ETX-1300

Gigabit Ethernet Aggregation Switch

- Aggregation of 32 fiber optic or electrical Fast Ethernet interfaces into Gigabit Ethernet Network
- Link resiliency and service continuity, using Link Aggregation (IEEE 802.3ad) and Ethernet ring protection (G.8032)
- Quality of Service with queue mapping per port, P-bit, DSCP, or ToS
- Ethernet bridging and switching with VLAN-aware, VLAN-unaware, and VLAN stacking modes
- Link-level Ethernet OAM per IEEE 802.3ah for network monitoring and troubleshooting

ETX-1300 is a compact Ethernet aggregation switch with four Gigabit Ethernet ports and 32 Fast Ethernet ports providing resilient network architecture with G.8032 ring support or 802.3ad linear protection. Featuring non-blocking architecture, the device enables wire-speed data transmission for Layer-2 Ethernet connectivity.

ETX-1300 introduces a robust, carrier class design with redundant extractable power supplies, external alarm port and clock interfaces for input or output clock synchronization.

ETHERNET

ETX-1300 features the following PSN ports:

- Four Gigabit Ethernet ports with SFP-UTP combo connectors
- 32 Fast Ethernet ports with fiber optic SFP or UTP connectors.

Forwarding
ETX-1300 includes an internal bridge, operating in VLAN-aware and VLAN-unaware modes.

VLAN stacking can be used for traffic separation between different users or services, by defining a service provider VLAN ID per customer or service. When VLAN stacking is used, a service provider VLAN tag is added to the user traffic and removed from network traffic. Both service provider VLAN ID and service provider VLAN priority can be defined.

Classification
Policing and classification of the traffic flows are performed between any ingress and any egress Ethernet port of the device. ETX-1300 monitors traffic with specified flow parameters, allocates bandwidth, forwards traffic to different queues according to classification parameters etc.

OAM
ETX-1300 supports link level OAM per IEEE 802.3ah enabling link management including OAM discovery, link monitoring, remote fault detection, and remote loopback control operations.

Traffic Management
User traffic can be queued and prioritized according to VLAN priority and ToS/Diffserv.

Ingress and egress rate can be limited per user and network ports.

Smart SFPs
When equipped with a removable MiRICi-E3T3 module (ver. 2.5), a fiber FE port can operate as an E3 or T3 port, forwarding LAN packets to TDM-based WAN. When operating in the T3 mode, MiRICi-E3T3 modules are fully controllable via ETX-1300 management application.

Note: ETX-1300 equipped with the AC or 48 power supply modules supports up to 16 MiRICi-E3T3 units. When equipped with two high-power ACHP or 48HP power supply modules, ETX-1300 can host up to 32 MiRICi-E3T3 units.

RESILIENCY

LAG
Link aggregation is performed as per 802.3ad (with or without LACP). This enables operators to use up to four Ethernet links as a single virtual interface, sharing traffic load and providing link resiliency.

Ethernet Ring Protection
Ethernet Ring Protection technology per G.8032 provides resilient network connection over ring architecture and rapid service restoration.

TIMING AND SYNCHRONIZATION

ETX-1300 features a flexible clock mechanism using external and internal timing signals coming from:

- Timing from GbE ports (Sync-E)

- External station clock source via station clock port, providing out-of-band synchronization.

MANAGEMENT AND SECURITY

The unit can be managed using different ports and applications:

- Local out-of-band management via a terminal connected to the RS-232 port

- Remote out-of-band management via the dedicated 10/100BaseT port

- Remote inband management via the GbE or FE interface. Remote management is performed using Telnet or RADview, RAD's SNMP-based EMS.

OPERATION AND MAINTENANCE

Software download is available via local terminal using XMODEM/YMODEM, or remotely using TFTP/FTP.

Syslog

ETX-1300 uses the Syslog protocol to generate and transport event notifications over IP networks to the central Syslog server. The Syslog operation complies with the RFC 3164 requirements.

MONITORING AND DIAGNOSTICS

Comprehensive monitoring and diagnostic capabilities include port status indication and statistic counters for Gigabit Ethernet interfaces.

Alarms

The device includes a dry-contact connector for reporting alarms to external equipment. The connector also has an external alarm input for monitoring external sensors.

For diagnostic purposes, ETX-1300 maintains a cyclic event log file that stores up to 2048 time-stamped events and a real-time current alarm list.

