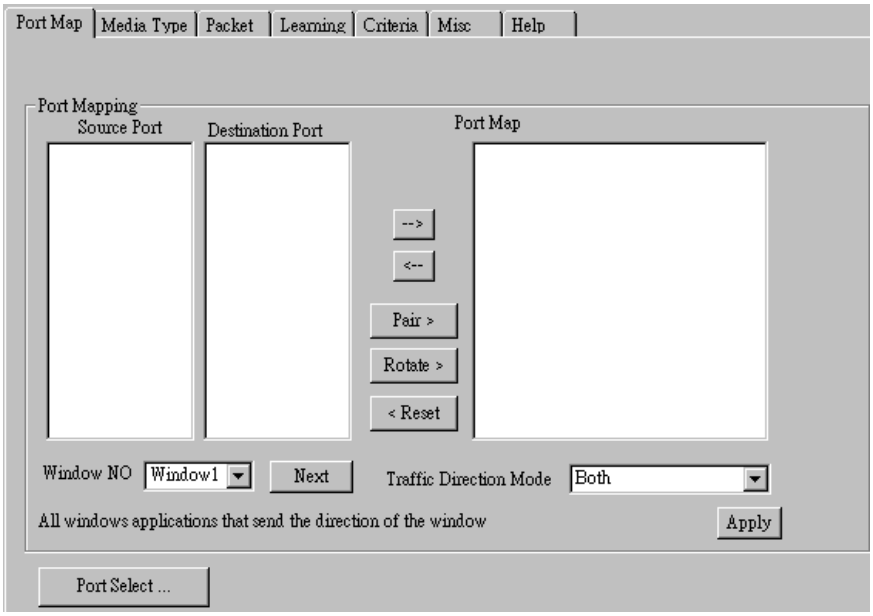


All test variables used for this task and their definitions will be listed here for reference.

5.8. Unicast Test (UC) _ PT2-UC-10G (10Gbps Full Duplex)

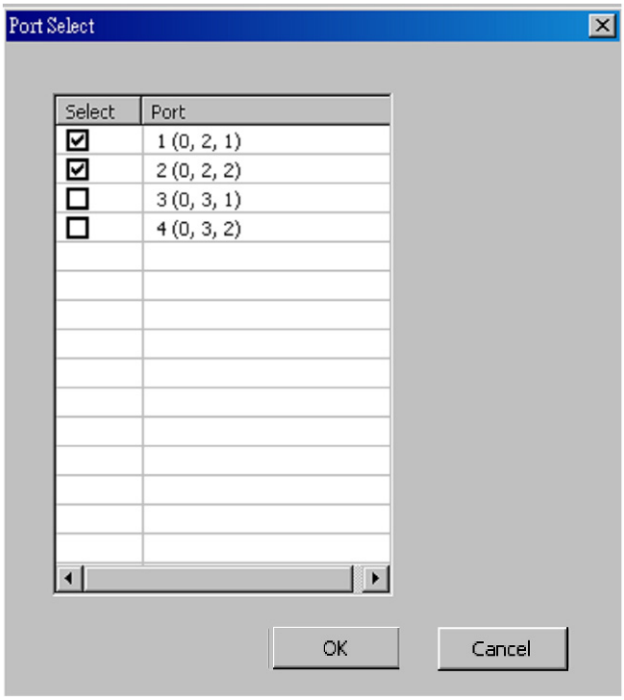
Layer 2 10Gbps Full Duplex Unicast Performance Test is to transmit test streams via point to point addressing method that is based on MAC address.

A. Port Map



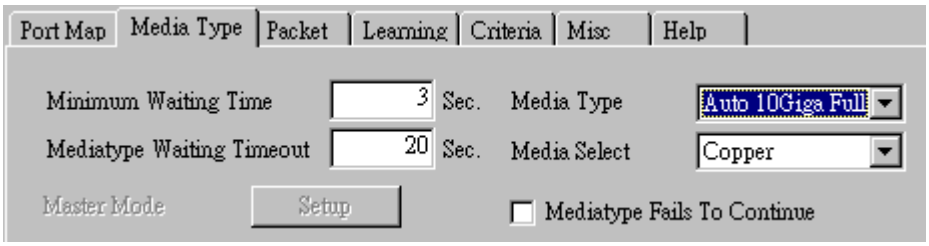
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



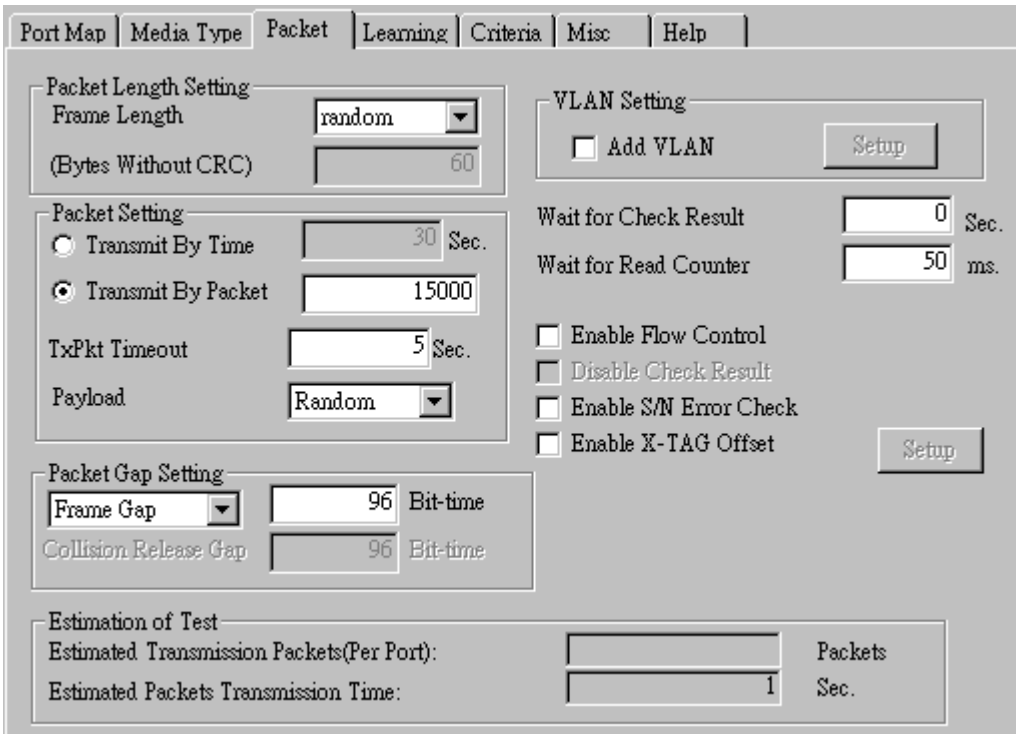
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

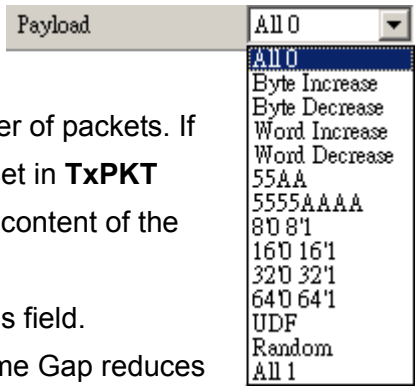
C. Packet



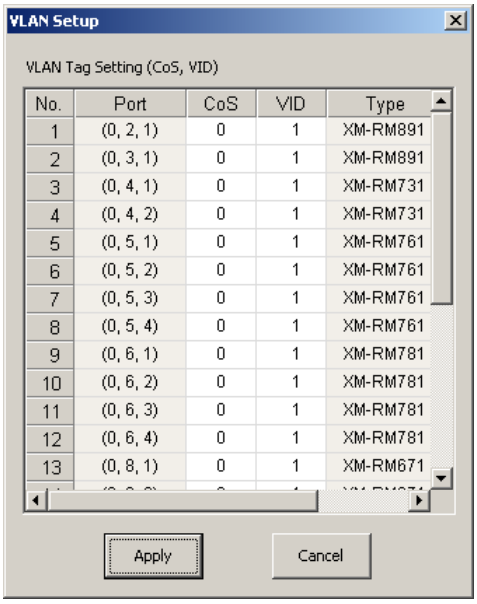
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

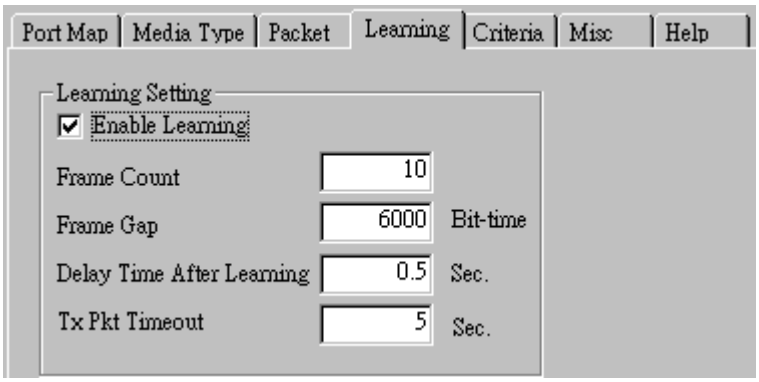


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

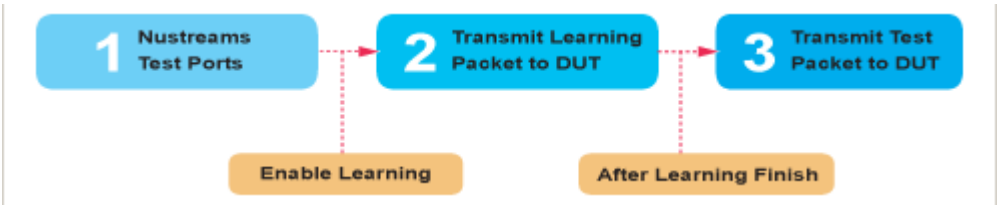


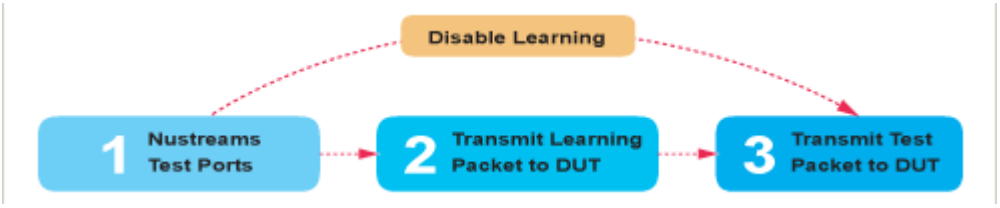
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



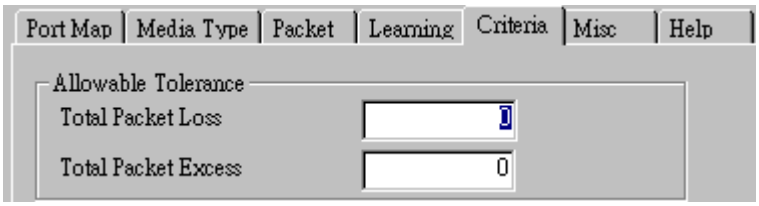
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





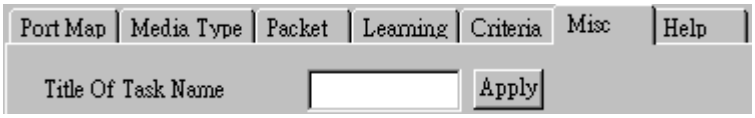
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



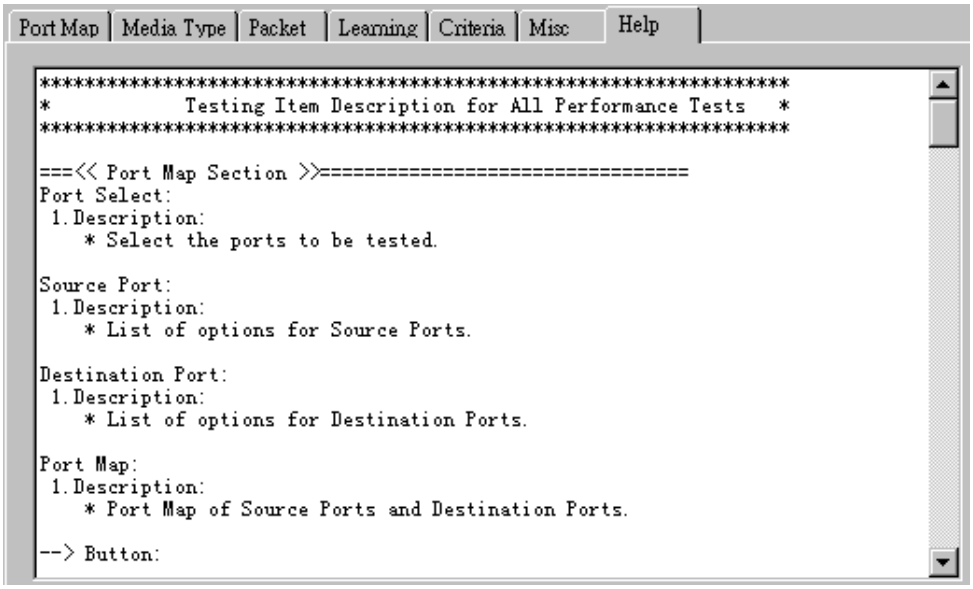
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

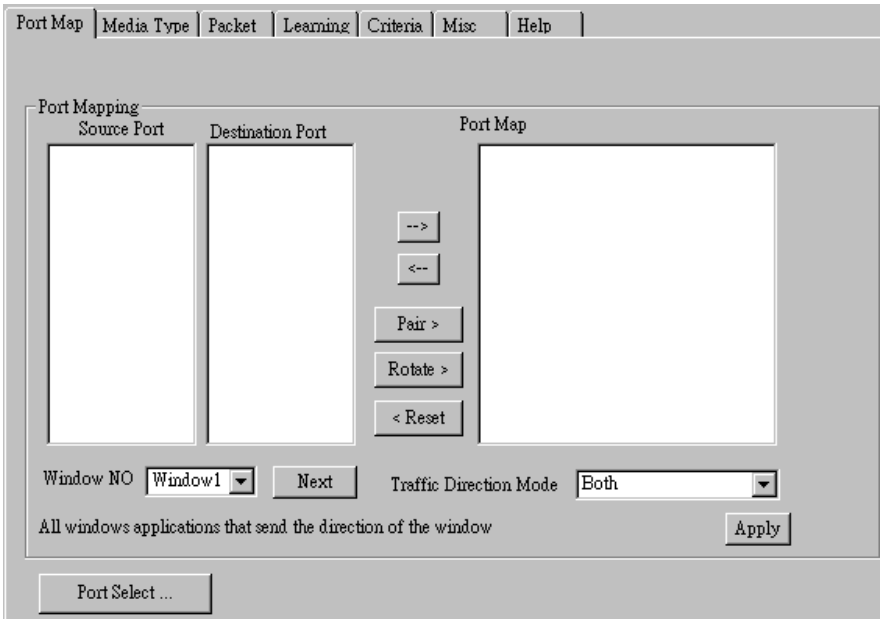


All test variables used for this task and their definitions will be listed here for reference.

5.9. Flow Control Test (FC) _ PT2-FC-10H-100H (10Mbps Half ↔ 100Mbps Half)

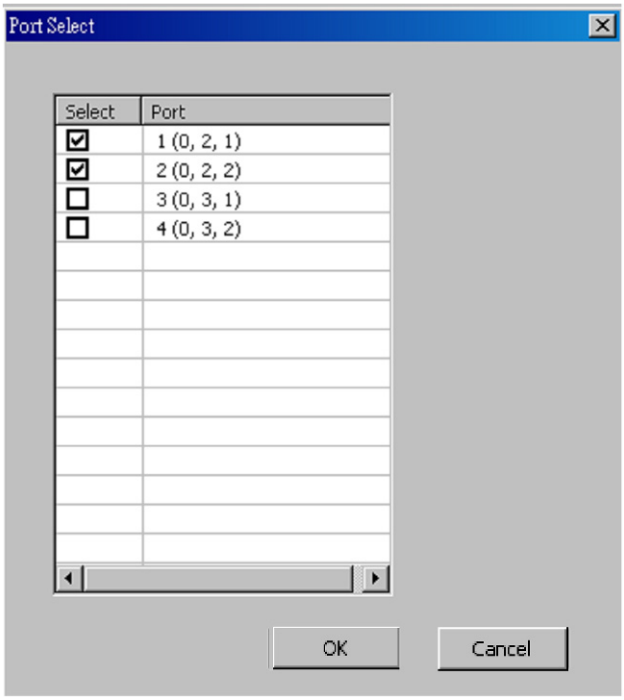
Layer2 10Mbps Half Duplex to 100Mbps Half Duplex Flow Control tests the performance when the DUT is connected to media with varied kinds of speed and duplex mode.

A. Port Map



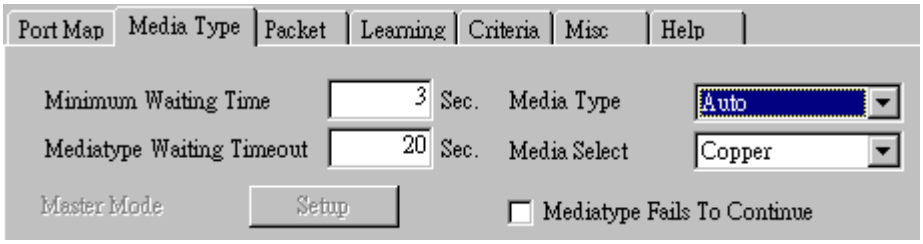
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



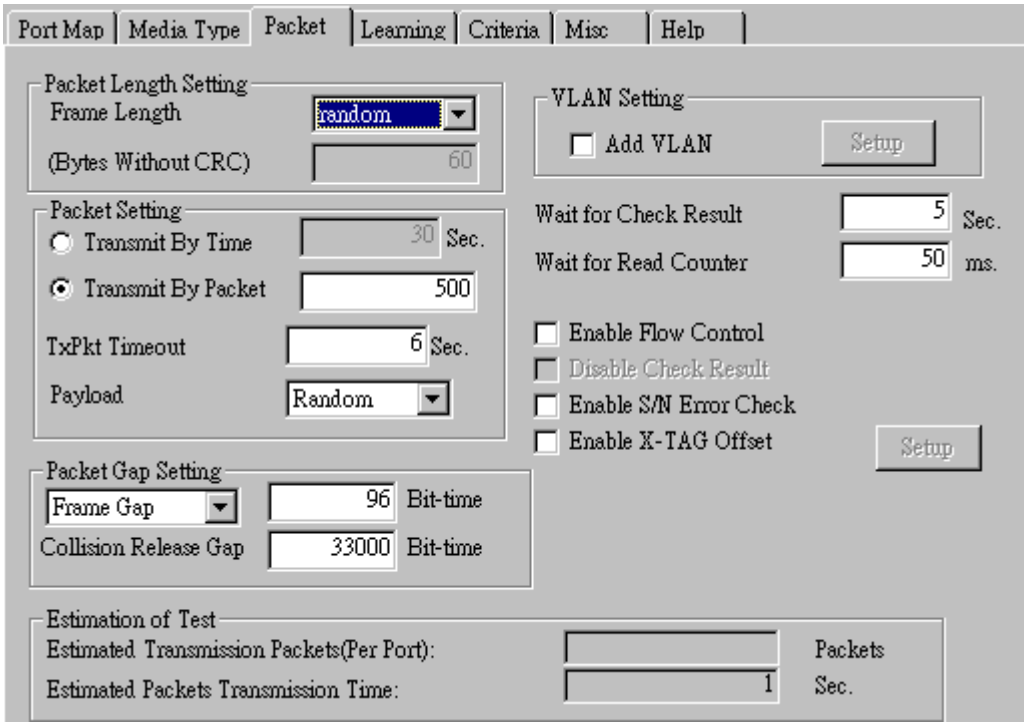
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



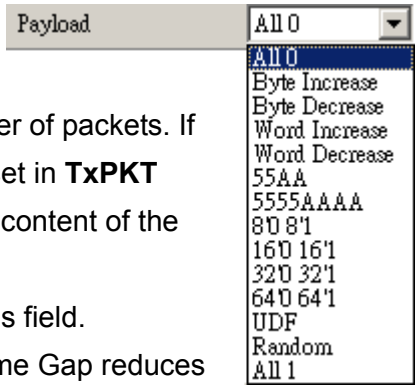
- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

C. Packet

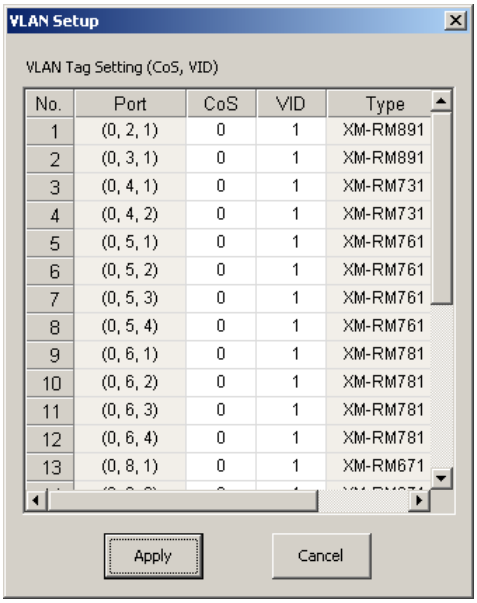


- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

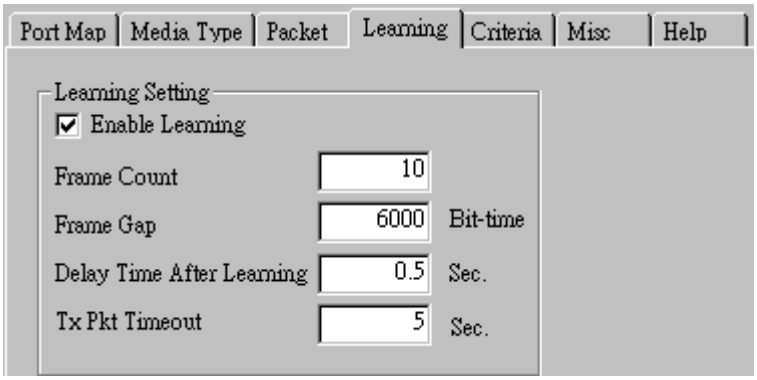


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

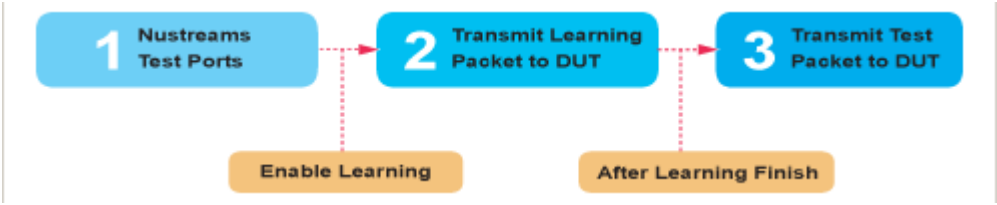


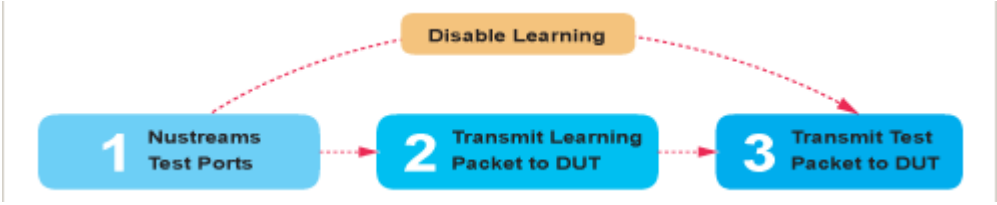
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



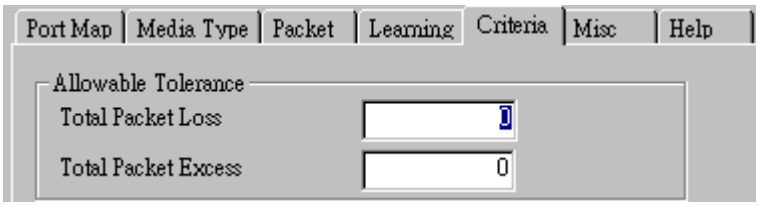
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





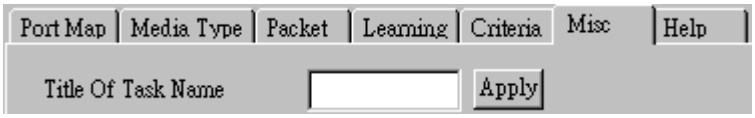
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



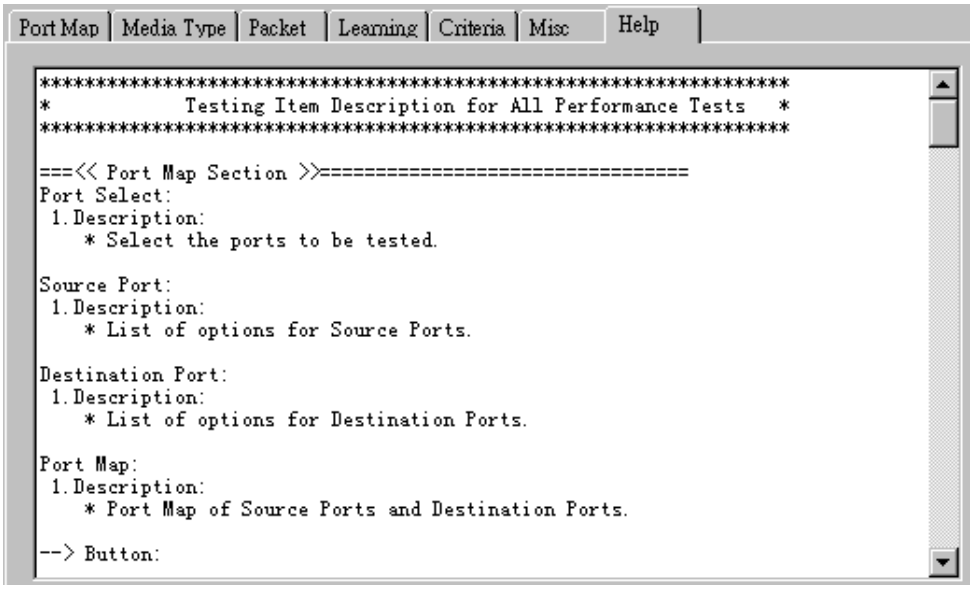
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

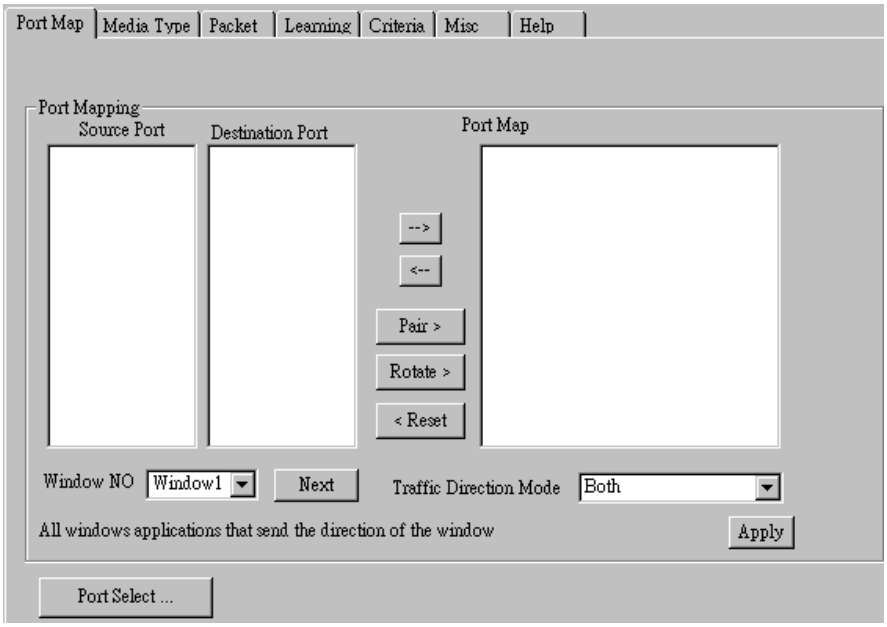


All test variables used for this task and their definitions will be listed here for reference.

5.10. Flow Control Test (FC) _ PT2-FC-100H-10H (100Mbps Half ↔ 10Mbps Half)

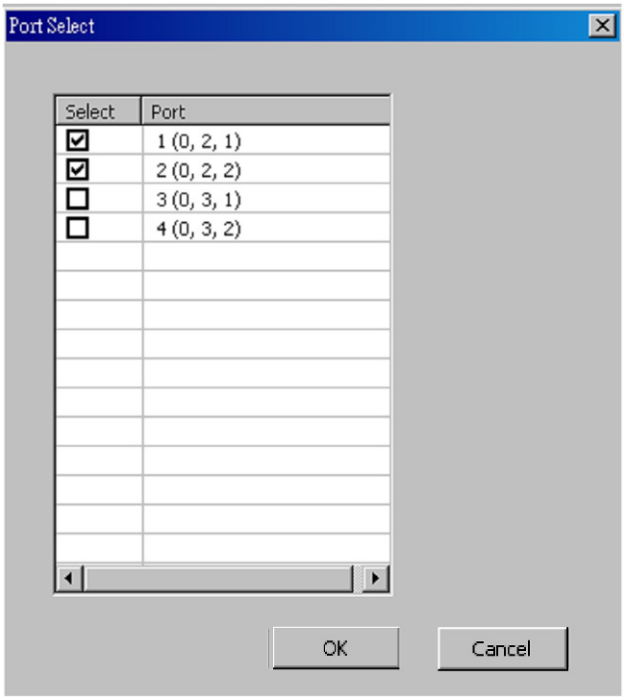
Layer2 100Mbps Half Duplex to 10Mbps Half Duplex Flow Control tests the performance when the DUT is connected to media with varied kinds of speed and duplex mode.

A. Port Map



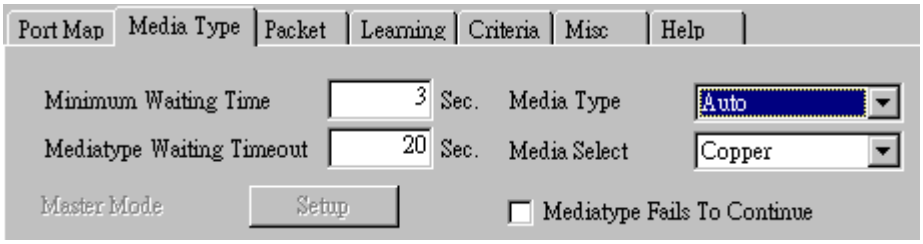
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



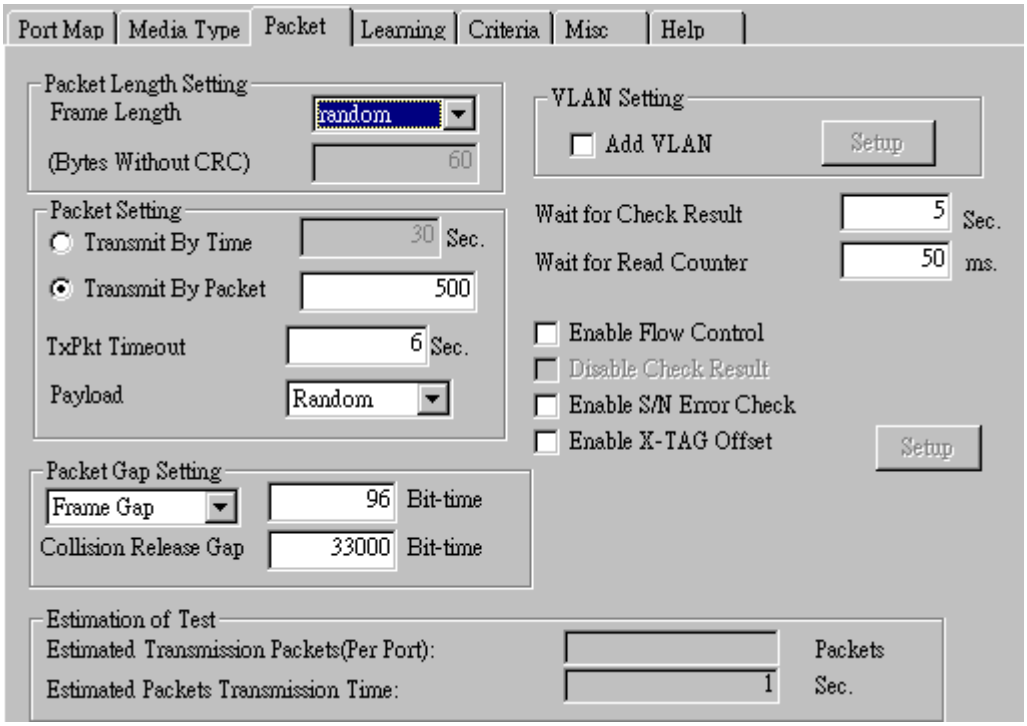
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



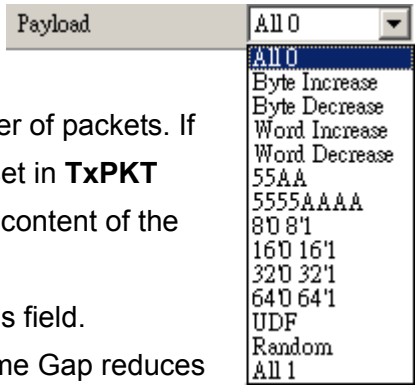
- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

C. Packet

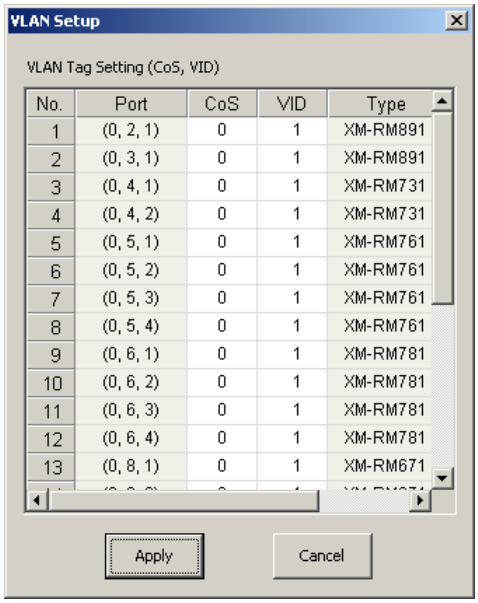


- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

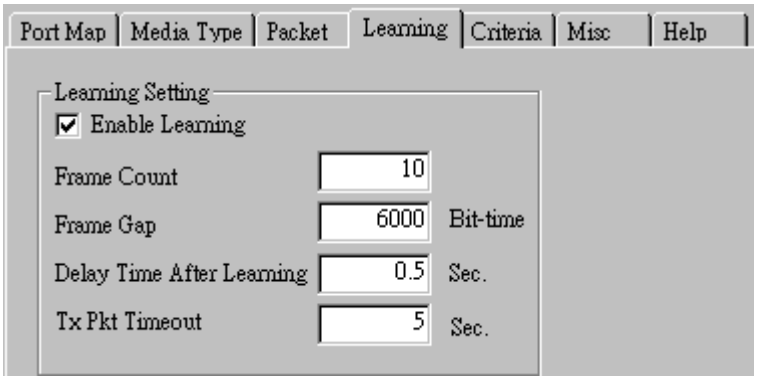


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

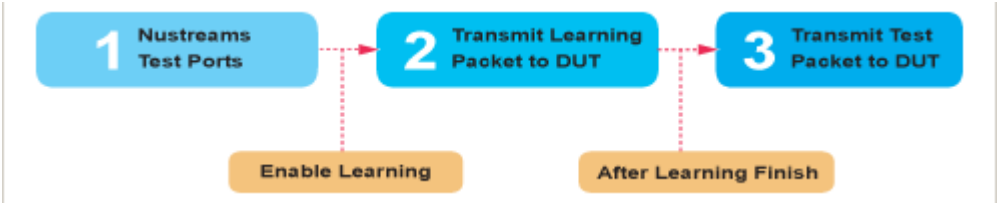


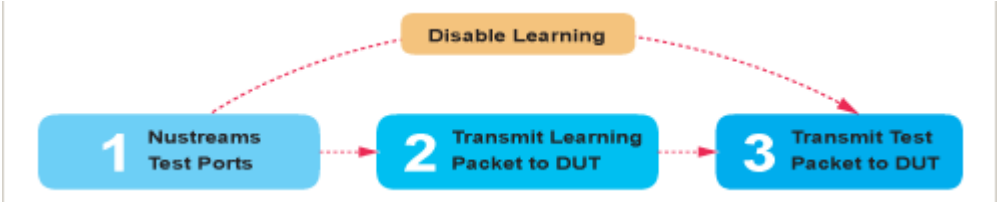
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



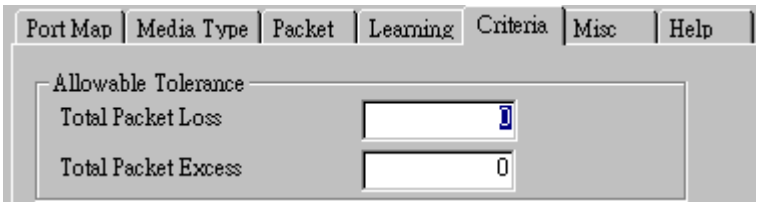
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





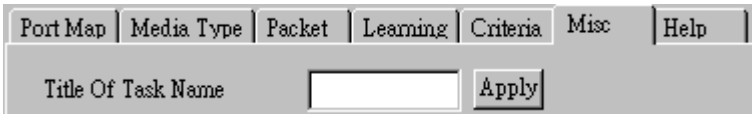
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



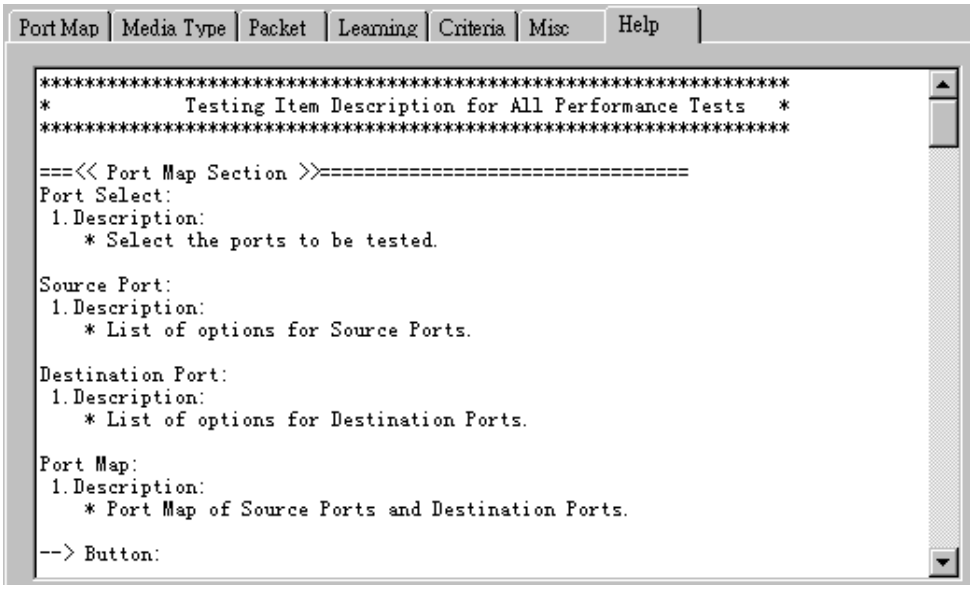
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

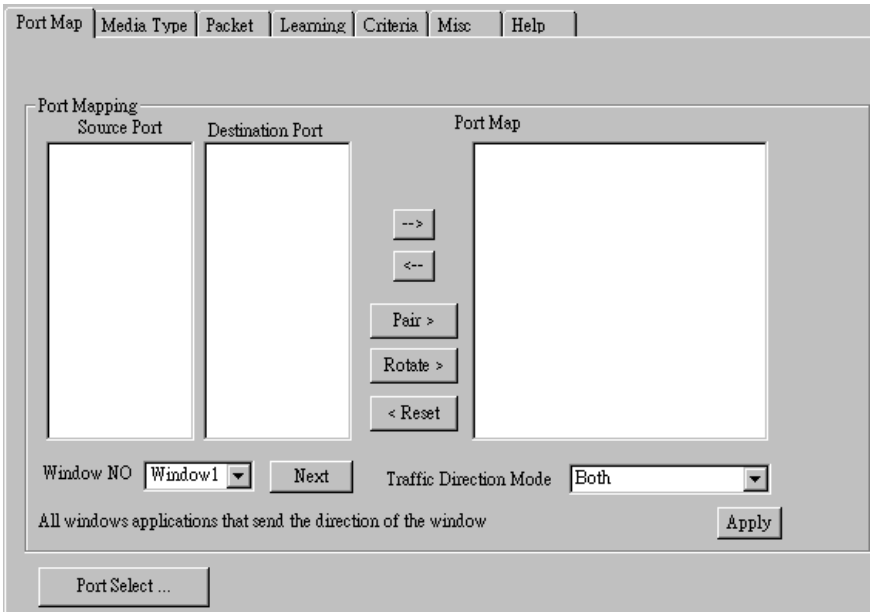


All test variables used for this task and their definitions will be listed here for reference.

5.11. Flow Control Test (FC) _ PT2-FC-10F-100F (10Mbps Full ↔ 100Mbps Full)

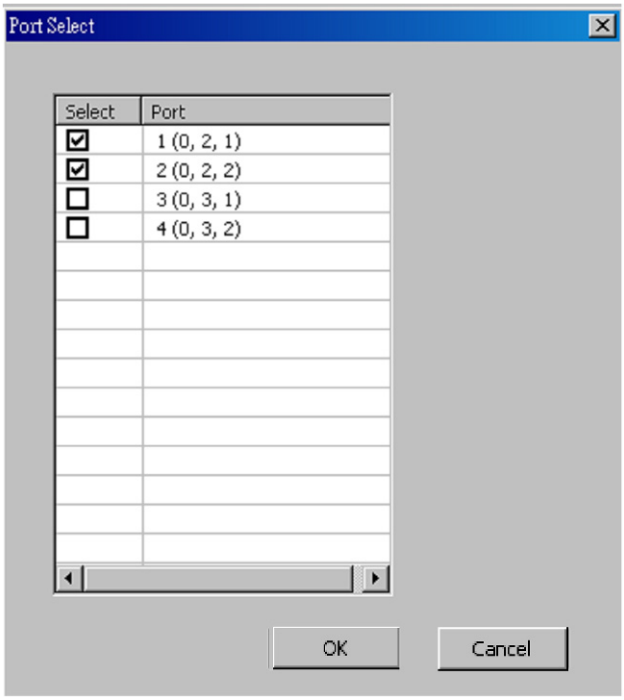
Layer2 10Mbps Full Duplex to 100Mbps Full Duplex Flow Control tests the performance when the DUT is connected to media with varied kinds of speed and duplex mode.

