



Release Notes for Cisco ASR 9000 Routers, Cisco IOS XR Release 6.8.2

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Release Notes for Cisco ASR 9000 Series Routers, IOS XR Release 6.8.2

Cisco ASR 9000 Series Aggregation Services Routers (ASR 9000 Series) deliver unprecedented scale, service flexibility, and high availability for service providers' fixed and mobile networks, data centers, and transport networks. The routers are powered by Cisco IOS XR Software, an innovative, self-healing, distributed operating system designed for always-on operation while scaling system capacity into multiple terabits per second (Tbps).

For more information about ASR 9000 Series routers, see [ASR 9000 Data Sheet listing page](#).



Note Cisco IOS XR Release 6.8.2 is an Extended Maintenance Release of [Cisco IOS XR Release 6.8.1](#) for Cisco ASR 9000 Series routers. For more details on the Cisco IOS XR release model and associated support, see [Guidelines for Cisco IOS XR Software](#).

Cisco IOS XR Software is a distributed operating system designed for continuous system operation combined with service flexibility and higher performance.

To migrate from legacy 32 bit and new 64 bit IOS XR OS, refer to the [Migration Guide for Cisco ASR 9000 Series Routers](#).

This release notes describe the features provided in the Cisco IOS XR Software Release 6.8.2. See the *What's New in Cisco IOS XR Release 6.8.2* section in this document for information on new software features.

What's New in Cisco IOS XR Release 6.8.2

Cisco is continuously enhancing the product with every release and this section covers a brief description of key features and enhancements. It also includes links to detailed documentation, where available.

New in Documentation

Software Features Introduced and Enhanced

There are no new software features introduced or enhanced in this release.

Hardware Introduced

No new hardware feature is introduced in this release.

Supported Packages and System Requirements

This section describes the system requirements for Cisco ASR 9000 Series Aggregation Services Router Software Release 6.8.2.

Feature Set (Software Images)

The Cisco ASR 9000 Series Aggregation Services Router Software is packaged in *feature sets* (also called *software images*). Each feature set contains a specific set of features for Cisco ASR 9000 Series Aggregation Services Router IOS XR Release 6.8.2.

This table lists the Cisco IOS XR Software feature set matrix (TAR files) and associated filenames available for the Cisco IOS XR Software Release 6.8.2 supported on the Cisco ASR 9000 Series Aggregation Services Router.

Table 1: Cisco IOS XR Software Release 6.8.2 TAR Files

Feature Set	Filename	Description
Cisco IOS XR IP/MPLS Core Software [for RSP880 and RP systems]	ASR9K-iosxr-px-6.8.2-turboboot.tar	Contains only the mini.vm package.
Cisco IOS XR IP/MPLS Core Software [for RSP880 and RP systems]	ASR9K-iosxr-px-6.8.2-pies.tar	<ul style="list-style-type: none"> • Cisco IOS XR IP Unicast Routing Core Bundle • Cisco IOS XR Manageability Package • Cisco IOS XR MPLS Package • Cisco IOS XR Multicast Package • Cisco IOS XR FPD Package • Cisco IOS XR Diagnostic Package • Cisco IOS XR Advanced Video Package • Cisco IOS XR Optics Package • Cisco IOS XR Upgrade Package • Cisco IOS XR BNG Packages • Cisco IOS XR Lawful Intercept Package • Cisco IOS XR Services Package • Cisco IOS XR Satellite Package • Cisco IOS XR Documentation Package

Feature Set	Filename	Description
Cisco IOS XR IP/MPLS Core Software 3DES [for RSP-2, RSP880 and RP systems]	ASR9K-iosxr-px-6.8.2-k9-pies.tar	<ul style="list-style-type: none"> • Cisco IOS XR IP Unicast Routing Core Bundle • Cisco IOS XR Manageability Package • Cisco IOS XR MPLS Package • Cisco IOS XR Multicast Package • Cisco IOS XR Security Package • Cisco IOS XR FPD Package • Cisco IOS XR Diagnostic Package • Cisco IOS XR Advanced Video Package • Cisco IOS XR Optics Package • Cisco IOS XR Upgrade Package • Cisco IOS XR BNG Packages • Cisco IOS XR Lawful Intercept Package • Cisco IOS XR Services Package • Cisco IOS XR Satellite Package • Cisco IOS XR Documentation Package
Cisco IOS XR Bridge and SMUs	ASR9k-iosxr-px-6.8.2-bridge_smus.tar	Contains all bridge SMUs

This table lists the Cisco ASR 9000 Series Aggregation Services Router Software feature set matrix (PX PIE files) and associated filenames available for the Cisco IOS XR Release 6.8.2 supported on the Cisco ASR 9000 Series Aggregation Services Router.

Table 2: Cisco IOS XR Software Release 6.8.2 PX PIE Files

Composite Package		
Feature Set	Filename	Description
Cisco IOS XR IP Unicast Routing Core Bundle	asr9k-mini-px.pie-6.8.2	<p>Contains the required core packages, including OS, Admin, Base, Forwarding, Modular Services Card, Routing, SNMP Agent, and Alarm Correlation.</p> <p>The mini pie file is used for upgrading to the new release</p>

Cisco IOS XR IP Unicast Routing Core Bundle	asr9k-mini-px.vm-6.8.2	Contains the required core packages including OS, Admin, Base, Forwarding, Routing, SNMP Agent, Diagnostic Utilities, and Alarm Correlation. The mini VM file is used for turbobooting the device.
Individually-Installable Optional Packages		
Feature Set	Filename	Description
Cisco IOS XR Manageability Package	asr9k-mgbl-px.pie-6.8.2	CORBA2 agent, XML3 Parser, and HTTP server packages. This PIE also contains some SNMP MIB infrastructure. Certain MIBs won't work if this PIE is not installed. IPSLA and environment MIBs are part of the mgbl pie.
Cisco IOS XR CGv6 VSM Package	asr9k-services-infra.pie- 6.8.2	Contains iso images and version details of System Admin Virtual Machine (VM) and Kernel-based Virtual Machine (KVM).
Cisco IOS XR MPLS Package	asr9k-mpls-px.pie-6.8.2	MPLS Traffic Engineering (MPLS-TE), Label Distribution Protocol (LDP), MPLS Forwarding, MPLS Operations, Administration, and Maintenance (OAM), Link Manager Protocol (LMP), Optical User Network Interface (OUNI), Resource Reservation Protocol (RSVP), and Layer-3 VPN.
Cisco IOS XR Multicast Package	asr9k-mcast-px.pie-6.8.2	Multicast Routing Protocols (PIM, Multicast Source Discovery Protocol [MSDP], Internet Group Management Protocol [IGMP], Auto-RP), Tools (SAP, MTrace), and Infrastructure [(Multicast Routing Information Base [MRIB], Multicast-Unicast RIB [MURIB], Multicast forwarding [MFWD]), and Bidirectional Protocol Independent Multicast (BIDIR-PIM).
Cisco IOS XR Advanced Video Package	asr9k-video-px.pie-6.8.2	Software providing the vidmon and video quality monitoring feature for Cisco ASR 9000 Series Router chassis.
Cisco IOS XR Optics Package	asr9k-optic-px.pie-6.8.2	Firmware for the optics feature for Cisco ASR 9000 Series Aggregation Services Router Chassis. It enables Transport / OTN feature under interfaces.

Cisco IOS XR FPD Package	asr9k-fpd-px.pie-6.8.2	Firmware pie for all LC and RSP FPGAs and ASICs.
Cisco IOS XR Services Package	asr9k-services.pie-6.8.2	Includes binaries to support CGv6 on VSM.
Cisco IOS XR Documentation Package	asr9k-doc-px.pie-6.8.2	.man pages for Cisco IOS XR Software on the Cisco ASR 9000 Series Aggregation Services Router Chassis.
Cisco IOS XR Satellite Package - ASR9000v	asr9000v-nV-px.pie-6.8.2	Includes binaries to support Cisco ASR9000v Series Router Software and to support Cisco ASR 9000v Series Router as a satellite for Cisco ASR 9000 Series Router.
Cisco IOS XR Satellite Package - NCS 5001 and 5002	asr9k-ncs500x-nV-px.pie-6.8.2	Includes binaries to support Cisco NCS 5001/5002 Series Router Software and to support Cisco NCS 5001/5002 Series Router as a satellite for Cisco ASR 9000 Series Router.
Cisco IOS XR BNG Packages	asr9k-bng-px.pie-6.8.2	Includes binaries to support BNG features.
	asr9k-bng-supp-px.pie-6.8.2	
Cisco IOS XR Lawful Intercept (LI) Package	asr9k-li-px.pie-6.8.2	Includes LI software images.
Cisco IOS XR Security Package	asr9k-k9sec-px.pie-6.8.2	Support for Encryption, Decryption,, Secure Shell (SSH), Secure Socket Layer (SSL), and Public-key infrastructure (PKI).

Memory Requirements



Caution If you remove the media in which the software image or configuration is stored, the router may become unstable and fail.

The minimum memory requirements for Cisco ASR 9000 Series Aggregation Services Router running Cisco IOS XR Software Release consist of the following:

- minimum 6 GB memory on the RSP880, RSP880-LT, and RP2.
- minimum 6 GB memory on the A99-RSP-TR and A99-RSP-SE.
- minimum 2 GB compact flash on route switch processors (RSPs).
- minimum 4 GB memory on the line cards (LCs) running Cisco IOS XR 32 bit image.

