

# OC-48/STM-16 Trunk Module

High quality SDH/SONET trunk for the Nimbra 300 series

## MODULE



The 2-port OC-48/STM-16 Trunk Module enables multi-service transport over standard OC-48/STM-16 links.

The 2-port OC-48/STM-16 Trunk Module for the Nimbra 300 series of multiservice switches enables efficient high-quality media transport over standard OC-48/STM-16 links.

The OC-48/STM-16 Trunk Module is a high capacity plug-in interface for the Nimbra one/300 series of multiservice switches. It features the same high quality transport found on all Nimbra trunk modules and enables trouble-free, high quality of service transport of real-time sensitive media services.

The Module incorporates an on-board switch matrix that increases the switch capacity of the Nimbra switch, which reduces costs and provides high capacities needed for Triple Play applications. The OC-48/STM-16 interface is also a good fit for highcapacity professional media networks

### Highest Bandwidth Utilization

The OC-48/STM-16 Trunk Module enables service multiplexing with granular bandwidth allocation in steps of 0,5 Mbps, to provide true multi-service transport with hard QoS requirements over SDH/SONET links.

With a link overhead of only 1.5% and support for non-hierarchical switching/multiplexing, the Nimbra 300 architecture provides industry leading network utilization.

### Multi-service Transport

The Trunk Module features two independent uni-directional Small Form-factor Pluggable ports (SFP) that can be fitted with various optical modules for different media. The module is suitable for all network topologies, including ring, point-point, bus, and mesh. The different Nimbra SDH/SONET trunk modules provide a very flexible edge multiservice switching system for demanding video, audio and data applications, with guaranteed 100% QoS.

### Unprecedented Availability

The 2 x OC-48/STM-16 Trunk Module provides extensive ITU-T G.826 compliant fault and performance monitoring options and supports dynamic network restoration and in-service hot swap for high availability. It is easily managed through CLI, Web GUI and SNMP.

# KEY FEATURES

## Standards compliant.

The ports comply to applicable SONET/SDH standards

## Pluggable optics.

The two OC-48/STM-16 ports are Small Formfactor Pluggable (SFP) compatible and can be fitted with SFP modules for different distances and fiber media.

## Non-blocking switch.

The module is equipped with a strictly nonblocking switch matrix with 7.5 Gbps capacity in order to handle all switching between West-Node-East, thereby off-loading the backplane from transit traffic.

## Very high link utilization.

Support for logical channels with 0.5 Mbps granularity and a link overhead of only 1.5% allows for a very high level of network utilization, without impacting QoS. Non-hierarchical switching and service multiplexing further increases the utilization level.

## Any topology.

The module support any topology; point-to-point, rings and mesh.

## Extremely low jitter and wander.

The module has on-board circuitry to eliminate jitter and wander impairments e.g. from pointer justifications in the underlying transport layer.

## Multiservice support.

Supports transport of a variety of services such as Ethernet, SONET/SDH, PDH, DVB-ASI, SDI and AES.

## QoS Multicast support.

Supports multicasting of layer 2 services such as Video over IP or ASI, with guaranteed QoS for each stream.

## Performance monitoring.

Standard performance metrics with G.826 style presentation of performance.

## Hot swap.

Supports in-service swapping of the module for low unavailability.

# TECHNICAL SPECIFICATIONS

**Form factor:** Plug-in unit to Nimbra 300 series, uses 1 slot

## Laser options:

Small Form-factor: STM-16 I-16 / OC-48 SR-1 (SM,1310nm, 2 km)  
Pluggable (SFP): STM-16 S-16.1 / OC-48 IR-1 (SM,1310nm, 15 km)  
STM-16 L-16.1 / OC-48 LR-1 (SM,1310nm, 40 km)  
STM-16 L-16.2 / OC-48 LR-2 (SM,1550nm, 80 km)  
CWDM 8 wavelengths (SM, 1470-1610nm, 80km)

## Framing:

OC-48: STS-48c, ANSI T1.105  
STM-16: STM-16; ITU-T Rec G.707

## Mapping:

SONET: STS-48c SPE  
SDH: VC-4-16c  
DTM: VC synchronous; ETSI ES 201 803-4

## Fault management:

SONET/SDH: LOS, LOF, LOP, SF, AIS, RDI (LED and Element Manager)

## Performance management:

ITU-T G.826 based  
Bins: 24h, 15min  
Parameters: ES, SES, BBE, UAS

## Maintenance:

Hardware: Hot swap  
Firmware: Remote download

**Power consumption:** <15W

## Management:

SNMP: v1/v2c/v3  
ElementManager: Web GUI, CLI  
Network Manager: Nimbra Vision

## Timing and Synchronization:

Timing modes:  
Locked: OC-48/STM-16; DTM network sync Hold-over  
Free-running: <4.6 ppm  
Built-in oscillator: Stratium 3 / G.813 option 1

## Environmental conditions:

Operating temp: 5 to 40 °C (41 to 104 °F)  
(short term): -5 to 55 °C (23 to 131 °F)  
Storage temp: -40 to 70°C (-40 to 156 °F)  
Relative humid: 10% to 90% (non-condensing)

## Regulatory compliance:

Safety: UL60950-1  
EN60950-1  
Laser safety: CFR 21 1040.10/11  
EMC: FCC 15 Class A  
EN 300 386  
CE marking: 93/68/EEC

## Ordering information:

NPS0022-3S31 OC-48/STM-16 X-ADM Module - Nimbra 300 series  
NPA0022-LS11 SFP-module OC-48/STM-16 SR1  
NPA0022-LJ11 SFP-module OC-48/STM-16 IR1  
NPA0022-LL11 SFP-module OC-48/STM-16 LR1  
NPA0022-VL21 SFP-module OC-48/STM-16 LR2

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