

# Release Notes for Cisco 8000 Series Routers, IOS XR Release 7.10.2

## Cisco 8100, 8200, 8600, and 8800 Series Routers



**Note** Cisco IOS XR Release 7.10.2 is an Extended Maintenance Release of [Cisco IOS XR Release 7.10.1](#) for Cisco 8000 Series routers. For more details on the Cisco IOS XR release model and associated support, see [Guidelines for Cisco IOS XR Software](#).

## What's New in Cisco IOS XR Release 7.10.2

Cisco IOS XR Release 7.10.2 is an extended maintenance release for Cisco 8000 Series routers.

For more details on the Cisco IOS XR release model and associated support, see [Software Lifecycle Support Statement - IOS XR](#).

### Software Features Enhanced and Introduced

To learn about features introduced in other Cisco IOS XR releases, select the release from the [Documentation Landing Page](#).

Feature	Description
<b>Interface and Hardware Component</b>	
<a href="#">Support for DP04QSDD-HE0 Optical Module</a>	<p>This release introduces support for the Cisco 400G QSFP-DD High-Power (Bright) Optical Module, Ethernet Variant.</p> <p>The Cisco 400G QSFP-DD High-Power (Bright) Optical module is an enhanced version of the currently available QSFP-DD ZR+ Optical Module, leveraging the same operational modes but providing as a major enhancement the increase of the Tx Optical Power up to +1dBm.</p> <p>From this release, the DP04QSDD-HE0 optical module is supported on the following routers and line cards —</p> <p>Router:</p> <ul style="list-style-type: none"> <li>• Cisco 8202-32FH-M</li> </ul> <p>Line cards:</p> <ul style="list-style-type: none"> <li>• 88-LC0-34H14FH</li> <li>• 88-LC0-36FH</li> </ul>

## Release 7.10.2 Packages

The Cisco IOS XR software is composed of a base image (ISO) that provides the XR infrastructure. The ISO image is made up of a set of packages (also called RPMs). These packages are of three types:

- A mandatory package that is included in the ISO
- An optional package that is included in the ISO
- An optional package that is not included in the ISO

Visit the [Cisco Software Download](#) page to download the Cisco IOS XR software images.

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

```
RP/0/RP0/CPU0#show install active
Package                                     Version
-----
xr-8000-af-ea                               7.10.2v1.0.0-1
xr-8000-aib                                 7.10.2v1.0.0-1
xr-8000-bfd                                 7.10.2v1.0.0-1
xr-8000-buffhdr-ea                          7.10.2v1.0.0-1
xr-8000-bundles                             7.10.2v1.0.0-1
xr-8000-card-support                         7.10.2v1.0.0-1
xr-8000-cdp-ea                              7.10.2v1.0.0-1
xr-8000-cem-driver                          7.10.2v1.0.0-1
xr-8000-cfm                                 7.10.2v1.0.0-1
xr-8000-common-otn                          7.10.2v1.0.0-1
xr-8000-core                                7.10.2v1.0.0-1
xr-8000-cpa                                  7.10.2v1.0.0-1
xr-8000-cpa-devobj-misc                     7.10.2v1.0.0-1
xr-8000-cpa-npu                              7.10.2v1.0.0-1
xr-8000-cpa-sb-data                          7.10.2v1.0.0-1
xr-8000-dot1x                               7.10.2v1.0.0-1
xr-8000-dsm                                 7.10.2v1.0.0-1
xr-8000-encap-id                            7.10.2v1.0.0-1
xr-8000-ether-ea                            7.10.2v1.0.0-1
xr-8000-fabric                              7.10.2v1.0.0-1
xr-8000-feat-mgr                            7.10.2v1.0.0-1
xr-8000-fib-ea                              7.10.2v1.0.0-1
xr-8000-forwarder                           7.10.2v1.0.0-1
xr-8000-fpd                                 7.10.2v1.0.0-1
xr-8000-fwd-tools                           7.10.2v1.0.0-1
xr-8000-fwdlib                              7.10.2v1.0.0-1
xr-8000-gil-ea                              7.10.2v1.0.0-1
xr-8000-host-core                           7.10.2v1.0.0-1
xr-8000-l2fib                               7.10.2v1.0.0-1
xr-8000-l2mcast                             7.10.2v1.0.0-1
xr-8000-leabaofa                            7.10.2v1.0.0-1
xr-8000-libofaasync                          7.10.2v1.0.0-1
xr-8000-lpts-ea                             7.10.2v1.0.0-1
xr-8000-mcast                               7.10.2v1.0.0-1
xr-8000-netflow                             7.10.2v1.0.0-1
xr-8000-npu                                 7.10.2v1.0.0-1
xr-8000-oam                                 7.10.2v1.0.0-1
xr-8000-optics                              7.10.2v1.0.0-1
xr-8000-os-oe                              7.10.2v1.0.0-1
xr-8000-os-oe-extra                         7.10.2v1.0.0-1
xr-8000-pbr                                 7.10.2v1.0.0-1
```