Supported Hardware

The following table lists the supported hardware components on the Cisco ASR 9000 Series Router and the minimum required software versions. For more information, see the *Firmware Support* section.

All hardware features are supported on Cisco IOS XR Software, subject to the memory requirements specified in the "[Memory Requirements, on page 6](#)" section.

For information on the end-of-sale and end-of-life dates for the Cisco ASR 9000 Series Router hardware, refer to the [End-of-Life and End-of-Sale Notices](#) page.



Note The show command output lists supported and EOL hardware PIDs. To know the PIDs that are supported in this release, see the **Supported Hardware** section in this Release Notes.

Table 3: Cisco ASR 9000 Series Aggregation Services Router Supported Hardware and Minimum Software Requirements

Cisco ASR 9000 Series Aggregation Services Router Route Switch Processor Cards		
Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000 Series Aggregation Services Router RSP880-Lite, Packet Transport Optimized	A9K-RSP880-LT-TR	Release 6.2.2
Cisco ASR 9000 Series Aggregation Services Router RSP880-Lite, Service Edge Optimized	A9K-RSP880-LT-SE	Release 6.2.2
Cisco ASR 9000 Series Aggregation Services Router RSP4-S, Service Edge Optimized for ASR 9910.	A99-RSP-SE	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router RSP4-S, Packet Transport Optimized for ASR 9910.	A99-RSP-TR	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router RSP4-S, Packet Transport Optimized for ASR 9906	A99-RSP-TR	Release 6.3.1
Cisco ASR 9000 Series Aggregation Services Router RSP4-S, Service Edge Optimized for ASR 9906	A99-RSP-SE	Release 6.3.1
ASR9K Route Switch Processor with 880G/slot and 32 GB for Service Edge	A9K-RSP880-SE	Release 5.3.0
ASR9K Route Switch Processor with 880G/slot and 16 GB for Packet Transport	A9K-RSP880-TR	Release 5.3.0
ASR Route Processor 32 GB for Service Edge	A99-RP2-SE	Release 5.3.0
ASR Route Processor 16 GB for Packet Transport	A99-RP2-TR	Release 5.3.0
ASR 9001 Route Switch Processor 8 GB	ASR9001-RP	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router 4-Slot		
Cisco ASR 9000 Series Aggregation Services Router 4-Slot 2 Line Card Slot AC Chassis w/ PEM V2	ASR-9904-AC	Release 5.1.0

Cisco ASR 9000 Series Aggregation Services Router 4-Slot 2 Line Card Slot DC Chassis w/ PEM V2	ASR-9904-DC	Release 5.1.0
Cisco ASR 9000 Series Aggregation Services Router 4-Slot Fan Tray	ASR-9904-FAN	Release 5.1.0
Cisco ASR 9000 Series Aggregation Services Router 4-Slot Filter	ASR-9904-FILTER	Release 5.1.0
Cisco ASR 9000 Series Aggregation Services Router 4-Slot Baffle	ASR-9904-BAFFLE	Release 5.1.0
Cisco ASR 9000 Series Aggregation Services Router 22-Slot		
Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000 Fabric Card	A99-SFC2	Release 5.3.0
Cisco ASR 9000 Series Aggregation Services Router 22-Slot 20 Line Card Slot AC Chassis w/ PEM V2	ASR-9922-AC	Release 4.2.2
Cisco ASR 9000 Series Aggregation Services Router 22-Slot 20 Line Card Slot DC Chassis w/ PEM V2	ASR-9922-DC	Release 4.2.2
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Accessory Kit with grounding locks, guide rails etc	ASR-9922-ACC-KIT	NA
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Accessory - Cover for Power Shelves and Modules	ASR-9922-PWR-COV	NA
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Air Reflector	ASR-9922-AIRREF	NA
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Accessory - Door (with lock) and Fan Tray Covers	ASR-9922-DOOR	NA
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Fan Tray	ASR-9922-FAN	Release 4.2.2
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Air Filter with Media, Center	ASR-9922-FLTR-CEN	Release 4.2.2
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Air Filter with Media, Left & Right	ASR-9922-FLTR-LR	Release 4.2.2
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Route Processor Filler	ASR-9922-RP-FILR	Release 4.2.2
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Switch Fabric Card Slot Filler	ASR-9922-SFC-FILR	Release 4.2.2
Cisco ASR 9000 Series Aggregation Services Router 22-Slot Version 2 Fan Tray	ASR-9922-FAN-V2	Release 5.2.2
Cisco ASR 9000 Series Aggregation Services Router 2-RU		

Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000 Series Aggregation Services Router 2RU	ASR-9001	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router 2-Slot Fan Tray	ASR-9001-FAN	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router 2-Slot Line Card	ASR-9001-LC	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router	ASR-9001-TRAY	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router 6-Slot		
Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000 Series Aggregation Services Router 6-Slot System	ASR-9006-SYS	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot Fan Tray	ASR-9006-FAN	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot Door Kit	ASR-9006-DOOR	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot AC Chassis	ASR-9006-AC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot DC Chassis	ASR-9006-DC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot Air		
Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000 Series Aggregation Services Router 6-Slot Air Filter	ASR-9006-FILTER	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 6-Slot -ASR 9906		
Cisco ASR 9000 Series Aggregation Services Router 6-Slot chassis	ASR-9906	Release 6.3.1
Cisco ASR 9000 Series Aggregation Services Router 6-Slot Fan Tray	ASR-9906-FAN	Release 6.3.1
Cisco ASR 9000 Series Aggregation Services Router 6-Slot Fan Filter	ASR-9906-FILTER	Release 6.3.1
Cisco ASR 9000 Series Aggregation Services Router 10-Slot		
Cisco ASR 9000 Series Aggregation Services Router 10-Slot System	ASR-9010-SYS	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot Fan Tray	ASR-9010-FAN	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot Door Kit	ASR-9010-DOOR	Release 3.7.2

Cisco ASR 9000 Series Aggregation Services Router 10-Slot AC Chassis	ASR-9010-AC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot DC Chassis	ASR-9010-DC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 2 Post Mounting Kit	ASR-9010-2P-KIT	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 4 Post Mounting Kit	ASR-9010-2P-KIT	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot Air		
Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000 Series Aggregation Services Router 10-Slot Air Filter	ASR-9010-FILTER	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 10-Slot External Exhaust Air Shaper	ASR-9010-AIRSHPR	NA
Cisco ASR 9000 Series Aggregation Services Router 10-Slot Air Inlet Grill	ASR-9010-GRL	NA
Cisco ASR 9000 Series Aggregation Services Router 10-Slot 21 RU		
Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) System	ASR-9910	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 10-Slot(9910) Fan Tray	ASR-9910-FAN	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) Accessory Kit	ASR-9910-ACC-KIT	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) 4 Post Rack Mounting Kit	ASR-9910-4P-KIT	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) 2 Post Rack Mounting Kit	ASR-9910-2P-KIT	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) Air Reflector	ASR-9910-AIRREF	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) Air Filter	ASR-9910-FILTER	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) Switch Fabric Card	A99-SFC-S	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router Power		

Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000 Series Aggregation Services Router 2KW DC Power Module, version 2	PWR-2KW-DC-V2	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 3KW AC Power Module, version 2	PWR-3KW-AC-V2	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router AC Power Entry Module Version 2	A9K-AC-PEM-V2	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router DC Power Entry Module Version 2	A9K-DC-PEM-V2	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router Power Entry Module Version 2 Filler	A9K-PEM-V2-FILR	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 1.5kW DC Power Module	A9K-1.5KW-DC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 2kW DC Power Module	A9K-2KW-DC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router 3kW AC Power Module	A9K-3KW-AC	Release 3.7.2
Cisco ASR 9000 Series Aggregation Services Router AC Power Enclosure Module Version 3	A9K-AC-PEM-V3	Release 5.3.0
Cisco ASR 9000 Series Aggregation Services Router DC Power Enclosure Module Version 3	A9K-DC-PEM-V3	Release 5.3.0
Cisco ASR 9000 Series Aggregation Services Router 6kW AC Power Module Version 3	PWR-6KW-AC-V3	Release 5.3.0
Cisco ASR 9000 Series Aggregation Services Router 4.4kW DC Power Module Version 3	PWR-4.4KW-DC-V3	Release 5.3.0
Cisco ASR 9000 Series Aggregation Services Router Line Cards		
Component	Part Number	Support Initially Provided in IOS XR Release
ASR 9000 48-port dual-rate 10G/1G Consumption Model line card	A9K-48X10GE-1G-CM	Release 6.3.2
ASR 9000 24-port dual-rate 10G/1G Consumption Model line card	A9K-24X10GE-1G-CM	Release 6.3.2
ASR 9000 4-port 100-Gigabit Ethernet Line Card	A9K-4X100GE	Release 6.2.3
ASR9000 48-port dual-rate 10G/1G service edge-optimized line card	A9K-48X10GE-1G-SE	Release 6.2.1

