hp AlphaServer ES47, ES80, and GS1280 V7.2 Firmware Release Notes and Update Procedures

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1 Introduction

This guide is intended for users of the ***hp* AlphaServer ES47, ES80, and GS1280 Systems**. It provides release notes pertaining to the current firmware release and describes how to update the various pieces of firmware using the firmware update utility.

1.1 Important Notices

1.1.1 Required Update Steps for CPLD

The V6.9 firmware CD release included a new MBM Flash File "cpld" to allow the CPLD lattice part on the MBM to be re-programmed in the field. The V7.0 firmware CD release introduced an updated CPLD image that required additional steps for programming the image. The steps differ if updating a system that is running V6.9 firmware CD release images versus a system running V6.8 firmware CD release images or earlier. If your system is updated to CPLD V0.5 from the V7.0 firmware CD release then are no additional steps required for the CPLD image.

1.1.1.1 Update steps for systems running SRM V6.9-15 or later, MBM V2.5-5, CPLD V0.2

The MBM image introduced in the V7.0 CD release requires the power to be off before the CPLD device programming can complete. The steps to follow, to complete the CPLD update, are to first boot lfu, update devices, exit lfu and allow the micros reset to complete. Once back at the MBM prompt you must power off the system, reset the micros to allow the CPLD device programming to complete and upon completion power on the system. The steps are illustrated below.

A partitioned system will require a power off, reset of micros and a power on for each partition, if the whole system is not to be powered off as above.

An Updating CPLD message and a Programming of lattice completed successfully message are displayed in the output of a serially connected MBM for the CPLD device programming.

Update steps for systems running V6.9 firmware images.

Boot LFU and update all devices: at the lfu UPD> prompt perform:

UPD> update *

UPD> exit

Upon exit allow the micro reset to complete

Once back at the MBM prompt, for non-partitioned systems, power off the system, reset the micros, power on the system.

MBM> power off –all

MBM> reset –m -all

MBM> power on –all

If updating a partitioned system but not able to issue a power off –all command for the whole system then each partition will require a power off, a reset of micros and a power on command before the CPLD associated with that partition is programmed.

For each partition insure the following commands are issued to complete the CPLD programming:

MBM> power off –hp <Name of Partition>

MBM> reset –m –all

MBM > power on –hp <Name of Partition>

1.1.1.2 Update steps for systems running SRM V6.8-3 or earlier, MBM V2.4-2 or earlier

The MBM image introduced in the V7.0 CD release requires the power to be off before the CPLD device programming can complete. The steps to follow, to complete the CPLD update, are to first boot lfu, update MBM only, exit lfu and allow the micros reset to complete, boot up LFU, update all devices, exit lfu, power off the system, reset the micros and power on the system.

If you have a serial connection to the MBM you should see an updating CPLD message and a Programming of lattice completed successfully message displayed as the reset of the micros is completing. The steps are illustrated below.

Update steps for systems running V6.8 or earlier firmware images.

Boot LFU and update all MBMs only: at the lfu UPD> prompt perform:

UPD> update mbm.*

UPD> exit

Upon exit allow the micro reset to complete

Boot LFU and update all devices

UPD> update *

UPD> exit

Upon exit allow the micro reset to complete. At the MBM prompt power off the system, reset the micros and power on the system

MBM> power off –all

MBM> reset –m -all

MBM> power on –all

If updating a partitioned system but not able to issue a power off –all command for the whole system then each partition will require a power off, a reset of micros and a power on command before the CPLD associated with that partition is programmed.

For each partition insure the following commands are issued to complete the CPLD programming:

MBM> power off –hp <Name of Partition>

MBM> reset –m –all

MBM > power on –hp <Name of Partition>

1.1.2 Downgrading Notes for 2P Drawers Only.

There are additional steps necessary if downgrading from the V7.0 images on an ES47 or ES80 2P drawer system to the V6.9 CD release images. These additional steps are needed because of the changes to MBM code and the CPLD device programming introduced with the V7.0 CD release.

There are no additional steps necessary to downgrade to the V6.8 CD release images or earlier as the CPLD device programming was not supported until the V6.9 CD release.

1.1.2.1 Downgrading to V6.9 CD release images

To downgrade to the V6.9 CD release images, boot up lfu, update CPLD* only, exit lfu and allow the reset to complete. Once back at the MBM prompt, power off the system, reset the micros to allow the CPLD device programming to complete and power on the system. Now boot up lfu , update all devices, and exit lfu to complete the downgrade.

1.2 Getting Started with Partitions

Please note that there is a guide to partitioning available on the web. See the "Getting started with partitions" document on http://h18003.www1.hp.com/alphaserver/gs1280/gs1280_tech.html for more information.

Please refer to Update Firmware on Partitioned Systems – on page 2-4 for additional caveats.

1.3 Firmware and Operating System Revision Matrix

The following table shows the compatibility between the firmware revisions and revisions of OpenVMS and Tru64 UNIX.

Table 1 AlphaServer ES47/ES80/GS1280 Firmware/Operating System Revision Matrix

CD Release		Firmware			Operating System	
Version	Date	SRM	MBM/PBM	CMM	OpenVMS	Tru64 UNIX
V7.2	June 2006	V7.2-1	V2.7-3	V2.7-4		
V7.1	January 2006	V7.1-1111	V2.7-1	V2.7-3		
V7.0	June 2005	V7.0-5	V2.6-4	V2.7-1	V8.2	
V6.9	December '04	V6.9-15	V2.5-4	V2.6-0	V7.3-1 with VMS731-EV7_V0100 Update Kit	V5.1B with T64V51BB1A S0001 Update Kit
V6.8	October '04	V6.8-3	V2.4-2	V2.5-4		

2 AlphaServer ES47/ES80/GS1280 Firmware Release Notes

2.1 Firmware Revision Information

2.1.1 SRM Console, SROM/XSROM, and Server Management Micro Firmware Revisions

The Firmware Update Bootfile commonly referred as the Loadable Firmware Utility [LFU] contains the most current revision of the system firmware components.