A. Port Map



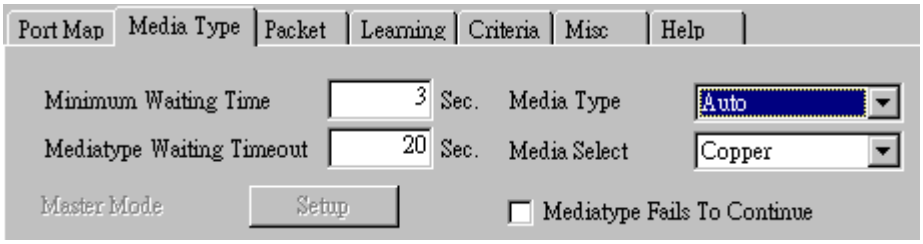
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click → button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click ← button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



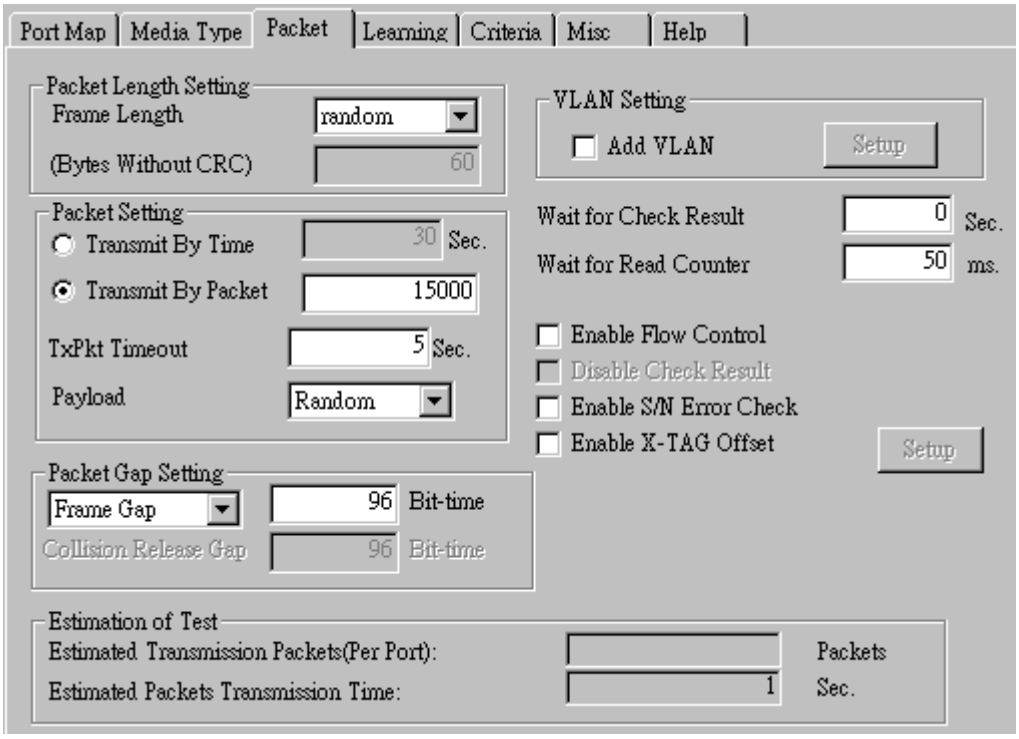
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

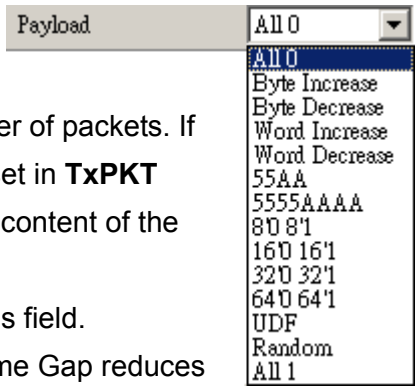
C. Packet



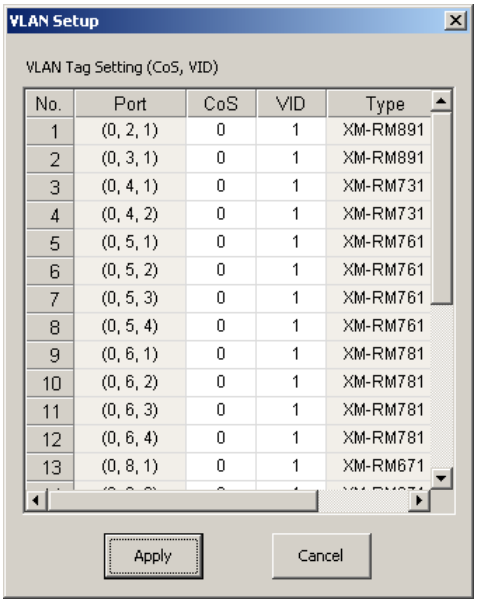
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

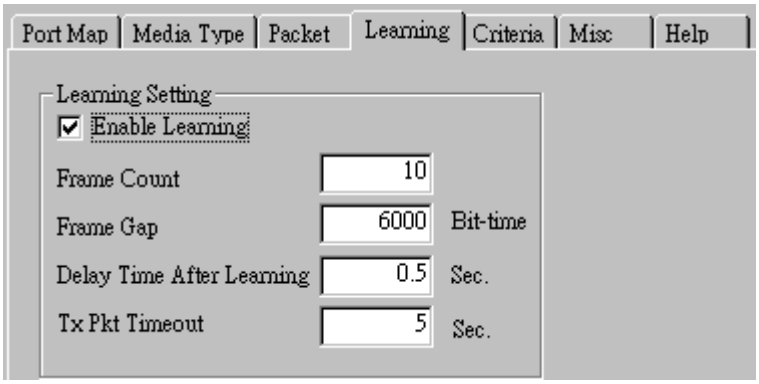


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

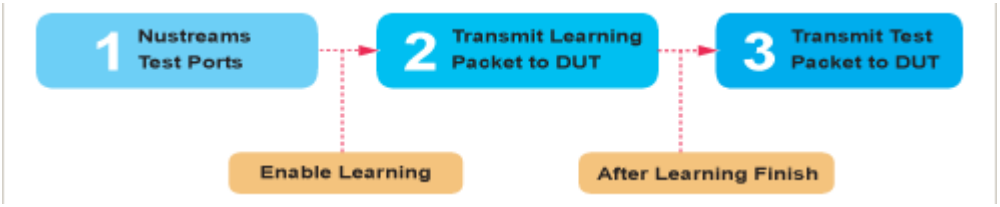


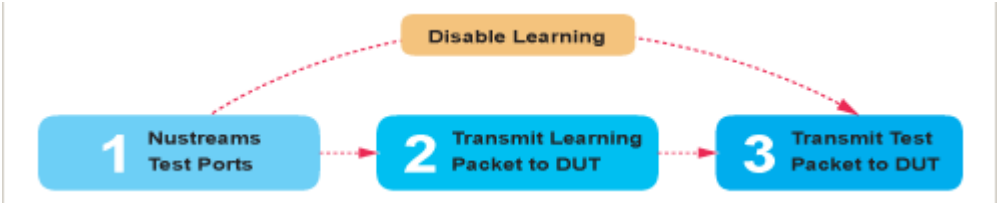
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



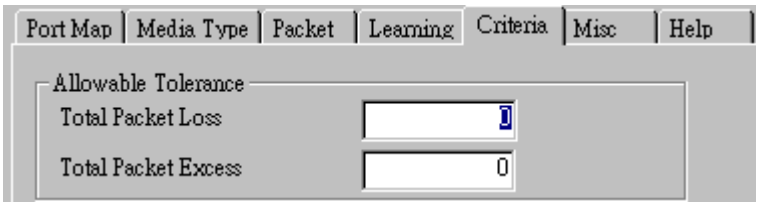
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





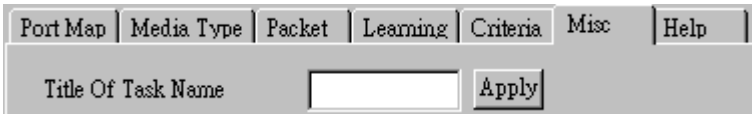
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



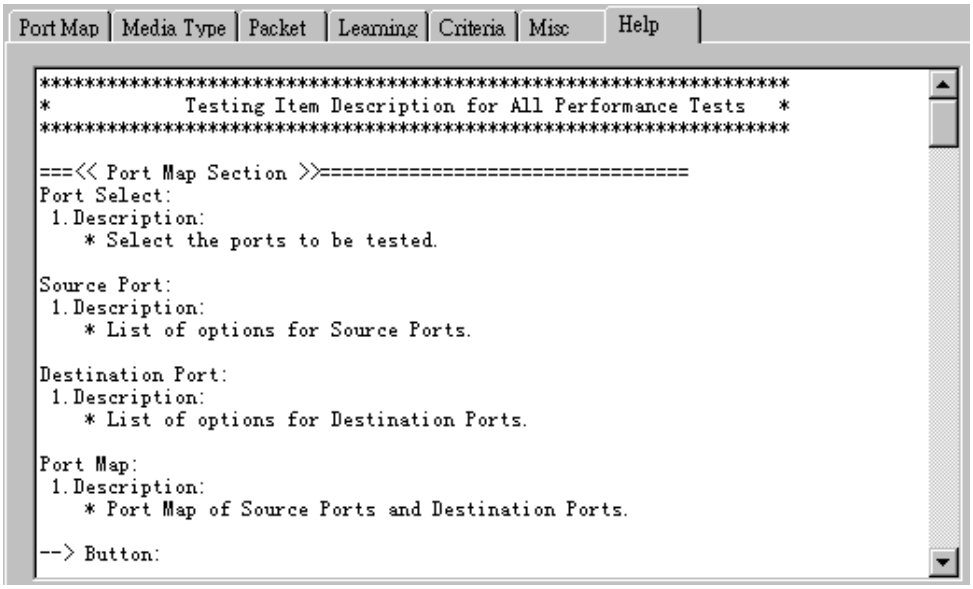
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

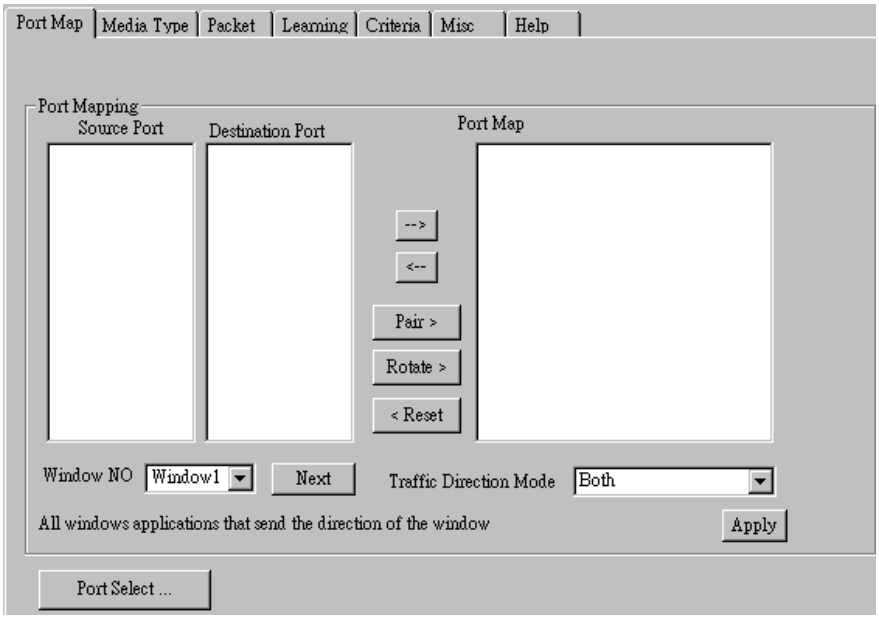


All test variables used for this task and their definitions will be listed here for reference.

5.12. Flow Control Test (FC) _ PT2-FC-100F-10F (100Mbps Full ↔ 10Mbps Full)

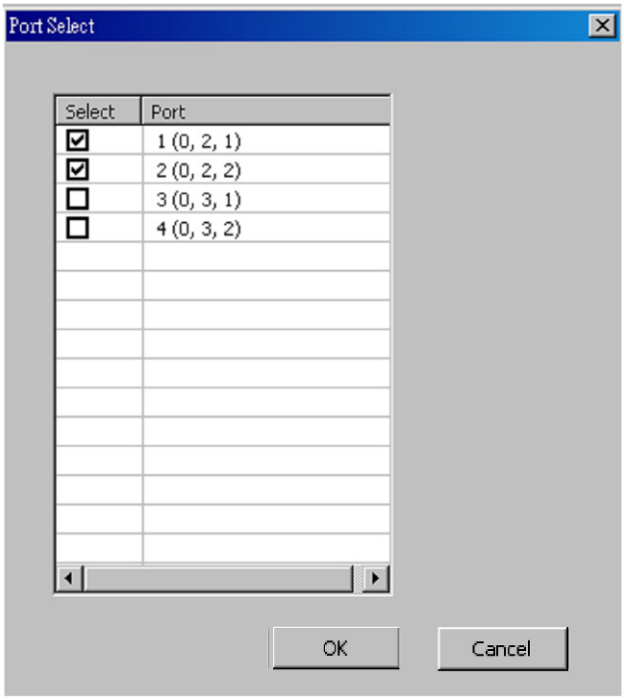
Layer2 100Mbps Full Duplex to 10Mbps Full Duplex Flow Control tests the performance when the DUT is connected to media with varied kinds of speed and duplex mode.

A. Port Map



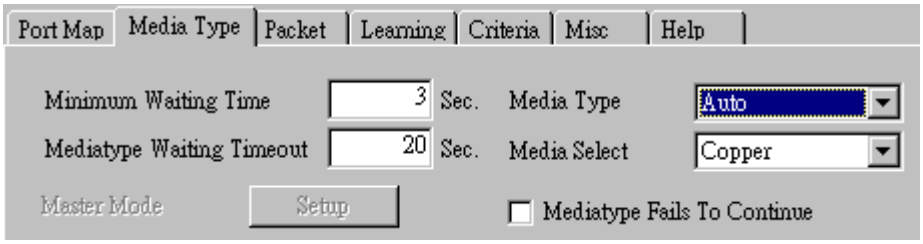
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



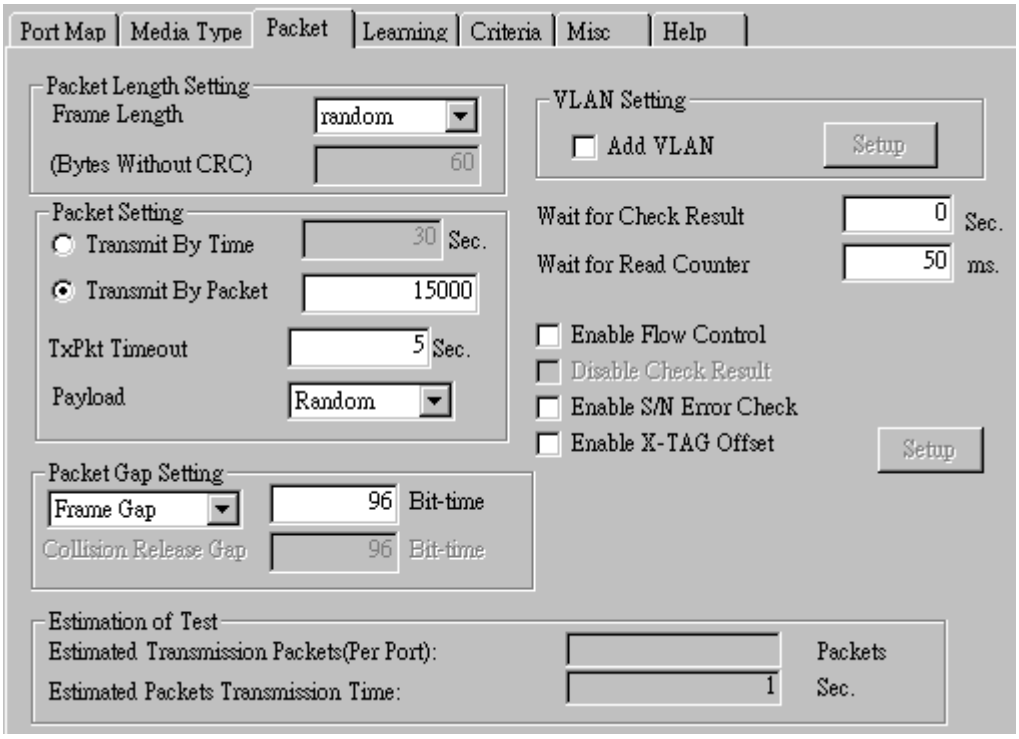
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

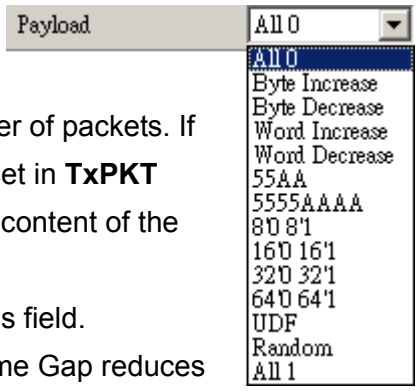
C. Packet



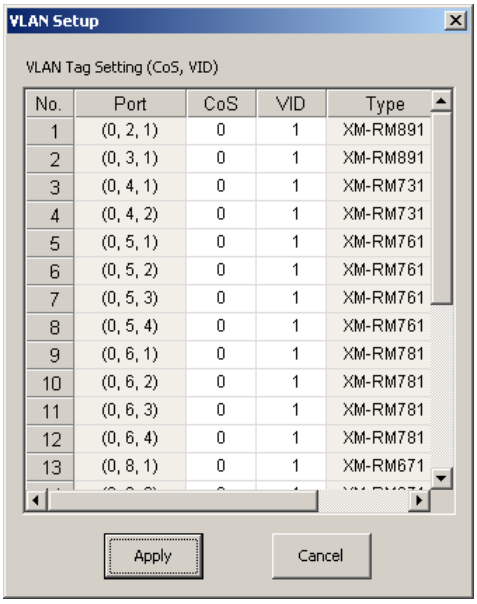
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

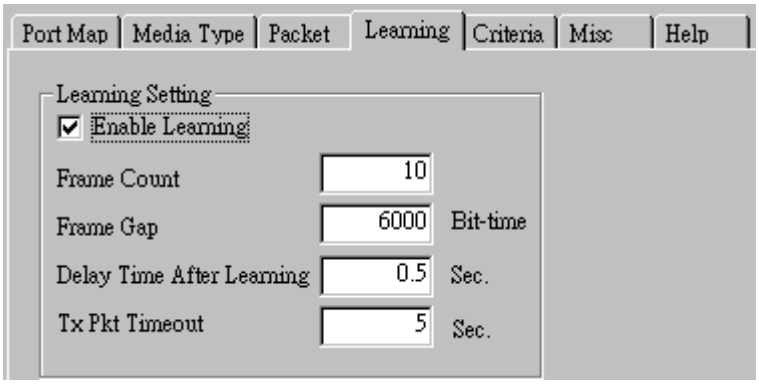


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

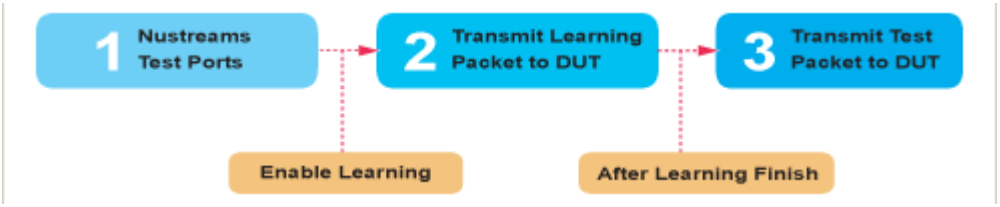


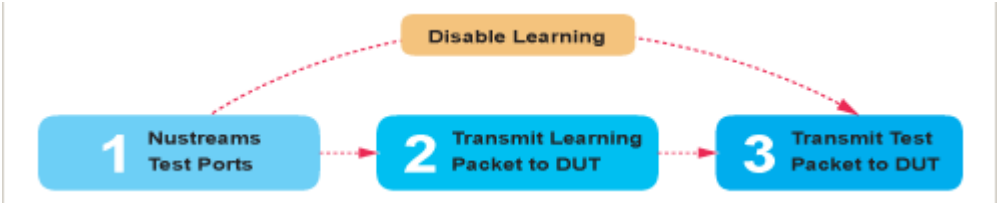
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



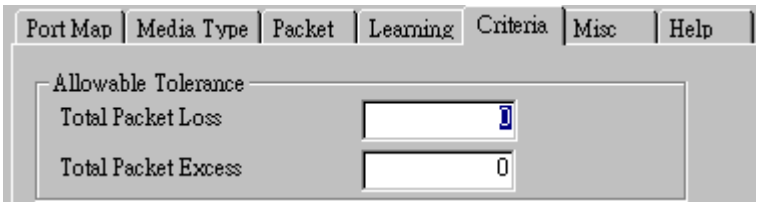
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





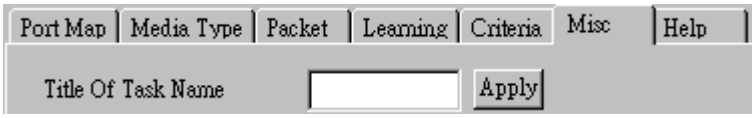
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



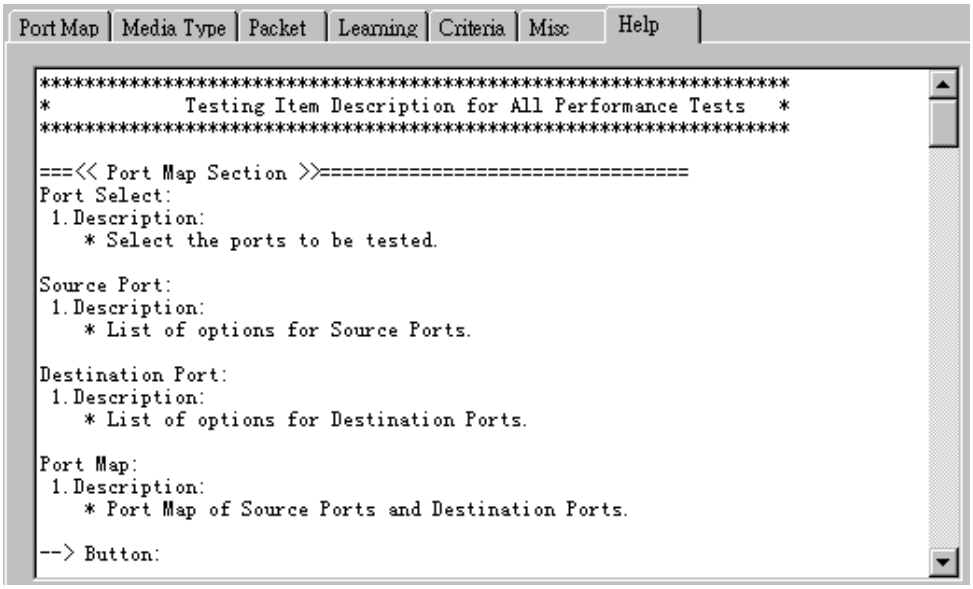
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

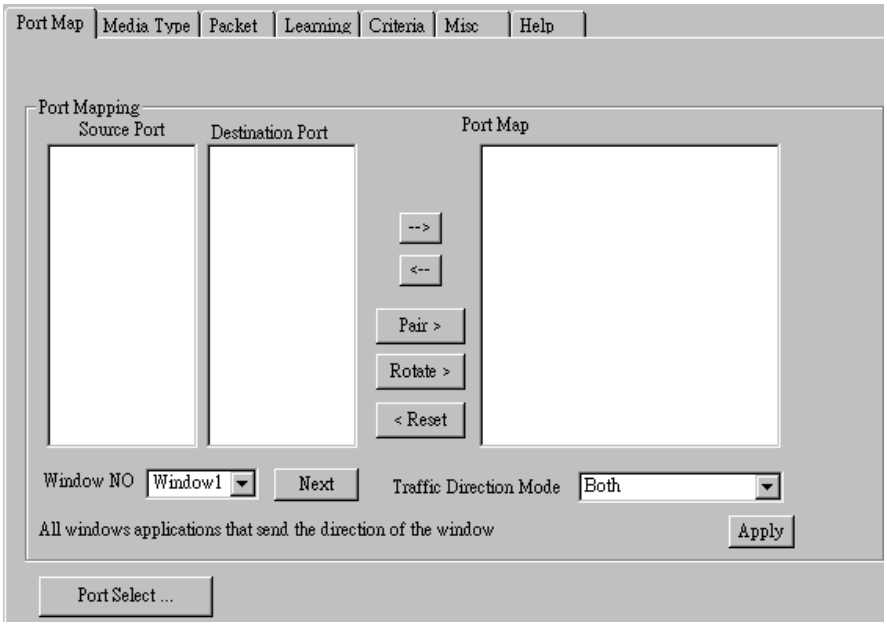


All test variables used for this task and their definitions will be listed here for reference.

5.13. Flow Control Test (FC) _ PT2-FC-100F-1G (100Mbps Full ↔ 1000Mbps Full)

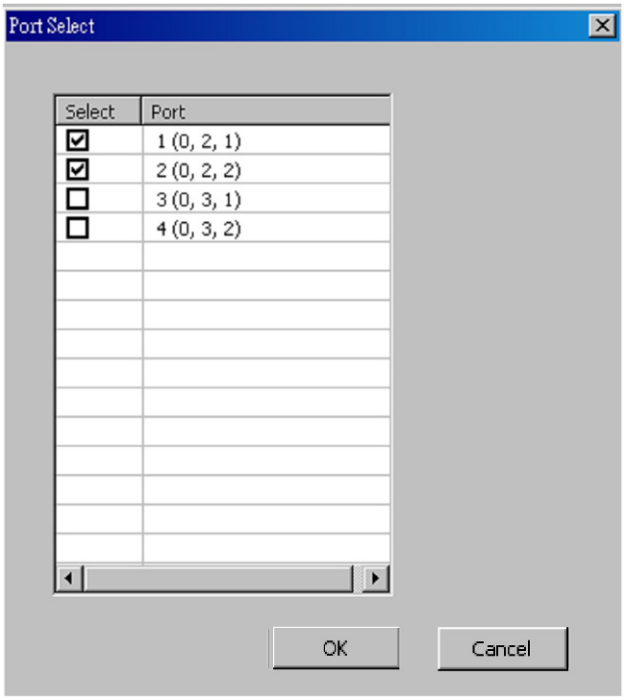
Layer2 100Mbps Full Duplex to 1000Mbps Full Duplex Flow Control tests the performance when the DUT is connected to media with varied kinds of speed and duplex mode.

A. Port Map



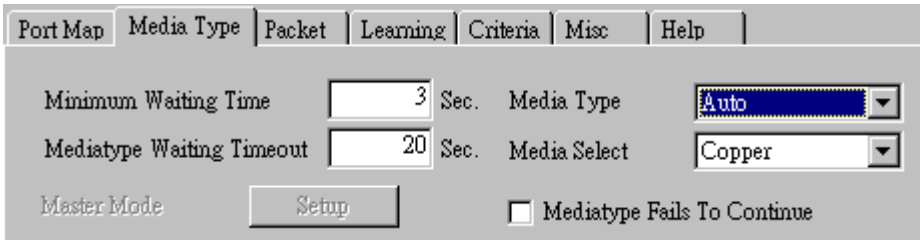
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



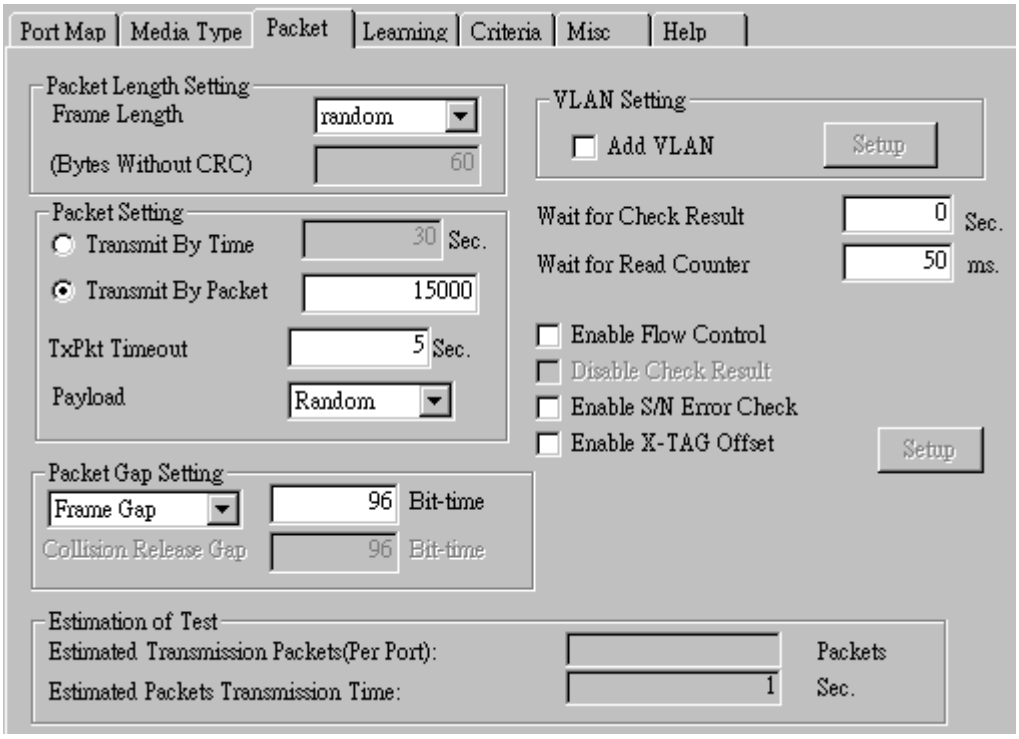
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

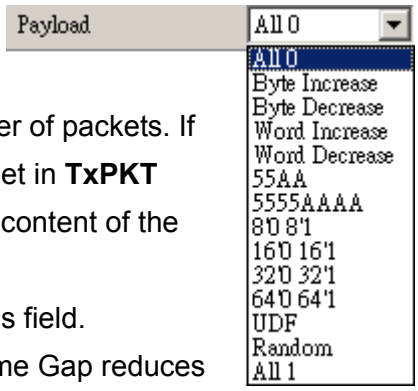
C. Packet



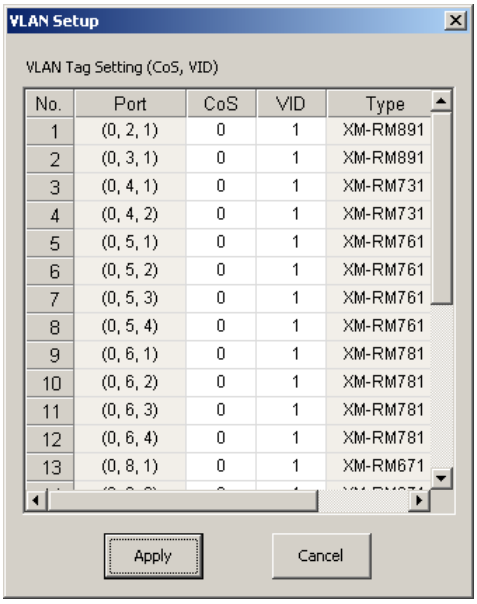
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

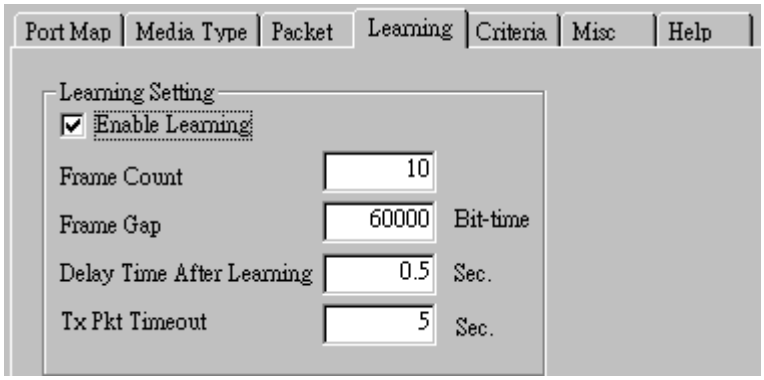


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

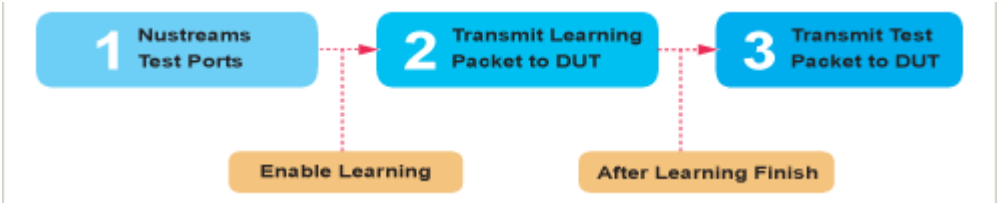


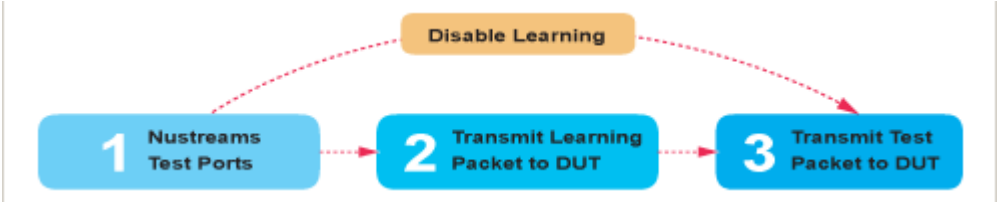
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



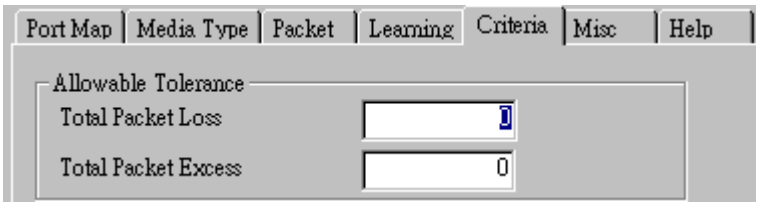
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





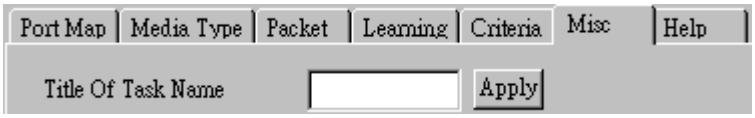
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



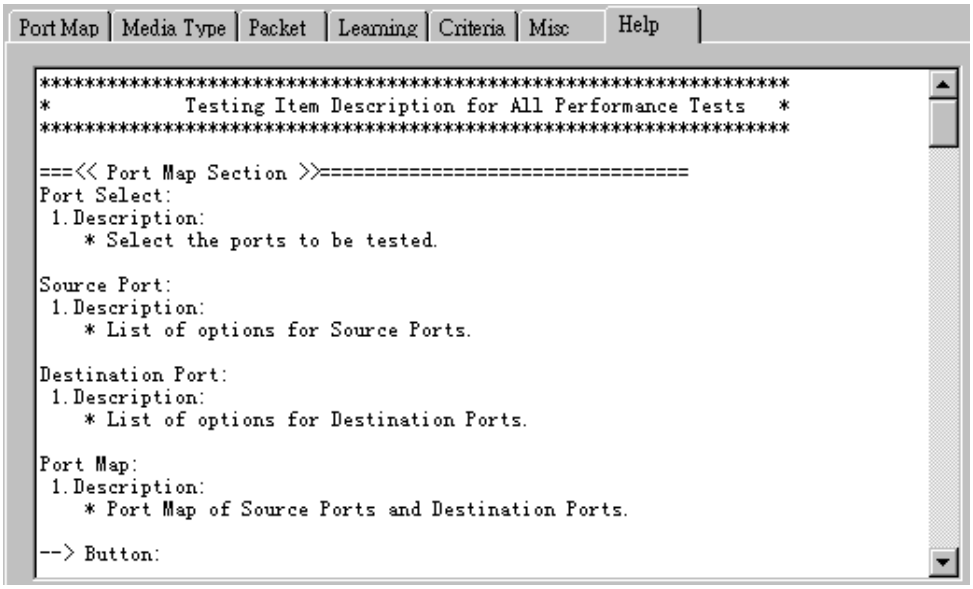
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

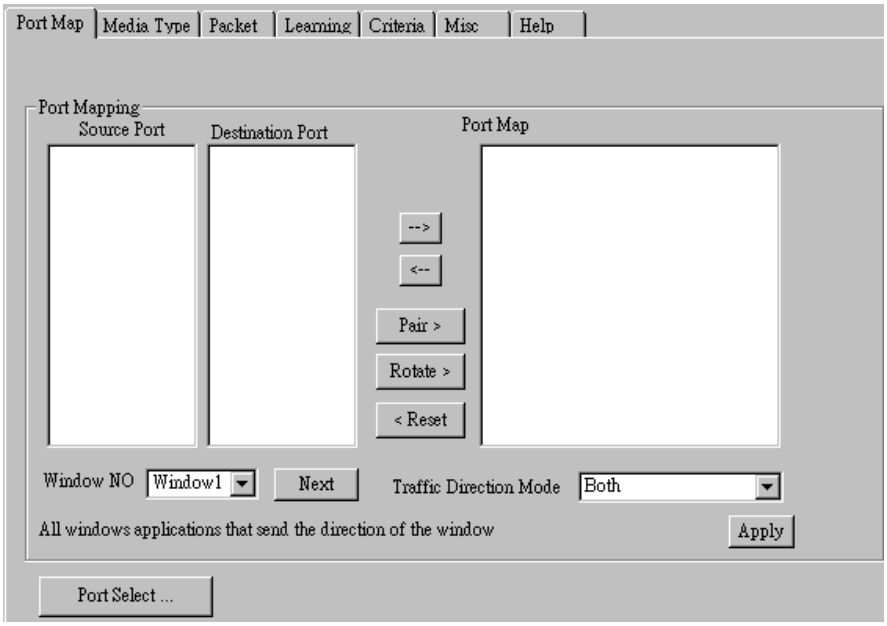


All test variables used for this task and their definitions will be listed here for reference.

5.14. Flow Control Test (FC) _ PT2-FC-1G-100F (1000Mbps Full ↔ 100Mbps Full)

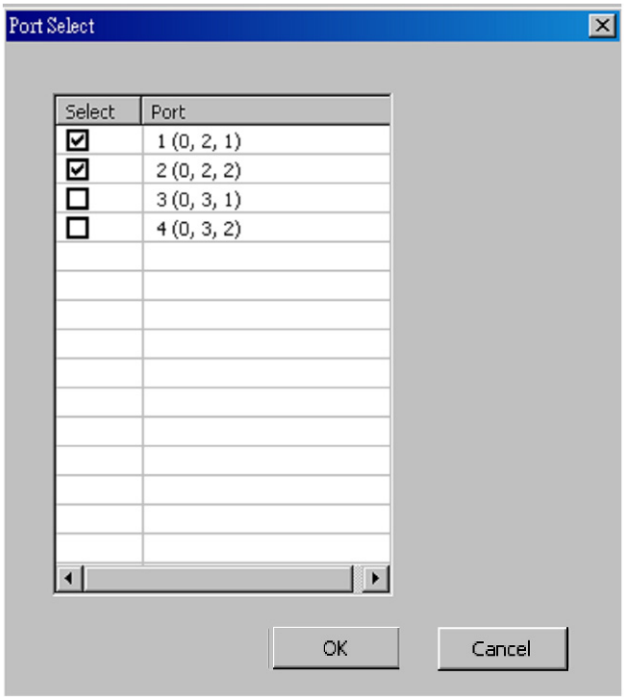
Layer2 1000Mbps Full Duplex to 100Mbps Full Duplex Flow Control tests the performance when the DUT is connected to media with varied kinds of speed and duplex mode.

A. Port Map



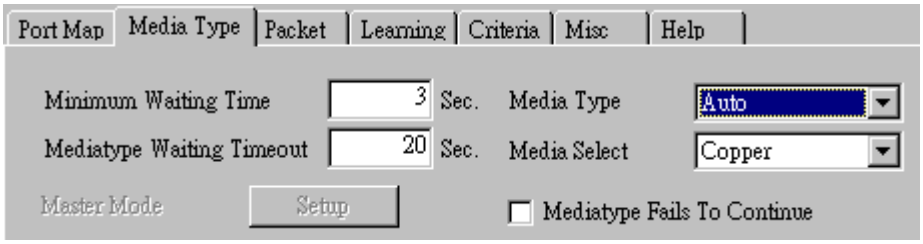
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



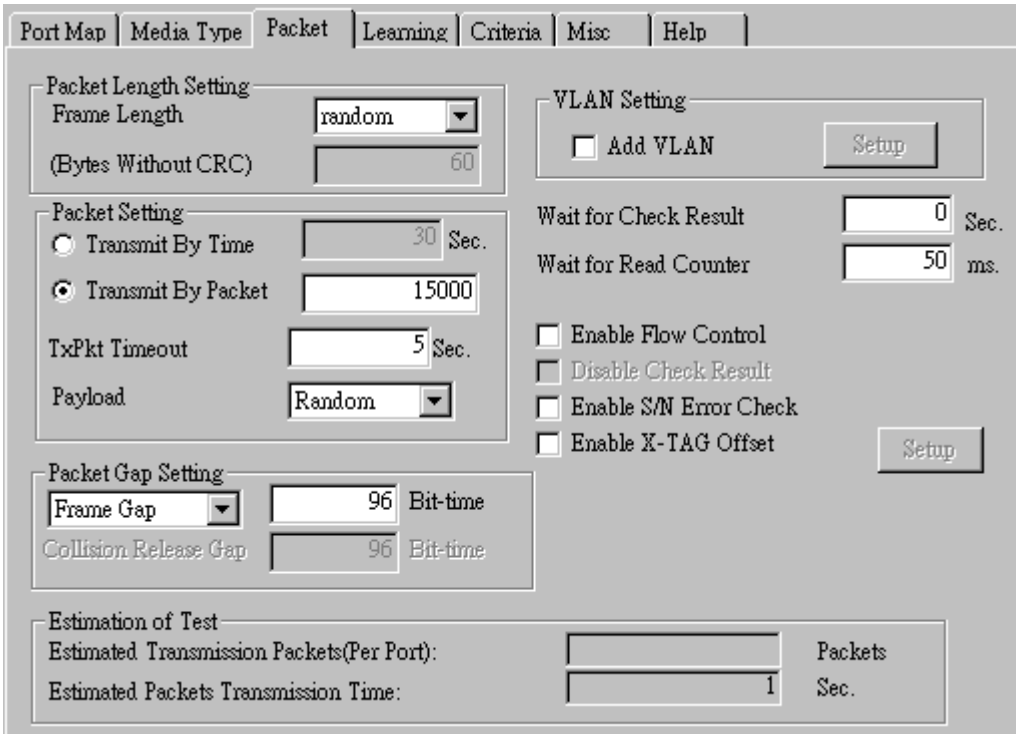
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

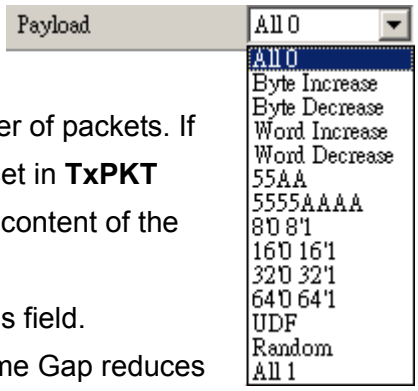
C. Packet



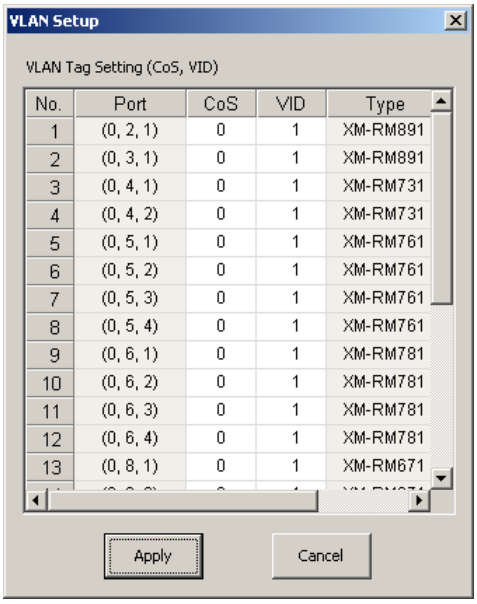
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

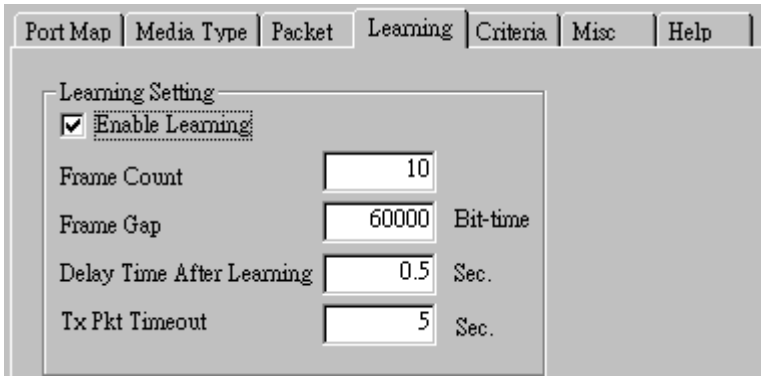


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

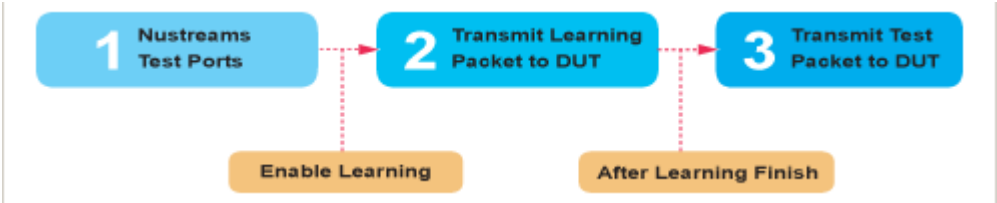


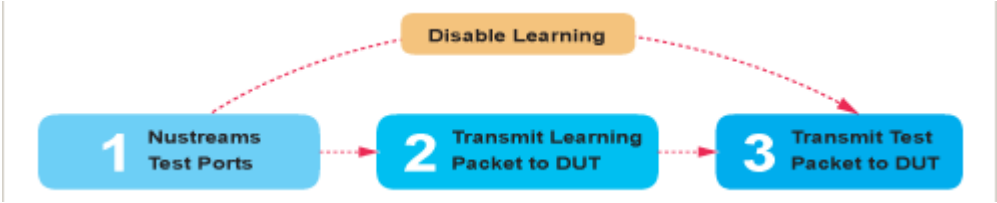
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



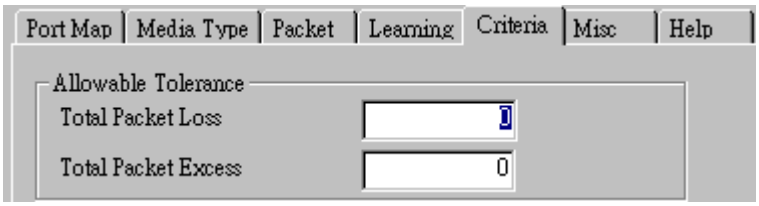
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





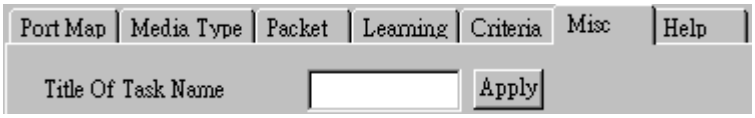
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



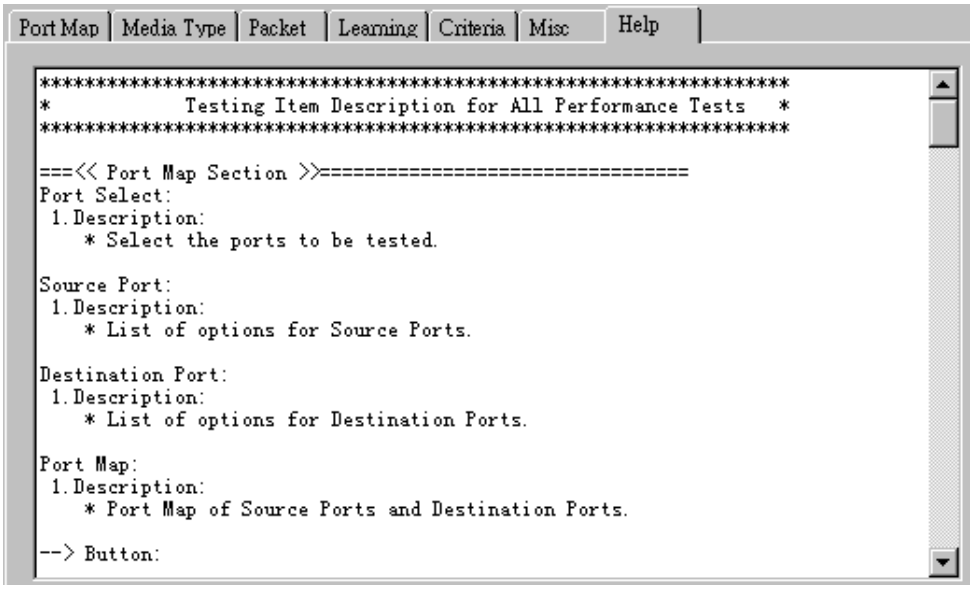
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

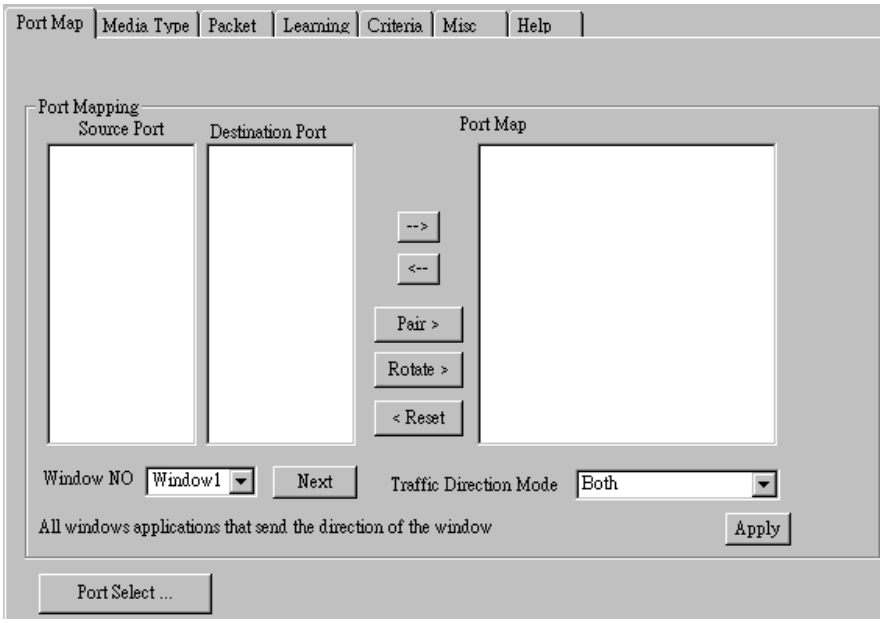


All test variables used for this task and their definitions will be listed here for reference.