ASR9000 48-port dual-rate 10G/1G packet transport–optimized line card	A9K-48X10GE-1G-TR	Release 6.2.1
ASR9000 48-port dual-rate 10G/1G service edge line card	A99-48X10GE-1G-SE	Release 6.5.2
ASR9000 48-port dual-rate 10G/1G packet transport line card	A99-48X10GE-1G-TR	Release 6.5.2
ASR9000 24-port dual-rate 10G/1G service edge–optimized line card	A9K-24X10GE-1G-SE	Release 6.2.1
ASR9000 24-port dual-rate 10G/1G packet transport–optimized line card	A9K-24X10GE-1G-TR	Release 6.2.1
ASR 9900 8-port 100GE Service Edge optimized	A99-8X100GE-SE	Release 6.0.1
ASR 9900 8-port 100GE Packet Transport optimized	A99-8X100GE-TR	Release 6.0.1
ASR 9900 8-port 100GE Consumption Model	A99-8X100GE-CM	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 12-Port 100-Gigabit Ethernet Line Card	A99-12X100GE	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 12-port 100GE Ethernet Line card CM	A99-12X100GE-CM	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 8-Port 100-Gigabit Ethernet, Consumption Model Optimized with CPAK	A9K-8X100GE-CM	Release 5.3.2
Cisco ASR 9000 Series Aggregation Services Router 8-Port 100-Gigabit Ethernet, Service Edge Optimized	A9K-8X100GE-SE	Release 5.3.1
Cisco ASR 9000 Series Aggregation Services Router 8-Port 100-Gigabit Ethernet, Packet Transport Optimized	A9K-8X100GE-TR	Release 5.3.1
Cisco ASR 9000 4-port 100GE LAN line card	A9K-4X100GE	Release 6.2.3
Cisco ASR 9000 Series Aggregation Services Router 4--Port 100-Gigabit Ethernet, Service Edge Optimized	A9K-4X100GE-SE	Release 5.3.1
Cisco ASR 9000 Series Aggregation Services Router 4-Port 100-Gigabit Ethernet, Packet Transport Optimized	A9K-4X100GE-TR	Release 5.3.1
Cisco ASR 9000 Series Aggregation Services Router 8-port High Density 100GE Ethernet Line Card, Service Edge Optimized	A9K-8X100GE-L-SE	Release 5.3.0
Cisco ASR 9000 Series Aggregation Services Router 8-port High Density 100GE Ethernet Line Card, Packet Transport Optimized	A9K-8X100GE-L-TR	Release 5.3.0
Cisco ASR 9000 Series Aggregation Services Router Virtualized Services Module (VSM) line card	A9K-VSM-500	Release 5.1.2
Cisco ASR 9000 Series Aggregation Services Router Line Card Filler	A9K-LC-FILR	Release 3.7.2
2-Port 100G + 20-Port 10 GE Combination IPoDWDM Line Card with CFP2 and SFP+, Packet Transport Optimized	A9K-400GE-DWDM-TR	Release 5.3.2

Cisco ASR 9000 Series Aggregation Services Router Modular Line Cards		
Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000 Series Aggregation Services Router 200 Gigabit Modular Line Card, Packet Transport Optimized Cisco ASR 9000 Series Aggregation Services Router 200 Gigabit Modular Line Card, Service Edge Optimized	A9K-MOD200-TR A9K-MOD200-SE	Release 6.0.1
Cisco ASR 9000 Modular 400G Consumption Model Line Card	A9K-MOD400-CM	Release 6.1.2
Cisco ASR 9000 Series Aggregation Services Router 400 Gigabyte Modular Line Card, Service Edge Optimized	A9K-MOD400-SE	Release 5.3.2
Cisco ASR 9000 Series Aggregation Services Router 400 Gigabyte Modular Line Card, Packet Transport Optimized	A9K-MOD400-TR	Release 5.3.2
Cisco ASR 9000 Series Aggregation Services Router Modular Port Adapters (MPAs)		
Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000 1-port 200-Gigabit Ethernet MPA	A9K-MPA-1X200GE	Release 6.6.2
Cisco ASR 9000 32-port 1-Gigabit Ethernet MPA with MACSec	A9K-MPA-32X1GE	Release 6.6.1
Cisco ASR 9000 20x10GE Consumption Model MPA	A9K-MPA20X10GE-CM	Release 6.1.2
Cisco ASR 9000 2x100GE Consumption Model MPA	A9K-MPA2X100GE-CM	Release 6.1.2
Cisco ASR 9000 Series Aggregation Services Router 1-port 100-Gigabit Modular Port Adapter	A9K-MPA-1X100GE	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router 2-port 100-Gigabit Modular Port Adapter	A9K-MPA-2X100GE	Release 6.0.1
20-Port 10-Gigabit Ethernet Modular Port Adapter with SFP+	A9K-MPA-20x10GE	Release 5.3.2
Cisco ASR 9000 Series Aggregation Services Router 8-port 10GE Modular Port Adapter	A9K-MPA-8X10GE	Release 4.3.1
Cisco ASR 9000 Series Aggregation Services Router 1-port 40GE Modular Port Adapter	A9K-MPA-1X40GE	Release 4.2.3
Cisco ASR 9000 Series Aggregation Services Router 4-port 10GE Modular Port Adapter	A9K-MPA-4X10GE	Release 4.2.0
Cisco ASR 9000 Series Aggregation Services Router 20-port 1GE Modular Port Adapter	A9K-MPA-20X1GE	Release 4.2.0

Cisco ASR 9000 Series Aggregation Services Router 2-port 10GE Modular Port Adapter	A9K-MPA-2X10GE	Release 4.2.1
Cisco ASR 9000 Series Aggregation Services Router 2-port 40GE Modular Port Adapter	A9K-MPA-2X40GE	Release 4.2.1
Cisco ASR 9000v Satellite Shelf		
Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000v Satellite Shelf Version 2 DC power ANSI chassis	A9KV-V2-DC-A=	Release 5.2.2
Cisco ASR 9000v Satellite Shelf Version 2 DC power chassis	A9KV-V2-DC-E=	Release 5.2.2
Cisco ASR 9000v Satellite Shelf AC power chassis	A9KV-V2-AC=	Release 5.2.2
Cisco ASR 9000v Satellite Shelf Version 2 Fan Tray	A9KV-V2-FAN=	Release 5.2.2
Cisco NCS 5000 Satellite Shelf		
Cisco NCS 5001 Series Router	NCS-5001	Release 6.0.1
Cisco NCS 5002 Series Router	NCS-5002	Release 6.0.1
Cisco NCS 5001 Router Accessory Kit	NCS-5001-ACSR	Release 6.0.1
Cisco NCS 5002 Router Accessory Kit	NCS-5002-ACSR	Release 6.0.1
Cisco NCS 5001 Router Fan Back to Front AirFlow	NCS-5001-FN-BK	Release 6.0.1
Cisco NCS 5002 Router Fan Back to Front AirFlow	NCS-5002-FN-BK	Release 6.0.1
Cisco NCS 5001 Air Filter Back to Front Airflow	NCS-5001-FLT-BK	Release 6.0.1
Cisco NCS 5002 Air Filter Back to Front Airflow	NCS-5002-FLT-BK	Release 6.0.1
Cisco NCS 5001 Fan Front to Back Airflow	NCS-5001-FN-FR	Release 6.0.1
Cisco NCS 5002 Fan Front to Back Airflow	NCS-5002-FN-FR	Release 6.0.1
Cisco NCS 5001 Air Filter Front to Back Airflow	NCS-5001-FLT-FR	Release 6.0.1
Cisco NCS 5002 Air Filter Front to Back Airflow	NCS-5002-FLT-FR	Release 6.0.1
Cisco ASR 9000 Series Aggregation Services Router SIP and SPA Cards		
Component	Part Number	Support Initially Provided in IOS XR Release
Cisco ASR 9000 SIP-700 SPA interface processor	A9K-SIP-700	Release 3.9.0
2-Port OC-48/STM16 SPA	SPA-2XOC48POS/RPR	Release 4.0.1

Cisco 4-Port OC-12c/STM-4 POS SPA	SPA-4XOC12-POS	Release 6.4.2
8-Port OC12/STM4 SPA	SPA-8XOC12-POS	Release 4.0.1
1-Port OC-192/STM-64 POS/RPR SPA	SPA-OC192POS-XFP	Release 4.0.1
4-Port Clear Channel T3/E3 SPA	SPA-4XT3E3	Release 4.0.1
2-Port Clear Channel T3/E3 SPA	SPA-2XT3E3	Release 4.0.1
1-Port Channelized OC-3/STM-1 SPA	SPA-1CHSTM1/OC3	Release 4.0.1
4-Port OC-3/STM-1 POS SPA	SPA-4XOC3-POS	Release 4.0.1
8-Port OC-3/STM-1 POS SPA	SPA-8XOC3-POS	Release 4.0.1
4-Port Channelized T3 to DS0 SPA	SPA-4XCT3/DS0	Release 4.1.0
8-Port Channelized T1/E1 SPA	SPA-8XCHT1/E1	Release 4.1.0

Software Compatibility

Cisco IOS XR Software Release is compatible with the following Cisco ASR 9000 Series Aggregation Services Router systems.

- Cisco ASR 9900 Series Chassis
 - 22-Slot (ASR-9922) Line Card Chassis
 - 12-Slot (ASR-9912) Line Card Chassis
 - 10-Slot (ASR-9910) Line Card Chassis
 - 6-Slot (ASR-9906) Line Card Chassis
 - 4-slot (ASR-9904) Line Card Chassis
- Cisco ASR 9000 Series Chassis
 - 10-Slot (ASR-9010) Line Card Chassis
 - 6-Slot (ASR-9006) Line Card Chassis
 - 1-Slot (ASR-9001) Line Card Chassis

For Cisco license support, please contact your Cisco Sales Representative or Customer Service at 800- 553-NETS (6387) or 408-526-4000. For questions on the program other than ordering, please send e-mail to: cwm-license@cisco.com.

