DATA SHEET

COMMSCOPE®

E6000® Converged Edge Router

Release 12.0

Product Overview

The E6000® Converged Edge Router (CER) is a modern 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) on a single physical connector—enabling additional savings in CapEx and OpEx along with increased operational efficiency.

A single E6000® CER chassis can simultaneously support Integrated CCAP (I-CCAP) and CCAP Core (for Remote PHY) operation. The E6000 CER operating as a CCAP Core is also known as an "eCore." This "hybrid" mode functions at the Cable Access Module (CAM) level, meaning some CAMs can be configured for I-CCAP and others for CCAP Core. Separate in-chassis standby CAMs are required for CAM sparing.

Release 12.0 delivers greater channel densities, OFDMA upstream data profile (OUDP) for high-split (204 MHz) leakage detection, additional Low Latency DOCSIS® (LLD) features, and operational enhancements.

Summary of new and existing features (partial list)

New Release 12.0 features for BOTH I-CCAP and CCAP Core:

- Low Latency DOCSIS (LLD) downstream ASF support
- PNM bulk file transfer
- Increase support to 288 OFDMA modulation profiles
- OUDP for high-split leakage detection
- Support IPsec for TACACS
- Support for CommScope© Server-based LLD management solution

New Release 12.0 features for I-CCAP:

- 24 Annex A DOCSIS + 3 x 192 MHz OFDM
- Increase number of OFDMA exception zones to 8
- Update to IPDR CMTS-CM-REG-STATUS-TYPE Schema

New Release 12.0 features for CCAP Core:

- Support for 3rd OFDM Block for R-PHY, Annex A & B
- 25 kHz subcarrier spacing for OFDMA
- Video Aux Core configuration on a per-RPD basis

General feature summary	
CCAP Core (R-PHY) downstream channel densities (Annex A): • 3 x OFDM Channel support • 32 DOCSIS + 16 TB-VOD + 72 B'cast + 2 x 192 MHz OFDM • 48 DOCSIS + 1 x 192 MHz OFDM • Please contact CommScope for other supported channel density combinations	**CCAP Core (R-PHY) downstream channel densities (Annex B):** • 3 x OFDM Block support • 48 DOCSIS + 2 x 192 MHz OFDM • Video supported via Video Unified Edge (VUE) Video Aux Core
DCAM-2 I-CCAP downstream channel densities: • 32 Annex B + 3 x 192 MHz OFDM • 48 Annex B + 2 x 192 MHz OFDM • 24 Annex A + 3 x 192 MHz OFDM • 40 Annex A + 2 x 192 MHz OFDM • 48 Annex A for broadcast, mixed modulation • 48 DOCSIS plus 16 SDV/VOD Annex B	**Low Latency DOCSIS (LLD):** • Upstream Aggregate Service Flow (ASF) Licensing • Upstream Proactive Grant Service (PGS) Licensing • Downstream Aggregate Service Flow (ASF) Licensing • Support for CommScope© Server-based LLD management solution
Integrated Edge QAM (IEQ) feature set: • SDV service-Level redundancy • Video SC-QAM dual symbol rate support for Annex A • 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: • 25 KHz subcarrier spacing for OFDMA • 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 per Gen 2 system • 96 upstream service groups per Gen 2 system • Gen 2, 1:1 combined in I-CCAP mode	**Proactive Network Maintenance (PNM) support:** • PNM bulk file transfer • PNM UTSC IdleSID mode with dynamic psuedowire • PNM UTSC IdleSID mode • PNM UTSC FreeRun Trigger Mode Repeat Capture Mode • Concurrent access of PNM UTSC with static psuedowire

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
OFDM modulation	64-QAM, 128-QAM, 256-QAM, 512-QAM, 1024-QAM, 2048-QAM, 4096-QAM
Output (load) impedance (ohms)	75

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)

RF upstream (I-CCAP)	
Frequency range (MHz)	5 to 204 (UCAM-2)

RF upstream (I-CCAP)	
Channel type	OFDMA (UCAM-2), TDMA, ATDMA, TDMA/ATDMA
OFDMA modulation (UCAM-2)	Zero-valued modulation, QPSK, 8-QAM, 16-QAM,32-QAM, 64-QAM, 128-QAM, 256-QAM, 512-QAM, 1024-QAM
SC-QAM modulation	QPSK, 16 QAM, 32 QAM, 64 QAM
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

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

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.

Ordering codes

Part number	Description
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)
1000961K1	DCCM Downstream CCAP Core Module (only for RPHY applications)
1000962K1	UCCM Upstream CCAP Core Module (only for RPHY applications)
1000963	CCRC CCAP core rear card (for DCCM and UCCM, active or spare)
1001561	Upstream Aggregate Service Flow (ASF) License for Low Latency DOCSIS (LLD)
1001562	Upstream Proactive Grant Service (PGS) License for Low Latency DOCSIS (LLD)
Z1001560	Downstream Aggregate Service Flow (ASF) License for Low Latency DOCSIS (LLD)
1000226	DOCSIS 3.1 downstream licenses—1 MHz downstream license bundle
1000240	DOCSIS 3.1 upstream licenses—1 MHz upstream license bundle
1001680	I-CCAP Annex A single broadcast video QAM channel, one license required for every QAM channel instance (unique or replicated)
1001681	I-CCAP Annex B single broadcast video QAM channel, one license required for every QAM channel instance (unique or replicated)
Z1000303	Annex A narrowcast video license—single VOD/SDV license
1000010	Annex B narrowcast video license—single VOD/SDV license

Part number	Description
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
1000508	RSM-2 Router System Module 2
1000325K	Router System Module 2 kit—1 RSM-2 and RPIC-2Q
1000509	RPIC-2Q Physical interface card for RSM-2
1000504	DPIC-2 Physical interface card (active) for DCAM-2
1000505	DPIC-2 Physical interface card (spare) for DCAM-2
1000528	Single DOCSIS 3.0 downstream Annex A license
1000498	Single DOCSIS 3.0 downstream Annex B license
1001136	System-principal-core license
1000715	DOCSIS 3.0 downstream Annex A MAC processing license (per 8 MHz D3.0 downstream channel)
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

Customer Care

Contact Customer Care for product information and sales:

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Visit our website or contact your local CommScope representative for more information.

PA-116101.2-EN (11/23)