hp AlphaServer & AlphaStation ES45
V7.3 Firmware Release Notes

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1 Scope

The document list significant changes in this firmware release and describe methods to update console firmware. This document does not describe console firmware internals or console architecture.

1.1 Audience

This document is intended for people responsible for operating system installation/upgrades and for console firmware and console-supported I/O option firmware updates.

1.2 Golden Rules

To ensure compatibility between console firmware and the operating system, update all firmware to the latest version. Console firmware for the AlphaServer ES45 consists of SRM, RMC, SROM, and TIG firmware. AlphaServer systems recently shipped may have a higher console firmware revision than the version listed in this release. A higher version normally indicates support for the installed operating system.

Please do not load a firmware version that is older than what is presently installed.

1.3 hp Alpha Retain Trust Program

The hp Alpha Retain Trust Program underscores HP's commitment to providing long-term business continuity for AlphaServer customers. The program eases the evolution of moving from the Alpha platform to Itanium® architecture-based HP systems by ensuring HP carries forward the trust you have placed in us. It is focused on showing you the business value of moving forward with HP as a company, and mitigating the risk associated with transitions to future HP technologies.

1.4 References

Owners Guide	Order Number: EK-ES450-UG.A01
Service Manual	Order Number: EK-ES450-SV.A01
Firmware Main Page	http://ftp.digital.com/pub/DEC/Alpha/firmware/readme.html
Alpha Systems Support	http://h20000.www2.hp.com/bizsupport/TechSupport/Home.jsp http://www1.itrc.hp.com/service/home/home.do
Alpha Retain Trust Program	http://www.hp.com/products1/evolution/alpha_retaintrust/

2 Read Me First

Please ensure all firmware is updated to the latest revision levels.

2.1 Console Firmware Changes this Release

Kgpsa driver - The console will fail to login into the fibre-channel fabric switch, if the connection is moved from one switch port to another, on certain new Brocade fibre-channel switches.
Solution: When attempting to login to a fibre-channel switch port, use an SDID of zero and the switch will provide the new SDID to the host adapter

Wwidmgr - The console supports a number of environmental variables to facilitate boot and crash dump to fibre-channel storage volumes. Presently there are four (4) WWIDx variables that define the world-wide-ID of a storage volume and eight (8) Nx variables that define the path to the storage volumes. The console uses these variables to define the volumes that may be used for boot or crash dump devices.
Solution: Increase the number of Nx and WWIDx console environmental variables.

RMC firmware - When a power supply is replaced, the RMC would sometimes report that it is still bad.
Solution: Handle cases where an interrupt may be ignored.

Note that RMC firmware can only be updated in LFU manual mode (section 3.4.2.1).

I/O Option Firmware - no changes

2.2 Revisions and Compatibility

The following table shows the revision levels of the Operating System, PALCode, and Console Firmware. Operating System versions are current at the time of this firmware release. This firmware release is also compatible with earlier operating system versions that support this platform. Newer firmware versions may be required for newer OS versions if noted in the OS release notes.

2.2.1 Console Firmware and Operating System Revision

Table 2-1 Operating System and Firmware Revision Matrix

Operating System	OpenVMS	V8.2	Tru64 UNIX	V5.1B
	Red Hat Linux (for Alpha)		V7.2	
CPU PALcode	OpenVMS	V1.98-43	Tru64 UNIX	V1.92-33
Console Firmware	SRM		V7.3-2 *	
	RMC		V2.4 *	
	SROM		V2.22-G	
	TIG		V2.6	

An asterisk * indicates firmware has changed since the previous release.

2.2.2 I/O Adapter Firmware

Table 2-2 I/O Adapters Firmware Revision

Adapter Name	FW Revision	Notes

CIPCA-BA	4.20	PCI to CI Host Bus Adapter (uses twp PCI Slots)
DEFPA-AC,DC,MC,UC	3.20	Universal PCI to FDDI Adapter
DS-KGPSA-CA	DS3.93A0	LP8000 1Gb, 64-bit/33MHz PCI Fiber Channel Host Bus Adapter
DS-KGPSA-DA	CS3.93A0	LP9002 2Gb, 64-bit/66MHz PCI Fibre Channel Host Bus Adapter (FCA2354)
DS-KGPSA-EA	HD191X6	LP9802 2Gb, 64-bit/133MHz PCI-X to Fibre Channel Host Bus Adapter (FCA2384)
DS-A5132-AA DS-A5134-AA	TS1.91X6	LP10000 2Gb, 64-bit/133MHz Single Channel PCI-X to Fibre Channel Host Bus Adapter (FCA2684)/ DS-A5124-AA is the (FCA2684DC dual channel)
KZPCC	CQ 17	SMOR Utility revision 1.12
KZPDC -DE,DF	3.56	SmartArray 5302A, 5304A
KZPEC	2.58	First released with V7.1 CD
	An asterisk * indicates firmware has changed since the previous firmware CD release.	

There were no I/O Adapter firmware chances in the V7.3 firmware CD release.

3 Firmware Update Methods

There are several methods to update firmware. Each method invokes the Loadable Firmware Utility [LFU]. Updating from a bootable Alpha Systems Firmware CD is the recommended.

Updating firmware from a bootable DVD is not supported.

