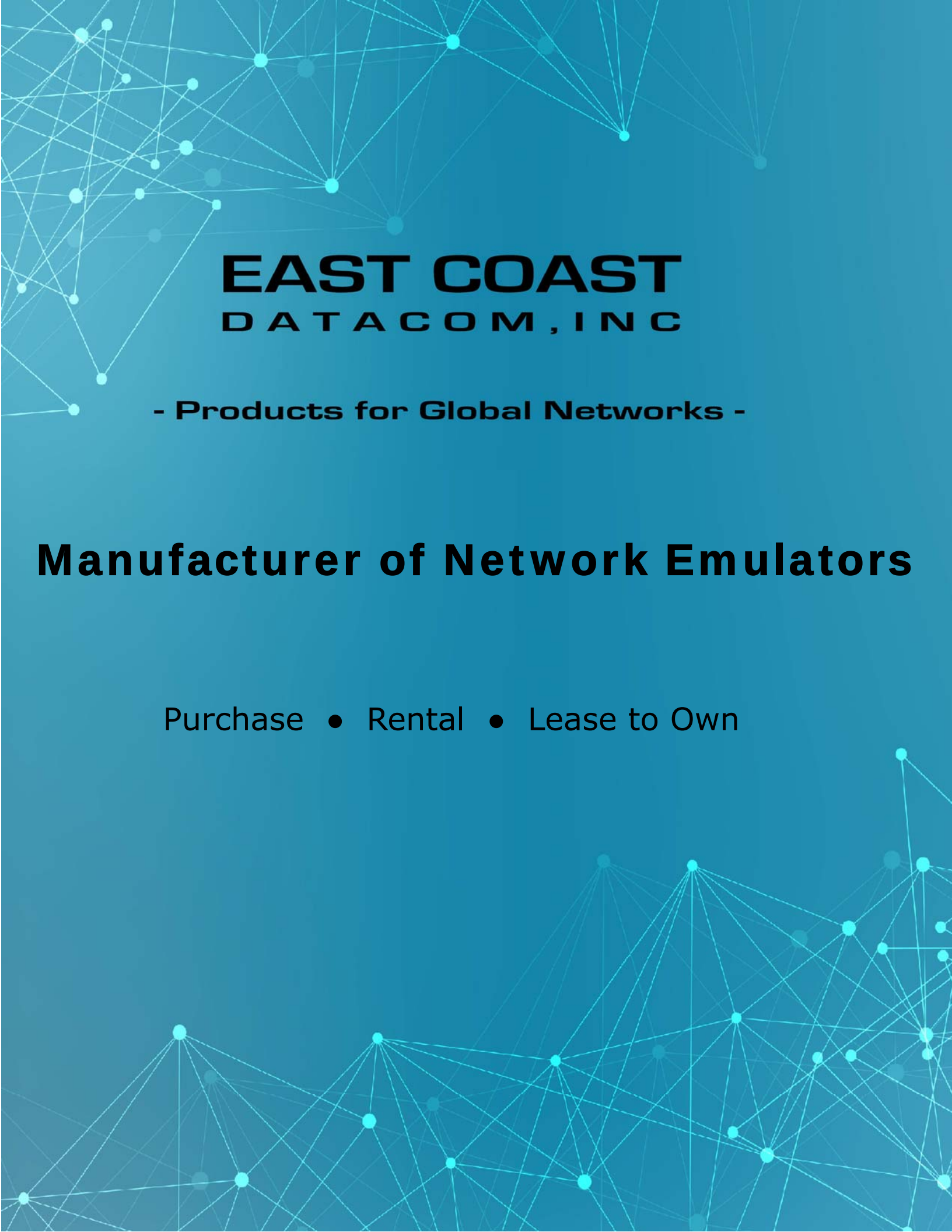


The background of the entire page is a solid blue color. Overlaid on this background are two abstract network diagrams. One is in the top-left corner, and the other is in the bottom-right corner. Both diagrams consist of numerous small, light-blue circular nodes connected by thin, white lines, creating a complex web-like structure that suggests global connectivity and network technology.

EAST COAST DATACOM, INC

- Products for Global Networks -

Manufacturer of Network Emulators

Purchase • Rental • Lease to Own

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Network Emulation

What are Network Emulators

As noted by Wikipedia

Network emulation is the act of introducing a device to a test network (typically in a lab environment) that alters packet flow in such a way as to mimic the behavior of a production, or live, network — such as a LAN or WAN. This device may be either a general-purpose computer running software to perform the network emulation or a dedicated emulation device which usually does link emulation.

Network emulators incorporate a varying amount of standard network attributes into their designs including: the round-trip time across the network (latency), the amount of available bandwidth, a given degree of packet loss, duplication of packets, reordering packets or corruption and the severity of network jitter.

It is commonly known that networks are imperfect — private or public. They introduce delay, errors and drop packets. The primary goal of network emulation is to create an environment whereby users can connect the devices, applications, products and/or services being tested in order to validate their performance, stability, or functionality against real-world network scenarios. Once tested in a controlled environment against actual network conditions, users can have confidence that the item being tested will perform as expected.