xr-8000-pd-port-mode	7.10.2v1.0.0-1
xr-8000-pfilter	7.10.2v1.0.0-1
xr-8000-pidb	7.10.2v1.0.0-1
xr-8000-pktio	7.10.2v1.0.0-1
xr-8000-ple-sdk	7.10.2v1.0.0-1
xr-8000-port-mapper	7.10.2v1.0.0-1
xr-8000-ppinfo	7.10.2v1.0.0-1
xr-8000-pwhe-ea	7.10.2v1.0.0-1
xr-8000-qos-ea	7.10.2v1.0.0-1
xr-8000-span	7.10.2v1.0.0-1
xr-8000-spico	7.10.2v1.0.0-1
xr-8000-spp-ea	7.10.2v1.0.0-1
xr-8000-timing	7.10.2v1.0.0-1
xr-8000-tunnel-ip	7.10.2v1.0.0-1
xr-8000-utapp-blaze	7.10.2v1.0.0-1
xr-8000-vether	7.10.2v1.0.0-1
xr-8000-ztp-ea	7.10.2v1.0.0-1
xr-aaa	7.10.2v1.0.0-1
xr-acl	7.10.2v1.0.0-1
xr-apphosting	7.10.2v1.0.0-1
xr-appmgr	7.10.2v1.0.0-1
xr-bcdl	7.10.2v1.0.0-1
xr-bfd	7.10.2v1.0.0-1
xr-bgp	7.10.2v1.0.0-1
xr-bgputil	7.10.2v1.0.0-1
xr-bng-stubs	7.10.2v1.0.0-1
xr-bundles	7.10.2v1.0.0-1
xr-cal-pi	7.10.2v1.0.0-1
xr-cdp	7.10.2v1.0.0-1
xr-cds	7.10.2v1.0.0-1
xr-cfgmgr	7.10.2v1.0.0-1
xr-cfm	7.10.2v1.0.0-1
xr-cofo	7.10.2v1.0.0-1
xr-core	7.10.2v1.0.0-1
xr-core-calv	7.10.2v1.0.0-1
xr-cpa-common	7.10.2v1.0.0-1
xr-cpa-common-optics	7.10.2v1.0.0-1
xr-cpa-common-psu	7.10.2v1.0.0-1
xr-cpa-driver-devobj-gnss	7.10.2v1.0.0-1
xr-cpa-driver-devobj-misc	7.10.2v1.0.0-1
xr-cpa-driver-devobj-npu	7.10.2v1.0.0-1
xr-cpa-driver-devobj-phy	7.10.2v1.0.0-1
xr-cpa-driver-devobj-sensors	7.10.2v1.0.0-1
xr-cpa-driver-devobj-storage	7.10.2v1.0.0-1
xr-cpa-driver-devobj-test	7.10.2v1.0.0-1
xr-cpa-driver-devobj-timing	7.10.2v1.0.0-1
xr-cpa-driver-fpgalib-access	7.10.2v1.0.0-1
xr-cpa-driver-fpgalib-common	7.10.2v1.0.0-1
xr-cpa-driver-fpgalib-infra	7.10.2v1.0.0-1
xr-cpa-driver-fpgalib-kmod-oe	7.10.2v1.0.0-1
xr-cpa-driver-fpgalib-misc	7.10.2v1.0.0-1
xr-cpa-driver-fpgalib-optics	7.10.2v1.0.0-1
xr-cpa-driver-optics	7.10.2v1.0.0-1
xr-cpa-ethsw	7.10.2v1.0.0-1
xr-cpa-idprom	7.10.2v1.0.0-1
xr-cpa-tamlib	7.10.2v1.0.0-1
xr-ctc	7.10.2v1.0.0-1
xr-debug	7.10.2v1.0.0-1
xr-dhcp	7.10.2v1.0.0-1
xr-diags	7.10.2v1.0.0-1
xr-diskboot	7.10.2v1.0.0-1
xr-drivers	7.10.2v1.0.0-1
xr-eem	7.10.2v1.0.0-1
xr-elmi-stubs	7.10.2v1.0.0-1

