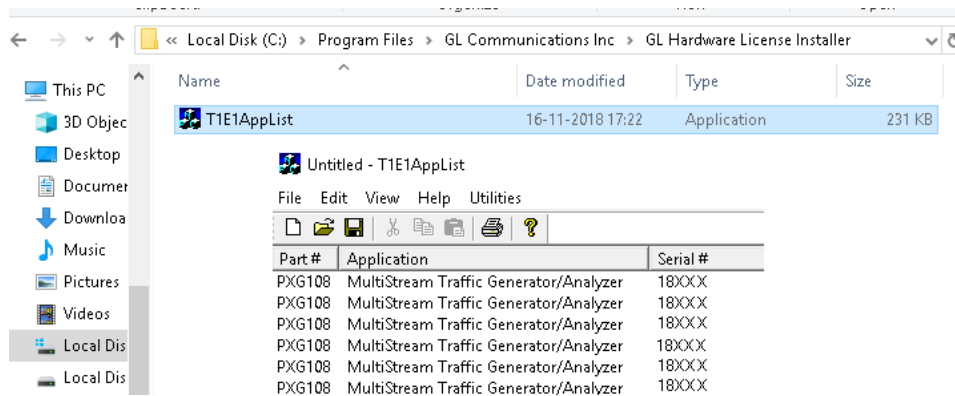


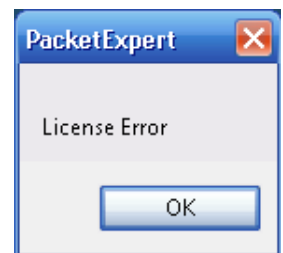
*If this is your First-Time-Use of PacketExpert™ 10G unit, then we recommend you follow all the steps explained in [PacketExpert-10G-Quick-Install-Guide](#) before proceeding with the steps below.*

### Normal Instructions – Follow these precisely

- ‘Multi-Stream Traffic Generator and Analyzer’ is an optional application and requires purchased licenses to be installed.
- Plug-in the USB installation stick (pen drive) provided with the shipment package by GL Communications.
- Execute **GLHWLicenseInstaller.exe** from the USB Installation Stick to install the optional application licenses.
- Follow onscreen instructions, the license for the purchased optional application will be installed.
- In addition, PXN101 license installation is required to enable testing on 10G ports.
- Run **AppList.exe** available in the C:\Program Files\GL Communications Inc\GL Hardware License Installer directory and confirm that the optional **MultiStream Traffic Generator/Analyzer** license (**PXG108**) is listed against the hardware purchased.



**Note:** When the application is started, if the following ‘**License Error**’ is prompted, then you may have not installed the Hardware licenses. You can do so as explained in section above at any time after installing the software.



**Note:** Ensure that warranty license (**GLSupportWarrantyLicenseInstaller\_x86.exe**) is installed and also confirm that **Multi-Stream UDP/TCP Traffic Generator (PXG108)** is listed in **Warranty Application List**. Refer to [PacketExpert-10G-Quick-Install-Guide](#).

### Quick Verification

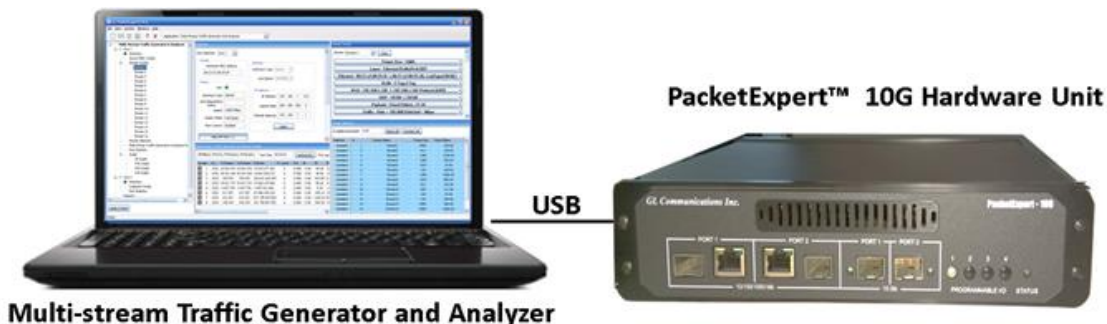
*In the following test scenario, a single PacketExpert™ 10G unit is used to verify ‘Multi-Stream Traffic Generator/Analyzer’ feature.*

*‘Multi-Stream Traffic Generator/Analyzer’ test scenario can be demonstrated on 10G ports by directly connecting Port 1 and Port 2 of PacketExpert™ 10G unit using SFP Transceivers and LC optical cables.*

*(Or) “Multi Stream Traffic Generator/Analyzer” test scenario can be demonstrated on 1G ports by directly connecting Port 1 to 2 through Ethernet cable (for Electrical Interface test) or SFP Transceivers and LC optical cable (for Optical Interface test).*

*The test setup requires 1 PC/laptop which is connected through USB cable of the hardware unit. The following test requires PacketExpert 10G application (PXG100) and ‘Multi-Stream Traffic Generator/Analyzer’ application (PXG108) licenses to be installed on PC. After successful Software installation, plug in the PacketExpert 10G Hardware unit to PC as indicated in the figure below. Then connect Port1 to Port2 (1G or 10G Ports) of the hardware unit, as shown below (explained in detail in the next section):*