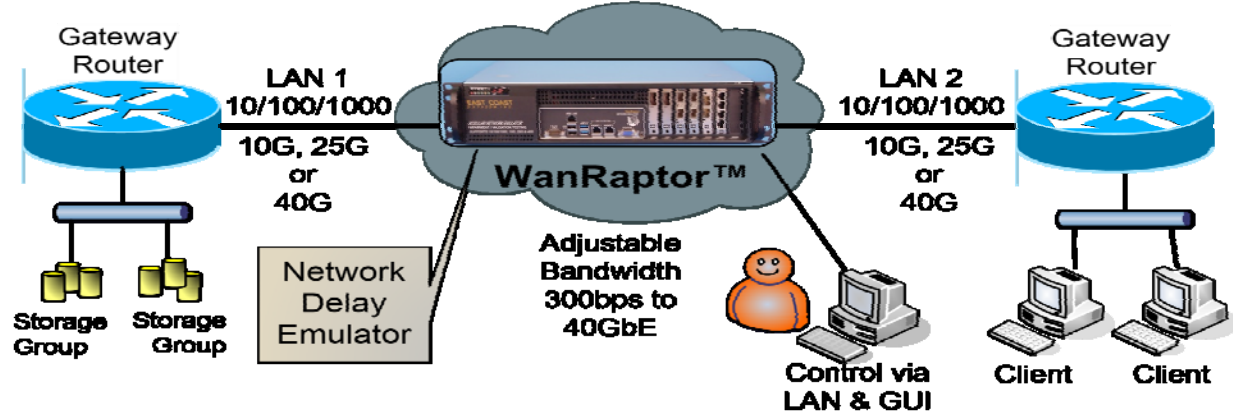
Our Network Latency Emulators

- We manufacture one of the broadest line of Network Latency Emulators in the network test equipment market.
- Our WanRaptor™ Network Latency Emulator allows users to test and stage critical network equipment adding network latency and network impairments over user selectable 10/100/1000, 10G, 25G and 40G Ethernet networks. The WanRaptor™ is an excellent choice for emulating wide area network delays, satellite delay emulation, stress testing network software development, conversion of legacy serial networks to IP and VLAN Network Emulation.
- Our PDS-1/10G is the most versatile portable emulator we know of in the market. We support 10/100/1000 copper or fiber as well as 10G fiber or 10/25G fiber. The portable emulator is built on the same software technology as our WanRaptor™. The small portable housing supports desktop, wall mount or 1U rackmount applications.
- The RDS-PLUS supports a wide range of serial or TELCO interface types and data rates ranging from 1200bps to over 50Mbps. The unit supports T1, E1, DS3, STS-1, HSSI, EIA-644 LVDS, RS-232, RS-422, RS-530, X.21 and V.35.

NETWORK LATENCY EMULATOR

WanRaptor™ Network Emulator

Emulates Bandwidth, Latency, Loss and Re-Ordering



WanRaptor™ supports 10/100/1000, 10G, 25G & 40G

- Easy expansion of I/O Ports
- 10/100/1000 to 40G
- Precise Delay Emulation
- Embedded Design No Software to Install
- Any-Port to Any-Port
- Supports Copper or Fiber
- Bridge or Route
- Changes On-The-Fly
- GUI or REST API Control
- 2U Rack Mount or Bench
- 3 Year Warranty

The **WanRaptor™** Network Emulator is an easy to use, economical test solution to validate your applications in a lab environment by emulating bandwidth, latency, loss and jitter of wide area networks. With the purchase of the **WanRaptor™** you receive an embedded hardware/software system supporting network emulation on 10/100/1000, 10G, 25G and 40G. The product has an easy to use GUI interface and allows changes On-The-Fly for real time test and result monitoring. Try our new REST API as well for emulation control. Competing products require expensive hardware upgrades or confusing bandwidth license upgrades to support different media types. The **WanRaptor™** overcomes those drawbacks.

The **WanRaptor™** allows the user to easily view packet throughput and packet impairment performance with our intuitive statistics screen in real-time.

The **WanRaptor™** is available in a 2U 6-Slot PCIe chassis that houses multiple LAN interfaces for any-port to any-port emulation. It is powered by an integrated 90-240V 50/60Hz power supply.

The **WanRaptor™** has a 3-year warranty.

ORDERING INFORMATION / TECHNICAL HOT LINK

Part Number: 210000
Model: WanRaptor™

<https://www.ecdata.com/wanraptor-network-emulator.html>

PORTABLE NETWORK LATENCY EMULATOR



PDS-1/10G Portable, Supports 10/100/1000 & 10G

- COTS Hardware allows easy expansion of I/O Ports
- Precise Delay Emulation
- Embedded Design No Software to Install
- Fits in a Lap Top Carry Case
- 10/100/1000 and 10G WAN Delay Emulation
- Copper or Fiber Interfaces
- Supports Bridge or Route
- Supports Changes On-The-Fly
- GUI & REST API
- 3 Year Warranty

The PDS-1/10G Portable Network Emulator is an easy to use, economical test solution to validate your applications in a lab environment by emulating bandwidth, latency, loss and jitter of wide area networks. With the purchase of the **PDS-1/10G** you receive an embedded hardware/software system supporting network emulation on 10/100/1000 or optional 10G interfaces. The product has an easy to use GUI interface and allows changes On-The-Fly for real time test and result monitoring. Try our new REST API as well for emulation control. Competing products require expensive hardware upgrades or confusing bandwidth license upgrades to support different media types. The **PDS-1/10G** overcomes those drawbacks.

The **PDS-1/10G** allows the user to easily view packet throughput and packet impairment performance with our intuitive statistics screen in real-time.

The **PDS-1/10G** is available in a small desktop / portable model. It is powered by an external 90-240V 50/60Hz power supply.

The unit has a 3-year warranty.

