Cisco Nexus 9000 Series ACI-Mode Switch FPGA/EPLD Upgrade Release Notes, Release 12.2(2)

This document lists the current and past versions of EPLD images and describes how to update them for use with the Cisco Nexus 9000 Series switches.

The following table lists the changes to this document.

Date	Description
April 14, 2017	Created the release notes for Release 12.2(2).

Introduction

The Cisco Nexus 9000 Series ACI-mode switches contain several programmable logical devices (PLDs) that provide hardware functionalities in all modules. Cisco provides electronic programmable logic device (EPLD) image upgrades to enhance hardware functionality or to resolve known issues. PLDs include electronic programmable logic devices (EPLDs), field programmable gate arrays (FPGAs), and complex programmable logic devices (CPLDs), but they do not include ASICs. In this document, the term EPLD is used for FPGA and CPLDs.

The advantage of having EPLDs for some module functions is that when you need to upgrade those functions, you just upgrade their software images instead of replacing their hardware.

> NOTE: EPLD image upgrades for an I/O module disrupt the traffic going through the module because the module must power down briefly during the upgrade. The system performs EPLD upgrades on one module at a time, so at any one time the upgrade disrupts only the traffic going through one module.

Cisco provides the latest EPLD images with each release. Typically, these images are the same as provided in earlier releases but occasionally some of these images are updated. These EPLD image updates are not mandatory unless otherwise specified. The EPLD image upgrades are independent from the Cisco ACI In Service Software Upgrade (ISSU) process, which upgrades the system and kickstart images with no impact on the network environment.

When Cisco makes an EPLD image upgrade available, these release notes announce their availability, and you can download them from http://www.cisco.com.

Deciding When to Upgrade EPLDs

When new EPLD images are available, the upgrades are always recommended if your network environment allows for a maintenance period in which some level of traffic disruption is acceptable. If such a disruption is not acceptable at this time, then you might consider postponing the upgrade until a better time.

NOTE: The EPLD upgrade operation is a disruptive operation. You should execute this operation only at a programmed maintenance time. The system ISSU upgrade is a nondisruptive upgrade.

NOTE: Do not perform an EPLD upgrade during an ISSU system/kickstart upgrade.

Switch Requirements

The Cisco Nexus 9000 Series switch must be running the Cisco ACI operating system and include the following hardware:

- Supervisor modules (2)-–each with at least 800 MB of available bootflash memory (Cisco Nexus 9504, 9508, and 9516 switches)
- System controller modules (2) (Cisco Nexus 9504, 9508, and 9516 switches)
- Line cards (Cisco Nexus 9504, 9508, and 9516 switches)
    - Cisco Nexus 9504 switch (1-4 modules)
    - Cisco Nexus 9508 switch (1-8 modules)
    - Cisco Nexus 9516 switch (1-16 modules)
- Fabric modules (Cisco Nexus 9504, 9508, and 9516 switches)

  - Fabric modules for 40-Gigabit line cards on a Cisco Nexus 9504, 9508, or 9516 switch (3-6)
  - Fabric modules for 100-Gigabit line cards on a Cisco Nexus 9504 or 9508 switch (4)
- Fan modules
  - Cisco Nexus 93120TX switch (2)
  - Cisco Nexus 93128TX, 9396PX, and 9396TX switch (3)
  - Cisco Nexus 93108TC-EX, 93108TC-FX, 93180LC-EX, 93180YC-EX, 93180YC-FX, 9332PQ, 9372PX, 9372PX-E, 9372TX, or 9372TX-E switch (4)
  - Cisco Nexus 9504, 9508, or 9516 switch (3)
- Power supplies-–The following table lists the number and type supported by each switch.

Switches		Maximum Number	AC						AC/DC		DC		
			NXA-PAC-500W	N9K-PAC-650W	NXA-PAC-650W	NXA-PAC-1100W	N9K-PAC-1200W	N9K-PAC-3000W	N9K-PUC-1200W	N9K-PUV-3000W	NXA-PDC-930W	UCS-PSU-6332/ UCSC-PSU-930W	N9K-PDC-3000W
Leaf Switches	93108TC-EX	2			X				X			X	
	93108TC-FX	2	X						X		X		
	93120TX	2					X		X			X	
	93128TX	2					X					X	
	93180LC-EX	2	X						X		X		
	93180YC-EX	2			X				X			X	
	93180YC-FX	2	X						X		X		
	9332PQ	2		X								X	
	9372PX/PX-E	2		X								X	
	9372TX/TX-E	2		X								X	
	9396PX	2		X								X	
	9396TX	2		X								X	
Spine Switches	9336PQ	2					X					X	
	9504	4						X		X			X
	9508	8						X		X			X

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	9516	10						X		X			X

- Uplink module (Cisco Nexus 93128TX, 9396PX, and 9396TX switches only)
    - M6PQ
    - M6PQ-E
    - M12PQ

You must have administrator privileges to work with the Cisco Nexus 9000 Series switch.