Boot the Alpha Systems Firmware CD

MOP booting the .sys image (OpenVMS or Tru64UNIX)

BOOTP booting the .exe image (Tru64UNIX)

Floppy disk booting (if the LFU is on floppy diskette only) - Type the ***lfu*** command from the console.

This ***lfu*** command method does not work with the Alpha Systems Update CD.

3.1 Update Firmware from CD

Insert the AlphaSystems Firmware Update CD into the CD drive

Type the **boot dqa0** command which invokes a program (on CD) that determines the System Model and then displays the default Loadable Firmware Utility [LFU]bootfile and displays a “Bootfile:” prompt.

Press the **Enter key** after “Bootfile:” prompt to run the LFU. The LFU starts-up in a *default mode* to allow updating SRM, FSB, SROM and I/O option firmware. LFU default mode does not allow updating RMC or TIG firmware. If the RMC and/or TIG firmware has changed, type the **exit** command, type **yes** to get to LFU manual mode, then type **update** to update all firmware. Otherwise proceed to the next step.

Type **update** to update all firmware

Type **yes** to confirm updating firmware

Type **exit** to load the firmware into flash and to return to the SRM console.

Note: Power cycling the system is required only if TIG firmware has been updated to a newer version.

3.2 Update Firmware from Floppy Disk

Create the firmware floppy disk by downloading and extracting the disk1.zip file to a FAT-formatted floppy disk. (Source: http://ftp.digital.com/pub/DEC/Alpha/firmware/readmes/es45.html)

Insert a fat-formatted firmware floppy diskette into the floppy disk drive

Remove any CD from the CD drive(s)

Type **init** - (optional) only if you just shut down the operating system

Type **lfu** from the SRM console prompt to invoke the LFU. The LFU utility will run and display a message that option firmware files were not found on CD or floppy. At this point, the user is prompted to enter the name of the device where the firmware files are located.

Type **dva0** to select the floppy device from which firmware files will be loaded. The LFU utility will then prompt the user to enter the name of the firmware files list. The default firmware files list (ES45FW.TXT) should already be on the floppy diskette

Press the **enter-key** if the firmware file displayed is es45fw.txt, otherwise type **es45fw.txt**

Use the **list** command to display the firmware revisions.

Type **exit** to switch to LFU manual update mode.

Type **list** again to see all firmware revisions. Note that RMC and TIG firmware are now listed.

Type **update** to update all firmware.

Type **yes** to confirm updating firmware

Type **exit** to return to the SRM console. Note that if a new version of TIG firmware has been updated, the system requires a power cycle for the new firmware to take affect.

3.3 Using the SRM Console lfu Command

The SRM console **lfu** command can update console firmware and I/O option firmware only from floppy diskette, or the **lfu** command can update I/O Option firmware only from with the Alpha Systems Firmware CD.

The console **lfu** command cannot update SRM console firmware from the Alpha Systems Firmware CD. Use the console **boot** command (for example, boot dqa0) to update SRM console and I/O Option firmware from the Alpha Systems Firmware CD.

3.4 Loadable Firmware Utility

The Loadable Firmware Utility, as described earlier, is used to update console and I/O option firmware. The utility operates in LFU default update mode and in LFU manual update mode. In default update mode, the LFU can update only SRM, SROM, and I/O option firmware. In manual update mode, the LFU can update SRM, SROM, I/O option firmware, and RMC and TIG firmware.

Use manual update mode to update RMC firmware. TIG firmware has not changed since it was first released.

3.4.1 List Command

Use the list command to display memory-loaded images and supported flash ROM's.

```
UPD> list

Device      Current Revision    Filename       Update Revision

SRM           V6.1-3            srm_fw          V6.2-xxx
srom          V2.20-F           srom_fw         V2.20-F
                                fca_2354_fw      CS3.81A4
                                kgpsa_8k_fw      DS3.81A4
                                kzpcc_smor       1.12
                                kzpcc_fw         CQ16
                                kzpsa_fw          A12

UPD> exit

 Do you want to do a manual update? [y/(n)] y                    note:lfu manual mode

UPD> list

Device      Current Revision    Filename       Update Revision

SRM           V6.1-3            srm_fw          Vx.y-z
rmc           V2.1              rmc_fw          Vx.y
                                srom           V2.20-F
                                srom_fw         Vx.yy-F
tig           2.6               tig_fw          2.6
                                fca_2354_fw      CS3.81A4
                                kgpsa_8k_fw      DS3.81A4
                                kzpcc_fw        CQ16
                                kzpsa_fw         A12
```

Notice the tig and rmc firmware revisions are displayed in **LFU manual mode**.

3.4.2 LFU Update Command

Use LFU default update mode to update SRM, SROM, and I/O option firmware. Use LFU manual update mode to update RMC and TIG firmware or all firmware as shown in the next section.

3.4.2.1 LFU Manual Update Mode

UPD> **exit**

Do you want to do a manual update [y/(n)]? **YES**

UPD> update

Confirm update on:

SRM
rmc
srom
tig [Y/(N)] **y**

WARNING: updates may take several minutes to complete for each device.

DO NOT ABORT!

