AlphaServer GS80/160/320

V7.2 Firmware Release Notes and Update Procedures

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1 Introduction

This guide is intended for users of the ***hp*** and **COMPAQ AlphaServer GS80, GS160, and GS320 Systems**.

It provides release notes pertaining to the current release of firmware residing on the system, and describes how to update the various pieces of firmware, if necessary, using the firmware update utility.

1.1 Firmware and Operating System Revision Matrix

The following table shows the revision of the SRM console and CSB components of this firmware release, together with the versions of the operating systems that are supported by this firmware release. Any future version of the operating systems may require a later revision of system firmware in order that all features of the operating system can be supported.

Table 1 AlphaServer GS80/160/320 FW/OS Revision Matrix

SRM Console FW	CSB Micro FW	OpenVMS	Tru64 UNIX
V7.2-1	V6.6(01.22/01:02)	V7.2-2, V7.3-1, V7.3-2	V4.0G, V5.1A, V5.1B

1.2 Associated Documentation

You can find additional information about installing, configuring and booting your AlphaServer GS80/160/320 in the associated documentation listed in the following table:

Table 2 Associated Documentation

Title	Part Number
AlphaServer GS80/160/320 User's Guide	EK-GS320-UG
AlphaServer GS80/160/320 Firmware Reference Manual	EK-GS320-RM
AlphaServer GS160/320 Installation Guide	EK-GS320-IN
AlphaServer GS80 Installation Guide	EK-GSR80-IN

2 AlphaServer GS80/160/320 Firmware Release Notes

2.1 Firmware Revision Information

2.1.1 SRM Console and CSB Micro Firmware Revisions

The Firmware Update Bootfile,"GS320_V7_2.EXE", contains the latest shipping revisions of the firmware. In this release, the firmware revisions of the CSB Microprocessors have not changed. The SRM Console has changed to V7.2-1

The firmware package has the following components (* = changed since the last release):

Table 3 Firmware Components and Revisions

Component	Location of Flash ROM Where Firmware Resides	Firmware Revision
SRM Console	SRM Flash (on STDIO)	V7.2-1 *
VMS PALcode	SRM Flash (on STDIO)	V1.98-2
UNIX PALcode	SRM Flash (on STDIO)	V1.92-1
ISP10x0 FW	SRM Flash (on STDIO)	V5.57
XSROM	PSM Flash	V6.6 (01.26/00:24)
SCM Micro FW	SCM Flash (on STDIO)	V6.6 (01.22/01:02)
PSM Micro FW	PSM Flash	V6.6 (01.22/01:01)
PBM Micro FW	PBM Flash	V6.6 (01.22/01:02)
HPM Micro FW	HPM Flash	V6.6 (01.22/01:02)

2.1.2 PCI I/O Adapter Firmware Revisions

The Firmware Update Bootfile,"GS320_V7_2.EXE", also contains the following revisions of firmware for updating flash ROM on the various PCI I/O Adapters (* = changed since the last release):

Table 4 PCI I/O Adapter Firmware Revisions

Adapter	HW Variant	Firmware Revision
CIPCA	All variants	4.20
DEFPA	All variants	3.20
FCA-2354	All variants	CS3.93A0
FCA-2384	All variants	HS1.91X6
FCA-2684	All Variants	TS1.91X6
KGPSA [1]	-BC	SS3.20X7
KGPSA	-CA	DS3.93A0
KZPCC	All variants	Adapter FW: CQ17 SMOR Utility: 1.12
KZPDC	All variants	3.40
KZPSA [1]	All variants	A12

[1] NOTE: Although the update program contains firmware images for KGPSA-BC and KZPSA, those adapters ARE NOT officially supported on GS80/160/320 Systems.
Also note that CCMAB (Memory Channel) IS supported, but firmware update support is not currently provided or needed.

2.2 Firmware Enhancements and New Features

2.2.1 SRM Console Enhancements and New Features

2.2.1.1 SRM Console Enhancements and New Features - from V7.1-2 to V7.2-1

- 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)

2.2.2 SCM Monitor Enhancements and New Features

NOTE: There have been some reported cases where the CSB firmware has failed to update. In particular, the HPM. After performing the MICRO update

make certain the version and date code of the individual sections are all the same. If a subsequent firmware update fails it might be required to do a

complete power cycle. (ie. Cycling the power circuit breakers.)

2.2.2.1 SCM Monitor Enhancements and New Features

- No changes for this release.

2.2.3 PSM Enhancements and New Features

2.2.3.1 PSM Enhancements and New Features

- No changes for this release.

2.2.4 HPM Enhancements and New Features

2.2.4.1 HPM Enhancements and New Features

- No changes for this release.

2.2.5 PBM Enhancements and New Features

2.2.5.1 PBM Enhancements and New Features

- No changes for this release.

2.2.5.2 XSROM Enhancements and New Features

- No changes for this release.

2.3 IMPORTANT!!! Firmware Workarounds and Restrictions

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

2.3.1 SRM Console Workarounds and Restrictions

- If the system is being used with OpenVMS 7.3-1, and if GALAXY logical partitions are being used, CPU migration functionality cannot be utilized with V6.3 firmware on a CPU that is halted in console mode using the {stop/cpu x followed by set cpu x/migrate=y} OpenVMS command

sequence until the OpenVMS Remedial Kit VMS731_SYS-V0100 (or later) has been installed. CPU migration functionality can be utilized with V6.3 firmware on an active CPU using the {stop/cpu/migrate=y x} OpenVMS command sequence prior to the Remedial Kit installation. Full CPU migration functionality is restored after installation of the Remedial Kit.