5.15. Flow Control Test (FC) _ PT2-FC-1G-10G (1000Mbps Full ↔ 10Gbps Full)

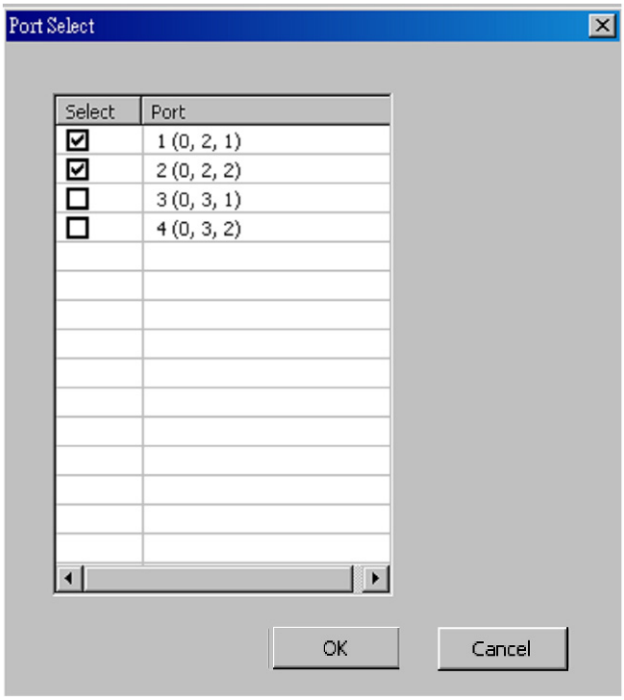
Layer2 1000Mbps Full Duplex to 10Gbps Full Duplex Flow Control tests the performance when the DUT is connected to media with varied kinds of speed and duplex mode.

A. Port Map



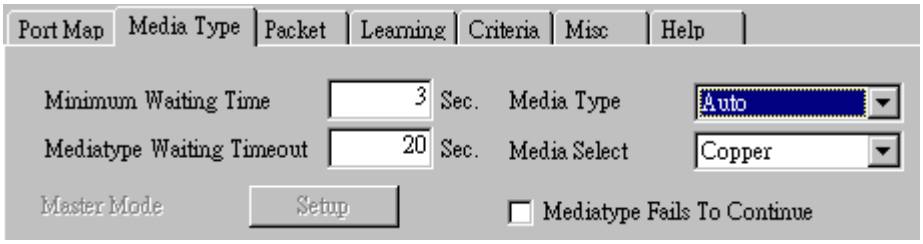
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



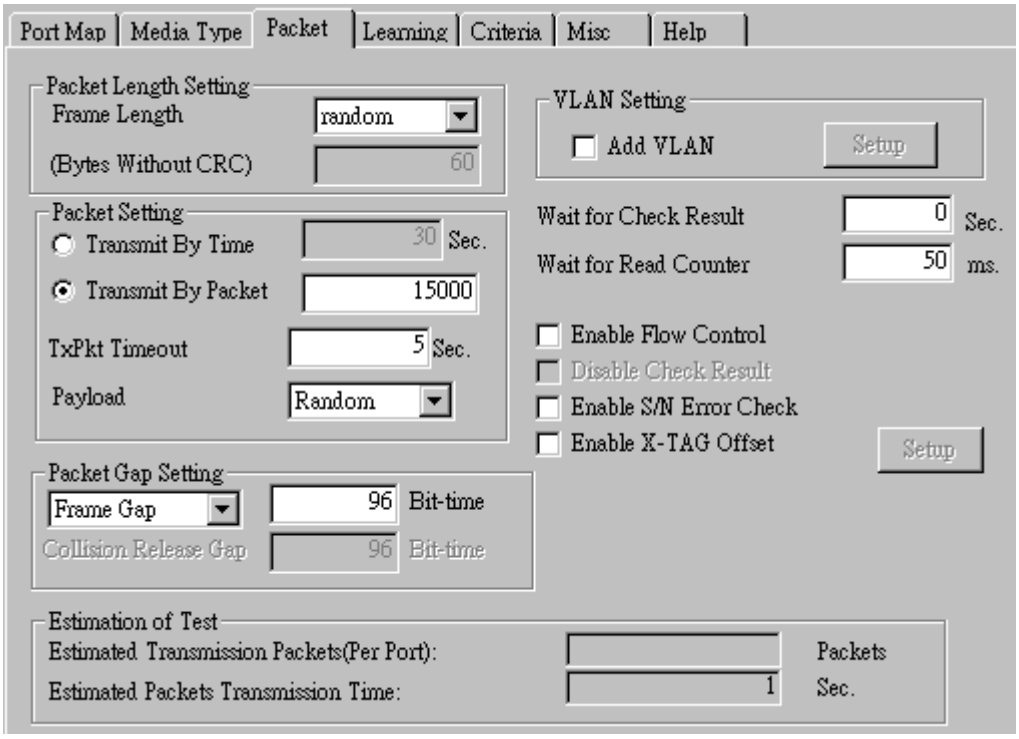
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

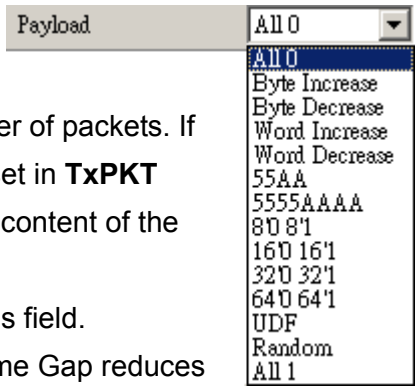
C. Packet



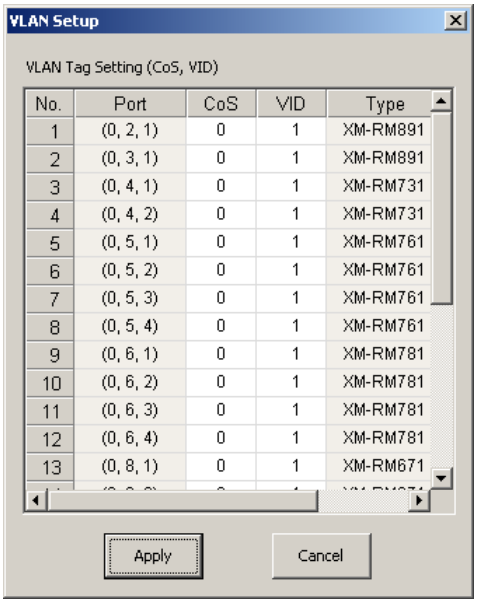
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

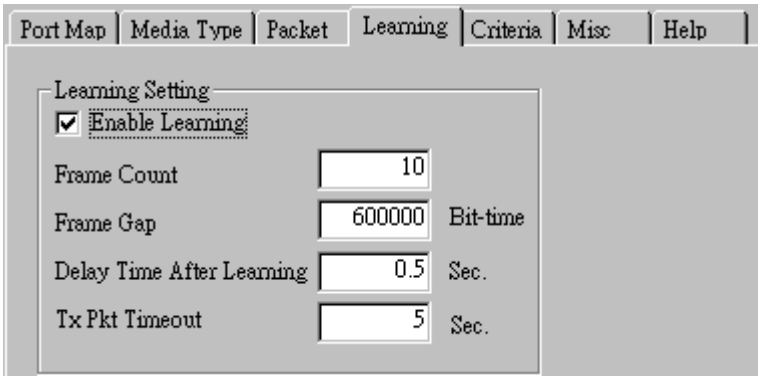


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

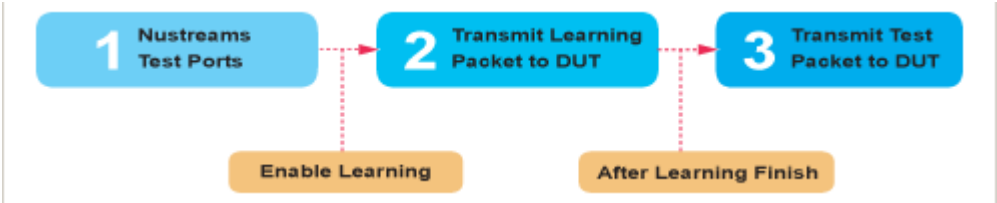


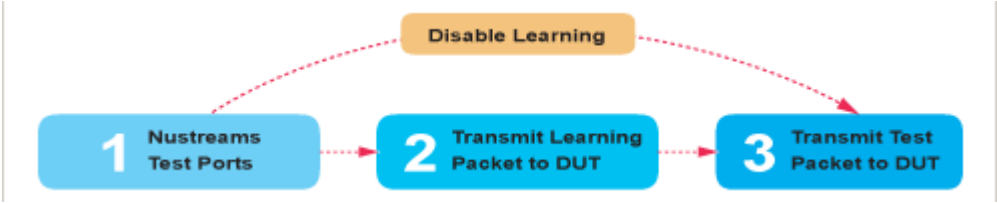
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



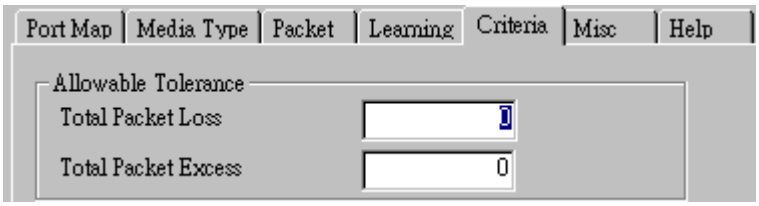
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





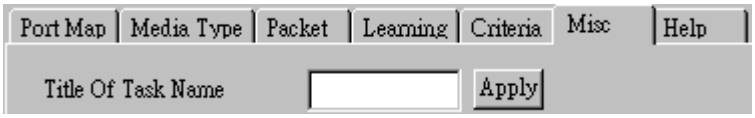
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



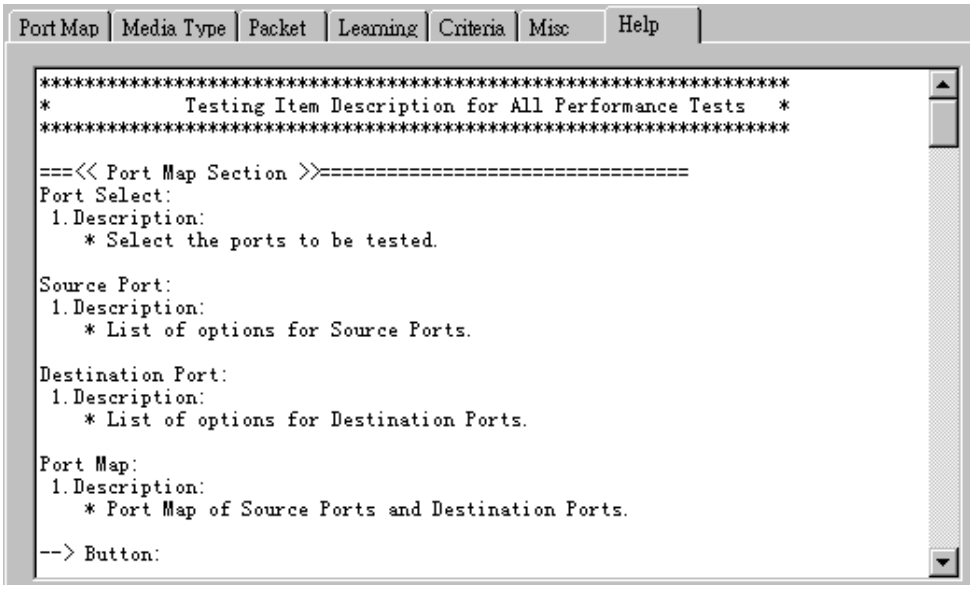
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

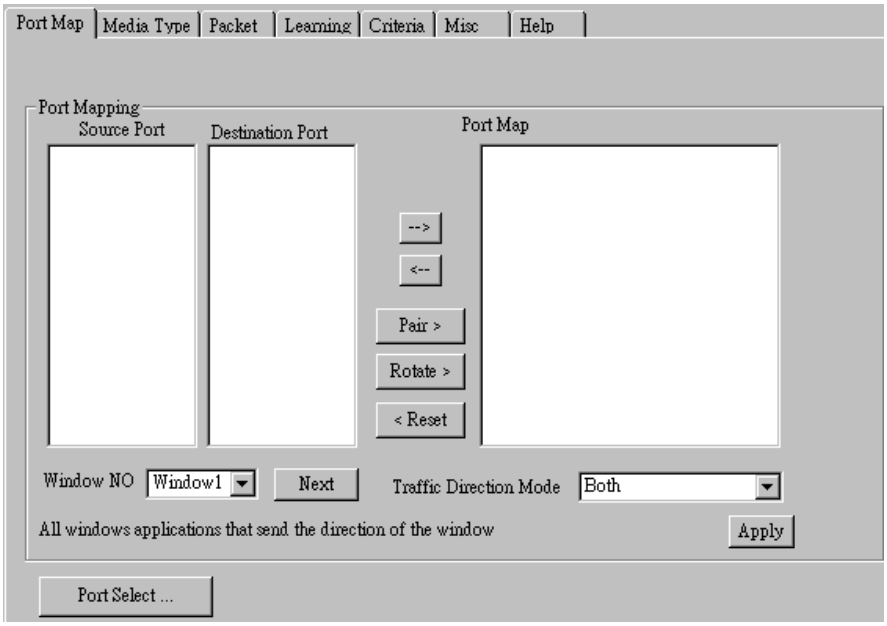


All test variables used for this task and their definitions will be listed here for reference.

5.16. Flow Control Test (FC) _ PT2-FC-10G-1G (10G Full ↔ 1000Mbps Full)

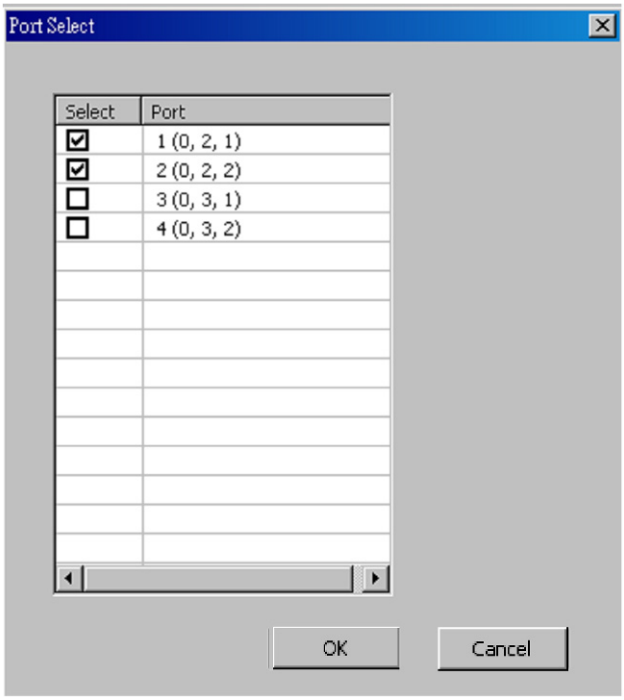
Layer2 10Gbps Full Duplex to 1000Mbps Full Duplex Flow Control tests the performance when the DUT is connected to media with varied kinds of speed and duplex mode.

A. Port Map



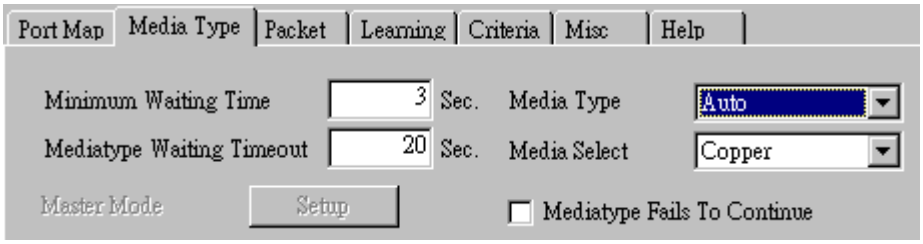
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



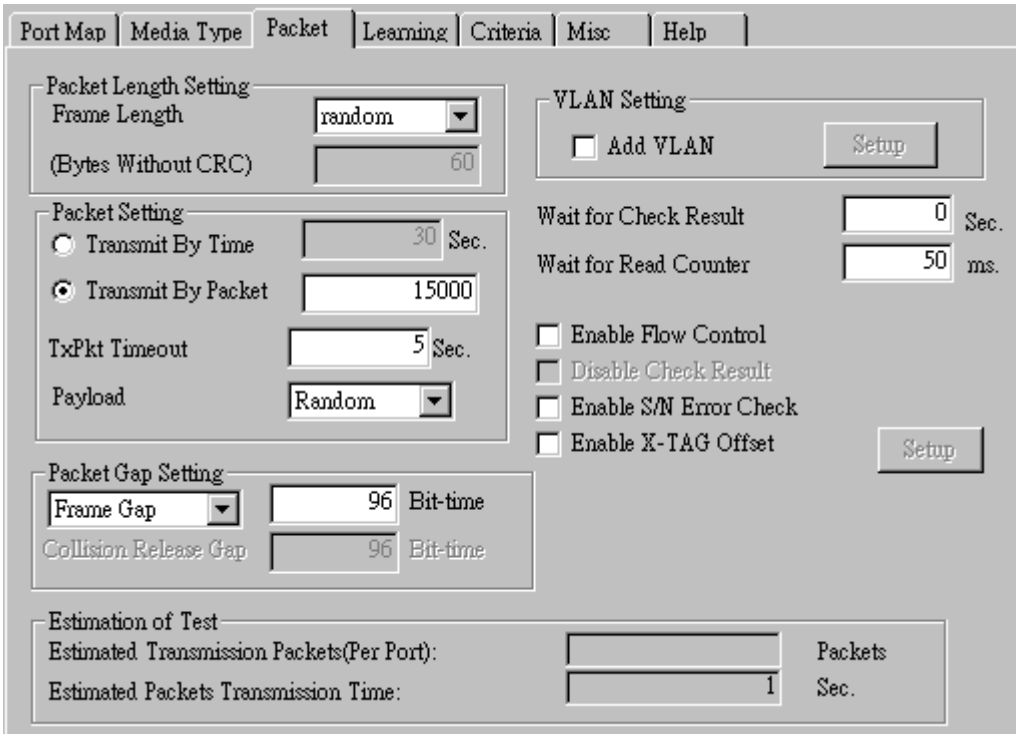
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

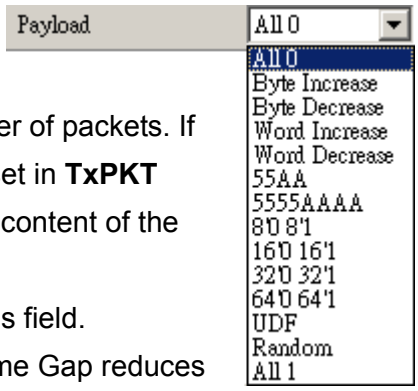
C. Packet



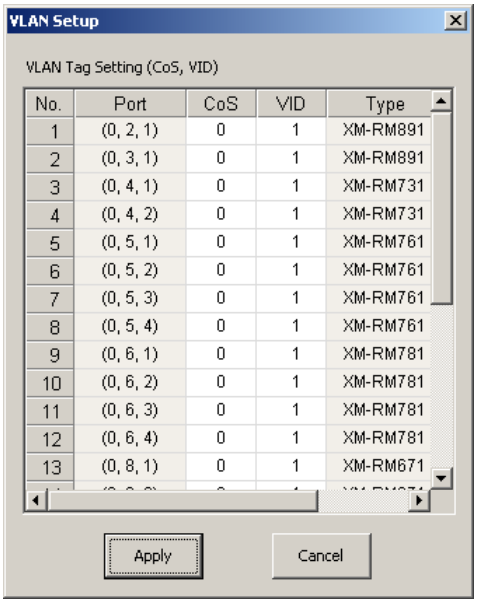
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

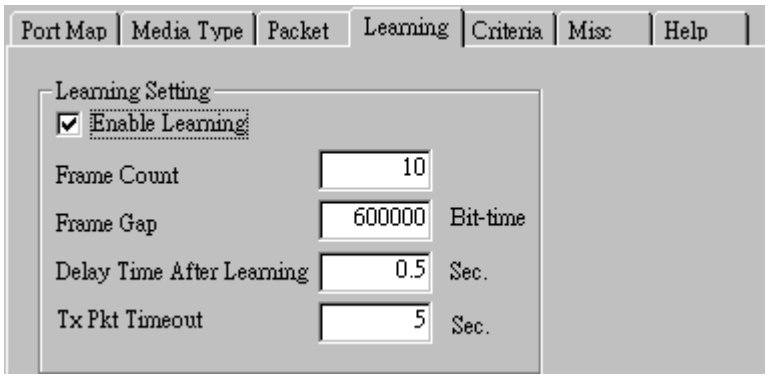


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

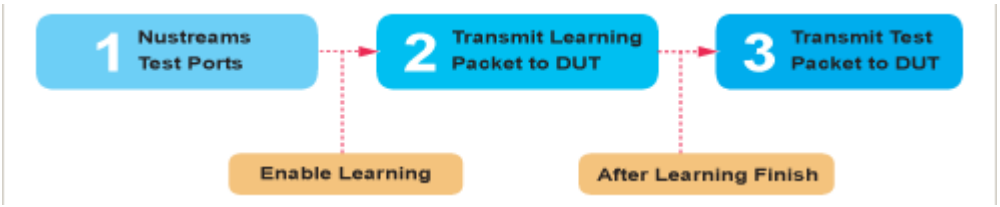


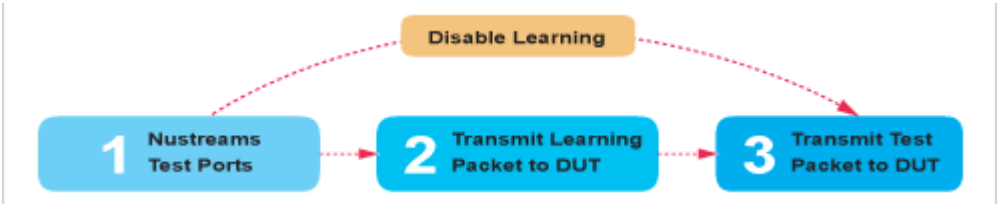
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



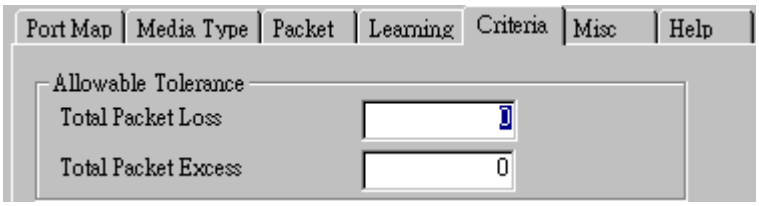
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





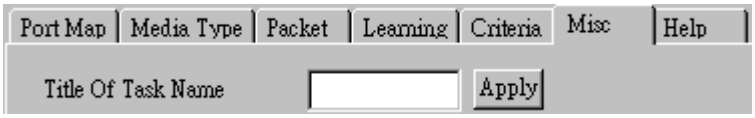
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



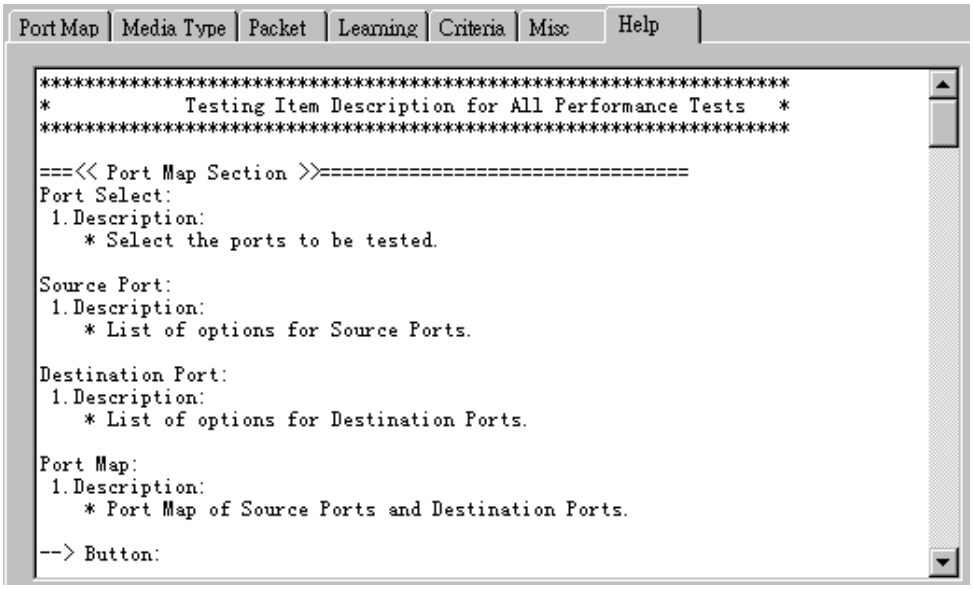
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

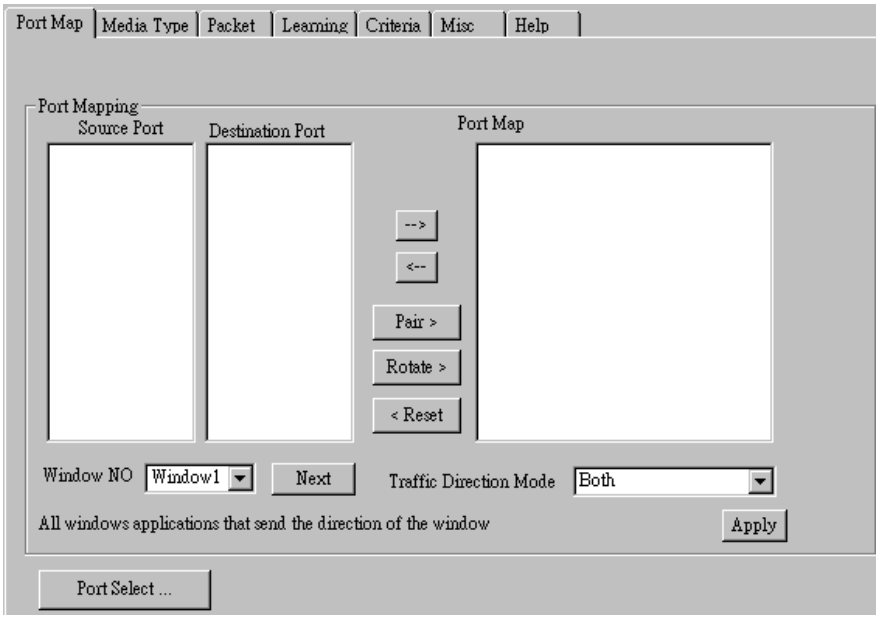


All test variables used for this task and their definitions will be listed here for reference.

5.17. Broadcast Test (BC) _ PT2-BC-10H (10Mbps, Half Duplex)

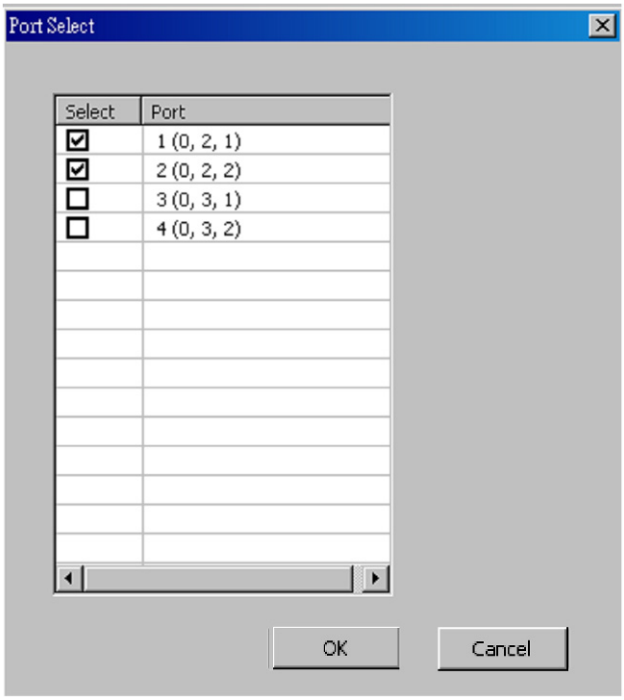
Layer 2 10Mbps Half Duplex Broadcast Performance test is to transmit Broadcast streams to every points that is based on broadcast MAC address.

A. Port Map



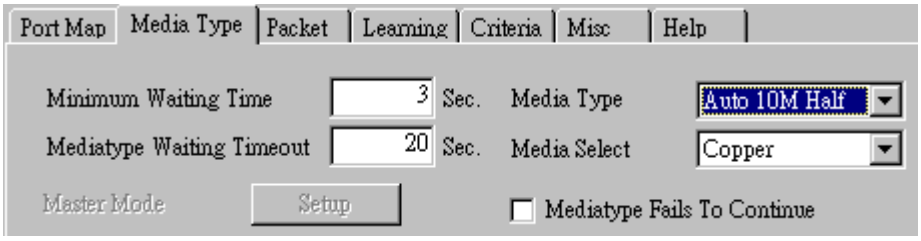
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click → button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click ← button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



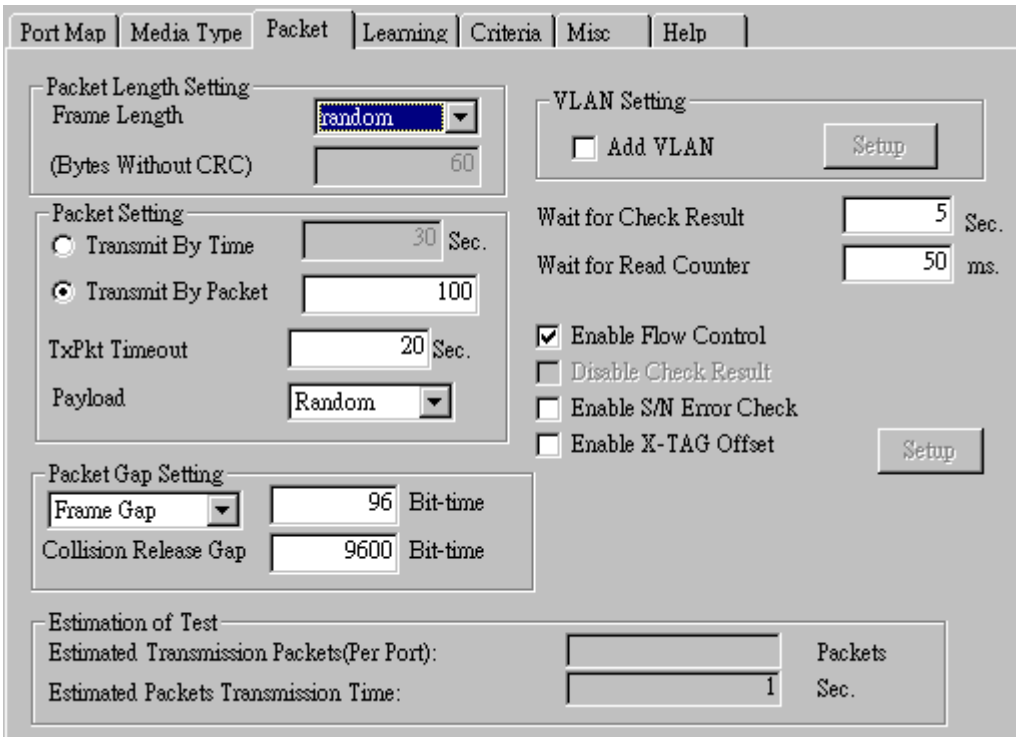
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

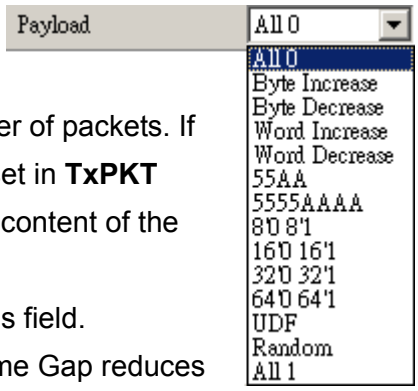
C. Packet



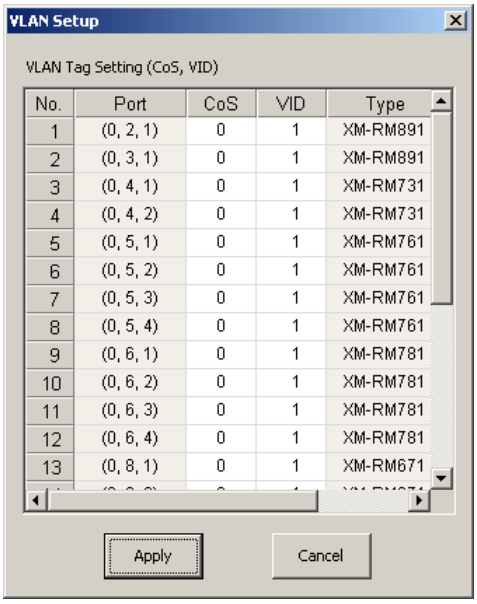
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

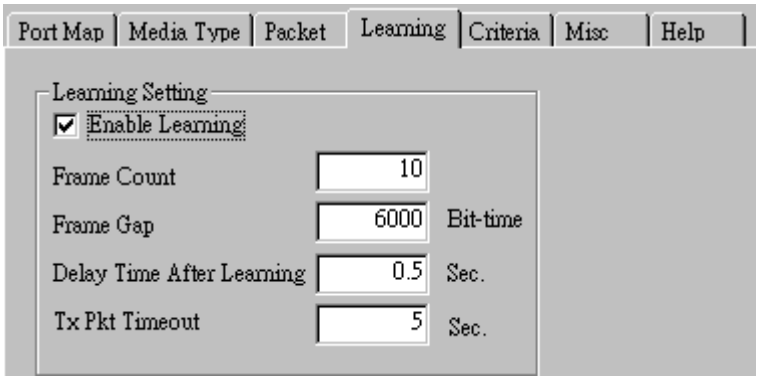


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

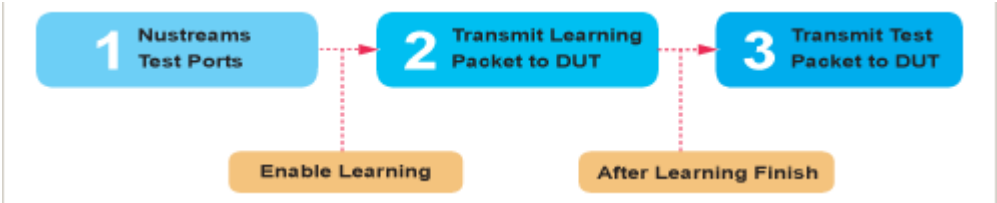


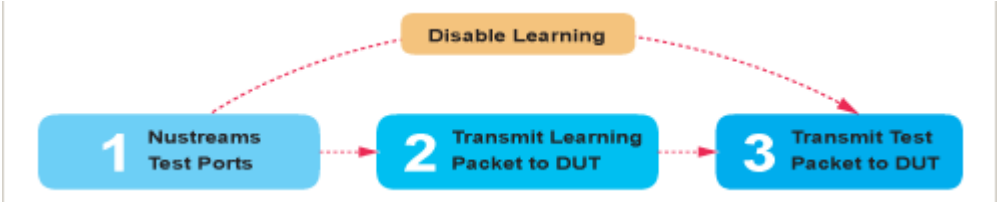
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



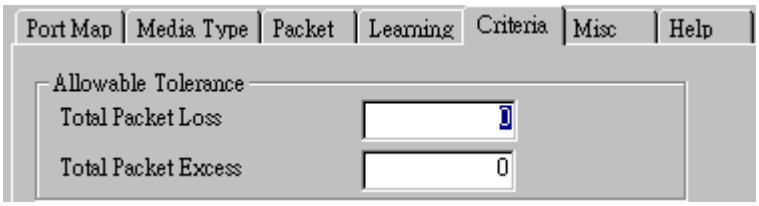
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





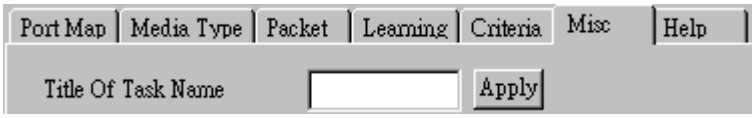
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



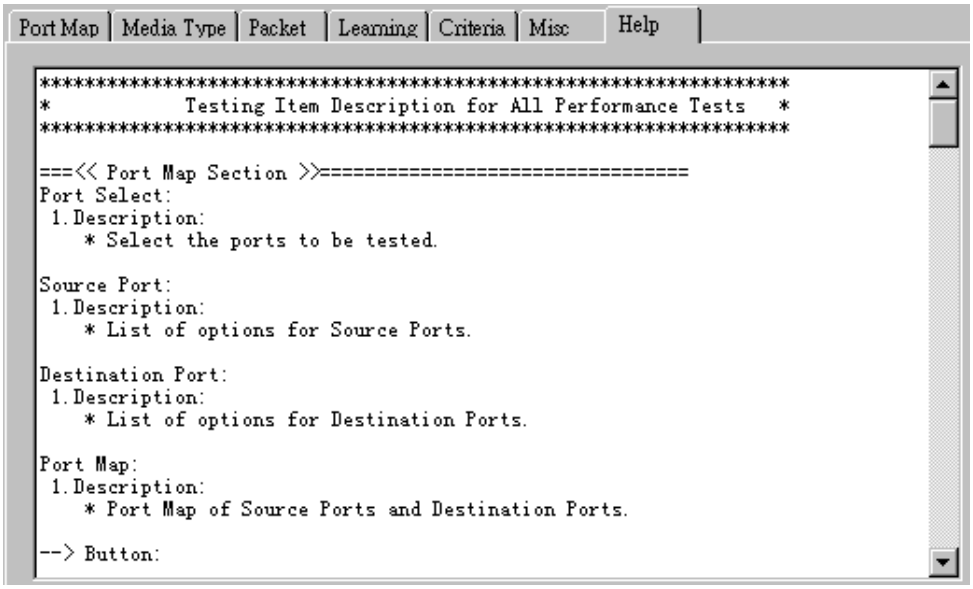
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

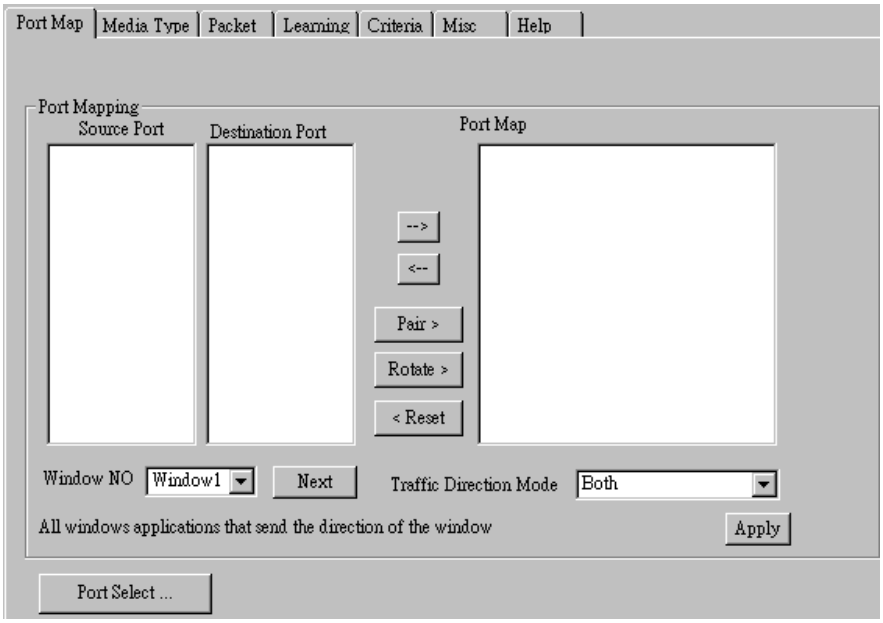


All test variables used for this task and their definitions will be listed here for reference.

5.18. Broadcast Test (BC) _ PT2-BC-10F (10Mbps, Full Duplex)

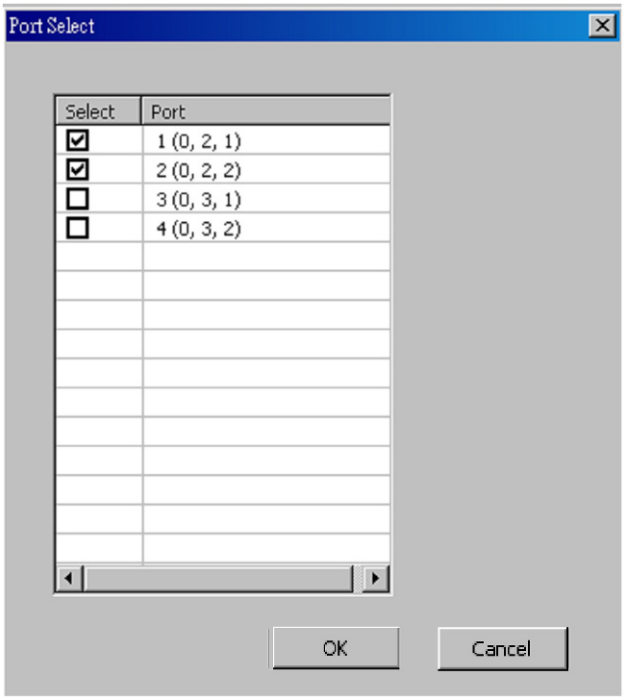
Layer 2 10Mbps Full Duplex Broadcast Performance test is to transmit Broadcast streams to every points that is based on broadcast MAC address.

