



## T1 MINI-PIM

### Product Overview

The Juniper Networks single-port T1 Mini-Physical Interface Modules (Mini-PIMs) for the Juniper Networks SSG20 Secure Services Gateway complement the five on-board 10/100 Ethernet interfaces with expanded WAN connectivity by providing an optional T1 Interface with integrated CSU/DSU and RJ48 connector.

### Product Description

The Juniper Networks® T1 Mini-PIM includes one physical T1 port with an integrated channel service unit/data service unit (CSU/DSU). The combination of a T1 modem and an integrated CSU/DSU eliminates the need to deploy several separate external devices, reducing capital expenditures, saving valuable space, and simplifying management.

### Features and Benefits

- Fully integrated CSU/DSU
- Full and fractional T1 capabilities
- 56K and 64K modes support
- ANSI T1.102, T1.107, T1.403 T1 support
- Independent clock
- Loopback, bit error rate test (BERT), facilities data link (FDL), and long build out diagnostics
- Complete configuration and management by command-line interface (CLI), Web user interface, or Juniper Networks Network and Security Manager (NSM)

### Specifications

#### Network Interface Specifications

- Transmit bit rate: 1.544 Mbps
- Receive bit rate: 1.544 Mbps
- Line encoding: AMI, B8ZS
- Modes: Framed Clear Channel, Fractional
- Framing: Superframe (D4/SF), Extended Superframe (ESF)

#### High-Level Data Link Control (HDLC)

- N x 64 Kbps or N x 56 Kbps, non channelized data rates (T1:N=1 to 24)
- CRC 16/32
- Shared flag
- Idle flag/fill
- Counters: Runts, giants, frame check sequence (FCS), error, abort error, align error

## Interface Connector

- RJ-48

## System Timing

- External (network recovered clocks)

## Dimensions (W x H x D) and Weight

- 5.9 x 3.75 x 0.8 in (14.5 x 9.5 x 2 cm)
- 0.18 lb (81.6 g)

## Environmental

- Operating temperature: 32° to 104° F (0° to 40° C)
- Storage temperature: -40° to 158° F (-40° to 70° C)
- Relative humidity: 5% to 90% noncondensing

## Loopback Diagnostics

- Local, remote, payload
- Test patterns (BERT)
- All ones
- All zeros
- Alternating ones and zeros (AA/55)
- 1:3 or 1 in 4 pattern
- 1:7 or 1 in 8 pattern
- 3:24 - 3 bits set in every 24 bits
- QRSS20 (Modified PRBS 2<sup>20</sup>-1, with 14 zero suppression)
- PRBS 2<sup>7</sup>-1
- PRBS 2<sup>9</sup>-1 (as specified in ITU-T O.153)
- PRBS 2<sup>11</sup>-1 (as specified in ITU-T O.153)/2047 pattern
- PRBS 2<sup>15</sup>-1 (as specified in ITU-T O.151/O.153)
- PRBS 2<sup>20</sup>-1 (as specified in ITU-T O.153)
- Programmable word or 32-bit programmable pattern
- Network (T1) alarms
- Loss of signal (LOS), loss of framing (LOF), alarm indication signal (AIS), yellow alarm (YLW)

## Error Counters

- Controlled slipped seconds (CSS or CS)
- Line errored seconds (LES)
- Errored seconds (ES)
- Bursty errored seconds (BES)
- Severely errored seconds (SES)
- Severely errored framing seconds (SEFS)
- Loss of signal seconds (LOS)
- Loss of framing seconds (LOFS)
- UAS unavailable seconds (UAS)

## LEDs

PIM LEDs indicate port status with the following LED states:

- Alarm – solid yellow
- Loopback – solid yellow when loopback enabled
- CD (Carrier Detect) – solid green when line is synchronized

## Standards and Compliance

### Safety

- CAN/CSA-C22.2 No. 60950-1-03/UL 60950-1 Third Edition, Safety of Information Technology Equipment
- EN 60950-1:2001+A11, Safety of Information Technology Equipment
- IEC 60950-1:2001 First Edition, Safety of Information Technology Equipment

### EMC (Emissions)

- FCC Part 15 Class B
- EN 55022 Class B
- AS/NZS 3548 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

### European Telecommunications Standardization Institute (ETSI)

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

### Telecom

- FCC Part 68/TIA-968
- IC CS-03

### T1 Standards

- ANSI T1.102
- ANSI T1.107
- ANSI T1.403

## Juniper Networks Services and Support

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## Ordering Information

Model Number	Description
JXM-1T1-S	1-port T1 Mini-Physical Interface Module

The T1 Mini-PIM is supported in Juniper Networks ScreenOS® Software 5.4 or higher releases on the SSG20.

## About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at [www.juniper.net](http://www.juniper.net).

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#### Corporate and Sales Headquarters

Juniper Networks, Inc.  
1194 North Mathilda Avenue  
Sunnyvale, CA 94089 USA  
Phone: 888.JUNIPER (888.586.4737)  
or 408.745.2000  
Fax: 408.745.2100  
[www.juniper.net](http://www.juniper.net)

#### APAC Headquarters

Juniper Networks (Hong Kong)  
26/F, Cityplaza One  
1111 King's Road  
Taikoo Shing, Hong Kong  
Phone: 852.2332.3636  
Fax: 852.2574.7803

#### EMEA Headquarters

Juniper Networks Ireland  
Airside Business Park  
Swords, County Dublin, Ireland  
Phone: 35.31.8903.600  
EMEA Sales: 00800.4586.4737  
Fax: 35.31.8903.601

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