

Alcatel-Lucent 1665 DMX

DATA MULTIPLEXER | RELEASE 9

The Alcatel-Lucent 1665 Data Multiplexer (DMX) integrates Ethernet, storage area network (SAN) and SONET functionality into a high-capacity, compact platform. This combination enables multiservice growth for service providers from traditional voice/private line services to a hybrid mix of voice/private line, data/packet and SAN transmission services. For deployment and operational simplicity, the 1665 DMX shares common software and many interfaces with its compact companion product, the Alcatel-Lucent 1665 DMX*tend*. The Alcatel-Lucent 1665 DMX and 1665 DMX*tend* are key components of the comprehensive Alcatel-Lucent optical portfolio, providing end-to-end optical solutions for today's metro and long-haul networks.



Features

- TDM interfaces from DS1 to OC-192
- Ethernet support up to full line-rate GigE
- SAN interfaces: FC/FICON/ESCON
- SONET protection on all services
- 240 G STS-1 and 40 G VT1.5 switch fabric with a very large fabric (VLF) main
- Rich, full-featured Ethernet capabilities and services; Metro Ethernet Forum certified
- Outside plant (OSP) hardened for cabinet and hut deployments
- Electrically hardened for utility substation deployment
- Shared software and many shared interface modules with the Alcatel-Lucent 1665 DMX*tend*

Benefits

- Increases revenue potential with high TDM port density and integrated Ethernet, SAN and resilient packet ring (RPR) interfaces supported by a robust feature set

- Helps preserve investments in SONET infrastructure while expanding packet services on a common platform
- Reduces space and power consumption
- Helps reduce operating costs with simplified maintenance, training and spare parts inventory
- Reduces the need for individually provisioned digital cross connections

Applications

- Multiservice aggregation: TDM (for voice and private line data), Ethernet, SAN
- Carrier Ethernet services
- Mobile backhaul network build-out
- Loop access/cabinet deployment
- High-capacity fiber build-outs for enterprise data centers and high-volume services
- Utility substation deployments

Technical specifications

Frame specifications

- High-capacity shelf (includes fan unit)
 - Height: 19 in. (483 mm)
 - Width: 17.6 in. (447 mm)
 - Depth: 13.75 in. (350 mm)
 - Weight (with circuit packs): 57 lbs (26 kg)
 - Weight (without circuit packs): 38 lbs (17.3 kg)

Interfaces (ports per pack)

- 28-port DS1 and 56-port DS1/E1
- 12-port and 48-port DS3/EC1 (DS3 loopbacks available)
- 12-port TransMUX (TMUX) and 48-port ported/portless TMUX
- 4-port OC-3 pack with Small Form Factor Pluggable (SFP) optics
- 8-port OC-3 pack with SFP optics
- 1-port OC-12 1.3 IR1/1.3LR1/1.5LR2 main packs
- 4-port OC-12 pack with SFP optics
- CWDM SFP optics for OC-3/12 tributary packs
- 1-port OC-48 1.3SR1/1.3LR1/1.5LR2/DWDM-compatible main packs
- 1-port OC-48 main pack with SFP optics
- 1-port OC-48 1.3IR1 tributary pack
- 4-port OC-48 pack with SFP optics
- 12-port OC-3/12/48 pack with SFP optics
- 8-port OC-3/12, 2-port OC-48 main (VLF) pack with SFP optics
- 1-port OC-192 1.3VSR/1.5IR-2/1.5LR2/DWDM-compatible main packs
- 1-port OC-192 main pack with SFP optics
- 2-port OC-192 VLF main with 240 G STS/40 G VT fabric and XFP optics
- External OC-48 and OC-192 optical amplifiers
- 24-port 10/100BASE-TX with auto-negotiation
- 1-port OC-192 tributary pack
- 4-port FE/GigE OSP hardened pack