SRM Updating to Vx.y-z... Verifying Vx.y-z... PASSED.
rmc Updating to Vx.y. Verifying Vx.y... PASSED.
srom Updating to Vx.yy-F... Verifying Vx.yy-F... PASSED.
tig Updating to 2.6... Verifying 2.6... PASSED. (note 1)

UPD> **exit** (see Note 1)

[Typing exit will leave the LFU, load update firmware into Flash ROM, and init to console prompt]

Note 1: Power Cycle System ONLY IF TIG FIRMWARE HAS CHANGED. After exiting the LFU, wait for the console to return SRM console prompt then power down and then power up the system. A system power cycle is required for new TIG firmware to take effect

3.5 Using the Fail-Safe Loader

The fail-safe loader [FSL] is a utility, put on floppy disk, to recover from possible console firmware corruption (for example, checksum ROM error). The FSL is enabled by moving jumper **J22** on the system motherboard to **position 2-3** (default is 1-2 position).

With the jumper in 2-3 position , and the fsl diskette inserted into the floppy disk, system power-on invokes the console SROM to look for a bootable FSL floppy disk to extract and load the SRM console image into memory. The limited SRM console is now running with the prompt P00>>> displayed. At this point restore console firmware by booting the Alpha Firmware CD, or other bootable medium. Update firmware in LFU Manual Mode, power down the system to move jumper J22 back to its default **1-2** position, then power up the system.

3.5.1 Create a Bootable FSL Floppy Disk (Windows Only)

Download to your PC the make-boot-utility and the ES45 fail-safe loader image from the es45fsl zip file:

http://ftp.digital.com/pub/DEC/Alpha/firmware/vx.y/es45/es45fsl.zip

Mkboot.exe creates a boot block and Es45_fsl.exe is the console image.

Insert a fat-formatted floppy disk into your PC's floppy drive.

Open a DOS Window on your PC to run the mkboot utility

Run the make-boot utility
C:\ **mkboot es45_fsl.exe**

mkboot will prompt with the following:
mkboot V1.1: create a bootable floppy
Please insert a formatted diskette into driver A: and press any key :"

4. **Press any key on the keyboard to continue mkboot**

The mkboot utility writes the SRM image to floppy disk and creates a bootable header

A bootable Fail-safe loader floppy disk is now created

4 Helpful Hints

4.1 Show Bios and Run Bios Commands

The console **show bios** and **run bios** commands can be run only from a serial console.
Use the "run bios" command from a serial console only (not from a graphics console).

4.1.1 Serial Terminal Setup for Run Bios

The serial terminal should be at least a VT220 and setup with the following parameters:

9600 bauds, 8-bits, No Parity and One Stop-bit

4.1.2 Show Bios

The **show bios** command will lists the location of controllers with a BIOS expansion ROM. The show bios command will reset the I/O buses. Note that notall controllers have a BIOS expansion ROM. The command format is as follows:

P00>>> show bios <hose>

The value for <hose> can be 0 or 1,and the default is 0.

Use the **show config** command to determine which hose the controller is located on.

4.1.3 Run Bios

The **run bios** command will invoke a BIOS expansion ROM on a supported PCI controller (for example, KZPCC-CE). This command is commonly used to invoke functions or utilities in the device expansion ROM. For example, the KZPCC-CE uses the expansion ROM for its configuration utility. The command format is as follows:

First use the **show config** command to determine which hose the controller is located on.

P00>>> run bios [controller name] for example, P00>>> run bios pka0

The **run bios** command will reset the PCI bus and then prompts the user to enter a control sequence (for example, Ctrl^D) in order to enter the BIOS utility of the PCI option. The control sequence may differ depending on the PCI option. Refer to the documentation supplied with the PCI option.

4.2 KVM Console Switch Limitations

4.2.1 Run Bios Command in Graphics Mode Not Supported

The **run bios** command from the graphics console when connected through the KVM is not supported, and will result in unexpected keyboard behavior. Use the SRM **run bios** command from the serial console via a serial port connection.

4.3 User_def1 and User_def2 Commands (SRM V7.0 and greater)

Two SRM console environment variables [EVs]were added (available in V7.0 and greater) to support requests to have non-volatile EVs, that are readable and writeable from the SRM console, and from the Tru64 operating system.

Format	P00>>> **set user_def<1 or 2>** "<any character string within double quotes>"
Example from SRM:	P00>>> **set user_def1** "System_Asset_No: 123456 , System_Location: Green-Zone"
From Tru64 Unix	# **consvar –g user_def1** user_def1 = System_Asset_No: 123456 , System_Location: Green-Zone
* Only certain EVs are accessible from Tru64 Unix	# **consvar –s user_def2** "System_Asset_No: 12341234 , System_Location: Rd-Zone" # **consvar –g user_def2** user_def2 = System_Asset_No: 12341234 , System_Location: Red-Zone

4.4 Updating the FRU Table

4.4.1 Power Supplies Only

SRM Console V6.2 and greater supports the **buildfru –m** command, in order to update fru information for only power supplies. The **buildfru -m** command assumes a correctly programmed power supply FRU ROM to begin with and can only be used to update the part number or serial number

The command format is as follows:

P00>>> buildfru -m pwr<0 or 1 or 2> part-number serial-number
P00>>> init

For example:

P00>>> buildfru -m pwr0 30-49448-01.C05 AY11223344
P00>>> init

The **buildfru -m** command should not be used for other devices.