- An issue has been discovered with memory DIMMs on GS family systems. The SRM console command *build -dimm* will **not** work correctly on any DIMMs manufactured by Samsung. The command will appear to complete successfully and the proper data will be displayed in the *show fru* command. However, if the AC power is cycled and the system is powered on again a subsequent *show fru* command will show that the data is incorrect for the Samsung DIMMs. It has been determined that the DIMM manufacturer is write-protecting a portion of the EEPROM used to store the DIMM fru data thus making it impossible for the *build -dimm* command to work properly. It is not yet known if this problem will be solved in the future.
- On hard partitioned systems, to properly power off or reset an individual partition, the user **must** execute the **power off** or **reset** from the SRM console (or appropriate operating system application) associated with that partition, not from the SCM monitor. (This is also the preferred mechanism for power off or reset on non-partitioned systems, too). This is required so that the SRM console can quiesce the QBBs and their global ports within that partition before it issues the power off command to the SCM through shared RAM. Although it is possible to power down and reset partitions from the SCM, that partition may not power up properly and unpredictable behavior of the rest of the system may result. This is similar to the requirement of initiating power on and off of individual CPUs from the SRM console or operating system.
- The SRM console internal heap has been increased from 1MB to 2MB in order to accommodate larger configurations. It is recommended to set the SRM console environment variable, "heap_expand", back to zero and then re-initialize the console. On certain extremely large configurations 2MB may still not be adequate. In these cases the SRM console will automatically detect the resource deficiency and automatically further increase the heap by setting "heap_expand", appropriately and then re-initialize itself.
- After updating the SRM console, if the console performs re-sizing of the heap, you may see the following message, "Bootstrap address collision, image loading aborted", during a boot of Tru64 UNIX. This generally indicates that it is necessary to boot the generic kernel and re-gen a new custom kernel in order to adjust to the new console mapping.
- There is a Blitz TD2921, "GS80/160/320 SRM INIT Heap Expand Loop Explanation". This blitz describes how configurations with many KGPSA adapters and many disks can require heap to be expanded while using WWIDMGR commands. Please note that the "heap_expand" environmental variable can be reset to its former setting for normal operation when WWIDMGR commands are not required.

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 a serial port connection.

2.3.3 Setting the System Serial Number

In order to write the system serial number the system must be powered off, de-partitioned and powered back on. Once at the console prompt the *set sys_serial_num* command can be issued then followed by the serial number. The console will then instruct the SCM (via shared RAM) to propagate the serial number to every FRU in the system that contains an I²C EEPROM. Progress messages indicating which nodes are being programmed will be displayed to the console.

example:

```
P00>>>set sys_serial_num ni12345678

~I~ Updating Sys_serial_num for FRUs present on CSB node:40 ...
~I~ Updating Sys_serial_num for FRUs present on CSB node:30 ...
~I~ Updating Sys_serial_num for FRUs present on CSB node:10 ...
~I~ Updating Sys_serial_num for FRUs present on CSB node:10 ...
~I~ Updating Sys_serial_num for FRUs present on CSB node:31 ...
~I~ Updating Sys_serial_num for FRUs present on CSB node:32 ...
~I~ Updating Sys_serial_num for FRUs present on CSB node:33 ...
~I~ Updating Sys_serial_num for FRUs present on CSB node:11 ...
~I~ Updating Sys_serial_num for FRUs present on CSB node:11 ...
P00>>>
P00>>>show sys_serial_num
sys_serial_num          ni12345678
P00>>>
```

Note: the system serial can only be set and displayed from the SRM console. If a new FRU is later installed an error will be displayed in the *show fru* output until the *set sys_serial_num* is issued again.

Note: the *set sys_serial_num* command can take up to 1 minute to complete. After issuing the command, please wait for 1 minute before proceeding.

2.3.4 Programming I²C EEPROM FRU Information on Non-Compaq Memory DIMMs

The SRM console command *build –dimm* is used to write Compaq style part and serial numbers into DIMMs that are not manufactured by Compaq. The manufacturer's part and serial numbers will still be displayed in the appropriate columns of the *show fru* command but the new Compaq part and serial numbers will also be displayed in the Model/Other and Alias/Misc fields respectively.

For the current implementation of the *build –dimm* command there are a couple of restrictions that must be kept in mind.

1. The *set sys_serial_num* command **must** be executed before the DIMMs can be programmed.
2. The SCM's non-volatile variable dimm_read_dis must be set to a 0. This must be done prior to poweron.
3. The DIMM FRU data can only be programmed once. Once the data is written the Compaq JEDEC ID is programmed into the DIMM and will cause the writing of the data to be bypassed on subsequent attempts.

4. There is no progress information displayed by the SRM Console as the procedure is executing. Currently the user **must** wait three minutes per QBB (or 5.6 seconds per DIMM) for the procedure to complete.

