If this is the first-time use of PacketExpert™ 10GX unit, then it is recommended to follow all the steps explained in PacketExpert-10GX-Quick-Install-Guide before proceeding with the steps below.

For PacketExpert™ 10GX functional verification, basic "All Port BERT" test can be performed using a single PacketExpert™ 10GX unit.

Quick Verification

*"**All Port BERT**" test scenario can be demonstrated on four Electrical or Optical **1G ports** by directly connecting **Port 1 to 2** through **Ethernet cable** (for Electrical Interface test). Connect Port 3 to Port 4 through Electrical SFPs and Ethernet cable (for Electrical interface test).*

*For optical interface, directly connect **Port 1 to 2** and **Port 3 to 4** through **SFP and Optical cable** (for Optical interface test).*

*OR **"All Port BERT"** test scenario can be demonstrated on **10G ports** and **2.5G Ports** by directly connecting **Port 1 to 2** through **SFP and Optical cable** (for Optical interface test).*

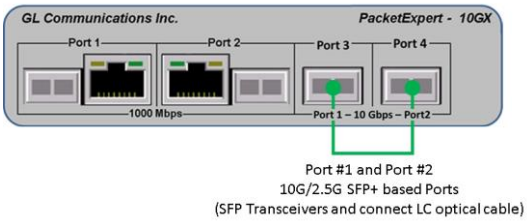
Step 1: Connect the cables

Perform Test on 10G/2.5G Optical Interface

Note:
- Optical Interface test is possible on **10G/2.5G Port 1** and **Port 2.**

- For 10G/2.5G Optical Interface Type, plug-in SFP Transceivers to the optical ports and connect LC optical cable to 10G/2.5G: Ports 1 & 2, (refer to figure).

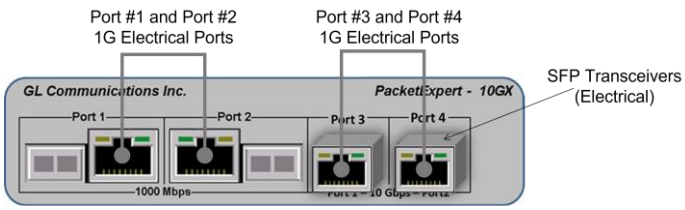
Note:
- Make sure SFP is properly locked, and the Optical cable is properly plugged in.

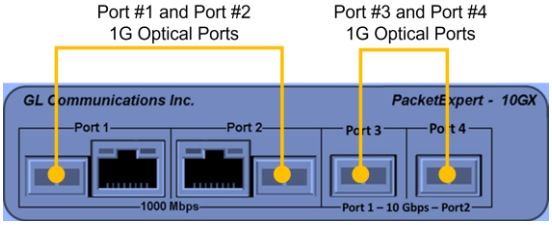


Perform Test on 1G (Electrical or Optical Interface)

- For 1G Electrical Interface type, cross-connect 1G: Port 1 to 2 and 1G: Port3 to 4 using Ethernet cable. Plug-in Electrical SFP Transceivers to Port 3 and Port 4 as shown below.
- For 1G Optical Interface type, plug-in SFP Transceivers to the optical ports and connect LC optical cable to 1G: Ports 1 and 2, and Ports 3 and 4 (refer to figure).

Note:
- Make sure SFP is properly locked, and the Optical cable is properly plugged in.





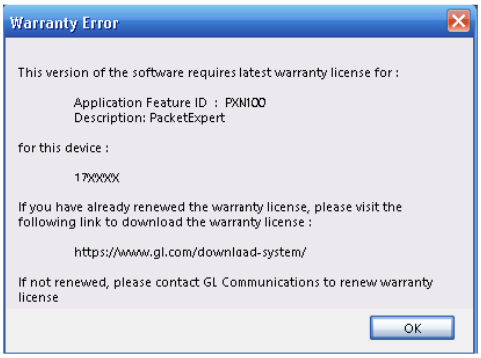
Step2: Launch PacketExpert 10GX Application

