CableOS® Pebble-2

REMOTE PHY DEVICE

The CableOS Pebble-2 Remote Phy Device (RPD) is a Distributed Access Architecture (DAA) device that leads the industry for its power efficiency, versatility, and modularity. The Pebble-2 DAA device provides operators with a common foundation to support multiple flavors of DAA and enable more sustainable broadband service expansion.

The modular Pebble-2 DAA device gives cable operators more options to increase network agility. Pebble-2 will come in both Remote PHY device (RPD) and Remote-MACPHY Device (RMD) versions that each share a common formfactor and hardware design. The same common platform also supports both DOCSIS 4.0 options, including FDD and FDX. The Pebble-2 also features advanced power saving capabilities and integrates with both Harmonic and third-party nodes. You can couple the Pebble-2 with the award-winning CableOS® Cloud-Native Core Platform to even further reduce power, space and cooling costs. The power-efficient Pebble-2 DAA device eases evolution of your legacy optical nodes by using Raft, a node specific adaptor. Pebble-2 can even be installed into your legacy nodes without any modifications to the existing legacy node platform.

The power of Pebble-2:

- **Flexibility**: The Pebble-2 DAA device enables unparalleled flexibility to support R-PHY or R-MACPHY as well as Extended FDD or FDX, to best align with your operational and business requirements.
- **Low power**: Advanced power management technology reduces node power requirements to offer the most power-efficient device in the industry.
- **CableLabs Remote PHY Compliant**: The Pebble-2 RPD RF specification is compliant with the CableLabs MHAv2, Docsis 3.1 and Docsis 4.0 specifications.
- **A modular form factor**: The Pebble-2 DAA device form factor is compatible with the Pebble-1formfactor and provides a growth path for existing nodes.
- **Upgrade path to DAA for legacy nodes**: The Pebble-2 DAA device can be deployed in 3rd party legacy nodes without any hardware modifications to offer even more power and cost savings.
- **Full DS and US Spectrum**: The Pebble-2 DAA device supports up to 1.8 GHz for DS (ESD model) and up to 684MHz for US (ESD, FDX model).

HIGHLIGHTS

- Compact size and low power consumption
- Up to 2x4 DS to US service groups ratio
- Upgrade path to DAA for legacy and 3rd party nodes
- Superior RF performance
- 20-GbE throughput over two SFP+ Ports
- Precision IEEE 1588 PTP synchronization
- Digital Predistortion for significant reduction in a node power consumption
- Support for DOCSIS 3.1 PNM
- Remote control via CableOS Central management system and CableOS CCAP Core
- Support for OOB protocols
- Integrated with leading 3rd party equipment for plant maintenance
- Compliant with the CableLabs MHAv2 specification for Remote PHY architectures

3150 SW 15th Street | Deerfield Beach, FL 33442 | 954.427.5711 | sales@amt.com

Call Us: 954.427.5711
Toll Free: 888.293.5856

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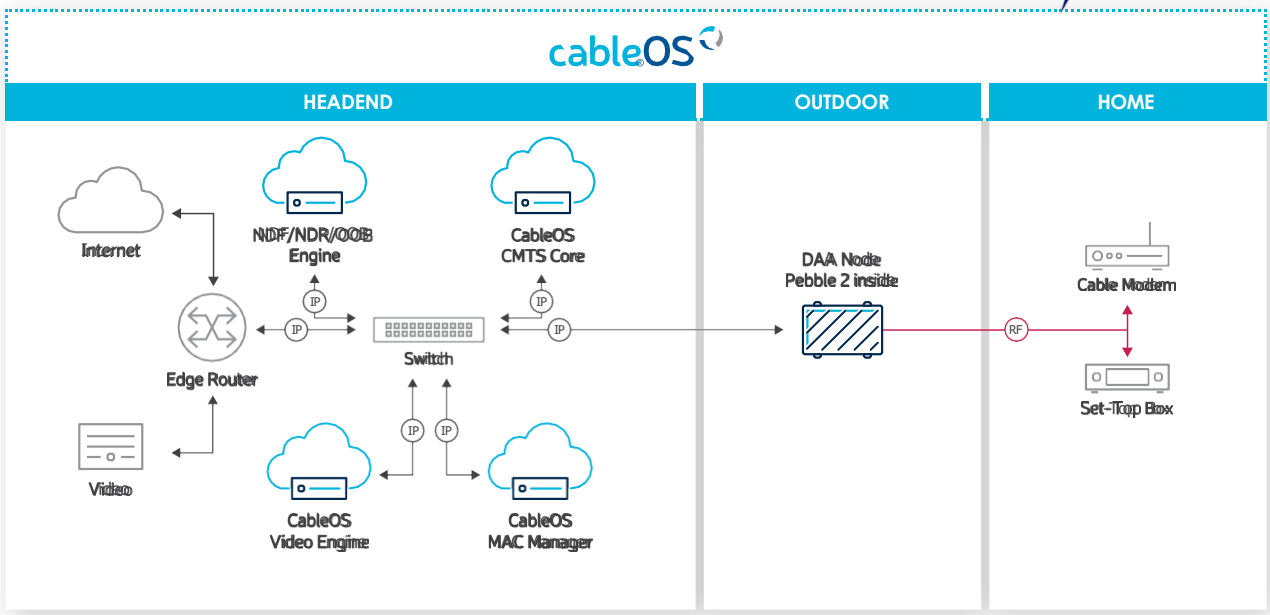
DEPLOYMENT DIAGRAM



SPECIFICATIONS

TYPE OF DEVICE

Remote PHY Device for Docsis 3.1 network	

RF

Downstream frequency range	54MHz – 1218MHz
Upstream frequency range	5MHz – 204MHz
DS to US port ratio	2x2, 2x4
DS Channels, per port	Any combination of up to 158 SC-QAMs and six 192-MHz OFDM channels
US Channels, per port	Any combination of at least 6 SC-QAMS and two 96-MHz OFDMA channels
Digital predistortion support	(TBD release)

TIMING

PTP Protocol	1588 slave mode
Telecom Profile	ITU-T G.8275.2

OOB AND NETWORK MAINTENANCE

OOB	10x DS OOB channels, 3x US OOB channels per port
OOB protocols	SCTE 55-1, SCTE 55-2, NDF, NDR
PNM	Wideband FFT shared between the ports
Pilot and Tones	Over operational band, 16 high precision pilots ALC pilots,alignment tones, FCC and LTE leakage markers

VIDEO

Mode of operation	Asynchronous
Supported Jitter	10msec

CONVERGED INTERCONNECT NETWORK INTERFACE

Ethernet ports	Two 10 GbE SFP+ Transceivers
Security	MACSEC (TBD release)
Authentication	802.1x

MECHANICAL

Dimensions	184x115x45 mm

POWER CONSUMPTION

Pebble2-RPD-2x4	40W MAX (with two SFP+ modules)

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