ORDERING INFORMATION / TECHNICAL HOT LINK

Part Number: 234000
Model: PDS-1/10G

<https://www.ecdata.com/pds-1.html>

<https://www.ecdata.com>

Tel: (321) 637-9922

Email: info@ecdata.com

Profile Settings

Bridge/Route

Default Rules

Emulation Screen

Reset

Save

enp1s0f1 -> enp1s0f0

Delay Settings

Delay Type

Constant

Delay Value

75.8

ms

Range: 0-1750ms

Loss Settings

Loss Type

Packet loss rate

Packet Loss Rate

0.001

%

Range: 0-100%

Bandwidth Settings

Bandwidth

10

Gbps

Range: 0Kbps-10Gbps

Note: use Kbps when setting Bandwidth at rates below 10 Mbps

Packet Reordering Settings

Reorder Delay

0

ms

Range: 0-500ms

Reorder Probability

0

%

Range: 0-100%

enp1s0f0 -> enp1s0f1

Set different configuration: ☒

Delay Settings

Delay Type

Constant

Delay Value

77.9

ms

Range: 0-1750ms

Loss Settings

Loss Type

Packet loss rate

Packet Loss Rate

0

%

Range: 0-100%

Bandwidth Settings

Bandwidth

10

Gbps

Range: 0Kbps-10Gbps

Note: use Kbps when setting Bandwidth at rates below 10 Mbps

Packet Reordering Settings

Reorder Delay

0

ms

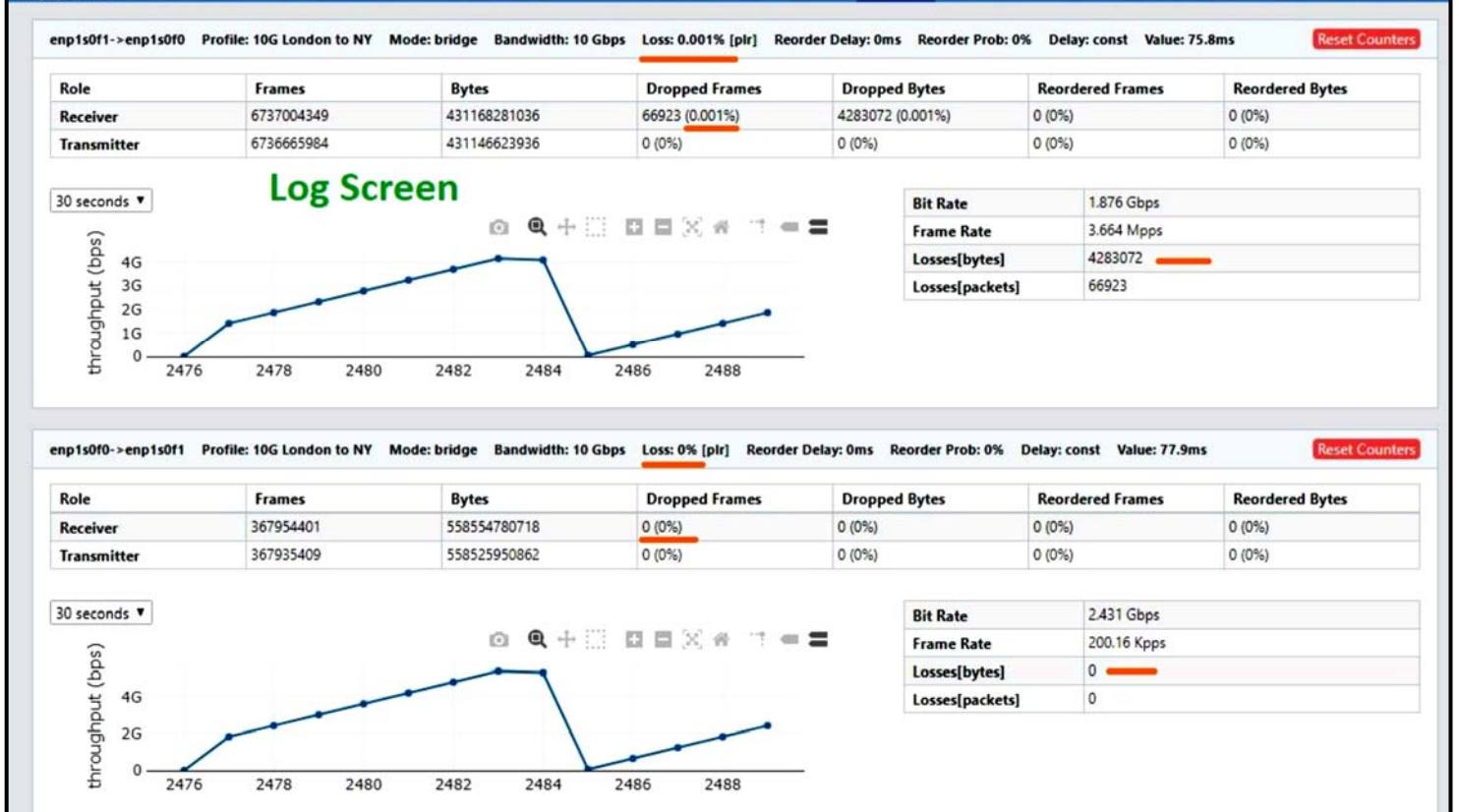
Range: 0-500ms

Reorder Probability

0

%

Range: 0-100%



enp1s0f0 -> enp1s0f1

Profile: 10G London to NY

Mode: bridge

Bandwidth: 10 Gbps

Loss: 0% [plr]