- Click on the PacketExpert 10GX shortcut icon 

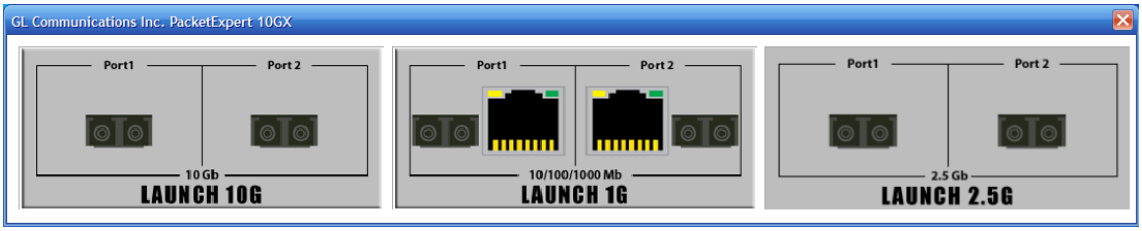
created on the desktop and launch PacketExpert 10GX application as shown below.

Note:

- Ensure that the additional Warranty License is installed before invoking the application, else the Warranty Error message is prompted as shown. Refer to PacketExpert 10GX Quick Install Guide for installation procedure.
- If the Warranty License is expired, please contact GL to renew the warranty license.
- If optional license **PXN101** (license for 10G/2.5G ports) is installed, then the launch window appear to choose 1G/2.5G/10G type testing as shown below. If the PXN101 license is not installed, by default, the application is loaded on 1G ports.



- Click on **Launch 10G** option, to invoke the application with 10G ports.
- Click on **Launch 2.5G** option, to invoke the application with 2.5G ports.
- Or click on **Launch 1G** option, to invoke the application with 1G ports.

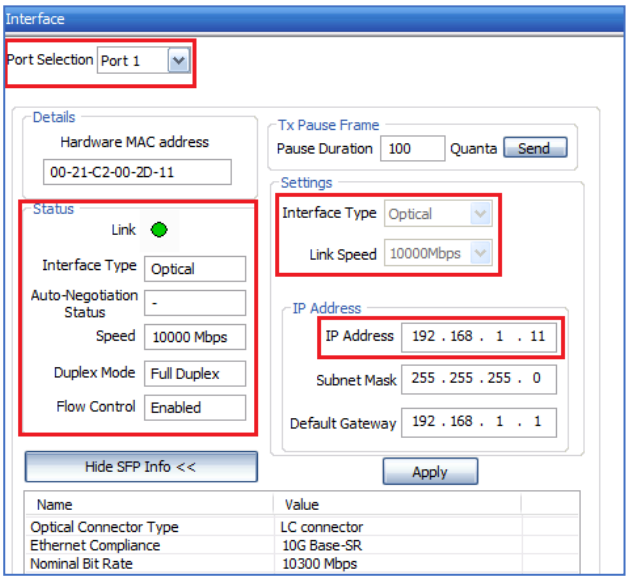


- The application may take some time to get started due to hardware and software initializations.

For 10G/2.5G Optical Connections,

On launch by default, the **All Port Bert** application is loaded. Also, a default configuration file is automatically loaded with the pre-configured settings. On the RHS side, in the Interface pane, select the ports from the drop-down list and verify the following settings for each port.

- Interface Type = **Optical**
- Speed = **10000 Mbps** (for 10G), **2500Mbps** (for 2.5G)
- Verify IP Addresses for **10G: Ports 1 & 2** are configured as listed below:
  - Port1: 192.168.1.11
  - Port2: 192.168.1.12