Table 2 Firmware Components and Revisions

Firmware Component	Firmware Revision *
SRM Console	V7.2-1 *
VMS PALcode	V2.11-25
UNIX PALcode	V2.08-19
CMM FW	V2.7-4 *
CMM FSL FW	V2.7-2
CMM FPGA FW	V114
MBM/PBM FW	V2.7-3 *
MBM/PBM FSL FW	V2.1-1
SROM FW	V1.0-9
XSROM FW	V1.0-31
12-Slot Hot Plug FPGA	V4.1-01
XShelf Hot Plug FPGA FW	V3.1-10
2P Hot Plug FPGA	V3.1-02
CPLD Lattice Part	V0.5
	* denotes an updated version for this release

2.1.2 PCI I/O Adapter Firmware Revisions

The Firmware Update Bootfile also contains the following revisions of firmware for updating flash ROM on the various PCI I/O Adapters (* denotes an updated version for this release):

Table 2 PCI I/O Adapter Firmware Revisions

Adapter	Firmware Revision
CIPCA	4.20
DEFPA	3.20
FCA-2354	CS3.93A0*
FCA-2384	HS1.91X6 *
FCA-2684/DC	TS1.91X6 *
KZPDC	3.56
KZPEC *	2.58

2.1 Firmware Enhancements and New Features

2.1.1 SRM Changes

- I/O Option Firmware changes
  - DS-KGPSA-CA (LP8000) - Firmware Revision 3.93A0
  - DS-KGPSA-DA (LP9002) - Firmware Revision 3.93A0
  - DS-KGPSA-EA (LP9802) - Firmware Revision 1.91X6
  - DS-A5132-AA (LP10000) - Firmware Revision 1.91X6
- New module naming for the following I/O devices:

  DE602-FA => DE602-F*

  DEGXA-SB/TB => DEGXA-S*/T*
- WWIDMGR code change: do not attempt to get a UDID on a Fibre Channel SAN for SCSI sequential access or SCSI media changer type devices (i.e. tape drives, robot arm)

2.1.2 XSROM Changes

- XSROM remains at V1.0-31

2.1.3 SROM Changes

- SROM remains at V1.0-8

2.1.4 CMM Changes

- Fix for whoami register value in 680 events; value was off by a nibble
- Fix wrong platform in CMM shared memory on ES47/ES80 displaying GS1280 in "show config" command .

2.1.5 CPLD Changes

- CPLD remains at V0.5.

2.1.6 MBM/PBM Changes

- Code change to only allow modifying of partition attributes when powered off to prevent invalid Test 17 failures seen on power on
- The MBM "show duo" command now includes the J- number for slot identification as marked on the DUO for the RIMM debing displayed
- Temperature and Voltage limits information included in the "show power –detail" command display output
- Fixed a problem where an MBM watchdog reset on a 2P drawer or PBM PCI drawer caused the drware to lose power
- Fixed a problem where a non-routable partition message appeared but the partition powers on anyway

2.2 Procedure to Service an I/O Riser in a Galaxy partition.

This procedure can be used to replace a bad I/O riser (IOR) in a PCI drawer or even add/remove I/O options to/from a PCI drawer. This procedure assumes that an AlphaServer ES80/GS1280 is configured as a VMS Galaxy system with multiple soft sub-partitions. In this environment it is possible to service an IOR in a partition by only quiescing that sub-partition. Other partitions can continue to run. Initially, all partitions in the system are assumed to be running VMS. The following steps may be taken to shutdown the VMS instance on a soft sub-partition and power down the IOR for service.

1. Determine which soft partition the IOR belongs to and shutdown the operating system on that partition.

```
$ shutdown
…
P00>>>
```

2. Determine which local I/O risers are attached to the PCI drawer and then which PID numbers are assigned to them by the SRM console. Using the PCI drawer ID (from the thumbwheel switch), look for that PCI drawer number in the "show config" output and then for the corresponding PID numbers. Using "grep" simplifies this task.

```
P00>>> show config –c | grep –i drawer
PID 1          CPU 1          Cabinet 0  Drawer 0
  I/O Drawer 4                Cabinet 0  Riser 0      Backplane rev 1
```

3. Power off the logical IO7 from the SRM console.

```
P00>>> power off –iop 1
```

4. Re-initialize the SRM console so it can map out the IOR that was just powered off.

```
P00>>> init
```

5. Service the IOR in the PCI drawer.

6. From the soft partition's SRM console, power on the IO7.

```
P00>>> power on –iop 1
```

7. Re-initialize the SRM console so that it can rediscover the IOR in the PCI drawer.

```
P00>>>init
```

8. Boot the operating system.

```
P00>>> boot
…
$
```

Note: identifying the correct local IOR numbers and IO7 PID are crucial to safely powering down the PCI drawer without affecting the other soft partitions. Care should be taken to correctly determine these parameters.

2.3 Firmware Workarounds and Restrictions

This section lists any workarounds or restrictions in system firmware, which may differ from product documentation.

2.3.1 MBM>show error command indicates SYS_SERIAL_NUM mismatch

After replacing a FRU part (for example: a CPU DUO) you will need to issue an MBM "set sys_serial_num <number>" command to insure the system serial number information stored in the FRU's eeprom matches the system's sys_serial_num. The system's sys_serial_num number can be displayed via the "show sys_serial_num" command. A "sys_serial_num mismatch" message will display on the MBM serial console when issuing a "show error" or "show fru" command if there is a mismatch. To clear this error issue the set sys_serial_num command at the MBM> prompt.

NOTE: Setting the system serial number will not affect partitions running an operating system.

2.3.1.1 Set system serial number command syntax and example:

Syntax

MBM> set sys_serial_num AY33801314

Updating SYS_SERIAL_NUM in FRU EEPROMs....

MBM> sho sys_serial_num

SYS_SERIAL_NUM AY33801314

MBM>

2.3.2 KVM Console Switch Limitations

2.3.2.1 Run Bios Command in Graphics Mode Not Supported

Use of the SRM “run bios” command from the graphics console when connected through the KVM is not supported and will result in unexpected keyboard behavior. As a workaround, use the SRM “run bios” command from the serial console via serial port connection.

2.3.3 Updating Firmware on Partitioned Systems – Instructions

Please read the following rules before updating firmware on a Partitioned System via the Loadable Firmware Utility [LFU].

In the context of updating firmware, systems are viewed as broken up into Hard Partitions and/or Soft Partitions. Hard Partitioned systems [HPS] can consist in multiple hard partitions with only one sub partition within the hard partition. Soft Partitioned Systems [SPS] consist of at least one partition that has two or more sub partitions within a hard partition.

For HPS and SPS , the hard partition to run the LFU is shut down, the LFU is invoked and the firmware is updated. Subsequently, the other hard partition(s) must be shutdown and then reset to have firmware their updated. The RESET occurs by using the MBM - reset –hp [hard_partition_name] command.

Not all firmware is updated on each hard partition. The partition which invoked the LFU updates all firmware on its partition including I/O firmware. For the other hard partitions, all firmware except I/O firmware is updated after the partition is RESET.

2.3.4 SRM Console Firmware Workarounds and Restrictions

2.3.4.1 Cluster CI Connections

During system initialization, cluster CI connections may be temporarily closed resulting in an "SCS Disconnect Request received - break VC" message at console. The driver properly recovers and re-establishes the connection so there is no negative impact from this closure.

2.3.4.2 Multiple instances of the "initializing keyboard" message

Multiple instances of the "initializing keyboard" message can occur if there is more than one keyboard attached to the system (this is expected), or if the console's USB device driver is forced to reconfigure the bus. Each time the bus is reconfigured an "initializing keyboard" message can be displayed. The multiple messages can be ignored.

2.3.4.3 When configuring I/O Adapters using BIOS

When configuring I/O Adapters using BIOS, it is recommended that a serial mode console connection be used. If the console environmental variable is set to graphics there may be up to a 3 minute delay after entering <ESC> to exit the BIOS and the return of a graphics mode prompt.

