

# OC-3/STM-1 Trunk Module

High quality SDH/SONET trunk for the Nimbra 600 series

## MODULE



The 4-port OC-3/STM-1 Trunk Module enables high-quality multiservice transport over standard OC-3/STM-1 links.

The OC-3/STM-1 Trunk Module for the Nimbra 600 series of multi service switches enables high-quality transport of video, audio and data over standard OC-3/STM-1 links.

The 4-port OC-3/STM-1 Trunk Module is a high capacity plug-in interface for the Nimbra 600 of multiservice switches. It features the same high quality transport found on all Nimbra trunk modules and enables trouble-free service transport of real-time sensitive media services, with guaranteed QoS.

Fitted in a Nimbra 600 series switch, the 4-port OC-3/STM-1 Trunk Module constitutes an ideal edge solution for aggregating media services for transport over higher-bandwidth links.

The module provides a synchronous switched transport layer over OC-3/STM-1 infrastructure for efficient media transport. It features on-board circuitry to eliminate jitter and wander impairments from e.g. pointer justifications in the underlying transport layer.

### Highest Bandwidth Utilization

The OC-3/STM-1 Trunk Module enables service multiplexing with granular bandwidth allocation in steps of 0,5 Mbps to provide true multi-service transport of video, audio and data, with hard QoS requirements, over SDH/SONET links. With a link overhead of only 1.5% and support for non-hierarchical service switching/multiplexing, the Nimbra architecture provides industry leading network utilization.

### Multi-service Transport

The OC-3/STM-1 Trunk Module features 4 independent Small Form-factor Ports (SFPs) 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 core/edge multi-service switching system for demanding video, audio and data applications, with guaranteed 100% QoS.

### Unprecedented Availability

The 2 x OC-3/STM-1 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 and decoder combined with a transport layer providing fixed and predictable latency. Latency is configurable ranging from very low, utilizing FEC and re-transmission when network conditions allow, up to longer latency, using only re-transmission when the network conditions are harsh (up to approximately 30% of packet drops).

# KEY FEATURES

## 4 independent OC-3/STM-1 ports.

The board may be used e.g. to aggregate traffic from up to four Nimbra access nodes.

## Pluggable optics.

Each of the 4 OC-3/STM-1 ports is equipped with a Small Form-factor Pluggable (SFP) housing that can be fit-ted with SFP modules for different distances and fiber media.

## Very high utilization.

Each trunk port can carry up to 147 Mbps payload. This corresponds to a link overhead of only 1.5% as compared to for example the ATM cell tax of 10%. Non-hierarchical switching and multiplexing of services enhances utilization significantly.

## Carrier class.

The Nimbra 680/688 and its modules are designed to meet NEBS level 3 specifications for trouble-free operation.

## Multiservice operation.

Each port can carry any mix of data, video, audio and voice traffic.

## Multicast support.

The trunk module supports QoS guaranteed multicast of all service streams (i.e. Ethernet, DVB-ASI MPEG, PDH etc.)

## Extremely low jitter and wander.

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

## Performance monitoring.

Standard performance metrics with G.826 style presentation of performance for a consolidated link performance view.

## Hot swap.

Supports in-service swapping of the module for high availability.

## Ease of handling.

Managed by CLI, Web GUI or SNMP. Can also be managed by Nimbra Vision™ NMS.

# TECHNICAL SPECIFICATIONS

**Form factor:** Plug-in unit to Nimbra 600 series, uses 1 slot

## Laser options:

STM-1/OC-3 Multimode (MM,1310nm,2km)  
Small Form-factor: STM-1 S-11 / OC-3 IR-1 (SM,1310nm,15km)  
Pluggable (SFP): STM-1 L-11 / OC-3 LR-1 (SM,1310nm,40km)  
STM-1 L-12 / OC-3 LR-2 (SM,1550nm,80km)

## Framing:

OC-3: STS-3c, ANSI T1.105  
STM-1: STM-1, ITU-T Rec G.707

## Mapping:

SONET: STS-3c SPE  
SDH: VC-4  
DTM: VC synchronous; ETSI ES 201 803-4

## Fault management:

SONET/SDH: LOS, LOF, LOP, AIS, DEG, EXC, PLM, TIM, UNEQ, 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:** < 40W

## Management:

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

## Timing and Synchronization:

Timing modes:  
Locked: OC-3/STM-1; DTM network sync  
Hold-over  
Free-running: <4.6 ppm

## Environmental conditions:

Operating temp:  
(short term):  
Storage temp:  
Relative humid:

## 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:

NPS0044-6001 4 x OC-3/STM-1 Trunk Module  
NPA0016-SS11 SFP-module OC-3/STM-1 MM  
NPA0016-LJ11 SFP-module OC-3/STM-1 IR1  
NPA0016-LL11 SFP-module OC-3/STM-1 LR1  
NPA0016-VL21 SFP-module OC-3/STM-1 LR2

## Net Insight AB (publ)

Phone +46 (0)8 685 04 00, info@netinsight.net, www.netinsight.net

The information presented in this document may be subject to change without notice. For further information on product status and availability, please contact info@netinsight.net or visit www.netinsight.net ©Copyright 2015, Net Insight AB, Sweden. All rights reserved. Net Insight and Nimbra are trademarks of Net Insight AB, Sweden. All other registered trademarks are the property of their respective owners.