Reorder Delay: 0ms

Reorder Prob: 0%

Delay: const

Value: 77.9ms

Reset Counters

30 seconds

Log Screen

Bit Rate

2.431 Gbps

Frame Rate

200.16 Kpps

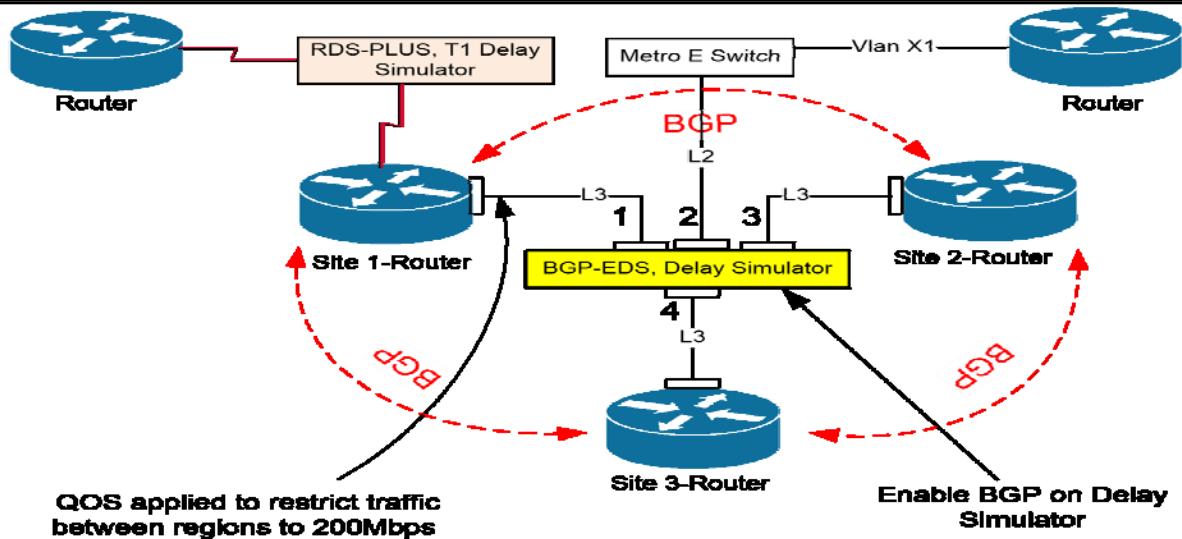
Losses[bytes]

0

Losses[packets]

0

Border Gateway Protocol(BGP) WAN Delay Simulator



BGP Simulator Supports 10/100/1000 or 10G

- **Interface: 1G or 10G**
- **4 or 8 Ports Supported**
- **Supports BGP Routing Dynamically, Embedded BGP Quagga Router**
- **Precise Delay Emulation**
- **Creates History Log Files**
- **Easy to use GUI**
- **10/100/1000 MGMT Port**
- **0 to 8 Seconds of Delay**
- **Constant, Uniform and Roaming Delay, Packet Loss, Re-Ordering**

The Border Gateway Protocol or BGP is at the core of the modern Internet. Large corporate and government enterprise networks are increasing their use of BGP to interconnect different administrative and country specific regions. This geographic span adds further to the complexity of a BGP network when calculating and planning for network latency. Network design engineers need a reliable and cost effective means to test the routers' ability to handle BGP transactions accurately while simulating network latency with their applications.

The BGP-EDS Ethernet delay simulator is used to apply traffic rules on packets flowing out of the egress port for the intended packets matching source address and destination address. Dynamic Routing protocols like BGP are used for the route and can be applied to Interior Gateway network as well as an Exterior Gateway Network.

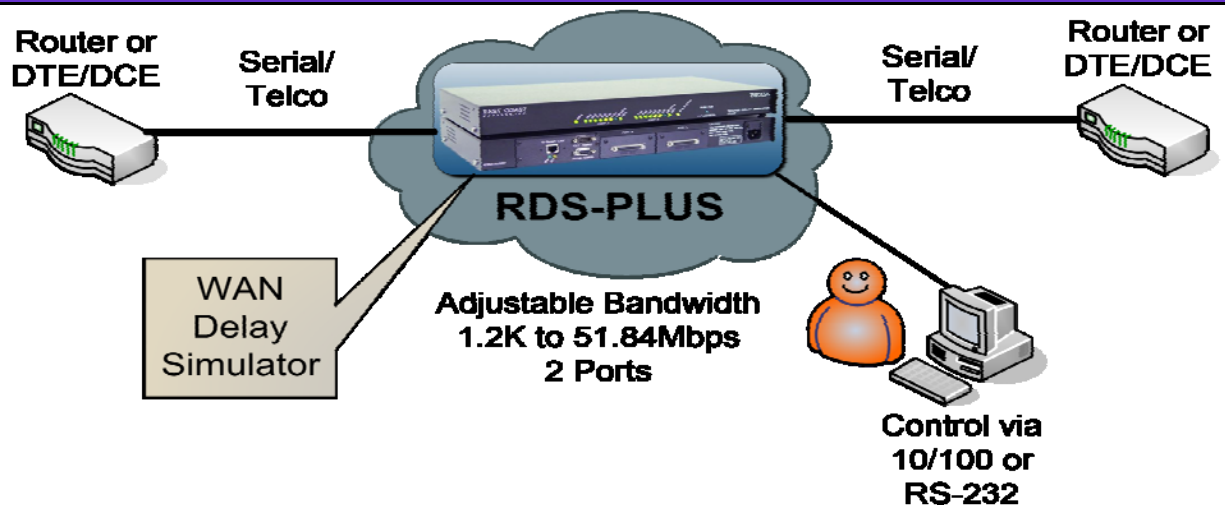
The user can specify the source and destination IP addresses either as a single IP or with the subnet mask (CIDR Addresses) for which the traffic rules apply as a whole. The BGP-EDS system acts as a BGP router by which it chooses the best and valid destination using a best path selection algorithm.

