

Alcatel-Lucent 1642 Edge Multiplexer

RELEASE 3.2

The Alcatel-Lucent 1642 Edge Multiplexer (EM), part of the Alcatel-Lucent Optical Multi-Service Node (OMSN) family, is an ideal space-saving, multiservice building block for customer premises and business locations. It enables business, residential and mission-critical communications in the metro network, providing unmatched performance for its size. The Alcatel-Lucent 1642 EM is a Synchronous Transfer Mode 1/4 (STM-1/4) multiservice provisioning platform (MSPP) offering TDM and Ethernet services with superior E1 density and rich-featured Ethernet, and is MEF certified.



Features

- Supports E1, E3, DS3, STM-1, STM-4 and 10/100/1000 Ethernet
- Compact design for customer-premises or network-edge deployment
- Outstanding E1 density for a CPE device, with up to 128 ports/chassis
- Ethernet over SDH (EoS) with VC-12/3/4 switching
- MEF-certified Ethernet Line (E-Line) and Ethernet LAN (E-LAN) services
- Synchronous Digital Hierarchy (SDH) protection with Sub-Network Connection Protection (SNCP) and Multiplex Section Protection (MSP) (1+1)
- Shared data cards and Alcatel-Lucent Integrated Service Adapters (ISAs) with other MSPPs in the Alcatel-Lucent OMSN product family
- ITU-T G.8032v2 Ethernet Ring Protection (ERP)
- Synchronous Ethernet (SyncE) for Alcatel-Lucent ISA Ethernet Switch (ISA-ES) blades linked to SDH Synchronization Status Message (SSM)

Benefits

- Extends high-capacity TDM and rich-featured Ethernet services to the customer premises
- Reliable and flexible SDH transport
- Data-card sharing with the Alcatel-Lucent OMSN for full feature transparency and reduced spare card inventory
- TDM and data services for fixed, wireless and enterprise services
- Support for always-on, mission-critical applications
- Support of ITU-T G.8032 v2 ERP for 100 percent increase in EoS bandwidth for protected services
- Support of SyncE derived from SDH synchronization supply unit (SSU) quality

Technical specifications

Interfaces

- Network interfaces: compact ADM function with one of:
 - 2 x STM-1
 - 2 x STM-4 (S/L)
- Customer interfaces (four slots available for each)
 - 8/28/32 x 2 Mb/s (2 mm HM interface/RJ-45/ 75 Ω and 120 Ω)
 - 8 x 2 Mb/s retiming (coaxial interface)
 - 1 x 34/45 Mb/s
 - 1 x STM-1 (electrical, S-1.1, L-1.1 or L-1.2)
 - Up to 8 x Ethernet 10/100 Base-T
 - Up to 1 x Ethernet 100 Base-FX
 - Up to 2 x Ethernet 1000 Base-LX/SX/ZX

Connectivity

- Up to 18 x 18 STM-1 equivalent full non-blocking SDH fabric (HO) and 12 x 12 STM-1 equivalent full non-blocking SDH fabric (LO) in all configurations
- 6 x 6 STM-1 equivalent full non-blocking SDH fabric (HO/LO) in STM-1 configuration
- Unidirectional, bidirectional and broadcast connections
- Line and VC loopbacks
- Ethernet over SDH with Layer 2 networking (for example, VLAN/Q-in-Q) over mesh, rings and spurs

Equipment protection

- -48 V DC power redundancy

Network protection

- SNCP
- SNCP drop and continue
- MSP 1+1
- Collapsed single-node ring interconnection
- Collapsed dual-node ring interconnection
- ITU-T G.8032 v2 ERP

Monitoring

- Performance monitoring according to ITU-T G.784, G.826 and G.821
- Path overhead monitoring (POM) on all VCs
- Ethernet performance-monitoring counters