xr-ema	7.10.2v1.0.0-1
xr-enhancedmanageability	7.10.2v1.0.0-1
xr-erp	7.10.2v1.0.0-1
xr-featurecapability	7.10.2v1.0.0-1
xr-fib	7.10.2v1.0.0-1
xr-filesysinv	7.10.2v1.0.0-1
xr-foundation-8000	7.10.2v1.0.0-1
xr-fpd	7.10.2v1.0.0-1
xr-gil	7.10.2v1.0.0-1
xr-ha-infra	7.10.2v1.0.0-1
xr-healthcheck	7.10.2v1.0.0-1
xr-host-core	7.10.2v1.0.0-1
xr-httpclient	7.10.2v1.0.0-1
xr-icpe-eth	7.10.2v1.0.0-1
xr-icpe-opt	7.10.2v1.0.0-1
xr-identifier	7.10.2v1.0.0-1
xr-infra-sla	7.10.2v1.0.0-1
xr-install	7.10.2v1.0.0-1
xr-ip-apps	7.10.2v1.0.0-1
xr-ip-core	7.10.2v1.0.0-1
xr-ip-infra-vrf	7.10.2v1.0.0-1
xr-ip-mibs	7.10.2v1.0.0-1
xr-ip-static	7.10.2v1.0.0-1
xr-ipc	7.10.2v1.0.0-1
xr-ipsla	7.10.2v1.0.0-1
xr-is-is	7.10.2v1.0.0-1
xr-k9sec	7.10.2v1.0.0-1
xr-l2snooptransport	7.10.2v1.0.0-1
xr-l2vpn	7.10.2v1.0.0-1
xr-ldp	7.10.2v1.0.0-1
xr-licensing	7.10.2v1.0.0-1
xr-link-oam	7.10.2v1.0.0-1
xr-linuxnetworking	7.10.2v1.0.0-1
xr-linuxsecurity	7.10.2v1.0.0-1
xr-lldp	7.10.2v1.0.0-1
xr-lpts	7.10.2v1.0.0-1
xr-manageabilityxml	7.10.2v1.0.0-1
xr-mandatory	7.10.2v1.0.0-1
xr-mcast	7.10.2v1.0.0-1
xr-mcastl2snoop	7.10.2v1.0.0-1
xr-mda	7.10.2v1.0.0-1
xr-mpls	7.10.2v1.0.0-1
xr-mpls-oam	7.10.2v1.0.0-1
xr-mpls-oam-client	7.10.2v1.0.0-1
xr-mpls-static	7.10.2v1.0.0-1
xr-netflow	7.10.2v1.0.0-1
xr-networkboot	7.10.2v1.0.0-1
xr-nosi	7.10.2v1.0.0-1
xr-ntp	7.10.2v1.0.0-1
xr-ofa	7.10.2v1.0.0-1
xr-ops-script-repo	7.10.2v1.0.0-1
xr-optics	7.10.2v1.0.0-1
xr-orrsppf	7.10.2v1.0.0-1
xr-os-oe-apps	7.10.2v1.0.0-1
xr-os-oe-core	7.10.2v1.0.0-1
xr-os-oe-hardware	7.10.2v1.0.0-1
xr-ospf	7.10.2v1.0.0-1
xr-p4rt	7.10.2v1.0.0-1
xr-perf-meas	7.10.2v1.0.0-1
xr-perfmgmt	7.10.2v1.0.0-1
xr-pfi	7.10.2v1.0.0-1
xr-pird-stubs	7.10.2v1.0.0-1
xr-pkt-trace	7.10.2v1.0.0-1
xr-platforms-ras	7.10.2v1.0.0-1