**Note:** For 1G ports, the above test can also be setup using LC optical cables (for Optical Interface) and SFP's



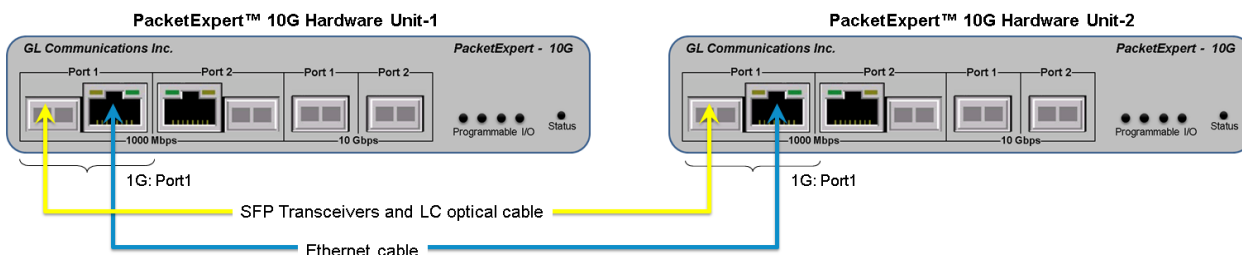
### Step1: Connect the cables

#### For 1G ports:

Perform test between 1G Port 1 of PacketExpert Unit-1 and 1G Port 2 of PacketExpert Unit-2 (**Electrical or Optical Interface**)

- For **Electrical Interface** type, connect Port 1 of hardware unit-1 to Port 1 of hardware unit-2 using **Ethernet cable** as shown in the figure.
- For **Optical Interface** type, plug-in **SFP Transceivers** to the optical ports and connect **LC optical cable** Port 1 of hardware unit-1 to Port 1 of hardware unit-2 (refer to figure below)

**Note:** Make sure SFP is properly locked and the optical cable is properly plugged-in.

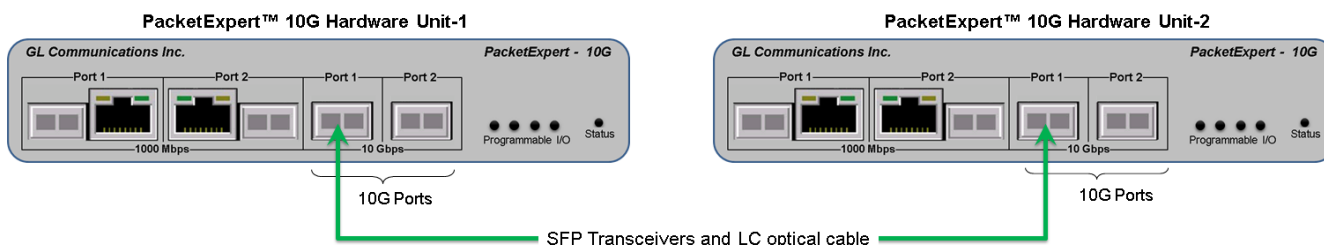


#### For 10G ports:

Perform test between 10G Port 1 of PacketExpert Unit-1 and 10G Port 2 of PacketExpert Unit-2

- Plug-in **SFP Transceivers** to the optical ports and connect **LC optical cable** Port 1 of hardware unit-1 to Port 1 of hardware unit-2 (refer to figure below)

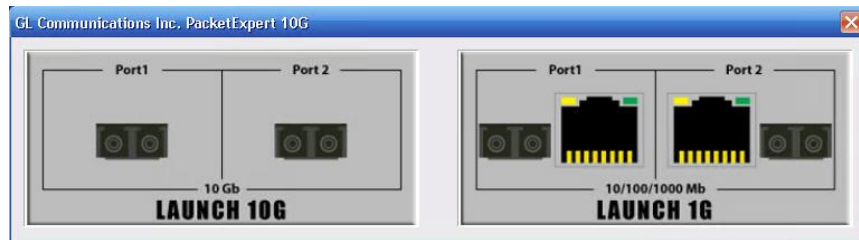
**Note:** Make sure SFP is properly locked and the optical cable is properly plugged-in.



### Step 2: Launch PacketExpert 10G Application

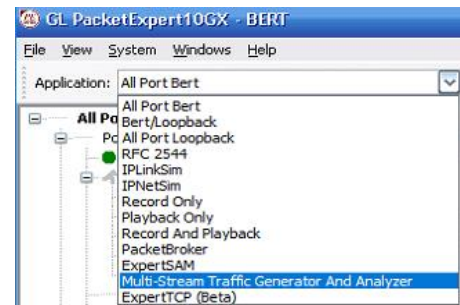


- Double click on the PacketExpert 10G shortcut icon on the desktop to launch PacketExpert 10G application as shown in the figure below.  
**Note:** If optional license PXN101 (license for 10G ports) is installed, then launch window to select 1G/10G type testing is prompted as shown in the figure. If this license is not installed, then the application is loaded on 1G ports by default.
- Click on **Launch 10G** option, to invoke the application with 10G ports.
- Or click on **Launch 1G** option, to invoke the application with 1G ports.



