Upgrading Field-Programmable Devices

In general terms, field-programmable devices (FPDs) are hardware devices implemented on router cards that support separate software upgrades. A field-programmable gate array (FPGA) is a type of programmable memory device that exists on most hardware components of the router. The term FPD has been introduced to collectively and generically describe any type of programmable hardware device on SIPs and shared port adapters (SPAs), including FPGAs. Cisco IOS XR software provides the Cisco FPD upgrade feature to manage the upgrade of FPD images on SIPs and SPAs.

This chapter describes the information that you must know to verify image versions and to perform an upgrade for SPA or SIP FPD images when incompatibilities arise.

Table 1: Feature History for Upgrading FPD

Release	Modification
Release 6.1.x	This Feature was Introduced.

Prerequisites for FPD Image Upgrades

Before upgrading the FPD on your router you must install and activate the fpd.pie fpd.rpm package.

This is for the manual upgrade using the **upgrade hw-module FPD** command.

Overview of FPD Image Upgrade Support

An FPD image is used to upgrade the software on an FPD.

Whenever an image is released that supports SIPs and SPAs, a companion SIP and SPA FPD image is bundled. However Generally, the FPD image is not automatically upgraded. You must manually upgrade the FPD image running on the SPA or SIP when you upgrade the Cisco IOS XR software image.

FPD versions must be compatible with the Cisco IOS XR software that is running on the router; if an incompatibility exists between an FPD version and the Cisco IOS XR software, the device with the FPGA

may not operate properly until the incompatibility is resolved. An FPGA incompatibility on a SPA does not necessarily affect the running of the SPA interfaces; an FPD incompatibility on a SIP disables all interfaces for all SPAs in the SIP until the incompatibility is addressed.

Use the **show hw-module fpd** command to determine if an FPD upgrade is required. A value of 'Yes' in the Upg/Dng? (upgrade/downgrade) column indicates that an upgrade or downgrade is required.

Automatic FPD Upgrade

By default, the FPD image is not automatically upgraded. You must manually upgrade the FPD image running on the Field Replaceable Unit (FRU)SPA or SIP when you upgrade the Cisco IOS XR software image.

However, if you enable the **fpd auto-upgrade** command in administration configuration mode, FPD images are automatically updated in the following instances.

- Software upgrade is carried out.

- Field Replaceable Unit(FRU) such as Line cards, RSPs, SPAs Fan Trays or alarm cards are added to an existing router or reloaded.

For the automatic FPD upgrade to work on a system upgrade, the following conditions must be met:

- The FPD package installation envelope (PIE) must be installed on the router.

- The FPD PIE must be activated together with the new Cisco IOS XR image.

- The **fpd auto-upgrade** must be configured in the administration configuration mode.

For the automatic FPD upgrade to work on a FRU Insertion or reload , the following conditions must be met:

- The FPD package installation envelope (PIE) must be installed and activated on the router.

- The **fpd auto-upgrade** must be configured in the administration configuration mode.

For the automatic FPD upgrade to work, the following conditions must be met:

- The FPD package installation envelope (PIE) must already be installed on the router.

- The FPD PIE must be activated together with the new Cisco IOS XR image.

- The **fpd auto-upgrade** command must be enabled.

Note Although the FPD upgrade is performed during the install operation, there is no install commit performed. Therefore, once the FPD has been upgraded, if the image is rolled back to the original version, the FPD version is not downgraded to the previous version.

The automatic FPD upgrade is not performed in the following instances:

- Line cards or other cards such as , SPAs or alarm cards are added to an existing router.

- A line card chassis is added to an existing CRS multi-chassis router.

- A non-reload software maintenance upgrade (SMU) or PIE installation is performed, even where the FPD image version changes. Since a non-reload installation is, by definition, not supposed to reload the router, and an FPD upgrade requires a router reload, the automatic FPD upgrade is repressed.

Note   In all cases where the automatic FPD upgrade is not performed, you must perform a manual FPD upgrade using the **upgrade hw-module fpd** command.

FPD auto-upgrade can be enabled and disabled. When auto FPD is enabled, it automatically updates FPDs when a SMU or image changes, including an updated firmware revision. Use the **fpd auto-upgrade** command to disable or enable auto-fpd.

How to Upgrade FPD Images

You must determine if an FPD image upgrade is needed using the **show hw-module fpd** command and perform the upgrade, if you migrate the software to a later Cisco IOS XR software release

In the event that there is an FPD incompatibility with your card, you may receive an error message. If you upgrade to a newer version of the Cisco IOS XR software and there is an FPD incompatibility, you receive the following message:

```
LC/0/1/CPU0:Dec 23 16:33:47.945 : spa_192_jacket_v2[203]: %PLATFORM-UPGRADE_FPD-4-DOWN_REV
: spa fpga2 instance 0 is down-rev (V0.6), upgrade to (V1.0). Use the "upgrade hw-module
fpd" CLI in admin mode.
```

If the FPD image on the card is newer then what is required by the currently running Cisco IOS XR software image on the router, you receive the following error message:

```
LC/0/1/CPU0:Dec 23 16:33:47.955 : spa_192_jacket_v2[203]: %PLATFORM-UPGRADE_FPD-4-UP_REV :
spa fpga instance 1 is severely up-rev (V2.1), downgrade to (V1.6). Use the "upgrade hw-module
fpd" CLI in admin mode.
```

You should perform the FPD upgrade procedure if you receive such messages. Cards may not function properly if FPD incompatibilities are not resolved.

Note   An error message is displayed (as shown below) when version-34 of FPGA is upgraded to version-37. This is only for CRS-X linecards. However, when the user upgrades to version-37, from any other lower version (other than version-34), this failure message is not displayed. Even though we see this failure message ,FPD upgrade will complete successfully and after a power cycle/reload it will properly reflect the upgraded version. There is no functionality impact.

```
FAILED to upgrade fpga3 for 4-100GbE on location1/1/CPU0 from 34.00 to 37.00
LC/1/1/CPU0:Nov 12 15:28:40.057 : lc_fpd_upgrade[244]: %PLATFORM-UPGRADE_FPD-3-
OPERATION_FAILED : Failed to update FPD  :FPD Programming action failed on this card.
```

Note   The use of the **force** option when performing a FPD upgrade is not recommended except under explicit direction from Cisco engineering or TAC.

Before you begin

- Before upgrading the FPD, you must install and activate the -fpd.pie. For information about performing this task, see the *Upgrading and Managing Cisco IOS XR Software* module.

- The FPD upgrade procedure is performed while the card is online. At the end of the procedure the card must be reloaded before the FPD upgrade is complete. To automatically reload the card, you can use the **reload** keyword in the **upgrade hw-module fpd** command. Alternatively, you can use the **hw-module reload** command during your next maintenance window. The upgrade procedure is not complete until the card is reloaded.

Note Upgrading the FPD image on a SPA or SIP using the **reload** keyword temporarily places the card offline at the end of the upgrade procedure, and may interrupt traffic.

- During the FPD upgrade, you *must not* do the following:

    - Reload, perform an online insertion and removal (OIR) of a line card (LC), or power down the chassis. Doing so may cause the node to enter an unusable state.

    - Press **Ctrl-C** if the console appears to hang without any output. Doing so may abort the upgrade.

- If you are not sure whether a card requires an FPD upgrade, you can install the card and use the

    show hw-module fpd command to determine if the FPD image on the card is compatible with the currently running Cisco IOS XR software release.

SUMMARY STEPS

1. **show hw-module fpd location** {**all** | *node-id*}
2. **admin**
3. **showfpdpackage**
4. **upgrade hw-module fpd** {**all** | *fpga-type*} [**force**] **location** [**all** | *node-id*] [**reload**]
5. **exit**
6. **hw-module** {**location** *node-id* | **subslot** *subslot-id*} **reload**
7. **show platform**

DETAILED STEPS

	Command or Action	Purpose

Step 1	**show hw-module fpd location** {**all**	*node-id*}
		
		Example:
		
		`RP/0/RP0/CPU0:router# show hw-module fpd location all`
		
		`RP/0/RP0/CPU0:router# show hw-module fpd location 0/4/cpu0`
			Displays the current FPD image versions for the specified card or all cards installed in the router. Use this command to determine if you must upgrade the FPD image on your card.

Step 2	**admin** **Example:** `RP/0/RP0/CPU0:router# admin`	

	Command or Action	Purpose
Step 3	**showfpdpackage** **Example:** `RP/0/RP0/CPU0:router#(admin) show fpd package`	Displays which cards are supported with your current Cisco IOS XR software release, which FPD image you need for each card, and what the minimum hardware requirements are for the varioius modules. (A minimum hardware requirement version of 0.0 indicates that all hardware can support this FPD image version.) If there are multiple FPD images for your card, use this command to determine which FPD image to use if you want to upgrade only a specific FPD type.

Step 4	**upgrade hw-module fpd** {**all** | *fpga-type*} [**force**] **location** [**all** | *node-id*] [**reload**]
	
	Example:
	`RP/0/RP0/CPU0:router(admin)# upgrade hw-module fpd`
	
	`all location 0/3/1`
	`.`
	`.`
	`.`
	`Successfully upgraded 1 FPD for SPA-2XOC48POS/RPR`
	
	`  on location 0/3/1`
	
	`RP/0/RP0/CPU0:router(admin)# upgrade hw-module fpd`
	
	`fpga2 location 0/4/cpu0`
	`.`
	`.`
	`.`
	`Starting the upgrade/download of following FPD:`
	`========== ==== ======= ======= ===========`
	`=========`
	`                                 Current`
	`Upg/Dng`
	`Location    Type Subtype Upg/Dng    Version`
	`Version`
	`========== ==== ======= ======= ===========`
	`=========`
	`0/4/CPU0    lc   fpga2   upg        0.04`
	`2.12`
	`-----------------------------------------------------`
	`Successfully upgraded fpga2 for A9K-ISM-100 on`
	`   location 0/4/CPU0 from 0.04 to 2.12`
		Upgrades all the current FPD images that must be upgraded on the specified card with new images.
		
		Before continuing to the next step, wait for confirmation that the FPD upgrade has successfully completed. Status messages, similar to these, are displayed to the screen until the FPD upgrade is completed:
		
		`FPD upgrade started.`
		`FPD upgrade in progress..`
		`FPD upgrade in progress..`
		`FPD upgrade sent to location xxxx`
		`FPD upgrade sent to location yyyy`
		`FPD upgrade in progress..`
		`FPD upgrade finished for location xxx`
		`FPD upgrade in progress..`
		`FPD upgrade finished for location yyyy`
		`FPD upgrade completed.`
		
		The "FPD upgrade in progress." message is printed every minute. These logs are information logs, and as such, are displayed if the **logging console informational** command is configured.
		
		Note The **reload** keyword causes the SPA or SIP to be reloaded after the FPD image has been updated, which interrupts traffic transmission. If you do not use the **reload** keyword, you must manually reload the SPA or SIP as described in the FPD upgrade.
		
		If Ctrl-C is pressed while the FPD upgrade is in progress, the following warning message is displayed:
		
		`FPD upgrade in progress on some hardware,`
		`aborting now is not recommended as it might`
		`cause HW programming failure and result in`
		`RMA of the hardware.`
		`Do you want to continue? [Confirm(y/n)]`
		
		If you confirm that you want to abort the FPD upgrade procedure, this message is displayed:

Command or Action	Purpose
	FPD upgrade process has been aborted, please check the status of the hardware and reissue the upgrade command if required. **Note** If your card supports multiple FPD images, you can use the **show fpd package** admin command to determine what specific image to upgrade in the **upgrade hw-module fpd** command.
Step 5 **exit** **Example:** `RP/0/RP0/CPU0:router(admin)# exit`	Exits administration EXEC mode and returns to EXEC mode.