xr-pm-alarm	7.10.2v1.0.0-1
xr-portmode	7.10.2v1.0.0-1
xr-procmgr	7.10.2v1.0.0-1
xr-python	7.10.2v1.0.0-1
xr-qos	7.10.2v1.0.0-1
xr-rid-mgr	7.10.2v1.0.0-1
xr-routing	7.10.2v1.0.0-1
xr-rpl	7.10.2v1.0.0-1
xr-rsvp-te	7.10.2v1.0.0-1
xr-security	7.10.2v1.0.0-1
xr-security-tams	7.10.2v1.0.0-1
xr-secy-driver	7.10.2v1.0.0-1
xr-servicelayer	7.10.2v1.0.0-1
xr-snmp	7.10.2v1.0.0-1
xr-snmp-hw	7.10.2v1.0.0-1
xr-span	7.10.2v1.0.0-1
xr-spi-core	7.10.2v1.0.0-1
xr-spi-hw	7.10.2v1.0.0-1
xr-spp	7.10.2v1.0.0-1
xr-sr	7.10.2v1.0.0-1
xr-stats	7.10.2v1.0.0-1
xr-stp	7.10.2v1.0.0-1
xr-stubs	7.10.2v1.0.0-1
xr-sysdb	7.10.2v1.0.0-1
xr-syslog	7.10.2v1.0.0-1
xr-telemetry	7.10.2v1.0.0-1
xr-telnet	7.10.2v1.0.0-1
xr-timing	7.10.2v1.0.0-1
xr-tmpdir-cleanup	7.10.2v1.0.0-1
xr-track	7.10.2v1.0.0-1
xr-transport	7.10.2v1.0.0-1
xr-tty	7.10.2v1.0.0-1
xr-tunnel-ip	7.10.2v1.0.0-1
xr-tunnel-nve	7.10.2v1.0.0-1
xr-upgradematrix	7.10.2v1.0.0-1
xr-utils	7.10.2v1.0.0-1
xr-vether	7.10.2v1.0.0-1
xr-vpnmib	7.10.2v1.0.0-1
xr-xmlinfra	7.10.2v1.0.0-1
xr-xrlibcurl	7.10.2v1.0.0-1
xr-ztp	7.10.2v1.0.0-1

To know about all the RPMs installed including XR, OS and other components use the **show install active all** command.

The software modularity approach provides a flexible model that allows you to install a subset of IOS XR packages on devices based on your individual requirements. All critical components are modularized as packages so that you can select the features that you want to run on your router.




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**Note** The above show command output displays mandatory packages that are installed on the router. To view the optional and bug fix RPM packages, first install the package and use the **show install active summary** command.

---

## Caveats

Table 1: Cisco 8000 Series Router Specific Bugs

Bug ID	Headline
<a href="#">CSCwf62305</a>	The npu_drvr crashes while adding or removing the breakout configuration.

## Behavior Changes

Starting with Cisco IOS XR Software Release 7.10.1, you must configure a name server for Smart Licensing deployment options that use HTTPS for communication with Cisco Smart Software Manager (CSSM). If the system cannot validate that the Common Name (CN) in the X.509 server certificate is a Fully Qualified Domain Name (FQDN), communication with CSSM results in an **Error during SSL communication**. See the *Smart Licensing Chapter* in the *System Management Configuration Guide for Cisco 8000 Series Routers* for more information and options to bypass the name server configuration.

## Determine Software Version

Log in to the router and enter the **show version** command:

```
RP/0/RP0/CPU0#show version
```

```
Cisco IOS XR Software, Version 7.10.2 LNT  
Copyright (c) 2013-2023 by Cisco Systems, Inc.
```

```
Build Information:
```

```
Built By      : deenayak  
Built On     : Sat Nov 18 11:04:33 UTC 2023  
Build Host   : iox-ucs-058  
Workspace    : /auto/srcarchive14/prod/7.10.2/8000/ws/  
Version      : 7.10.2  
Label       : 7.10.2
```

```
cisco 8000 (Intel(R) Xeon(R) CPU D-1530 @ 2.40GHz)  
cisco 8812 (Intel(R) Xeon(R) CPU D-1530 @ 2.40GHz) processor with 32GB of memory  
R1 uptime is 10 hours, 24 minutes  
Cisco 8812 12-slot Chassis
```

## Determine Firmware Support

Log in to the router and enter **show fpd package** command:

### Cisco 8100 Series Router

```
RP/0/RP0/CPU0#show fpd package
```

```
=====  
Field Programmable Device Package  
=====
```

