Nokia ISAM FANT-H Network Termination Card

The Nokia ISAM FANT-H Network Termination card is a controller board that provides service and network intelligence in the Nokia 7360 ISAM FX and Nokia Lightspan FX access nodes. It has 3.2 Tb/s switching matrix, and delivers 100 Gb/s throughput to each line card, making it ideal for delivery of high capacity services in next generation fiber access networks.

The FANT-H Network Termination card provides 100 Gb/s, 40 Gb/s, 10 Gb/s, and 1 Gb/s links, which can be used for network interfaces, user connection or subtending. It supports high capacity applications and applications requiring high-stability clock. The FANT-H Network Termination card runs the same field-proven IP protocol stack as the Nokia aggregation routers and supports Ethernet, IPv4, IPv6 and Multi-Protocol Label Switching (MPLS).

Two FANT-H Network Termination cards can be run in Active-Active redundancy mode, ensuring system reliability and delivering 2x100Gb/s to each line card slot.

Features

- 3.2 Tb/s switching matrix (bidirectional)
- Active-active redundancy
- Supports 200 Gb/s connection to each line card slot
- Supports 2x (100 Gigabit Ethernet or 40 Gigabit Ethernet or 4x10 Gigabit Ethernet) on the front
- Supports additional 16x10 Gb/s or 4x40/100 Gb/s connections via NT Input/Output card
- Supports cross-NT and cross-NT/NTIO Link Aggregation Groups

- Each port can be used as network link, as subtending/aggregation link or as direct user link
- Clock synchronization: Building Integrated Timing Source (BITS), Synchronous Ethernet (SyncE) and Time of Day (ToD IEEE 1588) with high stability clock, BITS SyncE and ToD clock recovery
- MPLS forwarding with enhanced routing support: Routing Information Protocol (RIP), Open Shortest Path First (OSPF), Border Gateway Protocol (BGP) and Intermediate System-to-Intermediate System (IS-IS)
- Suited for deployment in temperature controlled environments

Benefits

- Switching and backplane capacity for high density next generation fiber deployments

- Delivers 99.999% availability

- Supports Carrier Ethernet services

- Provides fast recovery of critical services with MPLS fast-reroute

- Reduces number of aggregation network ports required

- Supports clock-critical applications: voice, leased lines and mobile transport

Technical specifications

External interfaces

- 2 QSFP cages each supporting 100 Gb/s link, 40 Gb/s link or 4x10 Gb/s link

- Optical connection through QSFP compatible optical modules

- 1 port electrical 10/100/1000BASE-T port (RJ-45 connector)

- 2 ports BITS interface: 1 port in, 1 port out, using ITU-T G.703 (ANSI interfaces available on separate GFC unit)

- ToD interfaces

- 1 port local craft management (LCM) interface using RS-232 (RJ-45 connector)

- 1 Alarm CutOff (ACO) button for alarm cut off and lamp test interfaces, for example, signaling and communication (ANSI ACO available on separate GFC unit)

Forwarding

- Ethernet bridging

- Virtual local area network (VLAN) stacking for residential and business access

- 802.3ad trunking: Link Aggregation Control Protocol (LACP)

- Multiple Spanning Tree Protocol (MSTP), Rapid Spanning Tree Protocol (RSTP) and Spanning Tree Protocol (STP) support

- MPLS

- L3 forwarding (IPv4 and IPv6)

- RIP v2, OSPF v2, BGP v4, IS-IS routing protocols

- Multicast forwarding, high performance Internet Group Management Protocol (IGMP) processing (incl. IGMP proxy) and MLDv1/v2

- IP Quality of Service (QoS)

- Dynamic Host Configuration Protocol (DHCP) relay, multiple instances

- Access control lists (ACL), denial of service (DoS) protection

- Malicious MAC-move protection

- Lawful intercept

- Hubbing support

- Ethernet ring connectivity (with ERPS support)

- Support for central broadband remote access server (BRAS)

- Point-to-Point Protocol (PPP) connectivity to single or multiple systems

- Up to 16,000 subscribers per system

Deployment

- Simple Network Management Protocol (SNMP)

- Command-line interface (CLI): telnet (RFC 854), Secure Shell (SSH)

- Transaction Language 1 (TL1): with or without SSH

- FTP:
  - File Transfer Protocol (FTP) (RFC 959)
  - Trivial File Transfer Protocol (TFTP)
  - Secure Shell File Transfer Protocol (SFTP), for backup and restore and software download

- Simple Network Time Protocol (SNTP)

- CLI and TL1 operator authentication: local or Remote Access Dial-In User Server (RADIUS) based
- Alarm management
- Performance monitoring
- Troubleshooting counters
- Monitoring of processor load and memory usage
- SFP digital diagnostics
- Connectivity Fault Management (802.1ag)
- IP Ping and trace route
- Protocol tracing
  - DHCP
  - Address Resolution Protocol (ARP)
  - IGMP
  - Output to CLI, syslog or local file

Eco-sustainability

- Switch ports can be selectively powered down
- Equipped with thermal sensors for temperature controlled cooling, resulting in maximum efficiency and low acoustic noise.

Standards compliance

- Environmental
  - ETS 300 019-1-1 storage – Class 1.1 (weather-protected, partly temperature-controlled locations)
  - ETS 300 019-1-2 transport –Class 2.3 (packed, public transportation)
  - ETS 300 019-1-3 stationary use – Class 3.1E (temperature controlled locations), when used in fully populated Nokia FX racks (with more than one shelf)

- Protection:
  - ITU-T K.20/K.45
  - relevant sections of GR-1089-CORE
- Safety:
  - IEC 60950-1/EN60950-1
  - relevant sections of GR-63-CORE and GR-1089-CORE
- EMC and ESD
  - ETSI EN 300 386 V1.6.1 (edition 09/2012) for telecommunication network equipment
  - GR-1089-CORE
- European directive 2011/65/EU on the restriction of the use of certain hazardous substances (RoHS) as amended including by Directive 2015/863/EU

Operating conditions

- -5°C to +45°C (23°F to 113°F) inlet/ambient temperature range, when used in fully populated Nokia 7360 ISAM racks (with more than one shelf)
- GR-63-CORE for operating temperature and humidity for Class 1 equipment
- Over-temperature sensors and over-temperature shutdown

Dimensions

- Height: 405 mm
- Width
  - Top: 225 mm
  - Bottom: 205 mm
- Board-to-board pitch: 30 mm

Contact us
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