RS 1000 Flexible Metro Access Router

KEY APPLICATIONS

- Extending traffic services to the Tier 1 and Tier 2 metro access edge without the fixed configuration overhead
- Delivering services over copper and fiber infrastructures with optional interfaces – Gigabit Ethernet, Fast Ethernet, T1/E1, and T3/E3
- Seamless migration from TDM infrastructure to optical services
- Enabling per customer, per application service delivery and accounting visibility

PRODUCT OVERVIEW

The RS 1000 is a flexible metro access router and is an extension to the RS 3000 platform. Service providers can customize the RS 1000 with interfaces to meet their deployment needs without the overhead of fixed ports in the base platform. It extends service delivery to the small- and medium-sized metro access edge, enabling service providers to convert metropolitan area bandwidth into profitable services and to deliver these services across a variety of networks. Featuring optimized MPLS for the Metropolitan Area Network, full-function routing and switching, hardware-based control and accountability, multi-layer prioritization, filtering, and Quality of Service (QoS), the RS 1000 enables fine grained traffic classification and differentiated services on a per-customer, per-application basis.

The RS 1000 features two flexible media slots offering support for any transport – from Fast Ethernet, Gigabit Ethernet, to TDM T1/E1, and T3/E3. This flexibility allows service providers to leverage existing TDM infrastructure and migrate seamlessly to high-speed networking quickly and without disrupting service delivery.

CUSTOMER CHALLENGES & RS 1000 SOLUTIONS

Challenge	Solution
Rapidly establish new services over optical or legacy TDM infrastructure	Full complement of WAN interfaces from T1/E1/T3/E3 to 70km Gigabit Ethernet combined with full function routing and switching
Establishing profitable tiered services without compromising performance	Implementing hardware-based traffic classification and accounting, including rate limiting and advanced Quality of Service
Rapidly changing customer demands create a need for new services and configurations – without costly truck rolls	Open APIs enable dynamic provisioning while MPLS enables rapid service creation from the metropolitan area through the Internet core
Initiating value-added services while delivering security and flexible addressing	Wire-speed security filters and hardware based Network Address Translation (NAT) offers user, address, application, and port-level security. MPLS tunnels and extended metro area VLANs provide traffic segregation

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PRODUCT SPECIFICATIONS

RS 1000 Flexible Metro Access Router

Ordering Information

Part No.	Product Description
G10-B128	RS 1000 base unit with two expansion slots. Includes single AC power supplies and RS RapidOS software
G10-B128-DC	RS 1000 base unit with two expansion slots. Includes single DC power supplies and RS RapidOS software.
G3M-GSXB1-02	2-Port 1000 Base-SX module via SC connectors with 16 MB memory
G3M-GLXB9-02	2-Port 1000 Base-LX module via SC connector with 16 MB memory
G3M-HTXB2-16	16-Port 10/100 Base-TX module via Cat 5 RJ-45 with 16 MB memory
G2M-DE1BM-04	Multi-rate WAN module (Requires WICs)
WICT1-12	2-port DS1 WIC
WICE1-12	2-port E1 WIC
WICT3-1B	1-port clear channel DS3 WIC
WICE3-1B	1-port clear channel E3 WIC

For complete ordering information, including specific modules, contact your Riverstone representative at **(408) 878-6500**. You may also visit our Website at **www.riverstonenet.com**.

Platform Features

Feature-rich Wire-speed Services
- Hardware Rate Limiting
- Local Hardware Routing Table
- VLANs based on port or protocol
- IP routing, unicast, and multicast
- Security (ACLs, L2 filters)
- Layer 4 application-flow switching and QoS
- Network Address Translation (NAT)
- Server Load Balancing (LSNAT)
- Hardware-based WAN compression and encryption

Highly Fault Tolerant
- Standards-based VRRP

Extensive Management
- Wire-speed full RMON/RMON2
- SNMP manageable
- Telnet client
- RS-232 (out-of-band management)
- Command Line Interface (CLI)

Interfaces

10/100 Base-TX
100 Base-FX
1000 Base-SX
1000 Base-LX
1000 Base-TX
1000 Base-LH (70Km)
Serial T1/E1, T3/E3

Specifications

Capacity and Performance
Up to 4,096 VLANs
Up to 256,000 routes
Up to 20,000 security/access control filters
Up to 512,000 Layer 4 application flows
Up to 256,000 Layer 2 MAC addresses
6.0 Gbps non-blocking switching fabric
4.6 million packets per second routing throughput
MTBF (predicted) > 200,000 hours

Physical

Dimensions:	2.8" H x 17" W x 18.5" D (7.1cm x 43.2cm x 47cm)
Weight:	20 lbs. (9.1kg)