Card Type	FPD Description	Req Reload	SW Ver	Min Req SW Ver	Min Req Board Ver
8102-64H	Bios	YES	1.13	1.13	0.0
	BiosGolden	YES	1.13	1.13	0.0
	IoFpga	YES	1.04	1.04	0.0
	IoFpgaGolden	YES	1.04	1.04	0.0
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.88	1.88	0.0
	x86FpgaGolden	YES	1.88	1.06	0.0
	x86TamFw	YES	6.13	6.13	0.0
	x86TamFwGolden	YES	6.13	6.05	0.0
8102-64H-O	Bios	YES	0.241	0.241	0.0
	BiosGolden	YES	0.241	0.218	0.0
	IoFpga	YES	1.04	1.04	0.0
	IoFpgaGolden	YES	1.04	1.04	0.0
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.88	1.88	0.0
	x86FpgaGolden	YES	1.88	1.06	0.0
	x86TamFw	YES	6.13	6.13	0.0
	x86TamFwGolden	YES	6.13	6.05	0.0
PSU650W-ACPE	LI-SecMCU	NO	2.55	2.55	0.0
PSU650W-ACPI	LI-SecMCU	NO	2.54	2.54	0.0
PSU930W-DCPE	LI-SecMCU	NO	2.03	2.03	0.0
PSU930W-DCPI	LI-SecMCU	NO	3.03	3.03	0.0

## Cisco 8200 Series Router

RP/0/RP0/CPU0:R2#show fpd package

```

=====
                                Field Programmable Device Package
                                =====

```

Card Type	FPD Description	Req Reload	SW Ver	Min Req SW Ver	Min Req Board Ver
8201	Bios	YES	1.29	1.29	0.0
	BiosGolden	YES	1.29	1.15	0.0
	IoFpga	YES	1.11	1.11	0.1
	IoFpgaGolden	YES	1.11	0.48	0.1
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.06	1.06	0.0
	x86FpgaGolden	YES	1.06	0.48	0.0
	x86TamFw	YES	5.13	5.13	0.0
	x86TamFwGolden	YES	5.13	5.05	0.0
8201-ON	Bios	YES	1.208	1.208	0.0
	BiosGolden	YES	1.208	1.207	0.0

	IoFpga	YES	1.11	1.11	0.1
	IoFpgaGolden	YES	1.11	0.48	0.1
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.06	1.06	0.0
	x86FpgaGolden	YES	1.06	0.48	0.0
	x86TamFw	YES	5.13	5.13	0.0
	x86TamFwGolden	YES	5.13	5.05	0.0
-----					
8201-SYS	Bios	YES	1.29	1.29	0.0
	BiosGolden	YES	1.29	1.15	0.0
	IoFpga	YES	1.11	1.11	0.1
	IoFpgaGolden	YES	1.11	0.48	0.1
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.06	1.06	0.0
	x86FpgaGolden	YES	1.06	0.48	0.0
	x86TamFw	YES	5.13	5.13	0.0
	x86TamFwGolden	YES	5.13	5.05	0.0
-----					
8201-SYS-ON	Bios	YES	1.208	1.208	0.0
	BiosGolden	YES	1.208	1.207	0.0
	IoFpga	YES	1.11	1.11	0.1
	IoFpgaGolden	YES	1.11	0.48	0.1
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.06	1.06	0.0
	x86FpgaGolden	YES	1.06	0.48	0.0
	x86TamFw	YES	5.13	5.13	0.0
	x86TamFwGolden	YES	5.13	5.05	0.0
-----					
PSU1.4KW-ACPE	DT-PrimMCU	NO	3.01	3.01	0.0
	DT-SecMCU	NO	2.02	2.02	0.0
-----					
PSU1.4KW-ACPI	DT-PrimMCU	NO	3.01	3.01	0.0
	DT-SecMCU	NO	2.02	2.02	0.0
-----					
PSU2KW-ACPE	PO-PrimMCU	NO	1.03	1.03	0.0
	PO-SecMCU	NO	1.06	1.06	0.0
-----					
PSU2KW-ACPI	PO-PrimMCU	NO	1.03	1.03	0.0
	PO-SecMCU	NO	1.08	1.08	0.0
-----					
PSU2KW-DCPE	PO-PrimMCU	NO	1.07	1.07	0.0
-----					
PSU2KW-DCPI	PO-PrimMCU	NO	1.07	1.07	0.0
-----					
PSU2KW-HVPI	PO-PrimMCU	NO	1.09	1.09	0.0
	PO-SecMCU	NO	1.10	1.10	0.0

## Cisco 8600 Series Router

RP/0/RP0/CPU0#show fpd package

```

=====
                          Field Programmable Device Package
=====
                          Req      SW      Min Req  Min Req