Determining Installed Packages

To determine the version of Cisco IOS XR Software packages installed on your router, log in to the router and enter the **show install active summary** command:

Cisco IOS XR

```
RP/0/RSP0/CPU0:router#show install active summary
```

Default Profile:

SDRs:

Owner

Active Packages:

disk0:asr9k-services-infra-6.8.2
disk0:asr9k-video-px-6.8.2
disk0:asr9k-services-px-6.8.2
disk0:asr9k-optic-px-6.8.2
disk0:asr9k-mps-px-6.8.2
disk0:asr9k-mini-px-6.8.2
disk0:asr9k-mgbl-px-6.8.2
disk0:asr9k-mcast-px-6.8.2
disk0:asr9k-li-px-6.8.2
disk0:asr9k-k9sec-px-6.8.2
disk0:asr9k-doc-px-6.8.2
disk0:asr9k-bng-sup-px-6.8.2
disk0:asr9k-bng-px-6.8.2
disk0:asr9k-9000v-nV-px-6.8.2
disk0:asr9k-fpd-px-6.8.2

Firmware Support on Cisco IOS XR

To check the firmware code running on the Cisco ASR 9000 Series Router, run the **show fpd package** command in admin mode.

```
RP/0/RSP0/CPU0:router(admin)#show fpd package
```

```
=====
```

Field Programmable Device Package								
Card Type	FPD Description	Type	Subtype	SW Version	Min Req SW Ver	Min Req HW Vers		
ASR-9906-BPID2	Can Bus Ctrl (CBC) BP2	bp	cbc	7.105	0.00	0.1		
ASR-9910-BPID2	Can Bus Ctrl (CBC) BP2	bp	cbc	7.105	0.00	0.1		
	Can Bus Ctrl (CBC) BP2	lc	cbc	7.105	0.00	0.1		
ASR-9904-BPID2	Can Bus Ctrl (CBC) BP2	bp	cbc	7.105	0.00	0.1		
ASR-9912-BPID2	Can Bus Ctrl (CBC) BP2	bp	cbc	7.105	0.00	0.1		
	Can Bus Ctrl (CBC) BP2	lc	cbc	7.105	0.00	0.1		
ASR-9922-BPID2	Can Bus Ctrl (CBC) BP2	bp	cbc	7.105	0.00	0.1		
	Can Bus Ctrl (CBC) BP2	lc	cbc	7.105	0.00	0.1		
A9K-BPID2-E-10-SLOT	Can Bus Ctrl (CBC) BP2	bp	cbc	7.105	0.00	0.1		
A9K-BPID2-E-6-SLOT	Can Bus Ctrl (CBC) BP2	bp	cbc	7.105	0.00	0.1		
A9K-BPID2-10-SLOT	Can Bus Ctrl (CBC) BP2	bp	cbc	7.105	0.00	0.1		
	Can Bus Ctrl (CBC) BP2	lc	cbc	7.105	0.00	0.1		
A9K-BPID2-6-SLOT	Can Bus Ctrl (CBC) BP2	bp	cbc	7.105	0.00	0.1		
	Can Bus Ctrl (CBC) BP2	lc	cbc	7.105	0.00	0.1		
ASR-9922-SFC110	Can Bus Ctrl (CBC) MTFC	fc	cbc	28.06	0.00	0.1		
	Fabric Ctrl0 MTFC	fc	fpga7	1.03	0.00	0.1		
	Can Bus Ctrl (CBC) MTFC	lc	cbc	28.06	0.00	0.1		
ASR-9912-SFC110	Can Bus Ctrl (CBC) SSFC	fc	cbc	32.05	0.00	0.1		
	Fabric Ctrl0 MTFC	fc	fpga7	1.03	0.00	0.1		
A99-SFC2	Can Bus Ctrl (CBC) MTFC	fc	cbc	37.20	0.00	0.1		
	Fabric Ctrl0 MTFC	fc	fcfsbl	1.100	0.00	0.1		
	Fabric Ctrl0 MTFC	fc	fclnxfw	1.100	0.00	0.1		

```
=====
```


	Fabric Ctrl0 MTFC		fc	fpga8	0.37	0.00	0.1
ASR-9912-SFC220	Can Bus Ctrl (CBC) MTFC		fc	cbc	37.20	0.00	0.1
	Fabric Ctrl0 MTFC		fc	fcfsbl	1.100	0.00	0.1
	Fabric Ctrl0 MTFC		fc	fclnxfw	1.100	0.00	0.1
	Fabric Ctrl0 MTFC		fc	fpga8	0.37	0.00	0.1
A99-SFC-S	Can Bus Ctrl (CBC) SHFC		fc	cbc	44.02	0.00	0.1
	Fabric Ctrl0 SHFC		fc	fcfsbl	1.100	0.00	0.1
	Fabric Ctrl0 SHFC		fc	fclnxfw	1.100	0.00	0.1
	Fabric Ctrl0 SHFC		fc	fpga8	0.37	0.00	0.1
A99-SFC-T	Can Bus Ctrl (CBC) TWFC		fc	cbc	44.02	0.00	0.1
	Fabric Ctrl0 TWFC		fc	fcfsbl	1.100	0.00	0.1
	Fabric Ctrl0 TWFC		fc	fclnxfw	1.100	0.00	0.1
	Fabric Ctrl0 TWFC		fc	fpga8	0.37	0.00	0.1
ASR-9010-FAN	Can Bus Ctrl (CBC) FAN		ft	cbc	4.04	0.00	0.1
	Can Bus Ctrl (CBC) FAN		lc	cbc	4.03	0.00	0.1
ASR-9006-FAN	Can Bus Ctrl (CBC) FAN		ft	cbc	5.05	0.00	0.1
	Can Bus Ctrl (CBC) FAN		lc	cbc	5.04	0.00	0.1
ASR-9922-FAN	Can Bus Ctrl (CBC) MFAN		ft	cbc	29.12	0.00	0.1
	Can Bus Ctrl (CBC) MFAN		lc	cbc	29.12	0.00	0.1
ASR-9912-FAN	Can Bus Ctrl (CBC) SFAN		ft	cbc	31.06	0.00	0.1
ASR-9010-FAN-V2	Can Bus Ctrl (CBC) FAN		ft	cbc	29.12	0.00	0.1
	Can Bus Ctrl (CBC) FAN		lc	cbc	29.12	0.00	0.1
ASR-9904-FAN	Can Bus Ctrl (CBC) SFAN		ft	cbc	31.06	0.00	0.1
ASR-9922-FAN-V2	Can Bus Ctrl (CBC) MFAN		ft	cbc	40.07	0.00	0.1
	Fan Controller MFAN		ft	fpga9	2.06	0.00	0.1
ASR-9006-FAN-V2	Can Bus Ctrl (CBC) FAN		ft	cbc	5.05	0.00	0.1
	Can Bus Ctrl (CBC) FAN		lc	cbc	5.04	0.00	0.1
ASR-9910-FAN	Can Bus Ctrl (CBC) SHFAN		ft	cbc	45.02	0.00	0.1
	Fan Controller SHFAN		ft	fpga9	2.06	0.00	0.1
ASR-9906-FAN	Can Bus Ctrl (CBC) TWFAN		ft	cbc	56.01	0.00	0.1
	Fan Controller TWFAN		ft	fpga9	2.06	0.00	0.1
ASR-9001-FAN	Can Bus Ctrl (CBC) FAN		ft	cbc	24.115	0.00	0.1
	Can Bus Ctrl (CBC) FAN		lc	cbc	24.115	0.00	0.1
ASR-9001-FAN-V2	Can Bus Ctrl (CBC) FAN		ft	cbc	24.115	0.00	0.1
A9K-SIP-700	Can Bus Ctrl (CBC) LC5		lc	cbc	3.06	0.00	0.1
	CPUCTrl LC5		lc	cp1d1	0.15	0.00	0.1
	QFPCPUBridge LC5		lc	fpga2	5.14	0.00	0.1
	NPUXBarBridge LC5		lc	fpga1	0.24	0.00	0.1
	ROMMONB LC5		lc	rommon	1.04	0.00	0.1
A9K-SIP-500	Can Bus Ctrl (CBC) LC5		lc	cbc	3.06	0.00	0.1
	CPUCTrl LC5		lc	cp1d1	0.15	0.00	0.1
	QFPCPUBridge LC5		lc	fpga2	5.14	0.00	0.1
	NPUXBarBridge LC5		lc	fpga1	0.24	0.00	0.1
	ROMMONB LC5		lc	rommon	1.04	0.00	0.1
A9K-SIP-700-8G	Can Bus Ctrl (CBC) LC5		lc	cbc	3.06	0.00	0.1
	CPUCTrl LC5		lc	cp1d1	0.15	0.00	0.1

	QFPCPUBridge LC5		lc	fpga2	5.14	0.00	0.1
	NPUXBarBridge LC5		lc	fpga1	0.24	0.00	0.1
	ROMMONB LC5		lc	rommon	1.35	0.00	0.1