ORDERING INFORMATION / TECHNICAL HOT LINK

Part Number: 232000
Model: BGP-EDS, 8-Ports

PDF Data Sheet Location
<https://www.ecdata.com/images/pdfs/BGP-EDS.pdf>

RDS-PLUS Data Link Simulator for Serial Data & Telco



- **Serial & Telco Interfaces**
- **1.2k to 51.85Mbps Rates**
- **Precise Delay Emulation**
- **No Software to Load**
- **Easy to use GUI or CLI**
- **Bi-Directional Buffers**
- **0 to 8 Seconds of Delay**
- **Burst Error Insertion**
- **511 BERT Generator**
- **Status LED's Each Port**
- **3 Year Warranty & Support**
- **NEW EIA-644 LVDS cards**

The RDS-PLUS is the best Serial Data and TELCO delay simulator on the market. It is a true industry work horse utilized by all government and contracting agencies.

The Router Delay Simulator Plus (RDS+) allows users to test and stage critical equipment for reliable network operation while simulating network delays. The RDS+ provides a realistic simulation of physical network behavior with respect to time delays and bit errors. It supports user rates of 1.2k up to 52Mbps while providing delays from zero to 8 round trip.

By using the RDS+ in place of or in series with a real link (WAN) a wide variety of error conditions can be introduced under controlled and testable conditions.

The RDS+ has two data port interfaces that support RS-232, RS-422, RS-530, V.35, X.21, DS1/E1, TTL, HSSI, DS3, E3, or STS-1 and LVDS.

The RDS+ can introduce Random and/or Burst errors into the data stream. These two error types can be used independently or in a combined fashion.

The RDS+ is configured via a standard RS-232 serial port or an integrated GUI 10/100 LAN module. The user has no software to load as all configuration data is within the RDS+.

ORDERING INFOR-

Part Number: 175000
Model: RDS-PLUS

PDF Data Sheet Location
<https://www.ecdata.com/PDFs/rds+.pdf>

Outstanding Features of the RDS-PLUS

The Users Delay Features Presented

The amount of Delay, Delay Based on Data Rates, Delay Options and Repeatable Delay Accuracy over data rates low to high. And it should be well noted that this is a huge differentiator of the RDS-PLUS. Why purchase a Delay Simulator if you cannot get delay over the full range of rates.

The ease of configuring the RDS-PLUS via the one page Graphical User Interface(GUI) with stored test configurations is another huge advantage.

The RDS-PLUS is unsurpassed in the market place with our proprietary design features. The RDS-PLUS has been in production since 2005 with a large worldwide installed base.

The RDS-PLUS has been most notably purchased in volume by:

British Telcom, AT&T, Sprint, REUTERS, ITT, Lockheed Martin, General Dynamics, Raytheon, US NAVY SPAWAR, US MARINES, US AIR FORCE. The US ARMY has the largest installed base of RDS-PLUS units with over 75 units. The very first RDS-PLUS was sold to the US Army in 2005 and is still in use in a test lab today in Texas.

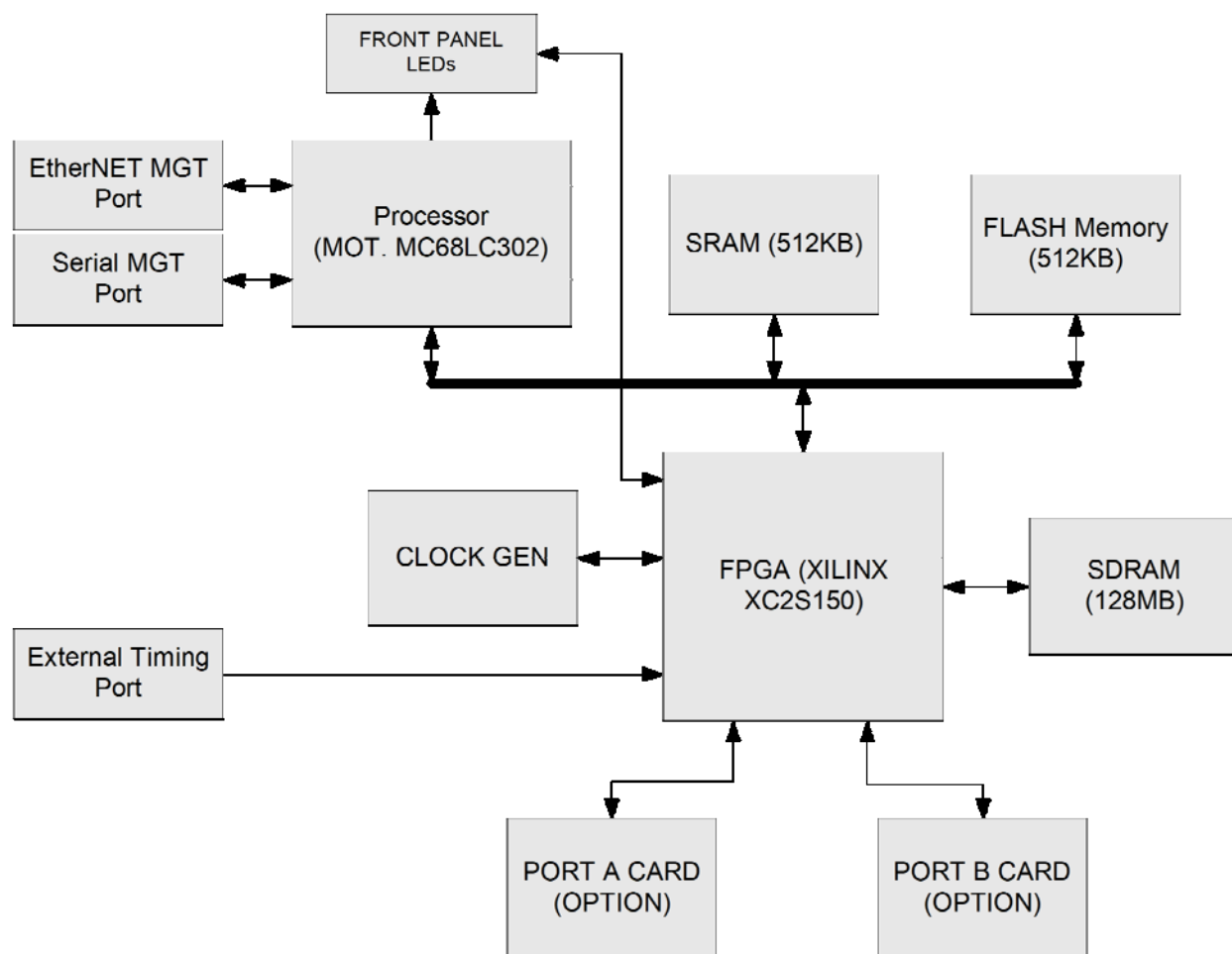
Another excellent reason why we are the leaders in this market: We have just introduced a new LVDS 52Mbps interface for connection to new satellite receivers and crypto devices that incorporate the new EIA-644 LVDS interface. The RDS-PLUS has modular interfaces that allow East Coast Datacom, Inc to continually develop new interface cards for the product. This modular approach has enabled the RDS-PLUS to present the largest selection of physical interfaces for a delay simulator on the market.