A. Port Map



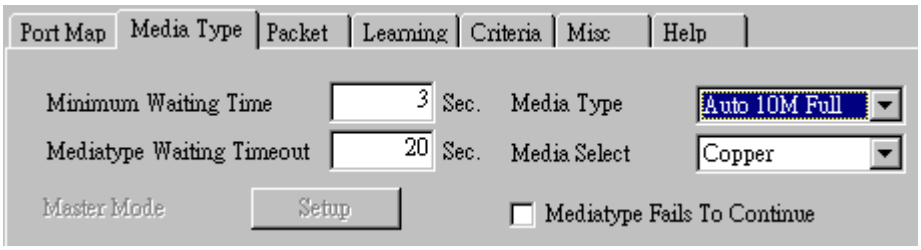
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



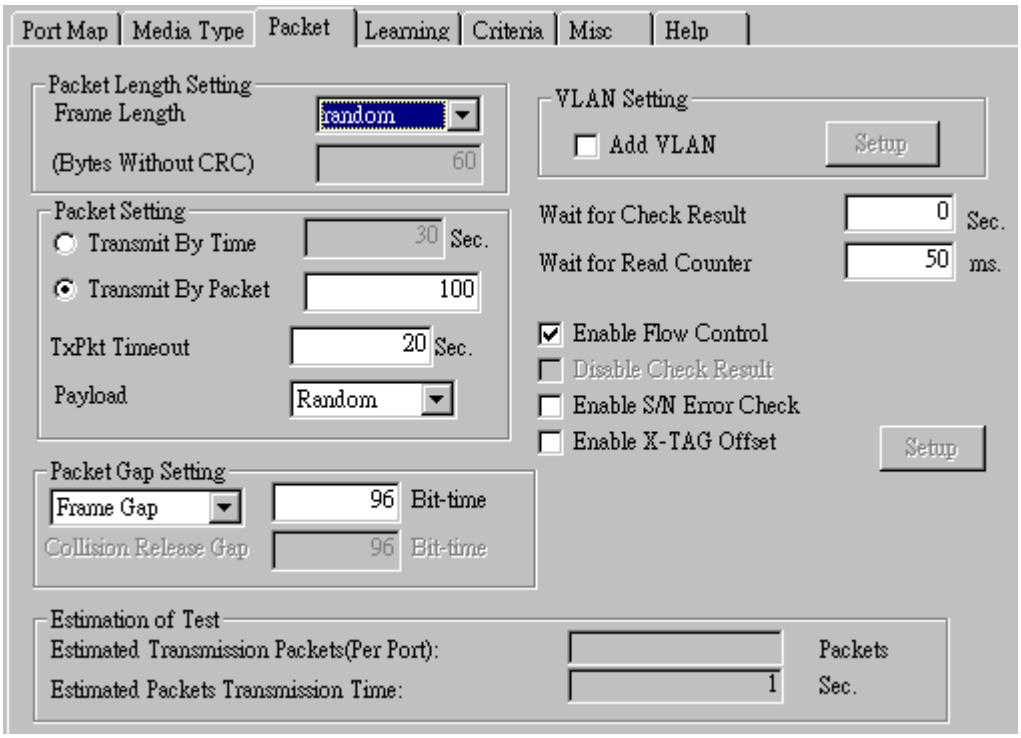
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

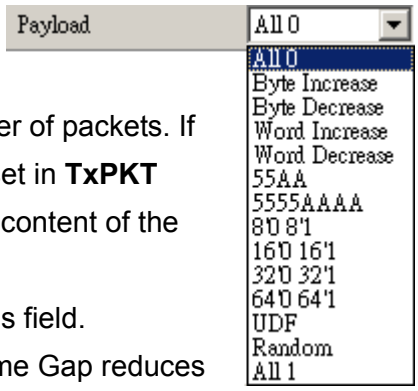
C. Packet



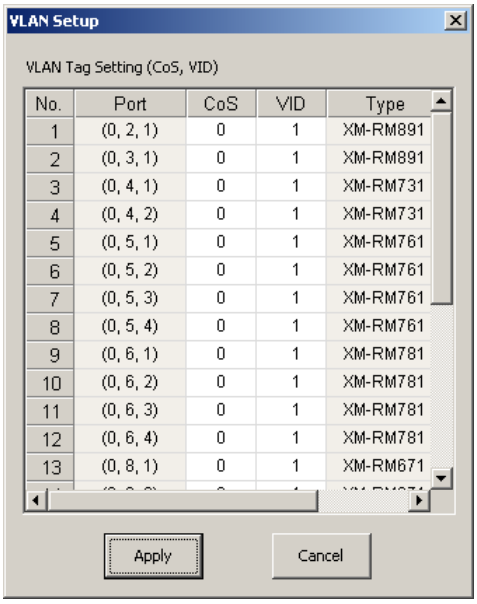
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

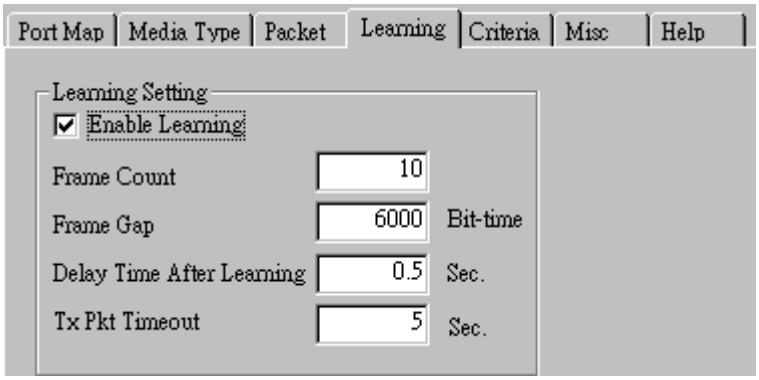


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

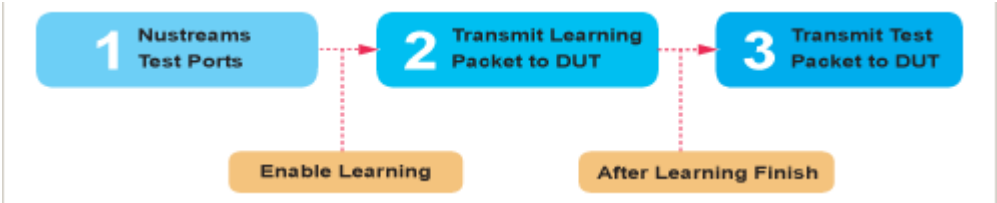


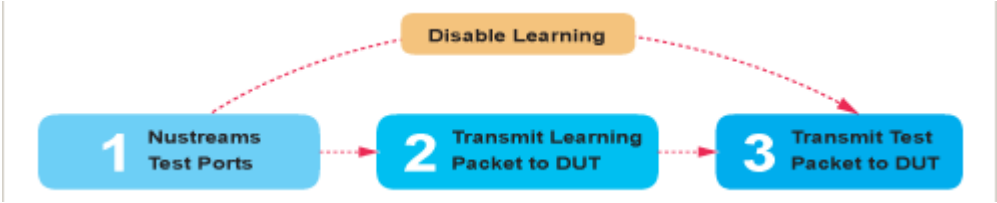
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



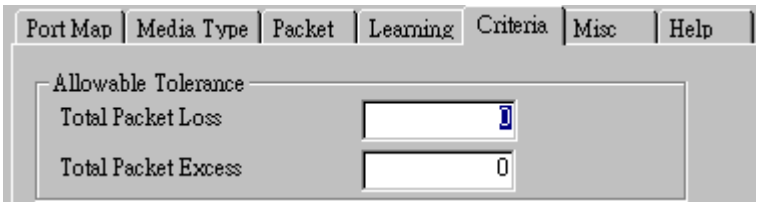
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





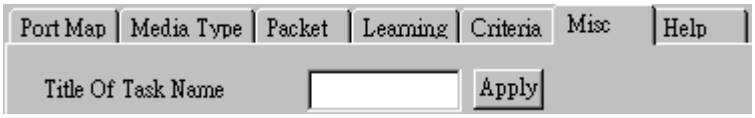
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



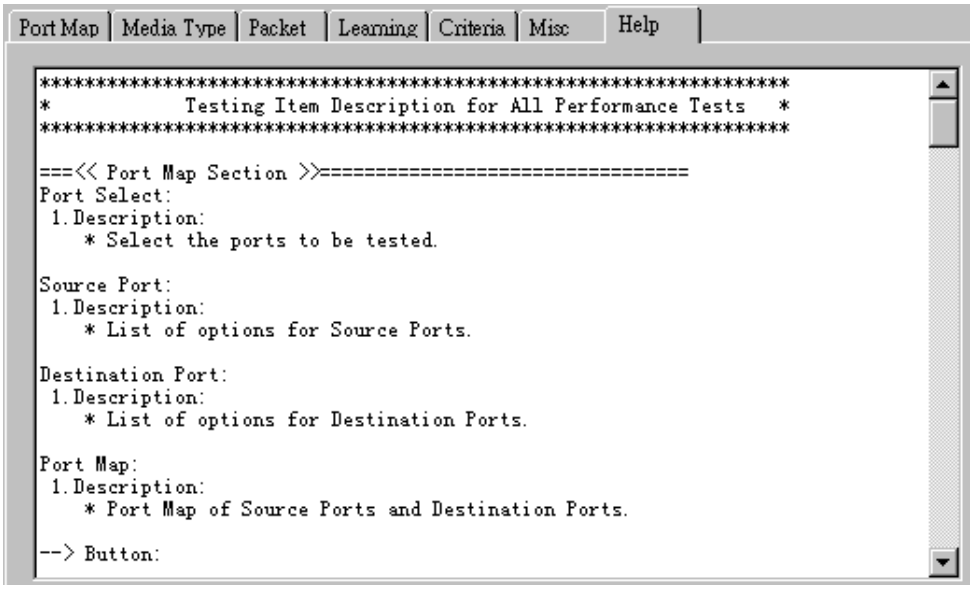
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

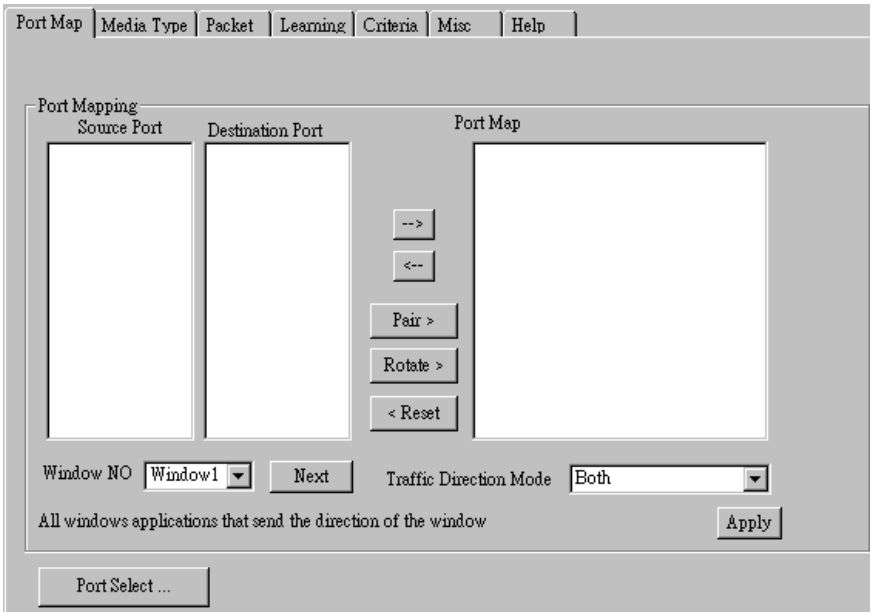


All test variables used for this task and their definitions will be listed here for reference.

5.19. Broadcast Test (BC) _ PT2-BC-100H (100Mbps, Half Duplex)

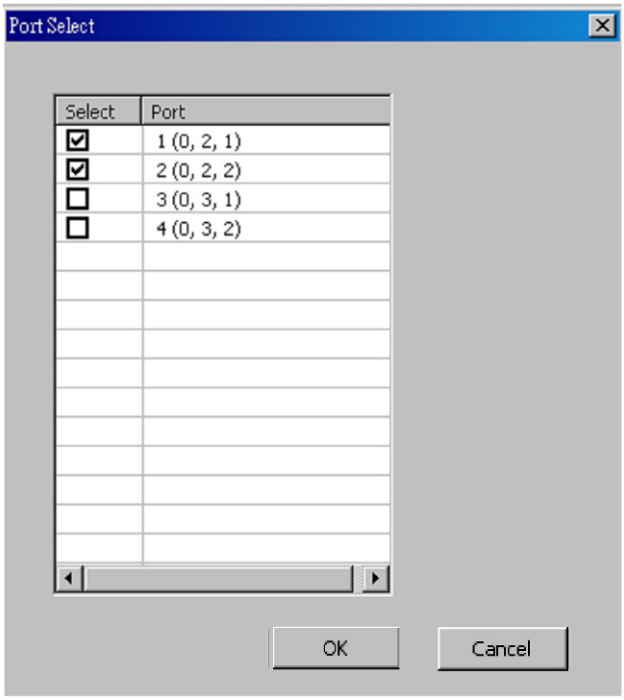
Layer 2 100Mbps Half Duplex Broadcast Performance test is to transmit Broadcast streams to every points that is based on broadcast MAC address.

A. Port Map



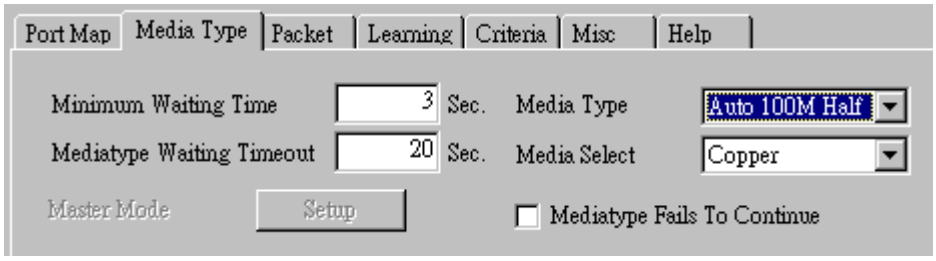
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click → button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click ← button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



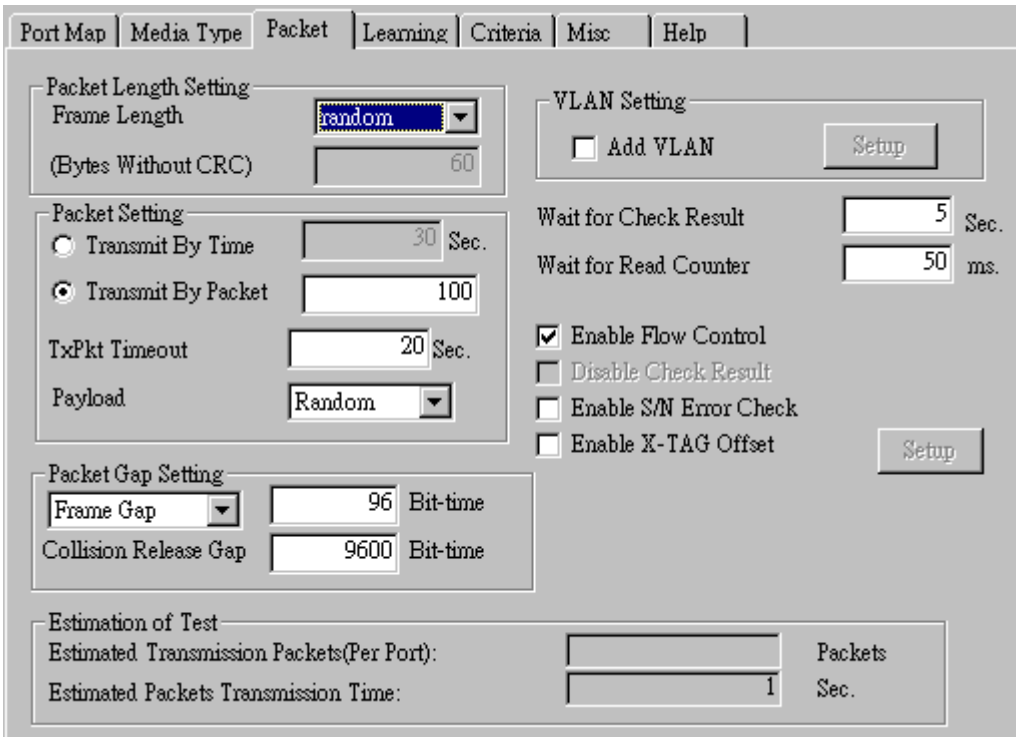
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

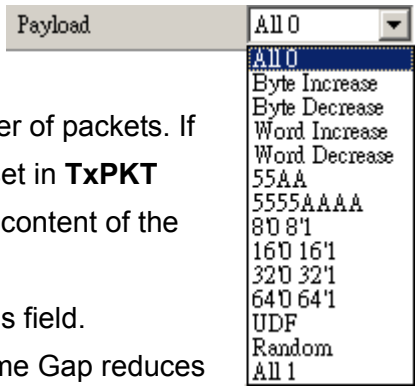
C. Packet



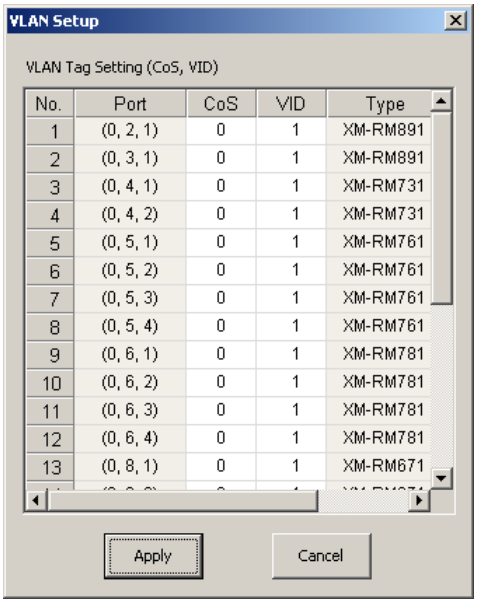
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

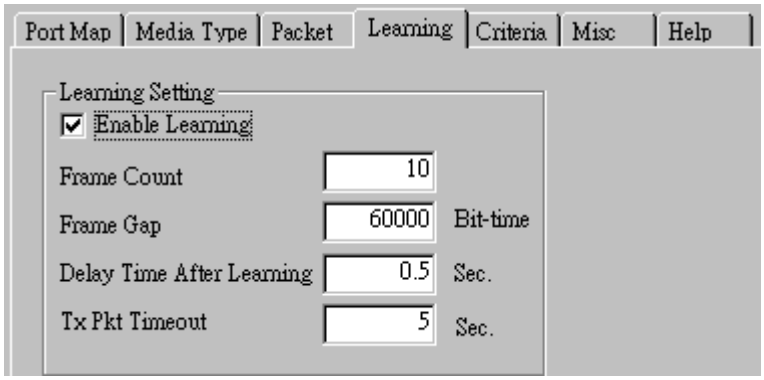


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

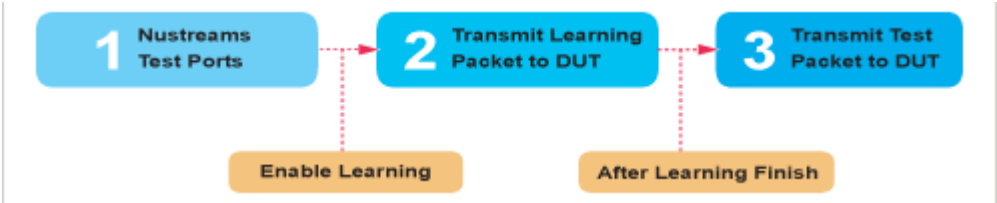


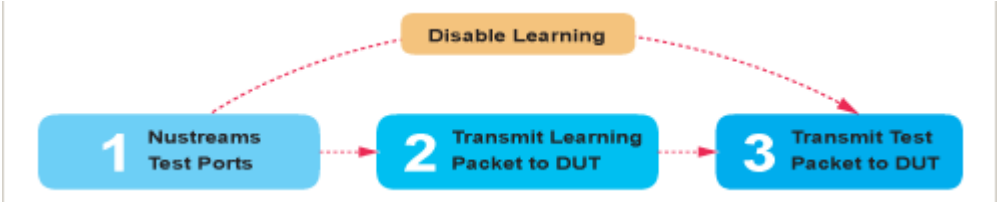
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



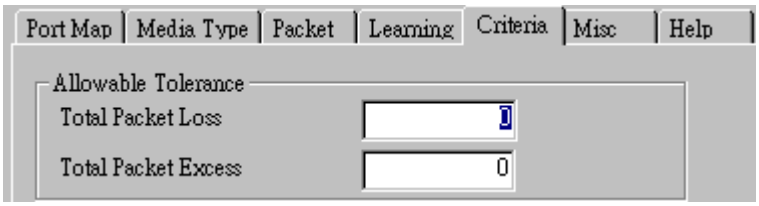
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





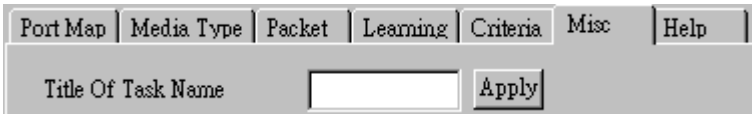
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



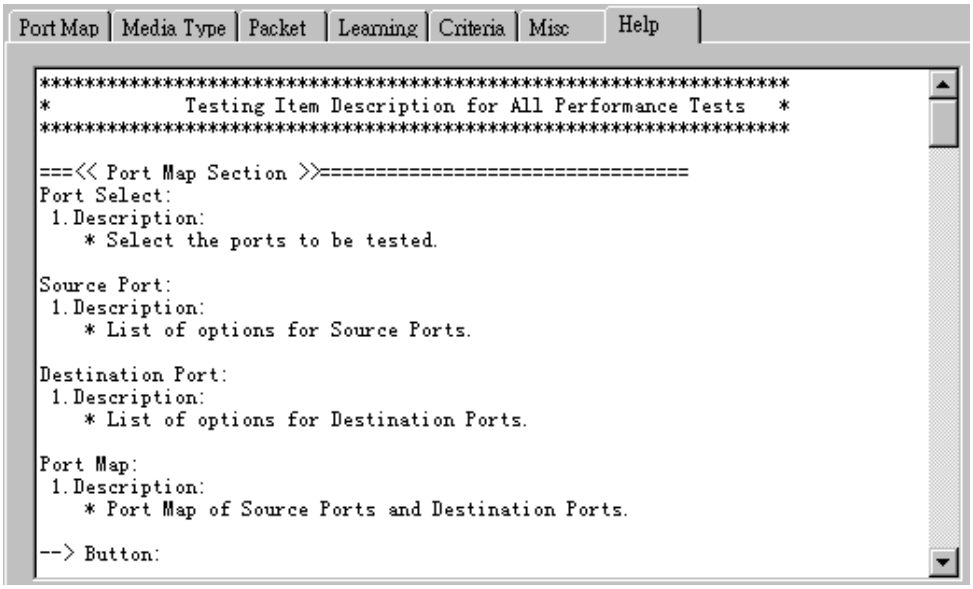
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

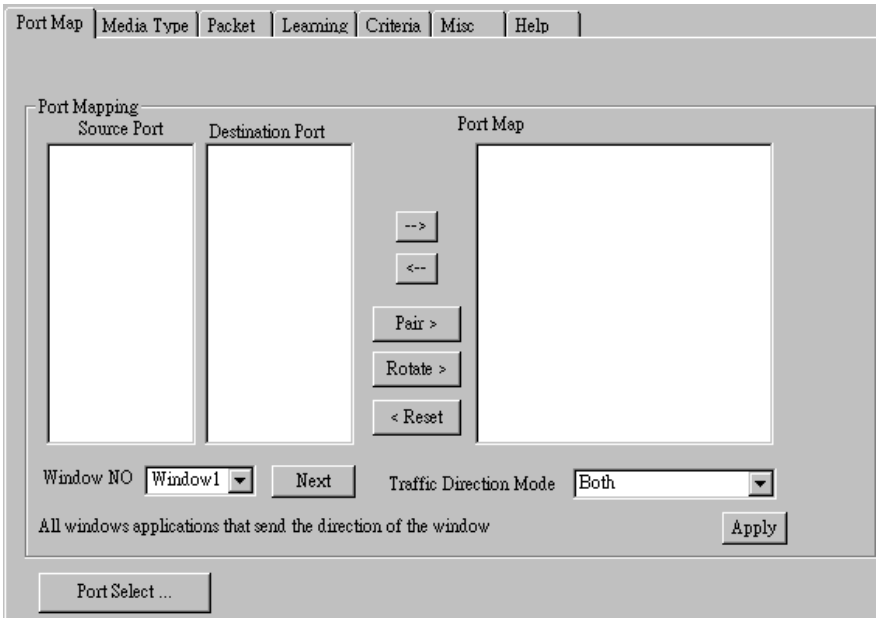


All test variables used for this task and their definitions will be listed here for reference.

5.20. Broadcast Test (BC) _ PT2-BC-100F (100Mbps, Full Duplex)

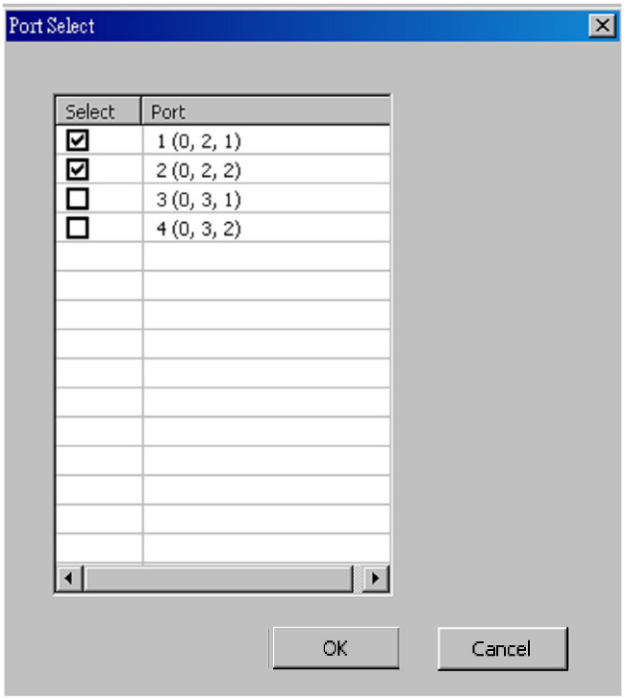
Layer 2 100Mbps Full Duplex Broadcast Performance test is to transmit Broadcast streams to every points that is based on broadcast MAC address.

A. Port Map



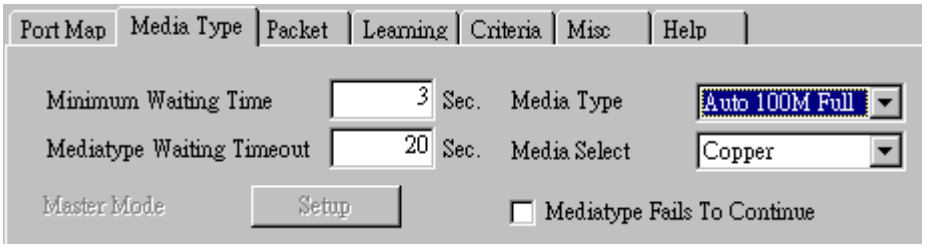
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



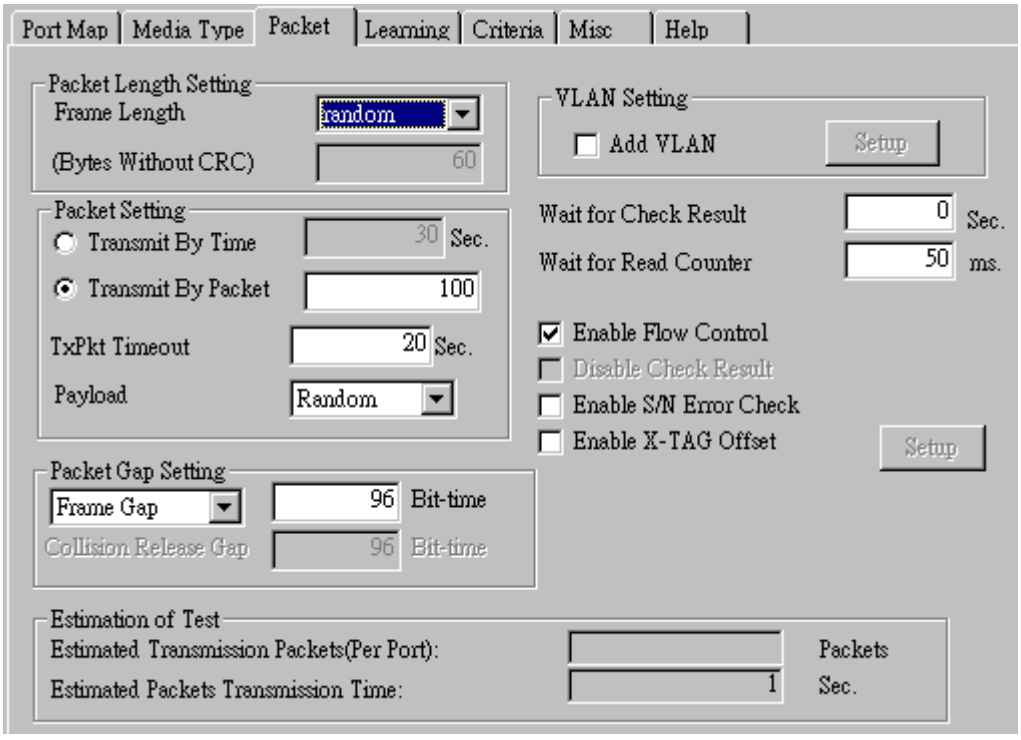
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

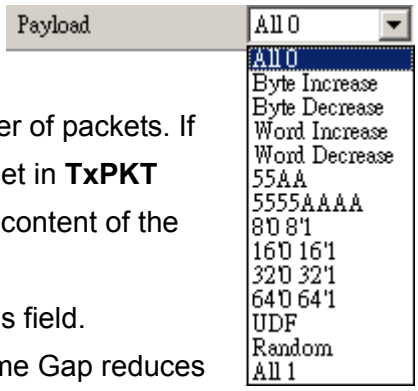
C. Packet



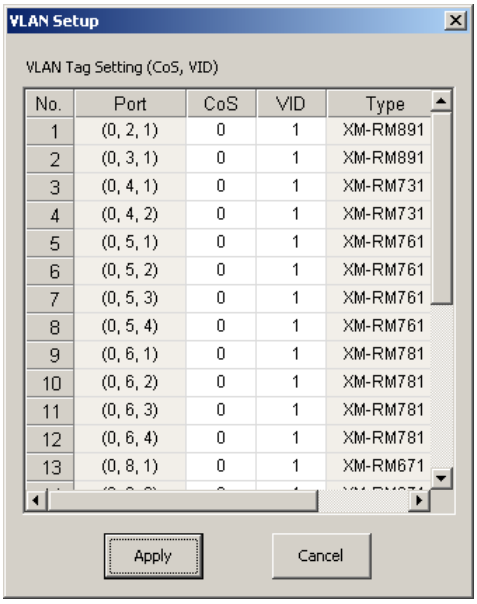
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

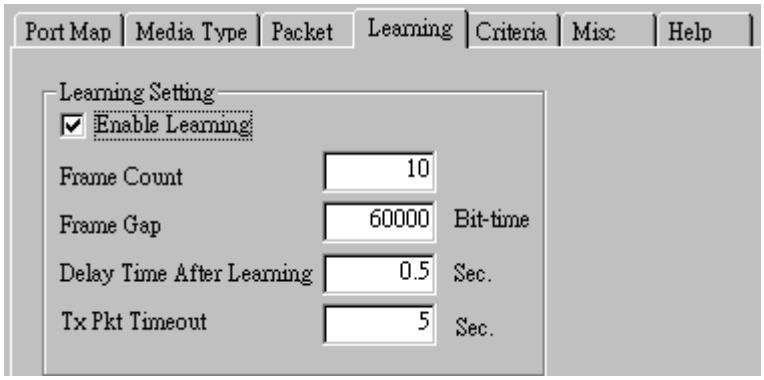


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

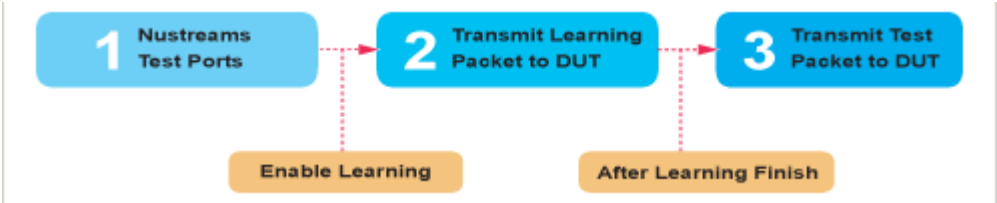


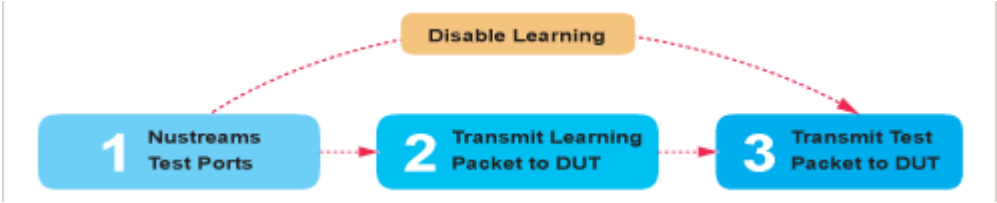
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



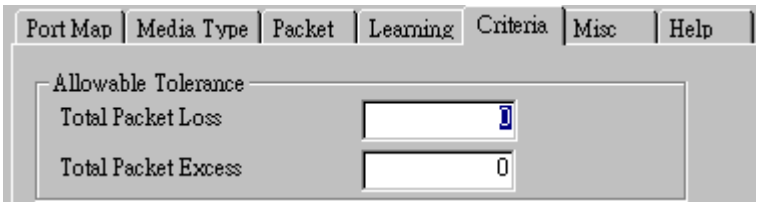
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





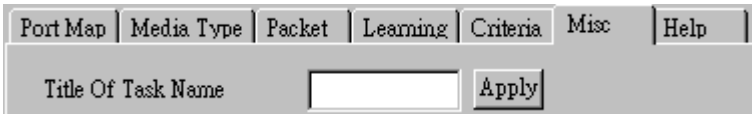
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



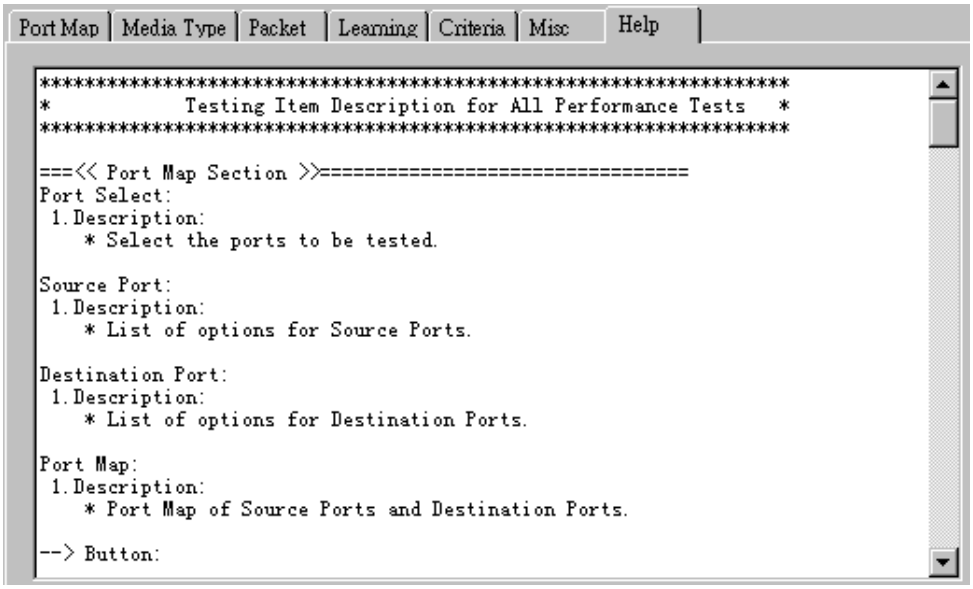
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

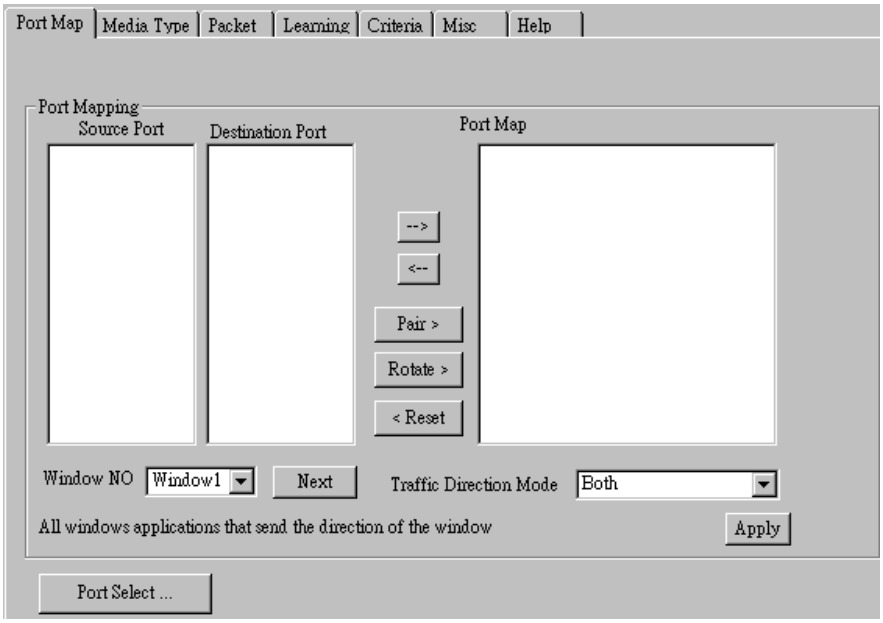


All test variables used for this task and their definitions will be listed here for reference.

5.21. Broadcast Test (BC) _ PT2-BC-1G (1000Mbps, Full Duplex)

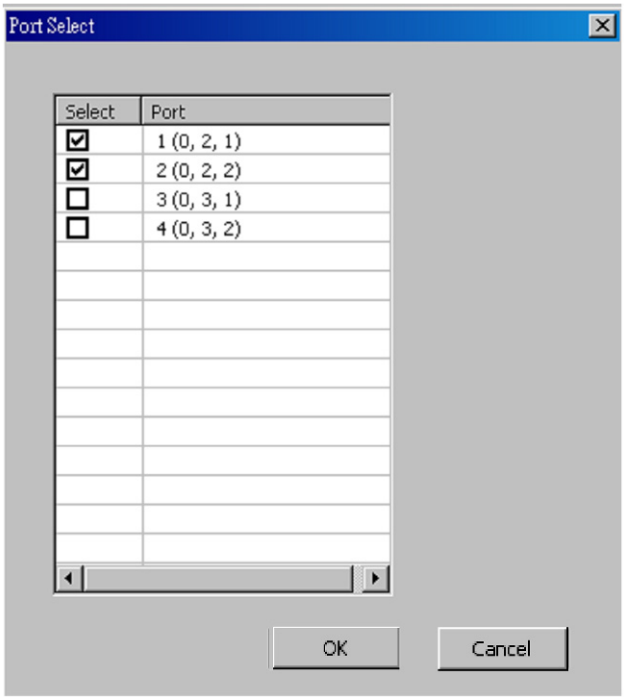
Layer 2 1000Mbps Full Duplex Broadcast Performance test is to transmit Broadcast streams to every points that is based on broadcast MAC address.

A. Port Map



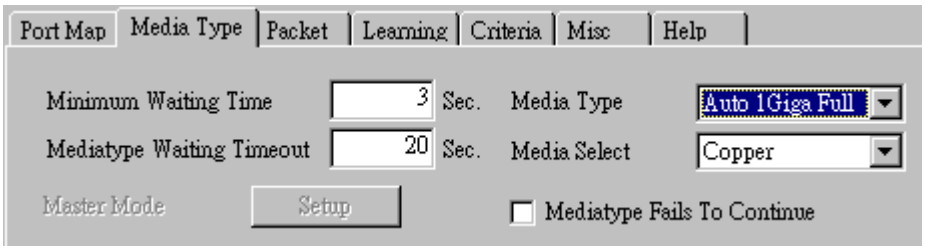
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



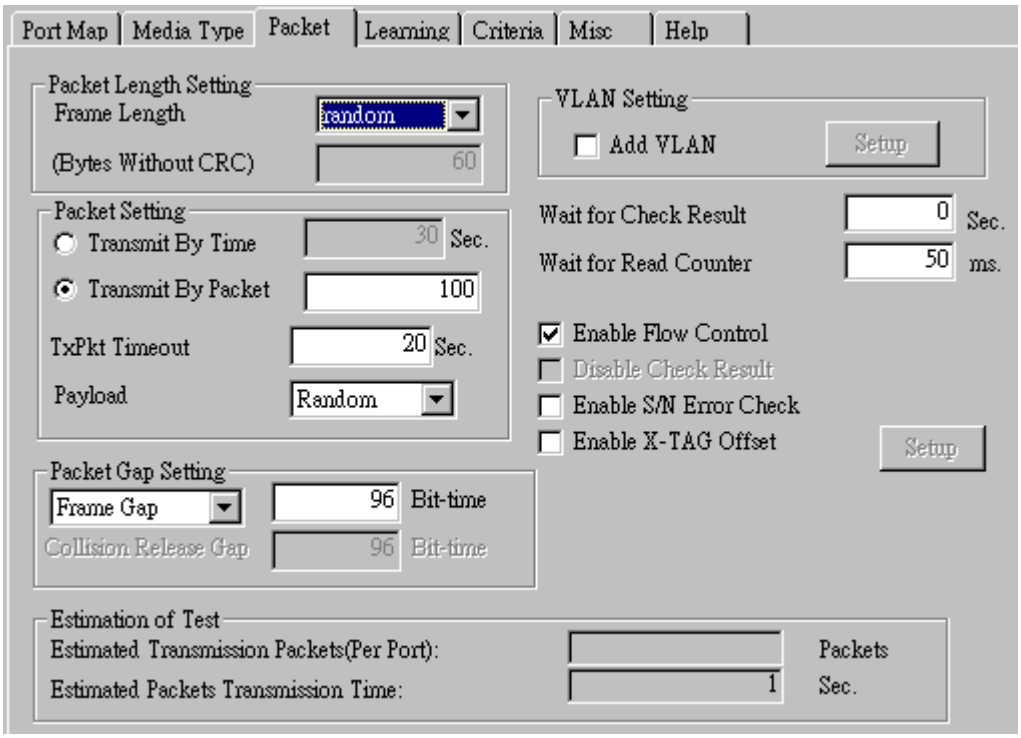
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

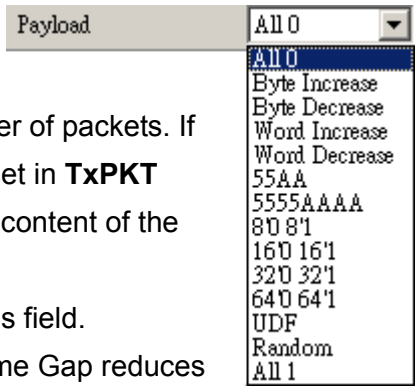
C. Packet



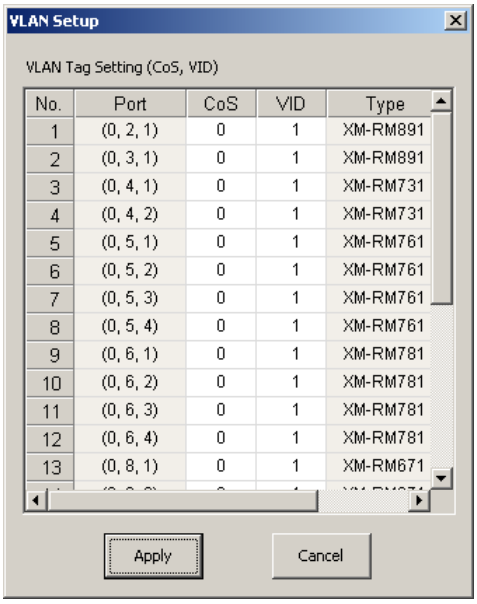
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

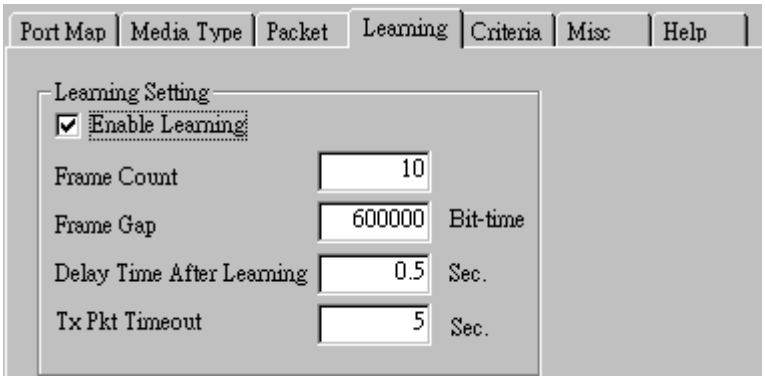


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

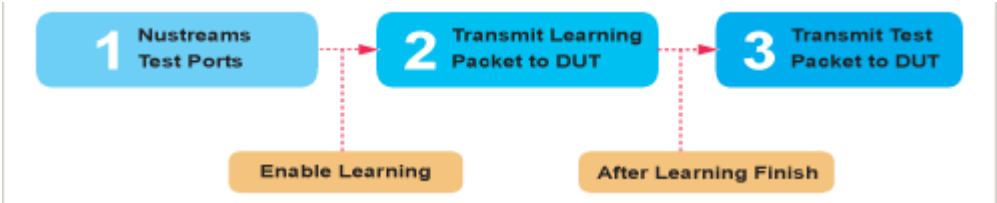


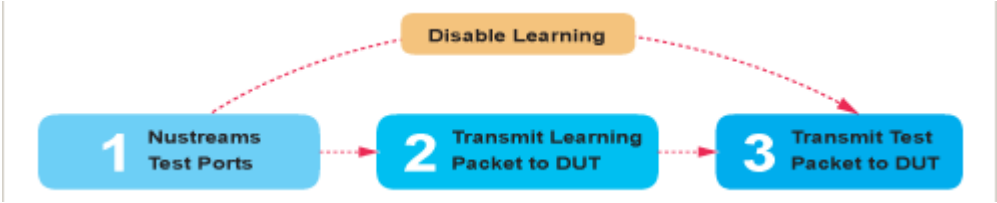
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



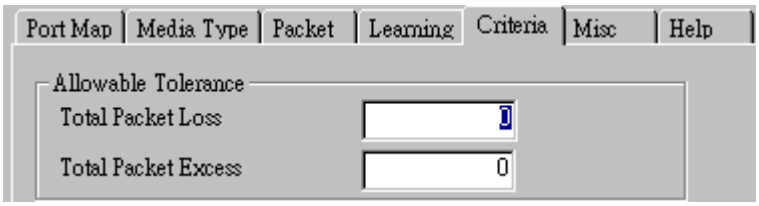
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





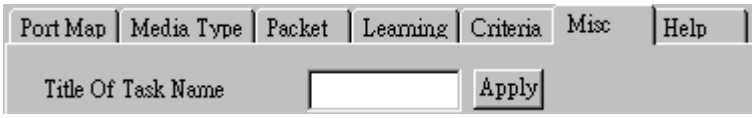
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



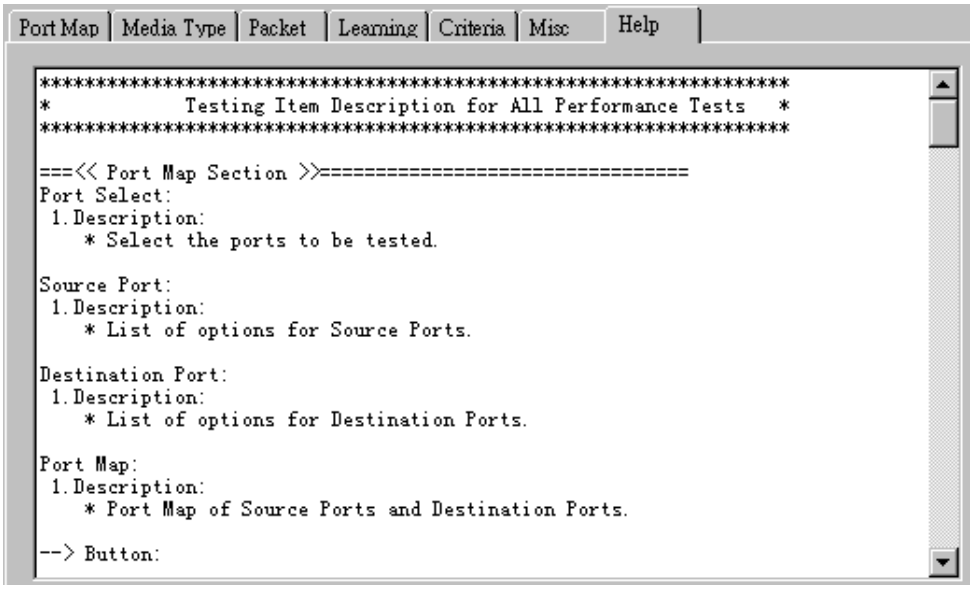
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

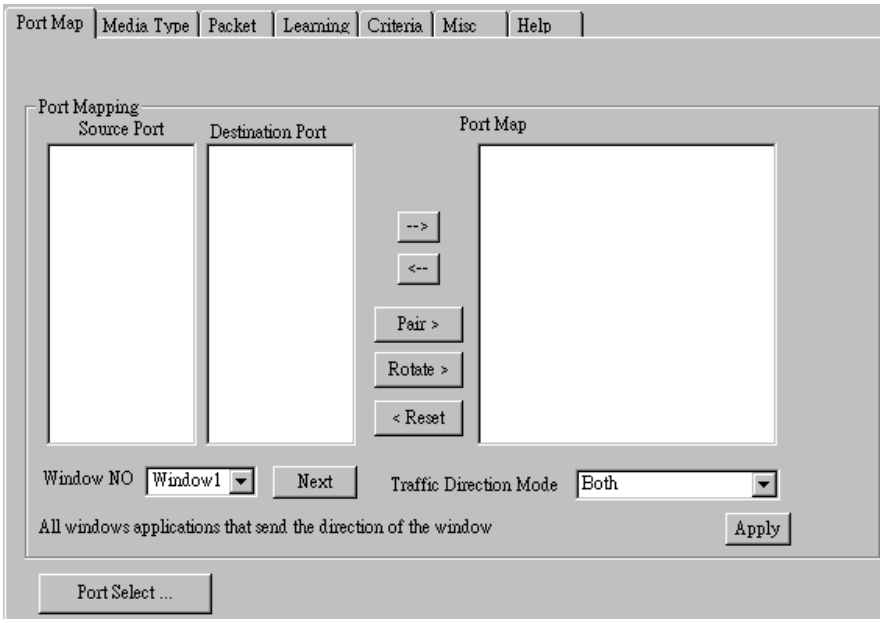


All test variables used for this task and their definitions will be listed here for reference.