Similarly, For 1G Electrical or 1G Optical Connections,

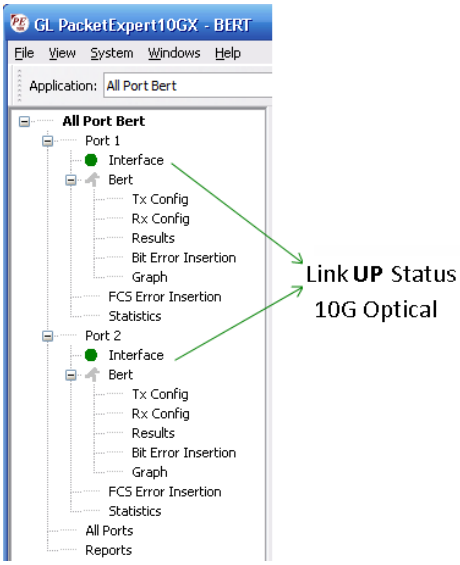
On the RHS side, in the **Interface** pane, select the ports from the **Port Selection** drop-down list and set the following for each port:

- Select **Interface Type** = **Electrical** (or) **Optical** (depending on the ports connected)
- Speed = **1000Mbps**
- Verify IP Addresses for **1G: Ports 1 & 2,** and **Ports 3 & 4** which are configured as listed below:
  - Port1: 192.168.1.11
  - Port2: 192.168.1.12
  - Port3: 192.168.1.13
  - Port4: 192.168.1.14
- Click on the **Apply** button (this will set the Interface Type in the hardware).

Step3: Verify Links

To verify PacketExpert 10GX basic functionality on 10G ports, run a **BERT** test between 10G: Ports 1 and 2 (this means the destination for 10G Port1 is 10G Port2 and vice versa)

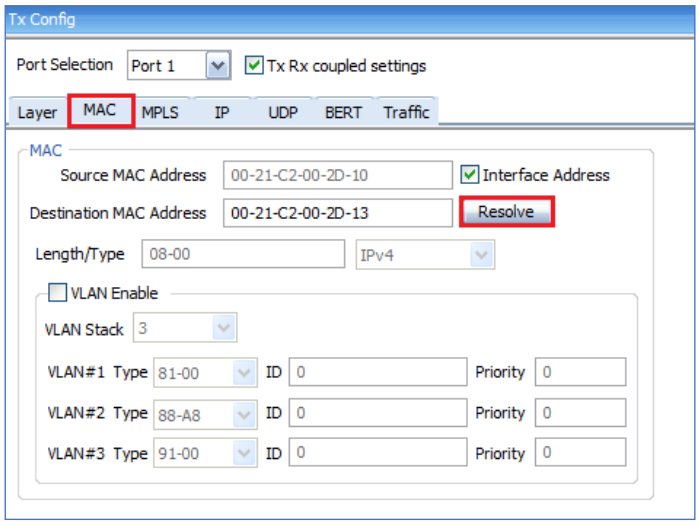
- Verify that the Link Status is UP on both ports, that is, on launch, the LHS tree should display 10G: 2 ports with green LEDs link status (refer to the screenshot). If the **LED** shows red (refer to the screenshot), then link is down.
- Refer to troubleshooting steps below to get the links UP:
  - Check if the Optical cables are connected to the correct ports (i.e., Ports 1 and 2 are connected) - refer to the figure above.
  - Check if there are any loose connections and secure the cables properly
  - If still link is not UP, double click **"Interface"** under the port in the LHS tree to launch the **"Interface"** dialog in one of the RHS panes. Click the **"Apply"** button. This will reinitialize the port and will force it to go through the auto negotiation cycle again.
  - The above steps should get the link UP. If problem still persists, contact **GL Communications Inc**.



- Similarly, verify the Link **UP** status on all the four 1G ports when configured for 1G BERT testing.

