

ETX-2i-400G

High-Density 400G Demarcation & Aggregation Platform



- 400G Ethernet demarcation and aggregation device designed to deliver SLA-based, high-performance networking services for massive data transfer across data centers, clouds and enterprise sites
- High-scale aggregation of multiple 100GbE services into a single 400G uplink
- Line rate MACsec* with Quantum Key Distribution (QKD) and Post Quantum Cryptography (PQC) readiness
- Compact 1RU form factor with low power consumption
- Carrier-grade resiliency, OAM, and SLA assurance capabilities.

Today's AI driven world requires massive bandwidth, low latency and high security.

ETX-2i-400G is a high density, carrier grade demarcation and aggregation platform designed to address the bandwidth, latency, and security requirements of AI driven networks. Optimized for 400G Ethernet environments, the system consolidates multiple lower speed services into a single 400G uplink, reducing network complexity, footprint, and power consumption.

Built on RAD's proven ETX-2i platform, the ETX-2i-400G delivers advanced traffic management, security enhancement, post-quantum data cryptography-readiness, together with comprehensive service assurance in a compact 1RU form factor.

ETX-2i-400G provides MEF 10.3 color-aware and unaware policers, delivering high-scale multi-CoS services with hierarchical Quality of Service (HQoS). It supports advanced scheduling, WRED per CoS, shaping per EVC and per port, with flexible classification rules and access lists.

ETX-2i-400G can be configured to forward or discard Layer-2 control frames (including other vendors' L2CP frames).

MARKET SEGMENTS AND APPLICATIONS

Cloud migration, storage replication, disaster recovery, hybrid cloud architectures, and multi-site business applications - continue to fuel the need for high capacity, low latency connectivity, in addition to recent years of even higher bandwidth requirements for AI training and AI inferring. Suitable for massive east-west traffic is generated as organizations train models, and operationalize distributed inference across enterprise sites, data centers and clouds. The ETX-2i-400G is engineered to meet the ultra-high capacity, low latency, and security demands of modern data center interconnect. It delivers

assured performance with advanced traffic management, hierarchical QoS, readiness for line rate MACsec encryption, and a quantum safe security framework, supporting massive data transfer across data centers, clouds and enterprise sites.

The ETX 2i 400G incorporates a comprehensive set of Carrier Ethernet service tools, making it ideal for carriers, service providers, municipalities, wholesale providers, and mobile operators. It supports unified, SLA based Ethernet business services including E Line, E LAN, and E Tree service models certified to MEF 3.0 and CE 2.0.

ETX-2i-400G enables operators to deliver service level guarantees, by supporting multi-layer diagnostics, fine-grained SLA enforcement, and accurate performance monitoring. Built-in service activation testers verify end-to-end network performance.

INTEROPERABILITY

ETX-2i-400G features and services are standard-based and should work with any 3rd party equipment using standard based features and services.

NETWORK TOPOLOGIES

The ETX 2i 400G supports multiple network topologies, including linear, daisy chain, and self-healing ring architectures (G.8032v2). It interoperates with any standard compliant Ethernet device to enable flexible network design. s.

SERVICES

ETX-400G delivers services of up to 400 GbE using a mix of 400GbE and 100GbE interfaces, supporting CE 2.0/MEF 3.0 compliant service models.

RESILIENCY

ETX 2i 400G provides fast protection against network failures across linear, ring, and dual homing topologies. Supported mechanisms include IEEE 802.3ad link aggregation, G.8032v2 Ethernet ring protection, and G.8031 Ethernet linear protection, ensuring sub 50 ms service restoration.



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MONITORING AND DIAGNOSTICS

The system features multi-layer OAM and performance monitoring tools implemented in hardware for scale and accuracy. Supported capabilities include IEEE 802.1ag, IEEE 802.3ah, TWAMP Light, ICMP Echo, Y.1564, and RFC2544 service activation testing, enabling rapid fault isolation and SLA verification.

MANAGEMENT AND CONTROL

ETX-2i-400G runs RAD's carrier-grade operating system, providing a consistent provisioning and maintenance experience across the ETX-2/i family. Management options include RADview NMS, SNMP-based systems, CLI access, and NETCONF/YANG for SDN orchestration.

The platform supports Zero Touch provisioning for secure, automated onboarding and service deployment.