**Note:** The application may take some time to get started due to hardware and software initializations.

- By default, the PacketExpert is invoked displaying **All Port Bert** application. Load **Multi-Stream Traffic Generator/Analyzer** from the **Applications** drop-down list as shown in the figure below.



### Step 3: Configure Interface parameters

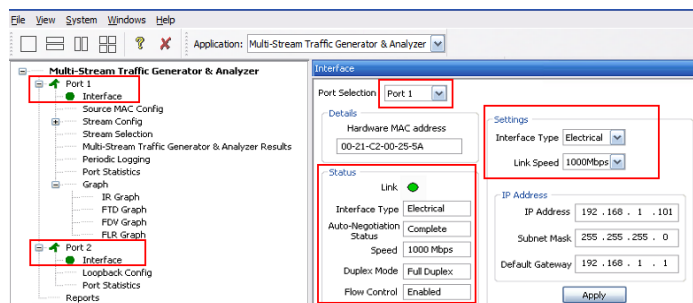
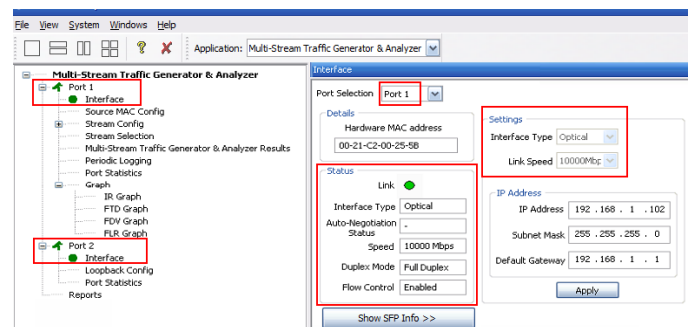
*For 10G Optical connections,*

- By default, for both 10G Port1 and Port2, Speed = 10000 Mbps

*For 1G Electrical or Optical connections,*

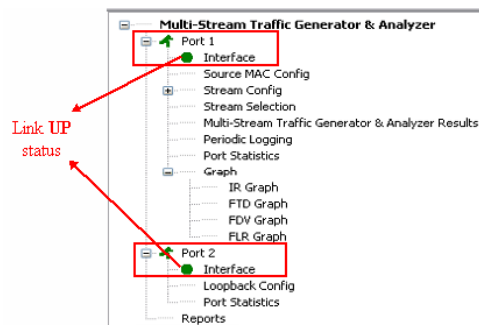
On the RHS side, in the **Interface** pane, select the ports from the **Port Selection** drop-down list and set the following for each port:

- Select **Interface Type** = **Electrical** (or) **Optical** (depending on the ports connected)
- Speed = **1000Mbps**
- Click on the **Apply** button (this will set the Interface Type in the hardware)
- Wait for some time as the port auto-negotiates with its link partner. Verify the following:
- Auto-Negotiation status = Complete, Speed = 1000 Mbps
- Similarly, repeat the above procedure for **Port 2**



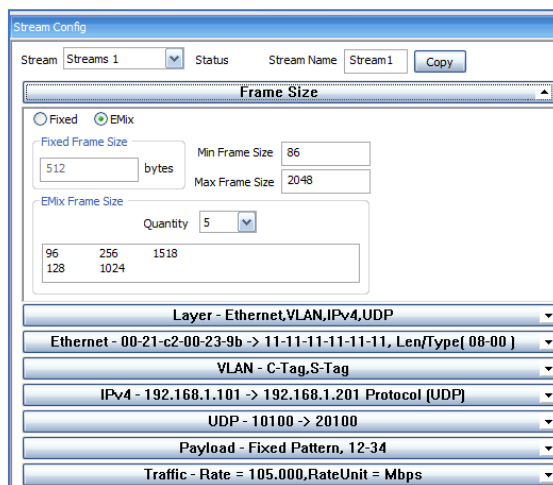
### Step 4: Verify Links

- Verify that the Link Status is **UP** on both ports, that is, the **Function Tree** should display Port 1 and Port 2 with green LEDs link status (refer to figure). If the LED shows red, then link is down.
- If the link status is **Down**, refer to **troubleshooting** steps explained in PacketExpert™ 10G Quick Install Guide.



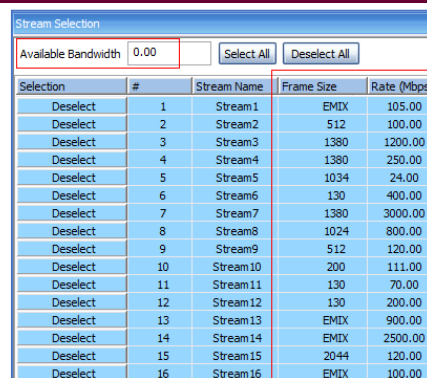
### Step 5: Stream Configuration

- From the Function Tree, under Port1, double click and invoke **Stream1** under 'Stream Config' option to invoke **Stream Configuration** window in the RHS pane.
- By default, all 16 streams are configured with different set of parameters.
- Eg: Stream1 generates EMIX frame sizes (5 frame sizes from 96 to 1024), and is configured for Layer4 (UDP) with VLAN (both C-Tag and S-Tag) etc. IP streams are all configured for Source IP addresses in the range 192.168.1.101, 102, 103 etc., while the Destination IP addresses are configured in the range 192.168.1.201, 202, 203 etc. Source MAC address for all streams are the same, while destination MAC addresses are randomly configured.
- As we are testing against **Port2 Loopback**, there is no need to change any settings.