In future firmware releases there are plans to remove restrictions 3 and 4.
The following is an example of a *build –dimm* executed on a 16P system:

```
P00>>>build -dimm
This operation can take as long as 3 minutes per QBB.
Please do not disturb this system during this time.
Since this operation is done in the background on the CSB
no completion notification will take place.
P00>>>
P00>>>
P00>>>
Local escape sequence verified

SCM_E0>
SCM_E0>
SCM_E0> sh fru
FRUname        E  Part#            Serial#    Model/Other Alias/Misc
PBP0          00 54-25027-01.E01    NI92960262 WF08LTA111  WFFW_LAB_PSM_DEV
PBP0.SIO       00 B4190-BA.B02       NI92660342 WF08LTA111  WFFW_LAB_PSM_DEV
PBP0.RIO0      00 B4171-AA.E02       NI93871237
PBP0.RIO1      00 B4171-AA.E02       NI93871402
PBP1          00 54-25027-01.E02    NI93670860 WF08LTA111  WFFW_LAB_PSM_DEV
PBP1.SIO       00 B4190-BA.B02       NI93371331 WF08LTA111  WFFW_LAB_PSM_DEV
PBP1.RIO0      00 B4171-AA.E02       NI94270090
PBP1.RIO1      00 B4171-AA.E02       NI94270267
QBB0          00 54-25045-01.A01    NI93900000 WF08LTA111  WFFW_LAB_PSM_DEV
QBB0.PSM       00 54-25074-01.H02    NI93971076
QBB0.PWR       00 54-25017-01.E03    NI93060261 WF08LTA111  WFFW_LAB_PSM_DEV
QBB0.AUX       00 54-25123-01.E01    NI94171119 WF06LTA114  WFFW_LAB_32P_DEV
QBB0.CPU0      04    B4125-AA. E02   NI94170333 .....  .....
QBB0.CPU1      00    B4125-AA.E02    NI94170122 .....  .....
QBB0.CPU2      00    B4125-AA.E02    NI94170347 .....  .....
QBB0.CPU3      00    B4125-AA.E02    NI94170393 .....  .....
QBB0.MEM0      00 B4150-AA.D04       SM01900932
QBB0.MEM0.DIM0  00 ..... ??000      01CSA-08    ni123456780000
QBB0.MEM0.DIM1  00 ..... ??000      01CSA-08    ni123456780010
QBB0.MEM0.DIM2  00 ..... ??000      01CSA-08    ni123456780020
QBB0.MEM0.DIM3  00 ..... ??000      01CSA-08    ni123456780030
QBB0.DIR       00 73-B4140-AA.D01    NI94670442 WF06LTA114  WFFW_LAB_32P_DEV
QBB0.DIR0.DIM0  00 54-25023-DA.A01    SW07000301 .....  .....
QBB0.DIR0.DIM1  00 54-25023-DA.A01    SW07000212 .....  .....
QBB0.DIR0.DIM2  00 54-25023-DA.A01    SW07000152 .....  .....
QBB0.DIR0.DIM3  00 54-25023-DA.A01    SW07000217 .....  .....
QBB0.DIR0.DIM4  00 54-25023-DA.A01    SW07000122 .....  .....
QBB0.DIR0.DIM5  00 54-25023-DA.A01    SW07000279 .....  .....
QBB0.DIR0.DIM6  00 54-25023-DA.A01    SW07000302 .....  .....
QBB0.DIR0.DIM7  00 54-25023-DA.A01    SW07000312 .....  .....
```

```
QBB0.IO01      00 -B4170-AA.E01     NI94173724 WF08LTA111  WFFW_LAB_PSM_DEV
QBB0.GP        00 B4180-BA.A03      NI94270815 WF08LTA111  WFFW_LAB_PSM_DEV
QBB1           00 54-25045-01.A01   NI93900000 WF08LTA111  WFFW_LAB_PSM_DEV
QBB1.PSM       00 54-25074-01.H02   NI93971109
QBB1.PWR       00 54-25017-01.E02   NI93060412 .....  .....
QBB1.AUX       00 54-25123-01.E01   NI93970629 WF06LTA114  WFFW_LAB_32P_DEV
QBB1.CPU0      00   B4125-AA.E02    NI94371010 .....  .....
QBB1.CPU1      00   B4125-AA.E02    NI94370702 .....  .....
QBB1.CPU2      00   B4125-AA.E02    NI94270689 .....  .....
QBB1.CPU3      00   B4125-AA.E02    NI94370906 .....  .....
QBB1.MEM1      00 B4150-AA.D04      SM01901161
QBB1.MEM1.DIM0  00 54-24941-JA.C03   AY93300804 00DSA-08   ni123456781100
QBB1.MEM1.DIM1  00 54-24941-JA.C03   AY93300801 00DSA-08   ni123456781110
QBB1.MEM1.DIM2  00 54-24941-JA.C03   AY93301133 00DSA-08   ni123456781120
QBB1.MEM1.DIM3  00 54-24941-JA.C03   AY93300806 00DSA-08   ni123456781130
QBB1.MEM1.DIM4  00 54-24941-JA.C03   AY93300739 00DSA-08   ni123456781140
QBB1.MEM1.DIM5  00 54-24941-JA.C03   AY93422807 00DSA-08   ni123456781150
QBB1.MEM1.DIM6  00 54-24941-JA.C03   AY93300807 00DSA-08   ni123456781160
QBB1.MEM1.DIM7  00 54-24941-JA.C03   AY93422977 00DSA-08   ni123456781170
QBB1.MEM2      00 B4150-AA.D01      NI91960469 MEMORY     SHMOO
QBB1.MEM2.DIM0  00 54-24941-JA.C03   AY93422809 00DSA-08   ni123456781200
QBB1.MEM2.DIM1  00 54-24941-JA.C03   AY93422811 00DSA-08   ni123456781210
QBB1.MEM2.DIM2  00 54-24941-JA.C03   AY93422881 00DSA-08   ni123456781220
QBB1.MEM2.DIM3  00 54-24941-JA.C03   AY93300844 00DSA-08   ni123456781230
QBB1.MEM2.DIM4  00 54-24941-JA.C03   AY93422883 00DSA-08   ni123456781240
QBB1.MEM2.DIM5  00 54-24941-JA.C03   AY93300833 00DSA-08   ni123456781250
QBB1.MEM2.DIM6  00 54-24941-JA.C03   AY93300710 00DSA-08   ni123456781260
QBB1.MEM2.DIM7  00 54-24941-JA.C03   AY93300732 00DSA-08   ni123456781270
QBB1.MEM3      00 B4150-AA.D01      NI91960374 MEMORY     SHMOO
QBB1.MEM3.DIM0  00 54-24941-JA.C03   AY93300831 00DSA-08   ni123456781300
QBB1.MEM3.DIM1  00 54-24941-JA.C03   AY93301179 00DSA-08   ni123456781310
QBB1.MEM3.DIM2  00 54-24941-JA.C03   AY93422922 00DSA-08   ni123456781320
QBB1.MEM3.DIM3  00 54-24941-JA.C03   AY94700458 00DSA-08   ni123456781330
QBB1.MEM3.DIM4  00 54-24941-JA.C03   AY92605652 00DSA-08   ni123456781340
QBB1.MEM3.DIM5  00 54-24941-JA.C03   AY94700488 00DSA-08   ni123456781350
QBB1.MEM3.DIM6  00 54-24941-JA.C03   AY94600158 00DSA-08   ni123456781360
QBB1.MEM3.DIM7  00 54-24941-JA.C03   AY94600150 00DSA-08   ni123456781370
QBB1.DIR       00   -B4140-AA.D01   NI94471054 .....  .....
QBB1.DIR0.DIM0  00 54-25023-BA.A01   NI92961673 .....  .....
QBB1.DIR0.DIM1  00 54-25023-BA.A01   NI93260267 .....  .....
QBB1.DIR0.DIM2  00 54-25023-BA.A01   NI94160044 .....  .....
QBB1.DIR0.DIM3  00 54-25023-BA.A01   NI94160015 .....  .....
QBB1.DIR0.DIM4  00 54-25023-BA.A01   NI94061174 .....  .....
QBB1.DIR0.DIM5  00 54-25023-BA.A01   NI92961681 .....  .....
QBB1.DIR0.DIM6  00 54-25023-BA.A01   NI94060105 .....  .....
QBB1.DIR0.DIM7  00 54-25023-BA.A01   NI93260068 .....  .....
QBB1.GP        00 -B4181-BA.A02     NI93470534 WF08LTA111  WFFW_LAB_PSM_DEV
QBB2           00 54-25043-01.D03   NI94470374 WF08LTA111  WFFW_LAB_PSM_DEV
QBB2.PSM       00 54-25074-01.K01   NI91860245
QBB2.PWR       00 54-25017-01.F01   NI94171185 .....  .....
QBB2.AUX       00 54-25123-01.E01   NI94170906 .....  .....
QBB2.CPU0      00 B4125-AA.E02      NI94370093
```

