EAST COAST DATA COM, INC

- Products for Global Networks -
# Table of Contents

Capabilities ...........................................................................Page 3

WAN Delay Emulators........................................Pages 4-9

IP Traffic Generators................................................Page 10

Custom Design Solutions ......................................Page 11-13

Product Comparison Chart .........................Page 14
OUR CAPABILITIES

East Coast Datacom, Inc. (ECD) is committed to our customers' needs for a quality product. We design to all common commercial design standards. We utilize the latest development tools including OrCAD, Allegro, AutoCAD and a custom written database management system documentation control and inventory management. All designs are to IPC standards and manufactured using ISO 9001/2008 standards.
**NETWORK DELAY EMULATORS**

**WanRaptor™ Network Emulator**
Emulates Bandwidth, Latency, Loss and Re-Ordering

- **COTS Hardware** Allows easy expansion of I/O Ports
- Precise Delay Emulation
- Embedded Design No Software to Install
- 3 Models to Choose From
- 10/100/1000, 10G, 25G or 40G WAN Delay Emulation
- Copper or Fiber Interfaces
- Bridge or Route
- Supports Changes On-The-Fly
- HTTP or HTTPS GUI
- 5 Year Warranty

The new **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 a COTS hardware system with embedded software supporting network emulation on 10/100/1000, 10G, 25G and 40G optional interfaces. The product has an easy to use GUI interface and allows changes On-The-Fly for real time test and result monitoring. Competing products require expensive hardware upgrades or confusing bandwidth license upgrades to support different media types. The **WanRaptor™** overcomes those drawbacks in a very economical desktop or rackmount enclosure.

- 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 small desktop / portable model, 1U or 2U 6-Slot model that houses multiple LAN interfaces which can be rack mounted. It is powered by an integrated 90-240V 50/60Hz power supply. The **WanRaptor™** has a 5-year warranty.

**ORDERING INFORMATION / TECHNICAL HOT LINK**

<table>
<thead>
<tr>
<th>Part Number: 210000</th>
<th>Model: WanRaptor™</th>
</tr>
</thead>
</table>

**WHITE PAPER HOT LINK**

**http://www.ecdata.com** | **Tel: (321) 637-9922** | **Email: info@ecdata.com**
-New- WanRaptor™ Network Emulator Full Usage

WanRaptor™ Network Emulator Supports all Media Types up to 40GbE

Don’t get locked into a Fixed Media Type & Bandwidth
Allows Decimal Inputs
Such As: 0.15, 2.75, 25.5
50µs Accuracy
Border Gateway Protocol (BGP) WAN Delay Simulator

- **Interface:** 1G or 10G
- **4 or 8 Ports Supported**
- **Supports BGP Routing Dynamically, Embedded BGP Quagga Router**
- **Precise Delay Emulation**
- **Creates History Log Files**
- **Multi-User Support**
- **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 a product 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.

**PRODUCT PRESENTATION WEB ADDRESS**

**ORDERING INFORMATION / TECHNICAL HOT LINK**

<table>
<thead>
<tr>
<th>Part Number: 232000</th>
<th>Model: BGP-EDS, 8-Ports</th>
</tr>
</thead>
</table>

[http://www.ecdata.com](http://www.ecdata.com)  Tel: (321) 637-9922  Email: info@ecdata.com
The RDS-PLUS is the best Serial Data and TELCO delay simulator on the market with an exceptional price. 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 LVDS, RS-232, RS-422, RS-530, V.35, X.21, DS1/E1, TTL, HSSI, DS3, E3, or STS-1.

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 optional GUI 10/100 LAN module. The user has no software to load as all configuration data is within the RDS+.