Specifications

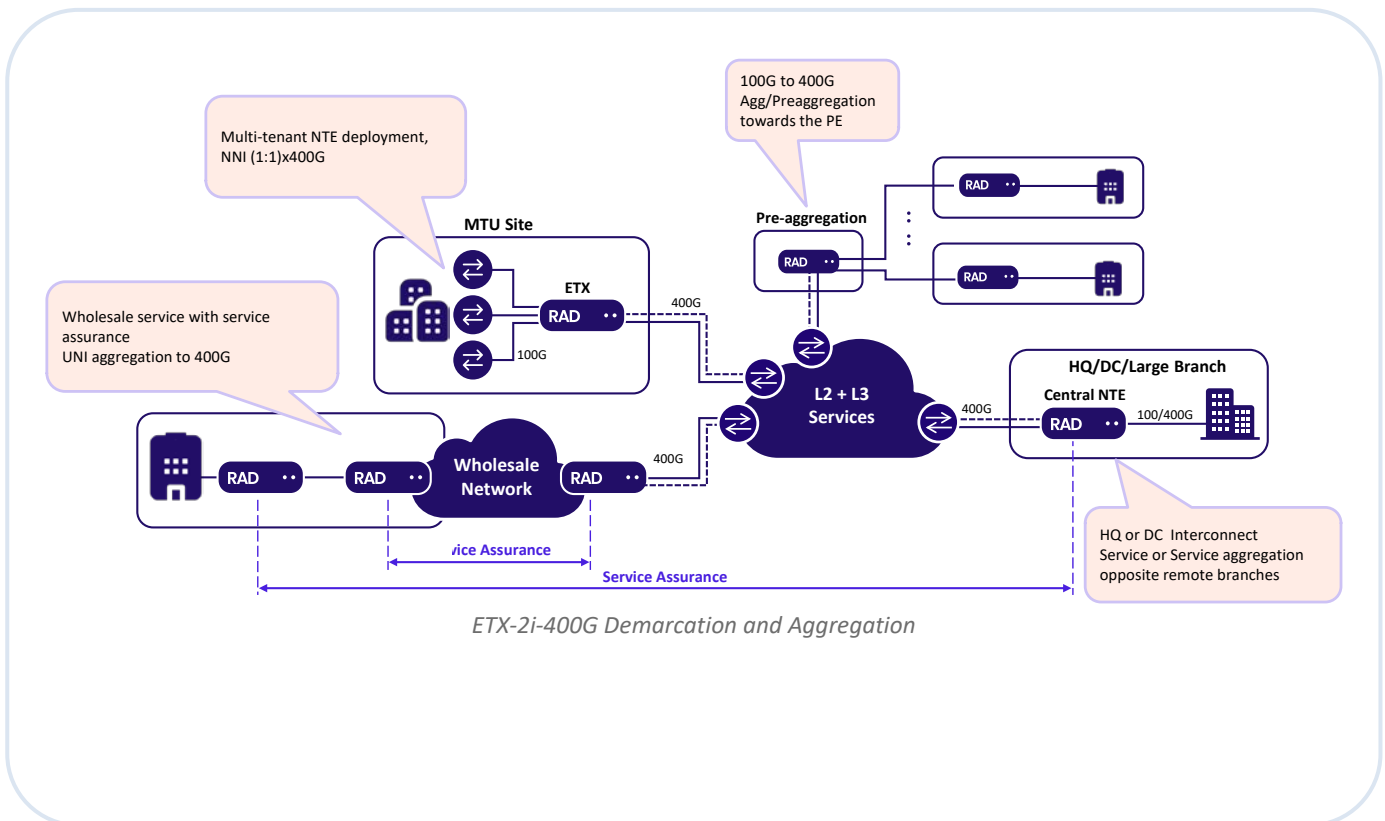
ETHERNET INTERFACE PORTS

400G-2QDD-4QSFP	2 QSFP-DD 400GbE
	4 QSFP28 100GbE

Note: It is strongly recommended to order this device with **original** RAD transceivers. RAD cannot guarantee full compliance to product specifications for units using non-RAD transceivers. For full details on SFP/SFP+/QSFP28/QSFP+ transceivers, see the **Pluggable Transceivers data sheet**.

BRIDGE

Compliance	802.1D, 802.1Q, 802.1ad
Frame Size (max)	9600 bytes
Mode	VLAN-aware, VLAN-unaware
VLAN Editing	Inner/outer VLAN editing per VLAN and p-bit values



NETWORKING CAPABILITIES

Flow Classification Rules	Outer VLAN or outer + inner VLAN
	PCP
	TOS/DSCP
	EtherType
	IP/MAC source/destination address
Layer-2 Forwarding	Jumbo frame support
Policing	Color aware/unaware dual token bucket with user-configurable CIR + CBS and EIR + EBS
	2-rate/3-color policing per EVC.CoS
	Bandwidth policing per MEF 10.3
	Hierarchical envelope policer per MEF 10.3
	MultiCoS EVCs per MEF 10.3
	Handle elephant flows through a 'fat-pipe detection' mechanism
Scheduling	8 × CoS per EVC scheduling elements
	Strict Priority (SP) and Weighted Fair Queue (WFQ)
Services	Ethernet E-LAN, E-Line, E-Tree
	MEF CE2.0 compliant
	Layer-2 services with available bandwidth
Shaping	Per port
	Per EVC
	Per EVC.CoS