2.3.4.4 When setting the bootbios EV

When setting the bootbios EV at the console on systems with more then 8 KZPDC adapters, please use the full device path name. (e.g. “set bootbios pya0.0.0.2.1” rather then “set bootbios pya0”.

2.3.4.5 If the “init_type” environment variable is set to “hard”,

If the “init_type” environment variable is set to “hard”, there will be a hard reset of the partition on the “init” command. (For example, any memory dumps living in RAM at the time will be overwritten by diagnostics) If

it is set to “soft”, the console will merely be restarted at the beginning of the console code. The default setting for “init_type” is “soft”, to optimize boot time.

2.3.4.6 If the “boot_reset” environment variable is set to “on”

If the “boot_reset” environment variable is set to “on”, the system will be re-initialized (hard or soft, depending on init_type) prior to booting. If it is set to “off”, the system will NOT be re-initialized prior to booting. The default setting for “boot_reset” is “off”, to optimize boot time.

2.3.5 XSROM Workarounds and Restrictions

If any CPU module has version V1.0-11 or later of XSROM, you must upgrade all the other CPU modules as well or downgrade the modules with V1.0-11. You will not be able to boot to the console with mismatched XSROM versions (except as explained below).

You can use either the update command from the MBM prompt or LFU to upgrade the XSROM from a previous version. If you have mismatched XSROM versions you must use the MBM update command or follow the procedure below to update using LFU:

```
mbm>set cpu_enabled 3
mbm>p on
(system powers on with 2 cpus)
run current version of LFU
update xsrom*
exit
(system powers up again, still with 2 cpus enabled)
mbm>p off
mbm>clear cpu_enabled
mbm>p on
(system powers up with all cpus in normal manner)
```

To load the XSROM from the backup copy on the MBM use the following command, where x and y are the cabinet and drawer of the DUO to be updated, and z is the number of the DUO (0-3).

```
MBM> update xsromfw 10.253.0.1 –cabinet x –drawer y CMMz
```

2.3.6 Server Management Firmware (MBM/PBM/CMM) Workarounds and Restrictions

- The message:
  ```
  ~PGP-W-(partgroup) Can’t assign local memory for IO7 on pid x
  ```
  can be ignored.
- Please note that partitions must be power cycled in order for a new FPGA to be used after a firmware update.
- Please note that it is not recommended to issue commands at the MBM prompt while a firmware upgrade is in progress.
- Splitting a DUO into 2 hard partitions is not supported
- The messages:

  ```
  ~GRP-W-(grp_Probe) MBM/PBM cab:00 drw:2 is not in the member list.
  ~GRP-W-(grp_Probe) Use Set Membership -add -ca 0 -dr 2 MBM
  ```

  appear when an SBB or PCI drawer is added to the system without using the "set membership" command. This command is used to define the expected system configuration.

- When changing cabinet and drawer numbers, you must make sure that the combination you set (cabinet+drawer) is unique across the system.
- Please set the time at the MBM> prompt to your desired reference date and time (e.g. local, UTC, ...) before booting and setting the time at the operating system. This ensures that logs stored in the MBM have meaningful timestamps. This only needs to be done when you initially install the system and at DST transition.
- The message "putchar_totelnet_task: printed -1 out of n chars." can be displayed during some error situations. This message can be ignored.
- When using the MBM “connect” command, please be aware that the buffered data that is printed out upon initial connection could be from a previous power-on or reset. Data is saved into a circular buffer until the user connects to the session, so it is possible to receive output from the system even though it was powered down some time ago.
- The message:

  ~SMG-W-(smprot) No outstanding command for response nnn

  can be ignored.
- If cabinet and/or drawer thumbwheels are changed, you must turn the main power on and off at the system breaker or issue a “reset –micro –all” to reset all of the micros. Make sure that the VAUX lights all go out if turning off the system breaker.

3 AlphaServer ES47/ES80/GS1280 Firmware Update Procedures

This chapter explains how to upgrade the AlphaServer ES47/ES80/GS1280 Firmware using the Loadable Firmware Update utility (LFU) on the AlphaServer ES47/ES80/GS1280 Firmware Update CD. In the examples which follow, the firmware revisions of the updates are not necessarily the latest revisions currently available. They are provided as examples only.

3.1 Checking Firmware Revisions

To display the current revisions for the various firmware components on the system, use the "show version" command at the MBM CLI Prompt. The following example is for a 8-Processor System.
NOTE: The firmware revisions shown are not necessarily the latest revisions currently available. They are provided as examples only.

From the MBM CLI prompt :

```
MBM> show version
Local MBM/PBM firmware version V2.0-12 built on Dec 19 2002 at 15:10:48

Cab Drw Micro   FW Module      Flash Firmware Revision
 0   0  MBM      MBMFW           V2.0-12
              MBMFSL          V2.0-2
              SRMFW           v6.4-6
              PBMFPGA*        V4.1-01
              XSHFPGA*        V3.1-10
              CMMFW*          V2.1-23
              CMMFSL*         V2.1-22
              CMMFPGA*        V114
              SROMFW*         V1.0-7
              XSROMFW*        V1.0-2
 0   0   CMM0   CMMFW           V2.1-23
              CMMFSL          V2.1-22
              CMMFPGA         V114
              SROMFW          V1.0-7
              XSROMFW         V1.0-2
              SRMFW           v6.4-6
 0   0   CMM1   CMMFW           V2.1-23
              CMMFSL          V2.1-22
              CMMFPGA         V114
              SROMFW          V1.0-7
              XSROMFW         V1.0-2
              SRMFW           v6.4-6
 0   0   CMM2   CMMFW           V2.1-23
              CMMFSL          V2.1-22
              CMMFPGA         V114
              SROMFW          V1.0-7
              XSROMFW         V1.0-2
              SRMFW           v6.4-6
 0   0   CMM3   CMMFW           V2.1-23
              CMMFSL          V2.1-22
              CMMFPGA         V114
              SROMFW          V1.0-7
```

```
            XSROMFW        V1.0-2
            SRMFW          v6.4-6
 0   4  PBM      PBMFW          V2.0-12
            PBMFSL         V2.0-2
            PBMFPGA        V4.1-01
            SRMFW*         v6.4-6
            CMMFW*         V2.1-23
            CMMFSL*        V2.1-22
            CMMFPGA*       V114
            SROMFW*        V1.0-7
            XSROMFW*       V1.0-2
MBM>
```

From the SRM Console Prompt, revision information for Console and PALcode are available, using the “show version” and the “show pal” commands :

```
P00>>>sho version
version              V6.4-6 Dec 19 2002 14:28:56
P00>>>sho pal
pal                  OpenVMS PALcode V2.11-0, Tru64 UNIX PALcode V2.08-0
```

3.2 Updating Firmware Using the CD

3.2.1 Example of Updating All Firmware

NOTE: The firmware revisions shown are not necessarily the latest revisions currently available. They are provided as examples only.