Step 6 **hw-module** {**location** *node-id* | **subslot** *subslot-id*} **reload**
Example:
`RP/0/RP0/CPU0:router# hw-module subslot 0/3/1 reload`
or
`RP/0/RP0/CPU0:router# hw-module location 0/3/cpu0 reload`
	Use the **hw-module subslot reload** command to reload a SPA and the **hw-module location reload** command to reload a SIP or line card.
	
	Note Only use this command if you do not use the **reload** keyword in the **upgrade hw-module fpd** command.

Step 7 **show platform** **Example:** `RP/0/RP0/CPU0:router# show platform`	Verifies that the FPD image on the card has been successfully upgraded by displaying the status of all cards in the system.

Configuration Examples for FPD Image Upgrade

The following examples indicates the use of commands associated with the FPD image upgrade procedure.

show hw-module fpd Command Output: Example

Use the **show hw-module fpd** to display the current version of FPD images on the SPAs, SIPs and other cards installed on your router.

This command can be used to identify information about FPDs on any card. If you enter the location of a line card that is not a SPA, the output displays information about any programmable devices on that line card.

The following example shows how to display FPD compatibility for all modules in the router:

```
RP/0/RP0/CPU0:router# show hw-module fpd

FPD Versions
```

```
=================
Location Card type HWver FPD device ATR Status Running Programd
-----------------------------------------------------------------------------
0/RP0 NCS-5002 3.0 BIOS CURRENT 1.09 1.09
0/RP0 NCS-5002 3.0 IOFPGA CURRENT 0.17 0.17
0/RP0 NCS-5002 3.0 DB-MIFPGA CURRENT 0.16 0.16
0/RP0 NCS-5002 3.0 MB-MIFPGA CURRENT 0.16 0.16
RP/0/RP0/CPU0:Router#
```

If the cards in the system do not meet the minimum requirements, the output contains a "NOTES" section that states how to upgrade the FPD image.

Table 2: show hw-module fpd Field Descriptions

Field	Description
Card Type	Module part number.
HW Version	Hardware model version for the module.
Type	Hardware type. Can be one of the following types: • spa—Shared port adapter • lc—Line card
Subtype	FPD type. Can be one of the following types: • fabldr—Fabric downloader • fpga1—Field-programmable gate array • fpga2—Field-programmable gate array 2 • fpga3—Field-programmable gate array 3 • fpga4—Field-programmable gate array 4 • fpga5—Field-programmable gate array 5 • rommonA—Read-only memory monitor A • rommon—Read-only memory monitor B
Inst	FPD instance. The FPD instance uniquely identifies an FPD and is used by the FPD process to register an FPD.
Current SW Version	Currently running FPD image version.
Upg/Dng?	Specifies whether an FPD upgrade or downgrade is required. A downgrade is required in rare cases when the version of the FPD image has a higher major revision than the version of the FPD image in the current Cisco IOS XR software package.

show fpd package Command Output: Example

Use the **show fpd package** command in administration EXECsystem admin exec mode to find out which SPAs and SIPs are supported with your current Cisco IOS XR software release, which FPD image package you need for each SPA or SIP, and what the minimum hardware requirements are for each module. If multiple FPD images are available for your card, they are listed as Subtype fpga2, fpga3, and so on.

The following example shows sample output from the **show fpd package** command:

```
sysadmin_vm:0_RP1 # show fpd package
PROTO-CXP-2XPITA    BAO-MB FPGA              NO    1.00    1.00    0.0
                    Slice-0 GN2411          YES    3.01    3.01    2.0
                    Slice-1 GN2411          YES    3.01    3.01    2.0
                    Slice-0 GN2411          YES    2.07    2.07    0.0
                    Slice-1 GN2411          YES    2.07    2.07    0.0
                    CCC FPGA                YES    1.14    1.14    0.0
                    CCC Power-On            YES    1.30    1.30    0.0
                    Ethernet Switch         YES    1.32    1.32    0.0
                    BIOS FPD                YES    9.10    9.10    0.0
                    SB Certificates          NO    1.00    1.00    0.0
------------------------------------------------------------------------------
NC6-FANTRAY         Fantray FPGA             NO    2.01    2.01    0.0
------------------------------------------------------------------------------
PWR-3KW-AC-V2       DT-PriMCU                NO    6.01    6.01    1.0
                    DT-Sec54vMCU             NO    6.01    6.01    1.0
                    DT-Sec5vMCU              NO    6.03    6.03    1.0
                    EM-Sec54vMCU             NO    3.08    3.08    0.21
                    EM-Sec5vMCU              NO    3.06    3.06    0.21
------------------------------------------------------------------------------
PWR-2KW-DC-V2       DT-PriMCU                NO    6.02    6.02    0.12
                    DT-Sec54vMCU             NO    6.02    6.02    0.12
                    DT-Sec5vMCU              NO    6.02    6.02    0.12
                    EM-PriMCU                NO    3.06    3.06    0.21
                    EM-Sec54vMCU             NO    3.09    3.09    0.21
                    EM-Sec5vMCU              NO    3.07    3.07    0.21
------------------------------------------------------------------------------
NC6-10X100G-L-K     BAO-MB FPGA              NO    1.00    1.00    0.0
                    BAO-DB FPGA              NO    1.00    1.00    0.0
                    S2 GN2411               YES    3.01    3.01    2.0
                    S3 GN2411               YES    3.01    3.01    2.0
                    S4 GN2411               YES    3.01    3.01    2.0
                    S2 GN2411               YES    2.07    2.07    0.0
                    S3 GN2411               YES    2.07    2.07    0.0
                    S4 GN2411               YES    2.07    2.07    0.0
                    CCC FPGA                YES    1.14    1.14    0.0
                    CCC Power-On            YES    1.30    1.30    0.0
                    Ethernet Switch         YES    1.32    1.32    0.0
                    BIOS FPD                YES    9.10    9.10    0.0
                    SB Certificates          NO    1.00    1.00    0.0
------------------------------------------------------------------------------
NC6-10X100G-M-K     BAO-MB FPGA              NO    1.00    1.00    0.0
                    BAO-DB FPGA              NO    1.00    1.00    0.0
                    S2 GN2411               YES    3.01    3.01    2.0
                    S3 GN2411               YES    3.01    3.01    2.0
                    S4 GN2411               YES    3.01    3.01    2.0
                    S2 GN2411               YES    2.07    2.07    0.0
                    S3 GN2411               YES    2.07    2.07    0.0
                    S4 GN2411               YES    2.07    2.07    0.0
                    CPAK bay 0 FPD          YES    1.13    1.13    0.0
                    CPAK bay 1 FPD          YES    1.13    1.13    0.0
                    CPAK bay 2 FPD          YES    1.13    1.13    0.0
                    CPAK bay 3 FPD          YES    1.13    1.13    0.0
                    CPAK bay 4 FPD          YES    1.13    1.13    0.0
                    CPAK bay 5 FPD          YES    1.13    1.13    0.0
                    CPAK bay 6 FPD          YES    1.13    1.13    0.0
                    CPAK bay 7 FPD          YES    1.13    1.13    0.0
                    CPAK bay 8 FPD          YES    1.13    1.13    0.0
                    CPAK bay 9 FPD          YES    1.13    1.13    0.0
                    CCC FPGA                YES    1.14    1.14    0.0
                    CCC Power-On            YES    1.30    1.30    0.0
                    Ethernet Switch         YES    1.32    1.32    0.0
                    SB Certificates          NO    1.00    1.00    0.0
------------------------------------------------------------------------------
```

```
NC6-10X100G-L-P      BAO-MB FPGA          NO     1.00      1.00      0.0
                     BAO-DB FPGA          NO     1.00      1.00      0.0
                     Slice-0 GN2411       YES    3.01      3.01      2.0
                     Slice-1 GN2411       YES    3.01      3.01      2.0
                     Slice-0 GN2411       YES    2.07      2.07      0.0
                     Slice-1 GN2411       YES    2.07      2.07      0.0
                     Slice-2 GN2411       YES    3.01      3.01      2.0
                     Slice-3 GN2411       YES    3.01      3.01      2.0
                     Slice-4 GN2411       YES    3.01      3.01      2.0
                     Slice-2 GN2411       YES    2.07      2.07      0.0
                     Slice-3 GN2411       YES    2.07      2.07      0.0
                     Slice-4 GN2411       YES    2.07      2.07      0.0
                     S2 GN2411            YES    3.01      3.01      2.0
                     S3 GN2411            YES    3.01      3.01      2.0
                     S4 GN2411            YES    3.01      3.01      2.0
                     S2 GN2411            YES    2.07      2.07      0.0
                     S3 GN2411            YES    2.07      2.07      0.0
                     S4 GN2411            YES    2.07      2.07      0.0
                     CCC FPGA             YES    1.14      1.14      0.0
                     CCC Power-On         YES    1.30      1.30      0.0
                     Ethernet Switch      YES    1.32      1.32      0.0
                     BIOS FPD             YES    9.10      9.10      0.0
                     SB Certificates      NO     1.00      1.00      0.0
---------------------------------------------------------------------------
NC6-6-10X100G-L-K    BAO-MB FPGA          NO     1.00      1.00      0.0
                     BAO-DB FPGA          NO     1.00      1.00      0.0
                     Slice-0 GN2411       YES    2.07      2.07      0.0
                     Slice-1 GN2411       YES    2.07      2.07      0.0
                     Slice-2 GN2411       YES    2.07      2.07      0.0
                     Slice-3 GN2411       YES    2.07      2.07      0.0
                     Slice-4 GN2411       YES    2.07      2.07      0.0
                     S2 GN2411            YES    2.07      2.07      0.0
                     S3 GN2411            YES    2.07      2.07      0.0
                     S4 GN2411            YES    2.07      2.07      0.0
                     CCC FPGA             YES    1.14      1.14      0.0
                     CCC Power-On         YES    1.30      1.30      0.0
```

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router(admin)# show fpd package

Thu Jun 24 10:58:49.319 UTC

===============================  ==================================================
                                           Field Programmable Device Package
                                 ==================================================
                                                    SW        Min Req    Min Req
Card Type            FPD Description           Type Subtype  Version   SW Ver     HW Vers
==================   ========================  ==== ======= =========== ========  =========
1OC768-ITU/C         OPTICS FIRMWARE 104B4     lc   fpga2    104.04         0.0        0.0


---------------------------------------------------------------------------------------------
1OC768-DWDM-L        OPTICS FIRMWARE 104B4     lc   fpga2    104.04         0.0        0.0


---------------------------------------------------------------------------------------------
1OC768-DPSK/C        OPTICS FIRMWARE 101B3     lc   fpga2    101.03         0.0        0.0
```

```
--------------------------------------------------------------------------------
1OC768-DPSK/C-O      OPTICS FIRMWARE 101B3    lc    fpga2    101.03      0.0       0.0

--------------------------------------------------------------------------------
1OC768-DPSK/C-E      OPTICS FIRMWARE 101B3    lc    fpga2    101.03      0.0       0.0

--------------------------------------------------------------------------------
CRS-ADVSVC-PLIM      FPGA mCPU0 0.557         lc    fpga2    0.557       0.0       0.0

                     FPGA sCPU0 0.557         lc    fpga3    0.557       0.0       0.0

                     FPGA mCPU1 0.557         lc    fpga4    0.557       0.0       0.0

                     FPGA sCPU1 0.557         lc    fpga5    0.557       0.0       0.0

                     FPGA PLIM_SVC 0.41013    lc    fpga1    0.41013     0.0       0.0

--------------------------------------------------------------------------------
CRS1-SIP-800         JACKET FPGA swv6.0       lc    fpga1    6.00        5.0       0.0

                     FPGA swv6.0 hwv80        lc    fpga1    6.00        5.0       0.80

--------------------------------------------------------------------------------
8-10GBE              FPGA swvA.0              lc    fpga1    10.00       0.0       0.0