EPLD Upgrades Available for ACI Mode Releases 12.0(1) to 12.2(2)

Each EPLD image that you can download from http://www.cisco.com is a bundle of EPLD upgrades. To see the updated EPLD versions for the Cisco Nexus Cisco Nexus 93000 ACI-mode fixed switches, and the Cisco Nexus 9500 ACI-mode modular switches, see the following tables.

NOTE: All updates to an image are shown in boldface. If more than one release is shown for a column, the boldface applies to the first release listed for the column.

Available EPLD Images for the Cisco Nexus 92000 and 93000 Top-of-Rack Switches

Component	EPLD Device	Release 12.0(1)	Release 12.1(1)	Release 12.2(1)	Release 12.2(2)
Cisco Nexus 93108TC-EX (N9K-C93108TC-EX)	IOFPGA	**0x3 (0.003)**	0x3 (0.003)	**0x9 (0.009)**	0x9 (0.009)
	MIFPGA	**0x2 (0.002)**	0x2 (0.002)	0x2 (0.002)	0x2 (0.002)
Cisco Nexus 93108TC-FX (N9K-C93108TC-FX)	IOFPGA	N.A.[1]	N.A.[1]	N.A.[1]	**0x17 (0.023)**
	MIFPGA	N.A.[1]	N.A.[1]	N.A.[1]	**0x3 (0.003)**
Cisco Nexus 93120TX (N9K-C93120TX)	IOFPGA	0x8 (0.008)	0x8 (0.008)	0x8 (0.008)	0x8 (0.008)
	MIFPGA	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)
	MIFPGA	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)
Cisco Nexus 93128TX (N9K-C93128TX)	IOFPGA	0x10 (0.016)	**0x11 (0.017)**	0x11 (0.017)	0x11 (0.017)
	MIFPGA	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)
Cisco Nexus 93180LC-EX (N9K-C93180LC-EX)	IOFPGA	N.A.[1]	N.A.[1]	**0x15 (0.021)**	**0x17 (0.023)**
	MIFPGA	N.A.[1]	N.A.[1]	**0x15 (0.021)**	0x15 (0.021)
Cisco Nexus 93180YC-EX (N9K-C93180YC-EX)	IOFPGA	0x3 (0.003)	0x3 (0.003)	**0x9 (0.009)**	0x9 (0.009)
	MIFPGA	0x4 (0.004)	0x4 (0.004)	0x4 (0.004)	0x4 (0.004)
Cisco Nexus 93180YC-FX (N9K-C93180YC-FX)	IOFPGA	N.A.[1]	N.A.[1]	N.A.[1]	**0x17 (0.023)**
	MIFPGA	N.A.[1]	N.A.[1]	N.A.[1]	**0x9 (0.009)**
Cisco Nexus 9332PQ (N9K-C9332PQ)	IOFPGA	0x11 (0.017)	**0x12 (0.018)**	0x12 (0.018)	0x12 (0.018)
	MIFPGA	0x16 (0.022)	**0x17 (0.023)**	0x17 (0.023)	0x17 (0.023)
Cisco Nexus 9336PQ (N9K-C9336PQ)	IOFPGA	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)
	MIFPGA	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)
Cisco Nexus 9372PX (N9K-C9372PX)	IOFPGA	0x7 (0.007)	**0x8 (0.008)**	0x8 (0.008)	0x8 (0.008)
	MIFPGA	0x14 (0.020)	**0x15 (0.021)**	0x15 (0.021)	0x15 (0.021)
Cisco Nexus 9372PX-E (N9K-C9372PX-E)	IOFPGA	0x7 (0.007)	**0x8 (0.008)**	0x8 (0.008)	0x8 (0.008)
	MIFPGA	0x14 (0.020)	**0x15 (0.021)**	0x15 (0.021)	0x15 (0.021)

[1] Not available in this release.