- 4-port OC-192 Mains/4-port OC-48
- 4-port FC-DATA (ESCON or FC/FICON) with compression and SFP optics
- 4-port 10/100/1000BASE-T or 1000BASE-LX/SX/ZX with 4-port 100BASE-FX/LX/ZX (SFP optics) and LAG
- 4-port 1000BASE-SX/LX/ZX private line (SFP optics)
- 8-port 1000BASE-TX/SX/LX/ZX private line (SFP optics)
- 16-port 100BASE-TX (electrical ports) with 8 100BASE-FX/LX/ZX (SFP optics)
- 8-port VMUX/DMUX
- 10 G Muxponder (8 client-side ports with SFPs and 1 line-side port with XFP)
- 1-port OC-12 main pack with SFP optics
- 1-port OC-192 tributary pack with SFP optics
- 4-port OC-192 or 4-port OC-48 main (VLF) pack with 240G STS/40G VT fabric and XFP optics
- 4-port 100BASE-T/FX/LX/ZX or 1000BASE-T/SX/LX/ZX private line (SFP optics)
- Multiple in-service upgrade options

Switched data services

- Ethernet (10/100/1000 Mb/s) switched and private line
- Optical and electrical Ethernet (10/100/1000 Mb/s) interfaces with SFP optics
- ESCON or FC/FICON SAN transport using private line with 2x compression
- Point-to-point LAN transport (E-Line)
- Multipoint LAN interconnect (E-LAN)
- Hub and spoke (E-Tree)
- Link Capacity Adjustment Scheme (LCAS) dynamic bandwidth provisioning (ITU-T G.7042)
- Generic Framing Procedure (GFP, ITU-T G.7041)
- Link aggregation (LAG, IEEE 802.3ad, active/standby)
- VT1.5 and STS-1 virtual concatenation (VCAT, ITU-T G.707)

- Rapid spanning tree restoration per IEEE 802.1w and spanning tree per 802.1d
- IEEE 802.1q virtual local area networks (VLANs)
- IEEE 802.1p prioritization
- Multiple in-service upgrade options
- G.8032 support
- Enhanced security and access control list
- Active - standby LAG
- Wire-speed switching
- Ethernet facility loopbacks
- Variable bandwidth allocation on WAN interfaces
- Rate limiting using CIR and PIR

Network protection

- SONET UPSR, BLSR, 1+1, unswitched UPSR, 0x1, 0x1Sn
- IEEE 802.1d, 802.1w spanning tree and rapid spanning tree
- Facility loopbacks
- DS3 loopbacks
- UPSR DRI
- Bridge and Roll
- Pipe-mode cross-connects
- BLSR auto-squelch map and ring circuit audits
- ASON/GMPLS E-NNI
- G.8032 Ethernet Ring Protection support

Operating environment

- Hardened for outside plant deployment
 - Operating temperature: -40°F to +149°F (-40°C to +65°C)
 - Storage temperature: -40°F to +158°F (-40°C to +70°C)
 - Humidity: 5% to 95%
- Electrically hardened for utility substation deployment
 - Compliant to key criteria in IEEE 1613, IEEE C37.90
 - IEEE C37.90.1 surge withstand capability (SWC)
 - IEEE C37.90.2 radiated electromagnetic interference (RFI)
 - IEEE C37.90.3 electrostatic discharge (ESD)

Power

- Power feeds: -48 V DC dual redundant
- Power consumption
 - Configuration dependent
 - Typically 5.4 amps/260 watts

Network management

- TL1
- Alcatel-Lucent Optical Management System (OMS)
- Alcatel-Lucent 1340 Integrated Network Controller (INC)
- Telcordia TIRKS, NMA, transport support
- Alcatel-Lucent craft interface
- User panel includes
 - Status LEDs
 - RS-232 local and remote CIT
 - LAN interface
- Software download – local and remote using TCP/IP or OSI (over DCC for remote)
- SNMPv3 monitoring, gets and traps

Standards

- ANSI
- EMC
- NEBS Level 3
- Telcordia GR-253, GR-496, GR-499, GR-1400
- ITU-T
- UL and CSA certified
- CE marking
- Telcordia
- ISO 9001
- Rural Utility Service (RUS) certified
- IEEE 1613, IEEE C37.90
- Metro Ethernet Forum: MEF 9 and MEF 14 certified



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