THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT

SPA-5X1GE-V2, SPA-10X1GE-V2	• SFP-GE-S • SFP-GE-L • SFP-GE-T • GLC-TE • SFP-GE-Z • GLC-BX-D • GLC-BX-U • GLC-BX40-D-I

Table 1-13 CWDM Optics Compatibility on the Cisco ASR 1000 Series Routers

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SPA Interface Addresses on SIPs

Interface addresses specify the physical location of each inte

1	SPA—Slot 0	**ASlot 0**	**6** **SP**A—Slot 5 **SPASlot 0**

- 2-Port and 4-Port Channelized T3 Serial SPA Overview, page 3-60
- 4-Port Serial Interface SPA Overview, page 3-63
- 8-Port Channelized T1/E1 SPA Overview, page 3-67
- 1-Port Channelized STM-1/OC-3 SPA Overview, page 3-69
- 1-Port Channelized OC-12/STM-4 SPA Overview, page 3-72

Service SPAs

- Cisco WebEx Node for ASR 1000 Series Overview, page 3-75
- Cisco DSP SPA for ASR 1000 Series Overview, page 3-76

Circuit Emulation SPAs

- 1-Port Channelized OC3 STM-1 ATM CEoP SPA Overview, page 3-79
- 2-Port Channelized T3/E3 ATM CEoP SPA Overview, page 3-81
- 24-Port Channelized T1/E1/J1 ATM CEoP SPA Overview, page 3-83

SPA Summary

Summary descriptions of the SPAs that are supported on the Cisco ASR 1000 Series Routers are provided in Table 3-1.

Table 3-1 SPA Summary

Table 3-12 describes the 5-Port Gigabit Ethernet SPA LEDs.

5-Port Gigabit Ethernet SPA Connectors

The 5-Port Gigabit Ethernet SPA has five individual fiber-optic receivers that support SFP modules. Each port can send and receive traffic using the optical fiber connections.

SFP Module Connections

The small form-factor pluggable (SFP) module is an i

See the "SFP Module and Cabling Specifications for Gigabit Ethernet SPAs" section on page 3-26 for SFP module options, module specifications, and cabling specifications.

For CWDM and DWDM SFP module specifications, see the

10-Port Gigabit Ethernet SPA Connectors

The 10-Port Gigabit Ethernet SPA has ten electrical connectors that support SFP modules. Each port can send and receive traffic using cabling appropriate for the SFP module inserted.

SFP Module Connections

The small form-factor pluggable (SFP) module is an input/output (I/O) device that plugs into the Gigabit Ethernet optical slots on the 10-Port Gigabit Ethernet SPA, linking the port with a 1000BASE-X

The minimum cable distance for the SFP-GE-S is 6.5 feet (2 m), and the minimum link distance for the SFP-GE-Z is 6.2 miles (10 km) with an 8-dB attenuator installed at each end of the link. Without attenuators, the minimum link distance fo

Power Supply

Figure 3-23 SFP Optics Module

1-Port OC-48c/STM-16 POS SPA Overview

- RFC 1213,

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Figure 3-38

The 1-Port Channelized STM-1/OC-3 SPAinterface is compliant with RFC 1619, *PPP over SONET/SDH*, and RFC 1662, *PPP in HDLC-like Framing*. The 1-Port Channelized STM-1/OC-3 SPA also provides support for SNMP v1 agent (RFC 1155–1157), and Management Information Base (MIB) II (RFC 1213).

1-Port Channelized STM-1/OC-3 SPA Cables and Connectors

The 1-Port Channelized ST

Each SPA-DSP comprises of seven SP2603 DSP chips having a total of 21 DSP cores (three DSP cores per SP2603). Based on the complexity of codec (low, medium, high), the density or maximum number of channels supported per DSP core and maximum channels supported per SPA-DSP are defined. Table 3-45

Features of SPA-DSP

Following are the features of SPA-DSP:

- Enhances ASR 1000 Series Router capabilities by providing DSP-based voice transcoding and transrating solutions.
- Translates one type of media stream (voice) to another type of media stream that uses different media encoding and decoding technologies.
- Enables translation between different packetization settings and provides dual tone multifrequency (DTMF) interworking.
- Provisions the configuration of SBC as either a Unified SBC or Distributed SBC with on-board DSPs or with a centralized DSP providing trancoding for multiple SBCs.
- Ffce4.5(r)-34.3ver(te.3ver(s LE5.4(S5tr)6o.5(r)- 3.6(ng f)(es d.5(r)-.4(e)-5.8ver(.3(n)-3.6(i)-3(s AggS.8(rw)9.3

CHAPTER

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Cleaning Optical Devices

See the *Inspection and Cleaning Procedures for Fiber-Optic Connections* and the *Compressed Air Cleaning Issues for Fiber-Optic Connections*

SPA Cable Management Brackets

SPAs are shipped with an accessory kit that includes cable management brackets. Figure 6-7 shows cable management brackets installed in a SPA, as well as cable routing.

Figure 6-7 SPA Cable Management Brackets

To install cable management brackets on a SPA, perform the following steps:

Step 1 Screw the two pull assemblies into both sides of the SPA.

Step 2 Insert the cable management bracket into the slot.

Step 3 To remove the cable man.602 g129.66 441.96 431.94 1.98 refQBT/F5 1 Tf9 0 0 9 90 429.36 Tm.0082 Tc0 Tw[(St