--------------------------------------------------------------------------------
OC48-POS-16-ED       FPGA PLIM_OC48 9.0       lc    fpga1    9.00        0.0       0.0

--------------------------------------------------------------------------------
4-10GE               SQUIRREL FPGA 10.0       lc    fpga1    10.00       0.0       0.0

--------------------------------------------------------------------------------
42-1GE               FPGA swv6.0              lc    fpga1    6.00        0.0       0.0

                     FPGA swv6.0 hwv0.80      lc    fpga1    6.00        0.0       0.80

--------------------------------------------------------------------------------
20-1GE-FLEX          FPGA swv6.0              lc    fpga1    6.00        0.0       0.0

                     FPGA swv6.0 hwv0.80      lc    fpga1    6.00        0.0       0.80

--------------------------------------------------------------------------------
2-10GE-WL-FLEX       FPGA swv6.0              lc    fpga1    6.00        0.0       0.0

                     FPGA swv6.0 hwv0.80      lc    fpga1    6.00        0.0       0.80

--------------------------------------------------------------------------------
Route Processor      ROMMONA swv1.54 asmp     lc    rommonA  1.52        0.0       0.0

                     ROMMONA swv1.54 dsmp     lc    rommonA  1.52        0.0       0.0

                     ROMMONB swv1.54 asmp     lc    rommon   1.54        0.0       0.0

                     ROMMONB swv1.54 dsmp     lc    rommon   1.54        0.0       0.0

--------------------------------------------------------------------------------
SC                   ROMMONA swv1.54 asmp     lc    rommonA  1.52        0.0       0.0

                     ROMMONA swv1.54 dsmp     lc    rommonA  1.52        0.0       0.0

                     ROMMONB swv1.54 asmp     lc    rommon   1.54        0.0       0.0

                     ROMMONB swv1.54 dsmp     lc    rommon   1.54        0.0       0.0
```

```
-------------------------------------------------------------------------------------------------
RP                    ROMMONA swv1.54 asmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONA swv1.54 dsmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONB swv1.54 asmp     lc    rommon    1.54      0.0       0.0

                      ROMMONB swv1.54 dsmp     lc    rommon    1.54      0.0       0.0
-------------------------------------------------------------------------------------------------
Shelf Controller GE   ROMMONA swv1.54 asmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONA swv1.54 dsmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONB swv1.54 asmp     lc    rommon    1.54      0.0       0.0

                      ROMMONB swv1.54 dsmp     lc    rommon    1.54      0.0       0.0
-------------------------------------------------------------------------------------------------
RP                    ROMMONA swv1.54 asmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONA swv1.54 dsmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONB swv1.54 asmp     lc    rommon    1.54      0.0       0.0

                      ROMMONB swv1.54 dsmp     lc    rommon    1.54      0.0       0.0
-------------------------------------------------------------------------------------------------
Shelf Controller GE2  ROMMONA swv1.54 asmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONA swv1.54 dsmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONB swv1.54 asmp     lc    rommon    1.54      0.0       0.0

                      ROMMONB swv1.54 dsmp     lc    rommon    1.54      0.0       0.0
-------------------------------------------------------------------------------------------------
DRP                   ROMMONA swv1.54 asmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONA swv1.54 dsmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONA swv1.54 sp       lc    rommonA   1.52      0.0       0.0

                      ROMMONB swv1.54 asmp     lc    rommon    1.54      0.0       0.0

                      ROMMONB swv1.54 dsmp     lc    rommon    1.54      0.0       0.0

                      ROMMONB swv1.54 sp       lc    rommon    1.54      0.0       0.0
-------------------------------------------------------------------------------------------------
DRP_B                 ROMMONA swv1.54 asmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONA swv1.54 dsmp     lc    rommonA   1.52      0.0       0.0

                      ROMMONA swv1.54 sp       lc    rommonA   1.52      0.0       0.0

                      ROMMONB swv1.54 asmp     lc    rommon    1.54      0.0       0.0

                      ROMMONB swv1.54 dsmp     lc    rommon    1.54      0.0       0.0

                      ROMMONB swv1.54 sp       lc    rommon    1.54      0.0       0.0
-------------------------------------------------------------------------------------------------
```

```
S1S2S3              ROMMONA swv1.54 sp      lc   rommonA   1.52      0.0       0.0

                    ROMMONB swv1.54 sp      lc   rommon    1.54      0.0       0.0

--------------------------------------------------------------------------------------
S1S3                ROMMONA swv1.54 sp      lc   rommonA   1.52      0.0       0.0

                    ROMMONB swv1.54 sp      lc   rommon    1.54      0.0       0.0

--------------------------------------------------------------------------------------
S2                  ROMMONA swv1.54 sp      lc   rommonA   1.52      0.0       0.0

                    ROMMONB swv1.54 sp      lc   rommon    1.54      0.0       0.0

--------------------------------------------------------------------------------------
Fabric HS123        ROMMONA swv1.54 sp      lc   rommonA   1.52      0.0       0.0

                    ROMMONB swv1.54 sp      lc   rommon    1.54      0.0       0.0

--------------------------------------------------------------------------------------
Fabric HS123 Star   ROMMONA swv1.54 sp      lc   rommonA   1.52      0.0       0.0

                    ROMMONB swv1.54 sp      lc   rommon    1.54      0.0       0.0

--------------------------------------------------------------------------------------
Fabric HS13 Star    ROMMONA swv1.54 sp      lc   rommonA   1.52      0.0       0.0

                    ROMMONB swv1.54 sp      lc   rommon    1.54      0.0       0.0

--------------------------------------------------------------------------------------
Fabric QQS123       ROMMONA swv1.54 sp      lc   rommonA   1.52      0.0       0.0

                    ROMMONB swv1.54 sp      lc   rommon    1.54      0.0       0.0

--------------------------------------------------------------------------------------
LED                 ROMMONA swv1.54 sp      lc   rommonA   1.52      0.0       0.0

                    ROMMONB swv1.54 sp      lc   rommon    1.54      0.0       0.0

--------------------------------------------------------------------------------------
40G-MSC             ROMMONA swv1.54 asmp    lc   rommonA   1.52      0.0       0.0

                    ROMMONA swv1.54 dsmp    lc   rommonA   1.52      0.0       0.0

                    ROMMONA swv1.54 sp      lc   rommonA   1.52      0.0       0.0

                    ROMMONB swv1.54 asmp    lc   rommon    1.54      0.0       0.0

                    ROMMONB swv1.54 dsmp    lc   rommon    1.54      0.0       0.0

                    ROMMONB swv1.54 sp      lc   rommon    1.54      0.0       0.0

--------------------------------------------------------------------------------------
MSC_B               ROMMONA swv1.54 asmp    lc   rommonA   1.52      0.0       0.0

                    ROMMONA swv1.54 dsmp    lc   rommonA   1.52      0.0       0.0

                    ROMMONA swv1.54 sp      lc   rommonA   1.52      0.0       0.0

                    ROMMONB swv1.54 asmp    lc   rommon    1.54      0.0       0.0

                    ROMMONB swv1.54 dsmp    lc   rommon    1.54      0.0       0.0

                    ROMMONB swv1.54 sp      lc   rommon    1.54      0.0       0.0
```

```
-------------------------------------------------------------------------------------------
FP40               ROMMONA swv1.54 asmp     lc   rommonA   1.53      0.0      0.0

                   ROMMONA swv1.54 dsmp     lc   rommonA   1.53      0.0      0.0

                   ROMMONA swv1.54 sp       lc   rommonA   1.53      0.0      0.0

                   ROMMONB swv1.54 asmp     lc   rommon    1.54      0.0      0.0

                   ROMMONB swv1.54 dsmp     lc   rommon    1.54      0.0      0.0

                   ROMMONB swv1.54 sp       lc   rommon    1.54      0.0      0.0

-------------------------------------------------------------------------------------------
PSAL               ROMMONA swv1.54 sp       lc   rommonA   1.52      0.0      0.0

                   ROMMONB swv1.54 sp       lc   rommon    1.54      0.0      0.0

-------------------------------------------------------------------------------------------
Unknown            ROMMONA swv1.54 sp       lc   rommonA   1.54      0.0      0.0

                   ROMMONB swv1.54 sp       lc   rommon    1.54      0.0      0.0

-------------------------------------------------------------------------------------------
FAN                ROMMONA swv1.54 sp       lc   rommonA   1.52      0.0      0.0

                   ROMMONB swv1.54 sp       lc   rommon    1.54      0.0      0.0

-------------------------------------------------------------------------------------------
FC Fan Controller  ROMMONA swv1.54 sp       lc   rommonA   1.52      0.0      0.0

                   ROMMONB swv1.54 sp       lc   rommon    1.54      0.0      0.0

-------------------------------------------------------------------------------------------
LED                ROMMONA swv1.54 sp       lc   rommonA   1.52      0.0      0.0

                   ROMMONB swv1.54 sp       lc   rommon    1.54      0.0      0.0

-------------------------------------------------------------------------------------------
SPA-4XT3/E3        SPA E3 Subrate FPGA      spa  fpga2     1.04      0.0      0.0

                   SPA T3 Subrate FPGA      spa  fpga3     1.04      0.0      0.0

                   SPA I/O FPGA             spa  fpga1     1.00      0.0      0.0

                   SPA ROMMON               spa  rommon    2.12      0.0      0.0

-------------------------------------------------------------------------------------------
SPA-2XT3/E3        SPA E3 Subrate FPGA      spa  fpga2     1.04      0.0      0.0

                   SPA T3 Subrate FPGA      spa  fpga3     1.04      0.0      0.0

                   SPA I/O FPGA             spa  fpga1     1.00      0.0      0.0

                   SPA ROMMON               spa  rommon    2.12      0.0      0.0

-------------------------------------------------------------------------------------------
SPA-OC192POS       SPA FPGA swv1.3          spa  fpga1     1.03      0.0      0.0

-------------------------------------------------------------------------------------------
SPA-8XOC12-POS     SPA FPGA swv1.0          spa  fpga1     1.00      0.0      0.5

-------------------------------------------------------------------------------------------
```

```
SPA-4XOC3-POS        SPA FPGA swv3.4        spa  fpga1  3.04      0.0       0.0

-------------------------------------------------------------------------------------
SPA-OC192POS-XFP     SPA FPGA swv1.2        spa  fpga1  1.02      0.0       0.0

-------------------------------------------------------------------------------------
SPA-8X1GE            SPA FPGA swv1.8        spa  fpga1  1.08      0.0       0.0

-------------------------------------------------------------------------------------
SPA-2XOC48POS/RPR    SPA FPGA swv1.0        spa  fpga1  1.00      0.0       0.0

-------------------------------------------------------------------------------------
SPA-4XOC48POS/RPR    SPA FPGA swv1.0        spa  fpga1  1.00      0.0       0.0

-------------------------------------------------------------------------------------
SPA-10X1GE-V2        SPA FPGA swv1.10       spa  fpga1  1.10      0.0       0.0

-------------------------------------------------------------------------------------
SPA-8X1GE-V2         SPA FPGA swv1.10       spa  fpga1  1.10      0.0       0.0

-------------------------------------------------------------------------------------
SPA-5X1GE-V2         SPA FPGA swv1.10       spa  fpga1  1.10      0.0       0.0

-------------------------------------------------------------------------------------
SPA-1X10GE-L-V2      SPA FPGA swv1.9        spa  fpga1  1.09      0.0       0.0

-------------------------------------------------------------------------------------
SPA-1X10GE-WL-V2     SPA FPGA swv1.11       spa  fpga1  1.11      0.0       0.0

-------------------------------------------------------------------------------------
SPA-1XOC3-ATM-V2     SPA FPGA swv1.2        spa  fpga1  1.03      0.0       0.0