ASR-9922-RP-TR	Can Bus Ctrl (CBC) MTRP		lc	cbc	25.03	0.00	0.1
	Fabric Ctrl3 MTFC		lc	fpga10	1.03	0.00	0.1
	Fabric Ctrl4 MTFC		lc	fpga11	1.03	0.00	0.1
	Fabric Ctrl5 MTFC		lc	fpga12	1.03	0.00	0.1
	Fabric Ctrl6 MTFC		lc	fpga13	1.03	0.00	0.1
	CPUCtrl1		lc	fpga2	1.03	0.00	0.1
	ClkCtrl		lc	fpga3	1.05	0.00	0.1
	IntCtrl		lc	fpga4	1.04	0.00	0.1
	UTI		lc	fpga5	4.09	0.00	0.1
	Timex		lc	fpga6	0.02	0.00	0.1
	Fabric Ctrl10 MTFC		lc	fpga7	1.03	0.00	0.1
	Fabric Ctrl11 MTFC		lc	fpga8	1.03	0.00	0.1
	Fabric Ctrl12 MTFC		lc	fpga9	1.03	0.00	0.1
	CPUCtrl0		lc	fpga1	1.05	0.00	0.1
	ROMMONB MTRP		lc	rommon	5.16	0.00	0.1

ASR-9922-RP-SE	Can Bus Ctrl (CBC) MTRP		lc	cbc	25.03	0.00	0.1
	Fabric Ctrl3 MTFC		lc	fpga10	1.03	0.00	0.1
	Fabric Ctrl4 MTFC		lc	fpga11	1.03	0.00	0.1
	Fabric Ctrl5 MTFC		lc	fpga12	1.03	0.00	0.1
	Fabric Ctrl6 MTFC		lc	fpga13	1.03	0.00	0.1
	CPUCtrl1		lc	fpga2	1.03	0.00	0.1
	ClkCtrl		lc	fpga3	1.05	0.00	0.1
	IntCtrl		lc	fpga4	1.04	0.00	0.1
	UTI		lc	fpga5	4.09	0.00	0.1
	Timex		lc	fpga6	0.02	0.00	0.1
	Fabric Ctrl10 MTFC		lc	fpga7	1.03	0.00	0.1
	Fabric Ctrl11 MTFC		lc	fpga8	1.03	0.00	0.1
	Fabric Ctrl12 MTFC		lc	fpga9	1.03	0.00	0.1
	CPUCtrl0		lc	fpga1	1.05	0.00	0.1
	ROMMONB MTRP		lc	rommon	5.16	0.00	0.1

ASR-9900-RP-TR	Can Bus Ctrl (CBC) MTRP		lc	cbc	25.03	0.00	0.1
	Fabric Ctrl3 MTFC		lc	fpga10	1.03	0.00	0.1
	Fabric Ctrl4 MTFC		lc	fpga11	1.03	0.00	0.1
	Fabric Ctrl5 MTFC		lc	fpga12	1.03	0.00	0.1
	Fabric Ctrl6 MTFC		lc	fpga13	1.03	0.00	0.1
	CPUCtrl1		lc	fpga2	1.03	0.00	0.1
	ClkCtrl		lc	fpga3	1.05	0.00	0.1
	IntCtrl		lc	fpga4	1.04	0.00	0.1
	UTI		lc	fpga5	4.09	0.00	0.1
	Timex		lc	fpga6	0.02	0.00	0.1
	Fabric Ctrl10 MTFC		lc	fpga7	1.03	0.00	0.1
	Fabric Ctrl11 MTFC		lc	fpga8	1.03	0.00	0.1
	Fabric Ctrl12 MTFC		lc	fpga9	1.03	0.00	0.1
	CPUCtrl0		lc	fpga1	1.05	0.00	0.1
	ROMMONB MTRP		lc	rommon	5.16	0.00	0.1

ASR-9900-RP-SE	Can Bus Ctrl (CBC) MTRP		lc	cbc	25.03	0.00	0.1
	Fabric Ctrl3 MTFC		lc	fpga10	1.03	0.00	0.1
	Fabric Ctrl4 MTFC		lc	fpga11	1.03	0.00	0.1
	Fabric Ctrl5 MTFC		lc	fpga12	1.03	0.00	0.1
	Fabric Ctrl6 MTFC		lc	fpga13	1.03	0.00	0.1
	CPUCtrl1		lc	fpga2	1.03	0.00	0.1
	ClkCtrl		lc	fpga3	1.05	0.00	0.1
	IntCtrl		lc	fpga4	1.04	0.00	0.1
	UTI		lc	fpga5	4.09	0.00	0.1
	Timex		lc	fpga6	0.02	0.00	0.1
	Fabric Ctrl10 MTFC		lc	fpga7	1.03	0.00	0.1
	Fabric Ctrl11 MTFC		lc	fpga8	1.03	0.00	0.1

	Fabric Ctrl2 MTFC	lc	fpga9	1.03	0.00	0.1
	CPUCtrl0	lc	fpga1	1.05	0.00	0.1
	ROMMONB MTRP	lc	rommon	5.16	0.00	0.1

A9K-RSP880-TR	Can Bus Ctrl (CBC) RSP4	lc	cbc	34.39	0.00	0.0
	MB CPUCtrl	lc	fpga2	0.71	0.00	0.0
	DBCtrl	lc	fpga3	0.16	0.00	0.0
	DBCtrl	lc	fpga4	0.20	0.00	0.0
	DBCtrl	lc	fpga5	0.12	0.00	0.0
	PUNT FPGA	lc	fpga6	0.08	0.00	0.0
	Fsbl	lc	fsbl	1.110	0.00	0.0
	LinuxFW	lc	lnxfw	1.110	0.00	0.0
	ROMMONB RSP4	lc	rommon	10.69	0.00	0.0

A9K-RSP880-SE	Can Bus Ctrl (CBC) RSP4	lc	cbc	34.39	0.00	0.0
	MB CPUCtrl	lc	fpga2	0.71	0.00	0.0
	DBCtrl	lc	fpga3	0.16	0.00	0.0
	DBCtrl	lc	fpga4	0.20	0.00	0.0
	DBCtrl	lc	fpga5	0.12	0.00	0.0
	PUNT FPGA	lc	fpga6	0.08	0.00	0.0
	Fsbl	lc	fsbl	1.110	0.00	0.0
	LinuxFW	lc	lnxfw	1.110	0.00	0.0
	ROMMONB RSP4	lc	rommon	10.69	0.00	0.0

A9K-RSP880-LT-TR	Can Bus Ctrl (CBC) RSP4L	lc	cbc	50.02	0.00	0.0
	MB CPUCtrl	lc	fpga2	0.19	0.00	0.0
	DBCtrl	lc	fpga3	0.05	0.00	0.0
	DBCtrl	lc	fpga4	0.05	0.00	0.0
	DBCtrl	lc	fpga5	0.05	0.00	0.0
	EOBCSwiethCtrl	lc	fpga6	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.110	0.00	0.0
	LinuxFW	lc	lnxfw	1.110	0.00	0.0
	ROMMONB RSP4L	lc	rommon	17.37	0.00	0.0

A9K-RSP880-LT-SE	Can Bus Ctrl (CBC) RSP4L	lc	cbc	50.02	0.00	0.0
	MB CPUCtrl	lc	fpga2	0.19	0.00	0.0
	DBCtrl	lc	fpga3	0.05	0.00	0.0
	DBCtrl	lc	fpga4	0.05	0.00	0.0
	DBCtrl	lc	fpga5	0.05	0.00	0.0
	EOBCSwiethCtrl	lc	fpga6	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.110	0.00	0.0
	LinuxFW	lc	lnxfw	1.110	0.00	0.0
	ROMMONB RSP4L	lc	rommon	17.37	0.00	0.0

A99-RSP-TR	Can Bus Ctrl (CBC) RSP4S	lc	cbc	43.03	0.00	0.1
	MB CPUCtrl	lc	fpga2	0.71	0.00	0.0
	DBCtrl	lc	fpga3	0.16	0.00	0.0
	DBCtrl	lc	fpga4	0.20	0.00	0.0
	DBCtrl	lc	fpga5	0.12	0.00	0.0
	PUNT FPGA	lc	fpga6	0.08	0.00	0.0
	Fsbl	lc	fsbl	1.110	0.00	0.0
	LinuxFW	lc	lnxfw	1.110	0.00	0.0
	ROMMONB RSP4SHW	lc	rommon	16.18	0.00	0.0

A99-RSP-SE	Can Bus Ctrl (CBC) RSP4S	lc	cbc	43.03	0.00	0.1
	MB CPUCtrl	lc	fpga2	0.71	0.00	0.0
	DBCtrl	lc	fpga3	0.16	0.00	0.0
	DBCtrl	lc	fpga4	0.20	0.00	0.0
	DBCtrl	lc	fpga5	0.12	0.00	0.0
	PUNT FPGA	lc	fpga6	0.08	0.00	0.0
	Fsbl	lc	fsbl	1.110	0.00	0.0
	LinuxFW	lc	lnxfw	1.110	0.00	0.0
	ROMMONB RSP4SHW	lc	rommon	16.18	0.00	0.0

