E6000 | E6000 Converged Edge Router

Converged Edge Router (CER) - flexible, upgradeable CCAP for integrated, DAA, and 10G EPON deployments

The ARRIS E6000® Converged Edge Router (CER) is the industry-leading Converged Cable Access Platform (CCAP™). It provides cable Service Providers 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 the convergence of all services (video, high-speed data, and voice) on a single physical connector, delivering savings in capital and operational expenditures, along with increased operational efficiency. Advances in the platform are enabling operators to provide more bandwidth to their subscribers through additional access technologies and architectures.

Service Providers are facing several factors that drive the need for additional bandwidth delivery and the access technologies that are enabled by the E6000 CER:

- Exponential growth in bandwidth demands for both residential and commercial high-speed broadband data services.
- Converging MPEG video services on the CCAP while replacing aging Edge QAM products.
- Migration to IP video distribution services.

The E6000 CER enables a managed approach to this evolution with a combination of software-only density upgrades to existing modules, as well as new modules to unlock even higher densities and additional access technologies. The E6000 CER supports multiple deployment architectures and technologies:

- Integrated CCAP (I-CCAP) for Traditional Hybrid Fiber Coax (HFC) networks
- Remote PHY Distributed Access Architecture
- 10G EPON Optical Line Terminal (OLT) support for Fiber to the X (FTTX)

The E6000 Generation 2 (Gen 2) modules (DCAM-2, UCAM-2, RSM-2, and EPFM) deliver additional service group density and greater throughput:

Substantially increase service group density relative to E6000 Generation 1 modules.
Facilitate a Pay-as-you-Grow model with increased channel density per service group, enabled by the application of the appropriate DOCSIS® 3.0 Single Carrier QAM (SC-QAM), DOCSIS 3.1 OFDM, and video licenses.

For service groups where Service Providers want to deploy or migrate to FTTX, the 10G EPON Fiber Module (10G EPFM) can be deployed along with the RSM-2 in the E6000 CER to support XFP-based, non-blocked 10G EPON ports. The 10G EPFM leverages the existing E6000 features as well as DOCSIS Provisioning of EPON (DPoE) version 2.0 to preserve Service Provider's DOCSIS-based back-office provisioning and tools.

Downstream Cable Access Module 2 (DCAM-2)
Service Providers deploying the DCAM-2 in an I-CCAP architecture can realize a significant increase in total service groups per E6000 chassis. In addition, the DCAM-2 supports wide deployment of DOCSIS® 3.1 while maintaining all existing DOCSIS 3.0 SC-QAM channels and services. Use of the DCAM-2 requires the RSM-2 and can be implemented via field migration. Beyond I-CCAP, the DCAM-2 can be used to provide downstream Media Access Control (MAC) processing to enable Remote PHY operation on the E6000 CER with a software-only upgrade along with the application of license keys.

Upstream Cable Access Module 2 (UCAM-2)
The Upstream Cable Access Module 2 (UCAM-2) provides hardware support for both DOCSIS® 3.0 SC-QAMs and DOCSIS 3.1 OFDMA

operation. Service Providers can deploy both SC-QAMs and OFDMA on each physical port (i.e. each upstream service group) with the UCAM-2. This enables higher throughput, with greater spectral efficiency, while providing backward compatibility for all currently-deployed modems. The UCAM-2 can be deployed with either the Gen 1 or Gen 2 RSM. The UCAM-2 is the only hardware change required to get to DOCSIS 3.1 support in the upstream to supplement downstream support already provided by the Gen 1 DCAM. Beyond I-CCAP, the UCAM-2 can be used to provide upstream MAC processing to enable Remote PHY operation on the E6000 CER with a software-only upgrade and when paired with the DCAM-2,RSM-2 and E6000n RPD.

Router System Module 2 (RSM-2)
The Router System Module 2 (RSM-2) is the heart of a E6000 Gen 2 system. It enables mass deployment of DOCSIS® 3.1 in I-CCAP and Remote PHY architectures, as well as 10G EPON deployments, by providing two critical enhancements. RSM-2 increases the internal link switching speed within the chassis for each client card slot. This enables the E6000 system to switch greater throughput levels from ingress to egress while maintaining low latency. The RSM-2 / RPIC-2Q combination provides a significant increase of Network Side Interface (NSI) uplink capacity, greatly increasing the uplink bandwidth for I-CCAP, Remote PHY, and 10G EPON applications. When operating with two RSM-2s in the same chassis, the active/active nature of forwarding (active/standby control plane) in the E6000 architecture enables double the uplink capacity. The RSM-2 can be used to enable Remote PHY operation on the E6000 CER and enables 10G EPON OLT functionality when paired with the EPFM.

10G EPON Fiber Module (EPFM)
The 10G EPFM is a 16 port 10G EPON Client card supporting 160 Gbps of non-blocking throughput to the RSM-2 slots in an Active/Active configuration. The 10G EPFMs interface to the redundant RSM-2 slots via the dual star backplane. 10G EPFMs provide granular Quality of Service (QoS) and traffic management functions in addition to the 10G EPON MAC and scheduler. XFP pluggable 10G EPON optic modules are used to terminate the 10G EPON channels.

E6000n Remote PHY Device (RPD)
ARRIS supports three E6000n Remote PHY Device (RPD) form factors:

- E6000n RPD for the OM6000 Fiber Deep node
- E6000n RPD for the NC4000 and NC2000 nodes
- E6000n RPD for Remote PHY Shelf

The E6000n RPD enables deployments of the Remote PHY architecture when deployed in conjunction with the E6000 eCore (Remote PHY CCAP Core).

Product Classification

Regional Availability	Asia | Australia/New Zealand | EMEA | Latin America | North America
Product Type	Converged edge router