5.22. Broadcast Test (BC) _ PT2-BC-10G (10Gbps, Full Duplex)

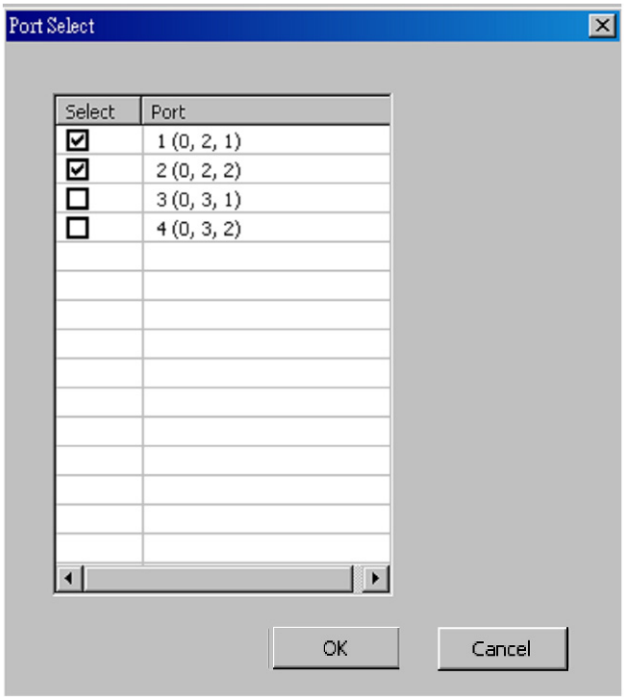
Layer 2 10Gbps Full Duplex Broadcast Performance test is to transmit Broadcast streams to every points that is based on broadcast MAC address.

A. Port Map



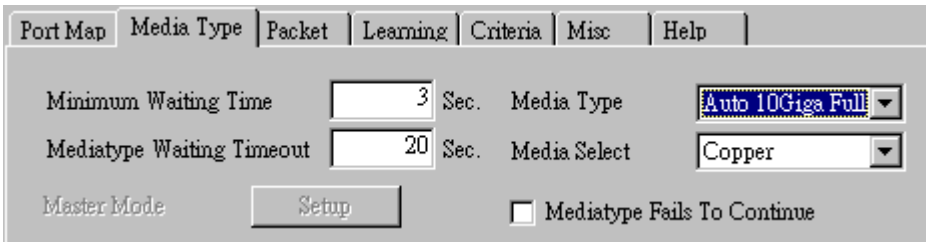
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



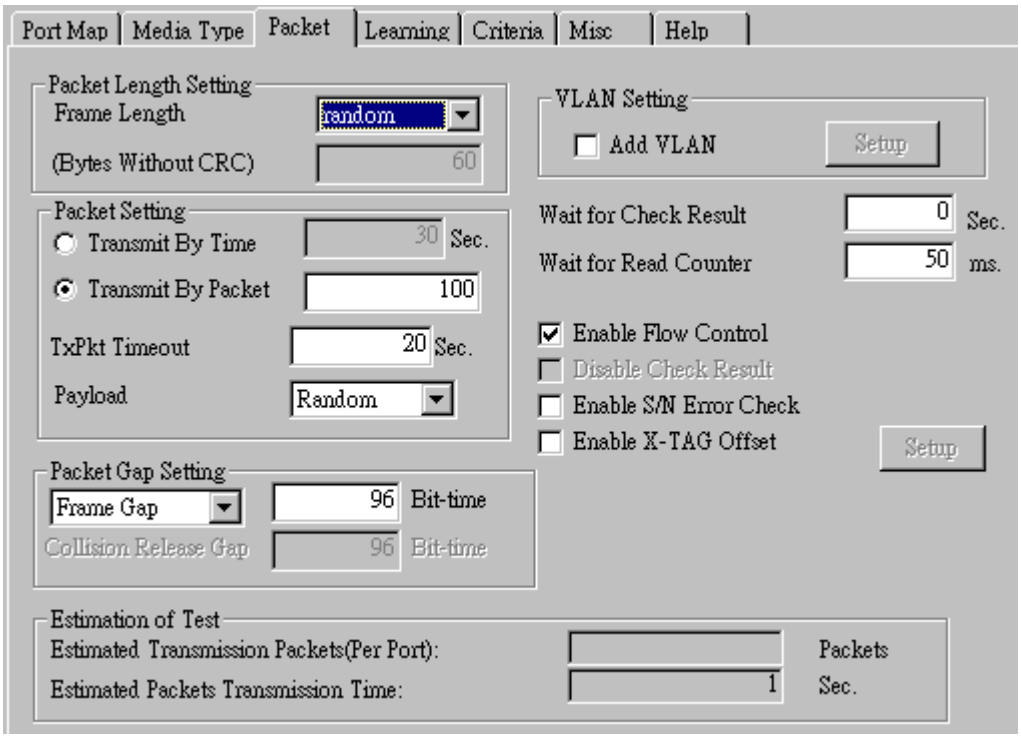
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

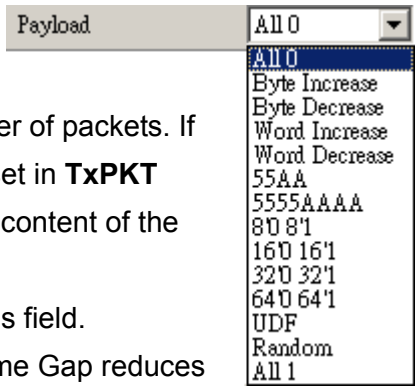
C. Packet



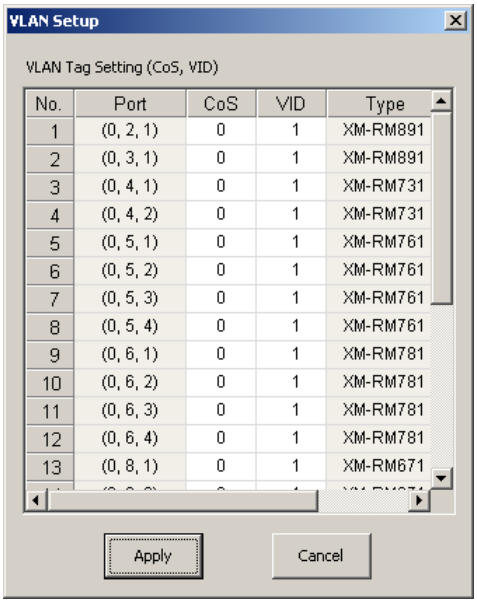
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

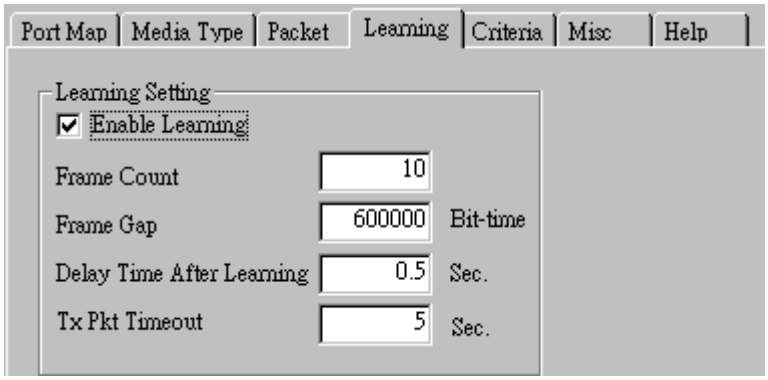


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

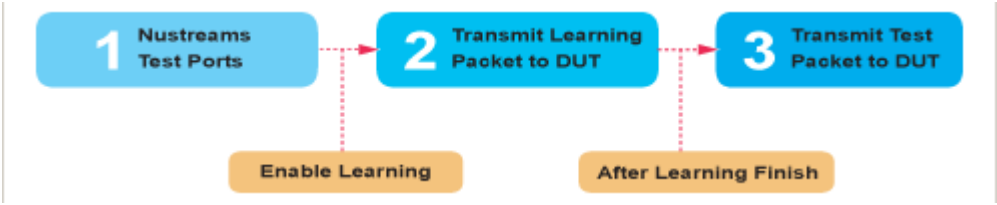


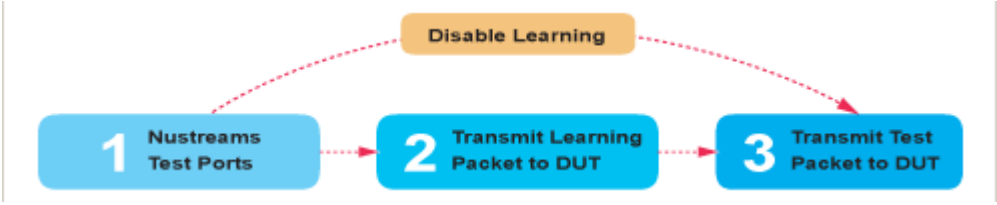
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



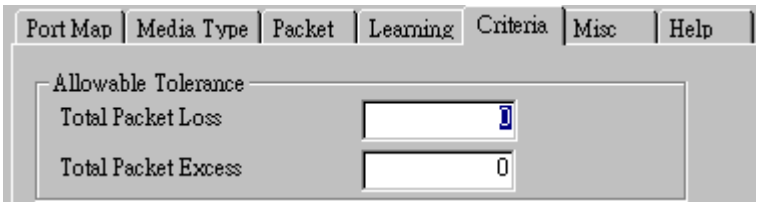
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





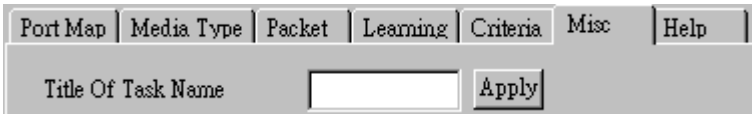
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



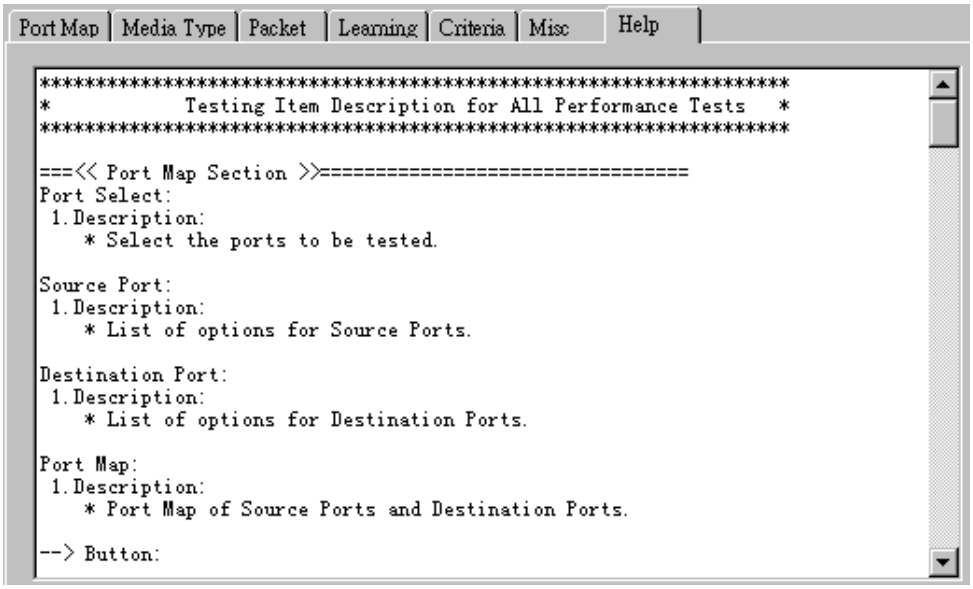
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

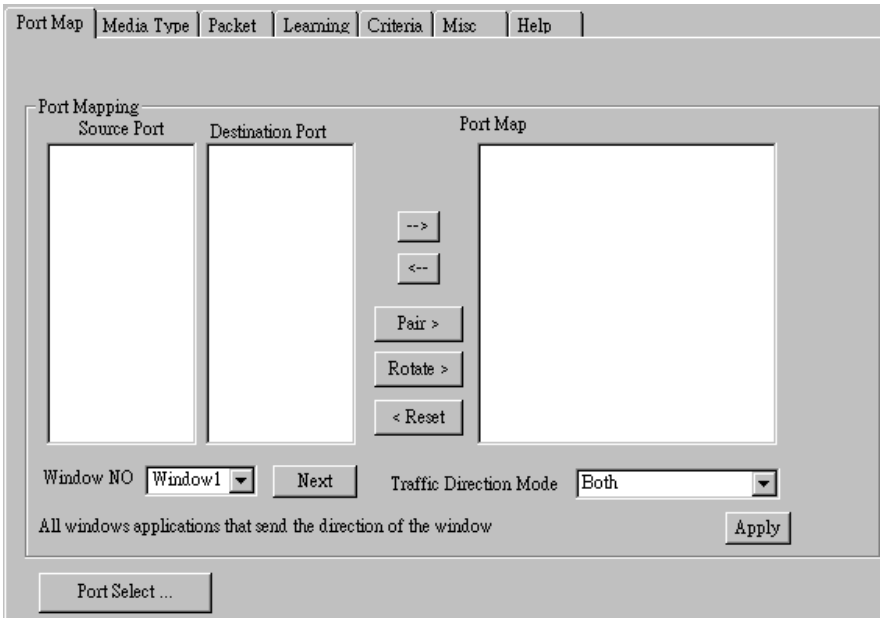


All test variables used for this task and their definitions will be listed here for reference.

5.23. Filter Test (FT) _ PT2-FT-10H (10Mbps, Half Duplex)

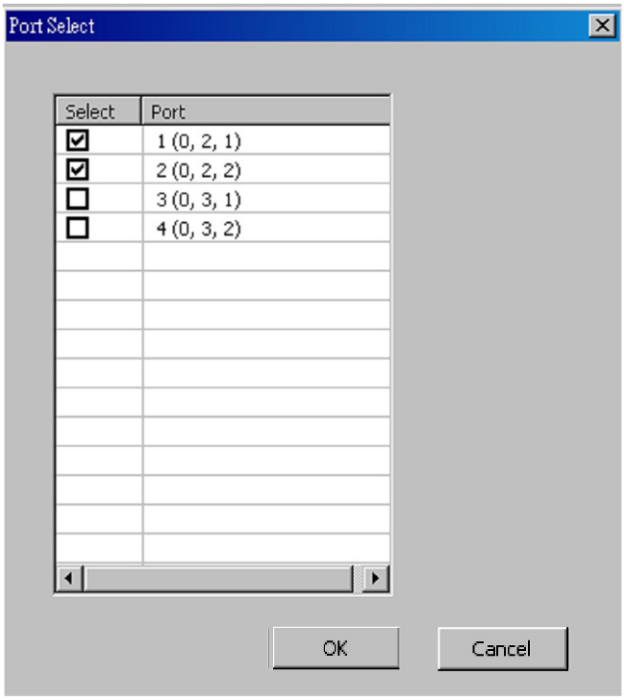
Layer 2 10Mbps Half Duplex Filter Performance Test transmit test streams with the same DA and SA (Destination and Source MAC address) to see if DUT can filter this redundant packets.

A. Port Map



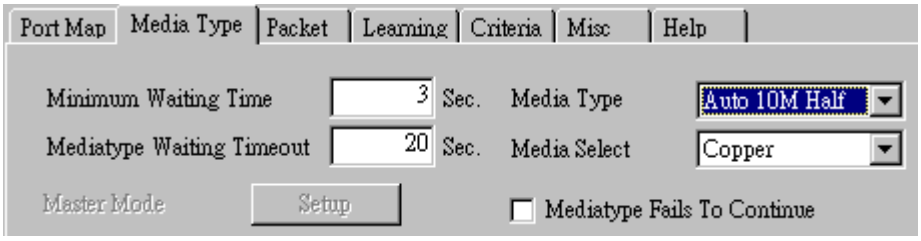
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



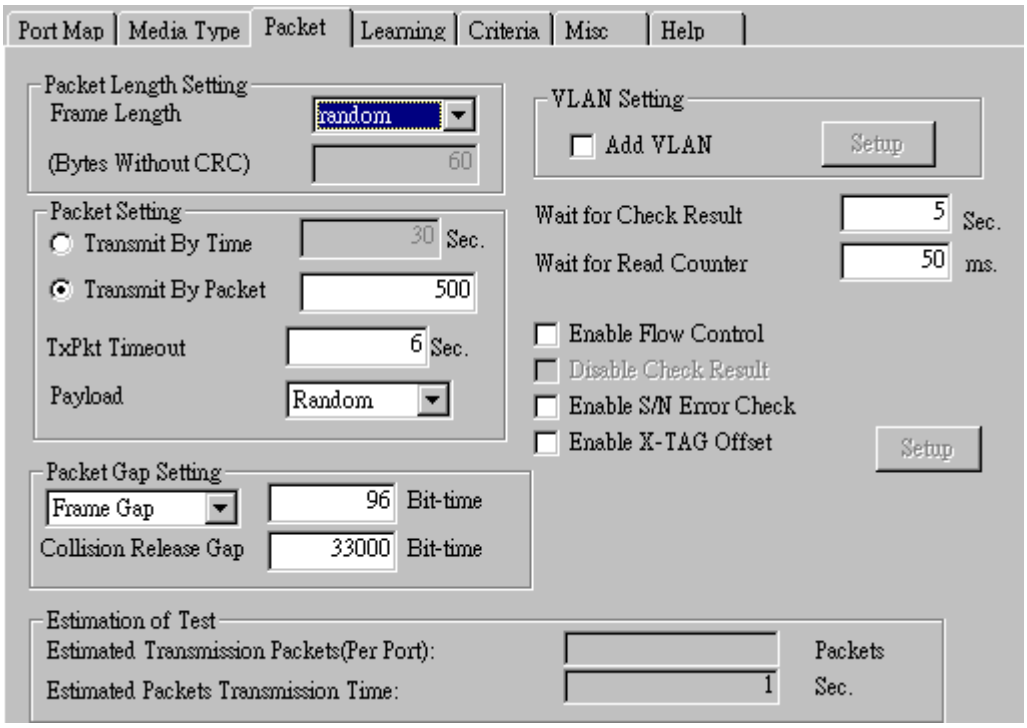
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



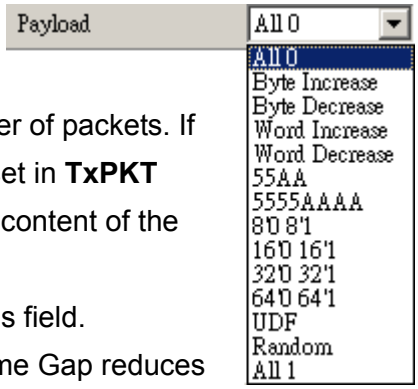
- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

C. Packet

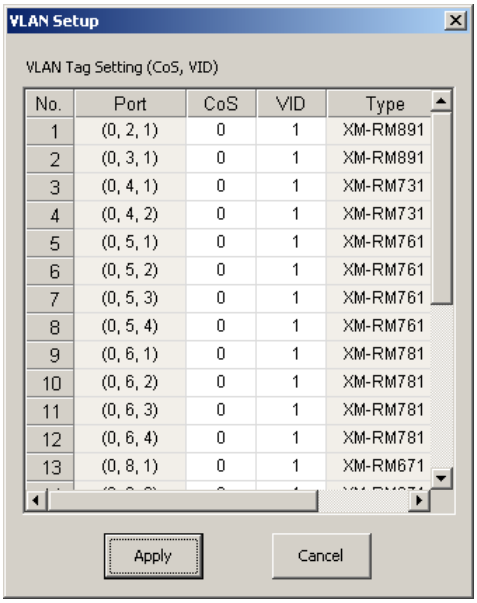


- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

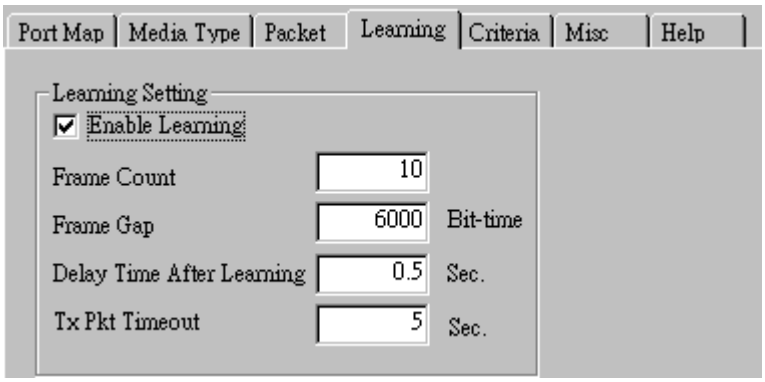


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

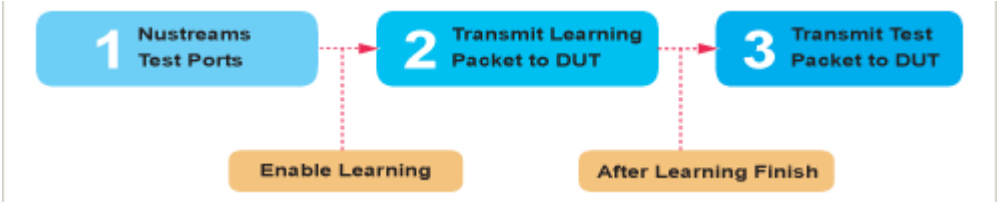


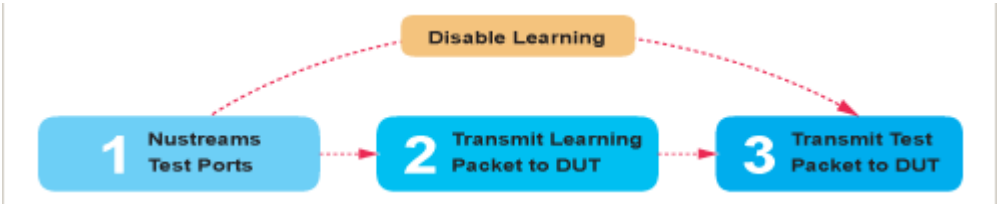
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



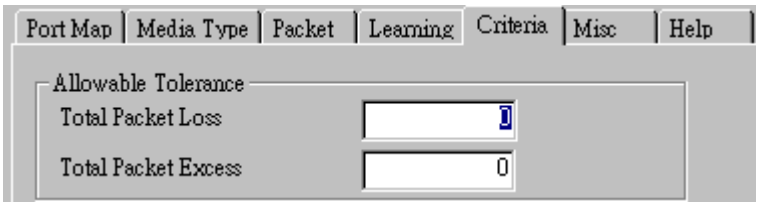
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





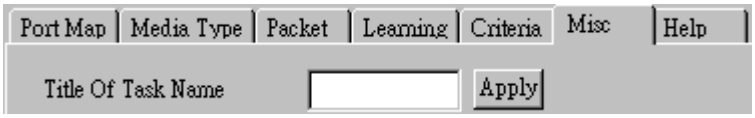
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



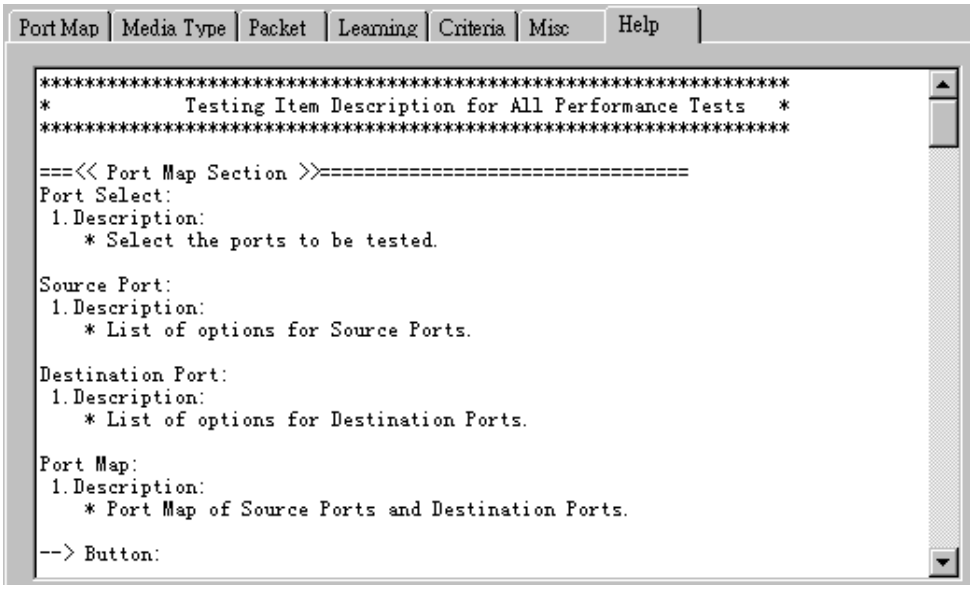
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

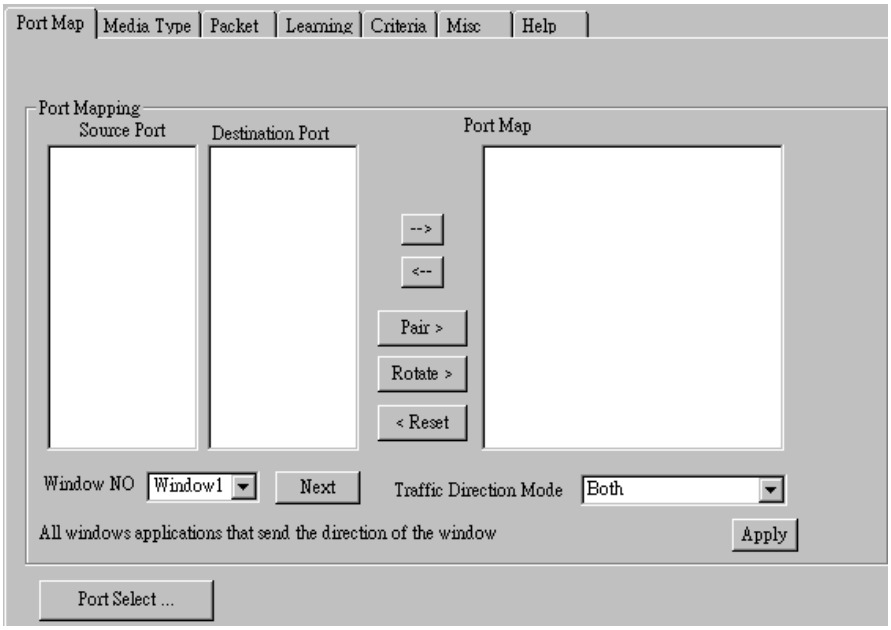


All test variables used for this task and their definitions will be listed here for reference.

5.24. Filter Test (FT) _ PT2-FT-10F (10Mbps, Full Duplex)

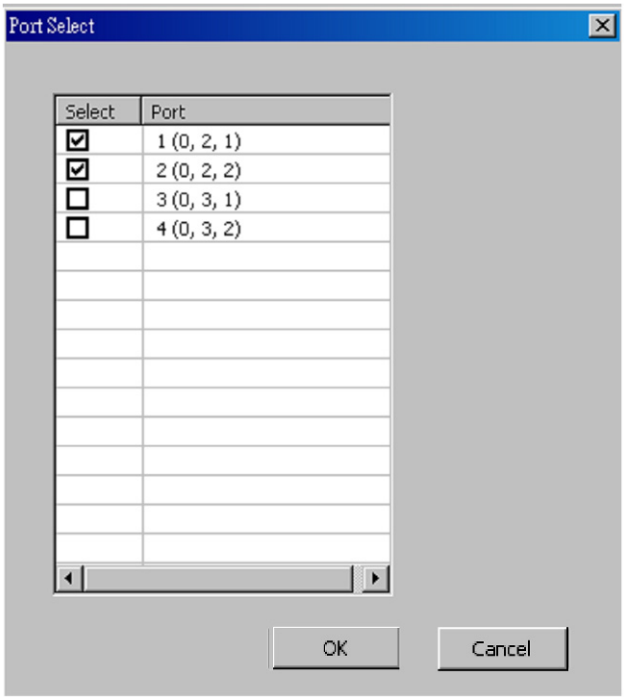
Layer 2 10Mbps Full Duplex Filter Performance Test transmit test streams with the same DA and SA (Destination and Source MAC address) to see if DUT can filter this redundant packets.

A. Port Map



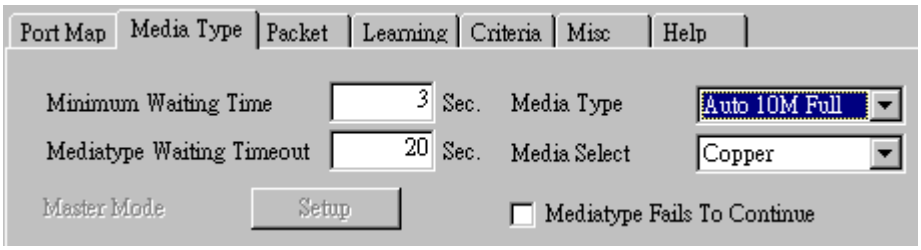
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



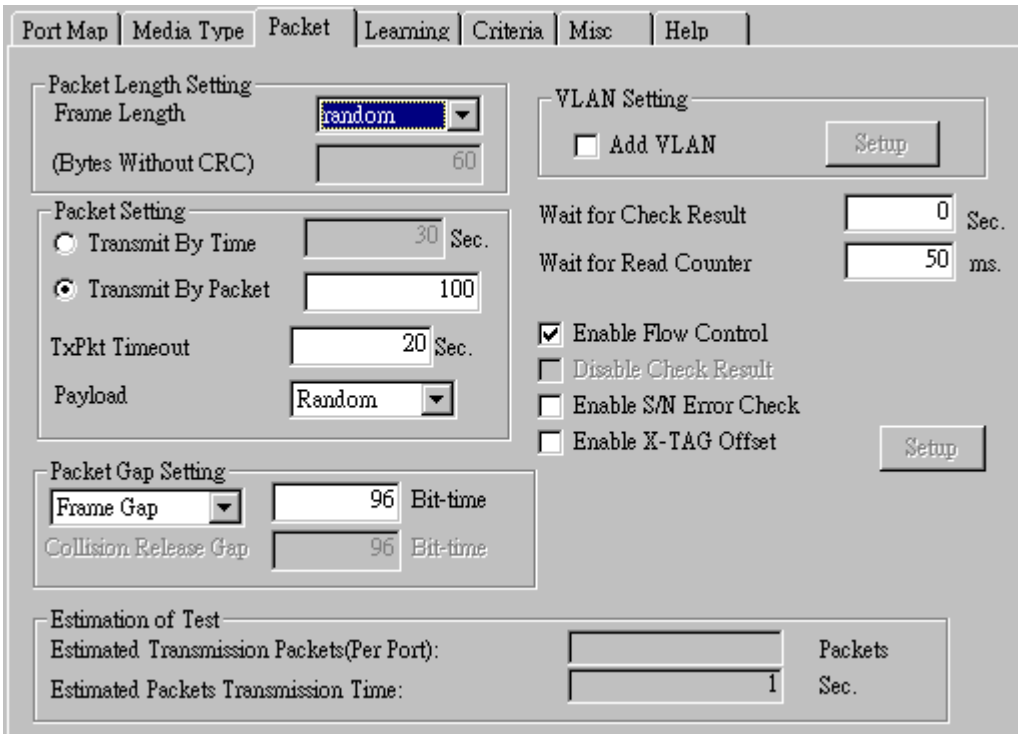
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

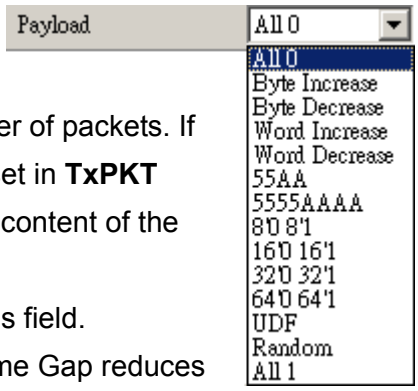
C. Packet



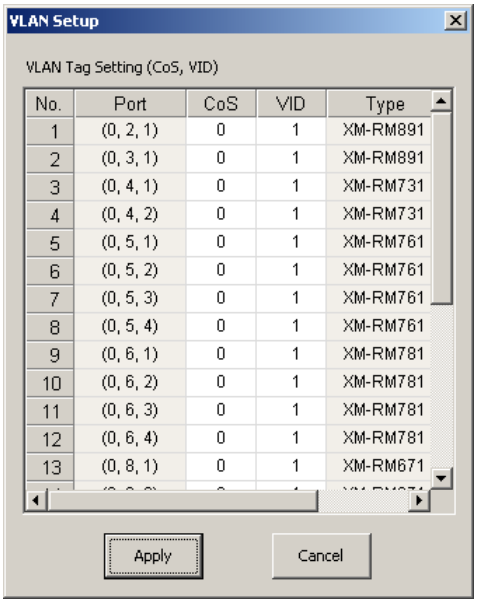
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

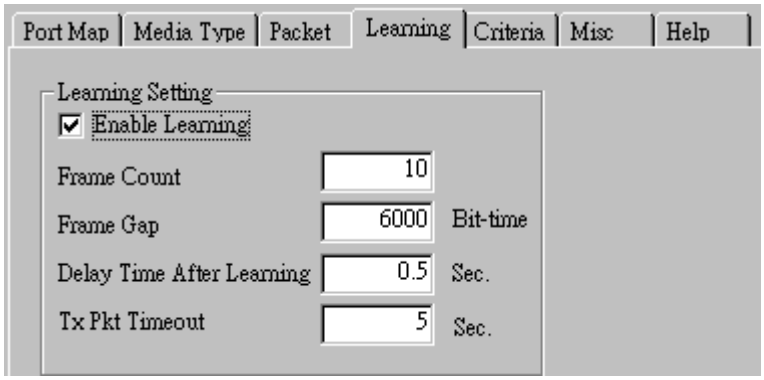


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

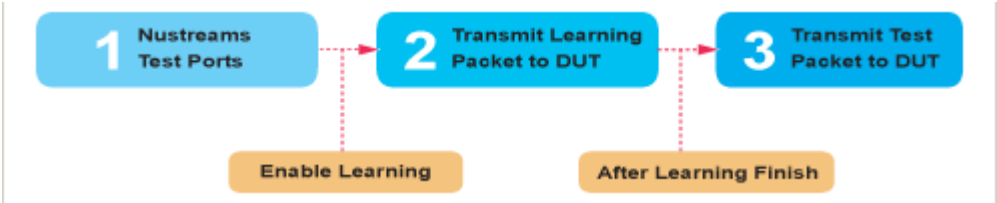


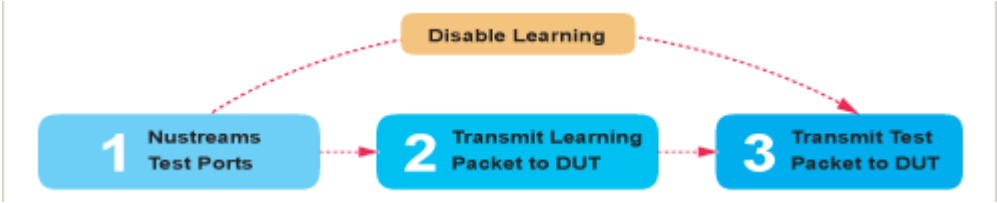
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



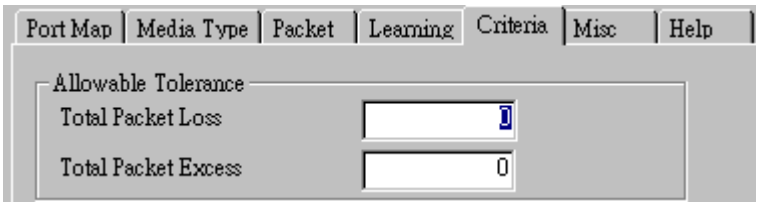
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





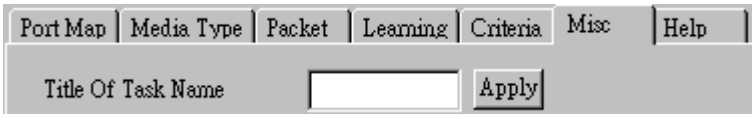
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



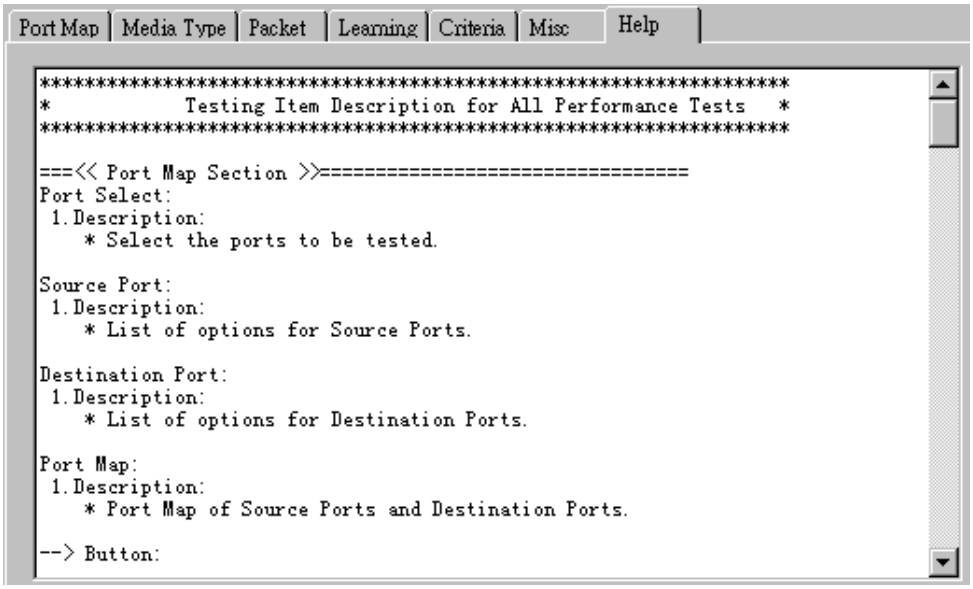
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

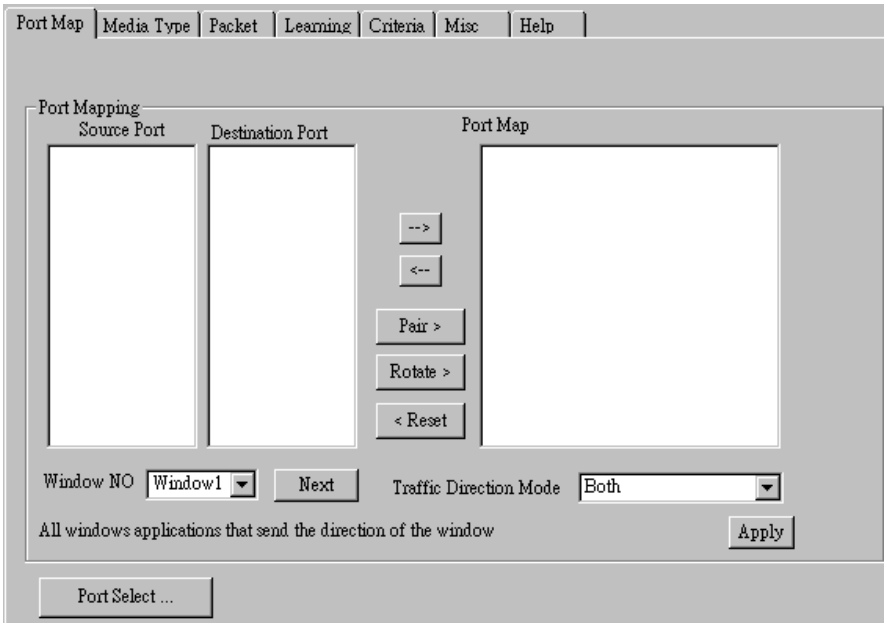


All test variables used for this task and their definitions will be listed here for reference.

5.25. Filter Test (FT) _ PT2-FT-100H (100Mbps, Half Duplex)

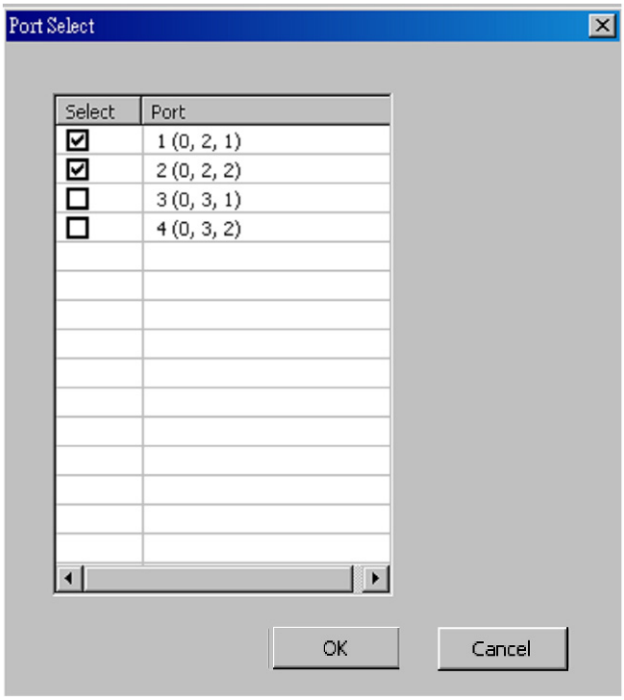
Layer 2 100Mbps Half Duplex Filter Performance Test transmit test streams with the same DA and SA (Destination and Source MAC address) to see if DUT can filter this redundant packets.