We can design custom interfaces for your customers equipment due to our architecture.

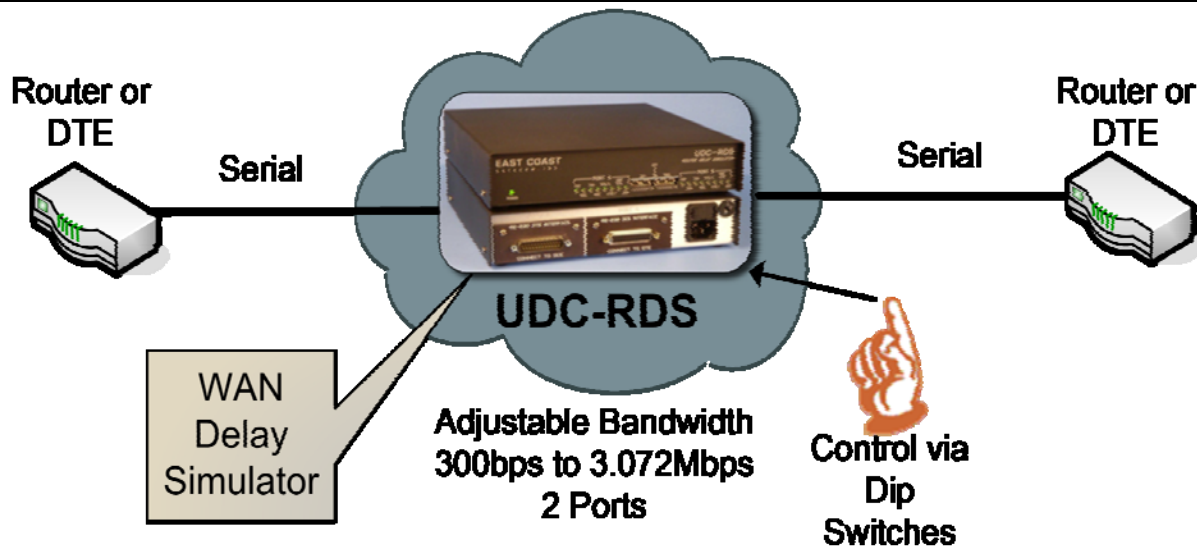
The RDS-PLUS is a highly technical design based around a Xilinx FPGA. The FPGA complex is the central hardware logic component and responsible for real-time data transport and clocking operations with and between Port A and Port B. Programming of the FPGA (a RAM-based device) is performed by the Processor when the system is booted up.

This proprietary design also utilizes a memory interleaving technique that is unmatched by rival competitors.

Hardware Overview of RDS-PLUS



UDC-RDS Low Cost Data Link Simulator - Serial Data



Supports Low or High Speed Serial Data

- **Serial Interface Support**
- **300bps to 3.073Mbps Rates**
- **Precise Delay Emulation**
- **No Software to Load**
- **Easy to use Dip Switches**
- **Bi-Directional Buffers**
- **0 to 1 Second of Delay**
- **Standalone or Rackmount**
- **90-240VAC or DC Power**
- **Status LED's Each Port**
- **3 Year Warranty & Support**

The UDC-RDS allows users to test/stage critical low data rate testing of DCE or DTE equipment while simulating network delay times. The unit provides a realistic simulation of physical network behavior with respect to time delays and clock rates. The unit supports user data rates of 300bps up to 1.024Mbps while providing delays from zero to 1 second each path.

By using the UDC-RDS in place of or in series with a real data link (WAN) a wide variety of error conditions can be introduced under controlled and testable conditions.

