

# E6000<sup>®</sup> Converged Edge Router

## Router System Module 2 (RSM-2)



## PRODUCT OVERVIEW

The E6000<sup>®</sup> Converged Edge Router (CER) is a next-generation Converged Cable Access Platform (CCAP<sup>™</sup>) that provides cable operators unprecedented advances in channel density, power efficiency, and cost savings in a redundant, integrated architecture designed from the ground up for high availability. This powerful design enables operators to converge all services (video, high speed data, and voice) on a single physical connector, enabling additional savings in capital and operational expenditures along with increased operational efficiency. The Router System Module 2 (RSM-2) is an integral component of the second generation (known as “Gen 2”) set of line cards for the E6000 CER; the Gen 2 modules have been created to deliver additional service group density and greater throughput per service group. Specifically, the RSM-2 enables mass deployment of DOCSIS<sup>®</sup> 3.1 by providing two critical enhancements. First, RSM-2 increases the internal link switching speed within the chassis to 80 Gbps full duplex for each client card slot. This enables the E6000 system to switch greater throughput levels from ingress to egress while maintaining low latency. Second, the RSM-2 / RPIC-2Q combination provides a total of 400 Gbps of Network Side Interface (NSI) uplink capacity, greatly increasing the uplink bandwidth for both Integrated CCAP as well as Remote PHY applications. When operating with two RSM-2s in the same chassis, the active/active nature of forwarding (active/standby control plane) in the E6000 CER architecture enables as much as 800 Gbps of uplink capacity. The RSM-2 can be used to enable Remote PHY (R-PHY) operation on the E6000 CER with a future software upgrade.

Roadmap for future capabilities is subject to change.

The RSM-2 increases the internal link switching speed within the E6000 system by providing 80 Gbps full duplex to each client card slot. In addition, the RSM-2 / RPIC-2Q pair has a total of 400 Gbps of Ethernet NSI capacity, which doubles to 800 Gbps when deploying with two RSM-2s in a chassis. Deployment of the RSM-2 enables use of the DCAM-2. With these capabilities, the RSM-2 supports more service groups per chassis with more throughput in each service group. Operators receive significant benefits in terms of operational simplicity, cost savings, and competitive advantages by deploying the RSM-2. The RSM-2 is not compatible with the Gen 1 DCAM or the Gen 1 UCAM.



Roadmap for future capabilities is subject to change.

## SUMMARY OF RSM-2 FEATURES AND CAPABILITIES (PARTIAL LIST)

400 Gbps Total NSI Uplink Capacity Per RSM-2 / RPIC-2Q Pair

800 Gbps Total NSI Uplink Capacity per Chassis with Active-Active Forwarding and Two RSM-2s in the Chassis

Support for 100GigE Interfaces and for 10GigE Interfaces

80 Gbps Full Duplex Internal Link Switching Speed for each Client Card Slot

Dedicated Out-of-Band Management (OOB) Port on RPIC-2Q (100 Mbps or 1 Gbps)

Switching and Interconnectivity for Remote PHY Operation on the E6000 CER Acting as a CCAP Core (Future Software Upgrade)

## RSM-2 OPERATIONAL DIFFERENCES COMPARED TO RSM GEN 1

RSM-2 requires RPIC-2Q, does not operate with RPIC (Gen 1)

RSM-2/RPIC-2Q Has NSI Interfaces at Both Front and Rear of Chassis (with Gen 1 all NSI Fiber Jumpers Connected at the Front of Chassis)

Limited Support for 1GigE NSI Connections (Only Two Ports)

Out-of-Band (OOB) Management Port Operates at 100 Mbps or 1 Gbps Only (no Support for 10 Mbps)

No DTI Port on RPIC-2Q

Managing the E6000® CER is typically done via SNMP and/or CLI. The E6000 CER has multiple options available for IPDR, a useful tool for measuring bandwidth usage. Physical maintenance of the E6000 CER is very simple. Air filters, one in the front and another in the rear of the chassis, should be inspected and/or replaced per recommendations in the E6000 CER User Guide.

Roadmap for future capabilities is subject to change.

