



Juniper Networks DS3 and E3 Physical Interface Modules (PIMs)

The Juniper DS3 or E3 PIMs provide the physical connection to DS3 or E3 network media types, receiving incoming packets from the network and transmitting outgoing packets to the network. The Juniper DS3 or E3 PIMs are equipped with a dedicated network processor that forwards incoming data packets to the Routing Engine, and receives outgoing data packets from the Routing Engine. During this process, the PIM performs framing and line-speed signaling.

When installed in the ScreenOS-based Secure Services Gateway 500 Series firewall/VPN appliance, the dedicated network processor will forward traffic to the SSG 500 Series CPU where traffic decisions are made based upon the security policy.

The Juniper DS3 and E3 PIMs provides the following benefits:

- High speed DS3 or E3 interfaces can support WAN access needs of large regional or corporate sites.
- The integrated DSU eliminates the need to deploy a separate external device saving valuable space and simplifying management.

Features

- Fully integrated DSU
- Onboard Network Processor
- Subrate & Scrambling options with support for major DSU vendors
- Independent Clock
- Loopback, Bert, and FEAC diagnostics

Specifications

Specification	Value
JUNOS Software Release	The DS3 PIM is supported in JUNOS 7.0 or greater on the J-series Services Routers The E3 PIM is supported in JUNOS 7.3 or greater on the J-series Services Routers
ScreenOS Software Release	The DS3 PIM is supported in ScreenOS 5.1 on the SSG 500 Series The E3 PIM is supported in ScreenOS 6.0 on the SSG 500 Series
Dimensions and Weight (H x W x D)	- 0.63 in. x 5.45 in. x 6.5 in. - 1.6 cm. x 13.8 cm. x 16.5 cm.
Network Interface Specifications	HDLC Features: <ul style="list-style-type: none"> - Shared flag - Idle flag/fill (0x7e or all-ones) - Counters: runts, giants, fcs error, abort error, align error - MTU: Normal (4500 bytes) or Jumbo (max 9192 bytes) Subrate and Scrambling: Subrate and Scrambling support for major DSU vendors: DS3: Verilink, Kentrox, Digital Link, Larscom, Adtran E3: Digital Link, Kentrox Interface connector: DSX3 interface with dual female 75-ohm BNC coaxial connectors (separate RX/TX) System timing: Internal, Loop
Environmental	Operating temperature: 0-40C Storage temperature: -40 to 70 Relative humidity: 5% to 90% non-condensing

The Juniper DS3 and E3 Physical Interface

Modules (PIMs) are for use with the J4350, J6300 and J6350 Services Routers and Secure Services Gateway 500 Series firewall appliance. These PIMs include either one physical DS3 or E3 port with integrated DSU.

Diagnostics

Loopbacks DS3: Local, Remote, Payload
E3: Local, Remote

Test patterns (BERT)

- All ones
- All zeros
- Alternating ones and zeros (AA/55)
- PRBS 2^15-1 (as specified in ITU-T 0.151)
- PRBS 2^20-1 (as specified in ITU-T 0.153)
- QRSS 2^20-1 (as specified in ITU-T 0.151)
- PRBS 2^23-1 (as specified in ITU-T 0.151)
- PRBS 2^9-1
- PRBS 2^11-1
- PRBS 2^29-1
- PRBS 2^31-1

E3 BERT support available in unframed mode only

Network alarms DS3 alarms in conformance with the ANSI specification:

- Loss Of Signal (LOS)
- Out Of Frame (OOF)
- Loss Of Frame (LOF)
- Alarm Indication Signal (AIS)
- Remote Defect Indication (RDI)

E3 alarms in conformance with the ITU-T specification:

- Loss Of Signal (LOS)
- Out Of Frame (OOF) (for framed mode only)
- Alarm Indication Signal (AIS)
- Remote Defect Indication (RDI) (for framed mode only)
- PLL alarm

Error Counters (DS3/E3):

- Line Code Violations (LCV)
- P-bit Code Violations (PCV)
- C-bit Code Violations (CCV)
- Line Errored Seconds (LES)
- P-bit Errored Seconds (PES)
- C-bit Errored Seconds (CES)
- Severely Errored Framing Seconds (SEFS)
- P-bit Severely Errored Seconds (PSES)
- C-bit Severely Errored Seconds (CSES)
- Unavailable Seconds (UAS)
- C-bit Coding Violations-Far End (CCV-FE) [FEBE]
- C-bit Errored Seconds -Far End (CES-FE)
- Unavailable Seconds -Far End (UAS-FE)

Error Counters (E3 only):

- Frame Alignment Error (FAE)
- Bipolar Coding Violations (BCV)
- Excessive Zeros(EXZ)
- Line Code Violations (LCV)
- Line Errored Seconds (LES)
- Severely Errored Framing Seconds (SEFS)
- Unavailable Seconds (UAS)

LEDs PIM LED's indicate port status with the following LED states:

Color	State	Description
Green	On steadily	Online with no alarms or failures.
Red	On steadily	Active with a local alarm; router has detected a failure.
Yellow	On steadily	Remote RDI/Yellow Alarm

Management Capabilities **Telnet/Console/JWeb:**
Remote and local configuration, monitoring, and troubleshooting

Standards and Compliance

Safety · CAN/CSA-C22.2 No. 60950-1-03 - UL 60950-1 Safety of Information Technology Equipment
· EN 60950-1 Safety of Information Technology Equipment

EMC (Emissions) AS/NZS 3548 Class B
EN55022 Class B
FCC Part 15 Class B
VCCI Class B

Immunity EN-61000-4-2 ESD
EN-61000-4-3 Radiated Immunity
EN-61000-4-4 EFT
EN-61000-4-5 Surge
EN-61000-4-6 Low Frequency Common Immunity

ETSI ETSI EN-300386-2 Telecommunication Network Equipment Electromagnetic Compatibility

Standards DS3 Standards
· ANSI T1.102
· ANSI T1.107
· ANSI T1.404
· Telcordia GR-449-CORE
· ACCUNET TR54014 (Accunet T-45)
E3 Standards
· ITU-T G.751
· ITU-T G.703
· ITU-T G.823
· Telcordia GR-449-CORE

Ordering Information

Part Number	Description
JX-1DS3-S	DS3 PIM
JX-1E3-S	E3 PIM

About Juniper

Juniper Networks develops purpose-built, high-performance IP platforms that enable customers to support many different services and applications at scale. Service providers, enterprises, governments, and research and education institutions rely on Juniper to deliver a portfolio of proven networking, security, and application acceleration solutions that solve highly complex, fast-changing problems in the world's most demanding networks. Additional information can be found at www.juniper.net.



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