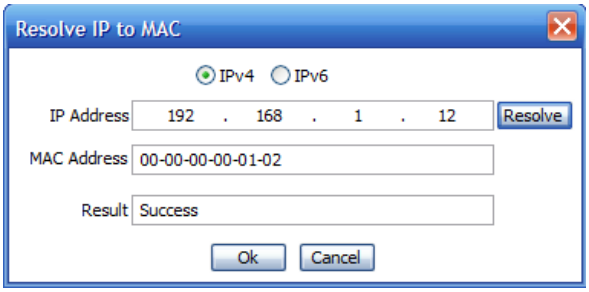
Step4: Configure MAC Addresses

Each port should have the destination MAC addresses configured correctly. Follow the steps below to configure destination MAC addresses correctly:

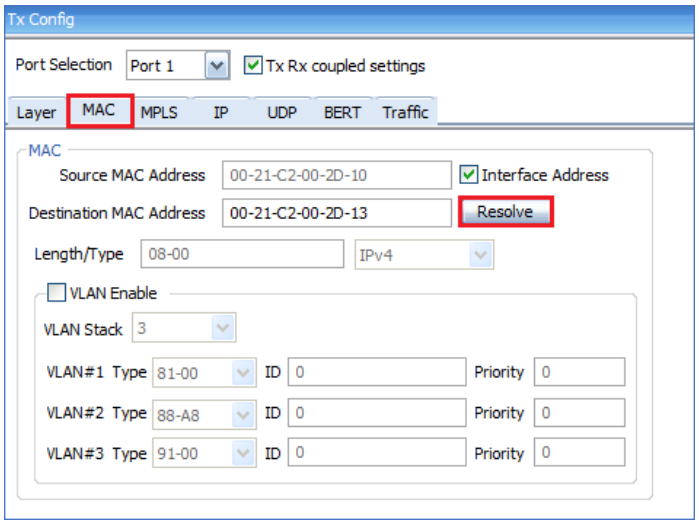


For 10G: Port1,

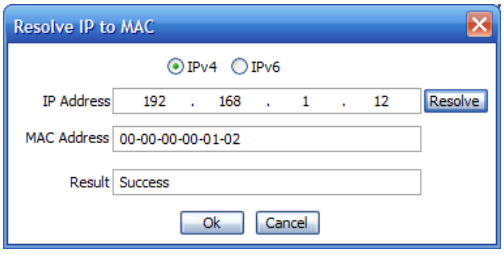
- In the LHS tree, under **Port 1 → Bert**, double click **Tx Config**. The Tx Config window pop up in one of the RHS panes.
- Go to **MAC** tab.
- Check the **Interface Address**, to use the Source MAC Address as in the Interface settings. Similarly make sure that **Interface Address** is checked for all other ports
- Click **Resolve** button next to Destination MAC address (refer to screenshot).
- Choose **IPv4** option (**Note**: Also supports IPv6 configurations)
- Enter the IP Address of the destination port (10G: Port2) as 192.168.1.12.
- Click **Resolve.**
- It will run ARP and returns the MAC Address of the destination port, with Result displayed as **"Success"** (refer to the screenshot).
- Click **OK**, this will configure destination MAC address for the port.
- Repeat the above steps for 10G: Port2 to configure its MAC address (Enter the IP Address of the destination port - 10G Port1 as: 192.168.1.11)