The unit has two data port interfaces that support RS-232, RS-422/449, RS-530, V.35, HSSI, LVDS and X.21. The data interfaces can be mix and matched where applicable, such as a V.35-to-RS-530 connection. The UDC-RDS also allows the user to pass or force control signals. The control signals are also delayed along with the user data.

The unit is configured via accessible front panel dip switches and is available in a stand-alone or rack mount chassis. The user has no software to load as all configuration is within the UDC-RDS. The model is available in two models for internal clocking or external clocking.

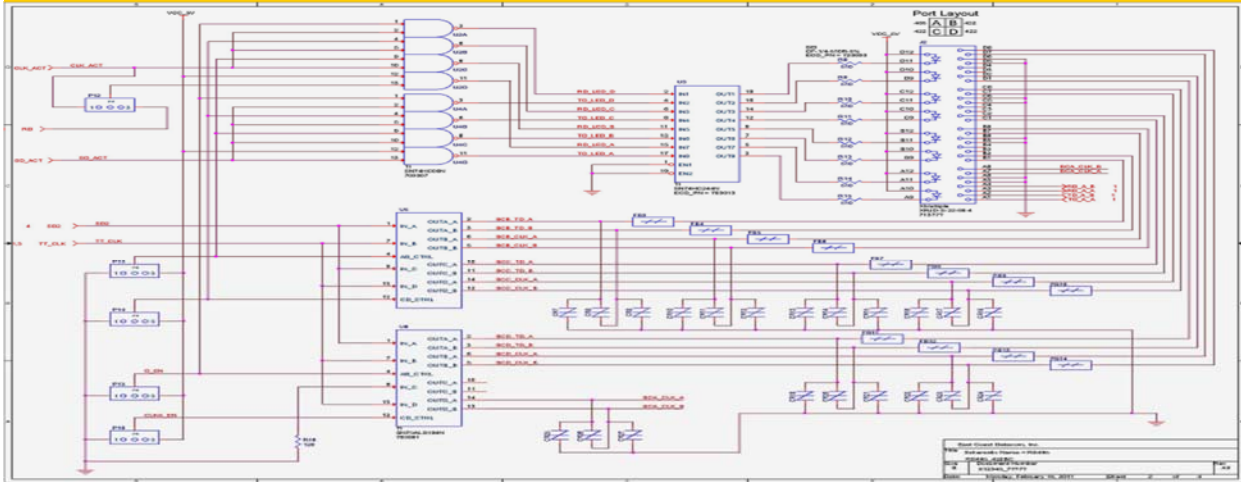
ORDERING INFORMATION / TECHNICAL HOT LINK

Part Number: Various
Model: See web site

PDF Data Sheet Location

https://www.ecdata.com/PDFs/UDC-RDS_low_speed.pdf
https://www.ecdata.com/PDFs/UDC-RDS_low_speed.pdf

CUSTOM DESIGN SOLUTIONS



FAST TURN DESIGNS AND MODIFICATIONS

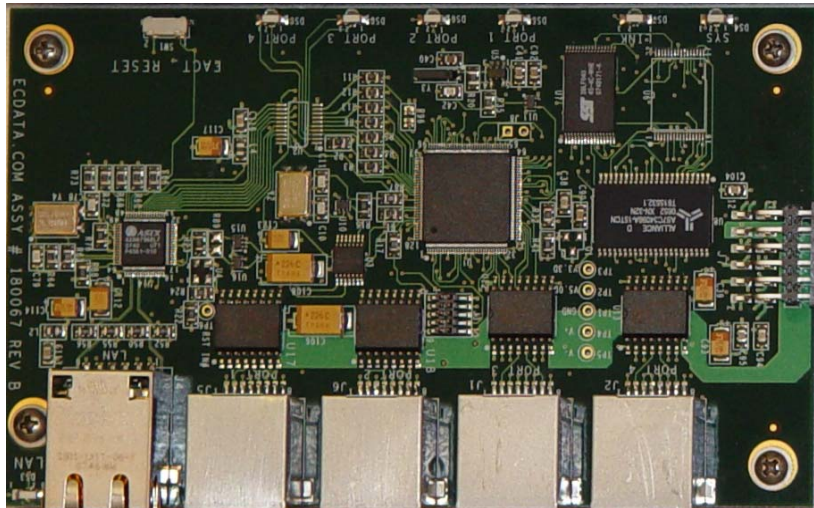
- Custom Design Solutions
- Changes to Existing Designs
- 6-8 weeks for most designs
- Little to No R&D Costs Up-front with production QTY's
- Create your own product
- Cost Reduce an Existing Product
- Designed to International Standards
- We will meet UL, CSA, CE, FCC, RoHS Standards

East Coast Datacom understands your need to keep budgetary costs down. You need a custom design solution and you need it fast !

We can help you, just as we have with our many customers.

Our motto is, "The Customer Creates the Product"

For over 25 years East Coast Datacom, Inc has been solving many unique data communication problems. Simply email us your product request and we will respond back to you within 24 hours.