-------------------------------------------------------------------------------------
SPA-2XOC3-ATM-V2     SPA FPGA swv1.2        spa  fpga1  1.03      0.0       0.0

-------------------------------------------------------------------------------------
SPA-3XOC3-ATM-V2     SPA FPGA swv1.2        spa  fpga1  1.03      0.0       0.0

-------------------------------------------------------------------------------------
SPA-1XOC12-ATM-V2    SPA FPGA swv1.2        spa  fpga1  1.03      0.0       0.0

-------------------------------------------------------------------------------------


RP/0/0/CPU0:Router# admin
Thu Jul  7 04:40:30.631 DST

==============================  =================================================
                                        Field Programmable Device Package
                                =================================================
                                                  SW        Min Req   Min Req
Card Type             FPD Description        Type Subtype  Version   SW Ver    HW Vers
==================== ====================== ==== ======= =========== ======== =========
E3-OC12-ATM-4        CIS1 FPGA              lc   fpga2   40971.00      0.0       0.0

                     IOB FPGA               lc   fpga3   41091.00      0.0       0.0

                     SAF 0 FPGA             lc   fpga4   45586.00      0.0       0.0

                     CIS2 FPGA              lc   fpga1   40977.00      0.0       0.0

-------------------------------------------------------------------------------------
E3-OC3-ATM-4         CIS1 FPGA              lc   fpga2   40971.00      0.0       0.0
```

```
                        IOB FPGA                lc   fpga3   41091.00        0.0         0.0

                        SAF 0 FPGA              lc   fpga4   45586.00        0.0         0.0

                        CIS2 FPGA               lc   fpga1   40977.00        0.0         0.0
------------------------------------------------------------------------------------------------
12000-ServEngCard       TREX FPGA               lc   fpga2     162.45        0.0         0.0

                        TREX FPGA               lc   fpga1    0.41257        0.0         0.0
------------------------------------------------------------------------------------------------
12000-SIP               HABANERO FPGA           lc   fpga2     240.03        0.0         0.0

                        JALAPENO FPGA           lc   fpga5     240.13        0.0         0.0

                        JALAPENO FPGA           lc   fpga5     240.13        0.0         0.0

                        JALAPENO FPGA           lc   fpga1     255.23        0.0         0.0
------------------------------------------------------------------------------------------------
E3-OC12-CH-1            Shiver FPGA             lc   fpga1       1.02        0.0         0.0
------------------------------------------------------------------------------------------------
SPA-IPSEC-2G            Sequoia                 spa  fpga2       1.01        0.0         1.0

                        Lodi                    spa  fpga1       1.22        0.0         1.0

                        SPA PROM                spa  rommon      1.01        0.0         1.0
------------------------------------------------------------------------------------------------
SPA-4XT3/E3             SPA E3 Subrate FPGA     spa  fpga2       1.04        0.0         0.0

                        SPA T3 Subrate FPGA     spa  fpga3       1.04        0.0         0.0

                        SPA I/O FPGA            spa  fpga1       1.01        0.0         0.0

                        SPA ROMMON              spa  rommon      2.12        0.0         0.0
------------------------------------------------------------------------------------------------
SPA-2XT3/E3             SPA E3 Subrate FPGA     spa  fpga2       1.04        0.0         0.0

                        SPA T3 Subrate FPGA     spa  fpga3       1.04        0.0         0.0

                        SPA I/O FPGA            spa  fpga1       1.01        0.0         0.0

                        SPA ROMMON              spa  rommon      2.12        0.0         0.0
------------------------------------------------------------------------------------------------
SPA-4XCT3/DS0           SPA T3 Subrate FPGA     spa  fpga2       0.11        0.0       0.100

                        SPA T3 Subrate FPGA     spa  fpga2       1.04        0.0       0.200

                        SPA I/O FPGA            spa  fpga1       2.08        0.0       0.100

                        SPA ROMMON              spa  rommon      2.12        0.0       0.100
------------------------------------------------------------------------------------------------
SPA-2XCT3/DS0           SPA T3 Subrate FPGA     spa  fpga2       0.11        0.0       0.100

                        SPA T3 Subrate FPGA     spa  fpga2       1.04        0.0       0.200

                        SPA I/O FPGA            spa  fpga1       2.08        0.0       0.100
```

```
                          SPA ROMMON                spa   rommon    2.12       0.0        0.100
                 ----------------------------------------------------------------------------------
SPA-1XCHSTM1/OC3          SPA T3 Subrate FPGA       spa   fpga2     1.04       0.0        0.0

                          SPA I/O FPGA              spa   fpga1     1.08       0.0        0.0

                          SPA ROMMON                spa   rommon    2.12       0.0        0.0

                 ----------------------------------------------------------------------------------
SPA-24CHT1-CE-ATM         SPA T3 Subrate FPGA       spa   fpga2     1.10       0.0        1.0

                          SPA I/O FPGA              spa   fpga1     2.32       0.0        1.0

                          SPA ROMMON                spa   rommon    1.03       0.0        1.0

                 ----------------------------------------------------------------------------------
SPA-2CHT3-CE-ATM          SPA T3 Subrate FPGA       spa   fpga2     1.10       0.0        1.0

                          SPA I/O FPGA              spa   fpga1     2.22       0.0        1.0

                          SPA ROMMON                spa   rommon    1.04       0.0        1.0

                 ----------------------------------------------------------------------------------
SPA-1CHOC3-CE-ATM         SPA OC3 Subrate FPGA      spa   fpga2     1.00       0.0        2.0

                          SPA I/O FPGA              spa   fpga1     2.23       0.0        2.0

                          SPA ROMMON                spa   rommon    1.04       0.0        2.0

                 ----------------------------------------------------------------------------------
SPA-IPSEC-2G-2            Sequoia                   spa   fpga2     1.01       0.0        1.0

                          Lodi                      spa   fpga1     1.22       0.0        1.0

                          SPA PROM                  spa   rommon    1.01       0.0        1.0

                 ----------------------------------------------------------------------------------
SPA-1XCHOC48/DS3          SPA I/O FPGA              spa   fpga2     1.00       0.0        0.49

                          SPA I/O FPGA              spa   fpga3     1.00       0.0        0.52

                          SPA I/O FPGA              spa   fpga1     1.36       0.0        0.49

                          SPA ROMMON                spa   rommon    2.02       0.0        0.49

                 ----------------------------------------------------------------------------------
SPA-1XCHOC12/DS0          SPA I/O FPGA              spa   fpga2     1.00       0.0        0.49

                          SPA I/O FPGA              spa   fpga1     1.36       0.0        0.49

                          SPA ROMMON                spa   rommon    2.02       0.0        0.49

                 ----------------------------------------------------------------------------------
SPA-OC192POS              SPA FPGA swv1.2           spa   fpga1     1.02       0.0        0.0

                 ----------------------------------------------------------------------------------
SPA-8XOC12-POS            SPA FPGA swv1.0           spa   fpga1     1.00       0.0        0.5

                 ----------------------------------------------------------------------------------
SPA-8XCHT1/E1             SPA I/O FPGA              spa   fpga1     2.08       0.0        0.0

                          SPA ROMMON                spa   rommon    2.12       0.0        0.140
                 ----------------------------------------------------------------------------------
SPA-OC192POS-XFP          SPA FPGA swv1.2           spa   fpga1     1.02       0.0        0.0
```

```
                             SPA FPGA swv1.2 hwv2      spa  fpga1      1.02        0.0        2.0

---------------------------------------------------------------------------------------------
SPA-10X1GE              SPA FPGA swv1.10         spa  fpga1      1.10        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-5X1GE              SPA FPGA swv1.10         spa  fpga1      1.10        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-2XOC48POS/RPR      SPA FPGA swv1.0          spa  fpga1      1.00        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-4XOC48POS/RPR      SPA FPGA swv1.0          spa  fpga1      1.00        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-1XTENGE-XFP        SPA FPGA swv1.9          spa  fpga1      1.09        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-8X1FE              SPA FPGA swv1.1          spa  fpga1      1.01        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-1XOC48POS/RPR      SPA FPGA swv1.2          spa  fpga1      1.02        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-8XOC3-POS          SPA FPGA swv1.0          spa  fpga1      1.00        0.0        0.5

---------------------------------------------------------------------------------------------
SPA-2XOC12-POS         SPA FPGA swv1.0          spa  fpga1      1.00        0.0        0.5

---------------------------------------------------------------------------------------------
SPA-4XOC12-POS         SPA FPGA swv1.0          spa  fpga1      1.00        0.0        0.5

---------------------------------------------------------------------------------------------
SPA-10X1GE-V2          SPA FPGA swv1.10         spa  fpga1      1.10        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-8X1GE-V2           SPA FPGA swv1.10         spa  fpga1      1.10        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-5X1GE-V2           SPA FPGA swv1.10         spa  fpga1      1.10        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-2X1GE-V2           SPA FPGA swv1.1          spa  fpga1      1.01        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-1X10GE-L-V2        SPA FPGA swv1.11         spa  fpga1      1.11        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-8X1FE-V2           SPA FPGA swv1.1          spa  fpga1      1.01        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-4XOC3-POS-V2       SPA FPGA swv1.0          spa  fpga1      1.00        0.0        0.5

---------------------------------------------------------------------------------------------
SPA-1X10GE-L-IT        SPA FPGA swv1.0          spa  fpga1      1.00        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-1XOC3-ATM-V2       TATM SPA IOFPGA          spa  fpga1      2.02        0.0        0.0

---------------------------------------------------------------------------------------------
SPA-2XOC3-ATM-V2       SPA TATM IOFPGA          spa  fpga1      2.02        0.0        0.0

---------------------------------------------------------------------------------------------
```

```
SPA-3XOC3-ATM-V2      SPA TATM IOFPGA           spa  fpga1    2.02      0.0      0.0

---------------------------------------------------------------------------------------

SPA-1XOC12-ATM-V2     SPA TATM IOFPGA           spa  fpga1    2.02      0.0      0.0

---------------------------------------------------------------------------------------



RP/0/RP1/CPU0:router(admin)# show fpd package

Thu Jul  7 04:34:48.351 DST

==============================  =================================================
                                       Field Programmable Device Package
                                ==================================================
                                                 SW        Min Req  Min Req
Card Type            FPD Description           Type Subtype Version  SW Ver   HW Vers
==================== ========================= ==== ======= ======== ======== =========
A9K-40GE-B           Can Bus Ctrl (CBC) LC2    lc   cbc      2.02      0.0      0.1

                     CPUCtrl LC2               lc   cpld1    1.00      0.0      0.1

                     PHYCtrl LC2               lc   cpld2    0.06      0.0      0.1

                     PortCtrl LC2              lc   fpga2    0.10      0.0      0.1

                     Bridge LC2                lc   fpga1    0.43      0.0      0.1

                     ROMMONA LC2               lc   rommonA  1.05      0.0      0.1

                     ROMMONB LC2               lc   rommon   1.05      0.0      0.1

---------------------------------------------------------------------------------------

A9K-4T-B             Can Bus Ctrl (CBC) LC2    lc   cbc      2.02      0.0      0.1

                     CPUCtrl LC2               lc   cpld1    1.00      0.0      0.1

                     PHYCtrl LC2               lc   cpld2    0.08      0.0      0.1

                     LCClkCtrl LC2             lc   cpld3    0.03      0.0      0.1

                     PortCtrl LC2              lc   fpga2    0.10      0.0      0.1

                     PHY LC2                   lc   fpga3   14.44      0.0      0.1

                     Bridge LC2                lc   fpga1    0.43      0.0      0.1

                     ROMMONB LC2               lc   rommon   1.05      0.0      0.1

---------------------------------------------------------------------------------------

A9K-8T/4-B           Can Bus Ctrl (CBC) LC2    lc   cbc      2.02      0.0      0.1

