IOM-620
Single Port Channelized OC-3 / STM-1 Card

The IOM-620 line card supports one channelized OC-3/STM-1 interface. When configured in SDH framing mode, the STM-1 interface is capable of supporting channelization into 63 independent E1s. When configured for SONET framing mode, the OC-3 interface is capable of supporting channelization into 84 independent T1s. These can be further channelized to support any combination of individual DS0s (64 kbps) or fractional T1/E1s accordingly.

The IOM-620 is available on the AXN1600, AXN800, and AXN100 Pseudo-Wire Gateways™. It is hot swappable and has no slot assignment restrictions on any of the AXN chassis. The IOM-620 line card requires a corresponding interface module that accommodates one pluggable optical transceiver per card.

IOM-620 Key Features:

- One OC-3 or STM-1 interface (software selectable)

- SFP LC duplex connector, supporting multi-mode short reach (2 km) or single-mode intermediate reach (15 km) optical interface per line card

- Channelization supported down to 1953 DS0s for STM-1 and 2016 for OC-3 (64 kbps level)

- Support of ITU-T G.707 SDH Virtual Container 12 (VC-12) mapping for STM-1 and VT1.5 mapping according to Telcordia GR-253-CORE (SONET)

- LAPS / L-MSP equipment protection

- Pseudo-Wire encapsulations per T1/E1 or nxDS0
    - T1/E1 structured (CESoPSN)
    - T1/E1 unstructured (SAToP)
    - Frame Relay
    - HDLC

- Layer-3 Forwarding Services
    - HDLC, FR, PPP

- IP Service Interworking (IP-IWF)
    - HDLC, FR, PPP

- Enables any PWE3 or IP service on any physical or logical (nxDS0) interface

- Supports 1/0 grooming – Removes the need for DACS

- Per OC-3/STM-1 and T1/E1 interface alarm processing and performance monitoring
    - 24-hour history retained, 15-minute intervals on all errors

- Per OC-3/STM-1 and T1/E1 interface diagnostics and loopback control

- Enables remote management capabilities through Axerra's CLI and AXNVision™ NMS

HARDWARE SPECIFICATIONS

Platform Support
- AXN1600, AXN800, and AXN100

Number of interfaces: 1
- OC-3 or STM-1 according to software selection

OC-3
- **Bit Rate:** 155.52 +/- 4.6 ppm
- **Framing:** SONET (OC-3)
- **Line Code:** NRZ
- **Signal Level:** According to SFP
- **Connector:** LC, SFP

T1
- **Bit Rate:** 1.544 Mbps +/- 20 ppm
- **Framing:** ESF, D4

STM-1
- **Bit Rate:** 155.52 +/- 4.6 ppm
- **Standards Compliancy**
  ITU G.783, G.958
- **Framing**
  Synchronous Digital Hierarchy (SDH)
  G.783, G.958
- **Line Code:** NRZ
- **Signal Level:** According to SFP
- **Jitter and Wander Performance**
  Compliance with G.813 timing
  characteristics of SDH equipment slave
  clocks (SEC)
- **Connector:** SFP, LC

E1
- **Bit Rate:** 2.048 Mbps +/- 20 ppm
- **Framing:** Unframed, FAS, FAS with CRC4,
  MFAS with CAS, MFAS with CAS and CRC4

Indicators
- **Interface Module**
  - LOS – Indicates Loss of Signal
    On – LOS state detected
  - Active – Indicates activity on the line
    On – There is activity on the line
- **Line Card**
  - Power
    Off – No power
    Green – Operational
    Orange – Transient mode

- Active
  Off – No power
  Green – Operational
  Orange – Unassigned or transient mode
- Alarm
  Off – No alarm
  Orange – Minor alarm or transient mode
  Red – Major alarm

SOFTWARE SPECIFICATIONS

Pseudo-Wire Services

TDM - CES
- Framed (CESoPSN)
  - n x DS0   (1< n < 30)
  - Framed unchannelized T1/E1
  - Trunk emulation: T1/E1 alarms propagation
- Unframed (SAToP)
  - Unframed T1/E1