A99-RP2-TR	Can Bus Ctrl (CBC) MTRP	lc	cbc	35.14	0.00	0.1
	MB CPUCtrl	lc	fpga2	0.71	0.00	0.0
	DBCtrl	lc	fpga3	0.16	0.00	0.0
	DBCtrl	lc	fpga4	0.20	0.00	0.0
	DBCtrl	lc	fpga5	0.12	0.00	0.0
	PUNT FPGA	lc	fpga6	0.08	0.00	0.0
	Fsbl	lc	fsbl	1.110	0.00	0.0
	LinuxFW	lc	lnxfw	1.110	0.00	0.0
	ROMMONB RP2	lc	rommon	14.39	0.00	0.0

A99-RP2-SE	Can Bus Ctrl (CBC) MTRP	lc	cbc	35.14	0.00	0.1
	MB CPUCtrl	lc	fpga2	0.71	0.00	0.0
	DBCtrl	lc	fpga3	0.16	0.00	0.0
	DBCtrl	lc	fpga4	0.20	0.00	0.0
	DBCtrl	lc	fpga5	0.12	0.00	0.0
	PUNT FPGA	lc	fpga6	0.08	0.00	0.0
	Fsbl	lc	fsbl	1.110	0.00	0.0
	LinuxFW	lc	lnxfw	1.110	0.00	0.0
	ROMMONB RP2	lc	rommon	14.39	0.00	0.0

ASR9001-RP	Can Bus Ctrl (CBC) IMRP	lc	cbc	22.114	0.00	0.1
	MB CPUCtrl	lc	fpga2	1.15	0.00	0.0
	ROMMONB IM RP	lc	rommon	3.04	0.00	0.1

A9K-24x10GE-SE	Can Bus Ctrl (CBC) LC6	lc	cbc	19.112	0.00	0.0
	DBCtrl LC6	lc	fpga2	1.03	0.00	0.0
	LinkCtrl LC6	lc	fpga3	1.01	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	1.07	0.00	0.0
	ROMMONB LC6	lc	rommon	3.04	0.00	0.0

A9K-2x100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	21.111	0.00	0.1
	DB IO FPGA1	lc	cpld1	1.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.08	0.00	0.0
	PortCtrl	lc	fpga3	1.05	0.00	0.0
	Imux	lc	fpga4	1.04	0.00	0.0
	Emux	lc	fpga5	1.04	0.00	0.0
	100GIGMAC	lc	fpga6	41.00	0.00	0.0
	ROMMONB LC4	lc	rommon	3.04	0.00	0.0

A9K-24x10GE-TR	Can Bus Ctrl (CBC) LC6	lc	cbc	19.112	0.00	0.0
	DBCtrl LC6	lc	fpga2	1.03	0.00	0.0
	LinkCtrl LC6	lc	fpga3	1.01	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	1.07	0.00	0.0
	ROMMONB LC6	lc	rommon	3.04	0.00	0.0

A9K-2x100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	21.111	0.00	0.1
	DB IO FPGA1	lc	cpld1	1.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.08	0.00	0.0
	PortCtrl	lc	fpga3	1.05	0.00	0.0
	Imux	lc	fpga4	1.04	0.00	0.0
	Emux	lc	fpga5	1.04	0.00	0.0
	100GIGMAC	lc	fpga6	41.00	0.00	0.0
	ROMMONB LC4	lc	rommon	3.04	0.00	0.0

A9K-36x10GE-SE	Can Bus Ctrl (CBC) LC6	lc	cbc	15.104	0.00	0.0
	DBCtrl LC6	lc	fpga2	1.01	0.00	0.0
	LinkCtrl LC6	lc	fpga3	1.00	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	1.03	0.00	0.0
	ROMMONB LC6	lc	rommon	3.03	0.00	0.0

A9K-36x10GE_SC7-SE	Can Bus Ctrl (CBC) LC6	lc	cbc	15.104	0.00	0.0
	DBCtrl LC6	lc	fpga2	1.01	0.00	0.0
	LinkCtrl LC6	lc	fpga3	1.00	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	1.03	0.00	0.0

	ROMMONB LC6	lc	rommon	3.03	0.00	0.0

A9K-36x10GE-TR	Can Bus Ctrl (CBC) LC6	lc	cbc	15.104	0.00	0.0
	DBCtrl LC6	lc	fpga2	1.01	0.00	0.0
	LinkCtrl LC6	lc	fpga3	1.00	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	1.03	0.00	0.0
	ROMMONB LC6	lc	rommon	3.03	0.00	0.0

A9K-36x10GE_SC7-TR	Can Bus Ctrl (CBC) LC6	lc	cbc	15.104	0.00	0.0
	DBCtrl LC6	lc	fpga2	1.01	0.00	0.0
	LinkCtrl LC6	lc	fpga3	1.00	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	1.03	0.00	0.0
	ROMMONB LC6	lc	rommon	3.03	0.00	0.0

A9K-1x100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	21.111	0.00	0.1
	DB IO FPGA1	lc	cpld1	1.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.08	0.00	0.0
	PortCtrl	lc	fpga3	1.05	0.00	0.0
	Imux	lc	fpga4	1.04	0.00	0.0
	Emux	lc	fpga5	1.04	0.00	0.0
	100GIGMAC	lc	fpga6	41.00	0.00	0.0
	ROMMONB LC4	lc	rommon	3.04	0.00	0.0

A9K-1x100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	21.111	0.00	0.1
	DB IO FPGA1	lc	cpld1	1.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.08	0.00	0.0
	PortCtrl	lc	fpga3	1.05	0.00	0.0
	Imux	lc	fpga4	1.04	0.00	0.0
	Emux	lc	fpga5	1.04	0.00	0.0
	100GIGMAC	lc	fpga6	41.00	0.00	0.0
	ROMMONB LC4	lc	rommon	3.04	0.00	0.0

A9K-VSM-500	CPUCtrl Forge	lc	cbc	33.05	0.00	0.1
	CPUCtrl Forge	lc	fpga1	1.26	0.00	0.1
	CPUCtrl Forge	lc	ibmc	5.08	0.00	0.1
	CPUCtrl Forge	lc	rommon	3.07	0.00	0.1

A99-8X100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99-8X100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99-4X100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0

	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99-4X100GE-SE-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99-4X100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99-4X100GE-TR-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99-4X100GE-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-4X100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-4X100GE-SE-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-4X100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0

	MB CPUctrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-4X100GE-TR-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUctrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-4X100GE-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUctrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99K-MOD200-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUctrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99K-200MOD-SE-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUctrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99K-MOD200-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUctrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99K-MOD200-TR-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUctrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD200-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUctrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD200-SE-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD200-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD200-TR-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD200-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99K-MOD400-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99K-MOD400-SE-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99K-MOD400-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99K-MOD400-TR-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD400-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD400-SE-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD400-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD400-TR-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD400-TAA	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-8X100GE-L-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-8X100GE-L-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-8X100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-8X100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0

	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99L-4X100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A99L-4X100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9KL-4X100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9KL-4X100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.13	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-400G-DWDM-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	42.04	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	DBCtrl	lc	fpga4	1.03	0.00	0.0
	DBCtrl	lc	fpga5	1.05	0.00	0.0
	DBCtrl	lc	fpga6	3.78	0.00	1.0
	DBCtrl	lc	fpga7	49.00	0.00	0.0
	CFP2 V2	lc	fpga8	5.52	0.00	2.0
	CFP2 V1	lc	fpga8	4.40	0.00	1.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-4X100GE	Can Bus Ctrl (CBC) LC4	lc	cbc	46.06	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.90	0.00	0.0
	DBCtrl	lc	fpga3	1.05	0.00	0.0
	PortCtrl	lc	fpga4	1.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	9.30	0.00	0.0

A99-12X100GE	Can Bus Ctrl (CBC) LC4	lc	cbc	46.06	0.00	0.0
	MB CPUctrl	lc	fpga2	1.90	0.00	0.0
	DBCtrl	lc	fpga3	1.05	0.00	0.0
	PortCtrl	lc	fpga4	1.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	9.30	0.00	0.0

A99-8X100GE-CM	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUctrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
ROMMONB LC1	lc	rommon	8.51	0.00	0.0	

A9K-8X100GE-CM	Can Bus Ctrl (CBC) LC4	lc	cbc	38.23	0.00	0.0
	MB CPUctrl	lc	fpga2	1.99	0.00	0.0
	DBCtrl	lc	fpga3	1.07	0.00	0.0
	PortCtrl	lc	fpga4	1.09	0.00	0.0
	CPAK LR4	lc	fpga5	1.16	0.00	0.0
	CPAK SR10	lc	fpga6	2.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
ROMMONB LC1	lc	rommon	8.51	0.00	0.0	

A99-12X100GE-CM	Can Bus Ctrl (CBC) LC4	lc	cbc	46.06	0.00	0.0
	MB CPUctrl	lc	fpga2	1.90	0.00	0.0
	DBCtrl	lc	fpga3	1.05	0.00	0.0
	PortCtrl	lc	fpga4	1.02	0.00	0.0
	Fsbl	lc	fsbl	1.113	0.00	0.0
	LinuxFW	lc	lnxfw	1.113	0.00	0.0
	ROMMONB LC1	lc	rommon	9.30	0.00	0.0

A99-48X10GE-1G-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUctrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwiethCtrl	lc	fpga4	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A99-48X10GE-1G-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUctrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwiethCtrl	lc	fpga4	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A99-48X10GE-1G-CM	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUctrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	fpd_lc_fpga4_0x003d02ca	lc	fpga4	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A9K-24X10GE-1G-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUctrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwiethCtrl	lc	fpga4	1.11	0.00	0.0