1. Load the “Alpha Systems Firmware Update CD Vxx” into the CD-ROM Drive. Then, from the SRM Console prompt, Initialize the System :

```
P00>>>init
starting console on CPU 0
initialized idle PCB
initializing semaphores
initializing heap
initial heap 700c0
memory low limit = 54a000 heap = 700c0, 1fffc0
initializing driver structures
initializing idle process PID
initializing file system
initializing timer data structures
lowering IPL
   .
   .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
   .
   .
AlphaServer Console T6.4-4, built on Dec 10 2002 at 10:38:42
P00>>>
```

2. Enter <show device> to find name of CD-ROM Drive (dqa0 in this example) :

```
P00>>>show device
dka0.0.0.2002.0          DKA0          COMPAQ BD0366349C  3B06
dkc300.3.0.102.1         DKC300        COMPAQ BD0096398B  BC1P
dqa0.0.0.2001.0          DQA0              UJDA310  3.52
eia0.0.0.2004.2          EIA0          00-02-A5-89-06-AE
eib0.0.0.2005.2          EIB0          00-02-A5-89-06-AF
pka0.7.0.2002.0          PKA0            SCSI Bus ID 7
pkb0.7.0.2.1             PKB0            SCSI Bus ID 7
pkc0.7.0.102.1           PKC0            SCSI Bus ID 7
pya0.0.0.1.2             PYA0
pyb0.0.0.2.2             PYB0
P00>>>
```

3. Enter <boot> command as shown, using the above CD Drive name :

```
P00>>>boot dqa0
(boot dqa0.0.0.2001.0 -flags 0)
block 0 of dqa0.0.0.2001.0 is a valid boot block
reading 1082 blocks from dqa0.0.0.2001.0
bootstrap code read in
base = b64000, image_start = 0, image_bytes = 87400(553984)
initializing HWRPB at 10000
GCT base = 54a000
initializing page table at b50000
initializing machine state
setting affinity to the primary CPU
jumping to bootstrap code
```

4. The system will respond by displaying “READ ME FIRST” information on the screen (which you should read and scroll through by pressing the ENTER key), followed by display of the default firmware update utility bootfile name, and the prompt “Bootfile:” At this point, you may press the ENTER key to load the latest (current) update, or you may type a specific bootfile name to load a previous (older) version if one is available on the CD.

```
The default bootfile for this platform is

     [GS1280]GS1280_V01.EXE

Hit <RETURN> at the prompt to use the default bootfile.

Bootfile: <USER HITS ENTER KEY>
   .
   .
<ONE OR TWO PAGES OF PRINTOUT WILL OCCUR HERE>
   .
   .
Checking dqa0.0.0.2001.0 for the option firmware files. . .
Copying DFXAA320 from dqa0.0.0.2001.0. . .
Copying CIPCA420 from dqa0.0.0.2001.0. . .
Copying FC2382A1 from dqa0.0.0.2001.0. . .
Copying FC8100X2 from dqa0.0.0.2001.0. . .
Copying KZPDC288 from dqa0.0.0.2001.0. . .

            ***** Loadable Firmware Update Utility *****
--------------------------------------------------------------------------------
 Function    Description
--------------------------------------------------------------------------------
```

```
Display     Displays the system's configuration table.
Exit        Done exit LFU (reset).
List        Lists the device, revision, firmware name, and update revision.
Update      Replaces current firmware with loadable data image.
Verify      Compares loadable and hardware images.
? or Help   Scrolls this function table.
-------------------------------------------------------------------------------

UPD>
```

5. Enter <list> command as shown, to display the various firmware updates available :

```
UPD> list
```

Device	Current Revision	Filename	Update Revision
pya0	2.50	kzpdc_fw	2.88
pyb0	2.50	kzpdc_fw	2.88
cmm.0.0	Z2.1-21	cmm_fw	T2.1-20
cmm.0.4	Z2.1-21	cmm_fw	T2.1-20
cmm0.0.0	Z2.1-21	cmm_fw	T2.1-20
cmm1.0.0	Z2.1-21	cmm_fw	T2.1-20
cmm2.0.0	Z2.1-21	cmm_fw	T2.1-20
cmm3.0.0	Z2.1-21	cmm_fw	T2.1-20
cmmfpga.0.0	V114	cmmfpga	V114
cmmfpga.0.4	V114	cmmfpga	V114
cmmfpga0.0.0	V114	cmmfpga	V114
cmmfpga1.0.0	V114	cmmfpga	V114
cmmfpga2.0.0	V114	cmmfpga	V114
cmmfpga3.0.0	V114	cmmfpga	V114
srom.0.0	O1.0-7	srom_fw	T1.0-7
srom.0.4	O1.0-7	srom_fw	T1.0-7
srom0.0.0	T1.0-7	srom_fw	T1.0-7
srom1.0.0	O1.0-7	srom_fw	T1.0-7
srom2.0.0	T1.0-7	srom_fw	T1.0-7
srom3.0.0	T1.0-7	srom_fw	T1.0-7
xsrom.0.0	T1.0-1	xsrom_fw	T1.0-1

xsrom.0.4	T1.0-1	xsrom_fw	T1.0-1
xsrom0.0.0	T1.0-1	xsrom_fw	T1.0-1
xsrom1.0.0	T1.0-1	xsrom_fw	T1.0-1
xsrom2.0.0	T1.0-1	xsrom_fw	T1.0-1
xsrom3.0.0	T1.0-1	xsrom_fw	T1.0-1
srm.0.0	t6.4-3	srm_fw	t6.4-4
srm.0.4	t6.4-3	srm_fw	t6.4-4
srm0.0.0	t6.4-3	srm_fw	t6.4-4
srm1.0.0	t6.4-3	srm_fw	t6.4-4
srm2.0.0	t6.4-3	srm_fw	t6.4-4
srm3.0.0	t6.4-3	srm_fw	t6.4-4
mbm.0.0	T2.0-6	mbm_fw	T2.0-6
pbm.0.4	T2.0-6	mbm_fw	T2.0-6
cmmfsl.0.0	T2.1-12	cmmfsl_fw	T2.1-12
cmmfsl.0.4	T2.1-12	cmmfsl_fw	T2.1-12
cmmfsl0.0.0	T2.1-12	cmmfsl_fw	T2.1-12
cmmfsl1.0.0	T2.1-12	cmmfsl_fw	T2.1-12
cmmfsl2.0.0	T2.1-12	cmmfsl_fw	T2.1-12
cmmfsl3.0.0	T2.1-12	cmmfsl_fw	T2.1-12
mbmfsl.0.0	T2.0-0	mbmfsl_fw	T2.0-0
pbmfsl.0.4	T2.0-0	mbmfsl_fw	T2.0-0
pbmfpga.0.0	T4.0-0806	pbmfpga	T4.0-0806
pbmfpga.0.4	T4.0-0806	pbmfpga	T4.0-0806
xshfpga.0.0	T3.0-0730	xboxfpga	T3.0-0730
		cipca_fw	A420
		dfxaa_fw	3.20
		fca_2354_fw	CS3.82A1
		fca_2384_fw	HS1.00X2
		kzpdc_fw	2.88
		mbm2pfpga	T3.0-0402

```
UPD>
```