4.4.2 Clearing Error Flags

Use the following command sequence to clear Test-Directed-Diagnosis/Symptom-Directed-Diagnosis (TDD/SDD) error flags displayed under the E column by the "show fru" command.

P00>>> **show sys_serial_num**	Record the system serial number
P00>>> **set sys_serial_num ""**	Clear the system serial number
P00>>> **clear_error all**	Clear errors
P00>>> **set sys_serial_num snnnnnnnn**	Restore the system serial number
P00>>> **init**	Type init or press the **RESET** button

It is recommended to use this command sequence after adding CPU's to the system, to avoid a serial number mismatch report from the SRM show error command.

4.5 Ctrl^P /Show Device /Continue Sequence

Under OpenVMS, typing **ctrl^p** switches terminal control from OS program mode to SRM console mode. Typing the **continue** command returns terminal control to OS program mode. Do not use the "**show device**" command

when switched to SRM console mode (from OS program mode) because the show device command restarts the console IO drivers which prevents returning to OS program mode.

4.6 Selected Console Environment Variables

4.6.1 Set Memory_Test EV

The **memory_test** environment variable [EV] allows the console to test a fixed amount or memory. The default value test all of memory. The other values shown is used for testing only.

P00>>> set memory_test <value> P00>>> set memory_test full	full = test all memory (default value) partial = test only 128MB (not recommended for OS boot) none = test only 32MB (recommended for mfg use only)

The **memory_test** EV should be set to the *default value* before booting an operating system.

4.6.2 Set Cpu_Enabled EV

Use the **init** command after changing the cpu_enabled mask value. The SRM environment variable **cpu_enabled** is set to a default mask value of **F** to enable all CPU's. Also, press the **Reset** button on the operator control panel before booting an Operating System. This is to avoid seeing a CPU-timeout message on the CPU(s) that were disabled.

For example changing cpu_enabled, on a four-CPU system, from F to 0 will disable cpu1-3, after typing init.

Without resetting the system, OpenVMS may report the informational message: *"one CPU active and three CPU's are in Timeout"*.

4.6.3 Set Com1_Mode EV

When **com1_mode** is set to firm_bypass and external power is removed then later restored, the value of com1_mode will change to its default value. for example, P00>>> **set com1_mode through**.
The table below lists com1_mode value combinations.

COM1_MODE Values	
Current-value	**Value after** external power is removed and restored
Through (default)	Through
Local	Local
Snoop	Snoop
Soft_bypass	Snoop
Firm_bypass	Through

5 Known Anomalies and Restrictions

5.1 Bootable DVD's are Not Supported

Bootable DVD's are not supported on all Alpha systems because of a limited memory size architectural restriction.

5.2 KGPSA Fibre Channel Host Bus Adapter

5.2.1 Messages

Messages similar to "**retry ct pga0.0.0.2.6**" may occur on systems that have KGPSA devices are informational and do not represent an error. The messages result from rejected accesses to a busy fibre channel switch. A rejected access is allowed and is retried.

5.2.2 Reconfiguring Fibre Channel Switches

The SRM console must be initialized if a cable is moved from one port to another port on the fibre channel switch. Devices are not accessible from the fibre channel switch until the SRM console completes initialization.

5.3 Halt Button/Crash Command Behavior

The halt button/crash command behavior, described below, occurs on systems with a 3D Labs Oxygen VX1 Graphics Card and the SRM console is set to graphics mode.

5.3.1 Tru64Unix Environment

The environment consists of Tru64Unix, SRM console (V6.2 or earlier), SRM console is set to "graphics" mode, and a SN-PBXGF-AB graphics card.

Symptom: Pressing the HALT button with Tru64Unix running does not initialize the graphics monitor to display the console P00>>> prompt. The graphics monitor appears in a "frozen X-Windows state". Typing on the keyboard does not echo to the graphics monitor. Typing, "crash" at the keyboard, however, will create a crash file which is stored by the OS on the next restart of the operating system.

Solution: Update console firmware to V6.3 (or greater) and install Tru64Unix Patch PK4 bl21 which contains new graphics driver (p3g.mod). Pressing the HALT button on the OCP, the monitor is initialized and the console displays SRM prompt. Typing **crash** will creates the dump file and should return to the SRM prompt. If you don't get to the SRM prompt after the crash dump completes, press the HALT button IN and OUT to get the SRM prompt. Then boot the operating system.

5.3.2 OpenVMS Environment

Environment: OpenVMS with X11 DW-Motif enabled, SRM console any version, SRM console set to graphics mode. **Symptom:** Pressing the HALT button puts the graphics monitor to a frozen state. You must reset the system to get out of this state.

Solution1: Move the VX1 graphics card to a slot in **HOSE 0**.
Solution2: Set console to serial mode then type init before booting OpenVMS
Solution3: Disable DW-MOTIF before pressing the HALT button

$ **STOP DECW$SERVER_0**

1. Login to OS
2. Press HALT Button then Release Halt Button to get to SRM console prompt
3. Type crash
4. Reset the system then reboot the Operating System

5.4 DEGPA-SA/TA PCI Bus Slot Restrictions

DEGPA-SA is supported ONLY in PCI SLOTS 1, 2 and 3. The CSC hardware support group has received several reports on "**system hangs"** or **"660 sys machine check with a PCI Write Data Parity Error**", because DEGPA's were installed in the wrong PCI slot.