**RDS-PLUS supports Serial Data & Telco *NEW LVDS***

- **Serial & Telco Interfaces**
- **1.2k to 51.85Mbps Rates**
- **Precise Delay Emulation**
- **No Software to Load**
- **Easy to use GUI or Serial**
- **Bi-Directional Buffers**
- **0 to 4 Seconds of Delay**
- **Burst Error Insertion**
- **511 BERT Generator**
- **Status LED’s Each Port**
- **3 Year Warranty & Support**
- **NEW EIA-644 LVDS cards**

**ORDERING INFORMATION / TECHNICAL HOT LINK**

**Part Number:** 175000  
**Model:** RDS-PLUS  
**PDF Data Sheet Location:** [http://www.ecdata.com/PDFs/rds+.pdf](http://www.ecdata.com/PDFs/rds+.pdf)

[http://www.ecdata.com](http://www.ecdata.com)  
Tel: (321) 637-9922  
Email: info@ecdata.com
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
Stateful Traffic Generator®, STG-10G

STG-1G & STG-10 APPLICATION BLOCK DIAGRAMS:
1G to 10GbE IP Traffic Generator & IP Packet Checker

Supports 1GbE & 10GbE Rates

- 8-Ports 10/100/1000
- 2-Ports 10GbE, Up to 20GbE of Aggregate Traffic
- IP Stateful Traffic Generation with real time Reports
- Emulation of Network Traffic to test device capabilities or QoS
- Network Monitoring, Analysis and Performance Test
- Reproduce traffic traces stored in PCAP files with Real Time Statistics
- Line Rate results for Half the Cost of FPGA Systems
- Embedded Easy to use GUI

The Stateful Traffic Generator® model STG-10G is based on the well known traffic generation engine D-ITG™. The STG-10G is composed of a Graphical User Interface (GUI) that wraps the D-ITG™ engine, INTEL® DPK Fast Packet Technology and other test tools. The STG-10G is capable of producing IPv4 and IPv6 traffic by accurately replicating the workload of current Internet or typical user applications. The platform supports 8-Ports 10/100/1000 and 2-Ports of 10GbE traffic generation managed via the easy to use GUI.

At the heart of the STG-10G is a powerful software design optimized for IP Stateful Traffic Generation running on Linux. The software is integrated with the INTEL® Data Plane Development kit openly known as DPDK for fast packet processing. The DPDK kit allows Line Rate performance even for tiny 64byte packets.

Supports UDP, TCP, ICMP, DCCP, SCTP and DNS, Telnet, VoIP (G.711.1, G.711.2, G.723.1, G.729.2, G.729.3)CSa, CSi and Quake3

The unit can operate in three different modes:
- single flow mode: a single traffic flow is generated
- multi flow mode: multiple flows are generated, even towards different STG-10G instances;
- Packet Checker: a single traffic flow is generated & Received

ORDERING INFORMATION / TECHNICAL HOT LINK

Part Number: 218000
Model: STG-10G, 4-Core, 8 Threads
PDF Product Presentation Location
http://www.ecdata.com/PDFs/STG-10G.pdf

http://www.ecdata.com       Tel: (321) 637-9922     Email: info@ecdata.com
SOFTWARE DESIGN SOLUTIONS

Software Systems services include:

- Boot code development
- Development of Board Support Packages and Device Drivers for various reference designs Firmware
- RTOS - VxWorks, pSOS, WinCE, Embedded Linux, QNX, Thread-X, Nucleus
- Logical and physical drivers supporting various layers of protocol stacks for embedded applications
- Feature enhancements for existing systems
- Design and interoperability testing, test automation for existing platforms
- Enhancement of BSP software for specific boards
- Customized API development for specific customer needs
- Development and Porting of Protocols stacks
- Development of Wired and Wireless Stacks
- Embedded Software Development
- Porting Protocol Stacks
  - Windows (CE, 2K, NT) to Linux
  - Linux to Window (CE, 2K, NT)
- Porting Codecs
  - C Code porting onto specific DSP
  - C Code porting onto specific DSP assembly code
  - Optimized (DSP) C code to DSP assembly code
- Porting of Applications onto different operating systems
- Technology Expertise
  - .Net platform
  - C, C++, C#
  - JAVA/J2EE
- Windows CE
- SQL and DataBase Management
- Application Domain Expertise
- Enterprise Software
- Tool Development
- Industrial Automation
- Media and entertainment
- Media Development (SDK)
- Product Management Software
- Front ends for Embedded platforms
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. But you need a custom design solution and you need it fast!