                     CPUCtrl LC2               lc   cpld1    1.00      0.0      0.1

                     PHYCtrl LC2               lc   cpld2    0.08      0.0      0.1

                     LCClkCtrl LC2             lc   cpld3    0.03      0.0      0.1

                     PortCtrl LC2              lc   fpga2    0.10      0.0      0.1

                     PHY LC2                   lc   fpga3   14.44      0.0      0.1

                     Bridge LC2                lc   fpga1    0.43      0.0      0.1
```

```
                              ROMMONB LC2              lc   rommon    1.05      0.0      0.1

        ----------------------------------------------------------------------------------------------
        A9K-2T20GE-B          Can Bus Ctrl (CBC) LC2   lc   cbc       2.02      0.0      0.1

                              CPUCtrl LC2              lc   cpld1     1.00      0.0      0.1

                              PHYCtrl LC2              lc   cpld2     0.11      0.0      0.1

                              LCClkCtrl LC2            lc   cpld3     0.09      0.0      0.1

                              PortCtrl LC2             lc   fpga2     0.16      0.0      0.1

                              Bridge LC2               lc   fpga1     0.43      0.0      0.1

                              ROMMONB LC2              lc   rommon    1.05      0.0      0.1

        ----------------------------------------------------------------------------------------------
        A9K-40GE-E            Can Bus Ctrl (CBC) LC2   lc   cbc       2.02      0.0      0.1

                              CPUCtrl LC2              lc   cpld1     1.00      0.0      0.1

                              PHYCtrl LC2              lc   cpld2     0.06      0.0      0.1

                              PortCtrl LC2             lc   fpga2     0.10      0.0      0.1

                              Bridge LC2               lc   fpga1     0.43      0.0      0.1

                              ROMMONA LC2              lc   rommonA   1.05      0.0      0.1

                              ROMMONB LC2              lc   rommon    1.05      0.0      0.1

        ----------------------------------------------------------------------------------------------
        A9K-4T-E              Can Bus Ctrl (CBC) LC2   lc   cbc       2.02      0.0      0.1

                              CPUCtrl LC2              lc   cpld1     1.00      0.0      0.1

                              PHYCtrl LC2              lc   cpld2     0.08      0.0      0.1

                              LCClkCtrl LC2            lc   cpld3     0.03      0.0      0.1

                              PortCtrl LC2             lc   fpga2     0.10      0.0      0.1

                              PHY LC2                  lc   fpga3     14.44     0.0      0.1

                              Bridge LC2               lc   fpga1     0.43      0.0      0.1

                              ROMMONB LC2              lc   rommon    1.05      0.0      0.1

        ----------------------------------------------------------------------------------------------
        A9K-8T/4-E            Can Bus Ctrl (CBC) LC2   lc   cbc       2.02      0.0      0.1

                              CPUCtrl LC2              lc   cpld1     1.00      0.0      0.1

                              PHYCtrl LC2              lc   cpld2     0.08      0.0      0.1

                              LCClkCtrl LC2            lc   cpld3     0.03      0.0      0.1

                              PortCtrl LC2             lc   fpga2     0.10      0.0      0.1

                              PHY LC2                  lc   fpga3     14.44     0.0      0.1

                              Bridge LC2               lc   fpga1     0.43      0.0      0.1
```

	ROMMONB LC2	lc	rommon	1.05	0.0	0.1
-------	-------	-------	-------	-------	-------	-------
A9K-2T20GE-E	Can Bus Ctrl (CBC) LC2	lc	cbc	2.02	0.0	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.0	0.1
	PHYCtrl LC2	lc	cpld2	0.11	0.0	0.1
	LCClkCtrl LC2	lc	cpld3	0.09	0.0	0.1
	PortCtrl LC2	lc	fpga2	0.16	0.0	0.1
	Bridge LC2	lc	fpga1	0.43	0.0	0.1
	ROMMONB LC2	lc	rommon	1.05	0.0	0.1
-------	-------	-------	-------	-------	-------	-------
A9K-8T-B	Can Bus Ctrl (CBC) LC3	lc	cbc	6.02	0.0	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.0	0.1
	PHYCtrl LC3	lc	cpld2	0.08	0.0	0.1
	LCClkCtrl LC3	lc	cpld3	0.03	0.0	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.0	0.1
	PortCtrl LC3	lc	fpga2	0.11	0.0	0.1
	Raven LC3	lc	fpga1	1.02	0.0	0.1
	ROMMONB LC3	lc	rommon	1.03	0.0	0.1
-------	-------	-------	-------	-------	-------	-------
A9K-16T/8-B	Can Bus Ctrl (CBC) LC3	lc	cbc	6.02	0.0	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.0	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.0	0.1
	LCClkCtrl LC3	lc	cpld3	0.01	0.0	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.0	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.0	0.1
	Raven LC3	lc	fpga1	1.02	0.0	0.1
	ROMMONB LC3	lc	rommon	1.03	0.0	0.1
-------	-------	-------	-------	-------	-------	-------
A9K-16T/8-B	Can Bus Ctrl (CBC) LC3	lc	cbc	6.02	0.0	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.0	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.0	0.1
	LCClkCtrl LC3	lc	cpld3	0.01	0.0	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.0	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.0	0.1

	Raven LC3	lc	fpga1	1.02	0.0	0.1
	ROMMONB LC3	lc	rommon	1.03	0.0	0.1
-------	-------	-------	-------	-------	-------	-------
A9K-8T-E	Can Bus Ctrl (CBC) LC3	lc	cbc	6.02	0.0	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.0	0.1
	PHYCtrl LC3	lc	cpld2	0.08	0.0	0.1
	LCClkCtrl LC3	lc	cpld3	0.03	0.0	0.1
	CPUCtrl LC3	lc	cpld4	1.03	0.0	0.1
	PortCtrl LC3	lc	fpga2	0.11	0.0	0.1
	Raven LC3	lc	fpga1	1.02	0.0	0.1
	ROMMONB LC3	lc	rommon	1.03	0.0	0.1
-------	-------	-------	-------	-------	-------	-------
A9K-16T/8-E	Can Bus Ctrl (CBC) LC3	lc	cbc	6.02	0.0	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.0	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.0	0.1
	LCClkCtrl LC3	lc	cpld3	0.01	0.0	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.0	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.0	0.1
	Raven LC3	lc	fpga1	1.02	0.0	0.1
	ROMMONB LC3	lc	rommon	1.03	0.0	0.1
-------	-------	-------	-------	-------	-------	-------
A9K-16T/8-E	Can Bus Ctrl (CBC) LC3	lc	cbc	6.02	0.0	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.0	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.0	0.1
	LCClkCtrl LC3	lc	cpld3	0.01	0.0	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.0	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.0	0.1
	Raven LC3	lc	fpga1	1.02	0.0	0.1
	ROMMONB LC3	lc	rommon	1.03	0.0	0.1
-------	-------	-------	-------	-------	-------	-------
A9K-40GE-L	Can Bus Ctrl (CBC) LC2	lc	cbc	2.02	0.0	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.0	0.1
	PHYCtrl LC2	lc	cpld2	0.06	0.0	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.0	0.1

```
                              Bridge LC2              lc   fpga1    0.43     0.0     0.1

                              ROMMONB LC2             lc   rommon   1.05     0.0     0.1

         ----------------------------------------------------------------------------------
         A9K-4T-L             Can Bus Ctrl (CBC) LC2  lc   cbc      2.02     0.0     0.1

                              CPUCtrl LC2             lc   cpld1    1.00     0.0     0.1

                              PHYCtrl LC2             lc   cpld2    0.08     0.0     0.1

                              LCClkCtrl LC2           lc   cpld3    0.03     0.0     0.1

                              PortCtrl LC2            lc   fpga2    0.10     0.0     0.1

                              Serdes Upgrade LC2      lc   fpga3    14.44    0.0     0.1

                              Bridge LC2              lc   fpga1    0.43     0.0     0.1

                              ROMMONB LC2             lc   rommon   1.05     0.0     0.1

         ----------------------------------------------------------------------------------
         A9K-8T/4-L           Can Bus Ctrl (CBC) LC2  lc   cbc      2.02     0.0     0.1

                              CPUCtrl LC2             lc   cpld1    1.00     0.0     0.1

                              PHYCtrl LC2             lc   cpld2    0.08     0.0     0.1

                              LCClkCtrl LC2           lc   cpld3    0.03     0.0     0.1

                              PortCtrl LC2            lc   fpga2    0.10     0.0     0.1

                              Serdes Upgrade LC2      lc   fpga3    14.44    0.0     0.1

                              Bridge LC2              lc   fpga1    0.43     0.0     0.1

                              ROMMONB LC2             lc   rommon   1.05     0.0     0.1

         ----------------------------------------------------------------------------------
         A9K-2T20GE-L         Can Bus Ctrl (CBC) LC2  lc   cbc      2.02     0.0     0.1

                              CPUCtrl LC2             lc   cpld1    1.00     0.0     0.1

                              PHYCtrl LC2             lc   cpld2    0.11     0.0     0.1

                              LCClkCtrl LC2           lc   cpld3    0.09     0.0     0.1

                              Tomcat LC2              lc   fpga2    0.16     0.0     0.1

                              Bridge LC2              lc   fpga1    0.43     0.0     0.1

                              ROMMONB LC2             lc   rommon   1.05     0.0     0.1

         ----------------------------------------------------------------------------------
         A9K-8T-L             Can Bus Ctrl (CBC) LC3  lc   cbc      6.02     0.0     0.1