```



Card Type	FPD Description	Reload	Ver	SW Ver	Board Ver
86-3.2KW-AC	EM-LogicMCU	NO	0.10	0.10	0.0
	EM-PrimMCU	NO	0.02	0.02	0.0
	EM-SecMCU	NO	0.02	0.02	0.0
86-3.2KW-DC	EM-LogicMCU	NO	0.11	0.11	0.0
	EM-PrimMCU	NO	0.04	0.04	0.0
	EM-SecMCU	NO	0.04	0.04	0.0
86-MPA-14H2FH-M	IoFpga	YES	1.02	1.02	0.1
	IoFpgaGolden	NO	1.02	1.00	0.1
86-MPA-24Z-M	IoFpga	YES	1.02	1.02	0.1
	IoFpgaGolden	NO	1.02	1.00	0.1
86-MPA-4FH-M	IoFpga	YES	1.02	1.02	0.1
	IoFpgaGolden	NO	1.02	1.00	0.1
8608-FS [FB]	IoFpga	NO	1.11	1.11	0.2
	IoFpgaGolden	NO	1.11	1.00	0.2
8608-RP	Bios	YES	1.09	1.09	0.0
	BiosGolden	YES	1.09	1.01	0.0
	IoFpga	YES	1.10	1.10	0.0
	IoFpgaGolden	NO	1.10	1.01	0.0
	SsdMicron7300M2	YES	2.60	2.60	0.0
	SsdMicron7450M2	YES	11.00	11.00	0.0
	x86Fpga	YES	1.07	1.07	0.0
	x86FpgaGolden	YES	1.07	1.07	0.0
	x86TamFw	YES	7.12	7.12	0.0
x86TamFwGolden	YES	7.12	7.12	0.0	
8608-SC0-128	IoFpga	YES	1.01	1.01	0.0
	IoFpgaGolden	YES	1.01	1.01	0.0
8608-SC0-128 [FB]	IoFpga	NO	1.11	1.11	0.2
	IoFpgaGolden	NO	1.11	1.00	0.2
PSU4.3KW-HVPI	DT-LogicMCU	NO	8.04	1.04	0.0
	DT-PrimMCU	NO	8.02	1.02	0.0
	DT-SecMCU	NO	8.02	1.02	0.0

## Cisco 8800 Series Router

RP/0/RP0/CPU0#show fpd package

Field Programmable Device Package					
Card Type	FPD Description	Req Reload	SW Ver	Min Req SW Ver	Min Req Board Ver
88-LC0-34H14FH	Bios	YES	1.12	1.12	0.0
	BiosGolden	YES	1.12	0.13	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.09	1.09	0.1
	IoFpgaGolden	YES	1.09	1.01	0.1
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0

	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	0.91	0.91	0.1
	x86FpgaGolden	YES	0.91	0.78	0.1
	x86TamFw	YES	6.13	6.13	0.1
	x86TamFwGolden	YES	6.13	6.10	0.1
-----					
88-LC0-34H14FH-O	Bios	YES	0.241	0.241	0.0
	BiosGolden	YES	0.241	0.218	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.09	1.09	0.1
	IoFpgaGolden	YES	1.09	1.01	0.1
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	0.91	0.91	0.1
	x86FpgaGolden	YES	0.91	0.78	0.1
	x86TamFw	YES	6.13	6.13	0.1
	x86TamFwGolden	YES	6.13	6.10	0.1
-----					
88-LC0-36FH	Bios	YES	1.12	1.12	0.0
	BiosGolden	YES	1.12	0.13	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.14	1.14	0.1
	IoFpgaGolden	YES	1.14	1.00	0.1
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.48	1.48	0.1
	x86FpgaGolden	YES	1.48	1.04	0.1
	x86TamFw	YES	6.18	6.18	0.1
	x86TamFwGolden	YES	6.18	6.05	0.1
-----					
88-LC0-36FH-M	Bios	YES	1.12	1.12	0.0
	BiosGolden	YES	1.12	0.13	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.14	1.14	0.1
	IoFpgaGolden	YES	1.14	1.00	0.1
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.48	1.48	0.1
	x86FpgaGolden	YES	1.48	1.04	0.1
	x86TamFw	YES	6.18	6.18	0.1
	x86TamFwGolden	YES	6.18	6.05	0.1
-----					
88-LC0-36FH-MO	Bios	YES	0.241	0.241	0.0
	BiosGolden	YES	0.241	0.218	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.14	1.14	0.1
	IoFpgaGolden	YES	1.14	1.00	0.1
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.48	1.48	0.1
	x86FpgaGolden	YES	1.48	1.04	0.1