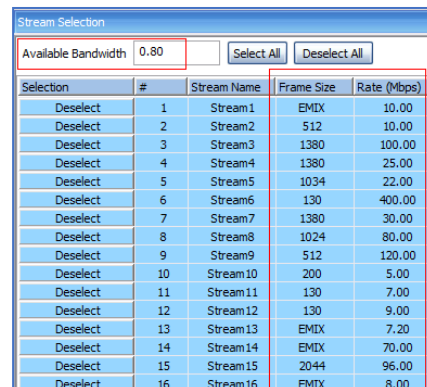


### Step 6: Stream Selection

- From the **Function Tree**, under Port1, double click on **Stream Selection** to invoke Stream Selection window on RHS pane.
- The configured streams are displayed along with Frame Size and the Rate (Mbps) settings.
- By default, all Streams are selected. The Rate and Frame sizes are configured to test a wide range as shown in the figure.
- For 10G port, total combined rate for all streams is configured for full line rate of 10,000 Mbps (Remaining available bandwidth is 0 Mbps)
- For 1G port, total combined rate for all streams is configured for almost full line rate of 999.2 Mbps (Remaining available bandwidth is 0.8 Mbps)



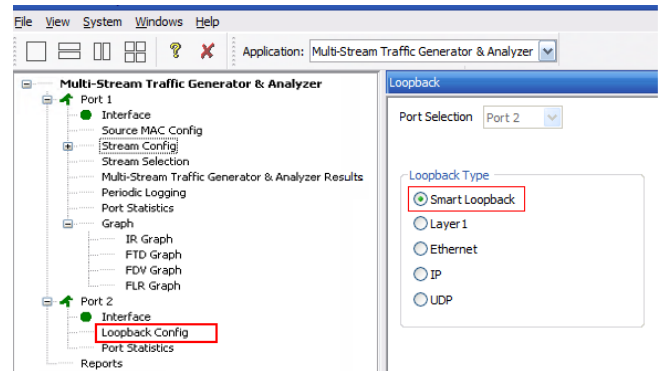
Selection	#	Stream Name	Frame Size	Rate (Mbps)
Deselect	1	Stream1	EMIX	105.00
Deselect	2	Stream2	512	100.00
Deselect	3	Stream3	1380	1200.00
Deselect	4	Stream4	1380	250.00
Deselect	5	Stream5	1034	24.00
Deselect	6	Stream6	130	400.00
Deselect	7	Stream7	1380	3000.00
Deselect	8	Stream8	1024	800.00
Deselect	9	Stream9	512	120.00
Deselect	10	Stream10	200	111.00
Deselect	11	Stream11	130	70.00
Deselect	12	Stream12	130	200.00
Deselect	13	Stream13	EMIX	900.00
Deselect	14	Stream14	EMIX	2500.00
Deselect	15	Stream15	2044	120.00
Deselect	16	Stream16	EMIX	100.00



Selection	#	Stream Name	Frame Size	Rate (Mbps)
Deselect	1	Stream1	EMIX	10.00
Deselect	2	Stream2	512	10.00
Deselect	3	Stream3	1380	100.00
Deselect	4	Stream4	1380	25.00
Deselect	5	Stream5	1034	22.00
Deselect	6	Stream6	130	400.00
Deselect	7	Stream7	1380	30.00
Deselect	8	Stream8	1024	80.00
Deselect	9	Stream9	512	120.00
Deselect	10	Stream10	200	5.00
Deselect	11	Stream11	130	7.00
Deselect	12	Stream12	130	9.00
Deselect	13	Stream13	EMIX	7.20
Deselect	14	Stream14	EMIX	70.00
Deselect	15	Stream15	2044	96.00
Deselect	16	Stream16	EMIX	8.00

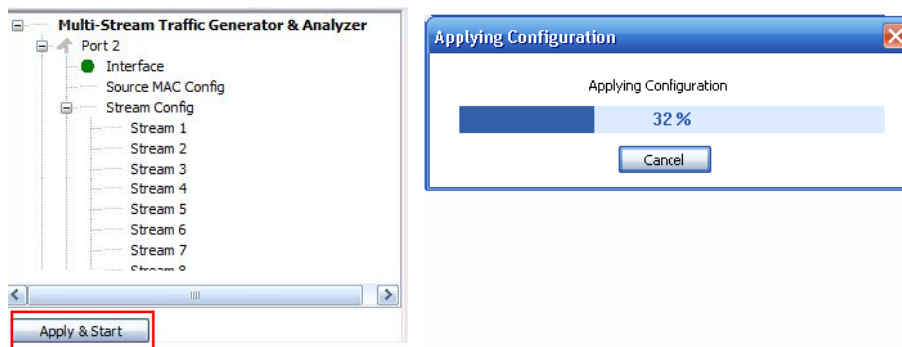
### Step 7: Verify Loopback Port Settings

- From the **Function Tree**, under Port2, double click on **Loopback Config** to invoke **Loopback Configuration** window in one of the RHS panes. Verify that **'Smart Loopback'** is selected. This will make the Loopback to automatically traverse each packet's headers and swap each layer's Source and Destination Address/Port automatically.



