TeraScale to ExaScale Upgrade Procedure

The E-Series TeraScale is easily upgraded to Force10 Networks E-Series ExaScale. These upgrade requirements outline the necessary components and procedures required to upgrade the E1200i with FTOS version 8.1.1.0.

Direct any questions regarding the upgrade to Force10 Networks' Customer Support.

> E-mail: support@force10networks.com
> Web: www.force10networks.com/support/
> Telephone:
> US and Canada: 866.965.5800
> International: 408.965.5800

Supported Hardware

Hardware	Catalog Number	Minimum Software Version Required
E1200i Chassis (Note 1)	CH-E1200I-AC CH-E1200I-DC	8.1.1.1
AC Power Supply 2800W	CC-E1200I-2800W-AC	8.1.1.1
DC Power Entry Module	CH-E1200I-DC	8.1.1.1
Route Processor Module—ExaScale	LC-EH-RPM	8.1.1.1
Switch Fabric Module (Note 2)	CC-E-SFM3	8.1.1.1
10 port 10GE line card (10M CAM)	LC-EH-10GE-10S	8.1.1.1
10 port 10GE line card (40M CAM)	LC-EJ-10GE-10S	8.1.1.1
Fan Tray	CC-E-1200I-Fan	8.1.1.1

➡ **Note 1:** Do not mix AC and DC power supplies.

➡ **Note 2:** E-Series ExaScale systems and FTOS Release 8.1.1.0 requires SFM version 752-00265-03 Rev 01 or higher. Use the `show sfm` command to determine if your SFMs need to be upgraded.
Do not mix SFMs. All the SFMs in the chassis must run the required minimum software version.

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Upgrading Hardware

⚠️ **Warning:**

- Electrostatic discharge (ESD) damage can occur when components are mishandled. Always wear an ESD-preventive ground strap when handling RPMs, SFMs, or line cards. After you remove the original packaging, place RPMs, SFMs, and line cards on an antistatic surface.
- Do not supply power to your system until the PEM or Power Supply, Air Filter, Fan Tray are installed and verified, and RPMs, SFMs, and line cards have been installed.
- To avoid chassis over-temperature condition, install blanks for RPMs, SFMs, and line card slots not in use. Always replace cards or blanks immediately.

ExaScale SFM Requirements

E-Series ExaScale systems and FTOS Release 8.1.1.1 require SFM version 752-00265-03 Rev 01 or higher. Earlier SFMs do not support line rate following the ExaScale 8.1.1.1 FPGA upgrade.

Do not mix SFMs. All the SFMs in the chassis must run the required minimum software version.

The automatic upgrade process takes place regardless of the SFMs you have installed. If you have one or more SFMs that are earlier than 752-00265-03 Rev 01, a SYSLOG message (Message 1) appears during the upgrade .

Message 1 SYSLOG messages during FPGA Automatic Upgrade

```
00:00:52: %RPM1-P:CP %TSM-5-SFM_OLDER_VERSION: Older version of SFM 8 detected
00:00:52: %RPM1-P:CP %TSM-5-SFM_FOUND: Found SFM 8
00:00:51: %RPM1-P:CP %TSM-5-SFM_OLDER_VERSION: Older version of SFM 7 detected
00:00:51: %RPM1-P:CP %TSM-5-SFM_FOUND: Found SFM 7
00:00:51: %RPM1-P:CP %TSM-5-SFM_FOUND: Found SFM 6
00:00:50: %RPM1-P:CP %TSM-5-SFM_FOUND: Found SFM 5
00:00:49: %RPM1-P:CP %TSM-5-SFM_FOUND: Found SFM 4
00:00:48: %RPM1-P:CP %TSM-5-SFM_FOUND: Found SFM 3
00:00:48: %RPM1-P:CP %TSM-5-SFM_FOUND: Found SFM 2
00:00:47: %RPM1-P:CP %TSM-5-SFM_FOUND: Found SFM 1
00:00:47: %RPM1-P:CP %TSM-5-SFM_FOUND: Found SFM 0
```

The `show sfm` command includes information for any SFM that needs to be upgraded (Figure 3).