For 1G: Port1, Port2, Port3, Port4



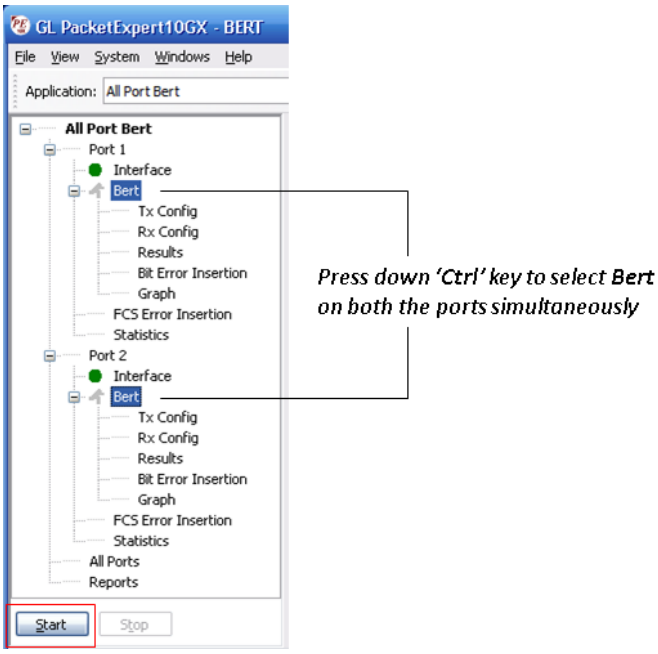
- In the LHS tree, under **Port 1 → Bert**, double click **Tx Config**. The Tx Config window is displayed in one of the RHS panes.
- Go to **MAC** tab.
- Check the **Interface Address**, to use the Source MAC Address as in the Interface settings. Similarly make sure that **Interface Address** is checked for all other ports.
- Click **"Resolve"** button next to Destination MAC address (refer to the screenshot).
- Choose **IPv4** option (Also supports **IPv6** configurations).
- For Port1, enter the IP Address of the destination port (1G: Port2) as 192.168.1.12 and vice-versa.
- For Port3, enter the IP Address of the destination port (1G: Port4) as 192.168.1.14 and vice-versa.
- Click **Resolve.**
- It will run ARP and returns the MAC Address of the destination port, with Result displayed as **"Success"** (refer to the screenshot).
- Click **OK**, this will configure destination MAC address for the Port.
- Repeat the above steps for Port2, Port3, and Port4.
- For reference, to **Resolve IP to MAC**, enter the **IP addresses** as mentioned below.
  - Port1, Destination IP Address as 192.168.1.12
  - Port2, Destination IP Address as 192.168.1.11
  - Port3, Destination IP Address as 192.168.1.14
  - Port4, Destination IP Address as 192.168.1.13



Step5: Start Test

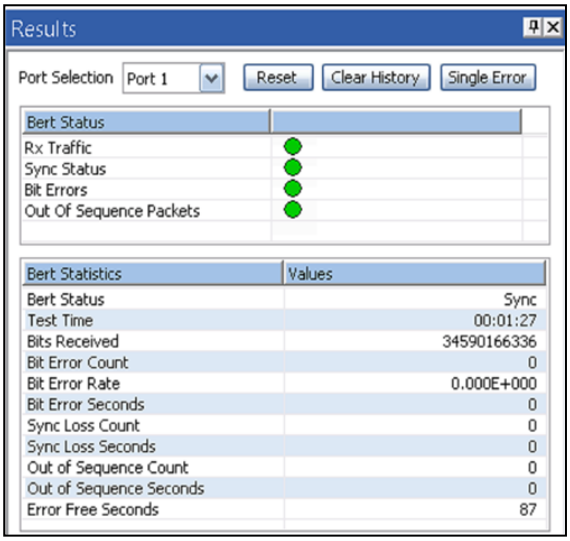
- From the LHS tree, hold the keyboard **Control** key and in the GUI select **Bert** using mouse under Port1, and Port2 tree simultaneously.

- Click **Start** (refer to the screenshot).



Step6: Verify Results

- Follow below steps to verify the **Results** while the test is running, in the RHS pane.
- Under 10G: Port1, from LHS tree, click **Results** under **Port1→Bert**, the Results pane is di in one of the four RHS panes
- Under Bert Status pane, verify these LEDs → Sync Status LED = Green, Bit Errors LED = Green, Out of Sequence Packets LED = Green
- Under Bert Statistics pane, verify these values:
  - Bert Status = Sync
  - Bit Error Count = 0
  - Bit Error Rate = 0.000E+000
  - Bit Error Seconds = 0
  - Sync Loss Count = 0
  - Sync Loss Seconds = 0
  - Out of Sequence Count = 0
  - Out of Sequence seconds = 0



Repeat this step for 10G: Port 2 and verify correct results for both the ports. If any port shows errors, contact **GL Communications Inc**.

Step7: Stop Test

- To stop the test after verifying the results, again hold the keyboard **Control** key and select **Bert** using mouse from the LHS tree under Port1, and Port2 and click **Stop** (refer to the screenshot).