### Step 8: Start 'Multi-Stream Traffic Generator and Analyzer'

- Click **Apply & Start** to apply all the configurations for various streams and start the **'Multi-Stream Traffic Generator/Analyzer'** application. This will take some time, as the configuration needs to be downloaded to the hardware. The progress is indicated in a progress bar as shown in the figure.

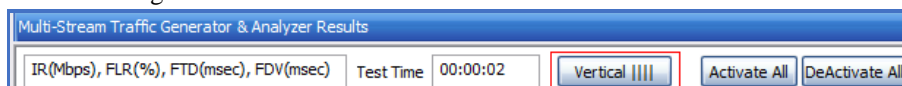


### Step 9: Verify Results and Graphs

- From the **Function Tree**, under Port1, double-click and invoke **Multi-Stream traffic generator and analyzer Results** on the RHS pane, as shown in the figure.
- Observe the **Information Rate (Current/ Min/ Max/ Avg)** which indicates the throughput rate of each stream.

Multi-Stream Traffic Generator & Analyzer Results																			
IR(Mbps), FLR(%), FTD(msec), FDV(msec)										Test Time: 00:00:02									
Stream No	Seconds	TxFrames	RxFrames	RxBytes	FL Count	FLR	IR (Curr)	IR (Min)	IR (Max)	IR (Avg)	FTD (Curr)	FTD (Min)	FTD (Max)	FTD (Avg)	FDV (Curr)	FDV (Min)	FDV (Max)	FDV (Avg)	
1	4	83 702	83 702	50 563 244	0	0.000	104.48	104.46	104.49	104.47	0.0030	0.0020	0.0030	0.0020	0.000004	0.000004	0.000005	0.000006	
2	4	93 391	93 391	47 816 192	0	0.000	99.38	99.35	99.38	99.37	0.0030	0.0020	0.000004	0.000004	0.000005	0.000006	0.000006	0.000006	
3	4	425 874	425 874	587 706 120	0	0.000	1192.53	1192.18	1192.54	1192.45	0.0030	0.0020	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
4	4	88 714	88 714	122 425 320	0	0.000	248.42	248.35	248.42	248.40	0.0030	0.0020	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
5	4	11 331	11 331	11 716 254	0	0.000	23.89	23.88	23.89	23.89	0.0030	0.0020	0.0030	0.0020	0.000011	0.000011	0.000011	0.000013	
6	4	1 329 886	1 329 885	172 885 050	1	0.000	399.00	398.88	399.00	398.97	0.0030	0.0020	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
7	4	1 065 094	1 065 094	1 469 829 720	0	0.000	2982.48	2981.61	2982.48	2982.26	0.0030	0.0020	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
8	4	380 939	380 938	390 080 512	1	0.000	795.45	795.23	795.46	795.40	0.0030	0.0020	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
9	4	112 098	112 098	57 394 176	0	0.000	119.28	119.25	119.28	119.27	0.0030	0.0010	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
10	4	250 809	250 809	50 161 800	0	0.000	110.36	110.33	110.36	110.36	0.0030	0.0010	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
11	4	231 958	231 957	30 154 410	1	0.000	69.59	69.57	69.59	69.59	0.0030	0.0010	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
12	4	663 424	663 424	86 245 120	0	0.000	199.04	198.98	199.04	199.03	0.0030	0.0020	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
13	4	718 870	718 870	434 485 028	0	0.000	897.79	897.54	897.79	897.73	0.0030	0.0010	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
14	4	2 011 005	2 011 004	1 215 449 904	1	0.000	2511.52	2510.79	2511.53	2511.34	0.0030	0.0010	0.0030	0.0020	0.000004	0.000004	0.000004	0.000005	
15	4	28 880	28 880	59 030 720	0	0.000	119.22	119.20	119.23	119.22	0.0030	0.0030	0.0030	0.0030	0.000004	0.000004	0.000004	0.000005	
16	4	79 651	79 651	48 093 794	0	0.000	99.38	99.36	99.38	99.37	0.0030	0.0020	0.0030	0.0020	0.000005	0.000005	0.000005	0.000006	