6. Enter <update> command as shown, and answer “yes” to the question (note - if the user enters <update> with no arguments, all possible firmware pieces are updated - SRM, Micros, and I/O adapters. Although FW components may be updated selectively by supplying an argument such as srm* or pyb0, <update> is the PREFERRED method, so that all firmware is updated at the same time to compatible revisions). The update may take several minutes - DO NOT ABORT THE PROGRAM :

```
UPD> update

Confirm update on:
pya0
pyb0
cmm.0.0
cmm.0.4
cmm0.0.0
cmm1.0.0
cmm2.0.0
cmm3.0.0
cmmfpga.0.0
cmmfpga.0.4
cmmfpga0.0.0
cmmfpga1.0.0
cmmfpga2.0.0
cmmfpga3.0.0
srom.0.0
srom.0.4
srom0.0.0
srom1.0.0
srom2.0.0
srom3.0.0
xsrom.0.0
xsrom.0.4
xsrom0.0.0
xsrom1.0.0
xsrom2.0.0
xsrom3.0.0
srm.0.0
srm.0.4
srm0.0.0
srm1.0.0
srm2.0.0
srm3.0.0
mbm.0.0
pbm.0.4
cmmfsl.0.0
cmmfsl.0.4
cmmfsl0.0.0
cmmfsl1.0.0
cmmfsl2.0.0
cmmfsl3.0.0
mbmfsl.0.0
pbmfsl.0.4
pbmfpga.0.0
pbmfpga.0.4
xshfpga.0.0     [Y/(N)]y

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

DO NOT ABORT!

pya0 Updating to 2.88... Verifying 2.88... PASSED.

pyb0 Updating to 2.88... Verifying 2.88... PASSED.

cmm.0.0 Updating to T2.1-20... Verifying T2.1-20... PASSED.

cmm.0.4 Updating to T2.1-20... Verifying T2.1-20... PASSED.

cmm0.0.0 Updating to T2.1-20... Verifying T2.1-20... PASSED.

cmm1.0.0 Updating to T2.1-20... Verifying T2.1-20... PASSED.

cmm2.0.0 Updating to T2.1-20... Verifying T2.1-20... PASSED.

cmm3.0.0 Updating to T2.1-20... Verifying T2.1-20... PASSED.

cmmfpga.0.0 Updating to V114... Verifying V114... PASSED.

cmmfpga.0.4 Updating to V114... Verifying V114... PASSED.

cmmfpga0.0.0 Updating to V114... Verifying V114... PASSED.

cmmfpga1.0.0 Updating to V114... Verifying V114... PASSED.

cmmfpga2.0.0 Updating to V114... Verifying V114... PASSED.

cmmfpga3.0.0 Updating to V114... Verifying V114... PASSED.

srom.0.0 Updating to T1.0-7... Verifying T1.0-7... PASSED.

srom.0.4 Updating to T1.0-7... Verifying T1.0-7... PASSED.

srom0.0.0 Updating to T1.0-7... Verifying T1.0-7... PASSED.

srom1.0.0 Updating to T1.0-7... Verifying T1.0-7... PASSED.

srom2.0.0 Updating to T1.0-7... Verifying T1.0-7... PASSED.

srom3.0.0 Updating to T1.0-7... Verifying T1.0-7... PASSED.

xsrom.0.0 Updating to T1.0-1... Verifying T1.0-1... PASSED.

xsrom.0.4 Updating to T1.0-1... Verifying T1.0-1... PASSED.

xsrom0.0.0 Updating to T1.0-1... Verifying T1.0-1... PASSED.

xsrom1.0.0 Updating to T1.0-1... Verifying T1.0-1... PASSED.

xsrom2.0.0 Updating to T1.0-1... Verifying T1.0-1... PASSED.

xsrom3.0.0 Updating to T1.0-1... Verifying T1.0-1... PASSED.

srm.0.0 Updating to t6.4-4... Verifying t6.4-4... PASSED.

srm.0.4 Updating to t6.4-4... Verifying t6.4-4... PASSED.

srm0.0.0 Updating to t6.4-4... Verifying t6.4-4... PASSED.

```
srm1.0.0        Updating to t6.4-4...  Verifying t6.4-4...  PASSED.
srm2.0.0        Updating to t6.4-4...  Verifying t6.4-4...  PASSED.
srm3.0.0        Updating to t6.4-4...  Verifying t6.4-4...  PASSED.
mbm.0.0         Updating to T2.0-6...  Verifying T2.0-6...  PASSED.
pbm.0.4         Updating to T2.0-6...  Verifying T2.0-6...  PASSED.
cmmfsl.0.0      Updating to T2.1-12...  Verifying T2.1-12...  PASSED.
cmmfsl.0.4      Updating to T2.1-12...  Verifying T2.1-12...  PASSED.
cmmfsl0.0.0     Updating to T2.1-12...  Verifying T2.1-12...  PASSED.
cmmfsl1.0.0     Updating to T2.1-12...  Verifying T2.1-12...  PASSED.
cmmfsl2.0.0     Updating to T2.1-12...  Verifying T2.1-12...  PASSED.
cmmfsl3.0.0     Updating to T2.1-12...  Verifying T2.1-12...  PASSED.
mbmfsl.0.0      Updating to T2.0-0...  Verifying T2.0-0...  PASSED.
pbmfsl.0.4      Updating to T2.0-0...  Verifying T2.0-0...  PASSED.
pbmfpga.0.0     Updating to T4.0-0806...  Verifying T4.0-0806...  PASSED.
pbmfpga.0.4     Updating to T4.0-0806...  Verifying T4.0-0806...  PASSED.
xshfpga.0.0     Updating to T3.0-0730...  Verifying T3.0-0730...  PASSED.
UPD>
```

7. Enter <exit> command as shown, to leave the LFU and start the new SRM console. You will need to reconnect to your console session if MBM firmware has been updated. :

```
UPD> exit


 Initializing....
starting console on CPU 0
initialized idle PCB
initializing semaphores
initializing heap
initial heap 700c0
memory low limit = 54a000 heap = 700c0, 1fffc0
initializing driver structures
initializing idle process PID
initializing file system
initializing timer data structures
lowering IPL
    .
```

```
   .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
   .
   .
Initializing dqa eia eib pka pkb pkc
AlphaServer Console T6.4-4, built on Dec 10 2002 at 10:38:42
P00>>>
```

3.2.2 Example of Updating PCI I/O Adapter Firmware

NOTE: The firmware revisions shown are not necessarily the latest revisions currently available. They are provided as examples only.

1. Load the "Alpha Systems Firmware Update CD Vxx" into the CD-ROM Drive. Then, from the SRM Console prompt, Initialize the System :

```
P00>>>init
starting console on CPU 0
initialized idle PCB
initializing semaphores
initializing heap
initial heap 700c0
memory low limit = 54a000 heap = 700c0, 1fffc0
initializing driver structures
initializing idle process PID
initializing file system
initializing timer data structures
lowering IPL
   .
   .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
   .
   .
AlphaServer Console T6.4-4, built on Dec 10 2002 at 10:38:42
P00>>>
```

2. Enter <show device> to find name of CD-ROM Drive (dqa0 in this example) :