DIAGNOSTICS

Connectivity Fault Management (CFM)	Per IEEE 802.1ag
Counters	RMON2 port-level counters
Delay and Loss Measurements	Per MEF 36
EFM Link-fault OAM	Per IEEE 802.3ah
ICMP Echo	Over L2 and L3 services
	Tests IP connectivity (PING)
KPI Measurements	Accurate one-way KPI measurements
Limiting Multicast Traffic Flooding	DHCP and MLDv2 snooping
Link-Level OAM	Per IEEE 802.3-2005
LLDP Discovery	Per IEEE 802.1AB
Loop Prevention	Using MSTP and RSTP
Loopback Tests	Non-disruptive loopback per flow, with MAC/IP address swap
	Loopbacks at Ethernet port level
	On-demand Layer-2 and 3 loopbacks
Service Activation Tests	RFC-2544: 8 built-in wirespeed testers
	ITU-T Y.1564: 8 built-in wirespeed testers
Service Utilization and Performance Monitoring	Per ITU-T Y.1731.2012, including synthetic loss measurement
TWAMP	RFC 5618 TWAMP responder and receiver
	TWAMP sender
	RFC 5357 TWAMP – Light generator and responder (SW license)
	ITU-T Y.1731 PM (SLM; DM)

RESILIENCY

Dual Homing	Dual-homing link redundancy
Ethernet Path Protection	G.8031 linear 1:1 protection
Ethernet Ring	G.8032v2 rings with sub 50 ms protection for Ethernet traffic
Link Aggregation	Load balancing LAG with up to 4 ports in a LAG group

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MANAGEMENT AND SECURITY

Management Options	Local management via LAN port or serial port Remote management via in-band VLAN
Plug and Play Zero Touch Provisioning	DHCP auto-configuration XML configuration files download via TFTP/SCP Configuration backup and restore
Protocols and Security	Password-protected access Authorization levels SSH (Secure CLI) Telnet SNMPv3 SFTP NETCONF/YANG management interface Dual Stack IPv4 and IPv6 RADIUS or TACACS+ authentication Access Control List (ACL)

Control Port

Interface	V.24/RS-232 DCE
Connector	RJ-45
Format	Asynchronous
Data Rate	9.6, 19.2, or 115.2 kbps

Ethernet Management Port

Type	10/100BASE-T
Connector	RJ-45

PHYSICAL

Height	44 mm (1.7 inch)
Width	440 mm (17.3 inch)
Depth	377.5 mm (14.2 inch)
Weight	7.35 kg (16.2 lb) – when using 2 power supplies 6.58 kg (14.5 lb) – when using 1 power supply

ENVIRONMENTAL

Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Temperature	Regular: 0 to 50°C (32 to 122°F)
Humidity	5% to 90%, non-condensing
Fans	5+2 (simultaneous fan operation; automatic fan level control)
Airflow	Front to back airflow

POWER

Power Supply	Hot swappable, redundant AC and/or DC PS AC: 100-240 VAC nominal (±10%), 2.5A/1A, 50/60 Hz DC: 48 VDC (40-60 VDC), 5A
Power Consumption	180-220W (max) 120-140W (average/typical) 110W (minimum)

STANDARDS COMPLIANCE

CE	CE 2.0 / MEF 3.0
MEF 3.0	E-Access: Access EPL, Access EVPL E-LAN: EP-LAN, EVP-LAN E-LINE: EPL, EVPL E-Tree: EP-Tree, EVP-Tree
MEF 6	E-Line: EPL and EVPL E-LAN: EPLAN and EVPLAN
MEF	MEF 9, MEF10, MEF 14, MEF 20, MEF 36, MEF 46
IEEE	802.3, 802.3u, 802.1D, 802.1Q, 802.1p, 802.3ad, 802.3-2005, 802.1ax, 802.1ag
ITU-T	Y.1731, G.8031, G.8262, G.8265, RFC-2544, Y.1564

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Ordering

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

ETX-2i-400G HARDWARE

ETX-2i-400G/ACR/2QDD/4Q (2 QSFP-DD 400G, 4 QSFP28 100G)

ETX-2i-400G/DCR/2QDD/4Q (2 QSFP-DD 400G, 4 QSFP28 100G)

SUPPLIED ACCESSORIES

AC power cord (for AC models)

DC power cord (for DC models)

RM-50/19

HW kit for mounting ETX-2i-400G in a 19-inch rack (flat installation)

OPTIONAL ACCESSORIES

ETX-2i-400G-PS/AC

ETX-2i-400G-PS/DC

RM-50/19/A

Mounting kit for ETX-2i-400G 100mm deep installation on 19-inch rack, this RM can be used for flat installation too

RM-50/23

Hardware kit for mounting ETX-2i-400G into a 23-inch rack

RM-50/23F

Hardware kit for mounting ETX-2i-400G into a 23-inch frame

International Headquarters

24 Raoul Wallenberg St., Tel Aviv 6971920, Israel
Tel/Fax 972-52-4748272 | Fax 972-3-6498250
Email market@rad.com

North American Headquarters

900 Corporate Drive, Mahwah, NJ 07430, USA
Tel 201-529-1100 | Toll Free: 800-444-7234 | Fax: 201-529-5777
Email market@radusa.com



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