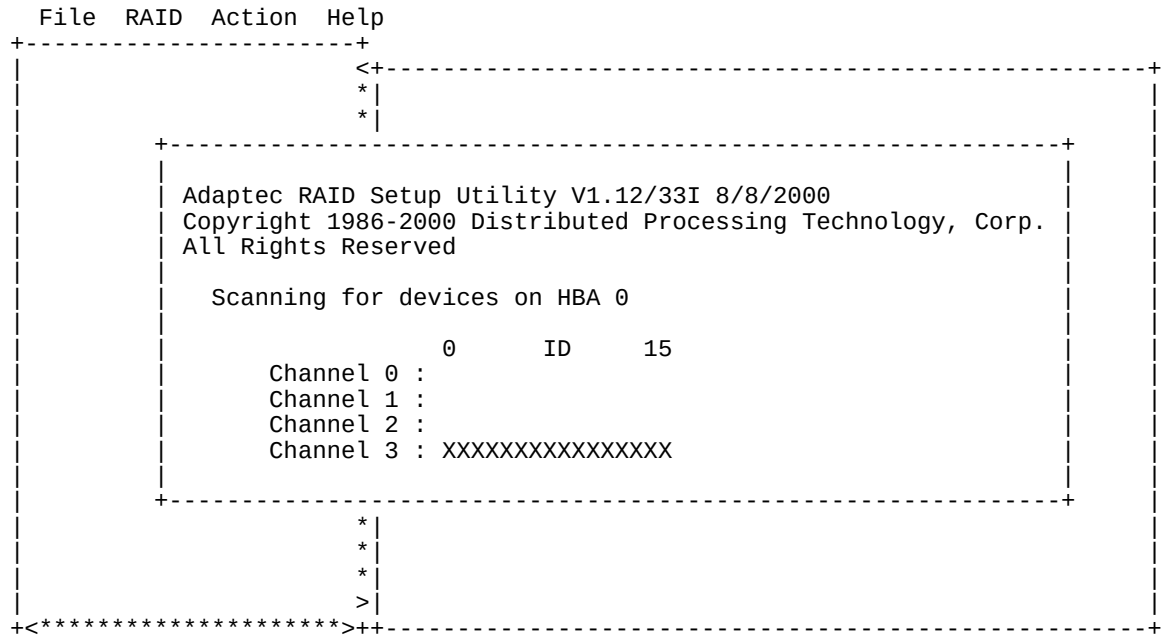
```
QBB2.CPU1       00    B4125-AA.E02    NI94170187 .....  .....
QBB2.CPU2       00    B4125-AA.E02    NI94170300 .....  .....
QBB2.CPU3       00 6X-B4125-AA.B02    NI93260204 .....  .....
QBB2.MEM0       00 B4150-AA.D01       NI92460122 WF08LTA111  WFFW_LAB_PSM_DEV
QBB2.MEM0.DIM0  00 54-24941-FA.C03    AY92604508 00DSA-08    ni123456782000
QBB2.MEM0.DIM1  00 54-24941-FA.C03    AY92604543 00DSA-08    ni123456782010
QBB2.MEM0.DIM2  00 54-24941-FA.C03    AY92604507 00DSA-08    ni123456782020
QBB2.MEM0.DIM3  00 54-24941-FA.C03    AY92604544 00DSA-08    ni123456782020
QBB2.MEM0.DIM4  00 54-24941-FA.C03    AY92604542 00DSA-08    ni123456782020
QBB2.MEM0.DIM5  00 54-24941-FA.C03    AY92604447 00DSA-08    ni123456782050
QBB2.MEM0.DIM6  00 54-24941-FA.C03    AY92604443 00DSA-08    ni123456782060
QBB2.MEM0.DIM7  00 54-24941-FA.C03    AY9260444  00DSA-08    ni123456782070
QBB2.MEM1       00    -B4150-AA.D02   NI94070657 .....  .....
QBB2.MEM1.DIM0  00 54-24941-FA.C03    AY92604621   01CSA-08    ni123456782100
QBB2.MEM1.DIM1  00 54-24941-FA.C03    AY92604652   01CSA-08    ni123456782110
QBB2.MEM1.DIM2  00 54-24941-FA.C03    AY92604622   01CSA-08    ni123456782120
QBB2.MEM1.DIM3  00 54-24941-FA.C03    AY92604635   01CSA-08    ni123456782130
QBB2.MEM1.DIM4  00 54-24941-FA.C03    AY92604677   01CSA-08    ni123456782140
QBB2.MEM1.DIM5  00 54-24941-FA.C03    AY92604619   01CSA-08    ni123456782150
QBB2.MEM1.DIM6  00 54-24941-FA.C03    AY92604618   01CSA-08    ni123456782160
QBB2.MEM1.DIM7  00 54-24941-FA.C03    AY92604654   01CSA-08    ni123456782170
QBB2.MEM2       00 B4150-AA.D02       NI94070620
QBB2.MEM2.DIM0  00 54-24941-JA.C03    AY91895031 00DSA-08    ni123456782200
QBB2.MEM2.DIM1  00 54-24941-JA.C03    AY94600198 00DSA-08    ni123456782210
QBB2.MEM2.DIM2  00 54-24941-JA.C03    AY94700506 00DSA-08    ni123456782220
QBB2.MEM2.DIM3  00 54-24941-JA.C03    AY94700512 00DSA-08    ni123456782230
QBB2.MEM2.DIM4  00 54-24941-JA.C03    AY94700532 00DSA-08    ni123456782240
QBB2.MEM2.DIM5  00 54-24941-JA.C03    AY94301291 00DSA-08    ni123456782250
QBB2.MEM2.DIM6  00 54-24941-JA.C03    AY94700528 00DSA-08    ni123456782260