DEGPA-TA is supported only in PCI slots: 1, 2, 3, 6, 9 , and 10 (not supported in slots 4, 5, 7, 8). The DEGPA-TA used in the ES45 PCI slot 5 configuration can cause PCI Parity Errors that may result in a System Crash and Hangs.

5.5 Reporting Illegal Memory Channel 2 Configurations

Starting with SRM V6.2, the console displays an illegal configuration message when it detects unsupported hardware revisions of the Memory Channel 2 module (CCMAB-AA). The correlation between hardware revision and SROM revision is shown below. The "show config" command displays only the SROM revision.

Memory Channel 2 - SROM and Hardware Revision

SROM Revision	Hardware Revision	Supported on ES45
0x24	D02	Yes
0x23	C03	No
0x22	C02	No

Illegal Configuration Message:

Illegal Configuration - Memory Channel 2 in bus <n> slot <n> - must be revision 24 (hardware rev D02) or higher

The Illegal Configuration Message is displayed during system initialization when probing the PCI Bus

5.6 Console Firmware V5.9-10 and EV68 CPU Revisions

Console firmware V5.9-10, which was shipped in early systems, recognizes EV68 CPU's revision 3.0 and earlier. Console firmware should be updated to the most current release before installing newer versions of EV68 CPU's.

5.7 Serial Number Mismatch after Adding CPU's

When adding CPU's to a system, the SRM **show error** command may report a serial number mismatch. (for example, SMBO.CPU1 SYS_SERIAL_NUM Mismatch). See section 4.4.2 to clear this message.

5.8 Initialize System Before Invoking LFU Command

After shutting down the Operating System, you must type the **init** command before typing the **lfu** command. The init command will initialize the memory allocation regions to their correct console state.

5.9 Unplugging & Plugging In Power to a Power Supply

After removing power from one of the power supplies, wait at least thirty seconds after the **green leds** turn off before restoring power. This will ensure the correct status is displayed by the OCP, by the SRM *show power* command and by the RMC *env* command. If the status remains the same, press the RESET button the from the Operator's Control Panel if the system is at the console prompt. Also if you are at console mode while replacing power supplies, press the RESET button before booting an Operating System.

5.10 DE602-BA/DE602-BB Identification

The SRM **show config** command displays **DE602-B*** for the DE602-BA and/or the DE602-BB Ethernet cards because both cards use the same Ethernet chip but have different PCI Bridge chips. Use the show config command to identify the **21154-BE** PCI Bridge chip which is used only on the DE602-BB.

5.11 KZPEA Notes

5.11.1 Powering Up Attached Storage

KZPEA – When in SRM console mode, use the **init command** *after* powering up a storage device attached to a KZPEA. The init command is not necessary when the storage device is powered up at the same time as rest of the system or the storage device is powered up when and the operating system is running.

5.11.2 Missing BUS Termination Jumpers Can Hang Console

The KZPEA-DB must have bus termination jumpers installed or the console may hang when trying to probe the controller for information. The two bus termination jumpers are next to the internal connectors.

5.12 PBXGB-AA – Don't Use Switch Position Zero

The PBXGB-AA PowerStorm graphics card should be set to **position six** (1024x768 at 72Mhz). Graphics card may be shipped with the switch set to **position zero** (1280x1024 at 72Mhz). Tru64 Unix currently does not support this graphics card when set to (1280x1024 at 72Mhz).

5.13 Don't Hot Swap that Mouse or Keyboard

Do not hot swap that mouse or keyboard because it may cause electronic damage to the transceivers. Ensure power is off before swapping these components. Also removing a mouse after the system is in console mode will prevent any response from the keyboard (until the mouse is plugged back in).

5.14 Fibre Channel KGPSA Driver Startup Messages

When the console fibre channel driver starts, you may see the message "**pga0.0.0.2.4 - Nvram read failed**". This message indicates the KGPSA NVRAM is either unformatted or is not working properly. The more likely reason is an unformatted NVRAM.

The console contains a portion of the NVRAM to indicate if the adapter should be initialized to a Fabric (Switch) topology or initialized to a Loop topology. By **default**, the console initializes the KGPSA to a Fabric topology.

The NVRAM is automatically formatted when the topology is set.

References: WWIDMGR USERS MANUAL
http://ftp.digital.com/pub/DEC/Alpha/firmware/v*.*/doc/wwidmgr.*

5.14.1 Nvram Read Failed Message Example

```
P00>>>wwidmgr -show ada

item    adapter              WWN              Cur. Topo  Next Topo       pga0.0.0.8.1 - Nvram read failed.

[ 0] pga0.0.0.8.1     1000-0000-c920-05ab          FABRIC    UNAVAIL

pgb0.0.0.10.1 - Nvram read failed.

[ 1] pgb0.0.0.10.1    1000-0000-c921-0ce0          FABRIC   UNAVAIL

[9999] All of the above.
```

LP00>>>wwidmgr -set adapter -item 9999 -topo fabric

pga0.0.0.8.1 - Nvram read failed.

Reformatting nvram

pgb0.0.0.10.1 - Nvram read failed.

