

Overview

Riverstone Network's Multirate WAN modules enhance the versatile connectivity of the RS platform for high-density Metro Network deployments. The Multirate WAN modules allow Metro Service Providers to quickly deploy bandwidth for their customers using DS1, DS3, E1, or E3 circuits. With the addition of the Multirate WAN modules, service providers can extend the advanced traffic shaping, accounting, and security services on the RS platform to the WAN.

Riverstone Networks' Multirate WAN module supports WAN Interface Cards (WICs) of different speeds: DS1, DS3, E1, and E3. It extends the application-aware switch routing benefits of the RS 2000 to the WAN. The module supports PPP, MLPPP, and Frame Relay. Detailed accounting information can be gathered using per-PVC wire-speed RMON, enabling confirmation of committed information rates (CIRs).

The RS product family is the only wire-speed Layer 2, 3, and 4 switch router product line proven to maintain throughput with features enabled. By implementing all features in hardware, the Riverstone architecture enhances network performance compared with software-based routers. Additionally, congestion control is achieved across the WAN through flow rate limiting together with Weighted Random Early Discard (WRED) and Weighted Fair Queuing (WFQ). Prioritization policies can be extended from WAN to LAN environments enabling resource allocation to specific groups of users or application flows.

**Multirate
WAN Module:
RS 2000
Switch Routers**

Features

- Two plug-in slots for WAN Interface Cards (WICs)
- Supports four ports DS1 with two WICs (each WIC supports two DS1) in release 6.2
- Release 6.3.1 (Nov/Dec) supports E1 WIC
- Clear channel DS3 and E3 WICs will be supported in Feb, 2001
- Loopback and diagnostic support
- Support FR, PPP, MLPPP
- nxDS1 and nxE1 bundling support with MLPPP
- Cisco HDLC
- 802.1Q VLAN
- Weighted Fair Queuing
- Weighted Random Early Discard
- QoS
- Internal CSU/DSU
- Hot swap

**Key
Applications**

- Provide a powerful and scalable access solution for the remote with DS1 or E1 WAN up-link
- Provide a powerful aggregation solution with channelized DS3 at the hub
- MLPPP nxT1 bundling feature increases backbone access speed
- High speed connection with clear channel DS3 or E3
- Rapid deployment of WAN infrastructure by leveraging existing telco-leased line service
- Flexible connectivity to minimize subscriber churn
- Extends the benefits of wire-speed Layer 4 application-aware switch routing to the WAN
- Maximize revenue by provisioning WAN bandwidth into fixed increments for billing based on usage
- Integrate SLA billing and monitoring packages with real-time port-level flow accounting and full RMON statistics



Multirate WAN Module: RS 2000 Switch Router

Technical Specifications

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Module Specifications

MTBF (predicted):	>200,000 hours
WIC plug-in slots:	2
Dimensions:	7.5" x 11" (19.05 cm x 27.94 cm)
Weight:	1.8 lb. (0.8 Kg)

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 and non-operating:	10,000 ft (3,000 m) maximum
Shock and Vibration:	GR63
Regulatory:	FCC part 68

Agency Standards and Specifications

Safety:	Certified 1950, CSA C22.2 No. 950, EN60950, IEC950, and 72/73/EEC, FCC part 68
Electromagnetic Compatibility:	Compliant with the requirements of FCC Part 15, CSA C108.8, EN55022, VCCI, EN50082-1, and 89/336/EEC

WAN Interface Card (WIC) Specifications

	DS1	E1	DS3	E3
Standards	ANSI T1.403 G.703, G.704	G.703, G.704, G.732	ANSI T1.404 G.703, G.704	G.703, G.751
No. of Port	2 per WIC	2 per WIC	1 per WIC	1 per WIC
Connector	RJ 48c	RJ 48c	BNC	BNC
Framing	SF/ESF	G.704	M13/C-bit	G.704
Line code	AMI/B8ZS	HDB3, AMI	B3ZS	HDB3
Channelization support	Yes	Yes	No	No
Timing	Loop timed, internal timed	Loop timed, internal timed	N/A	N/A
Fractional support	Fractional T1	Fractional E1	No	No

Ordering Information

IETF Standards Support

RFC No.	Title
RFC 1332	PPP Internet Protocol Control Protocol (IPCP)
RFC 1471	Managed objects for the LCP of PPP
RFC 1473	Managed objects for the IP NCP of PPP
RFC 1490	Multiprotocol interconnect over Frame Relay
RFC 1548	The Point-to-Point Protocol (PPP)
RFC 1552	The PPP Internetwork Packet Exchange Control Protocol (IPXCP)
RFC 1570	PPP LCP extensions
RFC 1638	PPP Bridging Control Protocol (BCP)
RFC 1661	PPP
RFC 1662	PPP in HDLC-like framing
RFC 1990	PPP Multi-Link Protocol

Part No.

Product Description

G2M-DE1BM-04	Multirate WAN module
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 .	



Modules are specifically for the RS 2000 chassis



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