QBB2.MEM2.DIM7  00 54-24941-JA.C03    AY92605707 00DSA-08    ni123456782270
QBB2.MEM3       00    -B4150-AA.D04   NI94471226 .....  .....
QBB2.MEM3.DIM0  00 54-24941-FA.C03    AY92625463 00DSA-08    ni123456782300
QBB2.MEM3.DIM1  00 54-24941-FA.C03    AY92626141 00DSA-08    ni123456782310
QBB2.MEM3.DIM2  00 54-24941-FA.C03    AY92617338 00DSA-08    ni123456782320
QBB2.MEM3.DIM4  00 54-24941-FA.C03    AY92617336 00DSA-08    ni123456782340
QBB2.MEM3.DIM5  00 54-24941-FA.C03    AY92626175 00DSA-08    ni123456782350
QBB2.MEM3.DIM6  00 54-24941-FA.C03    AY92716902 00DSA-08    ni123456782360
QBB2.MEM3.DIM7  00 54-24941-FA.C03    AY92617390 00DSA-08    ni123456782370
QBB2.DIR        00 -B4140-AA.D01      NI94670625 WF08LTA111  WFFW_LAB_PSM_DEV
QBB2.DIR0.DIM0  00 54-25023-BA.A01    NI94060311 .....  .....
QBB2.DIR0.DIM1  00 54-25023-BA.A01    NI92961393 .....  .....
QBB2.DIR0.DIM2  00 54-25023-BA.A01    NI92961885 .....  .....
QBB2.DIR0.DIM3  00 54-25023-BA.A01    NI92961639 .....  .....
QBB2.DIR0.DIM4  00 54-25023-BA.A01    NI92961411 .....  .....
QBB2.GP         00 B4180-BA.A02       NI93970472 WF08LTA111  WFFW_LAB_PSM_DEV
QBB3            00 54-25043-02.D03    NI94470479 WF08LTA111  WFFW_LAB_PSM_DEV
QBB3.PSM        00 54-25074-01.K01    NI94770199
QBB3.PWR        00 54-25123-01.E01    NI94170951 WF08LTA111  WFFW_LAB_PSM_DEV
QBB3.AUX        00 54-25123-01.E01    NI94170951 WF08LTA111  WFFW_LAB_PSM_DEV
QBB3.CPU0       00 -B4125-AA.E02      NI94370845
QBB3.CPU1       00   B4125-AA  E02    NI94270669 .....  .....
QBB3.CPU2       00    B4125-AA.E02    NI94170358 .....  .....
```

```
QBB3.CPU3       00 B4125-AC.A01       SM007000CD
QBB3.DIR        00 -B4140-AA.D01      NI93870621 WF08LTA111  WFFW_LAB_PSM_DEV
QBB3.DIR0.DIM1  00 ..................  ??000      ..........  .................
QBB3.DIR0.DIM2  00 54-25023-BA.A01     NI92961537 ..........  .................
QBB3.IO01       00 -B4170-AA.E01      NI94173767 WF08LTA111  WFFW_LAB_PSM_DEV
QBB3.GP         00 B4181-BA.A03       NI94072674 WF08LTA111  WFFW_LAB_PSM_DEV
HSW4           00 B4340-01.A00       AY12312312
HSW4.HPM0       02 54-25115-01.B04    NI93470032
HSW4.PWR2       00 54-30194-01.D01    NI94271542
SCM_E0>
```