Synchronization

- Internal oscillator ± 4.6 ppm
- Holdover drift ± 0.37 ppm per day
- External sources: STM-n/2 Mb/s ports; one external 2 Mb/s input/output
- Priority and quality (SSM) synchronization algorithms
- SyncE for Alcatel-Lucent ISA-ES blades linked to SDH SSM

Data cards

ISA-ES1

- 1 Gb/s throughput
- 155 Mb/s back-panel capacity
- Two versions:
 - 8 x Ethernet 10/100Base-T
 - 2 x Ethernet 10/100Base-T + 1 x Ethernet 100Base-FX
- GFP-F/LAPS, VCAT and LCAS
- LACP
- VC-12/VC-3/VC-4 terminations
- VC groups: maximum eight at 50/2/1
- Classification/forwarding
 - Per port
 - MAC destination address (DA): IEEE 802.3
 - C-VLAN/S-VLAN
 - IEEE 802.1p
 - Differentiated services code point (DSCP)/ToS
 - Ethertype
- Ethernet multicast: IGMP
- Ethernet OA&M, CFM
- Q-in-Q: IEEE 802.1Q/ad
- Quality of Service (QoS): IEEE 802.1p
- Class of Service (CoS): guaranteed, regulated and best effort
- Congestion avoidance
- STP/RSTP/MSTP/PVSTP: IEEE 802.1d/w/s
- ITU-T G.8032 v2 ERP

- Ethernet performance counters
 - Per port/aggregate/flow
 - Incoming/outgoing
 - Unicast
 - Multicast
 - Broadcast
- E-Line, E-LAN and Ethernet aggregation services in accordance with MEF

ISA-ES4

- 2.5 Gb/s throughput
- 622 Mb/s back-panel capacity
- 2 x GE using Small Form Factor Pluggable (SFP), 4 x Ethernet 10/100Base-T
- GFP-F/LAPS, VCAT and LCAS
- LACP
- VC-4 terminations
- VC groups: maximum 16 at 63/12/4
- Classification/forwarding
 - Per port
 - MAC DA: IEEE 802.3
 - C-VLAN/S-VLAN
 - IEEE 802.1p DSCP/ToS
 - Ethertype
- Ethernet multicast: IGMP
- Ethernet OA&M CFM
- Q-in-Q: IEEE 802.1Q/ad
- QoS: IEEE 802.1p
- CoS: guaranteed, regulated and best effort
- STP/RSTP/MSTP/PVSTP: 802.1d/w/s
- ITU-T G.8032 v2 ERP
- Congestion avoidance
- Ethernet performance counters
 - Per port/aggregate/flow
 - Incoming/outgoing
 - Unicast
 - Multicast
 - Broadcast
- E-Line, E-LAN and Ethernet aggregation services in accordance with MEF

Power

- Station battery
 - -48 V DC
 - 220 V AC
- Power consumption: 40 W (typical)

Physical dimensions

- Chassis size
 - Height: 88 mm
 - Width: 443 mm
 - Depth: 295 mm
- Installation options
 - Desktop
 - Wall-mount
 - ETSI rack

Environment

- Operating environment: ETS 300 019, Class 3.2
- Storage environment: ETS 300 019, Class 1.2
- Transportation environment: ETS 300 019, Class 2.2
- ESD/EMC: ETSI EN 300 386, "Other than Telecommunications Center" Class B
- EN 50121, "Railway applications"

Operation

- Alcatel-Lucent 1350 Optical Management System (OMS)
- CMISE craft terminal through RS-232 at 38.4 kb/s
- Network management access through either of:
 - QB3 interface
 - Qecc G.784
- Local and remote software download
- Remote inventory
- Housekeeping: 3 inputs plus 1 output
- Auxiliary channels: EOW, 12 x RS232

Standards compliance

- Latest relevant ITU-T standards
 - G.7041
 - G.7042
 - G.707
- ETSI
- IETF
- IEEE
- MEF 9, MEF 14, MEF 21 certified
- ITU-T G.8032 v2



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