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Component	EPLD Device	Release 12.0(1)	Release 12.1(1)	Release 12.2(1)	Release 12.2(2)
Cisco Nexus 9372TX (N9K-C9372TX)	IOFPGA	0x5 (0.005)	**0x6 (0.006)**	0x6 (0.006)	0x6 (0.006)
	MIFPGA	0x15 (0.021)	0x15 (0.021)	0x15 (0.021)	0x15 (0.021)
Cisco Nexus 9372TX-E (N9K-C9372TX-E)	IOFPGA	0x5 (0.005)	0x5 (0.005)	**0x6 (0.006)**	0x6 (0.006)
	MIFPGA	0x3 (0.003)	0x3 (0.003)	0x3 (0.003)	0x3 (0.003)
Cisco Nexus 9396PX (N9K-C9396PX)	IOFPGA	0x15 (0.021)	0x15 (0.021)	0x15 (0.021)	0x15 (0.021)
	MIFPGA	0x14 (0.020)	0x14 (0.020)	0x14 (0.020)	0x14 (0.020)
Cisco Nexus 9396TX (N9K-C9396TX)	IOFPGA	0x8 (0.008)	0x8 (0.008)	0x8 (0.008)	0x8 (0.008)
6-port 40-Gigabit optical uplink mod. (N9K-M6PQ and N9K-M6PQ-E)	MIFPGA	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)
12-port optical uplink module (N9K-M12PQ)	MIFPGA	0x20 (0.032)	0x20 (0.032)	0x20 (0.032)	0x20 (0.032)

Available EPLD Images for the Cisco Nexus 9500 Modular Switches

Component	EPLD Device	Release 12.0(1)	Release 12.1(1)	Release 12.2(1x)	Release 12.2(2)
Supervisor A (N9K-SUP-A)	IOFPGA	0x27 (0.039)	0x27 (0.039)	0x27 (0.039)	0x27 (0.039)
Supervisor B (N9K-SUP-B)	IOFPGA	0x27 (0.039)	0x27 (0.039)	0x27 (0.039)	0x27 (0.039)
System Controller (N9K-SC-A)	IOFPGA	0x20 (0.032)	0x20 (0.032)	0x20 (0.032)	0x20 (0.032)
32-port 100-Gigabit QSFP28 line card (N9K-X9732C-EX)	IOFPGA	0x7 (0.007)	**0x10 (0.016)**	0x10 (0.016)	0x10 (0.016)
	MIFPGA	0x6 (0.006)	0x6 (0.006)	0x6 (0.006)	0x6 (0.006)
36-port 40-Gigabit QSFP+ line card (N9K-X9736PQ)	IOFPGA	0x5 (0.005)	0x5 (0.005)	0x5 (0.005)	0x5 (0.005)
	MIFPGA	0x5 (0.005)	0x5 (0.005)	0x5 (0.005)	0x5 (0.005)

Fabric module for 40-Gigabit line cards in Cisco Nexus 9504 chassis (N9K-C9504-FM)	IOFPGA	0x19 (0.025)	0x19 (0.025)	0x19 (0.025)	0x19 (0.025)
Fabric module for –E 100-Gigabit line cards in Cisco Nexus 9504 chassis (N9K-C9504-FM-E)	IOFPGA	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)
Fabric module for 40-Gigabit Cisco Nexus 9508 chassis (N9K-C9508-FM)	IOFPGA	0x19 (0.025)	0x19 (0.025)	0x19 (0.025)	0x19 (0.025)
Fabric module for –EX 100-Gigabit line card in Cisco Nexus 9508 chassis (N9K-C9508-FM-E)	IOFPGA	0x5 (0.005)	0x5 (0.005)	**0x9 (0.009)**	0x9 (0.009)
Fabric module for 40-Gigabit line cards in Cisco Nexus 9516 chassis (N9K-C9516-FM)	IOFPGA	0x13 (0.019)	0x13 (0.019)	0x13 (0.019)	0x13 (0.019)

Related Documentation

Cisco Application Centric Infrastructure (ACI) Documentation

The ACI documentation is available at the following URL: http://www.cisco.com/c/en/us/support/ cloud-systems-management/application-policy-infrastructure-controller-apic/ tsd-products-support-series-home.html.

Cisco Application Centric Infrastructure (ACI) Simulator Documentation

The Cisco ACI Simulator documentation is available at http://www.cisco.com/c/en/us/support/ cloud-systems-management/application-centric-infrastructure-simulator/tsd-products-support-series-home.html.

Cisco Nexus 9000 Series Switches Documentation

The Cisco Nexus 9000 Series Switches documentation is available at http://www.cisco.com/c/en/us/support/ switches/nexus-9000-series-switches/tsd-products-support-series-home.html.

Cisco Application Virtual Switch Documentation

The Cisco Application Virtual Switch (AVS) documentation is available at http://www.cisco.com/c/en/us/ support/switches/application-virtual-switch/tsd-products-support-series-home.html.

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Cisco Application Centric Infrastructure (ACI) Integration with OpenStack Documentation

Cisco ACI integration with OpenStack documentation is available at http://www.cisco.com/c/en/us/support/ cloud-systems-management/application-policy-infrastructure-controller-apic/ tsd-products-support-series-home.html.

Release Notes

The release notes are available at the following URL:
http://www.cisco.com/en/US/products/ps13386/prod_release_notes_list.html

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