2.3.5 Running SMOR Utility on KZPCC PCI RAID Adapter via Serial Line

The KZPCC PCI RAID Adapter has an embedded BIOS ROM Utility called "SMOR", which can be used to configure the adapter and update the on-board firmware components. The following example shows how to invoke SMOR from the SRM Console (in serial mode), on a KZPCC named pza0 :

```
<<User types "run bios" command from SRM Console prompt>>
P00>>>run bios pza0


<<Screen blanks here, wait a few seconds, then new screen appears>>


Running the graphics console emulation on a serial port.

Press <SPACE> to hold this screen (until you press another key).

The <ESC> key is used to emulate the functionality of the <ALT> key.
For example, to deliver the <ALT - H> key combination,
press the <ESC> key and then the <H> key.

The <ESC> key is also used to ensure the delivery of <F1>,,<F9> keys
in case the VT keyboard function keys are programmed.
For example, to deliver the <F3> key,
press the <ESC> key and then the <3> key.

To deliver the <ESC> key itself,
press the <ESC> key and then the <SPACE> key.

Press <ESC> and <SPACE> to quit the graphics console emulation and exit,
Press any other key to continue.
.....................................................


<<User types <space> <space> or waits ~15 seconds>>
<<Screen blanks here, wait ~15 seconds, then new screen appears>>


       I2O SCSI BIOS v001.2H (1999/10/15)
  Distributed Processing Technology
    Copyright 1996-99 All Rights Reserved
Hit <CTRL+D> for DPT Setup, Waiting for devices


<<User types <CTRL+D>  >>
<<Screen blanks here, wait ~15 seconds, then new screen appears>>
```



<<User runs SMOR utility, as described in SMOR documentation >>

Please note that if you wish to Update firmware on the KZPCC using the **Action** -> **Flash HBA** commands, the files are located on the Alpha Firmware V6.1 CD Directory **\AASMOR** (in SMOR, drill down from Disk n to CDFS:, to \AASMOR\), and the files are named as follows : 3754CQ16.IMA (adapter firmware), DECV1_7.NVR (default NVR settings), I2OBIOS.12H (I2O BIOS code), and SMOR0033.112 (SMOR code).

-

2.3.6 Procedure for Servicing a Non-Master PCI Drawer in an OpenVMS Galaxy Partition

The following procedure can be used to replace a bad module in a non-master PCI drawer or even add new options to a PCI drawer. This procedure assumes that a GS80/160/320 System is configured as an OpenVMS Galaxy system with multiple soft partitions. In this environment it is possible to service a non-master PCI drawer in a partition by only quiescing that partition. Other partitions can continue to run. Initially, all partitions in the system are assumed to be running OpenVMS. Then the following steps may be taken to shutdown the OpenVMS instance on a soft partition and power down a non-master PCI drawer for service.

1. Determine which soft partition the PCI drawer belongs to and shut down the operating system on that partition.

   $ shutdown

   …

   P00>>>

2. Determine which local IO risers are attached to the PCI drawer and then which IOR numbers are assigned to them by the SRM console. Using the PCI drawer ID (from the thumbwheel switch), look for that PCI box number in the "show config" output and then for the corresponding local IO riser numbers. Using "grep" simplifies this task.
   P00>>> show config | grep Side
   P00>>> show config | grep IOR
3. Power off the logical local IO risers (one per cable) from the SRM console.
   P00>>> power off -ior 8
   P00>>> power off -ior 9
4. Re-initialize the SRM console so it can map out the IO that was just removed.
   P00>>> init
5. Determine the CSB address of the PCI drawer to be powered off. Note, the CSB address of a PCI drawer is simply 10h plus the PCI drawer ID, 0-Fh, hence a value 10h-1Fh.
   P00>>> scm show system
6. From the Master SCM power off the PCI drawer. Important: Currently this needs to be done at the Master SCM.
   SCM_E0> power off -csb 12
7. Service the PCI drawer.
   At this point the PCI drawer may be serviced.
8. From the Master SCM power on the PCI drawer.
   SCM_E0> power on -csb 12
9. From the soft partition's SRM console, power on the local IO risers for the PCI drawer.
   P00>>> power on -ior 8
   P00>>> power on -ior 9
10. Re-initialize the SRM console so that it can rediscover the PCI options in the PCI drawer.
    P00>>>init
11. Boot the operating system.
    P00>>> boot
    …
    $

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

2.3.7 Suggested UART Communications Settings

Due to some recent confusion regarding UART settings, this subsection is a compilation of information on the subject. It includes information on default settings, suggested methods of usage and some excerpts from previous release notes.

Defaults:

The following are the default settings for all UART-related SCM variables. The variables are set to these values when either the SCM's EEPROM checksum test fails or a user has installed the RMC_DEFAULTS jumper. The SCM's *build eeprom* command will not modify the baud rate and the

flow control settings for any of the three UARTs. It will, however, set the COM1 mode back to "through" if it has been modified.

Table 5 Default UART Variable Settings

UART	Baud rate	Flow control	Mode
local	9600	soft	n/a
COM1	9600	hard	through
modem	9600	hard	n/a

Suggestions and preferred settings:

Although local and COM1 baud rates are supported up to 57600 we recommend a setting of 9600. This is because we have experienced serial character loss and corruption due to terminal emulator programs improperly rendering the data which is sent to them from the SCM. With the use of serial analyzers it has been proven that the data which is displayed on the operator console is not always consistent with the data which it was sent by the SCM. We have also noticed that the only way to reliably alleviate this problem is to reduce the baud rate. We have found no other combination of terminal window settings which guarantee data integrity.

Another thing to keep in mind is that although the firmware default for the COM1 flow control setting is "hard", the default setting for Unix is "soft". If a user wants Unix to use soft flow control then the /etc/gettydefs file must be edited to keep Unix from changing the setting. This is also true if a user wishes to run the Unix OPA0 console at any speed other than 9600. Unix must first be brought up at 9600, the file modified, the baud rates changed at the console and finally Unix can be restarted and it will use the operator console at the new baud rate.

Using the SMC and graphics programs:

The SMC PC allows the user to connect to each SCM in the system by providing a terminal window to each standard I/O local port via a DS90M terminal server. Typically the SMC is connected such that each port is attached to one hard partition in the system (i.e. port 1 connects to the local port for the first partition, port 2 connects to the second partition, etc). Therefore, in an 8 way hard-partitioned system each terminal server port is connected to one of the hard partition local ports.

