DATA SHEET

E6000® Converged Edge Router

Release 10.0

Product overview

The E6000® Converged Edge Router (CER) is a next-generation Converged Cable Access Platform (CCAP™) 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 allows operators to converge all services (video, high-speed data, and voice) onto a single physical connector—enabling additional savings in CapEx and OpEx along with increased operational efficiency.

A single E6000 CER chassis can simultaneously support both Integrated CCAP (I-CCAP) and CCAP Core (for Remote PHY operation). This "hybrid" mode functions at the CAM level, meaning some CAMs are configured for I-CCAP and others for CCAP Core. Separate in-chassis stand-by CAMs are required for CAM sparing.

Release 10.0 includes many significant new features that deliver financial and operational benefits to cable operators. It also brings a large set of new capabilities for the R-PHY architecture and others for I-CCAP. Included are enhancements to the DOCSIS 3.1 Proactive Network Maintenance (PNM) feature set, support for additional downstream OFDM data profiles, support for diplexer edge band configuration (via TLV 21) to enable migration to high split for greater upstream bandwidth, increased channel density, and support for Low Latency DOCSIS (LLD) upstream Aggregate Service Flow (ASF) for low-latency user applications.

Summary of new and existing features (partial list)

New Rel. 10.0 Features for I-CCAP: • 5 downstream data profiles per OFDM channel on DCAM • 8 downstream data profiles per OFDM channel on DCAM-2 • 48 Annex A SC-QAMs for broadcast, mixed modulation on DCAM-2 • SHA-2 Key Exchange Support for SSH	**New Rel. 10.0 Features for CCAP Core:** • 16 downstream profiles per OFDM Channel • 48 DOCSIS + 1 x 192MHz OFDM, Annex A • UTSC FreeRun mode repeat capture with Static and Dynamic Pseudowire • Support variable symbol rate on Annex A video SC-QAM • Enhance NDR for new channel widths: 160, 320, 640 KHz • NDF/NDR channel activation/deactivation via SNMP • Support for 15 Video Ad Zones (Annex A)
New Rel. 10.0 Features for I-CCAP and CCAP Core: • Support for diplexer band edge TLV 21 for high split • Support for up to 10 OFDM exception zones • Low Latency DOCSIS for upstream Aggregate Service Flow (ASF) • LLD modem registration with LLD TLVs and QoS parameters	• Support for dynamic downstream channel bonding with >32 channels per DS SG • Additional cyclic prefix and roll-off in OFDMA

General feature summary	
CCAP Core (R-PHY) downstream channel densities (Annex A): • 32A DOCSIS + 16A TB-VOD + 72A B'cast + 2 x 192 MHz OFDM • Please contact CommScope for other supported channel density combinations	**CCAP Core (R-PHY) downstream channel densities (Annex B) with ARRIS VUE:** • 48B DOCSIS + 2 x 192 MHz OFDM • Video supported via VUE Aux Core • Please contact CommScope for other supported channel density combinations
Gen 2 I-CCAP downstream channel densities: • DCAM-2: 40A DOCSIS + 2 x 192 MHz OFDM • DCAM-2: 48B DOCSIS + 2 x 192 MHz OFDM • DCAM-2: 32B DOCSIS + 32B SDV/VOD + 192 MHz OFDM • Please contact CommScope for other supported channel density combinations	**Gen 1 I-CCAP downstream channel densities:** • Gen 1 DCAM: 36A DOCSIS + 144 MHz OFDM • Gen 1 DCAM: 48B DOCSIS + 192 MHz OFDM • Gen 1 DCAM: 31A DOCSIS + 1B DOCSIS + 4A TB-VOD + 144 MHz OFDM • Gen 1 DCAM: 32B DOCSIS + 16B TB-VOD + 192 MHz OFDM
Integrated Edge QAM (IEQ) feature set: • Table-based VOD, SDV, or SB-VOD • DVB simulcrypt encryption (Annex A) or VPME (Annex B) • Broadcast video pass-through	**IPv6 support:** • IS-IS MT and OSPFv3 • Prefix delegation with prefix stability • IPv6 CM management, others
MPLS L2VPNs: • Point-to-point architecture (VPWS) • Remote LDP signaling • PE router operation	**MPLS L3VPNs:** • 63 non-default VRFs • RIPv2 passive mode, static, or local routing • Route leaking via static routes
SC-QAM and OFDMA support with UCAM-2: • 2 x 96 MHz with up to 12 SC-QAMs per US-SG • US bonding of eight (8) channels including OFDMA	**SC-QAM and OFDM downstream support:** • Gen 1 DCAM and DCAM-2 • OFDM block size flexibility (24 to 192 MHz) • Exclusion band support • Bonding across SC-QAM and OFDM
Overall service group support: • 96 downstream service groups and 96 upstream service groups per chassis (Gen 2, 1:1 combined) in I-CCAP mode	

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 Documentation.

