

## Overview

Metropolitan Service Providers (MSPs) must be able to move quickly to capture customers and provide IP-based services in the new Metro Business Internet. Versatile connectivity and comprehensive traffic shaping enable MSPs to rapidly light up metro buildings and convert raw optical and electrical bandwidth into profitable services.

Riverstone Networks' next-generation Gigabit Ethernet modules for the RS 3000 Optical Metro Access Router provide two 1000 Base-SX or 1000 Base-LX ports using SC optical fiber connectors. They enable MSPs to deliver highly differentiated services directly to the metro access edge using a combination of advanced traffic engineering features such as hardware-based rate limiting, traffic prioritization and filtering, hardware-based accounting, policy-based routing, server-load balancing, and MPLS traffic grooming.

## 2-Port Gigabit Ethernet SX and LX Modules: RS 3000 Chassis

### Features

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- Hardware Rate Limiting (HRL) by port or aggregate flow allowing pinpoint bandwidth control and dynamic bandwidth provisioning
- Jumbo Frame and hardware fragmentation support for up to 64,000 byte packets to increase data throughput for bulk content providers and media streamers
- Local Hardware Route Table (LHRT) supporting more than 200,000 routes on each module to speed up the connection set-up time for remote subscribers
- Advanced wire-speed features including Network Address Translation (NAT) and Server Load Balancing (SLB) on every port to optimize server usage and implement highly reliable hosting and e-commerce services
- Weighted Fair Queuing (WFQ) and Weighted Random Early Discard (WRED) support to ensure that Service Level Agreements (SLAs) based on QoS policies can be offered and guaranteed
- Multi-Protocol Label Switching (MPLS) at the metro access edge to allow traffic to be identified and forwarded according to the appropriate routing policies

## Key Applications

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- Delivery of high-bandwidth variable-rate services to metro building tenants and data centers
  - Rapid deployment of transparent LAN services over new or installed fiber
  - Provisioning of billable IP services based on bandwidth or application usage
  - Integration with standard OSS/BSS applications for improved accuracy and granularity of real-time monitoring and billing



# 2-Port Gigabit Ethernet SX and LX Modules: RS 3000 Chassis

## Technical Specifications

### Technical Specifications

Module Specifications		Power Requirements		Operating range:	Fiber type:	Modal bandwidth @ 850 nm:	Range:
Switch/routing engine:	RapidPath™ ASIC Route Engine	AC Power	Input voltage: 100-240 VAC		62.5 mm fiber	160 MHz/km	2 to 220 m
Buffer memory:	16 MB per port	Input current:	3.0 to 1.5 A		62.5 mm fiber	200 MHz/km	2 to 275 m
Layer 2 address table size:	512,000 entries	Frequency:	50 to 60 Hz		50 mm fiber	400 MHz/km	2 to 500 m
Layer 3, 4 table memory:	16 MB	DC Power	Input voltage: -48 to -60 VDC		50 mm fiber	500 MHz/km	2 to 550 m
Layer 3, 4 table size:	256,000 entries	Input current:	8.0 A	<b>Fiber type for 1000 Base-LX:</b>	<b>62.5 mm MMF</b>	<b>50 mm MMF</b>	<b>10 mm SMF</b>
Route table memory size:	Local route table on each module supports more than 200,000 routes	<b>Agency Standards and Specifications</b>		Transmit power (minimum):	-11.5 dBm	-11.5 dBm	-11.0 dBm
QoS support:	WFO, WRED, and per-port/subnet/flow rate limiting	Safety:	Certified UL1950, CSA C22.2 No. 950, EN60950, IEC950, and 72/73/EEC	Receive sensitivity:	-19 dBm	-19 dBm	-19 dBm
MTBF (predicted):	>200,000 hours	Electromagnetic compatibility:	Compliant with the requirements of FCC Part 15, CSA C108.8, EN55022, VCCI, EN50082-1, and 89/336/EEC	Link power budget:	7.5 dB	7.5 dB	8.0 dB
In-band management:	Remote SNMP and Telnet	<b>Interface Specifications</b>		<b>Operating range:</b>	<b>Fiber type:</b>	<b>Modal bandwidth @ 1300 nm:</b>	<b>Range:</b>
		Interface specifications:	2-Port 1000 Base SX with SC connectors	62.5 mm Fiber	500 MHz/km	500 MHz/km	2 to 550 m
		<b>Fiber type for 1000 Base-SX:</b>		50 mm Fiber	400 MHz/km	400 MHz/km	2 to 550 m
		Transmit power (minimum):	-9.5 dBm -9.5 dBm	50 mm Fiber	500 MHz/km	500 MHz/km	2 to 550 m
		Receive sensitivity:	-17 dBm -17 dBm	10 mm Fiber	N/A	N/A	2 to 5000 m
		Link power budget:	7.5 dB 7.5 dB	<b>Ordering Information</b>			
				<b>Part No.</b>	<b>Product Description</b>		
				G3M-GSXB1-02	2-Port Gigabit Ethernet SX Switch Router module with Hardware Rate Limiting and Jumbo Frame support		
				G3M-GLXB9-02	2-Port Gigabit Ethernet LX Switch Router module with Hardware Rate Limiting and Jumbo Frame support		

### Ordering Information

For complete ordering information, including specific modules, contact your Riverstone representative at (408) 878-6500 or visit our Website at [www.riverstonenet.com](http://www.riverstonenet.com).



Module is specifically for the RS 3000 chassis



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