

Alcatel-Lucent 1646 Synchronous Multiplexer and Alcatel-Lucent 1646 Synchronous Multiplexer Compact

RELEASE 2

The Alcatel-Lucent 1646 Synchronous Multiplexer (SM) and Alcatel-Lucent 1646 Synchronous Multiplexer Compact (SMC), part of the Alcatel-Lucent Optical Multi-Service Node (OMSN) family, are ideal Synchronous Digital Hierarchy (SDH) customer premises equipment (CPE) for the delivery of TDM and Ethernet services. They provide high capacity, high port density and very low power consumption while supporting high-speed Synchronous Transport Mode 16 (STM-16) rings, Fast Ethernet/Gigabit Ethernet (FE/GE) and Plesiochronous Digital Hierarchy (PDH) interfaces. The Alcatel-Lucent 1646 SM and Alcatel-Lucent 1646 SMC provide a rapid return on investment for fixed or wireless service providers and enterprises in virtually any network application.



Alcatel-Lucent 1646 SM



Alcatel-Lucent 1646 SMC

Features

- High capacity, high availability, compact CPE
- Common interface cards help reduce spares
- ETSI-compliant E1/T1, E3/T3, STM-1/4/16 interfaces (see Table 1 for maximum port density)
- SDH protection with Sub-Network Connection Protection (inherent) (SNCP/I) and SCNP (non-intrusive) (SNCP/N), linear Multiplex Section Protection (MSP 1+1), and Multiplex Section - Shared Protection Ring (MS-SPRing)
- FE/GE Ethernet interfaces
- Ethernet switching and Quality of Service (QoS)
- Ethernet Line (E-Line) and Ethernet LAN (E-LAN) services
- Ethernet Linear Protection (ELP) and Ethernet Ring Protection (ERP)

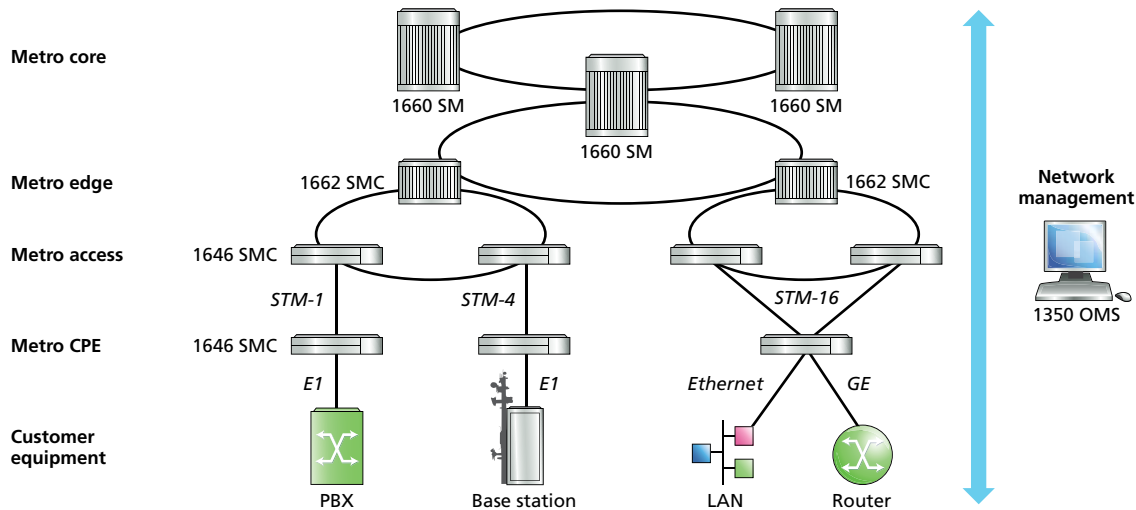
Benefits

- Extends the value and longevity of SDH networks with higher-speed access rings and Ethernet services
- Cost-effective CPE for high-margin services (Ethernet and leased-line)
- Ethernet, SDH and equipment protection support always-on, mission-critical applications
- Significantly reduces capital expenditures (CAPEX) with the latest integrated Application Specific Integrated Circuits (ASICs)
- Reduces operating expenditures (OPEX) with low power consumption and small footprint
- Managed by the Alcatel-Lucent 1350 Optical Management System (OMS) for end-to-end management across multiservice provisioning platform (MSPP), Packet Transport Network (PTN) and Wave Division Multiplexing (WDM) networks (see Figure 1).

Table 1. Alcatel-Lucent 1646 SM and 1646 SMC interfaces: maximum port density

MAXIMUM PORT DENSITY	GE	FE	E1/T1	E3/T3	STM-1	STM-4	STM-16
1646 SM	6	48	252	18	14	14	2
1646 SMC	2	24	105	6	6	6	2

Figure 1. Example of the Alcatel-Lucent 1646 SMC as part of a full Alcatel-Lucent OMSN network



Technical specifications

Cross-connect matrix

- 136 x 136 STM-1 equivalent fully non-blocking SDH matrix (HO)
- 32 x 32 STM-1 equivalent fully non-blocking SDH matrix (LO)

Main board interfaces

- 1646 SM
 - 1 x STM-1/4/16
- 1646 SMC
 - 2 x STM-1/4/16
 - 21 x E1/T1
 - 8 x FE (transparent)

Optional line cards

- Line card slots
 - 1646 SM: six
 - 1646 SMC: two
- 2 x STM-1 card
- 2 x STM-4 card
- 42 x E1 card
- 42 x T1 card
- 3 x E3/T3 card
- 1 x GE (transparent) card
- 8 x FE (L2 switching) card

Ethernet

- E-Line, E-LAN and transparent Ethernet services
- VLAN tagging (IEEE 802.1Q)
- QinQ (IEEE 802.1ad)
- ELP (ITU-T G.8031)
- ERP (ITU-T G.8032)
- Spanning tree (STP, RSTP)
- Link aggregation (IEEE 802.3ad)
- LCAS (ITU-T G.7042)
- Fault and performance monitoring (ITU-T Y.1731, IEEE 802.1ag)
- Link layer monitoring (IEEE 802.3ah)
- Traffic shaping (three classes, eight queues)
- Traffic policing and metering (two-rate, three-color)
- Ethernet performance monitoring

SDH protection

- SNCP/I, SNCP/N
- Linear MSP 1+1
- MS-SPRing

Equipment redundancy (1646 SM only)

- Power supply
- Main board

Synchronization

- STM-n, E1 ports
- External 2 Mb/s and 2 MHz inputs/outputs
- Priority and quality (SSM) synchronization algorithms

Network management

- Alcatel-Lucent 1350 OMS
- TL1

Power

- -48 to -60 V DC
- 100 V AC to 220 V AC (1646 SMC only)
- Typical power consumption
 - 1646 SM: 60 W
 - 1646 SMC: 20 W
- Maximum power consumption
 - 1646 SM: 120 W
 - 1646 SMC: 40 W

Chassis

- 1646 SM
 - Height: 88.9 mm (3.50 in.)
 - Width: 442 mm (17.40 in.)
 - Depth: 220 mm (8.66 in.)
- 1646 SMC
 - Height: 44.5 mm (1.75 in.)
 - Width: 442 mm (17.40 in.)
 - Depth: 220 mm (8.66 in.)

Environment

- Operating environment: -5°C to +45°C (23°F to 113°F), ETS 300 019, Class 3.2
- Storage environment: ETS 300 019, Class 1.2
- Transportation environment: ETS 300 019, Class 2.2
- ESD/EMC: ETS 300 386, Class A "Telecommunications center"
- EN 50121 "Railway applications"