	x86TamFw	YES	6.18	6.18	0.1
	x86TamFwGolden	YES	6.18	6.05	0.1
-----					
88-LC0-36FH-O	Bios	YES	0.241	0.241	0.0
	BiosGolden	YES	0.241	0.218	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.14	1.14	0.1
	IoFpgaGolden	YES	1.14	1.00	0.1
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.48	1.48	0.1
	x86FpgaGolden	YES	1.48	1.04	0.1
	x86TamFw	YES	6.18	6.18	0.1
	x86TamFwGolden	YES	6.18	6.05	0.1
-----					
8800-LC-36FH	Bios	YES	1.29	1.29	0.0
	BiosGolden	YES	1.29	1.15	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.39	1.39	0.0
	IoFpgaGolden	YES	1.39	0.08	0.0
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.56	1.56	0.0
	x86FpgaGolden	YES	1.56	0.33	0.0
	x86TamFw	YES	5.17	5.17	0.0
	x86TamFwGolden	YES	5.17	5.05	0.0
-----					
8800-LC-36FH-O	Bios	YES	1.208	1.208	0.0
	BiosGolden	YES	1.208	1.207	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.39	1.39	0.0
	IoFpgaGolden	YES	1.39	0.08	0.0
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.56	1.56	0.0
	x86FpgaGolden	YES	1.56	0.33	0.0
	x86TamFw	YES	5.17	5.17	0.0
	x86TamFwGolden	YES	5.17	5.05	0.0
-----					
8800-LC-48H	Bios	YES	1.29	1.29	0.0
	BiosGolden	YES	1.29	1.15	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.39	1.39	0.0
	IoFpgaGolden	YES	1.39	0.08	0.0
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.56	1.56	0.0
	x86FpgaGolden	YES	1.56	0.33	0.0
	x86TamFw	YES	5.17	5.17	0.0
	x86TamFwGolden	YES	5.17	5.05	0.0
-----					
8800-LC-48H-O	Bios	YES	1.208	1.208	0.0

	BiosGolden	YES	1.208	1.207	0.0
	EthSwitch	YES	1.04	1.04	0.0
	EthSwitchGolden	YES	1.04	0.07	0.0
	IoFpga	YES	1.39	1.39	0.0
	IoFpgaGolden	YES	1.39	0.08	0.0
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	x86Fpga	YES	1.56	1.56	0.0
	x86FpgaGolden	YES	1.56	0.33	0.0
	x86TamFw	YES	5.17	5.17	0.0
	x86TamFwGolden	YES	5.17	5.05	0.0
-----					
8800-RP	Bios	YES	1.29	1.29	0.0
	BiosGolden	YES	1.29	1.15	0.0
	EthSwitch	YES	1.02	1.02	0.0
	EthSwitchGolden	YES	1.02	0.07	0.0
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	TimingFpga	YES	1.02	1.02	0.0
	TimingFpgaGolden	YES	1.02	0.11	0.0
	x86Fpga	YES	1.38	1.38	0.0
	x86FpgaGolden	YES	1.38	0.24	0.0
	x86TamFw	YES	5.17	5.17	0.0
	x86TamFwGolden	YES	5.17	5.05	0.0
-----					
8800-RP-E	Bios	YES	1.29	1.29	0.0
	BiosGolden	YES	1.29	1.15	0.0
	EthSwitch	YES	1.02	1.02	0.0
	EthSwitchGolden	YES	1.02	0.07	0.0
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	TimingFpga	YES	1.02	1.02	0.0
	TimingFpgaGolden	YES	1.02	0.11	0.0
	x86Fpga	YES	1.38	1.38	0.0
	x86FpgaGolden	YES	1.38	0.24	0.0
	x86TamFw	YES	5.17	5.17	0.0
	x86TamFwGolden	YES	5.17	5.05	0.0
-----					
8800-RP-O	Bios	YES	1.208	1.208	0.0
	BiosGolden	YES	1.208	1.207	0.0
	EthSwitch	YES	1.02	1.02	0.0
	EthSwitchGolden	YES	1.02	0.07	0.0
	SsdIntelS3520	YES	1.21	1.21	0.0
	SsdIntelS4510	YES	11.32	11.32	0.0
	SsdMicron5100	YES	7.01	7.01	0.0
	SsdMicron5300	YES	0.01	0.01	0.0
	TimingFpga	YES	1.02	1.02	0.0
	TimingFpgaGolden	YES	1.02	0.11	0.0
	x86Fpga	YES	1.38	1.38	0.0
	x86FpgaGolden	YES	1.38	0.24	0.0
	x86TamFw	YES	5.17	5.17	0.0
	x86TamFwGolden	YES	5.17	5.05	0.0
-----					
8804-FAN	FtFpga	NO	1.00	1.00	0.0
	FtFpgaGolden	NO	1.00	0.16	0.0
-----					
8804-FC0	IoFpga	YES	1.00	1.00	0.0
	IoFpgaGolden	YES	1.00	0.16	0.0