Reformatting nvram

LP00>>>wwidmgr -show ada

item adapter WWN Cur. Topo Next Topo

[0] pga0.0.0.8.1 1000-0000-c920-05ab FABRIC FABRIC

[1] pgb0.0.0.10.1 1000-0000-c921-0ce0 FABRIC FABRIC

[9999] All of the above.

LP00>>>**init**

5.14.2 Known Issues

5.14.2.1 MBX Not Ready

You may see a **"*** MBX not ready ***"** error when formatting the Nvram
with the "**wwidmgr -set ada**" command. Reissuing this command should succeed:

P00>>>**wwidmgr -set ada -item 9999 -topo fab**
pga0.0.0.6.1 - Nvram read failed.
Reformatting nvram
***** MBX not ready *****
pgb0.0.0.1.2 - Nvram read failed.
Reformatting nvram
P00>>>wwidmgr -show ada
item adapter WWN Cur. Topo Next Topo
*** MBX not ready ***
pga0.0.0.6.1 - Nvram format incorrect.
[0] pga0.0.0.6.1 1000-0000-c920-a763 FABRIC UNAVAIL
[1] pgb0.0.0.1.2 1000-0000-c920-c9fe FABRIC FABRIC
[9999] All of the above.
P00>>>**wwidmgr -set ada -item 9999 -topo fab**
P00>>>**wwidmgr -show ada**
item adapter WWN Cur. Topo Next Topo
[0] pga0.0.0.6.1 1000-0000-c920-a763 FABRIC FABRIC
[1] pgb0.0.0.1.2 1000-0000-c920-c9fe FABRIC FABRIC
[9999] All of the above.

5.14.2.2 No Unit Number Specified

The command "**wwidmgr -quickset -item <n>"** MUST also have the "**-unit**" qualifier on the line.
"If no unit number is specified, console will generate one that is a hashed value of the WWID."
This functionality is not working properly, and a **-unit** MUST be specified." Re: Wwidmgr Users Guide.

6 Firmware Change History

6.1 V7.2 - June 2006

Console Enhancements

- WWIDMGR change – do not attempt to get a universal device id [UDID] on a Fibre Channel SAN for SCSI Sequential Access devices or for SCSI Media Changer devices (i.e. tape drives, robot arm)
- Added new module naming for the following I/O devices seen under the **show config** command:
  DE602-FA/TA (equivalent to –FR/-TR) all devices are displayed as DE602-F*/T*
  DEGXA-SB/TB (equivalent to –SR/-TR) all devices are displayed as DEGXA-S*/T*
  The I/O devices are Reduction of Hazardous Substance [ROHS] class and are functionally equivalent to their Non-ROHS counterparts.
- Added new part numbers in FRU tree for the RoHS-class Fans, Operator Control Panel [OCP], and Junk I/O module

New I/O Option Firmware

- KGPSA-CA (LP8000) - Firmware Revision 3.93A0
- KGPSA-DA (LP9002) - Firmware Revision 3.93A0
- KGPSA-EA (LP9802) - Firmware Revision 1.91X6
- DD-A5132-AA (LP10000) – Firmware Revision 1.91X6
- **DD-A5134-AA (LP10000DC) – Firmware Revision 1.91X6**

6.2 V7.1 – January 2006

Console Enhancements

- Memory Timing Register adjusted to improve memory DIMM reliability when in elevated temperature environments.
- Kgpsa driver: faster retry on PLOGI frames
- SCSI driver: enhance page and field length checks for SCSI inquiry responses.
- aic78xx driver: increase the number of supported targets from 16 to 32

Other
See note on KVM console switch – restriction using “run bios” command

New I/O Option Firmware
- LP10000 - Firmware Revision 1.91A1
- LP9802 - Firmware Revision 1.91A1
- KZPDC - Firmware Revision 3.56
- KZPEC - Firmware Revision 2.58 (new option)

6.3 V7.0 – June 2005

Console Enhancements

Two new SRM console environment variables for customer use. The ev’s “user_def1” and “user_def2” takes a string argument and accepts any characters within double quotes. The ev’s are nonvolatile and are accessible from

the Tru64 operating system. The ev's are not accessible from OpenVMS.
Details in section:**Error! Reference source not found.**

DEFPA – increase driver setup time in the data link layers.

Bug Fixes and Other

KGPSA and WWIDMGR – increase the number of Nx EV's

SmartArray 5300 – fixed serial emulation

6.4 V6.9 – November 2004

Bug Fixes and Other

WWIDMGR HANG Symptom - A patch has been applied to the fibre-channel support to resolve a problem that causes the WWIDMGR utility to hang and never complete. The hang would occur with the first invocation of the WWIDMGR utility. Configurations where this problem has been seen are: EMC Symmetrix storage arrays utilizing Timefinder or SRDF business continuance volumes (BCV) that are in an "established" state, and possibly misconfigured or failing volumes. These volumes may respond to an inquiry from the host as being "not ready". The "not ready" state is indicated by an invalid device id that was accepted as valid by the console. The console software has been modified to bypass volumes with invalid device ids and log the device id information to the console error log.