- Use the **Vertical** button to change the view to Vertical orientation



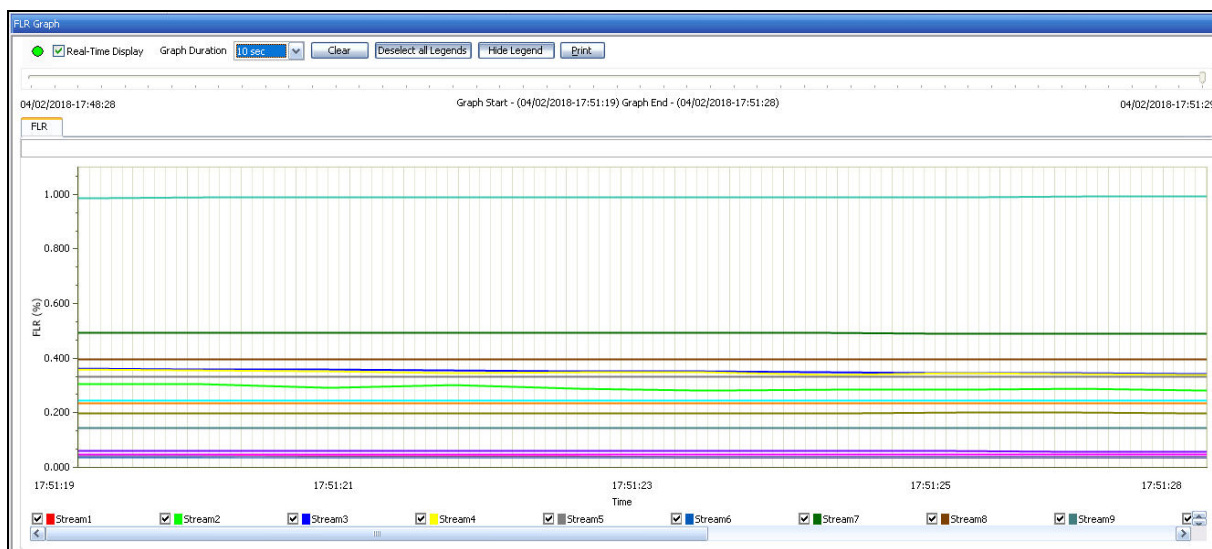
### Verify TxFrames, RxFrames and Frame Loss Count and Ratio:

- For each stream, verify that RxFrames = TxFrames, and FL Count (Frame Loss Count) and FLR (Frame Loss Ratio) = 0

Multi-Stream Traffic Generator & Analyzer Results																
IR(Mbps), FLR(%), FTD(msec), FDV(msec)	Test Time 00:03:38															
	Horizontal															
	Activate All DeActivate All															
Stream No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stream Selection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Seconds	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221	221
TxFrames	4 624 667	5 160 127	23 530 923	4 901 721	626 035	73 480 521	58 849 950	21 048 095	6 193 750	13 858 016	12 816 401	36 656 345	39 719 922	111 114 548	1 595 723	4 400 891
RxFrames	4 624 667	5 160 127	23 530 923	4 901 721	626 035	73 480 521	58 849 950	21 048 094	6 193 750	13 858 016	12 816 401	36 656 345	39 719 921	111 114 546	1 595 723	4 400 891
RxBytes	2 793 793 024	2 641 985 024	32 472 673 740	6 764 374 980	647 320 190	9 552 467 730	81 212 931 000	21 553 248 256	3 171 200 000	2 771 603 200	1 666 132 130	4 765 324 850	24 006 719 744	67 157 631 094	3 261 657 812	2 657 275 998
FL Count	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0
FLR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

### Verify Frame Loss Graph:

- From the **Function Tree**, under **Port1** → expand **Graphs**, double-click and invoke **FLR Graph** on the RHS pane. Observe the FLR (%) values show 0 for all streams.



### Verify Throughput Results:

- For each stream, verify that the IR values (Information Rate values) – IR (Curr) – Information Rate (Current), IR (Min) – Information Rate (Minimum), IR (Max) – Information Rate (Maximum) and IR (Avg) - Information Rate (Average) are close to the configured values as shown below:

Multi-Stream Traffic Generator & Analyzer Results																
IR(Mbps), FLR(%), FTD(msec), FDV(msec)	Test Time 00:06:59															
	Horizontal															
	Activate All DeActivate All															
Stream No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stream Selection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Seconds	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421
TxFrames	8 809 885	9 829 925	44 625 877	9 337 667	1 192 582	139 978 733	112 107 827	40 096 145	11 788 954	26 399 208	24 414 954	69 829 509	75 665 554	211 670 703	3 039 817	8 383 602
RxFrames	8 809 885	9 829 925	44 625 876	9 337 667	1 192 582	139 978 733	112 107 826	40 096 145	11 788 954	26 399 208	24 414 954	69 829 509	75 665 554	211 670 703	3 039 817	8 383 602
RxBytes	5 322 114 364	5 032 921 600	61 859 708 880	12 885 980 460	1 233 129 788	18 197 235 290	154 708 799 880	41 058 452 480	6 041 064 448	5 279 941 600	3 173 944 020	9 077 836 170	45 732 259 924	127 933 771 560	6 213 385 948	5 062 051 260
FL Count	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
FLR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IR (Curr)	104.48	99.38	1192.53	248.42	23.88	398.99	2982.47	795.46	119.28	110.36	69.59	199.04	897.80	2511.52	119.23	99.38
IR (Min)	104.46	99.35	1192.18	248.35	23.88	398.88	2981.61	795.23	119.25	110.33	69.23	198.98	897.54	2510.79	119.18	99.34
IR (Max)	104.49	99.38	1192.54	248.43	23.89	399.00	2982.49	795.46	119.28	110.36	69.59	199.04	897.80	2511.54	119.23	99.38
IR (Avg)	104.48	99.37	1192.52	248.41	23.89	398.99	2982.44	795.45	119.28	110.36	69.59	199.04	897.78	2511.49	119.22	99.38
FTD (Curr)	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
FTD (Min)	0.0020	0.0010	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0010	0.0010	0.0010	0.0020	0.0010	0.0010	0.0020	0.0020
FTD (Max)	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
FTD (Avg)	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
FDV (Curr)	0.000004	0.000004	0.000004	0.000004	0.000011	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000005
FDV (Min)	0.000004	0.000004	0.000004	0.000004	0.000011	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004
FDV (Max)	0.000005	0.000005	0.000004	0.000005	0.000011	0.000004	0.000004	0.000004	0.000004	0.000005	0.000004	0.000004	0.000004	0.000004	0.000004	0.000005
FDV (Avg)	0.000006	0.000006	0.000005	0.000006	0.000013	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000006