	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A9K-24X10GE-1G-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwicthCtrl	lc	fpga4	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A9K-24X10GE-1G-CM	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwicthCtrl	lc	fpga4	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A9K-48X10GE-1G-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwicthCtrl	lc	fpga4	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A9K-48X10GE-1G-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwicthCtrl	lc	fpga4	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A9K-48X10GE-1G-CM	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwicthCtrl	lc	fpga4	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A99-24X10GE-1G-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwicthCtrl	lc	fpga4	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A99-24X10GE-1G-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwicthCtrl	lc	fpga4	1.11	0.00	0.0
	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A99-24X10GE-1G-CM	Can Bus Ctrl (CBC) LC4	lc	cbc	47.03	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.90	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	EOBCSwicthCtrl	lc	fpga4	1.11	0.00	0.0

	Fsbl	lc	fsbl	1.112	0.00	0.0
	LinuxFW	lc	lnxfw	1.112	0.00	0.0
	ROMMONB LC1	lc	rommon	18.30	0.00	0.0

A9K-MOD400-CM	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-MOD200-CM	Can Bus Ctrl (CBC) LC4	lc	cbc	39.09	0.00	0.0
	DBCtrl	lc	fpga10	1.27	0.00	0.0
	MB CPUCtrl	lc	fpga2	1.97	0.00	0.0
	Fsbl	lc	fsbl	1.103	0.00	0.0
	LinuxFW	lc	lnxfw	1.103	0.00	0.0
	ROMMONB LC1	lc	rommon	8.51	0.00	0.0

A9K-40GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	41.104	0.00	0.1
	PortCtrl	lc	fpga2	0.08	0.00	0.0
	PortCtrl	lc	fpga3	0.08	0.00	0.0
	MB CPUCtrl	lc	fpga4	0.06	0.00	0.0
	ROMMONB LC4	lc	rommon	3.04	0.00	0.1

A9K-4T16GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	41.104	0.00	0.1
	PortCtrl	lc	fpga2	0.08	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	MB CPUCtrl	lc	fpga4	0.06	0.00	0.0
	ROMMONB LC4	lc	rommon	3.04	0.00	0.1

A9K-40GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	41.104	0.00	0.1
	PortCtrl	lc	fpga2	0.08	0.00	0.0
	PortCtrl	lc	fpga3	0.08	0.00	0.0
	MB CPUCtrl	lc	fpga4	0.06	0.00	0.0
	ROMMONB LC4	lc	rommon	3.04	0.00	0.1

A9K-4T16GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	41.104	0.00	0.1
	PortCtrl	lc	fpga2	0.08	0.00	0.0
	PortCtrl	lc	fpga3	1.00	0.00	0.0
	MB CPUCtrl	lc	fpga4	0.06	0.00	0.0
	ROMMONB LC4	lc	rommon	3.04	0.00	0.1

ASR9001-LC	Can Bus Ctrl (CBC) IMLC	lc	cbc	23.114	0.00	0.1
	DB CPUCtrl	lc	fpga2	1.18	0.00	0.0
	EP Gambit	lc	fpga3	1.01	0.00	0.0
	MB CPUCtrl	lc	fpga4	2.10	0.00	0.0
	EP Rogue	lc	fpga6	1.06	0.00	0.0
	EP I/O FPGA	lc	fpga7	1.02	0.00	0.0
	ROMMONB IM LC	lc	rommon	3.04	0.00	0.1

ASR9001-LC-S	Can Bus Ctrl (CBC) IMLC	lc	cbc	23.114	0.00	0.1
	DB CPUCtrl	lc	fpga2	1.18	0.00	0.0
	EP Gambit	lc	fpga3	1.01	0.00	0.0
	MB CPUCtrl	lc	fpga4	2.10	0.00	0.0
	EP Rogue	lc	fpga6	1.06	0.00	0.0
	EP I/O FPGA	lc	fpga7	1.02	0.00	0.0
	ROMMONB IM LC	lc	rommon	3.04	0.00	0.1

A9K-ISM-100	Can Bus Ctrl (CBC) LC6	lc	cbc	18.08	0.00	0.1
	CPUCtrl LC6	lc	cp1d1	0.01	0.00	0.1
	Maintenance LC6	lc	fpga2	2.13	0.00	0.1
	Amistad LC6	lc	fpga1	0.33	0.00	0.20
	ROMMONB LC6	lc	rommon	1.02	0.00	0.1

PWR-3KW-AC-V2	Delta AC logic PM	pm	fpga11	6.04	0.00	0.1
	Delta AC primary PM	pm	fpga12	6.02	0.00	0.1
	Delta AC secondary PM	pm	fpga13	6.02	0.00	0.1
	Emerson AC logic PM	pm	fpga14	3.18	0.00	0.1
	Emerson AC primary PM	pm	fpga15	3.06	0.00	0.1
	Emerson AC secondary PM	pm	fpga16	3.12	0.00	0.1

PWR-2KW-DC-V2	Delta DC logic PM	pm	fpga11	6.03	0.00	0.1
	Delta DC primary PM	pm	fpga12	6.03	0.00	0.1
	Delta DC secondary PM	pm	fpga13	6.02	0.00	0.1
	Emerson DC logic PM	pm	fpga14	3.20	0.00	0.1
	Emerson DC primary PM	pm	fpga15	3.12	0.00	0.1
	Emerson DC secondary PM	pm	fpga16	3.21	0.00	0.1

PWR-6KW-AC-V3	Delta V3 AC logic PM	pm	fpga11	4.04	0.00	0.1
	Delta V3 AC primary PM	pm	fpga12	4.02	0.00	0.1
	Delta V3 AC secondary PM	pm	fpga13	4.03	0.00	0.1
	Acbel V3 AC logic PM MCU	pm	fpga14	3.05	0.00	0.1
	Acbel V3 AC primary PM	pm	fpga15	3.02	0.00	0.1
	Acbel V3 AC secondary PM	pm	fpga16	3.02	0.00	0.1

PWR-4.4KW-DC-V3	Delta V3 DC logic PM	pm	fpga11	3.02	0.00	0.1
	Delta V3 DC primary PM	pm	fpga12	3.01	0.00	0.1
	Delta V3 DC secondary PM	pm	fpga13	3.01	0.00	0.1
	Acbel V3 DC logic PM MCU	pm	fpga14	1.11	0.00	0.1
	Acbel V3 DC primary PM	pm	fpga15	1.03	0.00	0.1
	Acbel V3 DC secondary PM	pm	fpga16	2.13	0.00	0.1

PWR-3KW-HVDC	Delta HVDC logic PM	pm	fpga11	2.03	0.00	0.1
	Delta HVDC primary PM	pm	fpga12	2.02	0.00	0.1
	Delta HVDC secondary PM	pm	fpga13	2.02	0.00	0.1

A9K-MPA-32X1GE	EP I/O FPGA	spa	fpga11	1.09	0.00	0.0

SPA-4XT3/E3	SPA E3 Subrate FPGA	spa	fpga2	1.04	0.00	0.0
	SPA T3 Subrate FPGA	spa	fpga3	1.04	0.00	0.0
	SPA I/O FPGA	spa	fpga1	1.01	0.00	0.0
	SPA ROMMON	spa	rommon	2.12	0.00	0.0

SPA-2XT3/E3	SPA E3 Subrate FPGA	spa	fpga2	1.04	0.00	0.0
	SPA T3 Subrate FPGA	spa	fpga3	1.04	0.00	0.0
	SPA I/O FPGA	spa	fpga1	1.01	0.00	0.0
	SPA ROMMON	spa	rommon	2.12	0.00	0.0

SPA-4XCT3/DS0	SPA T3 Subrate FPGA	spa	fpga2	0.11	0.00	0.100
	SPA T3 Subrate FPGA	spa	fpga2	1.04	0.00	0.200
	SPA I/O FPGA	spa	fpga1	2.08	0.00	0.100
	SPA ROMMON	spa	rommon	2.12	0.00	0.100

SPA-OC192POS-XFP	SPA FPGA swv1.101 hww3	spa	fpga2	1.101	0.00	3.0
	SPA FPGA swv1.2 hww2	spa	fpga1	1.02	0.00	2.0

SPA-1XCHSTM1/OC3	SPA T3 Subrate FPGA	spa	fpga2	1.04	0.00	0.0
	SPA I/O FPGA	spa	fpga1	1.08	0.00	0.0
	SPA ROMMON	spa	rommon	2.12	0.00	0.0

SPA-1XOC48POS/RPR	SPA FPGA swv1.101 hww3	spa	fpga2	1.101	0.00	3.0
	SPA FPGA swv1.2	spa	fpga1	1.02	0.00	0.0

SPA-24CHT1-CE-ATM	SPA T3 Subrate FPGA	spa	fpga2	1.10	0.00	1.0
	SPA I/O FPGA	spa	fpga1	2.32	0.00	1.0
	SPA ROMMON	spa	rommon	1.03	0.00	1.0