## SPECIFICATIONS

### Network-side Interface (NSI) Ports

Number of 100 Gigabit Ethernet Ports	Two (2) on RSM-2 front panel, one (1) on RPIC-2Q
100 Gigabit Ethernet Connector Type	QSFP-28
Number of 10 Gigabit Ethernet Ports	Two (2) on RSM-2 front panel, eight (8) on RPIC-2Q
10 Gigabit Ethernet Connector Type	SFP+
1 Gigabit Ethernet NSI Support	Via two (2) RSM-2 front panel 10 Gigabit Ethernet ports only
QSFP-28 Modules Supported	SR and LR (with Rel. 5.0 software)

### Physical

Power	-48 VDC
Power Consumption (W)	400 (typical at 25 °C)
Operating Temperature: Short Term °F (°C) Long Term °F (°C)	+23 to +131 (-5 to +55) +41 to +104 (+5 to +40)
Storage Temperature °F (°C)	-40 to +158 (-40 to +70)
Operating Humidity (Min.-Max.)	5 to 85% (Non condensing)
Dimensions (H x W x D) in. (cm)	13.8 x 1.2 x 17.8 (35.0 x 3.0 x 45.3)
Weight lbs. (kg)	Approx. 8.8 (4.0)

## SPECIFICATIONS

### Installation Environment (System Level)

Management Interfaces	100/1000 Mbps Ethernet (RJ-45) plus Console (serial port, RJ45)
NSI Connector Access	RSM-2 ports via front of chassis, RPIC-2Q ports via rear

### Management Access (System Level)

In-band Management with Access Control Lists via any NSI port
Out-of-Band Management via dedicated Ethernet port on RPIC-2Q
Console (serial) port on RPIC-2Q

## ORDERING CODES

Part Number	Description	Part Number	Description
1000508	Router System Module 2 (RSM-2)	1000509	Physical Interface Card for RSM-2 (RPIC-2Q)
1000536	GEN-2 Duplex Chassis Kit - Two RSM-2s, No CAMs	1000445	UCAM-2 (Must purchase PN 1000443 - 48 Upstream DOCSIS 3.0 licenses with this item)
1000537	GEN-2 Simplex Chassis Kit - One RSM-2, No CAMs	1000443	48 INITIAL US D3.0 UCAM-2 License Bundle - For Channels 1-48
1000506	DCAM-2 (Must purchase PN 1000488 - 128 DS DOCSIS 3.0 licenses with this item)	1000483	72 INITIAL US D3.0 UCAM-2 License Bundle - For Channels 1-72
1000488	128 INITIAL DS D3.0 DCAM-2 Annex A License Bundle - For Channels 1-128	1000458	96 INITIAL US D3.0 UCAM-2 License Bundle - For Channels 1-96
1000600	160 INITIAL DS D3.0 DCAM-2 Annex A License Bundle - For Channels 1-160	1000456	144 INITIAL US D3.0 UCAM-2 License Bundle - For Channels 1-144
1000489	192 INITIAL DS D3.0 DCAM-2 Annex A License Bundle - For Channels 1-192	1000457	192 INITIAL US D3.0 UCAM-2 License Bundle - For Channels 1-192
1000490	256 INITIAL DS D3.0 DCAM-2 Annex A License Bundle - For Channels 1-256	1000561	138 INITIAL US D3.0 UCAM-2 License Bundle - For Channels 1-138
1000493	128 INITIAL DS D3.0 DCAM-2 Annex B License Bundle - For Channels 1-128	1000515	24 US DOCSIS 3.0 SC-QAM License Bundle (UCAM-2 Only)
1000601	160 INITIAL DS D3.0 DCAM-2 Annex B License Bundle - For Channels 1-160	1000516	32 US DOCSIS 3.0 SC-QAM License Bundle (UCAM-2 Only)
1000494	192 INITIAL DS D3.0 DCAM-2 Annex B License Bundle - For Channels 1-192	1000444	48 US DOCSIS 3.0 SC-QAM License Bundle (UCAM-2 Only)
1000226	DOCSIS 3.1 Downstream Licenses - 1 MHz DS License Bundle.	1000325	Router System Module 2 Kit - 1 RSM-2 and RPIC-2Q
1000526	48 DS DOCSIS 3.0 SC-QAM Annex B License Bundle (DCAM-2 Only)	801169	E6000 Software Maintenance – Phone Plus Gold
1000535	48 DS DOCSIS 3.0 SC-QAM Annex A License Bundle (DCAM-2 Only)		

Full Price List available from ARRIS

## CUSTOMER CARE

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