Stream Selection						
Selection	#	Stream Name	Frame Size	Rate (Mbps)		
Deselect	1	Stream1	EMIX	105.00		
Deselect	2	Stream2	512	100.00		
Deselect	3	Stream3	1380	1200.00		
Deselect	4	Stream4	1380	250.00		
Deselect	5	Stream5	1034	24.00		
Deselect	6	Stream6	130	400.00		
Deselect	7	Stream7	1380	3000.00		
Deselect	8	Stream8	1024	800.00		
Deselect	9	Stream9	512	120.00		
Deselect	10	Stream10	200	111.00		
Deselect	11	Stream11	130	70.00		
Deselect	12	Stream12	130	200.00		
Deselect	13	Stream13	EMIX	900.00		
Deselect	14	Stream14	EMIX	2500.00		
Deselect	15	Stream15	2044	120.00		
Deselect	16	Stream16	EMIX	100.00		

### Verify Throughput Graph:

- From the **Function Tree**, double-click and invoke **IR Graph** on the RHS pane. Observe the IR (Mbps) for each stream reflects the value shown in the **Results** dialog.
- In the graph dialog, uncheck all streams, and check each individual stream to view the graph for only that stream. Verify that the IR shown matches with the tabular values in the results dialog.



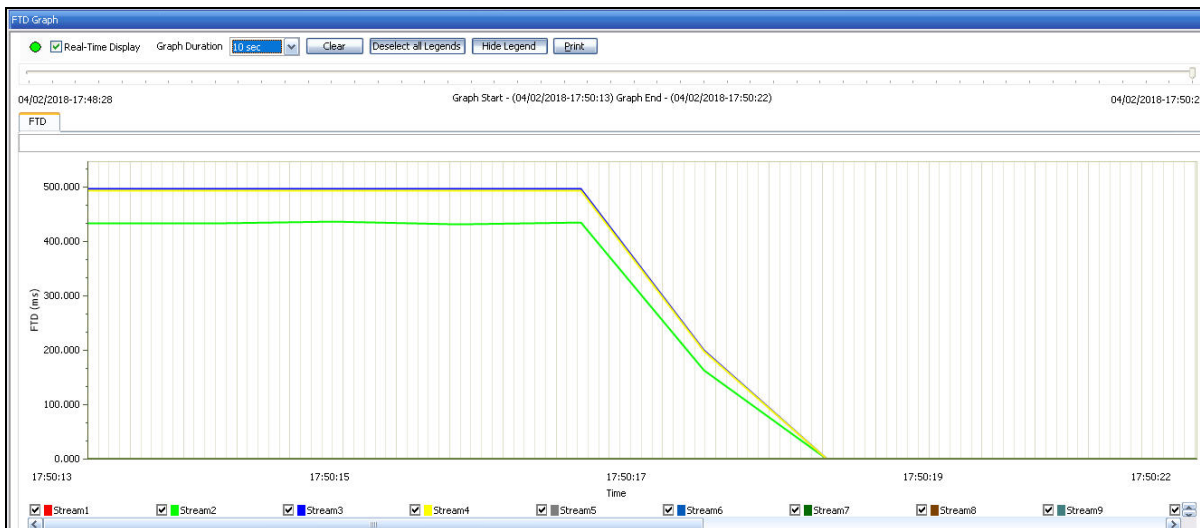
### Verify Latency Result:

- For each stream, verify that the FTD values (Frame Transfer Delay values) – FTD (Curr) – Frame Transfer Delay (Current), FTD (Min) – Frame Transfer Delay (Minimum), FTD (Max) – Frame Transfer Delay (Maximum) and FTD (Avg) - Frame Transfer Delay (Average) are showing relevant values as shown below.

