

# ETX-2v

## Open uCPE White Box Platforms



- Versatile suite of carrier-grade white boxes, supporting wide range of business customers and scenarios with different VNF based applications, suitable for uCPE, pCPE or “bare-metal” deployments
- Flexible network connectivity options
- Flexible design allows matching configuration to any network needs

ETX-2v is an x86-based open platform, which can host virtual functions (VFs) and applications. It is optimized for use with RAD’s vCPE-OS or pCPE-OS (a carrier-grade operating system for network edge virtualization with optimized data plane), or any other third-party operating system.

RAD’s vCPE-OS combines powerful networking capabilities with virtualization for hosting SD-WAN and any other value-added virtual network function (VNF) applications from any vendor (see separate documentation on vCPE-OS).

### ARCHITECTURE

ETX-2v family is very flexible in HW networking connectivity, which include RJ-45 10/100/1000BaseTx, SFP, SFP+, QSFP+, QSFP28, PoE, WiFi, LTE, VDSL, and pluggable RAD Smart SFPs.

ETX-2v family addresses different site requirements in terms of hosted applications, network connectivity and needed performance by using appropriate CPU and memory size. The basic differentiation is by defining the platform type matching site size, such as “Small” or “Medium”.

For the “Small” site the most appropriate platform option is ETX-2V-CA/AC/2CMB/4U/DY, where “D” defines the CPU type which is ATOM C3000 series (Denverton) with Y=2 or 4, defining the number of cores. The number of cores is important to understand how many VNFs (if needed) it is possible to run on this platform. This platform uplinks are 1G with 2 COMBO ports (“2CMB”). The unit has desktop form factor with external AC-DC adapter.

For the “Medium” site the most appropriate platform option is ETX-2V-CA/AC/2SP/6U/DY, where “D” defines the CPU type which is ATOM C3000 series (Denverton) with Y=4 to 16, defining the number of cores. This platform uplinks are 1G/10G with 2 SFP+ ports (“2SP”). 6 RJ-45 ports are available with an option to have PoE+ on two of them. In some cases, especially with the 16 cores option, this platform can also support relatively “large” sites with multiple VNFs (distributed scheme). The unit is desktop form format with external AC-DC adapter. Dual redundant power supplies are also available as ordering option.

Both the “Small” and “Medium” site platforms have options for integrated Wi-Fi, LTE or VDSL.

### MARKET SEGMENTS AND APPLICATIONS

For business service applications, ETX-2v fits centralized, decentralized, or a mix of both implementation modes.

In centralized deployments, ETX-2v acts as a “pCPE” by decoupling the operating system networking and NFVI capabilities.

In decentralized deployments, ETX-2v functions as a “uCPE” (universal CPE), hosting an array of VNFs (see separate documentation on vCPE-OS).





## Specifications

### MAIN CHARACTERISTICS

See Table 1 (according to Ordering Options)

Table 1. ETX-2v Platforms Ordering Options and Specifications

Specification	Small site 	Medium site 
<b>Ordering</b>	ETX-2V-CA/AC/2CMB/4U/D	ETX-2V-CA/AC/2SP/6U/D
<b>CPU</b>	Intel ATOM 2 Core – C3338 4 Core – C3558	Intel ATOM 8 Core – C3758 4 Core – C3558 16 Core – C3958
<b>Memory</b>	DDR4 SO-DIMM, ECC support Max. capacity: 16 GB (single slot)	2x DDR4 SO-DIMM, ECC support Max. capacity: 32 GB (2 slots)
<b>Networking (Ethernet)</b>	2 x 1 GbE Copper/SFP Combo WAN ports 4 x RJ-45 10/100/1000 Mbps Ethernet ports (4x LAN chip Intel i211)	2x 10 GbE SFP+ WAN ports 2x RJ-45 10/100/1000 Mbps ports 4x RJ-45 10/100/1000 Mbps ports via Intel i350
<b>VDSL (Optional)</b>	No	Yes
<b>PoE+ (Optional)</b>	No	Yes
<b>Wifi/LTE (Optional)</b>	Yes	Yes
<b>System Health Monitoring (Optional)</b>	No	IPMI
<b>Trust Platform Module (TPM)</b>	Yes	Yes
<b>Peripheral I/O</b>	1 x Console RJ-45 2x USB 3.0	1 x Console RJ-45 1x micro USB 2x USB 2.0
<b>Storage</b>	MLC SSD From 64GB to 1TB size	MLC SSD From 64GB to 1TB size
<b>Power Supply</b>	External AC power adapter: 100~240V, 1.5A, 50-60Hz, to 12V	External AC power adapter: 100~240V, 1.5A, 50-60Hz, to 12V
<b>Dimensions</b>	Height: 44 mm (1.73") Width: 231.6 mm (9.12") Depth: 174.6 mm (6.87")	Height: 44 mm (1.73") Width: 248.4 mm (9.8") Depth: 251.5 mm (9.9")
<b>Operating Environment</b>	0°C to 40°C (32 to 104°F) 10 to 90% RH	0 to 40°C (32 to 104°F), 20 to 90% RH
<b>Storage Environment</b>	-20°C to 70°C (-4 to 158°F), 5 to 95% RH@55°C	-10 to 70°C (14 to 158°F), 5 to 95% RH @ 55°C
<b>Weight</b>	2.5 kg (4.5 lb)	3.2 kg (5.8 lb)
<b>Certifications</b>	CE, FCC, UL	CE, FCC, UL