6.5 V6.8 – August 2004

Console Enhancements

Console Recognition of the following Options
3X-DAPBA-FB, 3X-DAPBA –FB/UB Asynchronous Transfer Mode Adapters
3X-KPKON-AA Fault Management Control Module
I/O Option Vendor-Name/Device-Name - New Firmware Revision
LP8000/KGPSA-B - DS3.92A2
LP9002 /FCA_2354 - CS3.92A2
LP9802/FCA_2384 - HS1.81A5
Bug Fixes and Other
Correct a problem in the fibre-channel driver that occasionally resulted in a boot, reboot or crash dump failure with an error message of "cb_open failure".

6.6 V6.7 – May 2004

Console Enhancements

Loadable Firmware Utility - support to update option firmware for the LP1000 (FCA-2684) Fibre Channel Card
Console Recognition of the Asynchronous Transfer Mode [ATM] Adapters - 3x-DAPBA-FA, 3X-DAPBA-UA, and 3X-DAPCA-UA
I/O Option Firmware Changes
KZPDC option firmware update to version 3.40 (was v2.94)
LP1000 firmware include in firmware CD

Bug Fixes and Other
Gigabit Ethernet driver:
Fix output of link state messages during a callback. Console log when OpenVMS is booting is now cleaner.
Fix link status after plugging into a live Ethernet network after the system has been powered up. Symptom: Link light would turn not on after plugging in a wire until a boot or an init command.
X86 - fix a double de-allocation of memory in the bios emulator. This prevents a stack trace on an OS shutdown if the bootbios is set to a controller not used to boot the operating system.

6.7 V6.6 – November 2003

Console Enhancements

Console recognition for the following:
3X-DEGXA-SA - PCI-X/PCI TO SINGLE-PORT MMF GIGABIT ENET SERVER NIC
3X-DEGXA-TA - PCI-X/PCI TO SINGLE-PORT UTP GIGABIT ENET SERVER NIC
KGPSA Behavior
Several kgpsa changes have been made to prevent "cb_open fail" and other boot failures
Serious kgpsa faults will now cause the console to crash rather than hang in the debugger.
In some rare cases it may take up to a minute or more for the link to initialize. There is a two-minute timer to prevent the system from hanging.
There is a small period of time after the system is initialized where some fibre channel disks will not be displayed with a "show device" command. If the system boots during this period the message "waiting for poll to complete" followed by the device name will be displayed while waiting for the device.

KGPSA Messages
The kgpsa will report when it is not connected to a switch or arbitrated loop with the message "*open fibre*" followed by the *device name*.
Several kgpsa error messages have been expanded to include the device name
Several kgpsa error messages have been removed because they were reporting normal behavior

Bug Fixes and Other – none

I/O Option Firmware Changes:

FCA_2384 (LP9802) Firmware revision changed to 1.00x8

6.8 V6.5 – June 2003

Console Enhancements

Update test scripts to support testing gigabit Ethernet network devices (example ega0)

Bug Fixes
Memory Channel 2 driver - module configuration register was incorrectly being restored during a system warm restart.

Other

KZPDC disk drives – when using KZPDC disk drives as boot devices, set heap_expand to 2MB. Details are in the **Smart Array 5300A Backplane RAID Controllers Installation and Configuration Guide** (Manual Number: EK-SA530-IN-A01).

See Know Anomalies with OXYGEN VX1 graphics card in section 5 when using HALT button

KGPSA Notes – see section 5.1

6.9 V6.4 – December 2002

Console Enhancements

RMC - adjust power supply tolerances
SRM – KGPSA Firmware Revision Update, New PALCode
Support for the DEGXA-SA fiber optic network card

Bug Fixes
DEGPA corrected to re-establish the link during a console callback that attempts to perform I/O on the Gigabit Ethernet device.
Problem description: Console driver for Gigabit Ethernet failed to establish a link during a Tru64 Unix RIS installation, causing the installation to fail.
Memexer_mp – fix script for d_group usage to enable running memtest_victim (manufacturing use only)
Show FRU command did not display device plugged into hose3 slot2.

PCI Bus Slot Restrictions:

DEGPA-SA

DEGPA-SA is supported ONLY in PCI SLOTS 1, 2 and 3. The CSC hardware support group has received several reports on "**system hangs"** or **"660 sys machine check with a PCI Write Data Parity Error**", because DEGPA's were installed in the wrong PCI slot.

DEGPA-TA

DEGPA-TA is supported only in PCI slots: 1, 2, 3, 6, 9 , and 10 (not supported in slots 4, 5, 7, 8). The DEGPA-TA used in the ES45 PCI slot 5 configuration can cause PCI Parity Errors that result in a System Crash and Hangs.

Other

See Know Anomalies with OXYGEN VX1 graphics card in section 5 when using HALT button

6.10 V6.3 Interim Release

V6.3A – Sept 2002 – RMC changed to fix reporting incorrect high AC input voltage message

6.11 V6.3 – August 2002

SRM Enhancements

Device recognition, boot support, and adapter firmware update support, for the 3X-KZPDC-BE/DF SmartArray 5305A adapters.

Update buildfru to accept new mfg serial number prefix's JA and 4D

SROM V2.22 – 1.25GHz CPU support, extend parity checking calculations for all BCache blocks.