When the SMC software installs itself from the CD it will configure the terminal server ports to use software flow control. Some serially-based utilities which attempt to draw graphics-like pictures on the terminal window will turn off flow control from the operating system. One such utility is Unix's sysman. If such a program is going to be run a couple of configuration changes should be made if any data corruption is seen in the terminal window.

First: In order to insure that graphics characters are not misinterpreted as an XON or an XOFF character the terminal server port's flow setting must be changed from XON/XOFF to none or disabled. In order to do this the Access Server Manager program must be started. From the Browser window select the terminal server for the system being accessed and click on "open". This will start an Access Server window. From here you can select the "utilities" tab and after choosing "connect to the telnet console" click on "do it now". This opens a session to the console port of the terminal server. From this window

you can issue the following commands to turn off a particular port's flow control. From the "local" prompt issue the following commands:

Local>set port x input flow disabled
Local>set port x output flow disabled
Local>set port x flow control disabled

This should guarantee that the terminal server will neither interpret nor generate an XON or an XOFF for port x. Use the *show port x* command to verify that the desired settings have been selected. To re-enable flow control issue the following commands:

Local>set port x input flow enabled
Local>set port x output flow enabled
Local>set port x flow control xon

Second: some odd behavior has been seen with using the first port of the DS90M terminal server. On occasion, even though flow control has been turned off, it is possible that certain characters are interpreted by the DS90 instead of simply being passed through. In cases where less than eight local ports are necessary we recommend that using the first port be avoided. With flow control and baud rates properly set for the given application being run, character corruption has been seen very rarely and only when connected through the first port of the terminal server.

2.3.8 SCM Monitor Workarounds and Restrictions

- Before updating CSB Micro Firmware to the latest revisions, all micros and XSROM should be at the same firmware revision (all V5.6 or all V5.7 or all V5.8, etc.) for correct operation.
- In hard partitioned systems to properly power off or reset an individual partition, **do not** use the SCM monitor. Instead, use the SRM console (or appropriate operating system application) associated with that partition to execute the power off or reset.
- If the message "~E~ EEPROM VERSION MISMATCH is encountered, perform the following procedure to update the EEPROM. From the SCM monitor do a 'show nvram' and 'show status' and make note of any custom settings (for example, hard partitioning environment variables, Baud rates, etc.). Then do a 'build eeprom'. When this completes, then restore your custom settings.
- In partitioned systems, not all functions of the CSB master SCM are available on slave SCMs. Consult the system documentation for a list of the supported commands of SCM slaves.
- The SCM parser supports "enable test <number>" and "disable test <number>" commands for SROM and XSROM user mode tests. Note, to return to the system defaults, use the "build eeprom" command or "set srom full" and "set xsrom full".
- In the event of a CPU failure on power-up (such as an XSROM-detected CPU hardware error), the failing CPU is mapped out of the active configuration, but is left in the power-up state. Because the CPU is mapped out of the active configuration, it cannot be powered off by the

operating system for replacement. If the operator wishes to power off the module, they can do so via the SCM command "p off -cpu <CSB_cpu#>", where <CSB_cpu#> is the CPU number as reported by the SCM “show csb” command (for example, “C0” or “D4”).

2.3.8.1 Enabling Redundant PCI Drawer Power Supplies

When a power supply is added to a PCI drawer to enable power redundancy the operation may not have the expected results. If the drawer is currently powered on the expected behavior is that the newly introduced supply also be enabled. It has been found that this functionality does not work in any PBM micro image dated between Jan 12, 2000 and Mar 29, 2001. This includes firmware releases V5.6 through the V5.9B.

If a PBM image dated in this range is being used then when the supply is introduced and plugged in it’s VAUX LED will be turned on but it will not be enabled. It’s power OK LED will not be turned on. There are several ways in which this new supply can be enabled:

1. The system can be powered off and back on via either the CLI or the keyswitch. This will take down the entire system.
2. The drawer can be powered down from the SCM CLI using the *power off –csb 10* command. Where 10 is the CSB address of the PCI drawer as displayed by the SCM command *show csb*. The drawer can then be powered back on and both supplies will be enabled. This may fault the hard partition of which this drawer is a member or even the entire system. To avoid the fault the hard partition containing the drawer could be powered down first.
3. The following commands can be executed from the SCM CLI. First, find the CSB address of the PCI drawer by using the *show csb* command from the SCM. Then execute the two commands below:

```
SCM_EF> show csb

CSB Type        Firmware Revision   FSL Revision  Power State

1F  PBM         V05.9(03.14/11:03)  V5.6(05.31)   ON
EF  SCM MASTER  V05.9(03.14/11:04)  V5.6(05.31)   ON

SCM_EF> exam &m1f -ipr d04
CSB_1F/00000D04: 8338
SCM_EF> deposit &m1f -ipr d04 c338
SCM_EF> exam &m1f -ipr d04
CSB_1F/00000D04: C33C
SCM_EF>
```

The two upper bits of the 16 bit IPR represent the power enable signals for the two power supplies. By setting the two bits (“C” in C338) both supplies are turned on. In order to calculate the value to be

written you must "OR in" the upper two bits to the value read. The other 14 bits should be left unchanged (i.e. written back with the values which were read). This sequence of commands will not take down the hard partition of which this drawer is a member.

2.3.9 Restriction on Hot-Swap/Hot-Add

- It is NOT a valid configuration to hot-swap in a "slow" CPU (B4125) into a "fast" QBB (a QBB running at 9X or higher speeds).

2.3.10 SROM/XSROM Workarounds and Restrictions

- Before updating CSB Micro Firmware to the latest revisions, all micros and XSROM should be at the same firmware revision (all V5.6 or all V5.7 or all V5.8, etc.) for correct operation.