8808-FAN	FtFpga	NO	1.00	1.00	0.0
	FtFpgaGolden	NO	1.00	0.16	0.0
8808-FC	IoFpga	YES	1.02	1.02	0.0
	IoFpgaGolden	YES	1.02	0.05	0.0
8808-FC0	IoFpga	YES	1.00	1.00	0.0
	IoFpgaGolden	YES	1.00	0.16	0.0
8812-FAN	FtFpga	NO	1.00	1.00	0.0
	FtFpgaGolden	NO	1.00	0.16	0.0
8812-FC	IoFpga	YES	1.02	1.02	0.0
	IoFpgaGolden	YES	1.02	0.05	0.0
	Retimer	YES	3.00	3.00	0.0
8818-FAN	FtFpga	NO	1.00	1.00	0.0
	FtFpgaGolden	NO	1.00	0.16	0.0
8818-FC	IoFpga	YES	1.02	1.02	0.0
	IoFpgaGolden	YES	1.02	0.05	0.0
	Retimer	YES	3.00	3.00	0.0
8818-FC0	IoFpga	YES	1.00	1.00	0.0
	IoFpgaGolden	YES	1.00	0.16	0.0
	Retimer	YES	3.00	3.00	0.0
PSU-4.8KW-DC100	PO-PrimMCU	NO	51.85	51.85	0.0
	PO-SecMCU	NO	51.85	51.85	0.0
PSU6.3KW-20A-HV	DT-LogicMCU	NO	1.00	1.00	0.0
	DT-PrimMCU	NO	1.00	1.00	0.0
	DT-SecMCU	NO	1.00	1.00	0.0
PSU6.3KW-HV	AB-LogicMCU	NO	3.08	3.08	0.0
	AB-PrimMCU	NO	3.08	3.08	0.0
	AB-SecMCU	NO	3.06	3.06	0.0
	DT-LogicMCU	NO	4.11	4.11	0.0
	DT-PrimMCU	NO	4.01	4.01	0.0
	DT-SecMCU	NO	4.00	4.00	0.0
PWR-4.4KW-DC-V3	DT-LogicMCU	NO	3.02	3.02	0.0
	DT-Prim1MCU	NO	3.01	3.01	0.0
	DT-Prim2MCU	NO	3.01	3.01	0.0
	DT-Sec1MCU	NO	3.01	3.01	0.0
	DT-Sec2MCU	NO	3.01	3.01	0.0

## Important Notes

- The warning message that the smart licensing evaluation period has expired is displayed in the console every hour. There is, however, no functionality impact on the device. The issue is seen on routers that don't have the Flexible Consumption licensing model enabled. To stop the repetitive messaging, register the device with the smart licensing server and enable the Flexible Consumption model. Later load a new registration token.

To register the device with the smart licensing server, see the [Registering and Activating Your Router](#).

- When you execute the **show tech-support** command, a temporary directory is created and the related data is stored in this directory. This directory is deleted after the command is completed. For example,

```
Router#run ls -ltr
drwxrwxrwx. 3 root root show-tech-fabric-link-incl-loc-010cpu0_2.tgz
```

In case, you terminate the **show tech-support** command manually, we recommend you to delete the corresponding show tech directory if not needed.

## 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.

## Supported Transceiver Modules

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

## Cisco IOS XR Error messages

To view, search, compare, and download Cisco IOS XR Error Messages, refer to the [Cisco IOS XR Error messages](#) tool.

## Cisco IOS XR MIBs

To determine the MIBs supported by platform and release, refer to the [Cisco IOS XR MIBs](#) tool.

## Related Documentation

The most current Cisco 8000 router documentation is located at the following URL:

<https://www.cisco.com/c/en/us/td/docs/iosxr/8000-series-routers.html>