The "set prompt" command was added to console command list for example, P00>> set prompt "_system1>" produces a console prompts of **P00_system1>**

Bug fixes

Fix incorrect DIMM callout for specific error see Section 6

Fix "Parser in Use" symptom. The symptom is the RMC parses the "esc-esc-RMC" character sequence when console environment variable **sys_com1_rmc** is set to off. The proper method is for the RMC to ignore the character sequence when sys_com1_rmc is set to off, console is in serial mode and system is running an operating system.

Fix Halt button console response to create a crash dump under Tru64Unix with VX1 Oxygen graphics card. See section 5 for details.

KGPSA - The console now properly recognizes responses from remote KGPSA adapters in console mode and does not report "probe timeout retry." This message that does not indicate abnormal operation is now reported in the event log rather than the console log.

The port WWID rather than the node WWID is displayed for the kgpsa adapter by the "show config" and the "show device" commands. The port WWID number is needed to configure fibre channel switches and storage controllers.

Any of 255 units on an HSV fibre channel storage controller can now be configured rather than the previous limit of the first 127 units

6.12 V6.2 Interim Release[1]

V6.2C – Aug 2002 - Support for 1.25GHz CPU.

V6.2B – May 2002 – Support, in buildfru command, new mfg serial number prefix's

V6.2A – May 2002 - Fix the Incorrect DIMM callout problem.

Problem description: The callout of failing DIMM, data bit, and check bit is incorrect under the following conditions:

If the ECC error is in ECC_SYNDROME_0:

the failing data bit or check bit called out by the console is correct.

The failing DIMM called out by the console is correct if the error was a data bit error, but is incorrect if the error was a check bit error.

If the ECC error is in ECC_SYNDROME_1

the failing data bit or check bit called out by the console is incorrect and needs to be adjusted by adding 64 to the data bit, or by adding 8 to the check bit.

the failing DIMM called out by the console is correct if the error was a data bit error, but is incorrect if the error was a check bit error.

6.13 V6.2 – April 2002

SRM Enhancements

Added **–m** switch to the **Buildfru** command to update power supply information. See Section 4.4.1.

Add detection of illegal Memory Channel 2 configurations - See Section 5

Changed eia*_mode default to "auto-negotiate" for DE600/DE602 Ethernet cards. Changed eia*_mode default to "FastFD" for the DE602-FA

Corrected serial number format correction for 3rd Party DIMMs and for power supplies. Serial number is now ten characters for power supplies under the Show Fru command.

Bootp driver – generate ack on tftpoack from server (required for Linux Servers)

New PALCode

Bug fixes:

Fixed memory allocation symptom using wwidmgr commands on a large SAN. The symptom was seen after the

[1] Interim releases are not on CD

first wwidmgr command and would cause the following messages.

"CPU0: insufficient dynamic memory for a request of 2048 bytes"

"Console heap space will be automatically increased in size by 256KB"

Removed unnecessary warning messages "PRLO has a null sb - Issuing LOGO" and "PRLI has a null sb - Issuing LOGO", will no longer be seen on a large Storage Array Networks Removed unnecessary warning message "PRLO has a null sb - Issuing LOGO" and "PRLI has a null sb - Issuing LOGO", will no longer be seen on a large Storage Array Network. The message was seen large Storage Array Networks (for example, first seen on a site with 50 terabytes of storage with lots of kgpsa adapters and switches). (for example, first seen on a site with 50 terabytes of storage with lots of kgpsa adapters and switches).

RMC

Removed constant checking of power supply requirements from the main loop

Fixed lost character bug when changing from bypass modes to through modes or vice versa at the console

Fixed lost AC bug where the RMC was reading an incorrect LM-80 bit for Board-Temperature-Interrupt (BTI) during a lost AC event.

Enhance env command to display more accurate readings for: 3.3v, 2.5v, and CPU Cache voltage

Option Firmware

KGPSA-BA firmware updated to revision 3.20x7. This firmware replaces revision kg7303a1.

Other Add note on proper settings for the console MEMORY_TEST environment variable before booting an Operating System – Section 4.6.1

6.14 V6.1 – First CD Release

V6.1 was this first official console firmware release to CD – November 2001.

KGPSA - Fixed a problem where after a system completed a very large number of reboots without the system being initialized, the system would show that the device was not "connected".

KZPEA - With versions prior to V6.1 it was necessary to set the SCSI_ID twice, once from the console by setting "pka*_host_id" where "*" is the adapter number and once by using the bios utility accessed by "run bios pk*0" where "*" is the adapter letter of the first port on the card. The SCSI_ID should now only be set with the bios utility but can be examined by "show pk*". Please refer to section 5 on known anomalies.

Adaptec driver – firmware upgrade to CHIM V3.62

Change default protection to read-only on SRM flash ROM segment

LFU Firmware Update support for the LP9002 Fibre Channel Controller

DE602-B* console recognition for DE602-BA, DE602-BB. Both cards use the same NIC chip but use different PCI Bridge chips. The DE602-BB uses the Intel 21154-BE bridge chip.

Bugs fixed – Adaptec driver

Redundant de-allocation of OSMIOB buffer corrupted free buffer free list

Not enough OSMIOB buffers caused the driver to hang

Improper free of target control structure caused memory free error

Drives on a starlite shelf do respond to scsi select after a scsi reset until after a delay