E6000® CER

Upstream CCAP Core Module

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 enables operators to converge all services (video, high speed data, and voice), enabling additional savings in capital and operational expenditures along with increased operational efficiency. For Distributed Access Architecture (DAA) solutions, CommScope provides both the CCAP Core and Remote PHY (R-PHY) Device (RPD) defined in the CableLabs® Modular Headend Architecture (MHAv2). In this approach, the PHY layer is moved from the E6000 CER into a node or remote shelf, but MAC processing, provisioning, and monitoring are performed by the E6000 CCAP Core.

The Upstream CCAP Core Module (UCCM) is a version of the 2nd generation Upstream Cable Access Module (UCAM-2) that is optimized for RPHY applications as it does not contain the RF input and demodulation hardware. The UCCM and UCAM-2 can be used interchangeably to provide upstream MAC processing for the E6000 CCAP Core. The UCCM offers power, weight, and cost savings over the UCAM-2. E6000 CER software versions beginning with Rel. 7.0 support "hybrid" operation of Integrated CCAP (I-CCAP) and CCAP Core within the same chassis. The UCCM cannot be used for I-CCAP applications.

Roadmap for future capabilities is subject to change.

The Upstream CCAP Core Module (UCCM) is essentially a UCAM-2 without any RF circuitry. The UCCM is meant for R-PHY operation for which it provides the same functionality and capacity as the UCAM-2. The advantages of the UCCM are lower power consumption, lower weight and lower cost. The UCCM and UCAM-2 are interchangeable for R-PHY operation and can be mixed in the same E6000 chassis.

The UCCM is designed to deliver hardware support for both SC-QAMs (i.e. DOCSIS 3.0) and OFDMA (i.e. DOCSIS 3.1).

Use of UCCM requires the RSM-2 and either DCAM-2 or DCCM downstream modules.

Roadmap for future capabilities is subject to change.

SUMMARY OF UCCM FEATURES AND HARDWARE CAPABILITIES (PARTIAL LIST)

No RF input, R-PHY operation only
5 – 204 MHz Upstream Passband
Interoperable with UCAM-2
Multiple OFDMA Channel Support (11 – 96 MHz), Dependent on Software Release and RPD Capabilities
OFDMA Support for Multiple Exception Zones (Dependent on RPD Capabilities)
Support for Seven (7) OFDMA Interval Usage Codes (IUCs) (Dependent on RPD Capabilities)
E6000 CCAP Core Interoperable for Multi-Core R-PHY Architectures
Deploys with CCAP Core Rear Card (CCRC) – functionally similar to a Physical Interface Card (PIC)

E6000® CER UCCM

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.

Roadmap for future capabilities is subject to change.

GENERAL SPECIFICATIONS

Remote PHY Capabilities

Frequency Range (MHz)	5 to 204 (Dependent on RPD module)
Channel Type	TDMA, ATDMA, TDMA/ATDMA, OFDMA
Max OFDMA Channel Width (MHz)	96
SC-QAM Data Rate (Mbps) (Max.)	30.72 per channel
Max Number of US Service Group per module	36
SC-QAM RF Input Level (dBmV)	Dependent on RPD module
SC-QAM Frequency Resolution (KHz)	< 1
SC-QAM Symbol Rate (Ksym/sec)	160, 320, 640, 1280, 2560, 5120
SC-QAM Bandwidth per Channel (MHz)	0.2, 0.4, 0.8, 1.6, 3.2, 6.4

Physical

Power	-48 VDC
Power Consumption	135 W (typical at 25 deg. C)
Operating Temperature:	
Short Term °F (°C)	+23 to +131 (-5 to +55)
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)	13.8 x 1.2 x 17. 8 (35.0 x 3.0 x 45.3)
Weight lbs. (kg)	Approx. 4.2 (1.9)

Installation Environment (System Level)

Management Interfaces	100/1000 Mbps Ethernet (RJ-45) plus Console (serial port, RJ45)
RF Connector Access	None
NSI Connector Access	RSM-2 ports, front and back of chassis

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-2

Console (serial) port on RPIC-2Q

E6000® CER UCCM

![ARRIS logo]