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

Our motto is, “The Customer Creates the Product”

For over 21 years East Coast Datacom, Inc has been solving many unique data communication problems. Simply email us your product request and we will respond pack to you within 24 hours.

CONTACT INFORMATION / TECHNICAL HOT LINK

http://www.ecdata.com      Tel: (321) 637-9922      Email: info@ecdata.com
Designed & Produced to IPC Standards

ISO 9001/2008 & Lead Free RoHS Compliant

http://www.ecdata.com   Tel: (321) 637-9922   Email: info@ecdata.com
### PRODUCT COMPARISON CHART

<table>
<thead>
<tr>
<th>Main Features</th>
<th>WanRaptor™</th>
<th>BGP-EDS</th>
<th>RDS-PLUS</th>
<th>UDC-RDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latency Set Per Port</td>
<td>0 - 8 sec</td>
<td>0 - 10 sec</td>
<td>0 - 4 sec</td>
<td>0 - 1 sec</td>
</tr>
<tr>
<td>Delay Units</td>
<td>Microseconds</td>
<td>Milliseconds</td>
<td>Milliseconds</td>
<td>Milliseconds</td>
</tr>
<tr>
<td>Emulation Data Rates</td>
<td>300bps - 40Gbps</td>
<td>300bps - 10GbE</td>
<td>1.2k - 52M</td>
<td>300bps - 3.072Mbps</td>
</tr>
<tr>
<td>Emulation Capacity</td>
<td>8 Ports, 4 Pairs</td>
<td>8/16 Ports, Routed</td>
<td>2 Ports, 1 Pair</td>
<td>2 Ports, 1 Pair</td>
</tr>
<tr>
<td>Interface</td>
<td>Copper/Fiber</td>
<td>Copper/Fiber</td>
<td>Serial/Telco</td>
<td>Serial</td>
</tr>
<tr>
<td>Data Format</td>
<td>UDP / TCP IP, ect</td>
<td>UDP / TCP IP, ect</td>
<td>Sync / Async</td>
<td>Serial</td>
</tr>
<tr>
<td>Error Insertion</td>
<td>x</td>
<td>x</td>
<td>v - Full BERT</td>
<td>x</td>
</tr>
<tr>
<td>Jitter</td>
<td>v</td>
<td>v</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Loss</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>x</td>
</tr>
<tr>
<td>Re-Ordering</td>
<td>v</td>
<td>v</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Changes-On-The-Fly</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>Duplication</td>
<td>v</td>
<td>v</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Data Corruption</td>
<td>v</td>
<td>x</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Decimal Input</td>
<td>v</td>
<td>v</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Auto Profile Scheduler</td>
<td>x</td>
<td>v</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Data Logger</td>
<td>v</td>
<td>v</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Config Port(s)</td>
<td>10/100/1000</td>
<td>10/100</td>
<td>10/100 or Serial</td>
<td>Dip Switches</td>
</tr>
<tr>
<td>Full Command Line</td>
<td>x</td>
<td>x</td>
<td>v</td>
<td>x</td>
</tr>
<tr>
<td>GUI Support</td>
<td>v</td>
<td>v</td>
<td>v</td>
<td>x</td>
</tr>
<tr>
<td>Multiple Users</td>
<td>x</td>
<td>v</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Jumbo Frames</td>
<td>v</td>
<td>v</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Clock Source</td>
<td>N/A</td>
<td>N/A</td>
<td>Int/Ext</td>
<td>Internal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Interfaces</th>
<th>EDS-10G</th>
<th>EDS-1G</th>
<th>EDS-1G</th>
<th>BGP-EDS</th>
<th>RDS-PLUS</th>
<th>UDC-RDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/100/1000</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>1/10/25/40GbE</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>RS-232, V.35</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>RS-530, RS-422, X.21</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>HSSI</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>EIA-644 LVDS</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>T-1, E-1, DS-3, E-3</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>STS-1</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>