```
P00>>>show device
dka0.0.0.2002.0          DKA0          COMPAQ BD0366349C  3B06
dkc300.3.0.102.1         DKC300        COMPAQ BD0096398B  BC1P
dqa0.0.0.2001.0          DQA0              UJDA310  3.52
eia0.0.0.2004.2          EIA0          00-02-A5-89-06-AE
eib0.0.0.2005.2          EIB0          00-02-A5-89-06-AF
pka0.7.0.2002.0          PKA0           SCSI Bus ID 7
pkb0.7.0.2.1             PKB0           SCSI Bus ID 7
pkc0.7.0.102.1           PKC0           SCSI Bus ID 7
pya0.0.0.1.2             PYA0
pyb0.0.0.2.2             PYB0
P00>>>
```

3. Enter <boot> command as shown, using the above CD Drive name :

```
P00>>>boot dqa0
(boot dqa0.0.0.2001.0 -flags 0)
block 0 of dqa0.0.0.2001.0 is a valid boot block
```

```
reading 1082 blocks from dqa0.0.0.2001.0
bootstrap code read in
base = b64000, image_start = 0, image_bytes = 87400(553984)
initializing HWRPB at 10000
GCT base = 54a000
initializing page table at b50000
initializing machine state
setting affinity to the primary CPU
jumping to bootstrap code
```

4. The system will respond by displaying "READ ME FIRST" information on the screen (which you should read and scroll through by pressing the ENTER key), followed by display of the default firmware update utility bootfile name, and the prompt "Bootfile:" At this point, you may press the ENTER key to load the latest (current) update, or you may type a specific bootfile name to load a previous (older) version if one is available on the CD.

```
The default bootfile for this platform is

     [GS1280]GS1280_V01.EXE

Hit <RETURN> at the prompt to use the default bootfile.

Bootfile: <USER HITS ENTER KEY>
   .
   .
<ONE OR TWO PAGES OF PRINTOUT WILL OCCUR HERE>
   .
   .
Checking dqa0.0.0.2001.0 for the option firmware files. . .
Copying DFXAA320 from dqa0.0.0.2001.0. . .
Copying CIPCA420 from dqa0.0.0.2001.0. . .
Copying FC2382A1 from dqa0.0.0.2001.0. . .
Copying FC8100X2 from dqa0.0.0.2001.0. . .
Copying KZPDC288 from dqa0.0.0.2001.0. . .

            ***** Loadable Firmware Update Utility *****
--------------------------------------------------------------------------------
 Function    Description
--------------------------------------------------------------------------------

 Display     Displays the system's configuration table.
 Exit        Done exit LFU (reset).
 List        Lists the device, revision, firmware name, and update revision.
 Update      Replaces current firmware with loadable data image.
 Verify      Compares loadable and hardware images.
 ? or Help   Scrolls this function table.
--------------------------------------------------------------------------------


UPD>
```

5. Enter <list> command as shown, to display the various firmware updates available :

```
UPD> list

Device        Current Revision       Filename        Update Revision

pya0             2.50              kzpdc_fw           2.88
```

pyb0	2.50	kzpdc_fw	2.88
cmm.0.0	Z2.1-21	cmm_fw	T2.1-20
cmm.0.4	Z2.1-21	cmm_fw	T2.1-20
cmm0.0.0	Z2.1-21	cmm_fw	T2.1-20
cmm1.0.0	Z2.1-21	cmm_fw	T2.1-20
cmm2.0.0	Z2.1-21	cmm_fw	T2.1-20
cmm3.0.0	Z2.1-21	cmm_fw	T2.1-20
cmmfpga.0.0	V114	cmmfpga	V114
cmmfpga.0.4	V114	cmmfpga	V114
cmmfpga0.0.0	V114	cmmfpga	V114
cmmfpga1.0.0	V114	cmmfpga	V114
cmmfpga2.0.0	V114	cmmfpga	V114
cmmfpga3.0.0	V114	cmmfpga	V114
srom.0.0	O1.0-7	srom_fw	T1.0-7
srom.0.4	O1.0-7	srom_fw	T1.0-7
srom0.0.0	T1.0-7	srom_fw	T1.0-7
srom1.0.0	O1.0-7	srom_fw	T1.0-7
srom2.0.0	T1.0-7	srom_fw	T1.0-7
srom3.0.0	T1.0-7	srom_fw	T1.0-7
xsrom.0.0	T1.0-1	xsrom_fw	T1.0-1
xsrom.0.4	T1.0-1	xsrom_fw	T1.0-1
xsrom0.0.0	T1.0-1	xsrom_fw	T1.0-1
xsrom1.0.0	T1.0-1	xsrom_fw	T1.0-1
xsrom2.0.0	T1.0-1	xsrom_fw	T1.0-1
xsrom3.0.0	T1.0-1	xsrom_fw	T1.0-1
srm.0.0	t6.4-3	srm_fw	t6.4-4
srm.0.4	t6.4-3	srm_fw	t6.4-4
srm0.0.0	t6.4-3	srm_fw	t6.4-4
srm1.0.0	t6.4-3	srm_fw	t6.4-4
srm2.0.0	t6.4-3	srm_fw	t6.4-4

```
srm3.0.0        t6.4-3          srm_fw          t6.4-4
mbm.0.0         T2.0-6          mbm_fw          T2.0-6
pbm.0.4         T2.0-6          mbm_fw          T2.0-6
cmmfsl.0.0      T2.1-12         cmmfsl_fw       T2.1-12
cmmfsl.0.4      T2.1-12         cmmfsl_fw       T2.1-12
cmmfsl0.0.0     T2.1-12         cmmfsl_fw       T2.1-12
cmmfsl1.0.0     T2.1-12         cmmfsl_fw       T2.1-12
cmmfsl2.0.0     T2.1-12         cmmfsl_fw       T2.1-12
cmmfsl3.0.0     T2.1-12         cmmfsl_fw       T2.1-12
mbmfsl.0.0      T2.0-0          mbmfsl_fw       T2.0-0
pbmfsl.0.4      T2.0-0          mbmfsl_fw       T2.0-0
pbmfpga.0.0     T4.0-0806       pbmfpga         T4.0-0806
pbmfpga.0.4     T4.0-0806       pbmfpga         T4.0-0806
xshfpga.0.0     T3.0-0730       xboxfpga        T3.0-0730
                                cipca_fw        A420
                                dfxaa_fw        3.20
                                fca_2354_fw     CS3.82A1
                                fca_2384_fw     HS1.00X2
                                kzpdc_fw        2.88
                                mbm2pfpga       T3.0-0402
UPD>
```

6. In this example, assume you want to update ONLY “pyb0”. Enter <update pyb0> command as shown, and answer “yes” to the question. The update may take several minutes - DO NOT ABORT THE PROGRAM :

```
UPD> u pyb0

Confirm update on:
pyb0            [Y/(N)]y

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

                    DO NOT ABORT!

pyb0            Updating to 2.88...  Verifying 2.88...  PASSED.