FPGA Upgrades

FTOS version 8.1.1.1 introduces an automatic FPGA Upgrade process. It allows easy upgrades to newer SFM version by implementing an auto-detection of mismatched SFM version. The upgrade to the mismatched SFMs is done automatically.Manual upgrade are still supported for one or all SFMs.

Automatic upgrade during boot, reboot, reload, or restart

The FPGA auto upgrade takes place when any SFMs in the chassis run an FPGA version lower than the version running during the boot, reboot, reload and restart operations. During the auto upgrade process, the system displays messages relaying the status of the upgrade process (Figure 1). To verify the result of the SFM version upgrade, use the **show sfm** command.

Figure 1 FPGA Automatic Upgrade Messages

```
*****************************************************************************
*
*                Warning !!!  Warning !!!  Warning !!!
*
* -------------------------------------------------------------------------------------
*
*  Starting auto upgrade of SFMs to newer version 0x0.0.3
*  Please wait until upgradation of all 5 SFMS is complete.
*
*  SFM will restart itself after upgradation of all 5 SFM is complete !
*
 ****************************************************************************
SFM 0/5 upgrade started
SFM 0/5 is upgraded to revision 0x0.0.3.

SFM 1/5 upgrade started
SFM 1/5 is upgraded to revision 0x0.0.3.


SFM 2/5 upgrade started
SFM 2/5 is upgraded to revision 0x0.0.3.

SFM 3/5 upgrade started
SFM 3/5 is upgraded to revision 0x0.0.3.

SFM 4/5 upgrade started
SFM 4/5 is upgraded to revision 0x0.0.3.




****************************************************************
 *
 *     Warning !!!  Warning !!!  Warning !!!
 *
 * ----------------------------------------------------------
 *
 *  Auto upgrade on all 5  SFM to version 0x0.0.3 is complete.
 *
 *  Rebooting chassis .... !!!
 *
 ****************************************************************
```

Verify the result of the SFM version upgrade using the **show sfm** command.

Automatic upgrade for one or more new SFMs

The FPGA auto upgrade takes place when any newly inserted SFM runs an FPGA version lower than the version running on the SFMs in the chassis. During this auto upgrade process, the system displays messages relaying the status of the upgrade process (Figure 2). To verify the result of the individual SFM version upgrade, use the **show sfm** *slot* command.

Figure 2   New SFM Automatic Upgrade Messages

```
****************************************************************************
 *
 *               Warning !!!  Warning !!!  Warning !!!
 *
 * ------------------------------------------------------------------------
 *
 *  Starting auto upgrade of SFMs to newer version 0x0.0.3
 *  Please wait until upgradation of 1 SFM is complete.
 *
 *  SFM will reset itself after upgradation of  1 SFM is complete !
 *
 ****************************************************************************

SFM 0/9 upgrade started
SFM 0/9 is upgraded to revision 0x0.0.3.


****************************************************************
 *
 *     Warning !!!  Warning !!!  Warning !!!
 *
 * ------------------------------------------------------------
 *
 *  Auto upgrade on 1 SFM to version 0x0.0.3 is complete.
 *
 *  Resetting SFM .... Please wait ....!!!
 *
 ****************************************************************

SFM 0/9 reset started
00:08:29: %RPM1-P:CP %TSM-6-SFM_USR_RESET: SFM 0 reset by user
reset SFM 0 successful !

****************************************************************
 *
 *     Warning !!!  Warning !!!  Warning !!!
 *
 * ------------------------------------------------------------
 *
 *  Resetting on 1 SFM to revision 0x0.0.3 is complete !
 *
 ****************************************************************
```

TeraScale to ExaScale Upgrade

Be sure you have the correct ExaScale hardware ready for installation prior to beginning this upgrade. Refer to Supported Hardware for the list of hardware required for E-Series ExaScale with FTOS 8.1.1.1.