# ETX-2v

## Open uCPE White Box Platforms

### OPTIONAL INTERFACES

#### VDSL Port

<b>Compliance</b>	G.inp, G.vector and PhyR ITU-TG.992.5, ITU-T G.992.3, ITU-T G.992.1. ANSI T1.413 issue 2. AnnexM G.992.5(ADSL2+) ,G.992.3(ADSL2), G.DMT (mainly France) G.993.2 (supporting profile 8a, 8b, 8d, 12a, 12b, 17a) G.Fast 212a, vDSL.2, 35b
<b>Data Rate</b>	G.992.5(ADSL2+): Downstream: 24Mbps, Upstream: 1.3 Mbps G.992.3(ADSL2): Downstream: 12Mbps, Upstream 1.3Mbps G.DMT: Downstream: 8Mbps, Upstream: 832Kbps
<b>Impulse Overvoltage Protection</b>	6 kV with K.21 enhanced

#### Wifi Module

<b>Output power (per chain)</b>	Dual band 2.4GHz: max 21dBm 5GHz max 20dBm
<b>Compliance</b>	IEEE 802.11ac Backward compatible with 802.11a/b/g/n Supports IEEE 802.11d, e, h, i, k, r, v time stamp, and w standards
<b>2x2 MIMO</b>	Up to 867Mbps
<b>DFS</b>	Supports Dynamic Frequency Selection

#### LTE module

Any ETX-2v-CA device can be ordered with /LE or /LA LTE option

<b>RF bands</b>	See Table 2. F=FDD; T= TDD
<b>Data rates, downlink (Cat 6)</b>	FDD: 300 Mbps TDD: 222 Mbps
<b>Data Rates, uplink (Cat 6)</b>	FDD: 50 Mbps TDD: 26 Mbps

Table 2. Supported RF Bands for LTE

	1	2	3	4	5	7	8	12	13	18	19	20	21	25	26	28	29	30	38	39	40	41
APAC Bands (LA)	F	F		F	F	F				F	F		F			F			T	T	T	T
EU/USA Bands (LE)	F	F	F	F	F	F	F	F	F			F		F	F		F	F				T