UPD>
```

7. Enter <exit> command as shown, to leave the LFU and start the SRM console :

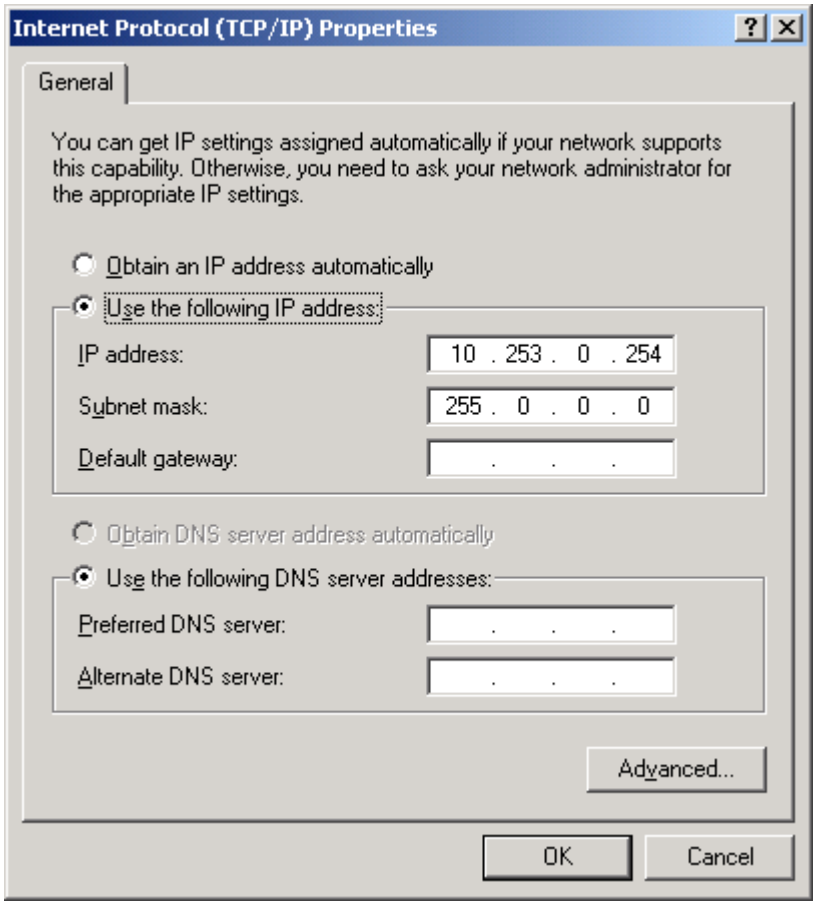
```
UPD> exit


 Initializing....
starting console on CPU 0
initialized idle PCB
initializing semaphores
initializing heap
initial heap 700c0
memory low limit = 54a000 heap = 700c0, 1fffc0
initializing driver structures
initializing idle process PID
initializing file system
initializing timer data structures
lowering IPL
   .
   .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
   .
   .
Initializing dqa eia eib pka pkb pkc
AlphaServer Console T6.4-4, built on Dec 10 2002 at 10:38:42
P00>>>
```

3.3 Updating Firmware Using the MBM "update" Command

The primary mechanism for doing firmware updates is to boot the firmware CD and run the LFU program, as described in Section 3.2. However, in the highly unlikely event that the system cannot be brought to the point of being able to run the SRM Console and LFU, an alternative firmware update method is available. This method allows the operator to update individual firmware components via the "update" command provided by the MBM CLI. This command uses TFTP communication between the MBM (which requests the image), and a connected PC (which serves the image). The individual update images are included on the AlphaServer ES47/ES80/GS1280 Firmware CD. The following sections describe how this method can be used.

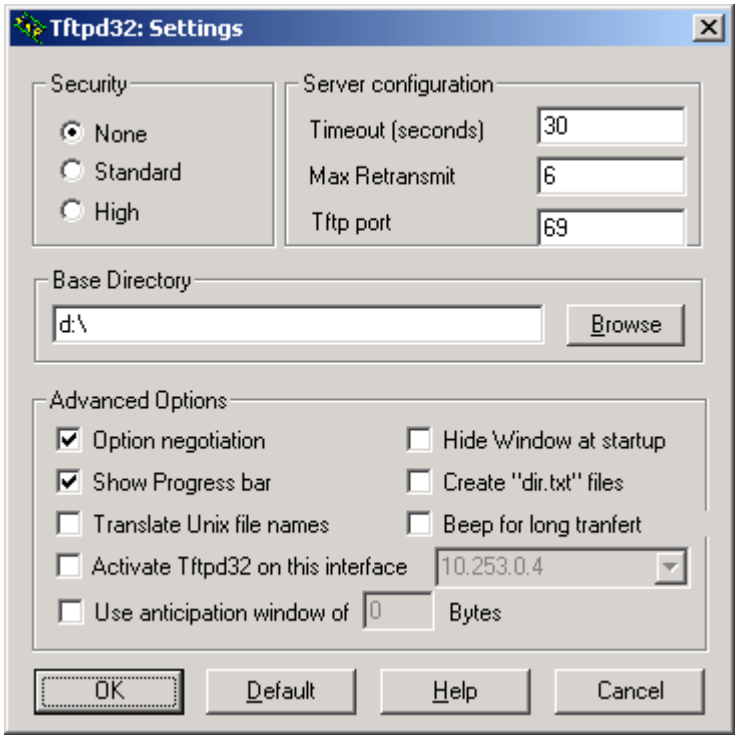
3.3.1 Setting up the PC-based TFTP Server

The PC must be connected to the Server Management hub via an Ethernet adapter. This connection can be static using the address "10.253.0.254" or dynamic using the dhcp protocol. To set up the PC for this, select Start, Settings, Control Panel, Network and Dial Up Connections, Local Area Connection, Properties, Internet Protocol(TCP/IP), Properties. The remainder of this document has examples using the static address "10.253.0.254".



If using DHCP, check Obtain an IP Address automatically.

Start the TFTP Server on the PC by invoking tftpd32.exe. A copy is found on the AlphaServer ES47/ES80/GS1280 Firmware CD, to be copied to a convenient directory on your local PC. Then change the settings to point the directory containing the files to be upgraded.



Click OK.

3.3.2 MBM CLI "update" Command

At the MBM CLI prompt "MBM>", perform the following commands and insure the response is "Update Complete" on all. PLEASE NOTE that the versions of the files used in the following examples (filenames entered after the "-file" qualifier) are not necessarily the latest images, and are provided as examples only. The latest files are supplied on the AlphaServer ES47/ES80/GS1280 Firmware CD.