                              CPUCtrl LC3             lc   cpld1    1.02     0.0     0.1

                              PHYCtrl LC3             lc   cpld2    0.08     0.0     0.1

                              LCClkCtrl LC3           lc   cpld3    0.03     0.0     0.1

                              CPUCtrl LC3             lc   cpld4    1.03     0.0     0.1
```

	PortCtrl LC3	lc	fpga2	0.11	0.0	0.1
	Raven LC3	lc	fpga1	1.02	0.0	0.1
	ROMMONB LC3	lc	rommon	1.03	0.0	0.1

A9K-16T/8-L	Can Bus Ctrl (CBC) LC3	lc	cbc	6.02	0.0	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.0	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.0	0.1
	LCClkCtrl LC3	lc	cpld3	0.01	0.0	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.0	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.0	0.1
	Raven LC3	lc	fpga1	1.02	0.0	0.1
	ROMMONB LC3	lc	rommon	1.03	0.0	0.1

A9K-SIP-700	Can Bus Ctrl (CBC) LC5	lc	cbc	3.05	0.0	0.1
	CPUCtrl LC5	lc	cpld1	0.15	0.0	0.1
	QFPCPUBridge LC5	lc	fpga2	5.14	0.0	0.1
	NPUXBarBridge LC5	lc	fpga1	0.22	0.0	0.1
	ROMMONA LC5	lc	rommonA	1.03	0.0	0.1
	ROMMONB LC5	lc	rommon	1.03	0.0	0.1

A9K-SIP-500	Can Bus Ctrl (CBC) LC5	lc	cbc	3.05	0.0	0.1
	CPUCtrl LC5	lc	cpld1	0.15	0.0	0.1
	QFPCPUBridge LC5	lc	fpga2	5.14	0.0	0.1
	NPUXBarBridge LC5	lc	fpga1	0.22	0.0	0.1
	ROMMONA LC5	lc	rommonA	1.03	0.0	0.1
	ROMMONB LC5	lc	rommon	1.03	0.0	0.1

A9K-RSP-2G	Can Bus Ctrl (CBC) RSP2	lc	cbc	1.02	0.0	0.1
	CPUCtrl RSP2	lc	cpld2	1.17	0.0	0.1
	IntCtrl RSP2	lc	fpga2	1.15	0.0	0.1
	ClkCtrl RSP2	lc	fpga3	1.23	0.0	0.1
	UTI RSP2	lc	fpga4	3.08	0.0	0.1
	PUNT RSP2	lc	fpga1	1.05	0.0	0.1
	HSBI RSP2	lc	hsbi	4.00	0.0	0.1

show fpd package Command Output: Example

	ROMMONA RSP2	lc	rommonA	1.05	0.0	0.1
	ROMMONB RSP2	lc	rommon	1.05	0.0	0.1
--						
A9K-RSP-4G	Can Bus Ctrl (CBC) RSP2	lc	cbc	1.02	0.0	0.1
	CPUCtrl RSP2	lc	cpld2	1.17	0.0	0.1
	IntCtrl RSP2	lc	fpga2	1.15	0.0	0.1
	ClkCtrl RSP2	lc	fpga3	1.23	0.0	0.1
	UTI RSP2	lc	fpga4	3.08	0.0	0.1
	PUNT RSP2	lc	fpga1	1.05	0.0	0.1
	HSBI RSP2	lc	hsbi	4.00	0.0	0.1
	ROMMONA RSP2	lc	rommonA	1.05	0.0	0.1
	ROMMONB RSP2	lc	rommon	1.05	0.0	0.1
--						
A9K-RSP-8G	Can Bus Ctrl (CBC) RSP2	lc	cbc	1.02	0.0	0.1
	CPUCtrl RSP2	lc	cpld2	1.17	0.0	0.1
	IntCtrl RSP2	lc	fpga2	1.15	0.0	0.1
	ClkCtrl RSP2	lc	fpga3	1.23	0.0	0.1
	UTI RSP2	lc	fpga4	3.08	0.0	0.1
	PUNT RSP2	lc	fpga1	1.05	0.0	0.1
	HSBI RSP2	lc	hsbi	4.00	0.0	0.1
	ROMMONA RSP2	lc	rommonA	1.05	0.0	0.1
	ROMMONB RSP2	lc	rommon	1.05	0.0	0.1
--						
ASR-9010-FAN	Can Bus Ctrl (CBC) FAN	lc	cbc	4.00	0.0	0.1
--						
ASR-9006-FAN	Can Bus Ctrl (CBC) FAN	lc	cbc	5.00	0.0	0.1
--						
A9K-BPID2-10-SLOT	Can Bus Ctrl (CBC) BP2	lc	cbc	7.103	0.0	0.1
--						
A9K-BPID2-6-SLOT	Can Bus Ctrl (CBC) BP2	lc	cbc	7.103	0.0	0.1
--						
A9K-ISM-100	Can Bus Ctrl (CBC) LC6	lc	cbc	18.05	0.0	0.1
	CPUCtrl LC6	lc	cpld1	0.01	0.0	0.1
	Maintenance LC6	lc	fpga2	1.00	0.0	0.1
	Amistad LC6	lc	fpga1	0.25	0.0	0.20

```
                    ROMMONA LC6              lc    rommonA    1.02     0.0      0.1

                    ROMMONB LC6              lc    rommon     1.02     0.0      0.1
-------------------------------------------------------------------------------------------------
A9K-8T-B            CPUCtrl LC3              lc    cpld1      1.02     0.0      0.1

                    PHYCtrl LC3              lc    cpld2      0.08     0.0      0.1

                    DB CPUCtrl LC3           lc    cpld4      1.03     0.0      0.1

                    PortCtrl LC3             lc    fpga2      0.11     0.0      0.1

                    Raven LC3                lc    fpga1      1.02     0.0      0.1
-------------------------------------------------------------------------------------------------
A9K-8T-E            CPUCtrl LC3              lc    cpld1      1.02     0.0      0.1

                    DB CPUCtrl LC3           lc    cpld4      1.03     0.0      0.1

                    PortCtrl LC3             lc    fpga2      0.11     0.0      0.1

                    Raven LC3                lc    fpga1      1.02     0.0      0.1
-------------------------------------------------------------------------------------------------
SPA-4XT3/E3         SPA E3 Subrate FPGA      spa   fpga2      1.04     0.0      0.0

                    SPA T3 Subrate FPGA      spa   fpga3      1.04     0.0      0.0

                    SPA I/O FPGA             spa   fpga1      1.01     0.0      0.0

                    SPA ROMMON               spa   rommon     2.12     0.0      0.0
-------------------------------------------------------------------------------------------------
SPA-2XT3/E3         SPA E3 Subrate FPGA      spa   fpga2      1.04     0.0      0.0

                    SPA T3 Subrate FPGA      spa   fpga3      1.04     0.0      0.0

                    SPA I/O FPGA             spa   fpga1      1.01     0.0      0.0

                    SPA ROMMON               spa   rommon     2.12     0.0      0.0
-------------------------------------------------------------------------------------------------
SPA-4XCT3/DS0       SPA T3 Subrate FPGA      spa   fpga2      0.11     0.0      0.100

                    SPA T3 Subrate FPGA      spa   fpga2      1.04     0.0      0.200

                    SPA I/O FPGA             spa   fpga1      2.08     0.0      0.100

                    SPA ROMMON               spa   rommon     2.12     0.0      0.100
-------------------------------------------------------------------------------------------------
SPA-2XCT3/DS0       SPA T3 Subrate FPGA      spa   fpga2      0.11     0.0      0.100

                    SPA T3 Subrate FPGA      spa   fpga2      1.04     0.0      0.200

                    SPA I/O FPGA             spa   fpga1      2.08     0.0      0.100

                    SPA ROMMON               spa   rommon     2.12     0.0      0.100
-------------------------------------------------------------------------------------------------
SPA-1XCHSTM1/OC3    SPA T3 Subrate FPGA      spa   fpga2      1.04     0.0      0.0

                    SPA I/O FPGA             spa   fpga1      1.08     0.0      0.0

                    SPA ROMMON               spa   rommon     2.12     0.0      0.0
```

```
-------------------------------------------------------------------------------------
SPA-1XCHOC48/DS3      SPA I/O FPGA                spa  fpga2    1.00      0.0      0.49

                      SPA I/O FPGA                spa  fpga3    1.00      0.0      0.52

                      SPA I/O FPGA                spa  fpga1    1.36      0.0      0.49

                      SPA ROMMON                  spa  rommon   2.02      0.0      0.49

-------------------------------------------------------------------------------------
SPA-2XCHOC12/DS0      SPA FPGA2 swv1.00           spa  fpga2    1.00      0.0      0.0

                      SPA FPGA swv1.36            spa  fpga1    1.36      0.0      0.49

                      SPA ROMMON swv2.2           spa  rommon   2.02      0.0      0.49

-------------------------------------------------------------------------------------
SPA-8XOC12-POS        SPA FPGA swv1.0             spa  fpga1    1.00      0.0      0.5

-------------------------------------------------------------------------------------
SPA-8XCHT1/E1         SPA I/O FPGA                spa  fpga1    2.08      0.0      0.0

                      SPA ROMMON                  spa  rommon   2.12      0.0      0.140
-------------------------------------------------------------------------------------
SPA-OC192POS-XFP      SPA FPGA swv1.2 hwv2        spa  fpga1    1.02      0.0      2.0

-------------------------------------------------------------------------------------
SPA-2XOC48POS/RPR     SPA FPGA swv1.0             spa  fpga1    1.00      0.0      0.0

-------------------------------------------------------------------------------------
SPA-8XOC3-POS         SPA FPGA swv1.0             spa  fpga1    1.00      0.0      0.5

-------------------------------------------------------------------------------------
SPA-10X1GE-V2         SPA FPGA swv1.10            spa  fpga1    1.10      0.0      0.0

-------------------------------------------------------------------------------------
SPA-5X1GE-V2          SPA FPGA swv1.10            spa  fpga1    1.10      0.0      0.0

-------------------------------------------------------------------------------------
SPA-1X10GE-L-V2       SPA FPGA swv1.9             spa  fpga1    1.09      0.0      0.0

-------------------------------------------------------------------------------------
SPA-4XOC3-POS-V2      SPA FPGA swv1.0             spa  fpga1    1.00      0.0      0.5

-------------------------------------------------------------------------------------
SPA-1X10GE-WL-V2      SPA FPGA swv1.9             spa  fpga1    1.09      0.0      0.0

-------------------------------------------------------------------------------------
```

This table describes the significant fields shown in the display:

Table 3: show fpd package Field Descriptions

Field	Description
Card Type	Module part number.
FPD Description	Description of all FPD images available for the SPA.

Field	Description
Type	Hardware type. Possible types can be: • spa—Shared port adapter • lc—Line card
Subtype	FPD subtype. These values are used in the **upgrade hw-module fpd** command to indicate a specific FPD image type to upgrade.
SW Version	FPD software version recommended for the associated module running the current Cisco IOS XR software.
Min Req SW Vers	Minimum required FPD image software version to operate the card. Version 0.0 indicates that a minimum required image was not programmed into the card.
Min Req HW Vers	Minimum required hardware version for the associated FPD image. A minimum hardware requirement of version 0.0 indicates that all hardware can support this FPD image version.

This example shows the output display for ASR9912 and ASR9922:

```
RP/0/RP0/CPU0:router # show fpd package
================================ =================================================
                                         Field Programmable Device Package
                                 =================================================
                                                    SW       Min Req    Min Req
Card Type            FPD Description             Type Subtype Version  SW Ver    HW Vers
==================== ========================= ==== ======= ============ ======== =========
ASR-9912-BPID2       Can Bus Ctrl (CBC) BP2      bp   cbc       7.104      0.00       0.1

                     Can Bus Ctrl (CBC) BP2      lc   cbc       7.104      0.00       0.1

--------------------------------------------------------------------------------------
ASR-9922-BPID2       Can Bus Ctrl (CBC) BP2      bp   cbc       7.104      0.00       0.1

                     Can Bus Ctrl (CBC) BP2      lc   cbc       7.104      0.00       0.1

--------------------------------------------------------------------------------------
A9K-BPID2-10-SLOT    Can Bus Ctrl (CBC) BP2      bp   cbc       7.104      0.00       0.1

                     Can Bus Ctrl (CBC) BP2      lc   cbc       7.104      0.00       0.1

--------------------------------------------------------------------------------------
A9K-BPID2-6-SLOT     Can Bus Ctrl (CBC) BP2      bp   cbc       7.104      0.00       0.1

                     Can Bus Ctrl (CBC) BP2      lc   cbc       7.104      0.00       0.1

--------------------------------------------------------------------------------------
ASR-9922-SFC110      Can Bus Ctrl (CBC) MTFC     fc   cbc      28.03      0.00       0.1