Environmental Specifications

Operating Temp:	+0° to +40°C (32° to 104°F)
Non-operating Temp:	-40° to +70°C (-40° to 158°F)
Operating Relative Humidity:	10 to 90% (non-condensing)
Non-operating Relative Humidity:	5% to 95% maximum (non-condensing)
Altitude, Operating & Non-operating:	10,000 ft (3,000 m) maximum
Shock & Vibration:	GR63

Power Requirements

AC Power	
Input Voltage:	100 to 240 VAC
Input Current:	3.0 A; 1.5 A
Frequency:	50 to 60 Hz
DC Power	
Input Voltage:	-48 to -60 VDC
Input Current:	8 A

Agency Standards and Specifications

Safety:	Certified UL1950, CSA C22.2 No. 950, EN60950, IEC950, and 72/73/EEC
Electromagnetic Compatibility:	Compliant with the requirements of FCC Part 15, CSA C108.8, EN55022, VCCI, EN50082-1, and 89/336/EEC

Standards Supported

IETF Standards Support

RFC No.	Title
RFC 768	UDP
RFC 783	TFTP
RFC 791	IP
RFC 792	ICMP
RFC 793	TCP
RFC 826	ARP
RFC 854	Telnet
RFC 951	BootP
RFC 1058	RIP v1
RFC 1075	DVMRP
RFC 1112	IGMP
RFC 1157	SNMPv1
RFC 1256	ICMP Router Discover Message
RFC 1265	BGP Protocol Analysis
RFC 1266	Experience with the BGP Protocol
RFC 1267	BGP-3
RFC 1293	Inverse ARP
RFC 1332	PPP IPCP
RFC 1349	Type of service in the Internet Protocol suite
RFC 1397	BGP Default Route Advertisement
RFC 1483	Multi-protocol encapsulation over AAL5
RFC 1490	Multi-protocol over Frame Relay
RFC 1519	CIDR
RFC 1542	BootP
RFC 1552	PPP IPXCP
RFC 1570	PPP LCP extensions
RFC 1583	OSPF v2
RFC 1631	IP NAT
RFC 1638	PPP BCP
RFC 1656	BGP-4 implementation
RFC 1657	BGP-4 Definitions of Managed Objects
RFC 1661	PPP
RFC 1662	PPP in HDLC-like framing
RFC 1723	RIP v2
RFC 1771	BGP-4
RFC 1772	Application of BGP in the Internet
RFC 1812	Router requirements
RFC 1966	BGP Route Reflection
RFC 1990	PPP MLP
RFC 1997	BGP communities attribute
RFC 2096	IP Forwarding MIB
RFC 2131	DHCP
RFC 2178	OSPF
RFC 2225	Classical IP and ARP over ATM
RFC 2236	IGMP-2
RFC 2338	VRRP
RFC 2362	PIM-SM
RFC 2391	LSNAT

IETF Standards MIB Support

RFC No.	Title
RFC 1471	PPP-LCP-MIB
RFC 1472	PPP-Sec-MIB
RFC 1473	PPP-IP-NCP-MIB
RFC 1474	PPP-Bridge-NCP-MIB
RFC 1493	Bridge-MIB
RFC 1595	SONET-MIB
RFC 1643	Ethernet-like Interface MIB
RFC 1654	BGP-4 MIB
RFC 1657	BGP4-MIB
RFC 1695	ATM-MIB
RFC 1724	RIPv2-MIB
RFC 1757	RMON-MIB
RFC 1850	OSPF-MIB
RFC 1907	SNMPv2-MIB
RFC 2011	IP-MIB
RFC 2012	UDP-MIB
RFC 2013	TCP-MIB
RFC 2021	RMON2-MIB
RFC 2096	IP-Forward-MIB
RFC 2115	Frame-Relay-MIB
RFC 2233	IF-MIB
RFC 2271	SNMP management frameworks
RFC 2358	EtherLike-MIB
RFC 2495	DS1-MIB
RFC 2496	DS3-MIB
RFC 2618	Radius-Auth-Client-MIB
RFC 2668	Mau-MIB
RFC 2674	P-Bridge-MIB, Q-Bridge-MIB
RFC 2787	VRRP-MIB

Standards and Protocols

IP Routing:	RIPv1/v2, OSPF, BGP-4
Multicast Support:	IGMP, DVMRP, PIM-DM, PIM-SM
QoS:	Application level, RSVP

IEEE 802.1D
IEEE 802.1p
IEEE 802.1Q
IEEE 802.3
IEEE 802.3u
IEEE 802.3x
IEEE 802.3z

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