Multi-Stream Traffic Generator & Analyzer Results																
IR(Mbps), FLR(%), FTD(msec), FDV(msec)	Test Time 00:10:15		Horizontal													
Stream No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stream Selection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Seconds	618	618	618	618	618	618	618	618	618	618	618	618	618	618	618	618
TxFrames	12 932 327	14 429 675	65 801 402	13 707 074	1 750 632	205 479 459	164 566 825	58 858 471	17 320 079	38 752 280	35 839 527	102 505 070	111 071 994	310 718 495	4 462 249	12 306 568
RxFrames	12 932 327	14 429 675	65 801 402	13 707 074	1 750 632	205 479 459	164 566 824	58 858 471	17 320 079	38 752 280	35 839 527	102 505 070	111 071 993	310 718 495	4 462 249	12 306 568
RxBytes	7 812 509 874	7 387 993 600	90 805 934 760	18 915 762 120	1 810 153 488	26 712 329 670	227 102 217 120	60 271 074 304	8 867 880 448	7 750 456 000	4 659 138 510	13 325 659 100	67 131 911 236	187 798 258 378	9 120 836 956	7 430 753 924
FL Count	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
FLR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IR (Curr)	104.48	99.38	1192.53	248.42	23.89	398.99	2982.47	795.45	119.28	110.36	69.59	199.04	897.79	2511.52	119.23	99.38
IR (Min)	104.46	99.35	1192.18	248.35	23.88	398.88	2981.61	795.23	119.25	110.33	69.23	198.98	897.54	2510.79	119.18	99.34
IR (Max)	104.49	99.38	1192.54	248.43	23.89	399.00	2982.49	795.46	119.28	110.36	69.80	199.04	897.80	2511.54	119.23	99.38
IR (Avg)	104.48	99.37	1192.52	248.41	23.89	398.99	2982.44	795.45	119.28	110.36	69.59	199.04	897.78	2511.49	119.22	99.38
FTD (Curr)	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
FTD (Min)	0.0020	0.0010	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0010	0.0010	0.0010	0.0020	0.0010	0.0010	0.0030	0.0020
FTD (Max)	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
FTD (Avg)	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
FDV (Curr)	0.000004	0.000005	0.000004	0.000004	0.000011	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000005
FDV (Min)	0.000004	0.000004	0.000004	0.000004	0.000010	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004
FDV (Max)	0.000005	0.000005	0.000004	0.000005	0.000011	0.000004	0.000004	0.000004	0.000005	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000005
FDV (Avg)	0.000006	0.000006	0.000005	0.000006	0.000013	0.000005	0.000005	0.000005	0.000006	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000006

### Verify Latency Graph:

- From the **Function Tree**, double-click and invoke **FTD Graph** on the RHS pane. Observe the FTD (msec) values for each stream reflects the value shown in the Results dialog.



### Verify Jitter Results:

- For each stream, verify that the FDV values (Frame Delay Variation values) – FDV (Curr) – Frame Delay Variation (Current), FDV (Min) – Frame Delay Variation (Minimum), FDV (Max) – Frame Delay Variation (Maximum) and FDV (Avg) - Frame Delay Variation (Average) are showing relevant values as shown below.

Stream No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stream Selection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Seconds	618	618	618	618	618	618	618	618	618	618	618	618	618	618	618	618
TxFrames	12 932 327	14 429 675	65 801 402	13 707 074	1 750 632	205 479 459	164 566 825	58 858 471	17 320 079	38 752 280	35 839 527	102 505 070	111 071 994	310 718 495	4 462 249	12 306 568
RxFrames	12 932 327	14 429 675	65 801 402	13 707 074	1 750 632	205 479 459	164 566 824	58 858 471	17 320 079	38 752 280	35 839 527	102 505 070	111 071 993	310 718 495	4 462 249	12 306 568
RxBytes	7 812 509 874	7 387 993 600	90 805 934 760	18 915 762 120	1 810 153 488	26 712 329 670	227 102 217 120	60 271 074 304	8 867 880 448	7 750 456 000	4 659 138 510	13 325 659 100	67 131 911 236	187 798 258 378	9 120 836 956	7 430 753 924
FL Count	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
FLR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IR (Curr)	104.48	99.30	1192.53	248.42	23.89	398.99	2982.47	795.45	119.28	110.36	69.59	199.04	897.79	2511.52	119.23	99.38
IR (Min)	104.46	99.25	1192.18	248.35	23.88	398.88	2981.61	795.23	119.25	110.33	69.23	198.98	897.54	2510.79	119.18	99.34
IR (Max)	104.40	99.38	1192.54	248.43	23.89	399.00	2982.49	795.46	119.28	110.36	69.80	199.04	897.80	2511.54	119.23	99.38
IR (Avg)	104.48	99.37	1192.52	248.41	23.89	398.99	2982.44	795.45	119.28	110.36	69.59	199.04	897.78	2511.49	119.22	99.38
FTD (Curr)	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
FTD (Min)	0.0020	0.0010	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0010	0.0010	0.0010	0.0020	0.0010	0.0010	0.0030	0.0020
FTD (Max)	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
FTD (Avg)	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030
FDV (Curr)	0.000004	0.000005	0.000004	0.000004	0.000011	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000005
FDV (Min)	0.000004	0.000004	0.000004	0.000004	0.000010	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004
FDV (Max)	0.000005	0.000005	0.000004	0.000005	0.000011	0.000004	0.000004	0.000005	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000005
FDV (Avg)	0.000006	0.000006	0.000005	0.000006	0.000013	0.000005	0.000005	0.000005	0.000006	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005

### Verify Jitter Graph:

- From the **Function Tree**, double-click and invoke **FDV Graph** on the RHS pane. Observe the FDV (msec) values for each stream reflects the value shown in the Results dialog.