A. Port Map



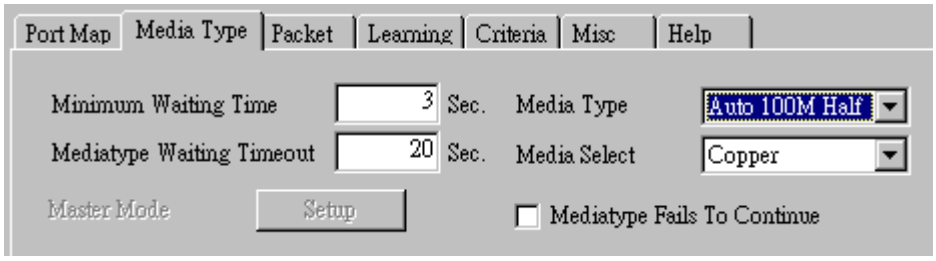
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click → button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click ← button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



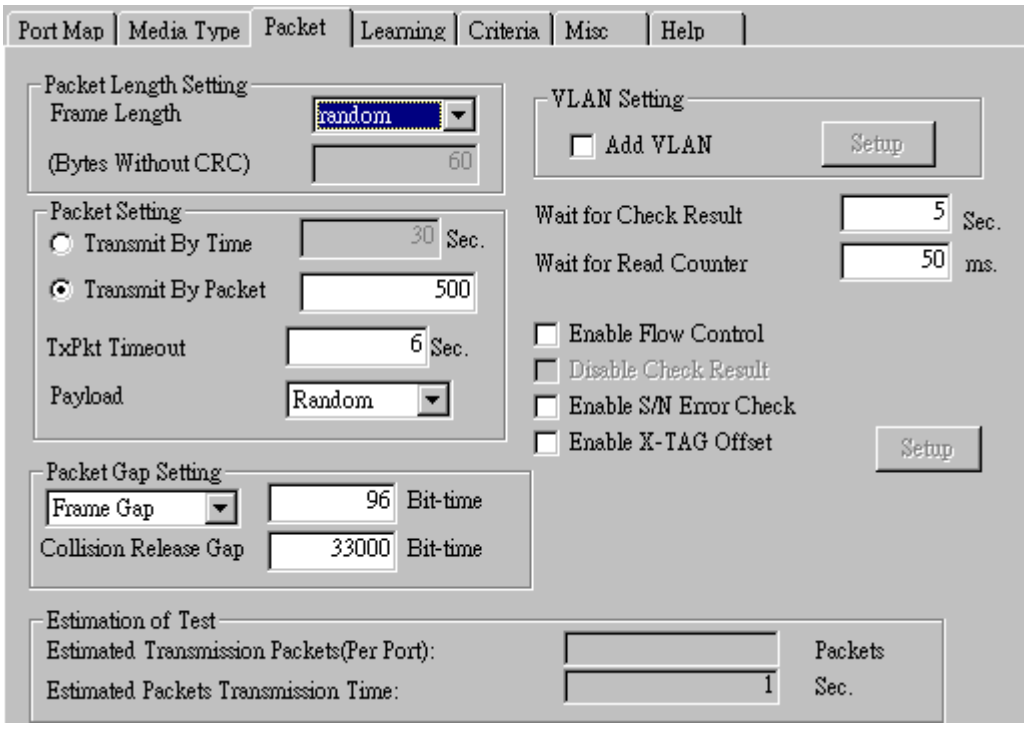
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

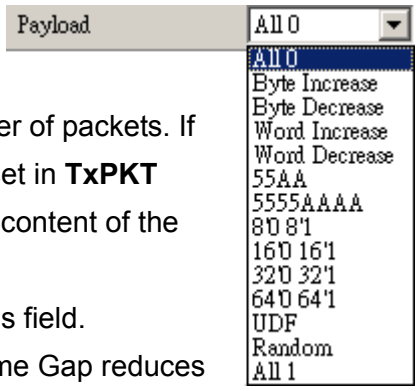
C. Packet



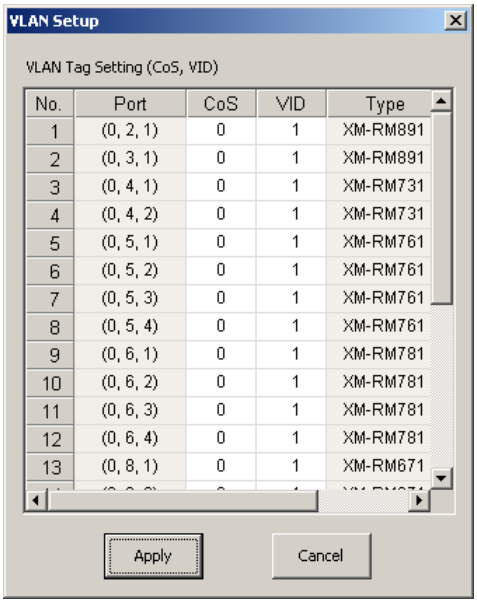
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

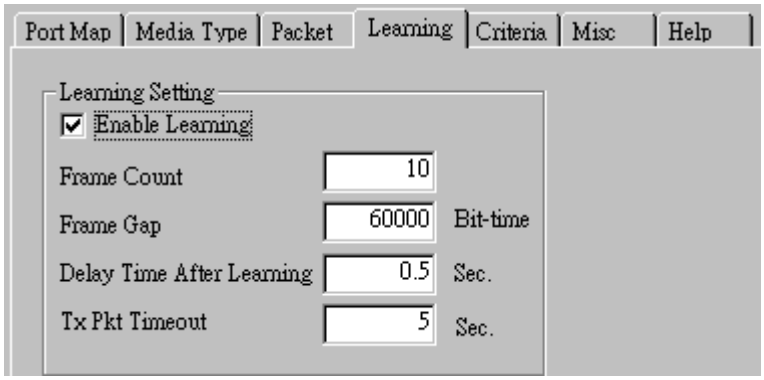


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

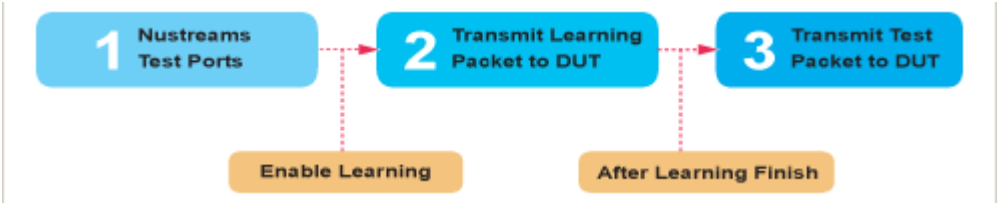


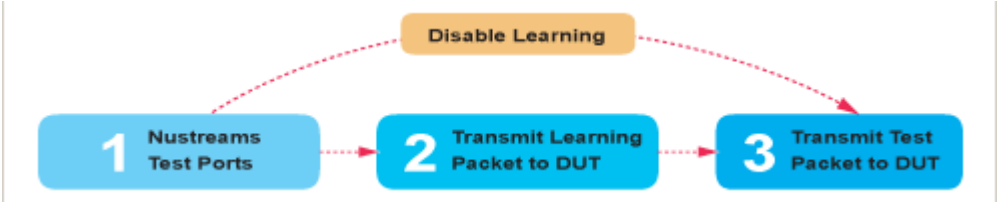
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



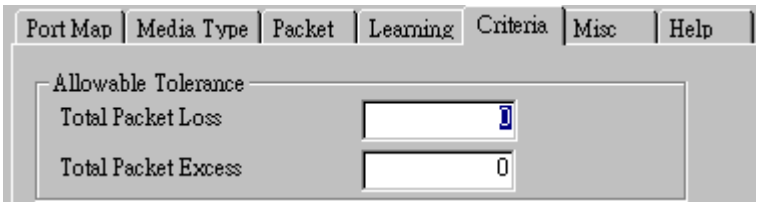
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





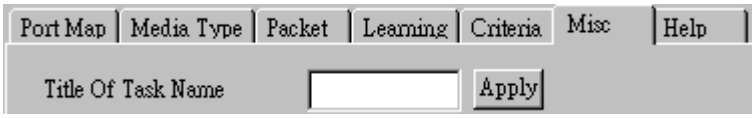
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



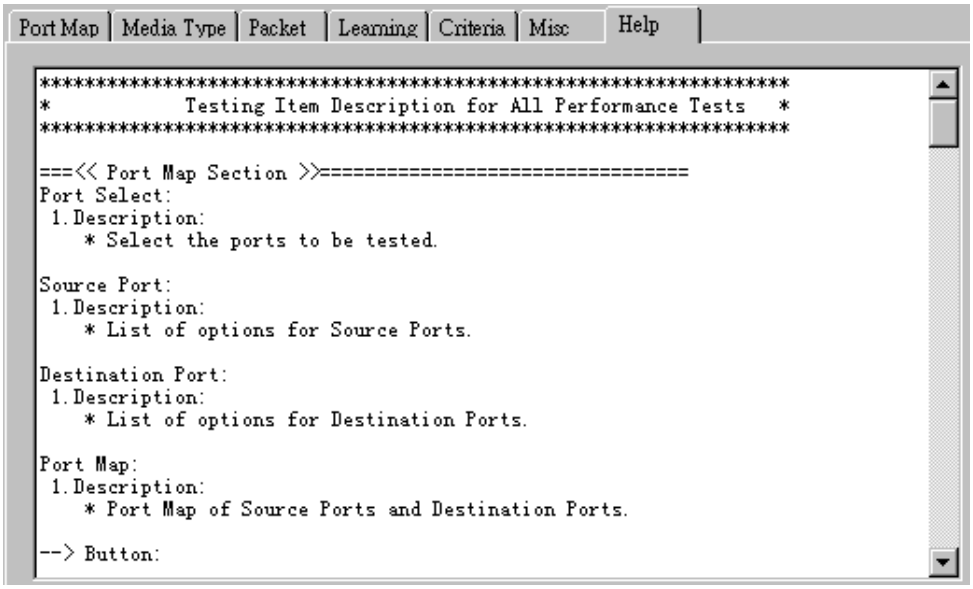
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

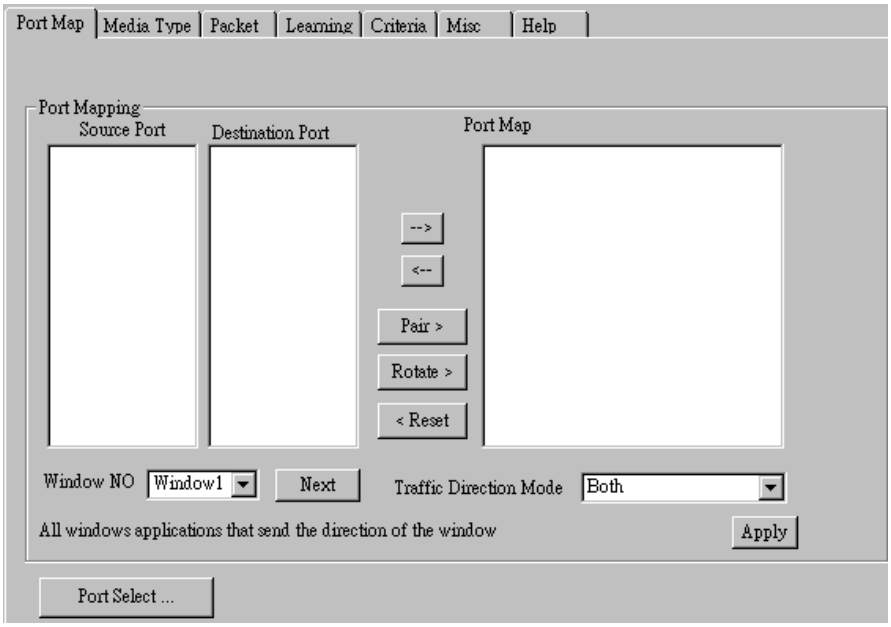


All test variables used for this task and their definitions will be listed here for reference.

5.26. Filter Test (FT) _ PT2-FT-100F (100Mbps, Full Duplex)

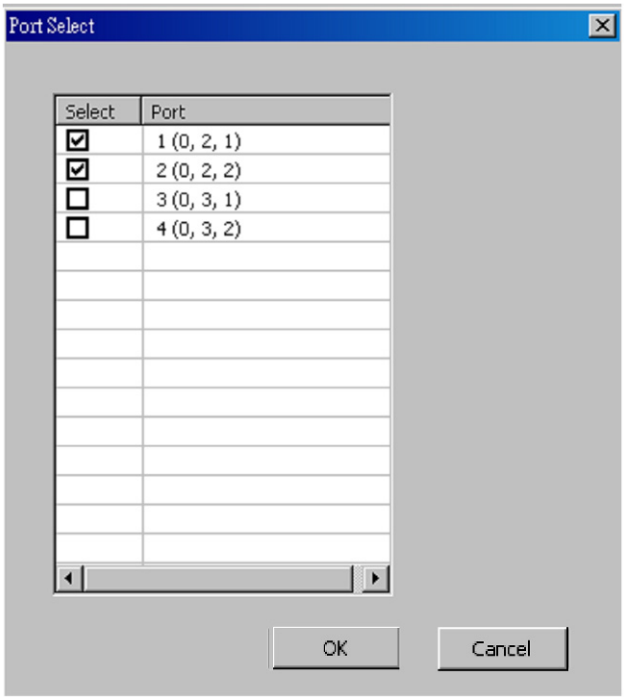
Layer 2 100Mbps Full Duplex Filter Performance Test transmit test streams with the same DA and SA (Destination and Source MAC address) to see if DUT can filter this redundant packets.

A. Port Map



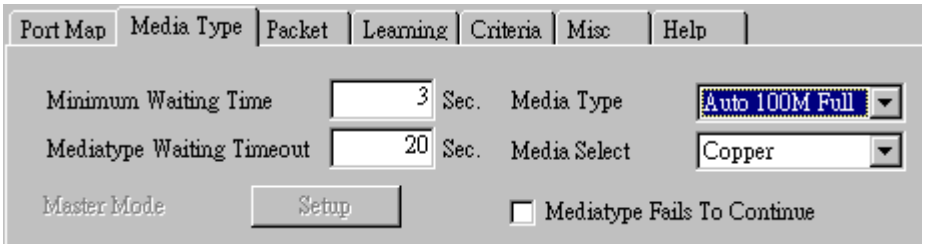
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click → button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click ← button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



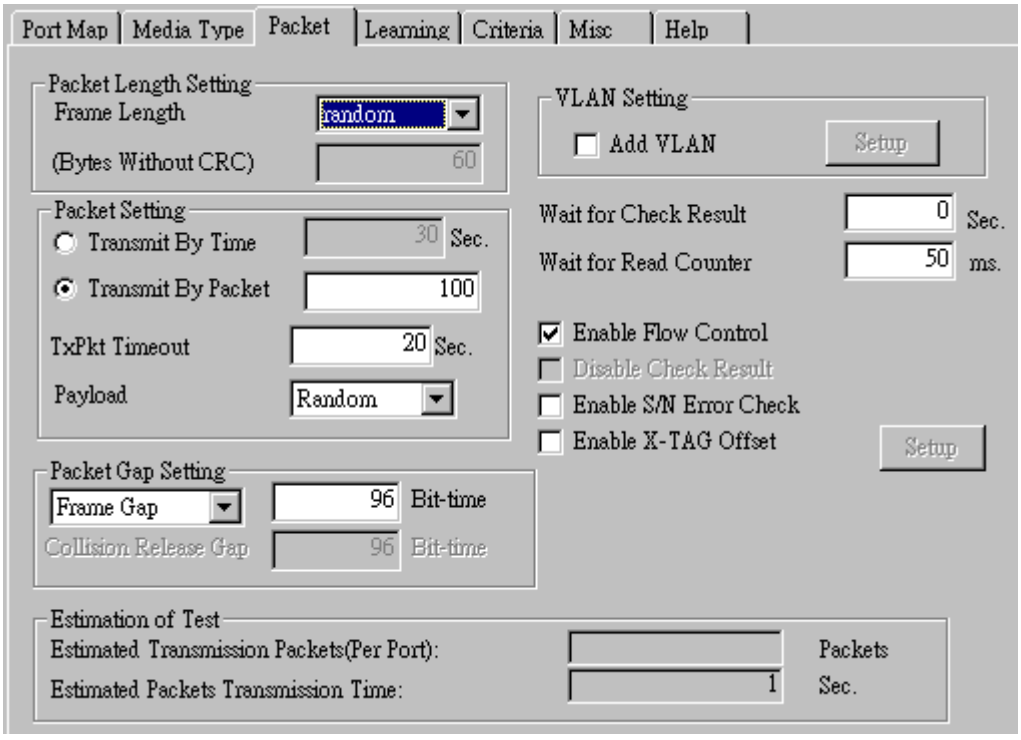
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

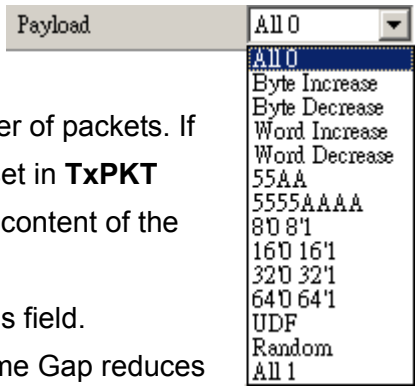
C. Packet



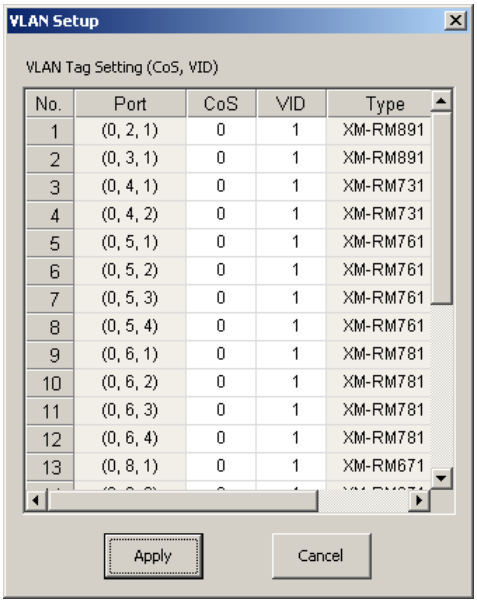
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

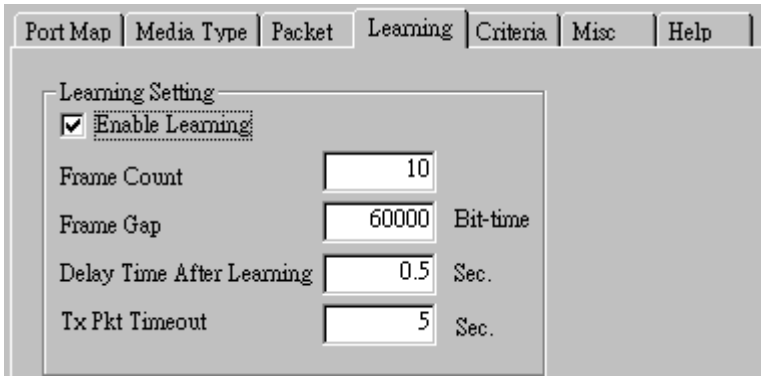


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

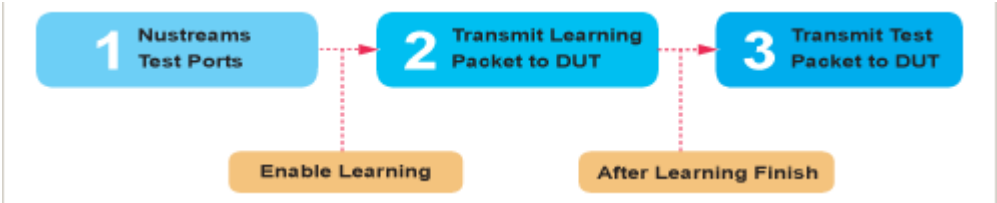


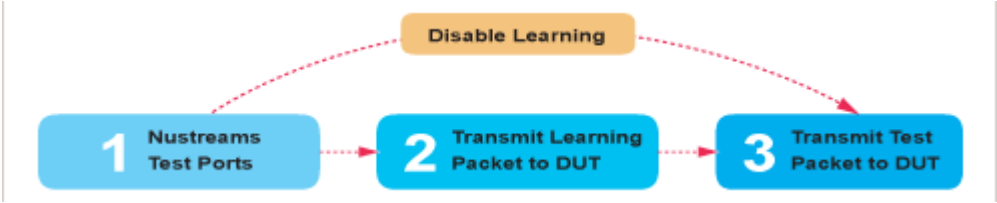
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



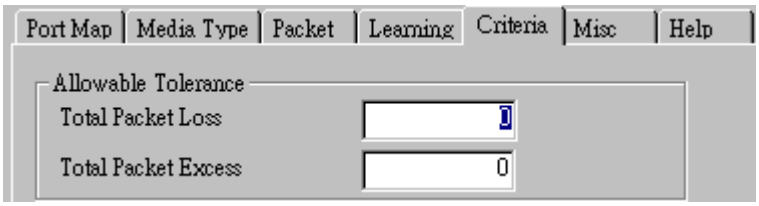
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





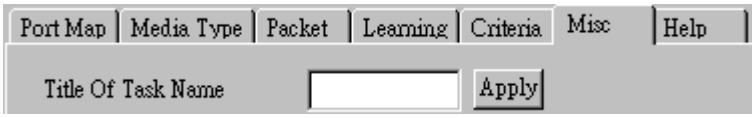
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



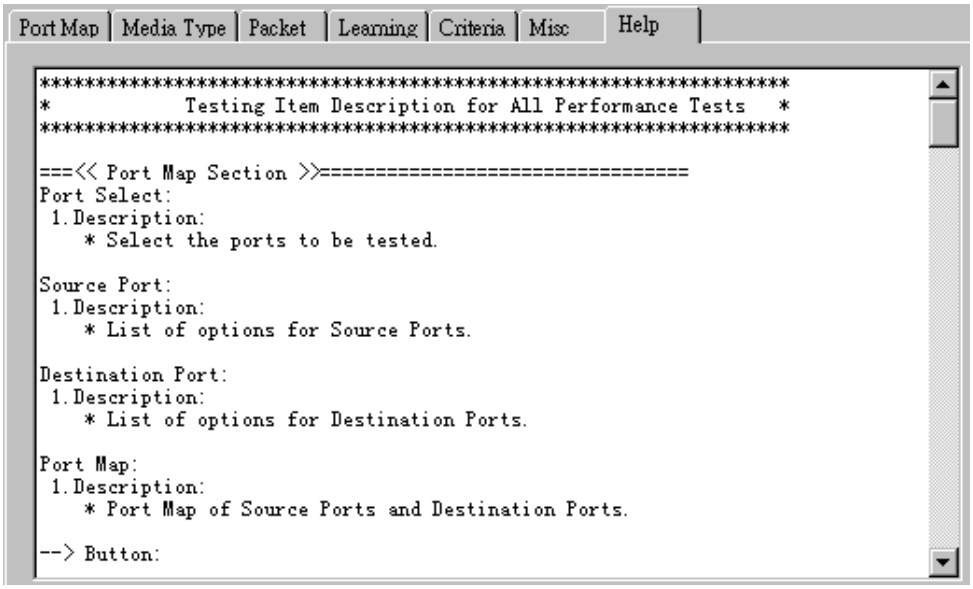
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

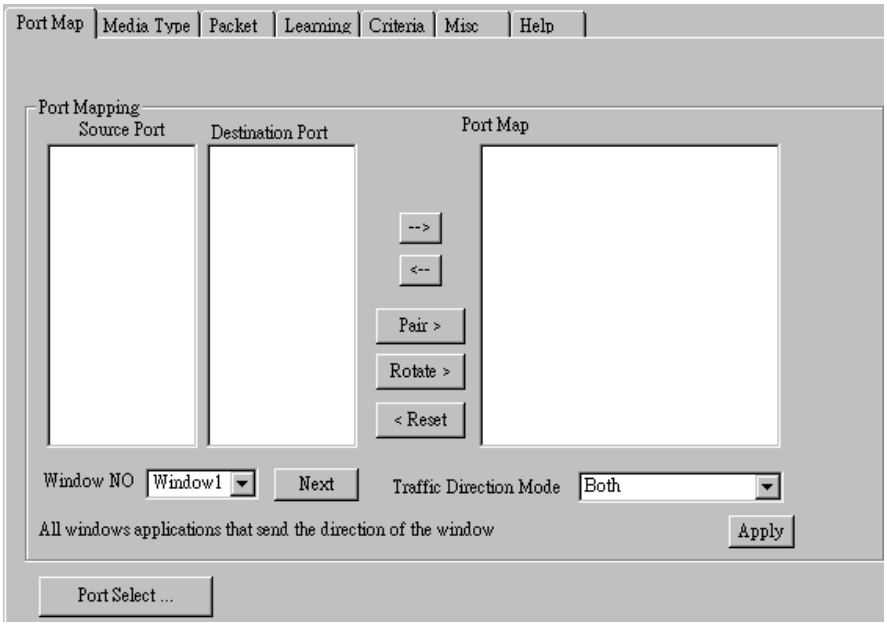


All test variables used for this task and their definitions will be listed here for reference.

5.27. Filter Test (FT) _ PT2-FT-1G (1000Mbps, Full Duplex)

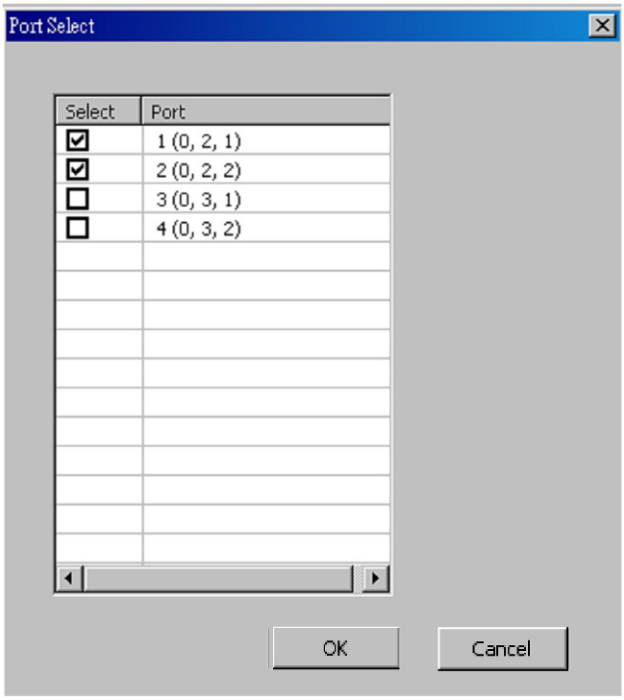
Layer 2 1000Mbps Full Duplex Filter Performance Test transmit test streams with the same DA and SA (Destination and Source MAC address) to see if DUT can filter this redundant packets.

A. Port Map



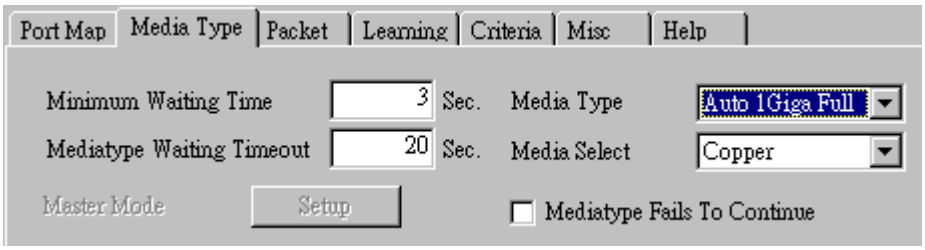
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click → button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click ← button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



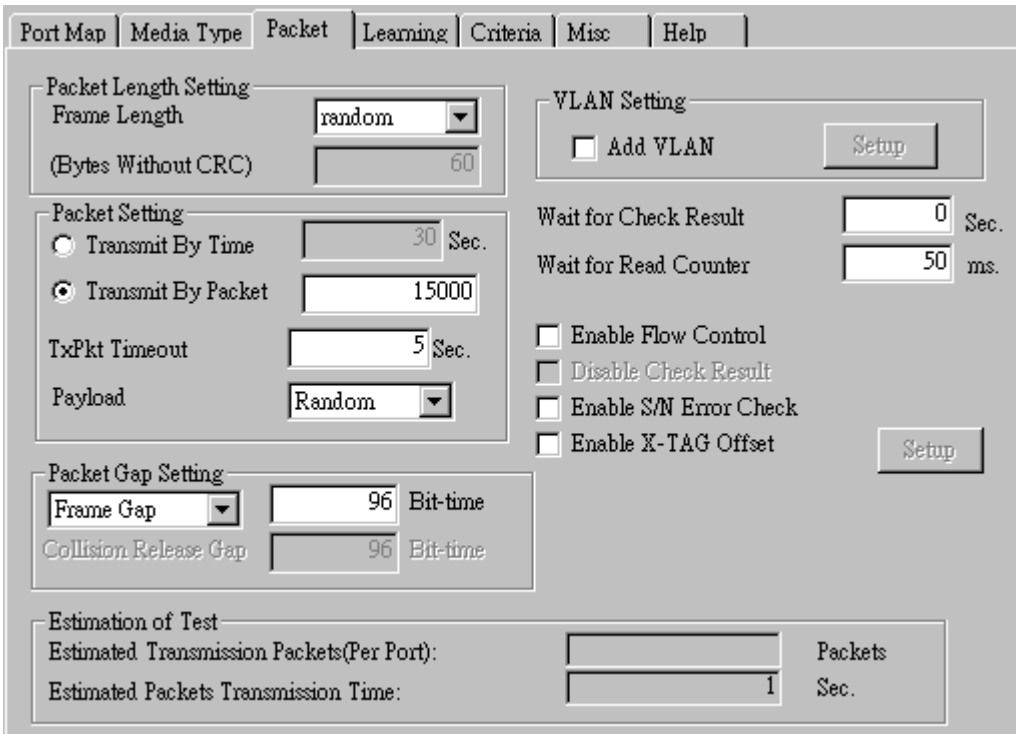
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

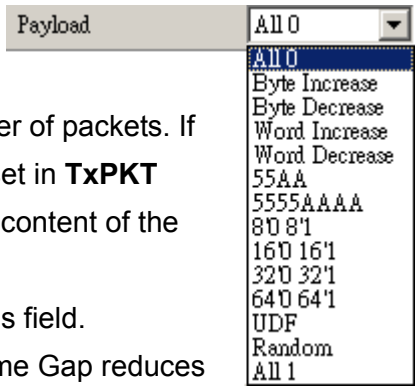
C. Packet



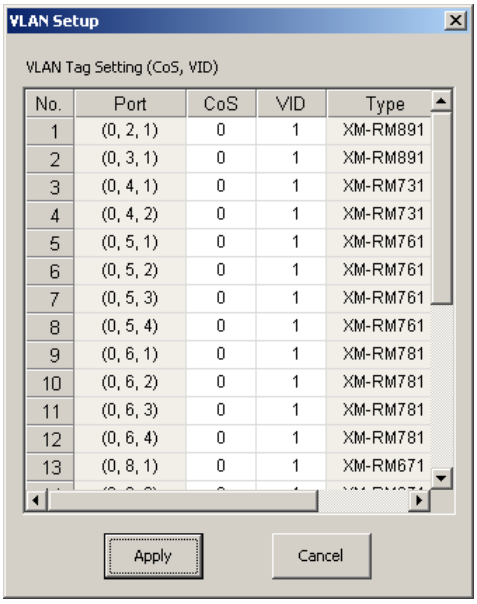
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

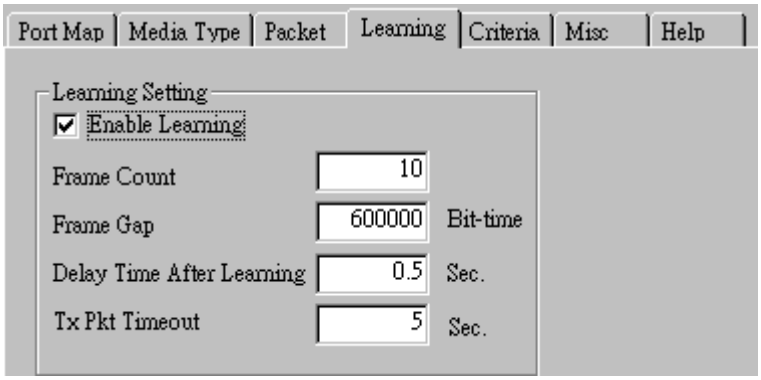


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

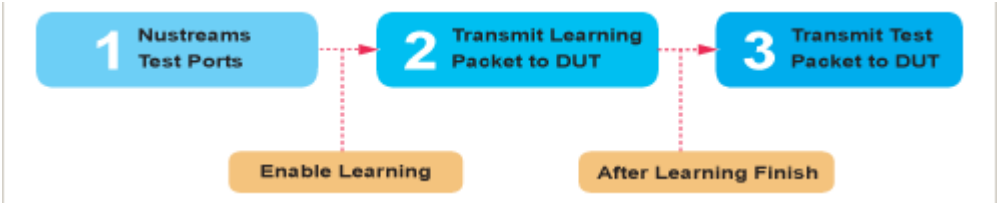


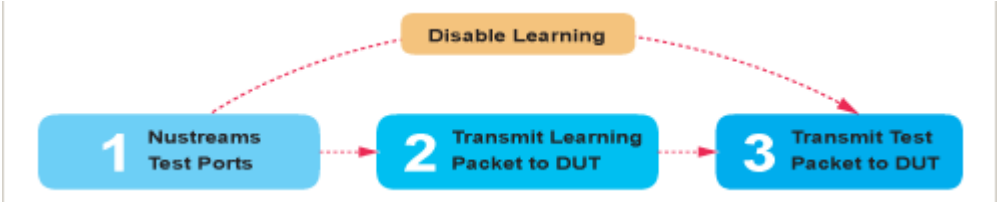
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



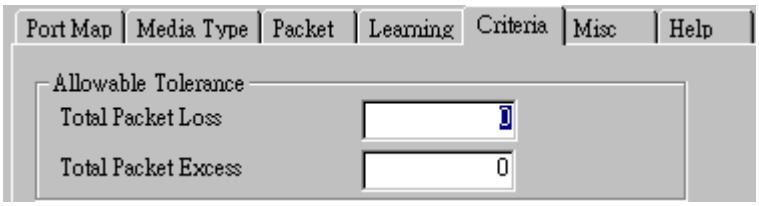
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





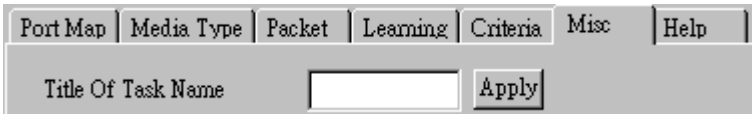
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



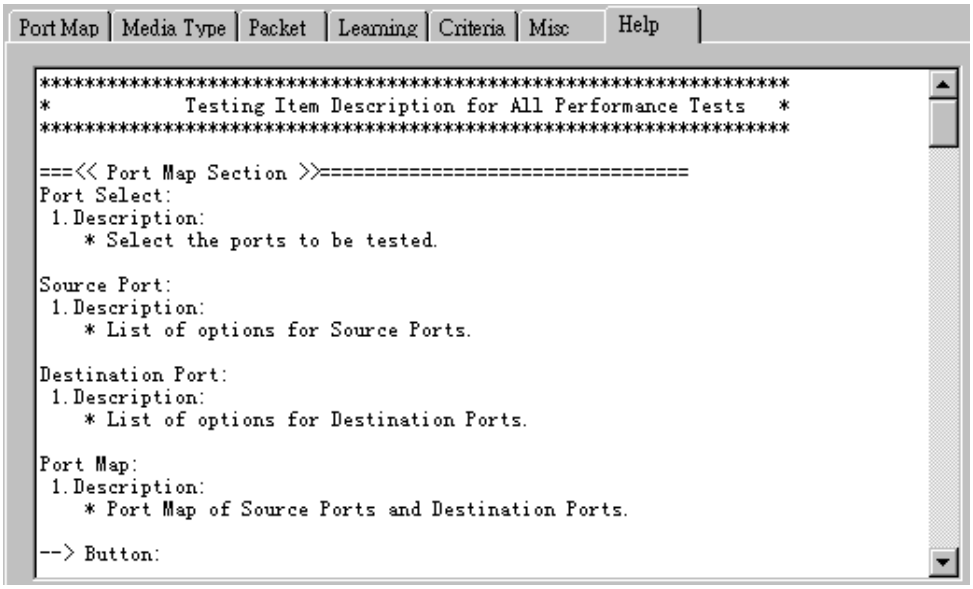
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

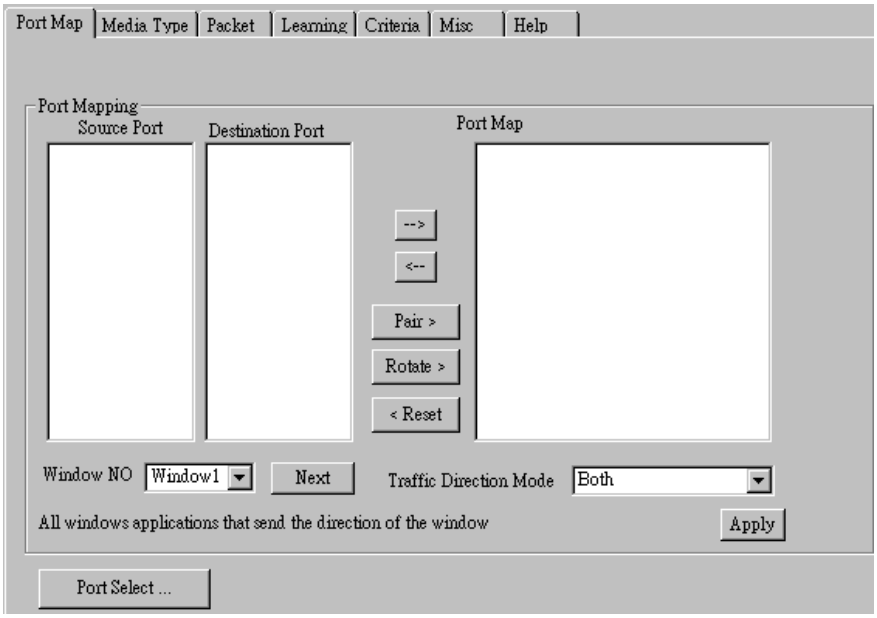


All test variables used for this task and their definitions will be listed here for reference.

5.28. Filter Test (FT) _ PT2-FT-10G (10Gbps, Full Duplex)

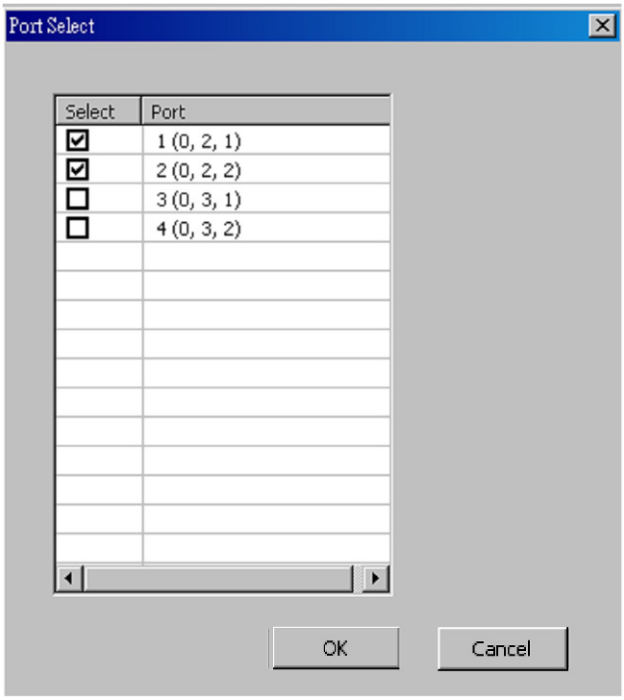
Layer 2 10Gbps Full Duplex Filter Performance Test transmit test streams with the same DA and SA (Destination and Source MAC address) to see if DUT can filter this redundant packets.

A. Port Map



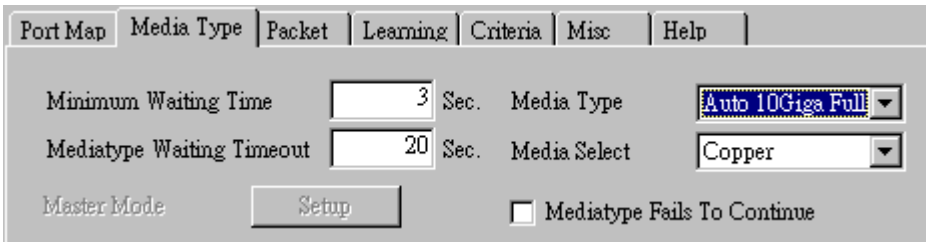
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



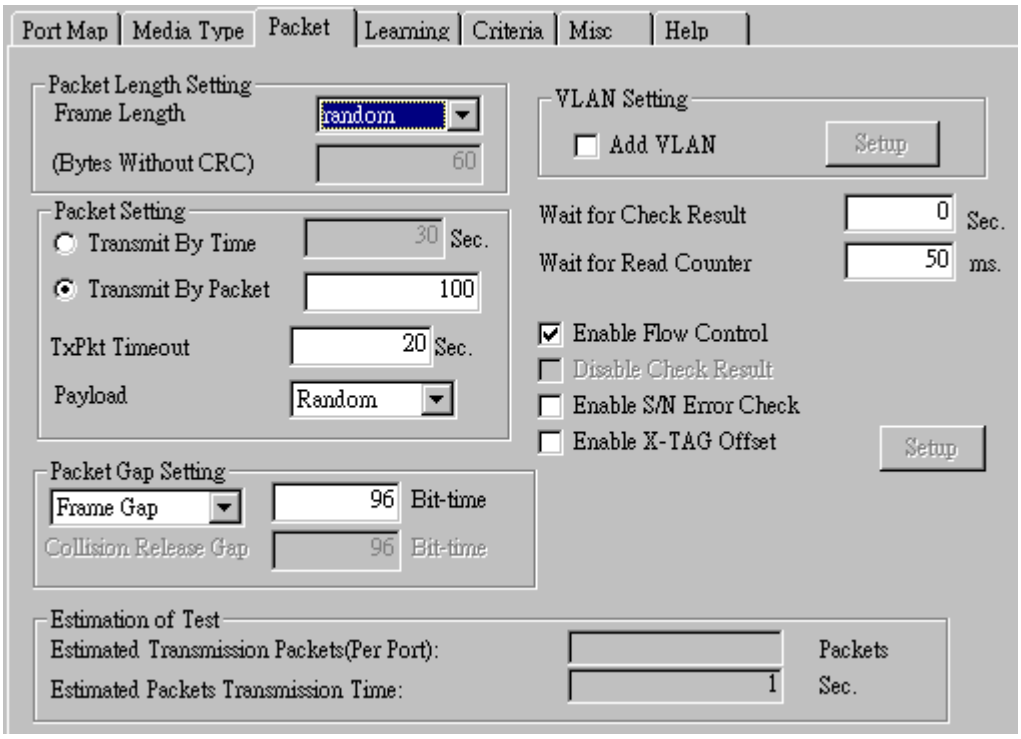
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

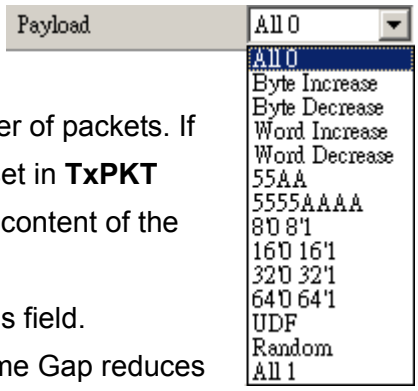
C. Packet



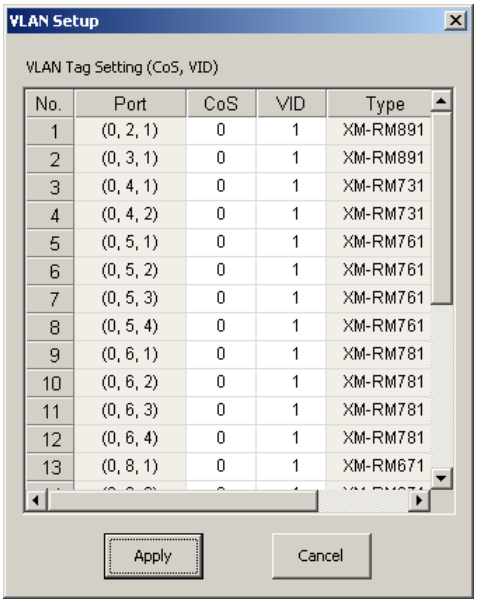
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

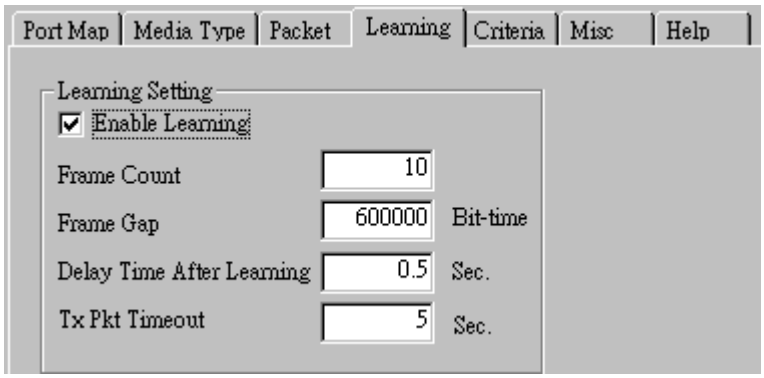


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

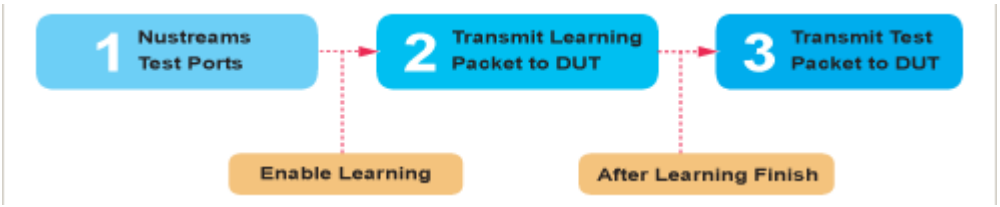


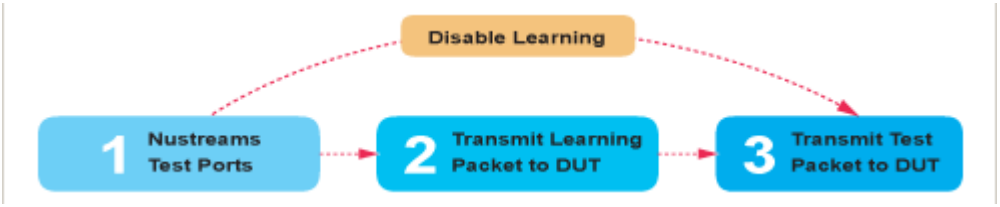
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



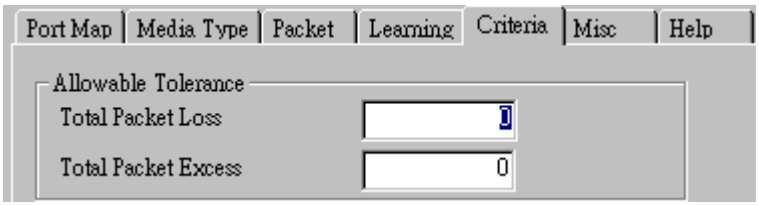
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





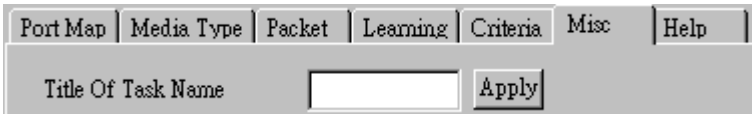
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



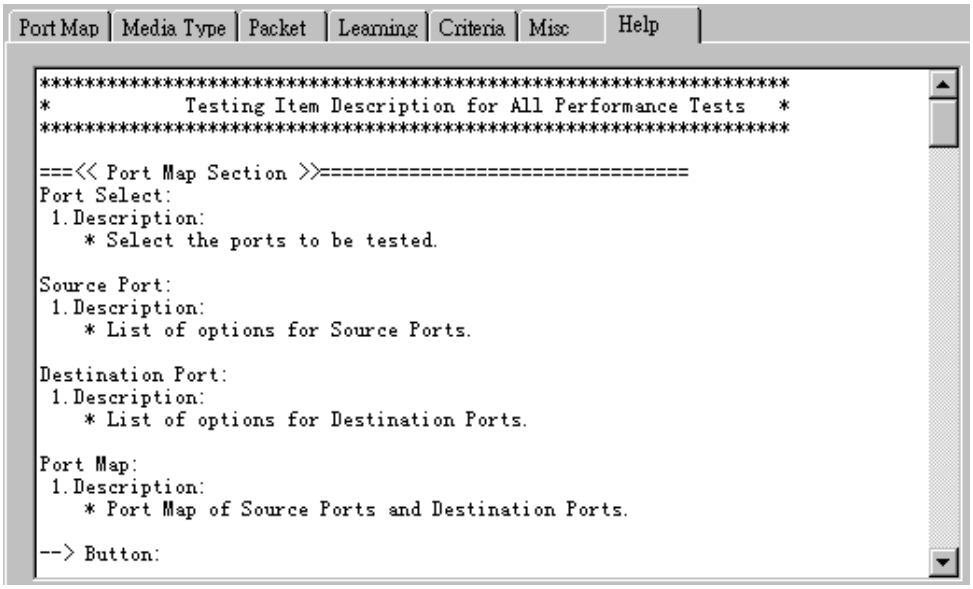
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

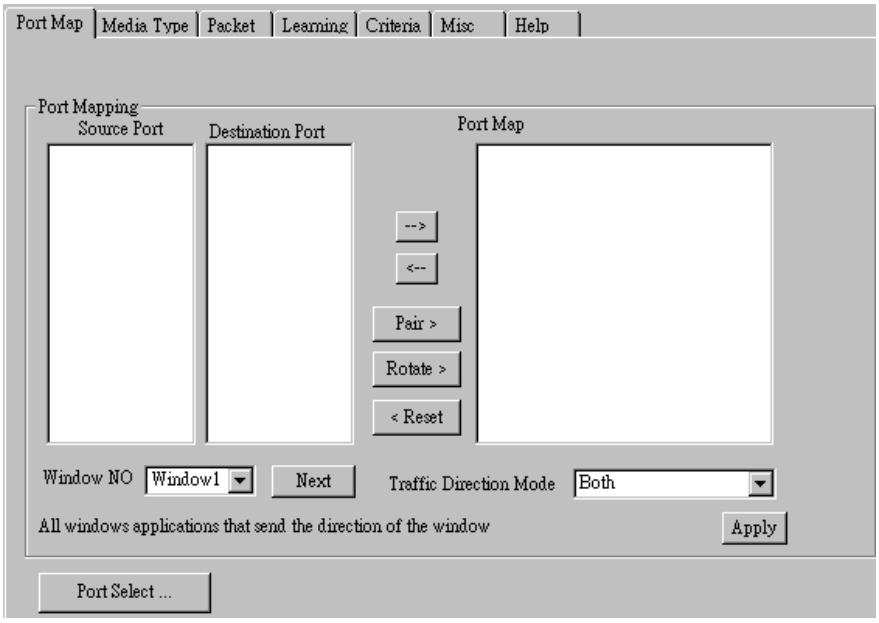


All test variables used for this task and their definitions will be listed here for reference.