```
MBM> update cmmfpga 10.253.0.254 -file fpga_v114.bin

MBM> update cmmfw 10.253.0.254 -file cmm3_x2_0_262.bin

MBM> update mbmfsl 10.253.0.254 -file mbmfsl_t1_0_13130.bin

MBM> update mbmfw 10.253.0.254 -file mbm_t1_0_13146.bin

MBM> update xsromfw 10.253.0.254 -file mvxsrom_x0_0_110.exe

MBM> update sromfw 10.253.0.254 -file mvsrom_t1_0_7.exe

MBM> update cmmfsl 10.253.0.254 -file cmmfsl3_x2_0_231.bin

MBM> update srmfw 10.253.0.254 -file srm_t4_0_15.exe
```

In addition, for systems with 12 slot PCI boxes (standard PCI box on 8P-SBB):

```
MBM> update pbmfpga 10.253.0.254 -file pf0806.bin
```

In addition, for systems with Xshelf PCI boxes:

```
MBM> update xshfpga 10.253.0.254 -file xpf0730.bin
```

In addition, for 2P Systems:

```
MBM> update mbmfpga 10.253.0.254 -file 2p_pf0402_newapu.bin
```

After updating the firmware you should cycle VAUX or issue the “reset –micro –all” command to force the MBMs and PBMs to run the new firmware.

After completion of an 8P System the “show version” should now indicate:

```
MBM> show version
Local MBM/PBM firmware version T1.0-13146 built on Oct 23 2002 at 08:53:57

Cab Drw Micro   FW Module      Flash Firmware Revision
 0   0  MBM       MBMFW           T1.0-13146
                  MBMFSL          T1.0-13130
                  SRMFW           t4.0-15
                  PBMFPGA*        T4.0-0806
                  XSHFPGA*        T3.0-0502
                  CMMFW*          X2.0-262
                  CMMFSL*         X1.0-127
                  CMMFPGA*        V114
                  SROMFW*         T1.0-7
                  XSROMFW*        X0.0-110
 0   0   CMM0    CMMFW           X2.0-262
                  CMMFSL          X2.0-231
                  CMMFPGA         V114
                  SROMFW          T1.0-7
                  XSROMFW         X0.0-110
                  SRMFW           t4.0-15
 0   0   CMM1    CMMFW           X2.0-262
                  CMMFSL          X2.0-231
                  CMMFPGA         V114
                  SROMFW          T1.0-7
                  XSROMFW         X0.0-110
                  SRMFW           t4.0-15
 0   0   CMM2    CMMFW           X2.0-262
                  CMMFSL          X2.0-231
                  CMMFPGA         V114
                  SROMFW          T1.0-7
                  XSROMFW         X0.0-110
                  SRMFW           t4.0-15
 0   0   CMM3    CMMFW           X2.0-262
                  CMMFSL          X2.0-231
                  CMMFPGA         V114
                  SROMFW          T1.0-7
                  XSROMFW         X0.0-110
                  SRMFW           t4.0-15
 0   1  PBM       PBMFW           T1.0-13146
                  PBMFSL          T1.0-13130
                  PBMFPGA         T4.0-0806
```

SRMFW*	t4.0-15
CMMFW*	X2.0-262
CMMFSL*	X1.0-127
CMMFPGA*	V114
SROMFW*	T1.0-7
XSROMFW*	X0.0-110

3.4 Firmware Change History

3.4.1 V7.1 SRM Changes

*3.4.1.1 **Console Enhancements***

- Changes to the AIC-78xx SCSI port driver increase the number of supported targets from 16 to 32.
- Fix console crash problem occurring when long EVs (>128 characters) were copied to another EV.
- KGPSA driver changed to do faster retry on PLOGI frames.
- Changes to SCSI driver code enhance page and field length checks for SCSI inquiry responses.

3.4.2 XSROM Changes

- XSROM remains at V1.0-31

3.4.3 SROM Changes

- SROM remains at V1.0-8

3.4.4 CMM Changes

- Fix to avoid duplicate reporting of thermal 680 machine checks from MBM and CMM for CMM temperature sensor warnings.

3.4.5 CPLD Changes

- CPLD remains at V0.5.

3.4.6 MBM/PBM Changes

- A change to MBM base time to now adjusts delta time by the difference with the old base time to keep the MBM base time in synch with the operating system. With system updates completed, issue an MBM "set time" command on the MBM base time to insure the clocks synchronize.
- Fixed a problem where a loss of a telnet session would occur when the leader MBM is down but the partition primary is on a different SBB.
- MBM POST (power on-self test) errors will now get PMU alert notifications a short time after initialization of the MBM is complete.
- Eliminated reporting of unknown status errors on power supplies or fans over a single 15-20 second polling cycle for ES47 and ES80 systems. If the condition persists on the next polling cycle then it will be reported.
- Modified air mover failure behavior to only speed up the remaining fans and leave the failing fans alone. If an excess of multiple fans failures occurs on a given drawer all partitions that have CPUs in the drawer are powered off. This prevents crashes of the partitions that make use of CPUs in the given drawer.

3.4.7 V7.0 SRM Changes

3.4.7.1 Console Enhancements

New SRM Environment Variables

With the V7.0 firmware release, two nonvolatile EVs were added to the SRM console for custom use. EV **user_def1**can propagate across partitions, using specific rules described below, and EV **user_def2** is partition specific. The EVs will accept a character-string argument within double quotes.

If you are using these EVs, it is recommended EV user_def1 have its char-string defined **before** the system is divided into partitions. Doing so ensures user_def1 will automatically propagate to each partition. Otherwise you have to manually initialize each of the other partition as described in Propagation Rules below.

Format:
P00>>> set user_def<1 or 2> "<character-string>"

Example:
P00>>> set user_def1 "Asset Tag: 12369152439 , System Location: Zone-green"
P00>>> set user_def2 "Business: Managed Services"

Propagation Rules on Partitioned Systems for EV user_def1

To propagate user_def1, which has been changed with a new char-string on one of the partitions, each of the other partitions must perform an SRM console "init" **prior to performing any set command**. This will prevent the possibility of *stale user_def1 values* from getting redeployed as the current user_def1 value. **Therefore, it is strongly recommended to set user_def1 before a system is divided into partitions.**

Bug Fixes and Other

- OpenVms Palcode change to add an interlock when reading the hardware clock to prevent other reads until the current read calls have been serviced.
- A change to the number of Nx environment variables from 4 to 8 to support up to 8 boot paths for fibre channel storage.
- A change to fix serial emulation for the Smart Array 5300.
- Fix for a galaxy config tree bugcheck problem seen on a system with three soft partitions where a gct command issued on the primary partition would result in the other two partitions failing to boot.
- Fix for a galaxy init problem where a shutdown and init of one soft partition in a three soft partition configuration would cause the other two partitions to crash.
- Fix for fru discovery information when CPUs are not present.

3.4.8 XSROM Changes

- XSROM remains at V1.0-31

3.4.9 SROM Changes

- SROM remains at V1.0-8

3.4.10 CMM Changes

- Modification to the voltage threshold and sampling algorithm.

3.4.11 CPLD Changes

- CPLD remains at V0.5.

3.4.12 MBM/PBM Changes

- Changes to prevent CPLD programming if the power is on. Please review the notes on update procedures required for the CPLD programming to occur.
- A cable testing failure message has been changed to an informational message rather than an error message.