Self-Test

An internal built-in test (BIT) performed after power-up checks the internal circuitry of the unit. The results of the test are visible via the local terminal.
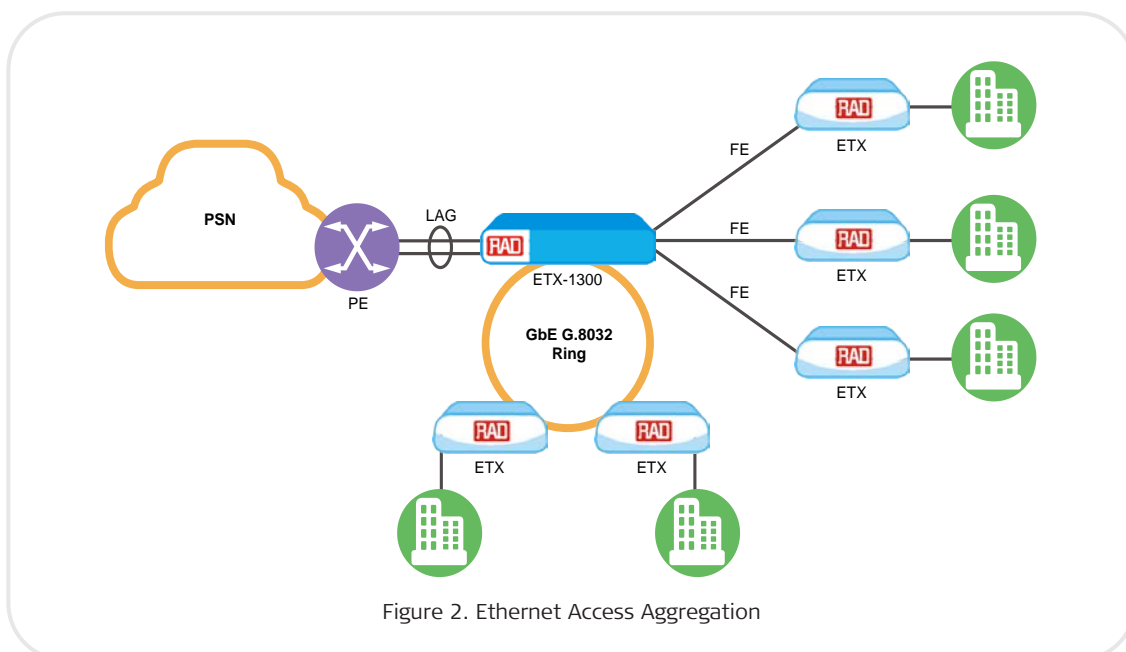
Applications

Figure 2. Ethernet Access Aggregation

Specifications

GIGABIT ETHERNET INTERFACES

Number of Ports
4

Type
1000BaseSX, 1000BaseLX, 10/100/1000BaseT

Compliance
IEEE 802.3, 802.1, 802.1 Q

Connector
SFP-UTP combo

FAST ETHERNET INTERFACES

Number of Ports
32

Type
100BaseFX, 100BaseLX10, 100BaseBX10, 10/100BaseT

Connector
Fiber optic (via SFP) or built-in RJ-45

BRIDGE

Type
VLAN-aware, VLAN-unaware

Filtering and Forwarding
MAC learning and filtering

FLOWS

Ingress port, egress port, drop action, traffic class

Policer profile: CIR+CBS

Classification rules: VLAN, VLAN + P-bit, IP ToS, IP DSCP

QUALITY OF SERVICE (QOS)

Rate Limitation
Ingress, ingress storm, egress

Scheduling
HQP, WRR

Classification
VLAN, P-bit, IP Precedence, IP DSCP

MANAGEMENT

Authentication
RADIUS client

Control Port
Interface: V.24/RS-232 DCE
Connector: 9-pin D-type, female

Ethernet Management Port
Interface: 10/100/1000BaseT
Connector: RJ-45

Management Options
SNMPv1, SNMPv2c, SNMPv3

Telnet

ASCII terminal

TIMING

Synchronous Ethernet
Per ITU-T G.8261

External Clock
2.048 Mbps input/output via two BNC, unbalanced (75Ω) connectors, G.703, HDB3/AMI code

2.048 Mbps via dedicated RJ-45 balanced 120 connector, G.703, HDB3/AMI code, 2048 kHz squarewave (RS-485 electrical levels)

RESILIENCY

Link Aggregation
Up to 4 GbE ports only, with or without LACP

Ethernet Ring
Per G.8032

DIAGNOSTICS

Connectivity Verification Tools
Ping, traceroute, Virtual Cable Test (VCT)

External Alarm Interface
Via dedicated DB-9 female connector

GENERAL

Indicators
LINK (green) – Ethernet link status

ACT (yellow) – Ethernet activity status

TST (yellow) –Test status

ALM (red) – Alarm status

PS1 (green) – Power supply status

PS2 (green) – Power supply 2 status

Power
AC: 100 to 240 VAC (115/230 VAC nominal), 50/60 Hz

DC: 40 to 72 VDC (48 or 60 VDC nominal)

Power Consumption
75W max

Physical
Height: 43 mm (1.7 in)
Width: 440 mm (17.5 in)
Depth: 350 mm (13.7 in)
Weight: 5 kg (11 lb)

Environment
Temperature: 0 to 50°C (32 to 122°F)

Humidity: Up to 90%, non-condensing

ETX-1300
Gigabit Ethernet Aggregation Switch

Ordering

RECOMMENDED CONFIGURATIONS

ETX-1300/48R/32N
Gigabit Ethernet aggregation switch, redundant -48 VDC power supply, 32 empty SFP slots

ETX-1300/48R/32UTP
Gigabit Ethernet aggregation switch, redundant -48 VDC power supply, 32 10/100BaseT UTP ports

ETX-1300/ACR/32N
Gigabit Ethernet aggregation switch, redundant AC power supply, 32 empty SFP slots

ETX-1300/ACR/32UTP
Gigabit Ethernet aggregation switch, redundant AC power supply, 32 10/100BaseT UTP ports

SPECIAL CONFIGURATIONS

Please contact your local RAD partner for additional configuration options

SUPPLIED ACCESSORIES

Power cord

DC power connection kit

RM-34
Hardware kit for mounting one ETX-1300 unit into a 19-inch rack

OPTIONAL ACCESSORIES

ETX-1300-PS/@
Power supply and fan module

@ Power supply:
   AC   100 to 240 VAC
   48   -48 VDC

CBL-DB9F-DB9M-STR Control port cable

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