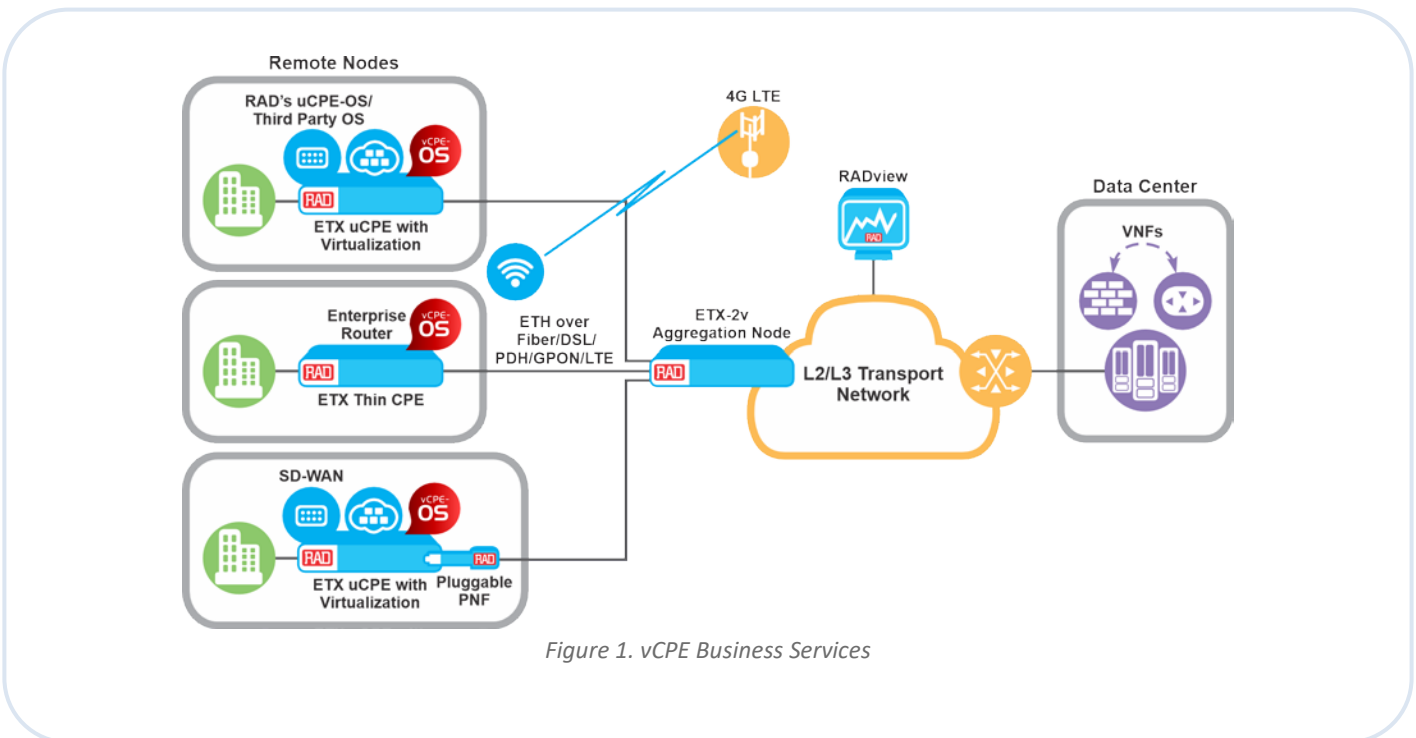


Figure 1. vCPE Business Services

# ETX-2v

## Open uCPE White Box Platforms

### Ordering

The information below represents examples of supported configurations. For additional configuration options, please contact your local RAD partner.

**ETX-2V-CA/AC/VD/2SP/6U/D4C/64S/8R/LE**

**ETX-2V-CA/AC/2SP/6U/D8C/128S/8R/LA**

**ETX-2V-CA/AC/2SP/6U/D16C/256S/32R**

**ETX-2V-CA/ACEXR/2SP/6U/D16C/256S/32R**

**ETX-2V-CA/AC/2CMB/4U/D4C/128S/8R**

### ORDERING OPTIONS

Some options are not supported by all models. Some option combinations are invalid or may require a minimum order. To determine the BOM for your application, please contact your local RAD partner.

<b>Power</b>	AC	AC-DC External adaptor for ETX-2V-CA
<b>Supply</b>	ACEXR	AC-DC External dual adaptors for ETX-2V-CA
<b>VDSL Port</b>	VD	VDSL WAN interface for ETX-2V-CA medium size platform
<b>WAN Port</b>	2CMB	2 GE Combo ports
	2S	2 SFP Ethernet ports
	2SP	2 SFP+ Ethernet ports
<b>LAN Port</b>	2P	2 10/100/1000BaseT PoE ports
	4P	4 10/100/1000BaseT PoE ports
	2U	2 Ethernet UTP ports
	4U	4 Ethernet UTP ports
	6U	6 Ethernet UTP ports
	8U	8 Ethernet UTP ports
	10U	10 Ethernet UTP ports
	12U	12 Ethernet UTP ports
<b>Expansion</b>	M2	2 Expansion slots
	M4	4 Expansion slots
<b>CPU</b>	D4C	4 Cores DNV CPU
	D8C	8 Cores DNV CPU

<b>Hard Drive</b>	64S	64 GB MLC SSD
	128S	128 GB MLC SSD
	256S	256 GB MLC SSD
	512S	512 GB MLC SSD
	1000S	1000 GB MLC SSD
<b>RAM</b>	4R	4 GB RAM
	8R	8 GB RAM
	16R	16 GB RAM
	32R	32 GB RAM
	64R	64 GB RAM
	128R	128 GB RAM
<b>Interface Type</b>	LA	LTE with APAC (Asia) bands
	LE	LTE with EU/USA bands
<b>Wifi</b>	W	Wifi module

### SUPPLIED ACCESSORIES

AC/DC power adaptor for ETX-2V-CA

### OPTIONAL ACCESSORIES

#### VCPE-OS

Carrier-grade operating system for virtualization

#### CBL-SGW-RJ45-D9-F-6FT

RJ-45 to DB-9 cable for connecting to terminal

#### CBL-ETX-2V-CA/OPEN/2M

Cable for connecting ETX-2V-CA to DC power source with locking connector on one side and open 2 wires on the other, 2m long

#### Mounting Kits

##### RM-ETX-2V-CA/AC/2CMB/4U

19" Rack mount Kit for ETX-2V-CA/AC/2CMB/4U

##### RM-ETX-2V-CA/AC/2SP/6U

19" Rack mount Kit for ETX-2V-CA/AC/2SP/6U

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