<table>
<tr><td colspan="4">ORDERING CODES (PARTIAL LIST)</td></tr>
<tr><th>Part Number</th><th>Description</th><th>Part Number</th><th>Description</th></tr>
<tr><td>1000536</td><td>GEN-2 Duplex Chassis Kit - Two RSM-2s, No CAMs</td><td>1000325</td><td>Router System Module 2 Kit - 1 RSM-2 and RPIC-2Q</td></tr>
<tr><td>1000963</td><td>CCRC - CCAP Core Rear Card (for DCCM and UCCM, active or spare)</td><td>1001136</td><td>SYSTEM-PRINCIPAL-CORE LICENSE</td></tr>
<tr><td>1000961</td><td>DCCM - DS CCAP Core Module (only for RPHY applications; must purchase one of the Initial DS D3.0 MAC License Bundles with this item)</td><td>1000962</td><td>UCCM - US CCAP Core Module (only for RPHY applications; must purchase one of the Initial Upstream D3.0 MAC License Bundles with this item)</td></tr>
<tr><td>1000720</td><td>E6000; 256 Initial DS D3.0 Annex A MAC License Bundle for DCAM-2 - For MAC Channels 1-256 (requires DCAM-2 HW purchase (PN 1000506) or DCCM HW purchase (PN 1000961))</td><td>1000737</td><td>E6000; 48 Initial Upstream D3.0 MAC License Bundle for UCAM-2 - For MAC Channels 1-48 (requires UCAM-2 HW purchase (PN 1000445) or UCCM HW purchase (PN 1000962))</td></tr>
<tr><td>1000721</td><td>E6000; 384 Initial DS D3.0 Annex A MAC License Bundle for DCAM-2 - For MAC Channels 1-384 (requires DCAM-2 HW purchase (PN 1000506) or DCCM HW purchase (PN 1000961))</td><td>1001047</td><td>E6000; 64 Initial Upstream D3.0 MAC License Bundle for UCAM-2 - For MAC Channels 1-64 (requires UCAM-2 HW purchase (PN 1000445) or UCCM HW purchase (PN 1000962))</td></tr>
<tr><td>1001279</td><td>E6000; 448 Initial DS D3.0 Annex A MAC License Bundle for DCAM-2 - For MAC Channels 1-448 (requires DCAM-2 HW purchase (PN 1000506) or DCCM HW purchase (PN 1000961))</td><td>1000738</td><td>E6000; 72 Initial Upstream D3.0 MAC License Bundle for UCAM-2 - For MAC Channels 1-72 (requires UCAM-2 HW purchase (PN 1000445) or UCCM HW purchase (PN 1000962))</td></tr>
<tr><td>1000722</td><td>E6000; 512 Initial DS D3.0 Annex A MAC License Bundle for DCAM-2 - For MAC Channels 1-512 (requires DCAM-2 HW purchase (PN 1000506) or DCCM HW purchase (PN 1000961))</td><td>1000739</td><td>E6000; 96 Initial Upstream D3.0 MAC License Bundle for UCAM-2 - For MAC Channels 1-96 (requires UCAM-2 HW purchase (PN 1000445) or UCCM HW purchase (PN 1000962))</td></tr>
<tr><td>1000730</td><td>E6000; 256 Initial DS D3.0 Annex B MAC License Bundle for DCAM-2 - For MAC Channels 1-256 (requires DCAM-2 HW purchase (PN 1000506) or DCCM HW purchase (PN 1000961))</td><td>1000740</td><td>E6000; 144 Initial Upstream D3.0 MAC License Bundle for UCAM-2 - For MAC Channels 1-144 (requires UCAM-2 HW purchase (PN 1000445) or UCCM HW purchase (PN 1000962))</td></tr>
<tr><td>1000731</td><td>E6000; 384 Initial DS D3.0 Annex B MAC License Bundle for DCAM-2 - For MAC Channels 1-384 (requires DCAM-2 HW purchase (PN 1000506) or DCCM HW purchase (PN 1000961))</td><td>1000741</td><td>E6000; 192 Initial Upstream D3.0 MAC License Bundle for UCAM-2 - For MAC Channels 1-192 (requires UCAM-2 HW purchase (PN 1000445) or UCCM HW purchase (PN 1000962))</td></tr>
<tr><td>1001272</td><td>E6000; 448 Initial DS D3.0 Annex B MAC License Bundle for DCAM-2 - For MAC Channels 1-448 (requires DCAM-2 HW purchase (PN 1000506) or DCCM HW purchase (PN 1000961))</td><td>1000742</td><td>E6000; 216 Initial Upstream D3.0 MAC License Bundle for UCAM-2 - For MAC Channels 1-216 (requires UCAM-2 HW purchase (PN 1000445) or UCCM HW purchase (PN 1000962))</td></tr>
<tr><td>1000732</td><td>E6000; 512 Initial DS D3.0 Annex B MAC License Bundle for DCAM-2 - For MAC Channels 1-512 (requires DCAM-2 HW purchase (PN 1000506) or DCCM HW purchase (PN 1000961))</td><td></td><td></td></tr>
<tr><td>1000715</td><td>E6000 D3.0 Downstream Annex A MAC Processing License (per 8 MHz D3.0 DS channel)</td><td>1000736</td><td>E6000 D3.0 Upstream MAC Processing License (per D3.0 US channel)</td></tr>
<tr><td>1000716</td><td>E6000 D3.0 Downstream Annex B MAC Processing License (per 6 MHz D3.0 DS channel)</td><td></td><td></td></tr>
<tr><td>1000743</td><td>E6000 D3.1 Downstream MAC Processing License (per 1 MHz channel)</td><td>1000744</td><td>E6000 D3.1 Upstream MAC Processing License (per 1 MHz channel)</td></tr>
</table>

Full Price List available from CommScope

CUSTOMER CARE

Contact Customer Care for product information and sales:
- United States: 866-36-ARRIS
- International: +1-678-473-5656

E6000_CER_UCCM-v1.0   (rev 04-2021)

www.arris.com