                     Fabric Ctrl0 MTFC           fc   fpga7     1.01      0.00       0.1

                     Can Bus Ctrl (CBC) MTFC     lc   cbc      28.03      0.00       0.1

--------------------------------------------------------------------------------------
ASR-9912-SFC110      Can Bus Ctrl (CBC) SSFC     fc   cbc      32.02      0.00       0.1
```

	Fabric Ctrl0 MTFC	fc	fpga7	1.01	0.00	0.1
ASR-9010-FAN	Can Bus Ctrl (CBC) FAN	ft	cbc	4.02	0.00	0.1
	Can Bus Ctrl (CBC) FAN	lc	cbc	4.02	0.00	0.1
ASR-9006-FAN	Can Bus Ctrl (CBC) FAN	ft	cbc	5.02	0.00	0.1
	Can Bus Ctrl (CBC) FAN	lc	cbc	5.02	0.00	0.1
ASR-9922-FAN	Can Bus Ctrl (CBC) MFAN	ft	cbc	29.10	0.00	0.1
	Can Bus Ctrl (CBC) MFAN	lc	cbc	29.10	0.00	0.1
ASR-9912-FAN	Can Bus Ctrl (CBC) SFAN	ft	cbc	31.03	0.00	0.1
ASR-9010-FAN-V2	Can Bus Ctrl (CBC) FAN	ft	cbc	29.10	0.00	0.1
	Can Bus Ctrl (CBC) FAN	lc	cbc	29.10	0.00	0.1
ASR-9001-FAN	Can Bus Ctrl (CBC) FAN	ft	cbc	24.114	0.00	0.1
	Can Bus Ctrl (CBC) FAN	lc	cbc	24.114	0.00	0.1
A9K-40GE-B	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cpld2	0.06	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1
A9K-4T-B	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cpld2	0.08	0.00	0.1
	LCClkCtrl LC2	lc	cpld3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	PHY LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1
A9K-8T/4-B	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1

	PHYCtrl LC2	lc	cpld2	0.08	0.00	0.1
	LCClkCtrl LC2	lc	cpld3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	PHY LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-2T20GE-B	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cpld2	0.11	0.00	0.1
	LCClkCtrl LC2	lc	cpld3	0.10	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.16	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-40GE-E	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cpld2	0.06	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-4T-E	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cpld2	0.08	0.00	0.1
	LCClkCtrl LC2	lc	cpld3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	PHY LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-8T/4-E	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cpld2	0.08	0.00	0.1

	LCClkCtrl LC2	lc	cpld3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	PHY LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1
A9K-2T20GE-E	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cpld2	0.11	0.00	0.1
	LCClkCtrl LC2	lc	cpld3	0.10	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.16	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1
A9K-8T-B	Can Bus Ctrl (CBC) LC3	lc	cbc	6.07	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cpld2	0.08	0.00	0.1
	LCClkCtrl LC3	lc	cpld3	0.03	0.00	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.11	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1
A9K-16T/8-B	Can Bus Ctrl (CBC) LC3	lc	cbc	6.08	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.00	0.1
	LCClkCtrl LC3	lc	cpld3	0.01	0.00	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1
A9K-8T-E	Can Bus Ctrl (CBC) LC3	lc	cbc	6.07	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1

	PHYCtrl LC3	lc	cpld2	0.08	0.00	0.1
	LCClkCtrl LC3	lc	cpld3	0.03	0.00	0.1
	CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.11	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1

A9K-16T/8-E	Can Bus Ctrl (CBC) LC3	lc	cbc	6.08	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.00	0.1
	LCClkCtrl LC3	lc	cpld3	0.01	0.00	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1

A9K-40GE-L	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cpld2	0.06	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-4T-L	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cpld2	0.08	0.00	0.1
	LCClkCtrl LC2	lc	cpld3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	Serdes Upgrade LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-8T/4-L	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1

	PHYCtrl LC2	lc	cpld2	0.08	0.00	0.1
	LCClkCtrl LC2	lc	cpld3	0.03	0.00	0.1
	PortCtrl LC2	lc	fpga2	0.10	0.00	0.1
	Serdes Upgrade LC2	lc	fpga3	14.44	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-2T20GE-L	Can Bus Ctrl (CBC) LC2	lc	cbc	2.03	0.00	0.1
	CPUCtrl LC2	lc	cpld1	1.00	0.00	0.1
	PHYCtrl LC2	lc	cpld2	0.11	0.00	0.1
	LCClkCtrl LC2	lc	cpld3	0.10	0.00	0.1
	Tomcat LC2	lc	fpga2	0.16	0.00	0.1
	Bridge LC2	lc	fpga1	0.44	0.00	0.1
	ROMMONB LC2	lc	rommon	1.05	0.00	0.1

A9K-8T-L	Can Bus Ctrl (CBC) LC3	lc	cbc	6.07	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cpld2	0.08	0.00	0.1
	LCClkCtrl LC3	lc	cpld3	0.03	0.00	0.1
	CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.11	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1

A9K-16T/8-L	Can Bus Ctrl (CBC) LC3	lc	cbc	6.08	0.00	0.1
	CPUCtrl LC3	lc	cpld1	1.02	0.00	0.1
	PHYCtrl LC3	lc	cpld2	0.04	0.00	0.1
	LCClkCtrl LC3	lc	cpld3	0.01	0.00	0.1
	DB CPUCtrl LC3	lc	cpld4	1.03	0.00	0.1
	PortCtrl LC3	lc	fpga2	0.01	0.00	0.1
	Raven LC3	lc	fpga1	1.03	0.00	0.1
	ROMMONB LC3	lc	rommon	1.03	0.00	0.1

A9K-SIP-700	Can Bus Ctrl (CBC) LC5	lc	cbc	3.06	0.00	0.1

```
                           CPUCtrl LC5              lc   cpld1    0.15    0.00    0.1

                           QFPCPUBridge LC5         lc   fpga2    5.14    0.00    0.1

                           NPUXBarBridge LC5        lc   fpga1    0.23    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   cpld1    0.15    0.00    0.1

                           QFPCPUBridge LC5         lc   fpga2    5.14    0.00    0.1

                           NPUXBarBridge LC5        lc   fpga1    0.23    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   cpld1    0.15    0.00    0.1

                           QFPCPUBridge LC5         lc   fpga2    5.14    0.00    0.1

                           NPUXBarBridge LC5        lc   fpga1    0.23    0.00    0.1

                           ROMMONB LC5              lc   rommon   1.35    0.00    0.1

       ------------------------------------------------------------------------------------
       A9K-RSP-2G          Can Bus Ctrl (CBC) RSP2  lc   cbc      1.03    0.00    0.1

                           CPUCtrl RSP2             lc   cpld2    1.18    0.00    0.1

                           IntCtrl RSP2             lc   fpga2    1.15    0.00    0.1

                           ClkCtrl RSP2             lc   fpga3    1.23    0.00    0.1

                           UTI RSP2                 lc   fpga4    3.08    0.00    0.1

                           PUNT RSP2                lc   fpga1    1.05    0.00    0.1

                           ROMMONB RSP2             lc   rommon   1.06    0.00    0.1

       ------------------------------------------------------------------------------------
       A9K-RSP-4G          Can Bus Ctrl (CBC) RSP2  lc   cbc      1.03    0.00    0.1

                           CPUCtrl RSP2             lc   cpld2    1.18    0.00    0.1

                           IntCtrl RSP2             lc   fpga2    1.15    0.00    0.1

                           ClkCtrl RSP2             lc   fpga3    1.23    0.00    0.1

                           UTI RSP2                 lc   fpga4    3.08    0.00    0.1

                           PUNT RSP2                lc   fpga1    1.05    0.00    0.1

                           ROMMONB RSP2             lc   rommon   1.06    0.00    0.1

       ------------------------------------------------------------------------------------
       A9K-RSP-8G          Can Bus Ctrl (CBC) RSP2  lc   cbc      1.03    0.00    0.1
```

	CPUCtrl RSP2	lc	cpld2	1.18	0.00	0.1
	IntCtrl RSP2	lc	fpga2	1.15	0.00	0.1
	ClkCtrl RSP2	lc	fpga3	1.23	0.00	0.1
	UTI RSP2	lc	fpga4	3.08	0.00	0.1
	PUNT RSP2	lc	fpga1	1.05	0.00	0.1
	ROMMONB RSP2	lc	rommon	1.06	0.00	0.1
A9K-RSP440-TR	Can Bus Ctrl (CBC) RSP3	lc	cbc	16.115	0.00	0.1
	ClockCtrl0 RSP3	lc	fpga2	1.06	0.00	0.1
	UTI RSP3	lc	fpga3	4.09	0.00	0.1
	CPUCtrl RSP3	lc	fpga1	0.09	0.00	0.1
	ROMMONB RSP3	lc	rommon	0.70	0.00	0.1
A9K-RSP440-SE	Can Bus Ctrl (CBC) RSP3	lc	cbc	16.115	0.00	0.1
	ClockCtrl0 RSP3	lc	fpga2	1.06	0.00	0.1
	UTI RSP3	lc	fpga3	4.09	0.00	0.1
	CPUCtrl RSP3	lc	fpga1	0.09	0.00	0.1
	ROMMONB RSP3	lc	rommon	0.70	0.00	0.1
ASR-9922-RP-TR	Can Bus Ctrl (CBC) MTRP	lc	cbc	25.02	0.00	0.1
	Fabric Ctrl3 MTFC	lc	fpga10	1.01	0.00	0.1
	Fabric Ctrl4 MTFC	lc	fpga11	1.01	0.00	0.1
	Fabric Ctrl5 MTFC	lc	fpga12	1.01	0.00	0.1
	Fabric Ctrl6 MTFC	lc	fpga13	1.01	0.00	0.1
	CPUCtrl1	lc	fpga2	1.03	0.00	0.1
	ClkCtrl	lc	fpga3	1.03	0.00	0.1
	IntCtrl	lc	fpga4	1.03	0.00	0.1
	UTI	lc	fpga5	4.09	0.00	0.1
	Timex	lc	fpga6	0.02	0.00	0.1
	Fabric Ctrl0 MTFC	lc	fpga7	1.01	0.00	0.1
	Fabric Ctrl1 MTFC	lc	fpga8	1.01	0.00	0.1
	Fabric Ctrl2 MTFC	lc	fpga9	1.01	0.00	0.1
	CPUCtrl0	lc	fpga1	1.04	0.00	0.1
	ROMMONB MTRP	lc	rommon	5.10	0.00	0.1

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-----------------------------------------------------------------------------------------
ASR-9922-RP-SE      Can Bus Ctrl (CBC) MTRP    lc    cbc      25.02    0.00    0.1

                    Fabric Ctrl3 MTFC          lc    fpga10    1.01    0.00    0.1

                    Fabric Ctrl4 MTFC          lc    fpga11    1.01    0.00    0.1

                    Fabric Ctrl5 MTFC          lc    fpga12    1.01    0.00    0.1

                    Fabric Ctrl6 MTFC          lc    fpga13    1.01    0.00    0.1

                    CPUCtrl1                   lc    fpga2     1.03    0.00    0.1

                    ClkCtrl                    lc    fpga3     1.03    0.00    0.1

                    IntCtrl                    lc    fpga4     1.03    0.00    0.1

                    UTI                        lc    fpga5     4.09    0.00    0.1

                    Timex                      lc    fpga6     0.02    0.00    0.1

                    Fabric Ctrl0 MTFC          lc    fpga7     1.01    0.00    0.1

                    Fabric Ctrl1 MTFC          lc    fpga8     1.01    0.00    0.1

                    Fabric Ctrl2 MTFC          lc    fpga9     1.01    0.00    0.1

                    CPUCtrl0                   lc    fpga1     1.04    0.00    0.1

                    ROMMONB MTRP               lc    rommon    5.10    0.00    0.1
-----------------------------------------------------------------------------------------
ASR-9900-RP-TR      Can Bus Ctrl (CBC) MTRP    lc    cbc      25.02    0.00    0.1

                    Fabric Ctrl3 MTFC          lc    fpga10    1.01    0.00    0.1

                    Fabric Ctrl4 MTFC          lc    fpga11    1.01    0.00    0.1

                    Fabric Ctrl5 MTFC          lc    fpga12    1.01    0.00    0.1

                    Fabric Ctrl6 MTFC          lc    fpga13    1.01    0.00    0.1

                    CPUCtrl1                   lc    fpga2     1.03    0.00    0.1

                    ClkCtrl                    lc    fpga3     1.03    0.00    0.1

                    IntCtrl                    lc    fpga4     1.03    0.00    0.1

                    UTI                        lc    fpga5     4.09    0.00    0.1

                    Timex                      lc    fpga6     0.02    0.00    0.1

                    Fabric Ctrl0 MTFC          lc    fpga7     1.01    0.00    0.1

                    Fabric Ctrl1 MTFC          lc    fpga8     1.01    0.00    0.1

                    Fabric Ctrl2 MTFC          lc    fpga9     1.01    0.00    0.1

                    CPUCtrl0                   lc    fpga1     1.04    0.00    0.1

                    ROMMONB MTRP               lc    rommon    5.10    0.00    0.1
-----------------------------------------------------------------------------------------
```