HDLC
- Port mode

Frame Relay
- Port mode
- 1:1 mode (per DLCI)

Layer-3 Forwarding Services
- IPoFR (RFC 1490)
- IPoC-HDLC
- IPoPPP

IP Service Interworking
- FR
- HDLC
- PPP

GENERAL SPECIFICATIONS

QoS Management
- Layer 3 Marking – DSCP (DiffServ)
- Layer 2 Marking – VLAN 802.1Q/P

Timing
- Adaptive clock recovery (ACR)
- System clock
- Loopback timing (clock source is determined
  from logical T1/E1 channel)

Diagnostics
- OC-3
  - VC-4 (STS Path) layer – Terminal (local)
- STM-1

- RS layer
  Terminal (Local) loopback (local and remote)
  Facility (Remote) loopback (local and remote)
- T1 / E1
  - Terminal (Local) loopback
  - Facility (Remote) loopback

Performance Monitoring

- 5 x 24 hour
- 96 x 15 minute interval
- STM-1
  - RS – ES, SES, UAS
  - MS – ES, SES, UAS
- OC-3
  - Section – ES, SES, UAS
  - Line – ES, SES, UAS
- T1 / E1
  - ES, SES, UAS

Alarms

- **OC-3**
  - PHY - LOS
  - Section - LOF
  - Line – AIS, FERF
  - Low Order Path (VT-11) – AIS, Loss of Pointer (LOP), Unequipped Payload, Path Label Mismatch (PLM), FERF
  - High Order Path (STS-1) – AIS, Loss of Pointer (LOP), Unequipped Payload, Path Label Mismatch (PLM), Loss of Multi-frame (LOM), FERF
- **STM-1**
  - PHY - LOS
  - RS - LOF
  - MS – AIS, RDI
  - Low Order Path (VC-12) – AIS, Loss of Pointer (LOP), Unequipped Payload, Path Label Mismatch (PLM), RDI
  - High Order Path (VC-4) – AIS, Loss of Pointer (LOP), Unequipped Payload, Path Label Mismatch (PLM), Loss of Multi-frame (LOM), RDI

Management Specifications

- In-band or out-of-band
- SNMP
- Command Line Interface (Telnet / ICP)
- SSH
- AXNVision NMS
- Local
  - ICP: RS-232 or RJ-45 via CLI

Physical Dimensions

- **Interface Module**
  - Inches: 10.52 (h) x 4.53 (d) x 0.79 (w)
  - Cm: 26.7 (h) x 11.5 (d) x 2.0 (w)
  - Weight: 0.33 lb (0.15 Kg)
- **Line Card**
  - Inches: 10.52 (h) x 9.84 (d) x 0.79 (w)
  - Cm: 26.7 (h) x 25.0 (d) x 2.0 (w)
  - Weight: 1.04 lb (0.47 Kg)

Environmental

- Operating temp: 0–50ºC / 32–122ºF
- Humidity: 5%–95% non-condensing

Regulatory[1]

- **Safety**
  UL 60950-1
  CE Mark: EN 60950-1

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[1] Please contact Axerra Networks for current list of approvals

Port Density Summary

AXN Model	OC-3/STM-1 Interfaces/ Chassis	OC-3/STM-1 Interfaces/ Rack (44U)	T1/E1s Logical/ Chassis	T1/E1s Logical/Rack (44U)
AXN1600N	12	48	1008/756	4032/3024
AXN1600E	12	48	1008/756	4032/3024
AXN800	4	44	336/252	3396/2772

Ordering Information

Order Code	Description
IOM-0620-B	1 port channelized (DS0) OC-3/STM-1 MULTISERVICE IOM bundle (Transceiver should be ordered separately)
IOM-0620	1 port channelized (DS0) OC-3/STM-1 MULTISERVICE I/O line card
IMIO-0600	1 port OC-3/STM-1 IOM Interface Module accommodates one LC extractable transceiver (Transceiver should be ordered separately)
LC-155MM-SR	OC-3/STM-1 SFP LC multi-mode Short Reach (2 km) optical transceiver
LC-155SM-IR	OC-3/STM-1 SFP LC single-mode Intermediate Reach (15 km) optical transceiver