SPA-2CHT3-CE-ATM	SPA T3 Subrate FPGA	spa	fpga2	1.11	0.00	1.0

	SPA I/O FPGA	spa fpga1	2.22	0.00	1.0
	SPA ROMMON	spa rommon	1.04	0.00	1.0
SPA-1CHOC3-CE-ATM	SPA OC3 Subrate FPGA	spa fpga2	2.23	0.00	0.0
	SPA I/O FPGA	spa fpga1	2.23	0.00	2.0
	SPA ROMMON	spa rommon	1.04	0.00	0.0
SPA-1XCHOC48/DS3	SPA I/O FPGA	spa fpga2	1.00	0.00	0.49
	SPA I/O FPGA	spa fpga3	1.00	0.00	0.52
	SPA I/O FPGA	spa fpga1	1.36	0.00	0.49
	SPA ROMMON	spa rommon	2.02	0.00	0.49
SPA-4XT-SERIAL	SPA I/O FPGA	spa fpga2	1.04	0.00	2.0
	SPA I/O FPGA	spa fpga1	1.02	0.00	0.0
SPA-1XOC3-ATM-V2	SPA FPGA swv2.104 hww2	spa fpga2	2.104	0.00	2.8
	SPA FPGA swv1.2	spa fpga1	2.02	0.00	0.0
SPA-3XOC3-ATM-V2	SPA FPGA swv2.104 hww2	spa fpga2	2.104	0.00	2.8
	SPA FPGA swv1.2	spa fpga1	2.02	0.00	0.0
SPA-1XOC12-ATM-V2	SPA FPGA swv2.104 hww2	spa fpga2	2.104	0.00	2.8
	SPA FPGA swv1.2	spa fpga1	2.02	0.00	0.0
SPA-2XCHOC12/DS0	SPA FPGA2 swv1.00	spa fpga2	1.00	0.00	0.0
	SPA FPGA swv1.36	spa fpga1	1.36	0.00	0.49
	SPA ROMMON swv2.2	spa rommon	2.02	0.00	0.49
A9K-MPA-20X1GE	EP I/O FPGA	spa fpga3	1.01	0.00	0.0
A9K-MPA-20X10GE	EP I/O FPGA	spa fpga5	1.16	0.00	0.0
A9K-MPA20X10GE-CM	EP I/O FPGA	spa fpga5	1.16	0.00	0.0
A9K-MPA-2X10GE	EP I/O FPGA	spa fpga6	1.06	0.00	0.0
A9K-MPA-4X10GE	EP I/O FPGA	spa fpga6	1.06	0.00	0.0
A9K-MPA-2X40GE	EP I/O FPGA	spa fpga7	1.03	0.00	0.0
A9K-MPA-1X40GE	EP I/O FPGA	spa fpga7	1.03	0.00	0.0
A9K-MPA-8X10GE	EP I/O FPGA	spa fpga8	1.09	0.00	0.0
A9K-MPA-2X100GE	EP I/O FPGA	spa fpga9	1.04	0.00	0.0
	CFP2 DCO B0	spap fpga7	38.26887	0.00	0.0
	CFP2 DCO	spap fpga8	38.26887	0.00	0.0
A9K-MPA-1X100GE	EP I/O FPGA	spa fpga9	1.04	0.00	0.0
	CFP2 DCO B0	spap fpga7	38.26887	0.00	0.0
	CFP2 DCO	spap fpga8	38.26887	0.00	0.0
A9K-MPA2X100GE-CM	EP I/O FPGA	spa fpga9	1.04	0.00	0.0
	CFP2 DCO B0	spap fpga7	38.26887	0.00	0.0
	CFP2 DCO	spap fpga8	38.26887	0.00	0.0
A9K-MPA-1X200GE	EP I/O FPGA	spa fpga9	1.04	0.00	0.0
	CFP2 DCO B0	spap fpga7	38.26887	0.00	0.0
	CFP2 DCO	spap fpga8	38.26887	0.00	0.0
SPA-8XOC12-POS	SPA FPGA swv1.0	spa fpga1	1.00	0.00	0.5
SPA-8XCHT1/E1	SPA I/O FPGA	spa fpga1	2.08	0.00	0.0
	SPA ROMMON	spa rommon	2.12	0.00	0.140

SPA-2XOC48POS/RPR	SPA FPGA swv1.0	spa fpgal	1.00	0.00	0.0
SPA-4XOC48POS/RPR	SPA FPGA swv1.0	spa fpgal	1.00	0.00	0.0
SPA-8XOC3-POS	SPA FPGA swv1.0	spa fpgal	1.00	0.00	0.5
SPA-2XOC12-POS	SPA FPGA swv1.0	spa fpgal	1.00	0.00	0.5
SPA-4XOC12-POS	SPA FPGA swv1.0	spa fpgal	1.00	0.00	0.5
SPA-10X1GE-V2	SPA FPGA swv1.10	spa fpgal	1.10	0.00	0.0
SPA-4XOC3-POS-V2	SPA FPGA swv1.0	spa fpgal	1.00	0.00	0.5
SPA-2XOC3-ATM-V2	SPA FPGA swv1.2	spa fpgal	2.02	0.00	0.0
SPA-8XCHT1/E1-V2	SPA I/O FPGA	spa fpgal	1.02	0.00	1.0
	SPA ROMMON	spa rommon	1.00	0.00	1.0
SPA-1CHSTM1/OC3V2	SPA I/O FPGA	spa fpgal	1.00	0.00	0.1
	SPA ROMMON	spa rommon	1.00	0.00	0.1
SPA-2XCT3/DS0-V2	SPA I/O FPGA	spa fpgal	1.01	0.00	1.0
	SPA ROMMON	spa rommon	1.00	0.00	1.0
SPA-4XCT3/DS0-V2	SPA I/O FPGA	spa fpgal	1.01	0.00	1.0
	SPA ROMMON	spa rommon	1.00	0.00	1.0
SPA-2XT3/E3-V2	SPA FPGA swv1.1 hww3	spa fpgal	1.01	0.00	1.0
	SPA ROMMON	spa rommon	1.00	0.00	1.0
SPA-4XT3/E3-V2	SPA FPGA swv1.1 hww3	spa fpgal	1.01	0.00	1.0
	SPA ROMMON	spa rommon	1.00	0.00	1.0

Caveats

There are no caveats in this release.

Other Important Information

- Repetitive Smart Licensing evaluation expired warning messages are displayed on the console every hour, but there is no functionality impact observed on the device. To stop these repetitive messages, you should register the device again with a new registration token.
- Cisco IOS XR Release 5.3.0 and later does not support the first and third generation Cisco ASR 9000 Line Cards to coexist in a single chassis.

For the list of ASR 9000 Series line card types, see: <http://www.cisco.com/c/en/us/support/docs/routers/asr-9000-series-aggregation-services-routers/116726-qanda-product-00.html#anc2>

- From IOS XR Release 6.0, A9K-RSP-4G, A9K-RSP-8G and the first generation ASR 9000 LCs are not supported. For a detailed listing, see [End-of-Life and End-of-Sale Notices](#)
- In IOS XR Releases 6.8.x, 2nd generation of ASR 9000 line cards is not supported.
- From Release 6.0, the onePK toolkit is not supported.

- Country-specific laws, regulations, and licenses—In certain countries, use of these products may be prohibited and subject to laws, regulations, or licenses, including requirements applicable to the use of the products under telecommunications and other laws and regulations; customers must comply with all such applicable laws in the countries in which they intend to use the products.
- Exceeding Cisco testing—If you intend to test beyond the combined maximum configuration tested and published by Cisco, contact your Cisco Technical Support representative to discuss how to engineer a large-scale configuration for your purpose.
- Installing a Line Card—For a fully populated 40-port high density Line Card with cable optics, maintenance time required for card replacement is higher. For more information about Line Card installation and removal, refer to the *Cisco ASR 9000 Aggregation Services Router Ethernet Line Card Installation Guide*.

Supported Transceiver Modules

To determine the transceivers that Cisco hardware device supports, refer to the [Transceiver Module Group \(TMG\) Compatibility Matrix](#) tool.

Supported Modular Port Adapters

For the compatibility details of Modular Port Adapters (MPAs) on the line cards, see the [datasheet](#) of that specific line card.

Upgrading Cisco IOS XR Software

Cisco IOS XR Software is installed and activated from modular packages, allowing specific features or software patches to be installed, upgraded, or downgraded without affecting unrelated processes. Software packages can be upgraded or downgraded on all supported card types, or on a single card (node).

Software packages are installed from package installation envelope (PIE) files that contain one or more software components.

The upgrade document is available along with the software images.

Cisco Software Manager (CSM) application provides an intuitive user interface to manage Cisco IOS XR installations, with pre-installation and post-installation checks and reports. CSM helps manage the process of software maintenance upgrades (SMUs) and service packs (SPs) on devices that run the Cisco IOS XR Software.

For information on how to use CSM, see [Cisco Software Manager User Guide](#).

Production Software Maintenance Updates (SMUs)

A production SMU is a SMU that is formally requested, developed, tested, and released. Production SMUs are intended for use in a live network environment and are formally supported by the Cisco TAC and the relevant development teams. Software bugs identified through software recommendations or Bug Search Tools are not a basis for production SMU requests.

For information on production SMU types, refer the [Production SMU Types](#) section of the *IOS XR Software Maintenance Updates (SMUs)* guide.

Related Documentation

The most current Cisco ASR 9000 router documentation is located at the following URL:

<https://www.cisco.com/c/en/us/td/docs/iosxr/asr-9000-series-routers.html>



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