Step	Command Syntax	Command Mode	Purpose
1	Turn the On/Standby switch to **Standby** (AC). Turn the Remote Power Source to **Off** (DC).		Power-off the chassis.
2	Replace the TeraScale RPMs, SFMs and linecards with ExaScale RPMs, SFMs and linecards. Refer to the RPM, SFM and Linecard documentation for installation and replacement details.		
3	Turn the On/Standby switch to **ON** (AC) Turn the Remote Power Switch to **ON** (DC).		Power on the chassis
4	The chassis automatically powers up with a ExaScale image *if* the RPM has been programmed to boot from particular FTP location or Flash that points to a TeraScale image. If no image is configured, go to Steps 5 and 6.		
5	**Ctrl+Shift+6**		Stop the chassis in boot user mode and configure it to boot from FTP or Flash and reload.
6	**boot change {primary|secondary|default}** After entering the keywords and desired option, press **Enter**. The software prompts you to enter the following: • boot device (ftp, tftp, flash, slot0) • image file name • IP address of the server with the image • username and password (only for FTP)	BOOT_USER	Tell the system where to access the ExaScale FTOS image used to boot the system: • Enter **primary** to configure the boot parameters used in the first attempt to boot the system. • Enter **secondary** for when the primary operating system boot selection is not available. Enter **default** to configure boot parameters used if the secondary operating system boot parameter selection is not available. The default location should always be the internal flash device (flash:), and a verified image should be stored there.
7	**reload**	BOOT_USER	Restart the chassis to boot with the specified ExaScale image.
8	**show chassis**	EXEC Privilege	We can confirm using the show chassis command.

Step	Command Syntax	Command Mode	Purpose

```
Force10#show chassis

--  Manufacturing Info --
Chassis Type  : E600i
Chassis Mode  : ExaScale
Chassis Epoch : 10.4 micro-seconds
Chassis MAC   : 00:01:e8:41:cb:36
Serial Number : TY000001140
Part Number   : 7520023900
Vendor Id     : 04
Date Code     : 01012008
Country Code  : 01
Product Rev   : 03
```

ExaScale to TeraScale Downgrade

Step	Command Syntax	Command Mode	Purpose
1	**chassis chassis-mode terascale**	EXEC Privilege	Change the chassis mode to TeraScale.

```
Force10#chassis chassis-mode terascale
Chassis mode changed to TeraScale mode.  Please reload chassis now.
System configuration has been modified. Save? [yes/no]: y
Proceed with reload [confirm yes/no]:y
```

Step	Command Syntax	Command Mode	Purpose
2	Turn the On/Standby switch to **Standby** (AC). Turn the Remote Power Source to **Off** (DC).		Power-off the chassis.
3	Replace the ExaScale RPMs, SFMs and linecards with TeraScale RPMs, linecards and SFMs. Refer to the RPM, SFM and Linecard documentation for installation and replacement details.		
4	Turn the On/Standby switch to **ON** (AC) Turn the Remote Power Switch to **ON** (DC). The chassis automatically powers up with a TeraScale image *if* the RPM has been programmed to boot from particular FTP location or Flash that points to a TeraScale image. If no image is configured, go to Steps 5 and 6.		Power on the chassis
5	**Ctrl+Shift+6**	when prompted during boot mode	Stop the chassis in boot user mode and configure it to boot from FTP or Flash and reload.
6	**boot change {primary|secondary|default}** After entering the keywords and desired option, press **Enter**. The software prompts you to enter the following: • boot device (ftp, tftp, flash, slot0) • image file name • IP address of the server with the image • username and password (for FTP)	BOOT_USER	Tell the system where to access the TeraScale FTOS image used to boot the system: • Enter **primary** to configure the boot parameters used in the first attempt to boot the system. • Enter **secondary** for when the primary operating system boot selection is not available. Enter **default** to configure boot parameters used if the secondary operating system boot parameter selection is not available. The default location should always be the internal flash device (flash:), and a verified image should be stored there.
7	**reload**	BOOT_USER	Restart the chassis to boot with the specified TeraScale image.

Step	Command Syntax	Command Mode	Purpose
8	**show chassis**	EXEC Privilege	We can confirm using the show chassis command.

```
Force10#show chassis

--  Manufacturing Info --
Chassis Type  : E1200
Chassis Mode  : TeraScale
Chassis Epoch : 10.4 micro-seconds
Chassis MAC   : 00:01:e8:05:db:05
Serial Number : 7520010900
Part Number   : 0
Vendor Id     : 04
Date Code     : 11252003
Country Code  : 01
Product Rev   : 02
```