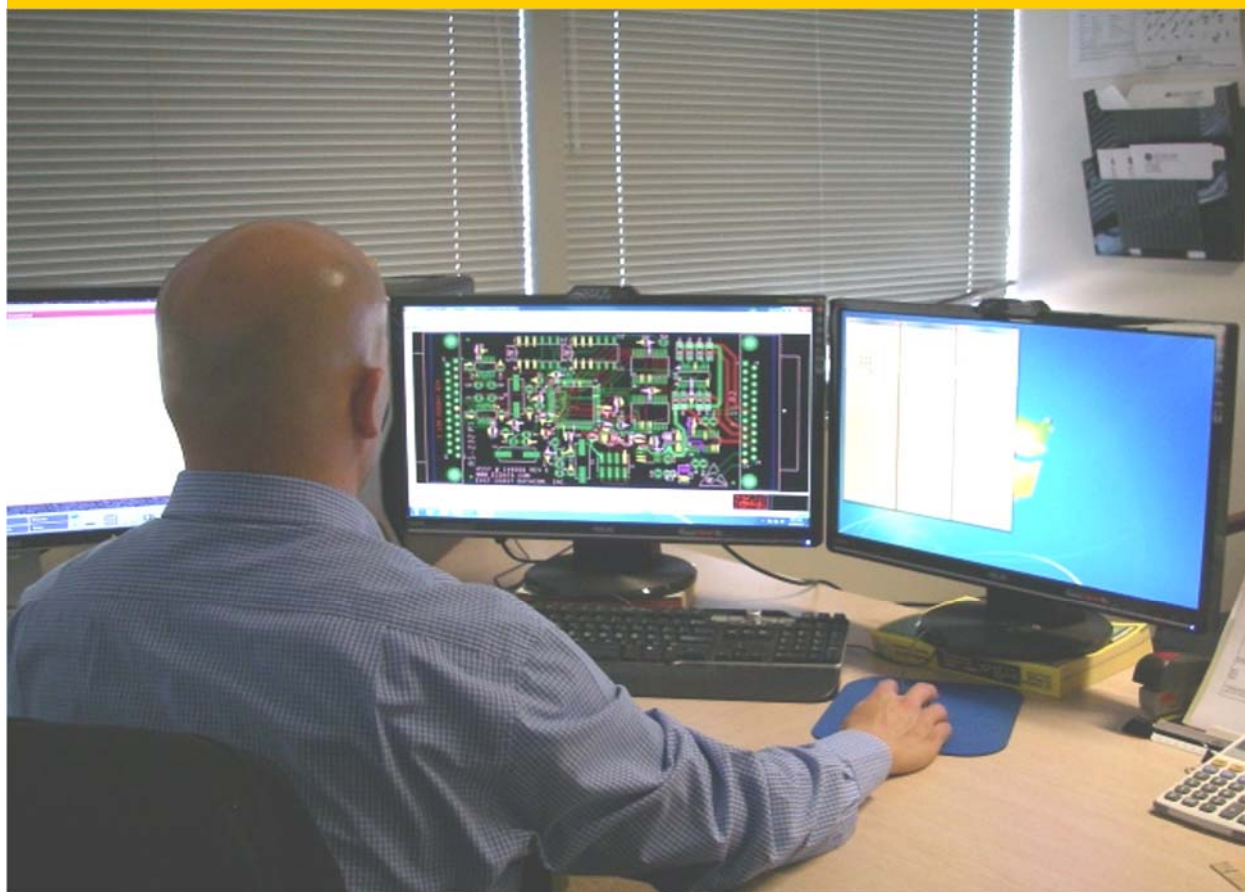
CONTACT INFORMATION / TECHNICAL HOT LINK

<https://www.ecdata.com>

Tel: (321) 637-9922

Email: info@ecdata.com

Designed & Produced to IPC Standards



ISO 9001/2008 & Lead Free RoHS Compliant



EAST COAST

DATA COM, INC.

—Product Comparison Chart —

NETWORK LATENCY EMULATORS

Main Features	WanRaptor™/PDS	BGP-EDS	RDS-PLUS	UDC-RDS
Latency Set Per Port	0 - 8 sec	0 - 10 sec	0 - 4 sec	0 - 1 sec
Delay Units	Microseconds	Milliseconds	Milliseconds	Milliseconds
Emulation Data Rates	300bps - 40Gbps	300bps - 10GbE	1.2k - 52M	300bps - 3.072Mbps
Emulation Capacity	8 Ports, 4 Pairs	8/16 Ports, Routed	2 Ports, 1 Pair	2 Ports, 1 Pair
Interface	Copper/Fiber	Copper/Fiber	Serial/Telco	Serial
Data Format	UDP / TCP IP, ect	UDP / TCP IP, ect	Sync / Async	Sync
Error Insertion	✗	✗	✓ - Full BERT	✗
Jitter	✓	✓	N/A	N/A
Loss	✓	✓	✓	✗
Re-Ordering	✓	✓	N/A	N/A
Changes-On-The-Fly	✓	✓	✓	✓
Duplication	✓	✓	N/A	N/A
Data Corruption	✓	✗	N/A	N/A
Decimal Input	✓	✓	N/A	N/A
Auto Profile Scheduler	✗	✓	✗	✗
Data Logger	✓	✓	✗	✗
Config Port(s)	10/100/1000	10/100	10/100 or Serial	Dip Switches
Full Command Line	✗	✗	✓	✗
GUI Support	✓	✓	✓	✗
Multiple Users	✗	✓	✗	✗
Jumbo Frames	✓	✓	N/A	N/A
Clock Source	N/A	N/A	Int/Ext	Internal
Main Features	WanRaptor™/PDS	BGP-EDS	RDS-PLUS	UDC-RDS
10/100/1000	✓	✓	✗	✗
1/10/25/40GbE	✓	✗	✗	✗
RS-232, V.35	✗	✗	✓	✓
RS-530, RS-422, X.21	✗	✗	✓	✓
HSSI	✗	✗	✓	✗
EIA-644 LVDS	✗	✗	✓	✗
T-1, E-1, DS-3, E-3	✗	✗	✓	✗
STS-1	✗	✗	✓	✗