5.29. CRC Error Test (CRC) _ PT2-CRC-10H (10Mbps, Half Duplex)

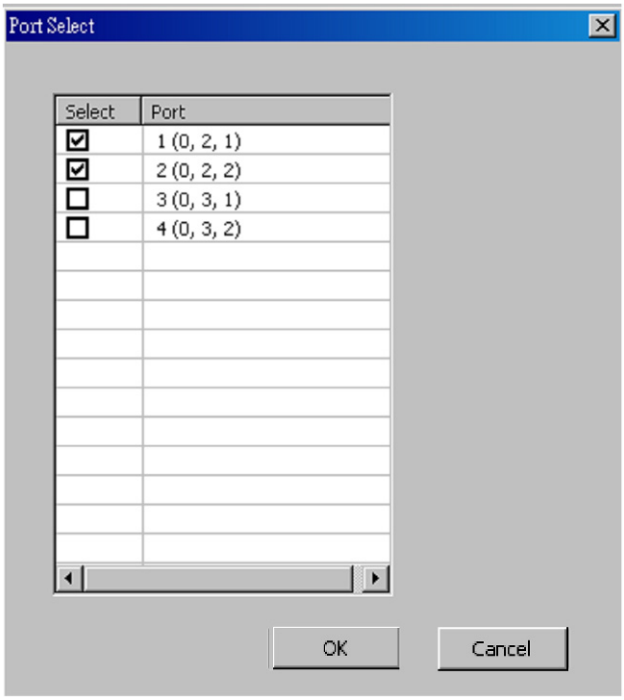
Layer 2 10Mbps Half Duplex CRC check Performance Test is to find if DUT can filter and discard frames with CRC error.

A. Port Map



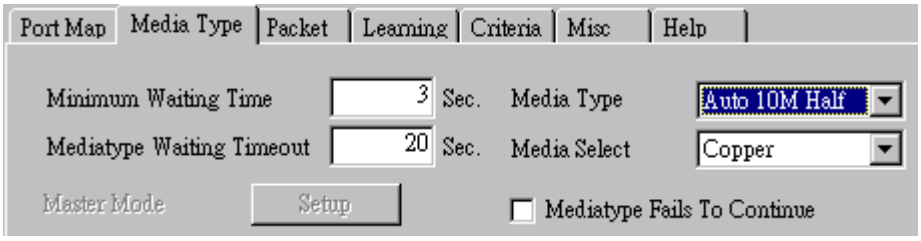
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



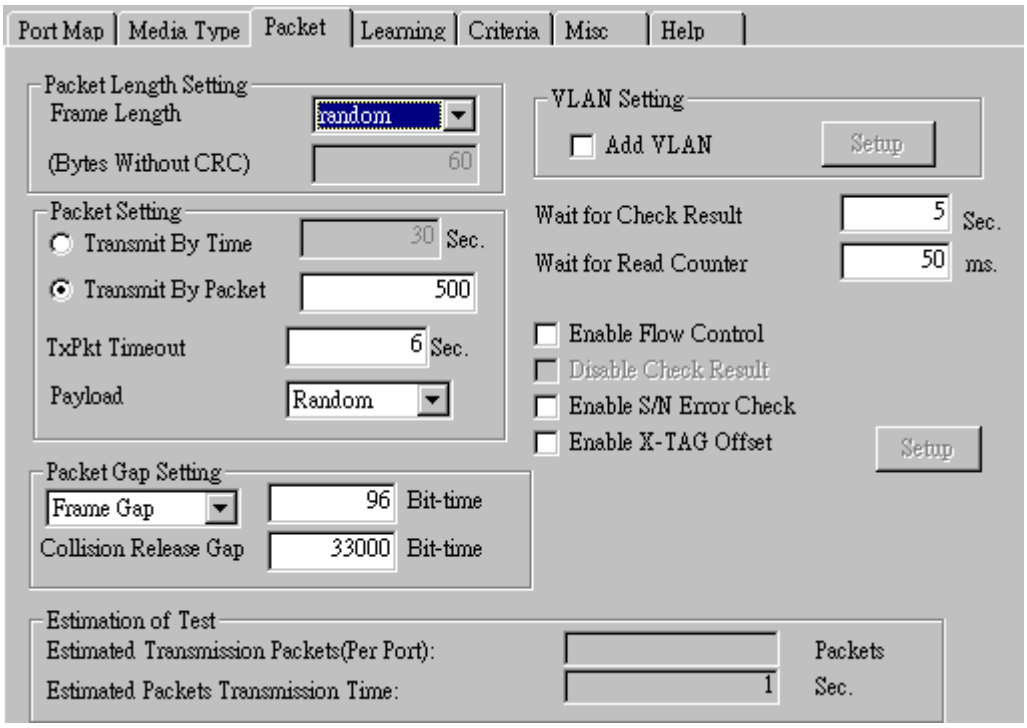
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



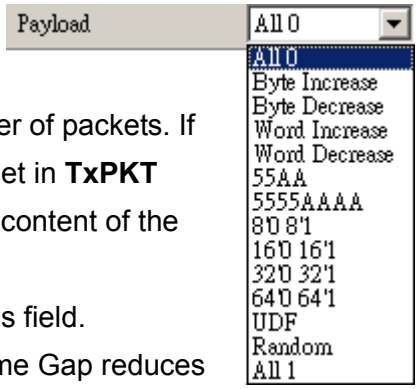
- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

C. Packet

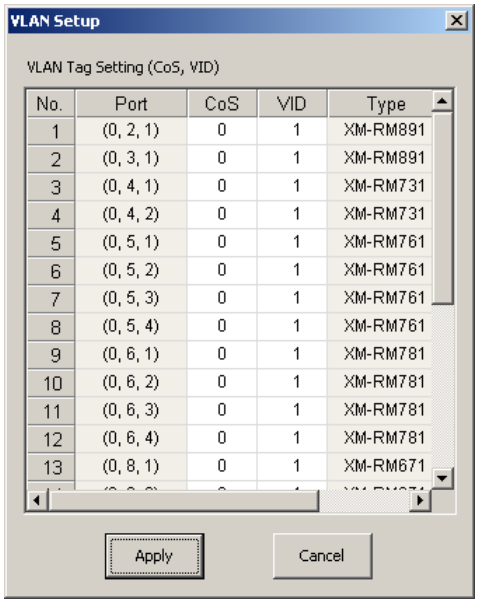


- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

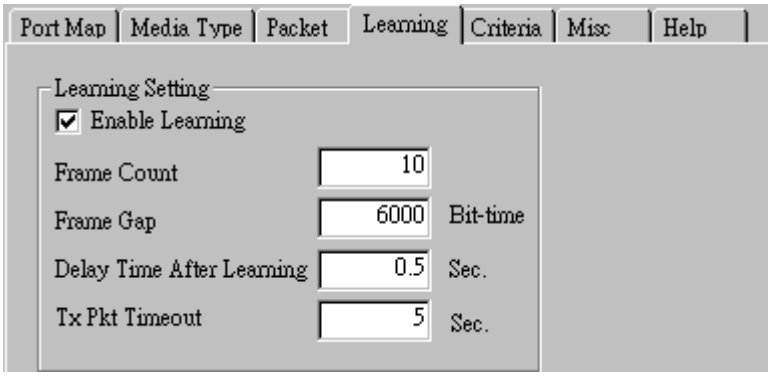


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

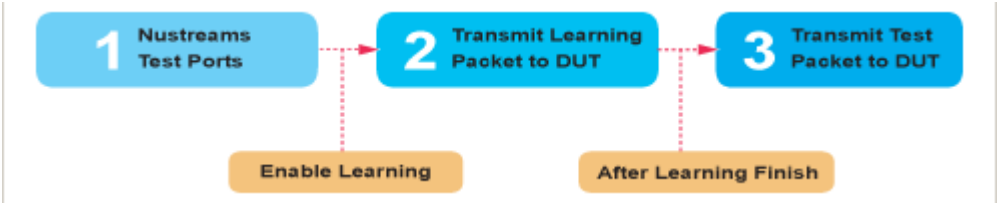


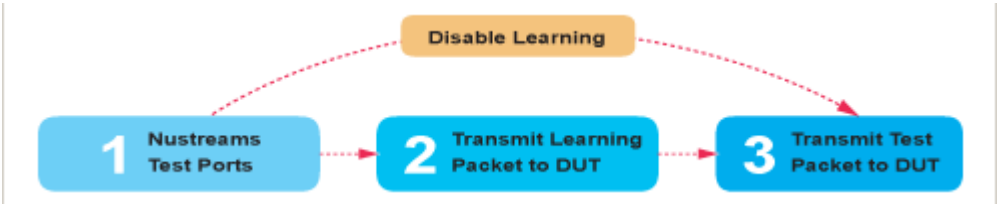
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



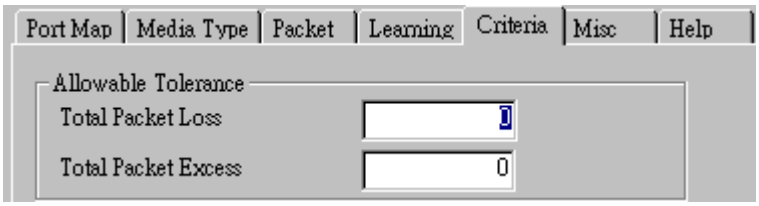
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





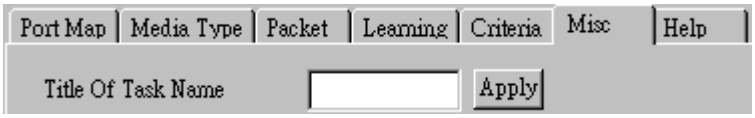
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



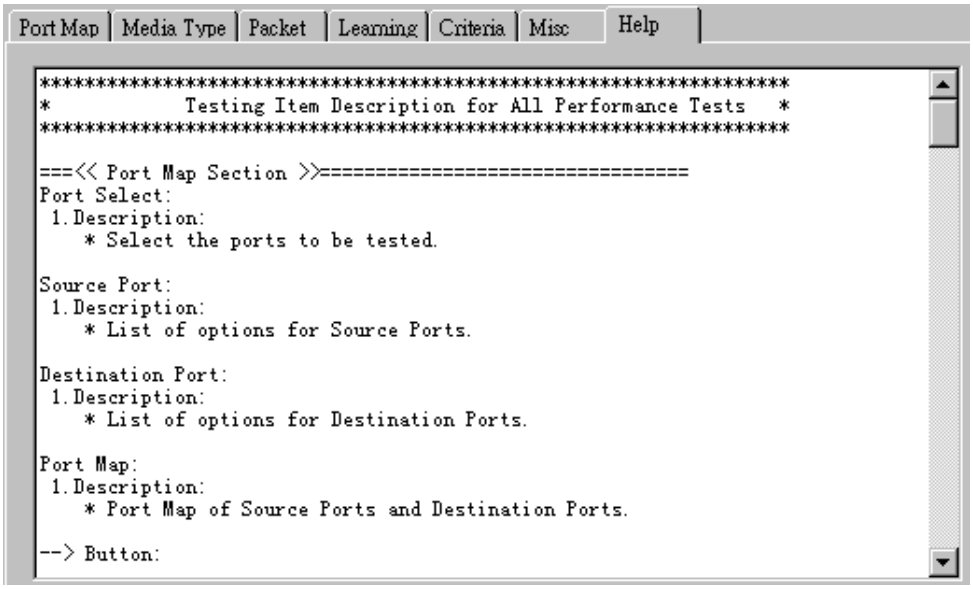
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

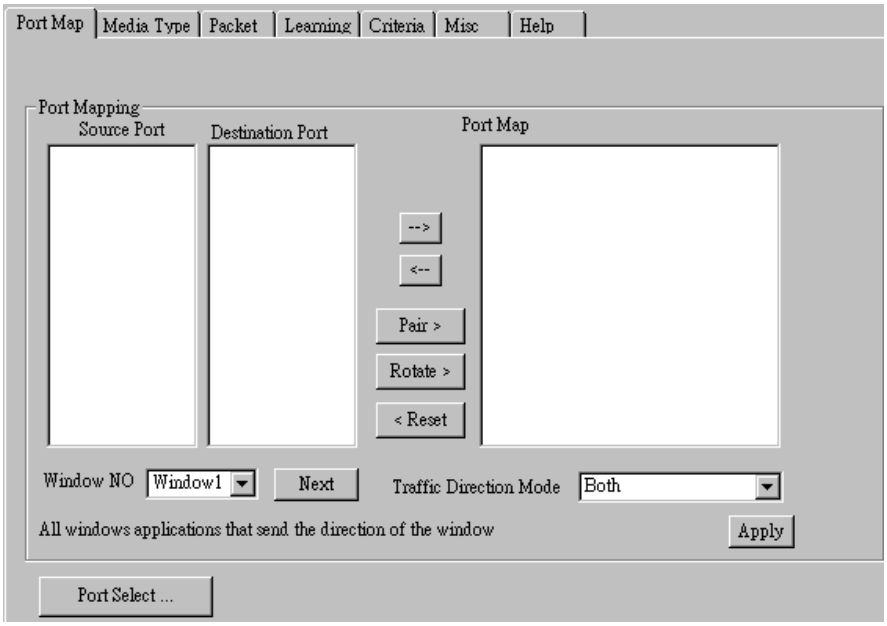


All test variables used for this task and their definitions will be listed here for reference.

5.30. CRC Error Test (CRC) _ PT2-CRC-10F (10Mbps, Full Duplex)

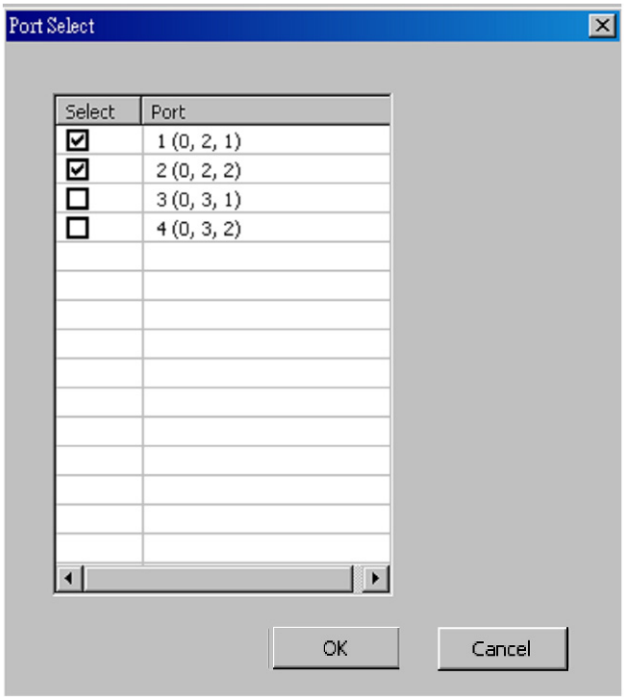
Layer 2 10Mbps Full Duplex CRC check Performance Test is to find if DUT can filter and discard frames with CRC error.

A. Port Map



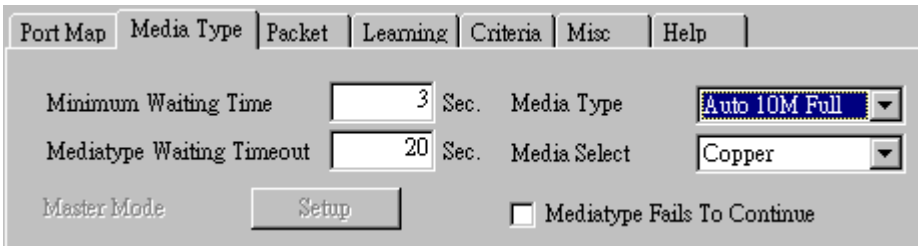
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click → button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click ← button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



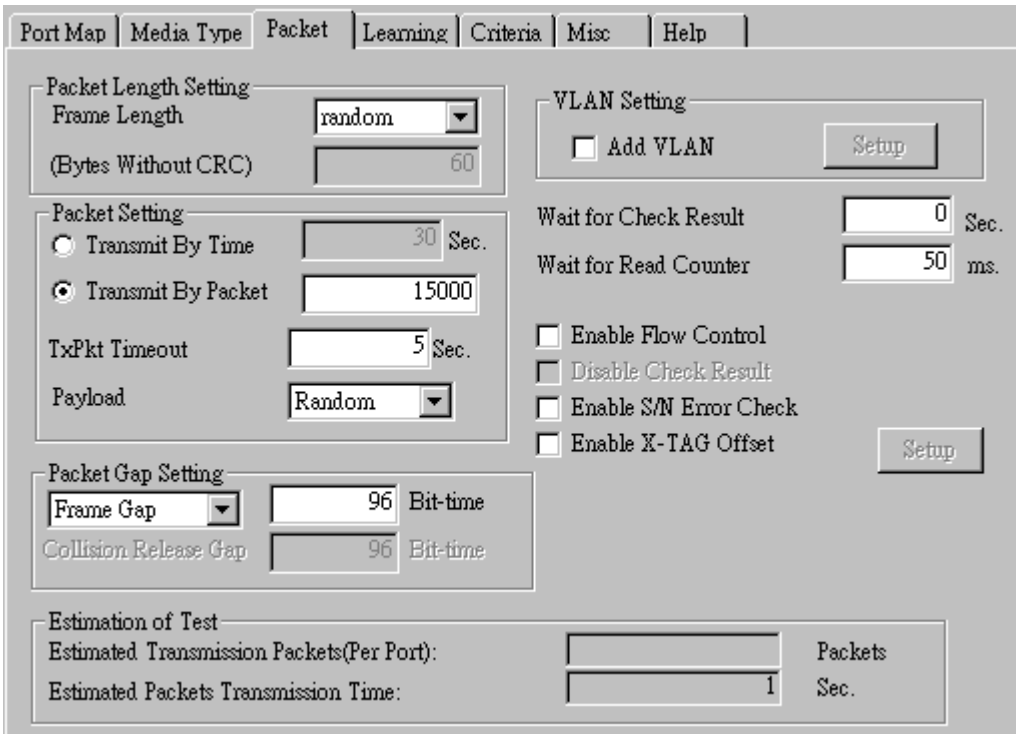
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

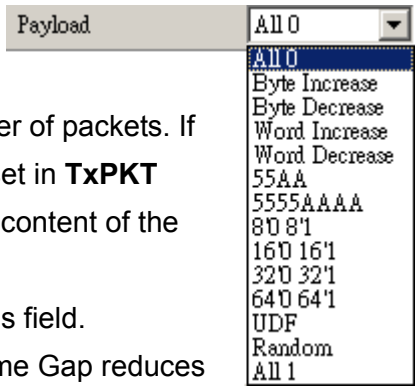
C. Packet



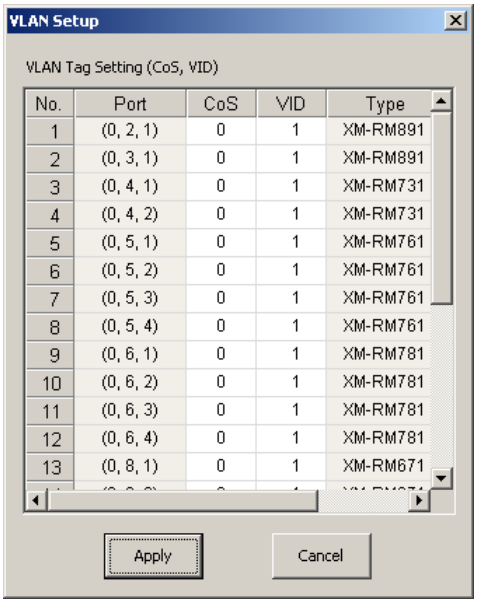
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

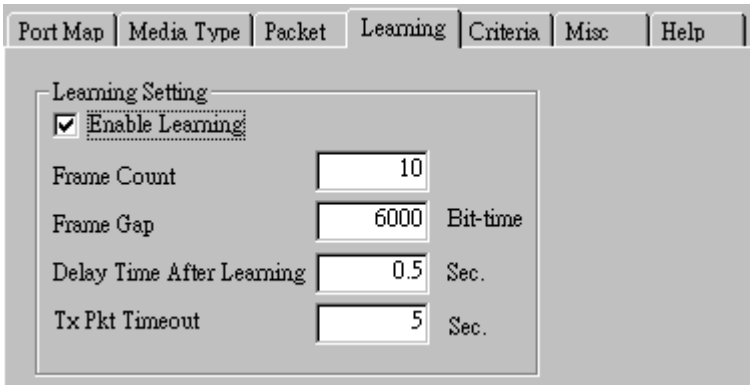


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

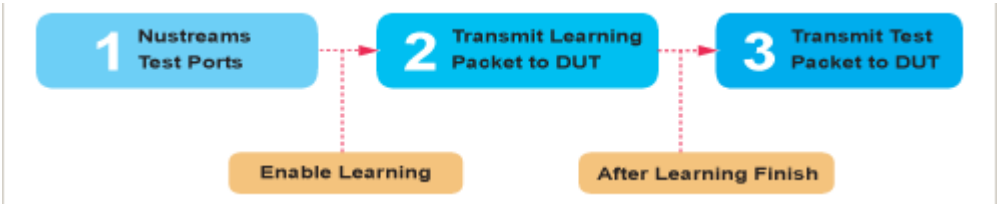


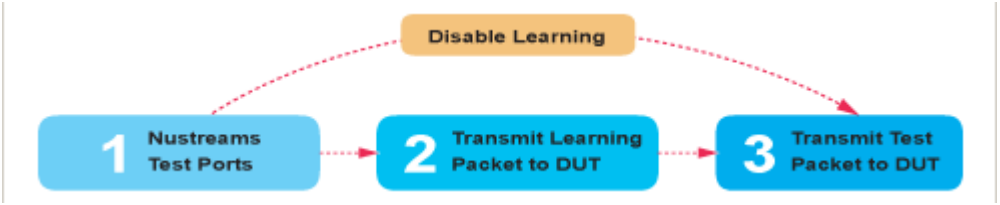
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



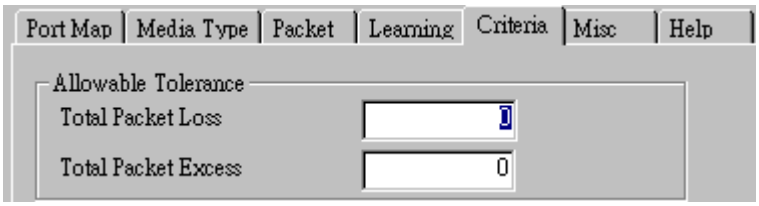
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





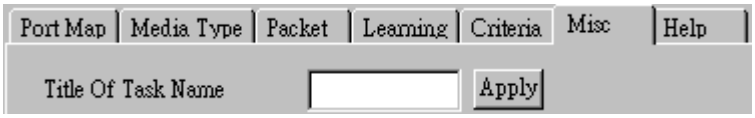
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



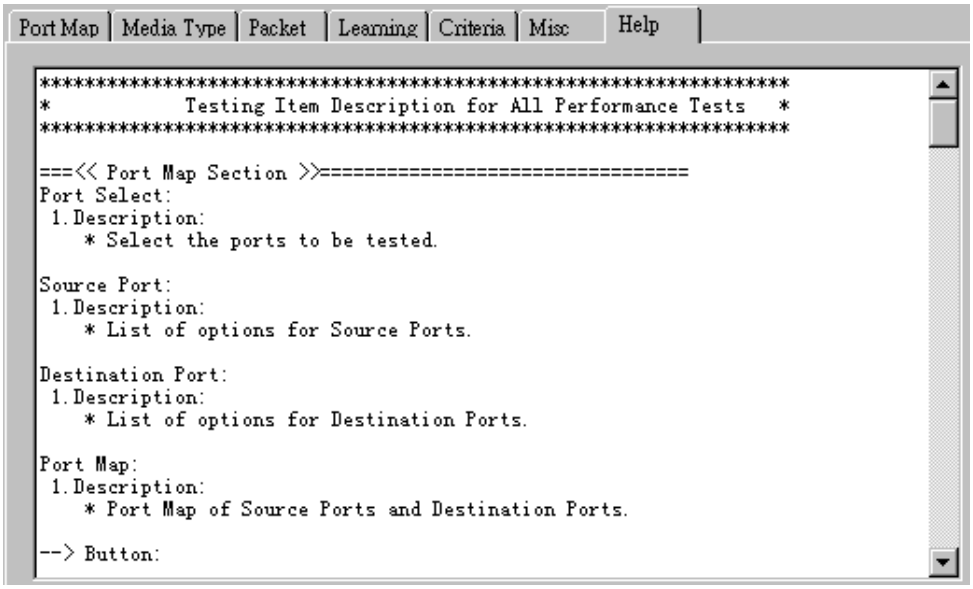
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

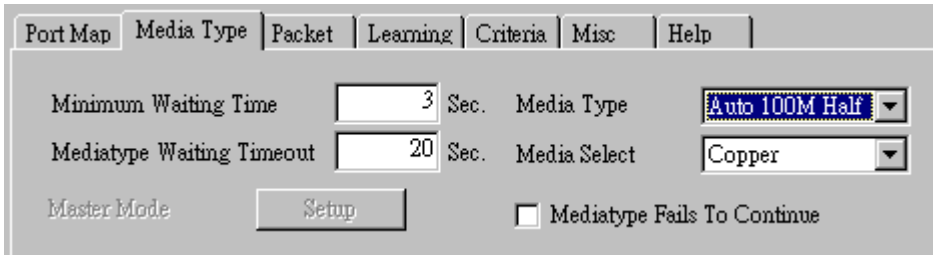


All test variables used for this task and their definitions will be listed here for reference.

5.31. CRC Error Test (CRC) _ PT2-CRC-100H (100Mbps, Half Duplex)

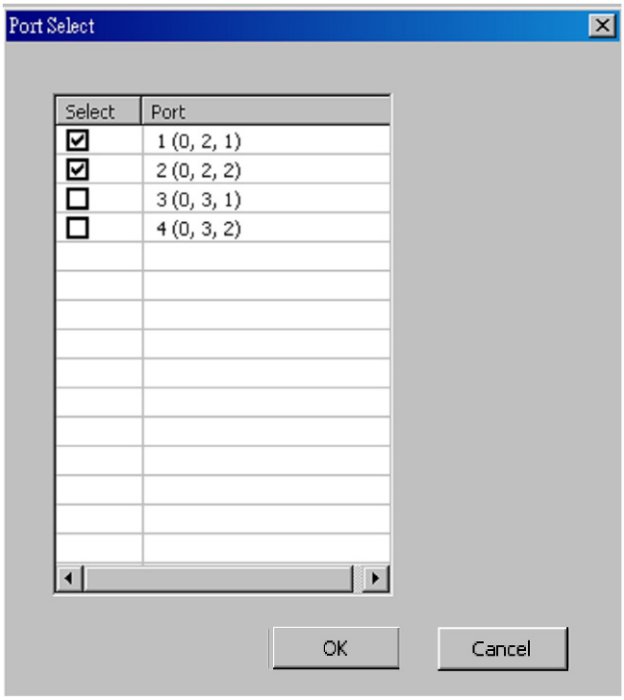
Layer 2 100Mbps Half Duplex CRC check Performance Test is to find if DUT can filter and discard frames with CRC error.

A. Port Map



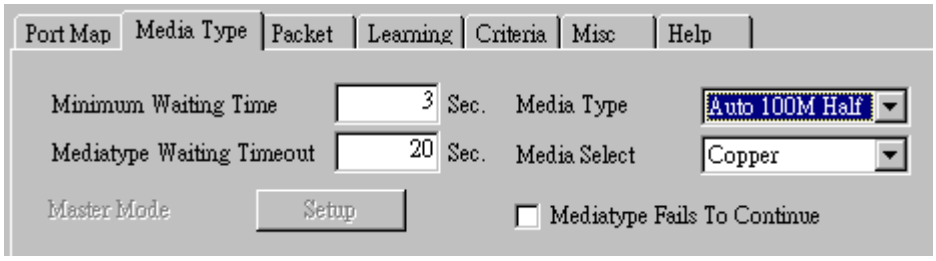
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



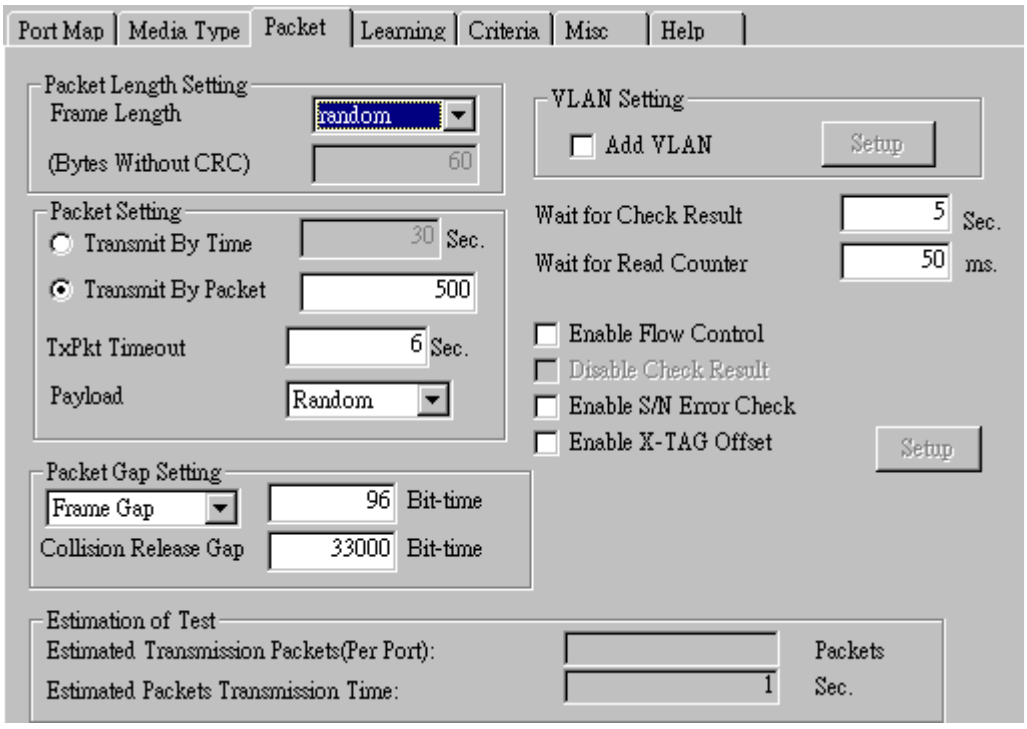
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

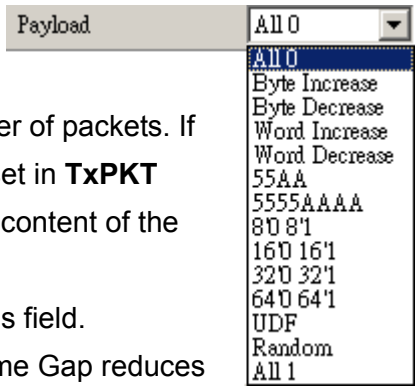
C. Packet



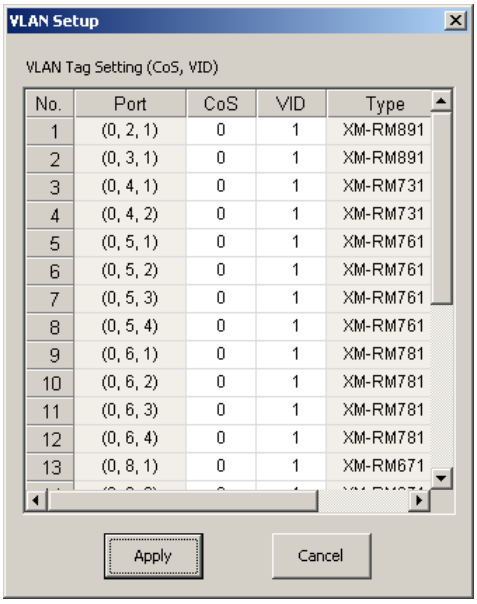
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

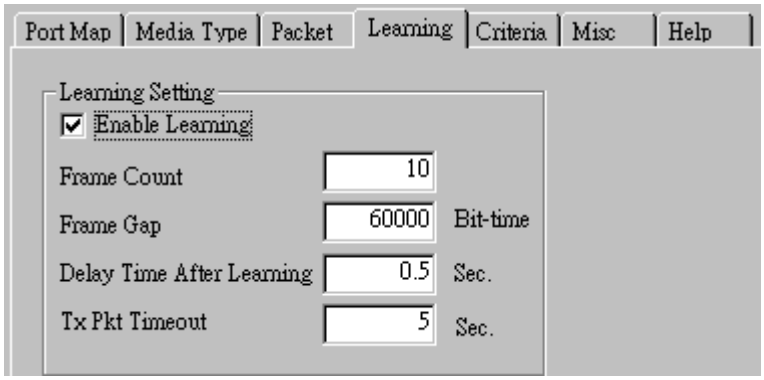


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

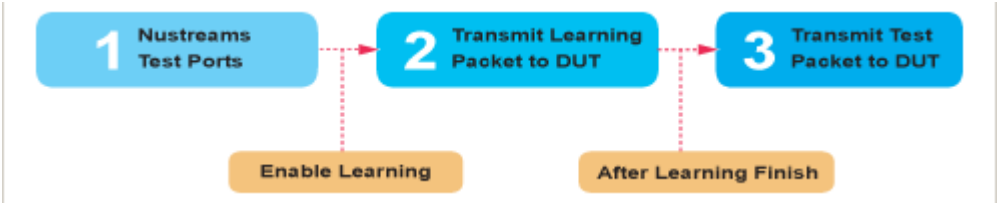


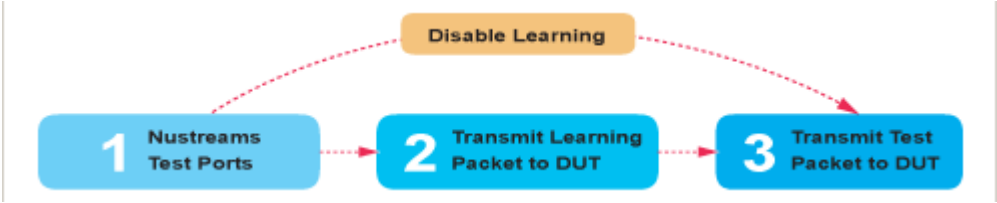
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



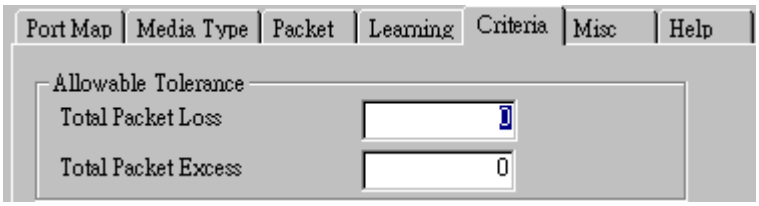
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





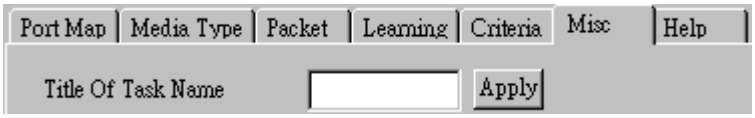
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



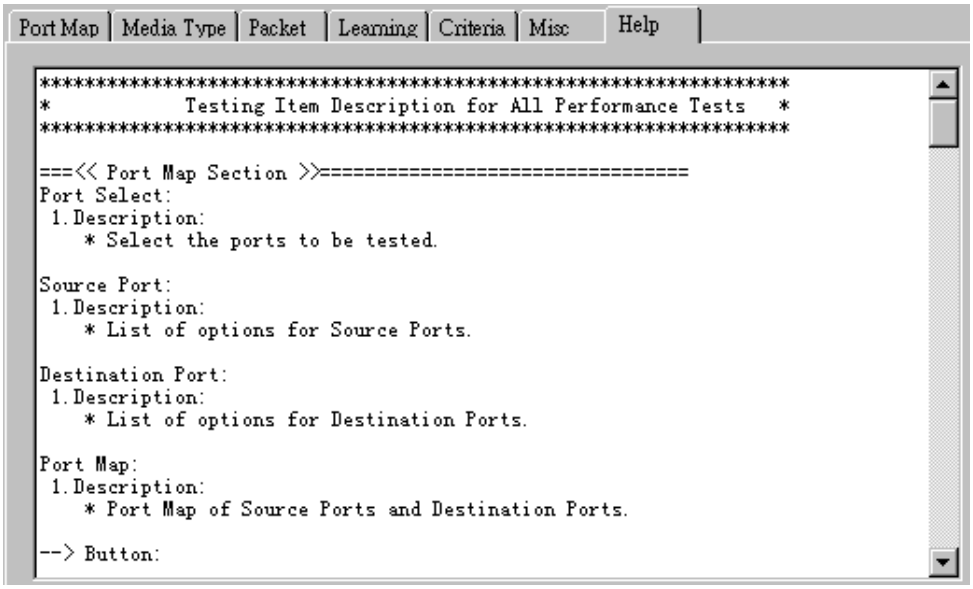
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

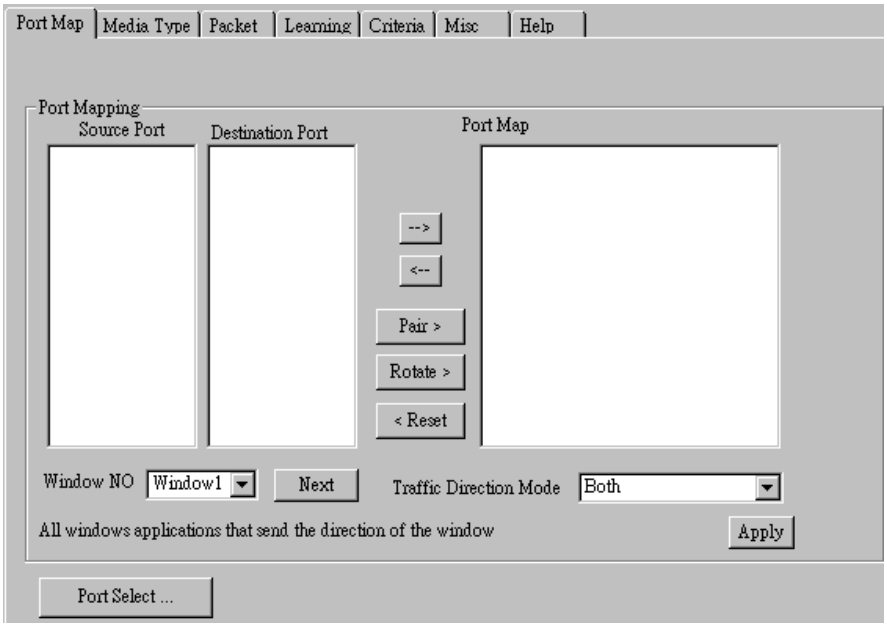


All test variables used for this task and their definitions will be listed here for reference.

5.32. CRC Error Test (CRC) _ PT2-CRC-100F (100Mbps, Full Duplex)

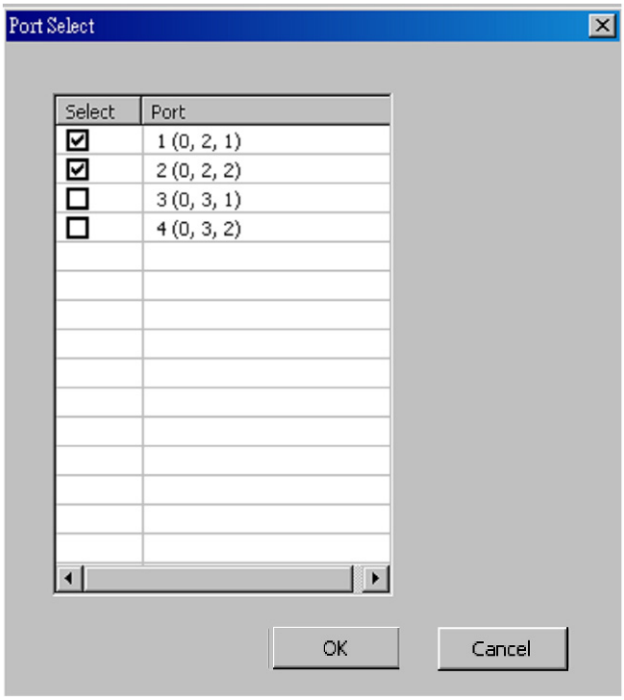
Layer 2 100Mbps Full Duplex CRC check Performance Test is to find if DUT can filter and discard frames with CRC error.