General specifications

RF downstream (I-CCAP)	
Frequency range (MHz) Gen 1 DCAM	57 to 999 (DOCSIS 3.0) 90 to 1002 (EuroDOCSIS 3.0)
Frequency range (MHz) DCAM-2	108 to 1218
RF output level (dBmV)	25 to 60 (SC-QAMs)
Typical modulation error ratio (MER) (dB)	47
Modulation (QAM)	64, 256, DOCSIS 3.1
Data rate (Mbps) (Max.)	30.34 to 55.62 per channel (SC-QAMs)
Output (load) impedance (ohms)	75

RF upstream (I-CCAP)	
Frequency range (MHz)	5 to 85 (UCAM) 5 to 204 (UCAM-2)
SC-QAM modulation	QPSK, 16 QAM, 32 QAM, 64 QAM
Channel type	OFDMA (UCAM-2),TDMA, ATDMA, TDMA/ATDMA
Data rate (Mbps) (Max.)	30.72 per channel (ATDMA)
RF input level (dBmV)	-16 to +29
Frequency resolution (KHz)	< 1
Symbol rate (Ksym/sec)	1280, 2560, 5120
Bandwidth per SC-QAM (MHz)	1.6, 3.2, 6.4

Physical	
Power (Gen 1)	-48 VDC (-40 to -72 VDC)
Power (Gen 2)	-48 VDC (-44 to -72 VDC)
Power consumption (full-fill Gen 1 system)	3,800 W nominal at -48 VDC, 77°F (25°C)
Power consumption (full-fill Gen 2 system)	5,800 W nominal at -48 VDC, 77°F (25°C)
Operating temperature:	
Short term °F (°C)	+23 to +131 (-5 to +50)
Long term °F (°C)	+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)	28 x 17.4 x 32.5 (72.0 x 44.2 x 82.6)
Weight lbs. (kg) (full-fill system)	Approx. 235 (107)

Management and NSI interfaces	
Management interfaces (Gen 1)	10/100/1000 Mbps Ethernet (RJ-45) plus console (serial port, RJ45)
Management interfaces (Gen 2)	100/1000 Mbps Ethernet (RJ-45) plus console (serial port, RJ45)
Network-side interfaces (Gen 1)	10 gigabit Ethernet (SFP+) auto-baud, eight per card
Network-side interfaces (Gen 2)	100 gigabit Ethernet (QSFP-28), three per slot; 10 gigabit Ethernet (SFP+), 10 per slot

Management access
In-band management with access control lists via any NSI port
Out-of-band management via dedicated Ethernet port on RPIC and RPIC-2Q
Console (serial) port on RPIC and RPIC-2Q

Ordering codes

Part number	Description
1000536/ 1000536K	GEN-2 duplex chassis kit—two RSM-2s, No CAMs
1000506	DCAM-2 Downstream Cable Access Module 2
1000445	UCAM-2—Upstream Cable Access Module 2 (must purchase one of the initial upstream license bundles for UCAM-2 with this item)
1000961	DCCM—Downstream CCAP Core Module (only for RPHY applications)
1000962	UCCM—Upstream CCAP Core Module (only for RPHY applications)
1000963	CCRC—CCAP core rear card (for DCCM and UCCM, active or spare)
1000716	D3.0 downstream Annex B MAC processing license (per 6 MHz D3.0 DS channel)
1000963	CCRC—CCAP core rear card (for DCCM and UCCM, active or spare)
1000528	Single DOCSIS 3.0 downstream Annex A license
1000498	Single DOCSIS 3.0 downstream Annex B license
1000226	DOCSIS 3.1 downstream licenses—1 MHz downstream license bundle
1000240	DOCSIS 3.1 upstream licenses—1 MHz upstream license bundle
1000303	Annex A narrowcast video license—single VOD/SDV license
1000010	Annex B narrowcast video license—single VOD/SDV license
Various	Initial DOCSIS 3.0 DCAM-2 Annex A downstream license bundle
Various	Initial DOCSIS 3.0 DCAM-2 Annex B downstream license bundle
Various	Initial DOCSIS 3.0 UCAM-2 upstream license bundle

Part number	Description
1000708	Annex B broadcast video license—single broadcast license
1000707	Annex A broadcast video license—single broadcast license
1000508	Router System Module 2 (RSM-2)
1000325/ 1000325K	Router System Module 2 kit—1 RSM-2 and RPIC-2Q
1000509	Physical interface card for RSM-2 (RPIC-2Q)
1000504	DPIC-2—physical interface card (active) for DCAM-2
1000505	DPIC-2—physical interface card (spare) for DCAM-2
1000715	DOCSIS 3.0 downstream Annex A MAC processing license (per 8 MHz D3.0 downstream channel)
1001136	System-principal-core license
1000716	DOCSIS 3.0 downstream Annex B MAC processing license (per 6 MHz D3.0 downstream channel)
1000743	DOCSIS 3.1 downstream MAC processing license (per 1 MHz channel)
1000744	DOCSIS 3.1 upstream MAC Processing license (per 1 MHz channel)
Various	Initial DOCSIS 3.0 DCAM-2 Annex A downstream MAC license bundle
Various	Initial DOCSIS 3.0 DCAM-2 Annex B downstream MAC license bundle
Various	Initial DOCSIS D3.0 UCAM-2 upstream license bundle
1000972	Annex A MAC narrowcast video license—single VOD/ SDV MAC license
1000968	Annex A MAC broadcast video license—single license
801169	E6000 software maintenance
1001561	E6000, Upstream Aggregate Service Flow (ASF) License for Low Latency DOCSIS (LLD) applications. One License per Chassis. Requires UCAM-2

Customer Care

Contact Customer Care for product information and sales:

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