ASR-9900-RP-SE	Can Bus Ctrl (CBC) MTRP	lc	cbc	25.02	0.00	0.1
	Fabric Ctrl3 MTFC	lc	fpga10	1.01	0.00	0.1
	Fabric Ctrl4 MTFC	lc	fpga11	1.01	0.00	0.1
	Fabric Ctrl5 MTFC	lc	fpga12	1.01	0.00	0.1
	Fabric Ctrl6 MTFC	lc	fpga13	1.01	0.00	0.1
	CPUCtrl1	lc	fpga2	1.03	0.00	0.1
	ClkCtrl	lc	fpga3	1.03	0.00	0.1
	IntCtrl	lc	fpga4	1.03	0.00	0.1
	UTI	lc	fpga5	4.09	0.00	0.1
	Timex	lc	fpga6	0.02	0.00	0.1
	Fabric Ctrl0 MTFC	lc	fpga7	1.01	0.00	0.1
	Fabric Ctrl1 MTFC	lc	fpga8	1.01	0.00	0.1
	Fabric Ctrl2 MTFC	lc	fpga9	1.01	0.00	0.1
	CPUCtrl0	lc	fpga1	1.04	0.00	0.1
	ROMMONB MTRP	lc	rommon	5.10	0.00	0.1

ASR9001-RP	Can Bus Ctrl (CBC) IMRP	lc	cbc	22.114	0.00	0.1
	MB CPUCtrl	lc	fpga2	1.14	0.00	0.0
	ROMMONB IM RP	lc	rommon	1.36	0.00	0.1

A9K-24x10GE-SE	Can Bus Ctrl (CBC) LC6	lc	cbc	19.109	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	1.29	0.00	0.0

A9K-2x100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	21.108	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	1.01	0.00	0.0
	Emux	lc	fpga5	1.03	0.00	0.0
	100GIGMAC	lc	fpga6	38.00	0.00	0.0
	ROMMONB LC4	lc	rommon	1.29	0.00	0.0

```
-----------------------------------------------------------------------------------------------
A9K-MOD80-SE      Can Bus Ctrl (CBC) LC4    lc   cbc      20.115    0.00    0.1

                  DB Ctrl                   lc   fpga2     1.04     0.00    0.0

                  MB CPUCtrl                lc   fpga4     1.05     0.00    0.0

                  ROMMONB LC4               lc   rommon    1.29     0.00    0.1
-----------------------------------------------------------------------------------------------
A9K-MOD160-SE     Can Bus Ctrl (CBC) LC4    lc   cbc      20.115    0.00    0.1

                  DB Ctrl                   lc   fpga2     1.04     0.00    0.0

                  MB CPUCtrl                lc   fpga4     1.05     0.00    0.0

                  ROMMONB LC4               lc   rommon    1.29     0.00    0.1
-----------------------------------------------------------------------------------------------
A9K-24x10GE-TR    Can Bus Ctrl (CBC) LC6    lc   cbc      19.109    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    1.29     0.00    0.0
-----------------------------------------------------------------------------------------------
A9K-2x100GE-TR    Can Bus Ctrl (CBC) LC4    lc   cbc      21.108    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     1.01     0.00    0.0

                  Emux                      lc   fpga5     1.03     0.00    0.0

                  100GIGMAC                 lc   fpga6    38.00     0.00    0.0

                  ROMMONB LC4               lc   rommon    1.29     0.00    0.0
-----------------------------------------------------------------------------------------------
A9K-MOD80-TR      Can Bus Ctrl (CBC) LC4    lc   cbc      20.115    0.00    0.1

                  DB Ctrl                   lc   fpga2     1.04     0.00    0.0

                  MB CPUCtrl                lc   fpga4     1.05     0.00    0.0

                  ROMMONB LC4               lc   rommon    1.29     0.00    0.1
-----------------------------------------------------------------------------------------------
A9K-MOD160-TR     Can Bus Ctrl (CBC) LC4    lc   cbc      20.115    0.00    0.1

                  DB Ctrl                   lc   fpga2     1.04     0.00    0.0

                  MB CPUCtrl                lc   fpga4     1.05     0.00    0.0

                  ROMMONB LC4               lc   rommon    1.29     0.00    0.1
```

A9K-8T-TEST	Can Bus Ctrl (CBC) LC17	lc	cbc	17.214	0.00	0.0
	LCCPUCtrl LC6	lc	fpga4	0.03	0.00	0.0
	ROMMONB LC6	lc	rommon	1.04	0.00	0.0
A9K-36x10GE-SE	Can Bus Ctrl (CBC) LC6	lc	cbc	15.101	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	1.29	0.00	0.0
A9K-36x10GE-TR	Can Bus Ctrl (CBC) LC6	lc	cbc	15.101	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	1.29	0.00	0.0
A9K-1x100GE-SE	Can Bus Ctrl (CBC) LC4	lc	cbc	21.108	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	1.01	0.00	0.0
	Emux	lc	fpga5	1.03	0.00	0.0
	100GIGMAC	lc	fpga6	38.00	0.00	0.0
	ROMMONB LC4	lc	rommon	1.29	0.00	0.0
A9K-1x100GE-TR	Can Bus Ctrl (CBC) LC4	lc	cbc	21.108	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	1.01	0.00	0.0
	Emux	lc	fpga5	1.03	0.00	0.0
	100GIGMAC	lc	fpga6	38.00	0.00	0.0
	ROMMONB LC4	lc	rommon	1.29	0.00	0.0

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-------------------------------------------------------------------------------------
ASR9001-LC          Can Bus Ctrl (CBC) IMLC   lc    cbc      23.114    0.00     0.1

                    DB CPUCtrl                lc    fpga2    1.17      0.00     0.0

                    EP Gambit                 lc    fpga3    0.08      0.00     0.0

                    MB CPUCtrl                lc    fpga4    2.07      0.00     0.0

                    EP Rogue                  lc    fpga6    1.06      0.00     0.0

                    EP Sage                   lc    fpga7    1.02      0.00     0.0

                    ROMMONB IM LC             lc    rommon   1.36      0.00     0.1

-------------------------------------------------------------------------------------
ASR9001-LC-S        Can Bus Ctrl (CBC) IMLC   lc    cbc      23.114    0.00     0.1

                    DB CPUCtrl                lc    fpga2    1.17      0.00     0.0

                    EP Gambit                 lc    fpga3    0.08      0.00     0.0

                    MB CPUCtrl                lc    fpga4    2.07      0.00     0.0

                    EP Rogue                  lc    fpga6    1.06      0.00     0.0

                    EP Sage                   lc    fpga7    1.02      0.00     0.0

                    ROMMONB IM LC             lc    rommon   1.36      0.00     0.1

-------------------------------------------------------------------------------------
A9K-ISM-100         Can Bus Ctrl (CBC) LC6    lc    cbc      18.06     0.00     0.1

                    CPUCtrl LC6               lc    cpld1    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

-------------------------------------------------------------------------------------
A9K-RSP-3G          ClockCtrl0 RSP3           lc    fpga2    1.06      0.00     0.1

                    UTI RSP3                  lc    fpga3    4.09      0.00     0.1

                    CPUCtrl RSP3              lc    fpga1    0.09      0.00     0.1

                    ROMMONB RSP3              lc    rommon   0.70      0.00     0.1

-------------------------------------------------------------------------------------
A9K-RSP-24G         ClockCtrl0 RSP3           lc    fpga2    1.06      0.00     0.1

                    UTI RSP3                  lc    fpga3    4.09      0.00     0.1

                    CPUCtrl RSP3              lc    fpga1    0.09      0.00     0.1

                    ROMMONB RSP3              lc    rommon   0.70      0.00     0.1

-------------------------------------------------------------------------------------
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-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-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-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-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	0.08	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 Sage                    spa  fpga7    1.03    0.00    0.0

--------------------------------------------------------------------------------
A9K-MPA-1X40GE       EP Sage                    spa  fpga7    1.03    0.00    0.0

--------------------------------------------------------------------------------
A9K-MPA-8X10GE       EP I/O FPGA                spa  fpga8    0.07    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-OC192POS-XFP     SPA FPGA swv1.2 hwv2       spa  fpga1    1.02    0.00    2.0

--------------------------------------------------------------------------------
SPA-2XOC48POS/RPR    SPA FPGA swv1.0            spa  fpga1    1.00    0.00    0.0

--------------------------------------------------------------------------------
SPA-4XOC48POS/RPR    SPA FPGA swv1.0            spa  fpga1    1.00    0.00    0.0

--------------------------------------------------------------------------------
SPA-8XOC3-POS        SPA FPGA swv1.0            spa  fpga1    1.00    0.00    0.5

--------------------------------------------------------------------------------
SPA-2XOC12-POS       SPA FPGA swv1.0            spa  fpga1    1.00    0.00    0.5

--------------------------------------------------------------------------------
SPA-4XOC12-POS       SPA FPGA swv1.0            spa  fpga1    1.00    0.00    0.5

--------------------------------------------------------------------------------
SPA-10X1GE-V2        SPA FPGA swv1.10           spa  fpga1    1.10    0.00    0.0

--------------------------------------------------------------------------------
SPA-5X1GE-V2         SPA FPGA swv1.10           spa  fpga1    1.10    0.00    0.0

--------------------------------------------------------------------------------
SPA-1X10GE-L-V2      SPA FPGA swv1.9            spa  fpga1    1.09    0.00    0.0

--------------------------------------------------------------------------------
SPA-4XOC3-POS-V2     SPA FPGA swv1.0            spa  fpga1    1.00    0.00    0.5

--------------------------------------------------------------------------------
SPA-1X10GE-WL-V2     SPA FPGA swv1.9            spa  fpga1    1.09    0.00    0.0

--------------------------------------------------------------------------------
SPA-1XOC3-ATM-V2     SPA FPGA swv1.2            spa  fpga1    2.02    0.00    0.0

--------------------------------------------------------------------------------
SPA-2XOC3-ATM-V2     SPA FPGA swv1.2            spa  fpga1    2.02    0.00    0.0

--------------------------------------------------------------------------------
SPA-3XOC3-ATM-V2     SPA FPGA swv1.2            spa  fpga1    2.02    0.00    0.0

--------------------------------------------------------------------------------
SPA-1XOC12-ATM-V2    SPA FPGA swv1.2            spa  fpga1    2.02    0.00    0.0

--------------------------------------------------------------------------------
```

This example shows the fpd details of the A9K-MOD400-SE:

```
RP/0/RP0/CPU0:router #  show hw-module fpd location 0/2/CPU0
================================================================================
          Existing Field Programmable Devices
================================================================================
                                    HW                      Current SW Upg/
Location     Card Type              Version Type Subtype Inst  Version   Dng?
============ ======================= ======= ==== ======= ==== =========== ====
0/2/CPU0     A9K-MOD400-SE             1.0   lc   cbc     0     39.05      No
                                             lc   rommon  0     8.32       No
                                             lc   fpga2   0     1.30       Yes
                                             lc   fsbl    0     1.19       Yes
                                             lc   lnxfw   0     1.20       Yes
                                             lc   fpga10  0     1.17       No
          ----------------------------------------------------------------------
```

Note   In the **show fpd package** command output, the "subtype" column shows the FPDs that correspond with each SPA image. To upgrade a specific FPD with the **upgrade hw-module fpd** command, replace the *fpga-type* argument with the appropriate FPD from the "subtype" column, as shown in the following example:

```
RP/0/RP0/CPU0:router(admin)# upgrade hw-module fpd fpga2 location 0/3/1 reload
```

upgrade hw-module fpd Command Output: Example

Use the **upgrade hw-module fpd** command to upgrade the FPD image on a SPA, SIP or line card.

show platform Command Output: Example

Use the **show platform** command to verify that the SPA is up and running.