A. Port Map



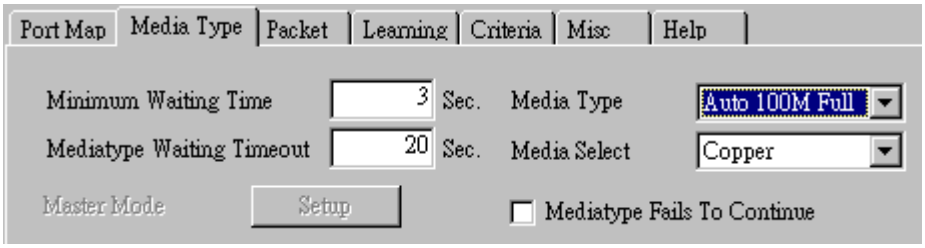
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click → button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click ← button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



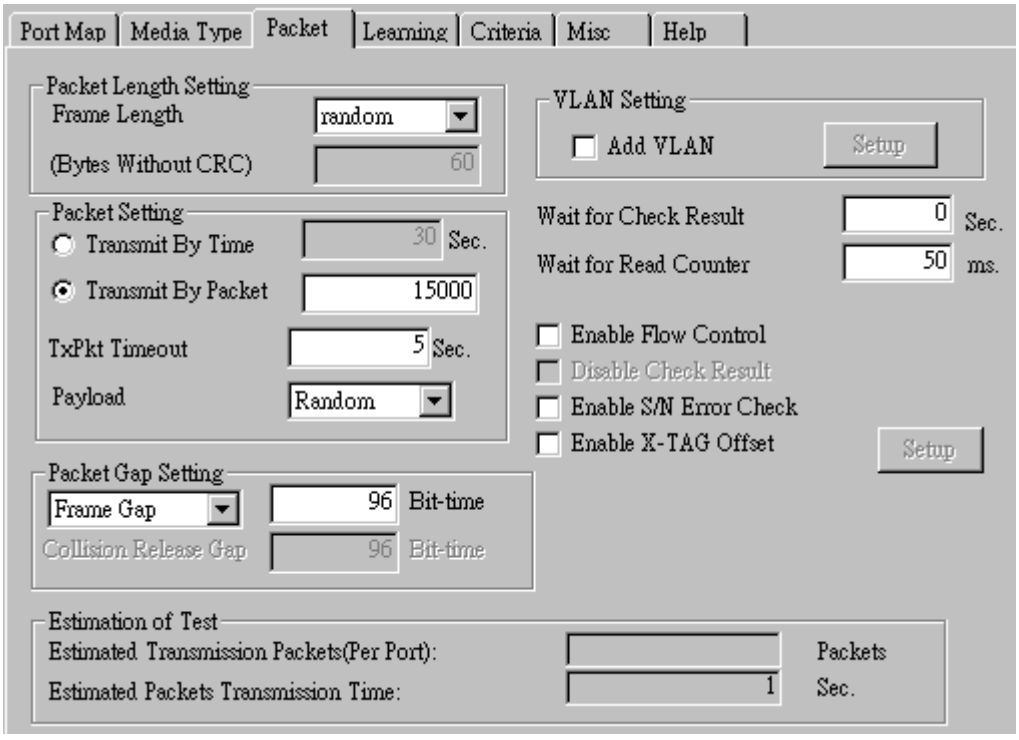
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

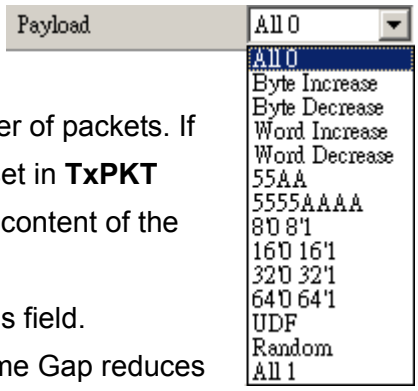
C. Packet



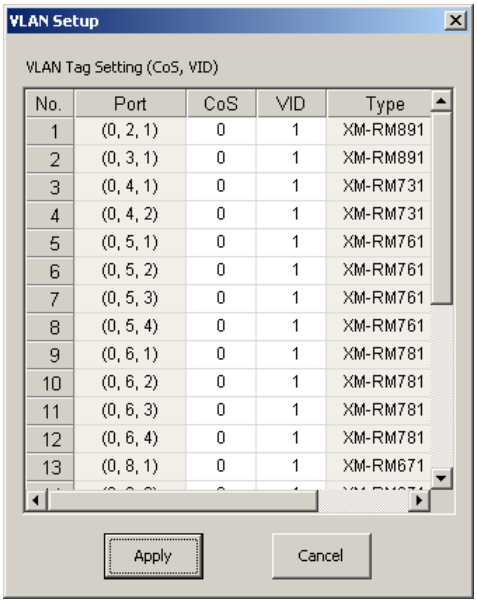
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

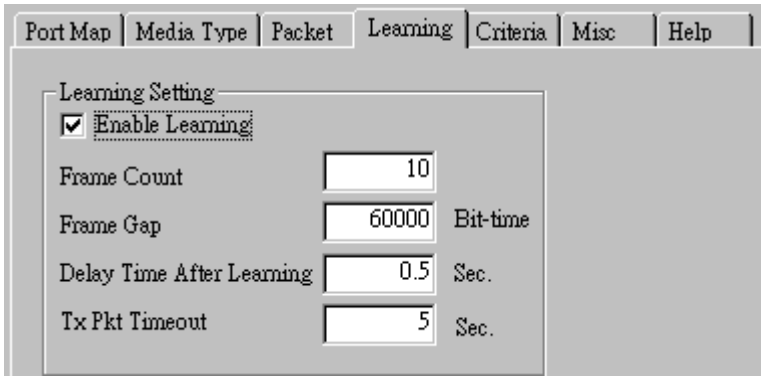


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

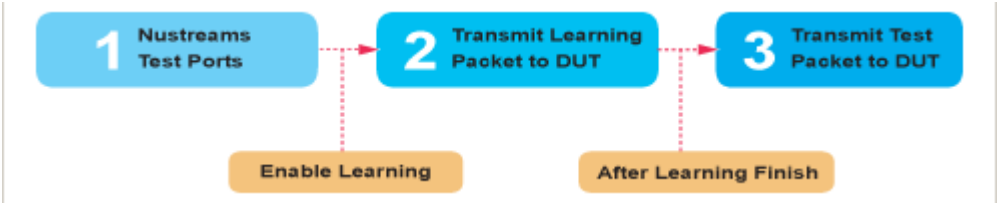


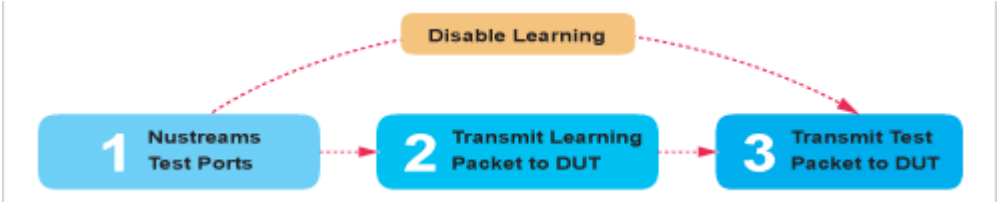
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



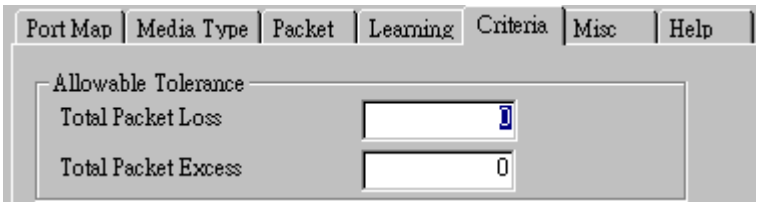
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





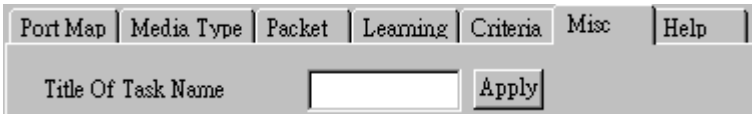
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



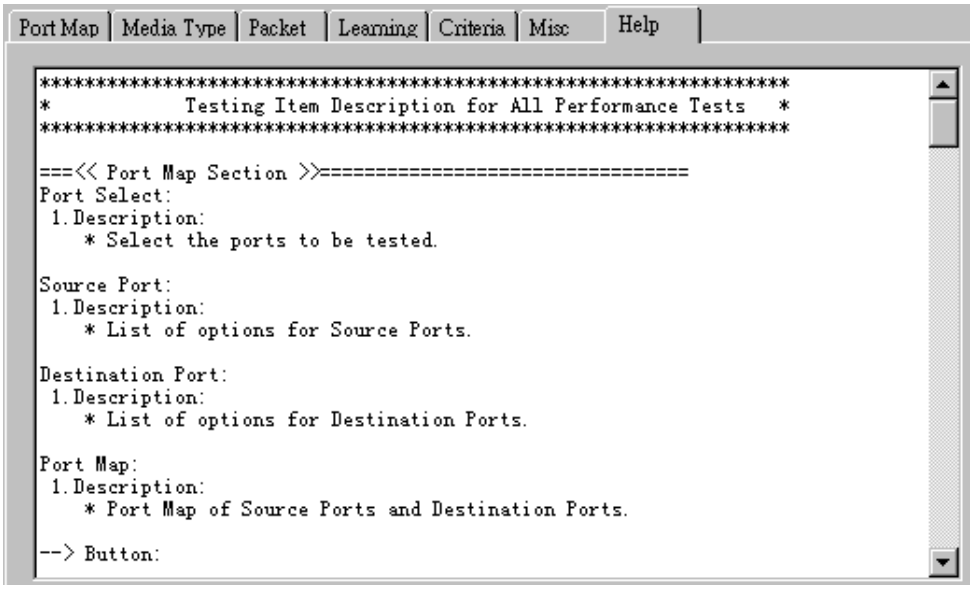
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

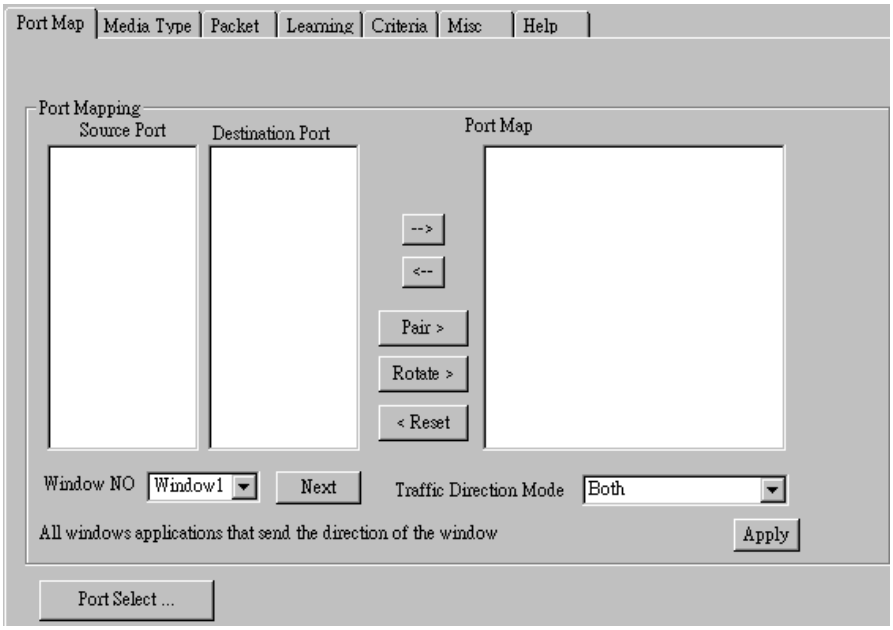


All test variables used for this task and their definitions will be listed here for reference.

5.33. CRC Error Test (CRC) _ PT2-CRC-1G (1000Mbps, Full Duplex)

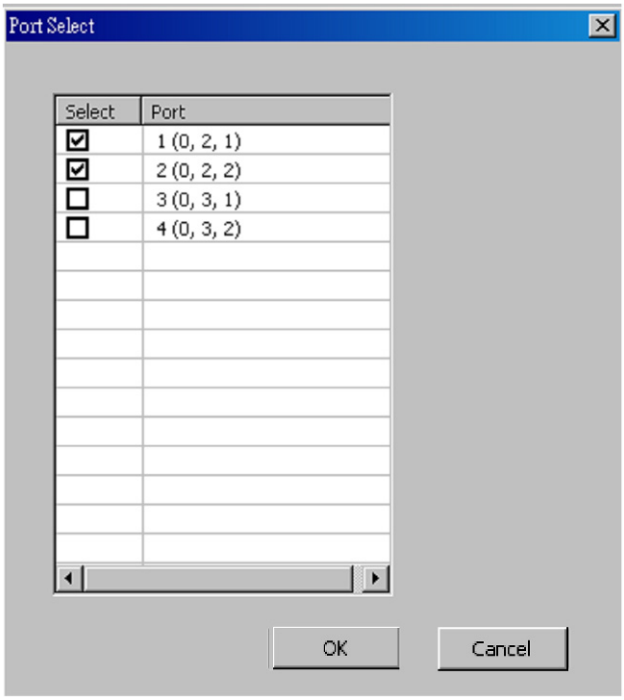
Layer 2 1000Mbps Full Duplex CRC check Performance Test is to find if DUT can filter and discard frames with CRC error.

A. Port Map



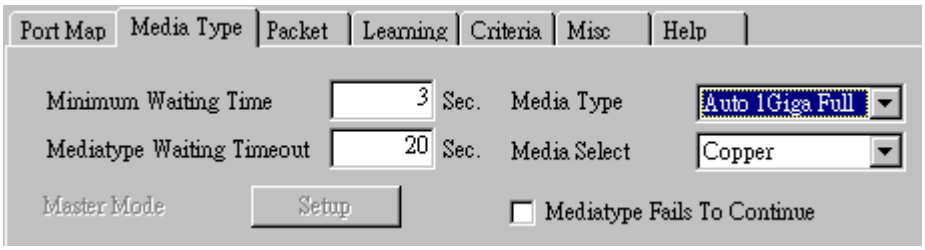
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



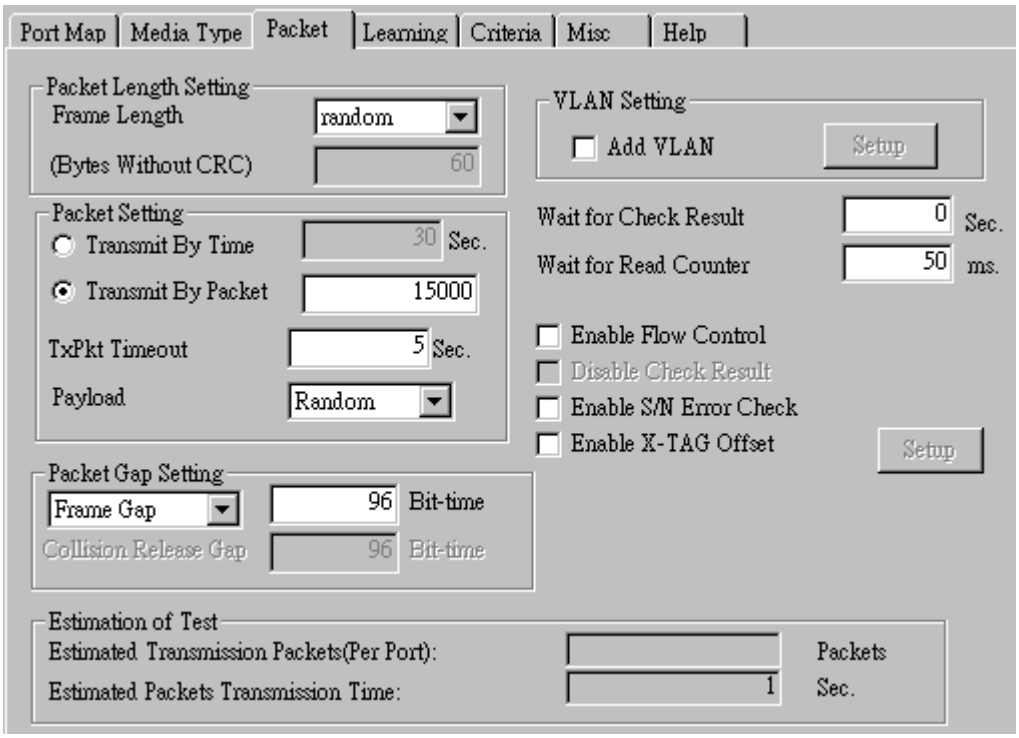
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

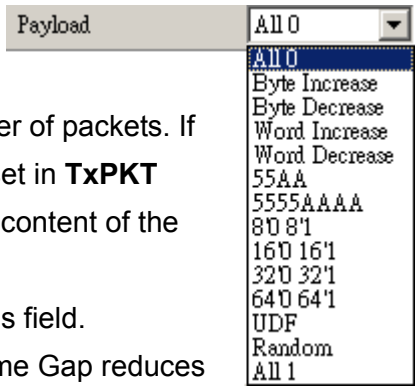
C. Packet



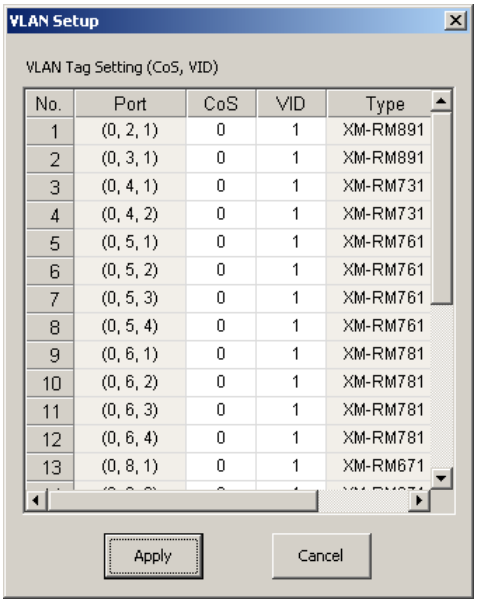
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

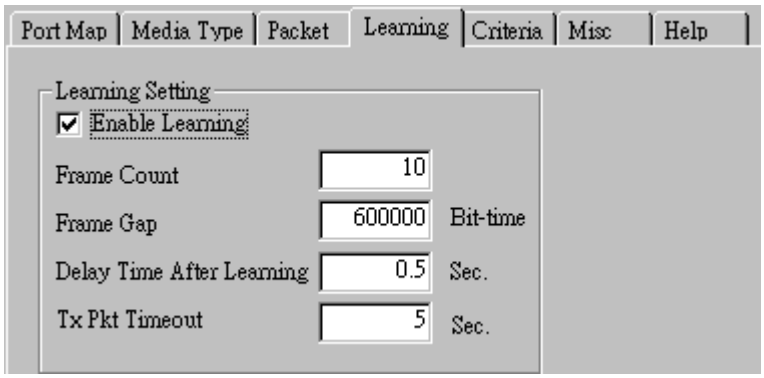


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

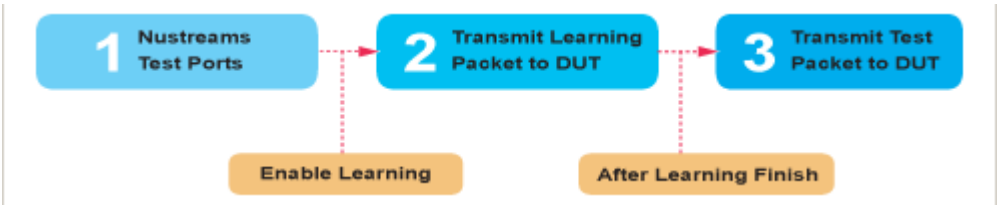


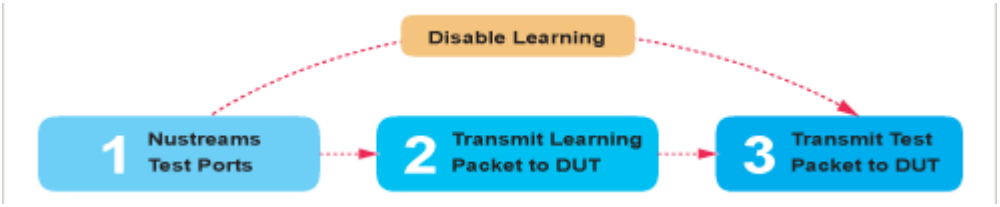
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



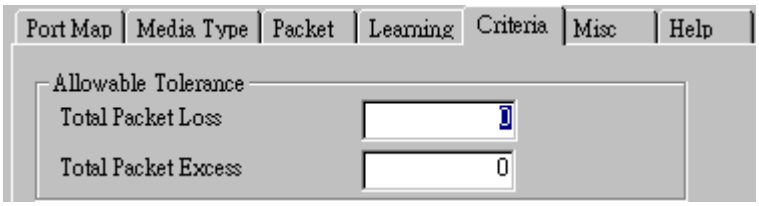
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





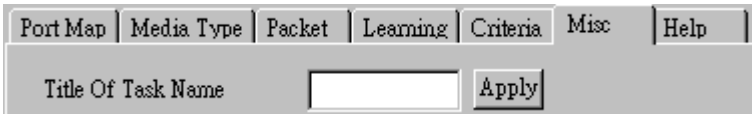
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



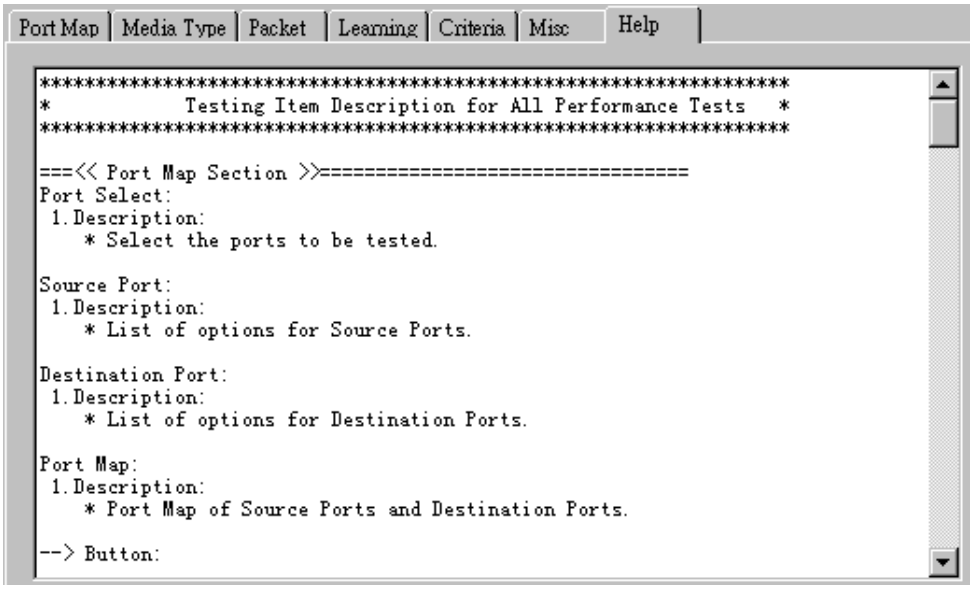
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

G. Help

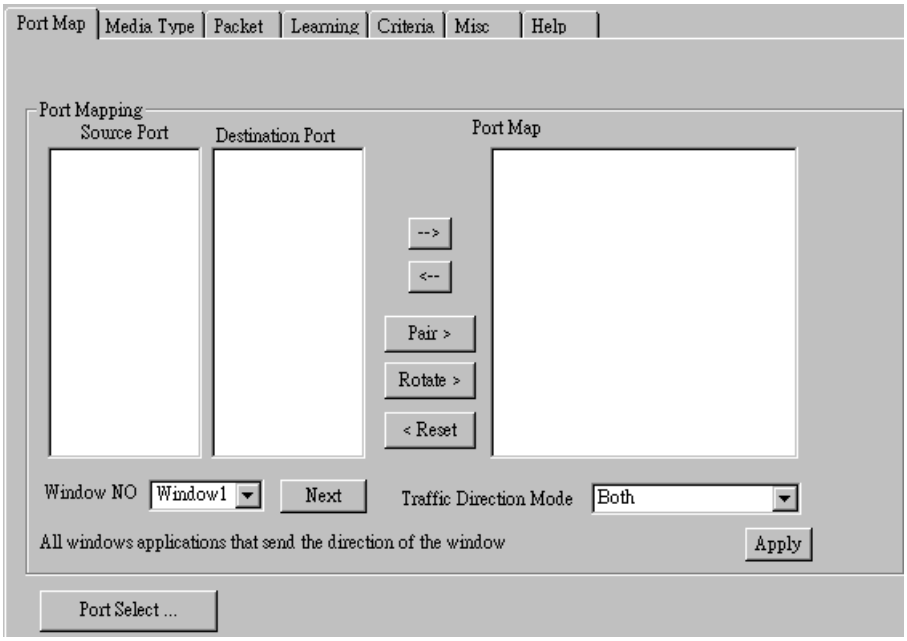


All test variables used for this task and their definitions will be listed here for reference.

5.34. CRC Error Test (CRC) _ PT2-CRC-10G (10Gbps, Full Duplex)

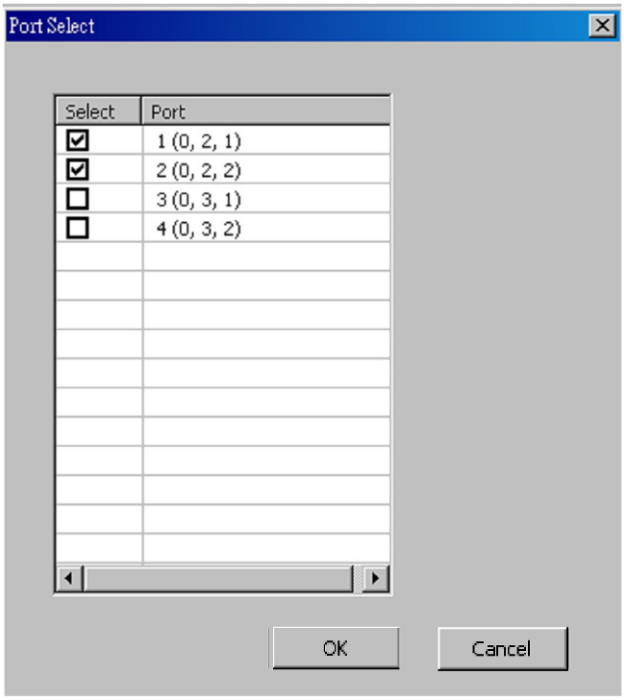
Layer 2 10Gbps Full Duplex CRC check Performance Test is to find if DUT can filter and discard frames with CRC error.

A. Port Map



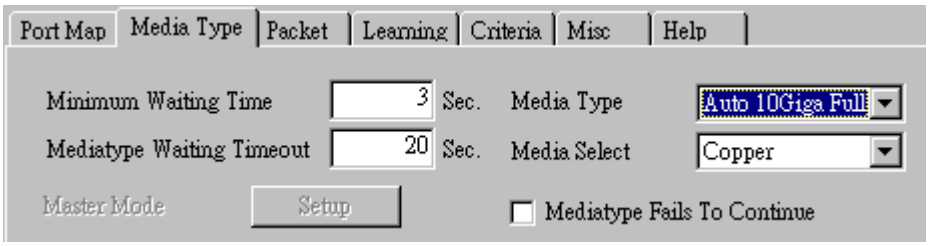
- **Source/Destination Port:** These two fields display the source/ destination port for the task. Ports are displayed in IDs in the format of **(X, Y, Z)** while **X** is the number of the chassis (which is displayed on NuStreams-2000i/600i), **Y** is the slot number where this module card is installed, and **Z** is the available port number located on the module card.
- **Port Map:** This field shows how test streams will be transmitted from port to port.
- **→:** To assign how test streams flow from source port to the destination port, click a port from **Source Port**, click a port from **Destination Port**, and then click **→** button to add them to the **Port Map**.
- **←:** To remove a port map setting from **Port Map**, click the setting you would like to remove, and then click **←** button to remove it from **Port Map**.
- **Pair >:** NuApps-MultiUnits-RM will match ports located on the same module card in a back-and-forth manner, and add them to the **Port Map**.
- **Rotate >:** NuApps-MultiUnits-RM will match ports so the last port will connect to the first port, thus forming a loop. If you have the same amount of ports on your chassis and DUT, **Rotate** allows you to test all DUT's ports simultaneously.
- **Reset <:** Remove all port map settings in the **Port Map**.
- **Window NO:** You can view each Window number's **Port Mapping** by scroll down this field and select the Window No of your interest.
- **Next:** instead of scrolling down the Window NO field, you may click this button to change and view the next Window's **Port Mapping**.
- **Traffic Direction Mode:** You can scroll down and choose the direction of the traffic on this field.

- **Port Select…:** Clicking this option will pop up a Port Select window allowing the selection of the ports to be used on the task.



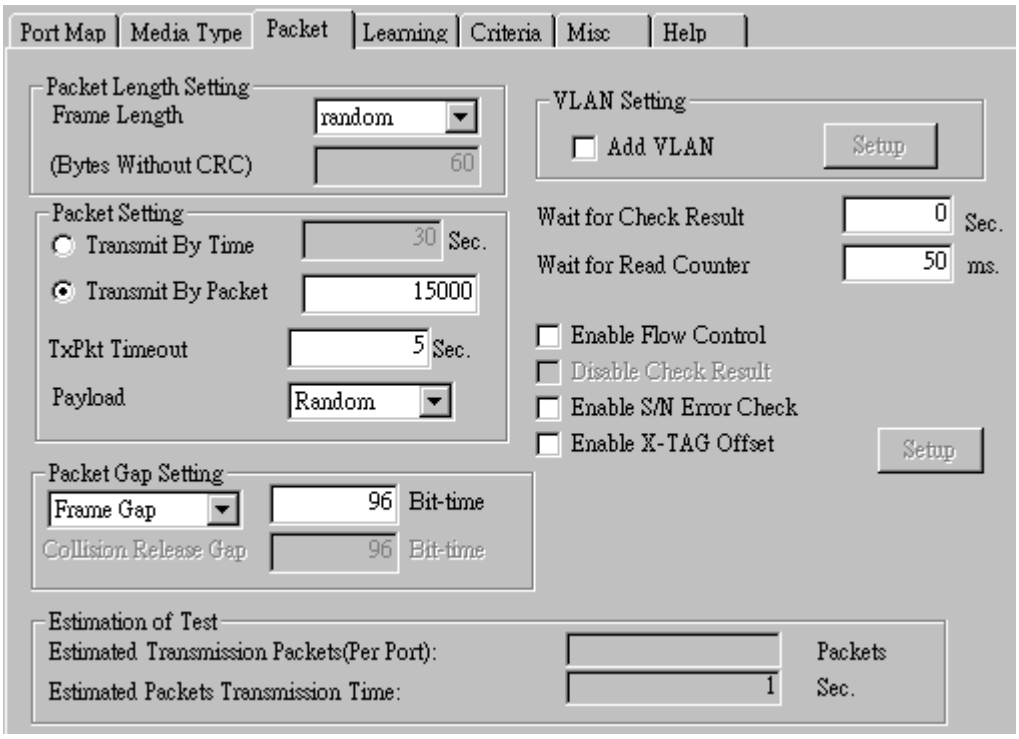
Please click the **OK** button to save the settings you made on this window, or click the **Cancel** button to close the window without saving the settings.

B. Media Type



- **Minimum Waiting Time:** NuApps-MultiUnits-RM will halt at least for the **Minimum Waiting Time** you input here during auto-negotiation process.
- **Media Type Waiting Timeout:** If the time spent for auto-negotiation exceeds the **Media Type Waiting Timeout** you set here, the test will stop and the test result will be fail.
- **Media Type:** By clicking the scroll-down menu, you can set the transmitting mode to **Auto** (with auto-negotiation), **Force** (without auto-negotiation), or **Off** (all the ports in this task are link-down).
- **Media Select:** Click the scroll-down menu to choose if all the connecting cables are **Copper** or **Fiber**.
- **Media Type Fails To Continue:** enables the continuation of task running even after reaching the media type waiting timeout.

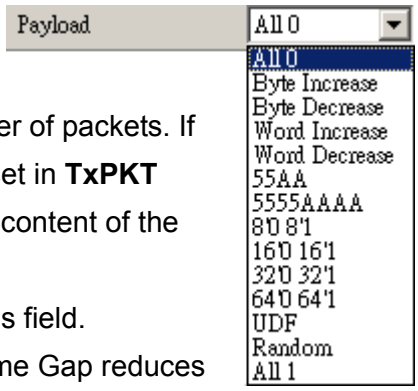
C. Packet



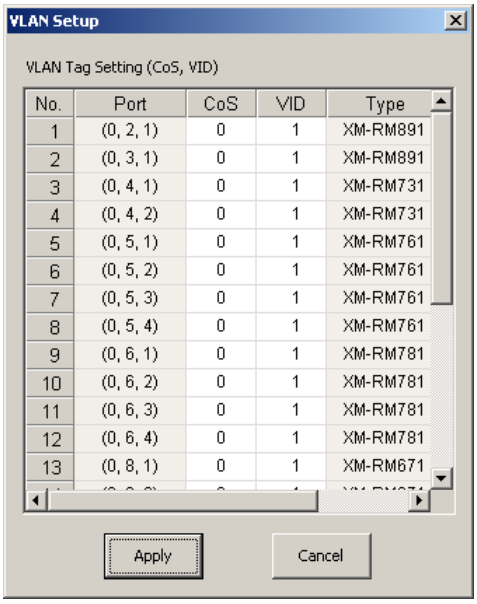
- **Frame Length Setting:** As shown in the figure down below, in a standard Ethernet II frame, the Frame Length (Without CRC) can be from 60~16300 bytes.
  By clicking the **Frame Length** scroll-down menu, you can set the frame length to **random** (frame length will be randomly assigned from 60~16300 bytes) or **fixed** (frame length will be a fixed number). If you choose **fixed** as your **Frame Length**, you can set the frame length in the field

down below.

- **Packet Setting:** You can set how packets will be transmitted in this field.
  - **Transmit by time:** The system will transmit packet during the set amount of time.
  - **Transmit by packet:** The system will transmit the set number of packets. If the system fails to send the test packet within the time you set in **TxPKT Timeout** field, the packet will be drop. Also, you can set the content of the transmitting packets with the **Payload** scroll-down menu.

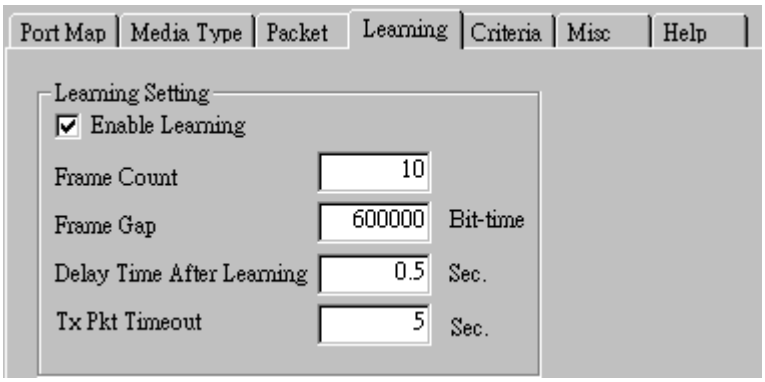


- **Packet Gap Setting:** You can set the gaps between packets in this field.
  - **Frame Gap:** Duration time between frames. Increasing Frame Gap reduces the fail rate, while 96 bit-time is wirespeed.
  - **Burst Gap:** Duration between each burst. Set the burst gap to control the transmission rate of packets. Increasing Frame Gap reduces the fail rate.
- **VLAN Setting:** Add VLAN tag for test. VLAN (Virtual LAN) is a group of hosts with common requirements that communicate within the same Broadcast domain regardless of the physical location. By clicking the **Setup** button, you can configure **CoS** (class of service) and **VID** (VLAN ID) on the pop-up **VLAN Setup** window. Click **Apply** and apply all the changes you've made here.

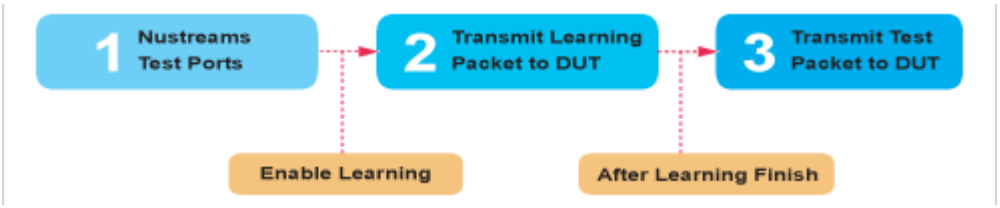


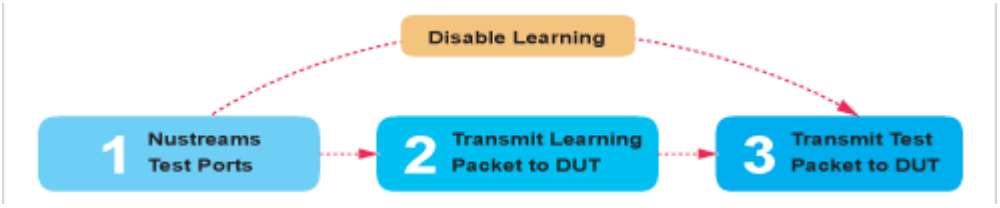
- **Wait for check result:** The system will halt for the time you set here before checking test result.
- **Wait for read counter:** The system will halt for the set microseconds before read the counters. This function is useful for counters since they are stored in memory buffer and the final counter value might take some time to read.
- **Enable Flow Control:** When enabling this function, the transmitting rate will drop if traffic overflow occurs. This function must be enabled under full-duplex.
- **Disable Check Result:** When this mode is enabled, all test procedures will be carried out no matter the result is Pass or Fail. This mode can only be access if you choose **Transmit by Time** in the **Packet Setting** field.
- **Enable S/N Error Check:** Selecting this option will enable the capturing of S/N Error.
- **Enable X-TAG offset:** X-TAG is a 12-byte tag which is developed by Xtramus and embedded at 49th~60th bytes of each testing frames generated by Rapid-Matrix for multi-stream tests. X-TAG will be added to all the testing frames generated by NuApps-MultiUnits-RM.
- **Estimation of Test:** System will calculate the amount of packets and the time it will take to transmit these packets, and display these statistics in **Estimated Transmission Packets (Per Port)** and **Estimated Packets Transmission Time**.

D. Learning



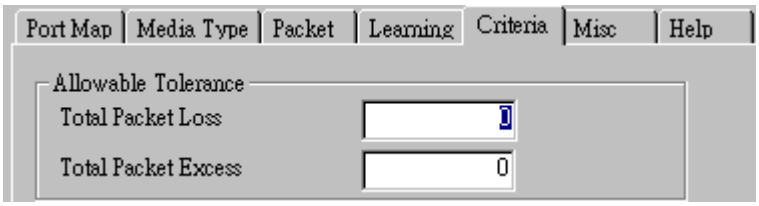
- **Enable Learning:** As shown in the figures down below, enabling this function allows learning packets transmitted to the DUT before test packets are transmitted. If you disable this function, no learning packets will be transmitted.





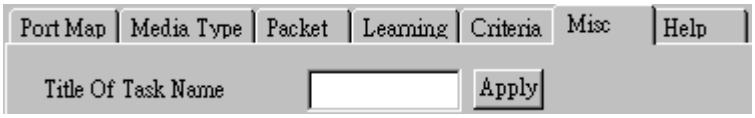
- **Frame Count:** Repeat frame count per learning packets burst.
- **Frame Gap:** Duration time between learning frames.
- **Delay Time After Learning:** The time gap between after learning and the next process.
- **Tx Pkt Timeout:** If the system fails to send the learning packet within the time you set in **TxPKT Timeout** field, the packet will be drop.

E. Criteria



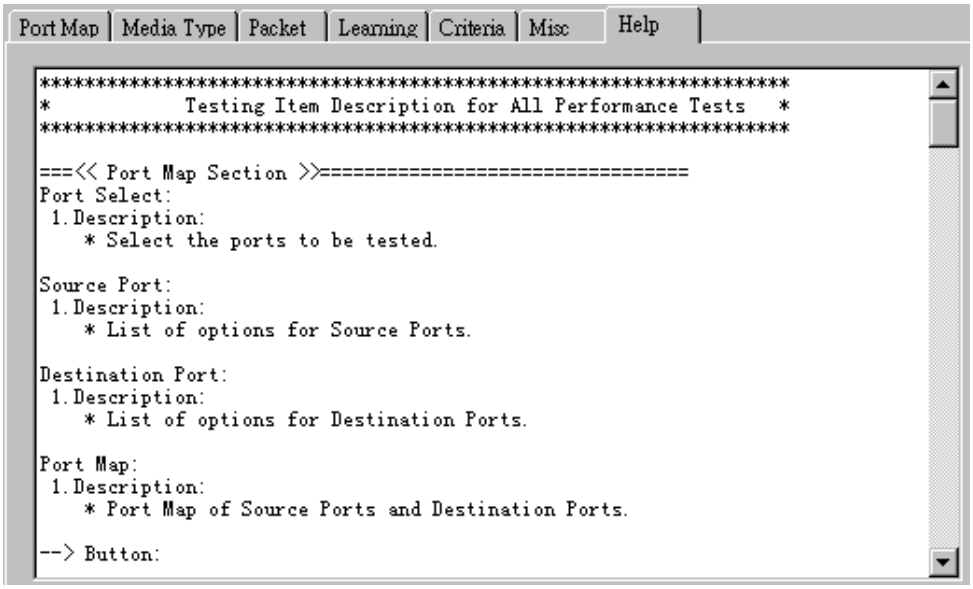
- **Allowable Tolerance:** You can set the allowable amount packet loss/excess here.
  - **Total Packet Loss:** If packet loss (including error packets) is higher then the value you set here, the test result of the DUT will be fail.
  - **Total Packet Excess:** If packets excess (including error packets) is higher then the value you set here, the test result of the DUT will be fail. Packet excess happens when packet transmission is bad and packets are resend multiple times, causing the amount of received packets is more than sent packets.

F. Misc



- **Title of Task Name:** You can assign a name to this task for identification.
- **Apply:** Apply the changes you made.

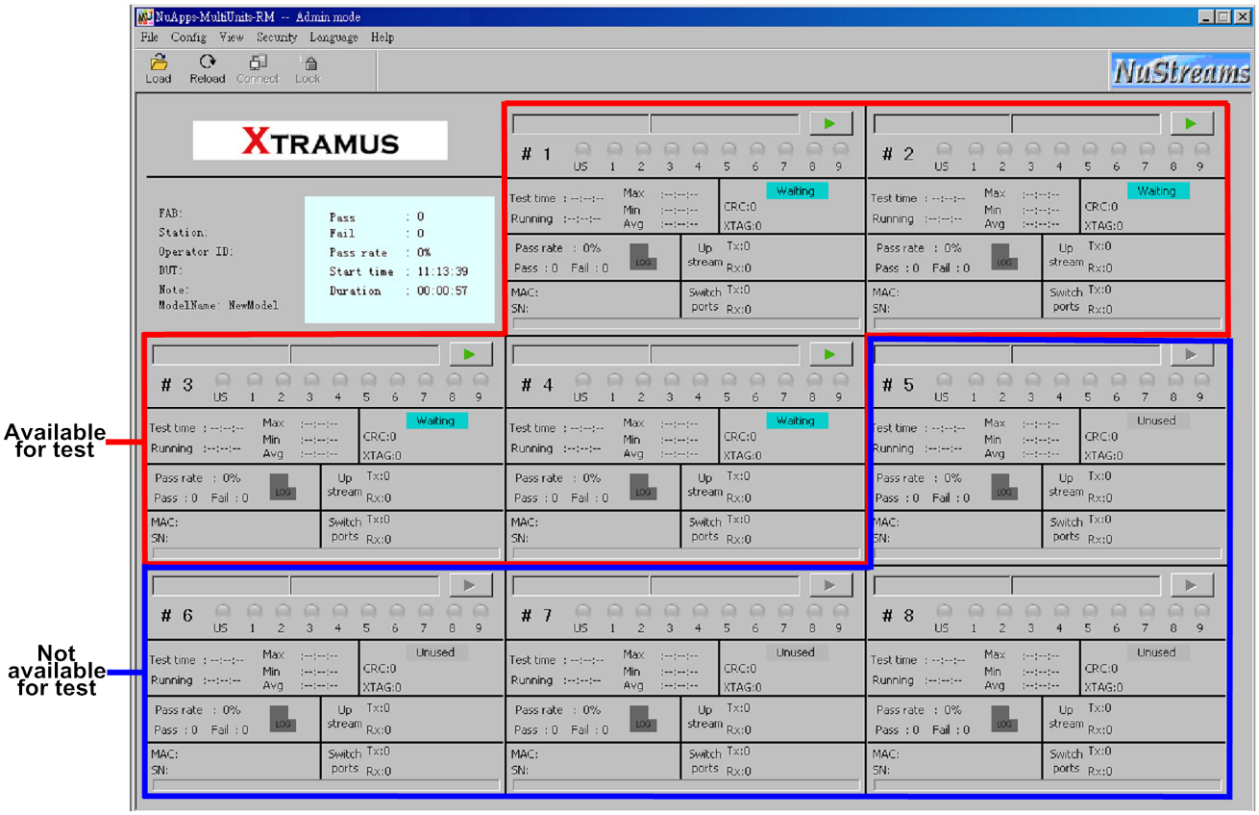
G. Help



All test variables used for this task and their definitions will be listed here for reference.

6. Run Test, Test Result & Report

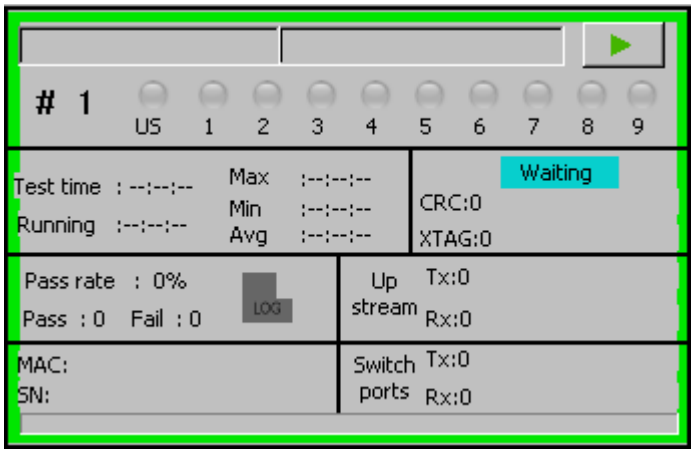
When you finished with the previous settings, you will return to the Window task interface as shown down below:



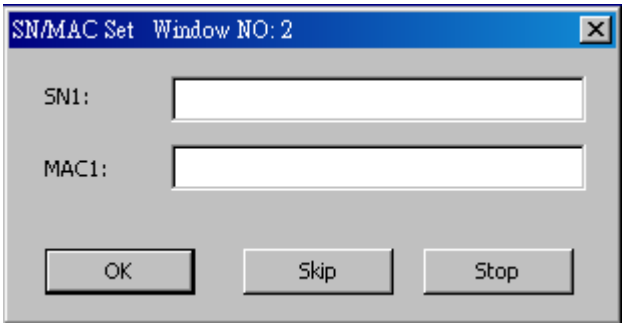
Depending on the number of the Window tasks that you set previously from the **4.2.2. Select Port Settings**, there will be number of Window task available for running test. The available Window task has the light green with the **Waiting…** signal on the Window task. For Not available Window task, it has with the **Unused** signal on the Window task.

Please click the button to start running all previously set tasks from the **4.2.2. Select Port Settings** for each Window task. You can pause the running by click the button, and continue by click the again.

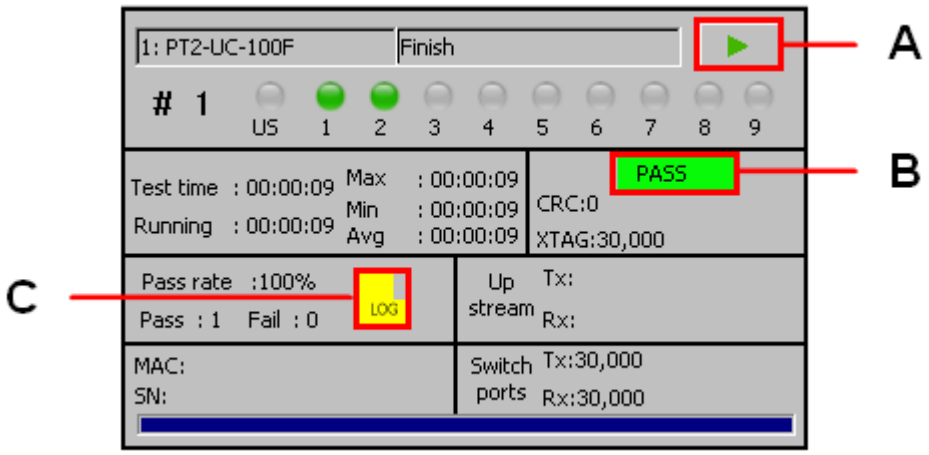
When you click the button to start a task running, the Window task frame will blink green as shown down below:



Meanwhile, a window will pop up for you to fill the MAC address and SN of your Device under Test (DUT). The SN and MAC count number is based on the settings you made on **Environment**, please refer to the **4.2.1. Environment Settings**.



Please note that the Window task will only start to operate after confirming this window's settings. Please fill the **SN** and **MAC** address and click **OK** button to confirm. If you don't want to fill the **SN** and **MAC** address, you can click the **Skip** button to start directly the Window task operation, or click **Stop** button to cancel running the task.



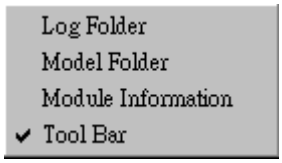
A. After finishing all task running, the button will be available again. You can click the button to restart the task running.

B. This field will show the result of the task running in **Pass** or **Fail**.

C. By click the Log button, a task running report (txt) will pop up showing the details result of the task running as shown down below.

```
*****************************************************************************************************************
*                                                                    Test Report
* ---------------------------------------------------------------------------------------------------------------
* Program     : NuApps-MultiUnits-RM
* Version     : v1.0b014
* Instruments: NuStreams Series.
* Publisher   : Xtramus Technologies.
* Copyright(c) (2012) Xtramus. All rights reserved.
*****************************************************************************************************************

===<< SUMMARY >>=============================================================================================
Model                                   : NewModel
NuApps-MultiUnits-RM                    : v1.0b014
SN1                                     :
MAC1                                    :
Time Start                              : 2012/08/31 11:35:17
Time End                                : 2012/08/31 11:35:26
Time Used                               : 9 Sec
Final Result                            : Pass

---------------------------------------------------------------------------------------------------------------
Task Elapsed Time Information
---------------------------------------------------------------------------------------------------------------
Task                 Start                   End                     Time Used   Remark
---------------------------------------------------------------------------------------------------------------
1: PT2-UC-100F       2012/08/31 11:35:17     2012/08/31 11:35:26     9 Sec       Pass
---------------------------------------------------------------------------------------------------------------


===============================================================================================================
Task Name       : PT2-UC-100F (Performance Test of Layer 2 - Unicast - 100M Full)
Time Used       : 9 Sec

Port Map:
---------------------------------------------------------------------------------------------------------------
1   (1)  -> (2)
2   (2)  -> (1)
```

You can also choose to open the **Log Folder** and view all the saved log files as well by clicking **View** on the **Menu Bar**, and then choose **Log Folder**.



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Doc # USM_NuApps-MultiUnits-RM_V1.5_ENG_20121114