2.3.11 Fibre Channel Behavior

2.3.11.1 Console Messages When Fibre Channel Driver Starts

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's NVRAM is either unformatted or is not working properly. The more likely reason is an unformatted NVRAM.

Beginning with V5.6 console firmware:

- 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.
- Reference : WWIDMGR USERS MANUAL

  http://ftp.digital.com/pub/DEC/Alpha/firmware/v*.*/doc/wwidmgr.pdf

```
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
```

2.3.11.2 Messages – MBX Not Ready

KNOWN PROBLEM:

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.

2.3.11.3 Command wwidmgr –quickset –item <n>

KNOWN PROBLEM:

Command "wwidmgr -quickset -item <n>" MUST also have the "-unit" qualifier on the line.
This functionality is not working properly, and a -unit MUST be specified.
Reference : WWIDMGR USERS MANUAL
"If no unit number is specified, console will generate one that is a hashed value of the WWID."

3 AlphaServer GS80/160/320 Firmware Update Procedures

This chapter explains how to upgrade the AlphaServer GS80/160/320 firmware using the Loadable Firmware Update Utility (LFU) on the Alpha Systems 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 Updating SRM Console Firmware Using the CD

NOTE: It is recommended that you run the LFU from the serial line with the "console" environment variable set to "serial" mode. In "graphics" mode, after updating CSB Micros, the graphics monitor will go blank, and you will have to do an SCM "p on" command from the serial line, to restart the system.

It is necessary to Power Off, "De-Partition", and Power On the system, before running the LFU. The LFU program is booted from the SRM Console prompt.

SRM Console Firmware Update Example Using LFU :

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

```
P00>>>init


OpenVMS PALcode V1.88-1, Tru64 UNIX PALcode V1.83-1

system = QBB 0 1 2 3         + HS
 QBB 0 = CPU 0 1 2 3 + Mem 0   2 3 + Dir + IOP + PCA 0 1     + GP  (Hard QBB 0)
 QBB 1 = CPU 0 1 2 3 + Mem 0       + Dir + IOP + PCA         + GP  (Hard QBB 1)
 QBB 2 = CPU 0 1 2 3 + Mem 0 1     + Dir + IOP + PCA         + GP  (Hard QBB 2)
 QBB 3 = CPU 0 1 2 3 + Mem 0 1     + Dir + IOP + PCA     2   + GP  (Hard QBB 3)
micro firmware version is V5.8
shared RAM version is 1.4
    .
    .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
    .
    .
AlphaServer Console V5.8-251, built on Nov 17 2000 at 11:03:28
P00>>>
```

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

```
P00>>>sho dev
dka0.0.0.1.0              DKA0              COMPAQ BB00921B91  3B05
dkb0.0.0.1.28             DKB0              COMPAQ BB00921B91  3B05
dkc0.0.0.5.29             DKC0              COMPAQ BB00911CA0  3B05
dkc100.1.0.5.29           DKC100            COMPAQ BB00911CA0  3B05
```

```
dkc200.2.0.5.29            DKC200            COMPAQ BB00911CA0  3B05
dkc300.3.0.5.29            DKC300            COMPAQ BB00911CA0  3B05
dkc400.4.0.5.29            DKC400            COMPAQ BB00911CA0  3B05
dkc500.5.0.5.29            DKC500            COMPAQ BB00911CA0  3B05
dqa0.0.0.15.0              DQA0                COMPAQ CDR-8435  0013
dqb0.0.0.15.28             DQB0                COMPAQ CDR-8435  0013
dva0.0.0.1000.0            DVA0
dvb0.0.0.1000.28
ewa0.0.0.4.29              EWA0              08-00-2B-C4-7F-EE
pga0.0.0.1.2               PGA0        WWN 2000-0000-c921-0c22
pka0.7.0.1.0               PKA0                  SCSI Bus ID 7  5.57
pkb0.7.0.1.28              PKB0                  SCSI Bus ID 7  5.57
pkc0.7.0.5.29              PKC0                  SCSI Bus ID 7  5.57
P00>>>
```

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

```
P00>>>boot dqa0
(boot dqa0.0.0.15.0)
block 0 of dqa0.0.0.15.0 is a valid boot block
reading 1082 blocks from dqa0.0.0.15.0
bootstrap code read in
base = 5f4000, image_start = 0, image_bytes = 87400
initializing HWRPB at 2000
initializing page table at 7ffe8000
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.

```
The default bootfile for this platform is

        [GS320]GS320_V59B.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 dqa0.0.0.15.0 for the option firmware files. . .
Copying DFXAA320 from dqa0.0.0.15.0. . .
Copying KZPSAA12 from dqa0.0.0.15.0. . .
Copying CIPCA420 from dqa0.0.0.15.0. . .
Copying KG8381A4 from dqa0.0.0.15.0. . .
Copying KG7303A1 from dqa0.0.0.15.0. . .


               ***** 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

  SRM24             V6.9-2              srm_fw              V7.2-1

  SRM40             V6.9-2              srm_fw              V7.2-1

  SRM               V6.9-2              srm_fw              V7.2-1

  pga0             DS3.92A2             kgpsa_8k_fw      DS3.92A2

  pgb0             DS3.92A2             kgpsa_8k_fw      DS3.92A2

  pgc0             DS3.82A1             kgpsa_8k_fw      DS3.82A1

  micro             V6.6(01.22/01:02)   micro_fw
V6.6(01.22/01:02)

UPD>
```

6. Enter <update srm*> command as shown, and answer yes to the question (note - if the user enters <update *>, all possible firmware pieces are updated - SRM, Micros, and I/O adapters. Actually, <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 srm*

Confirm update on:
SRM28
SRM
[Y/(N)]Y  <USER HITS "Y" KEY>
WARNING: updates may take several minutes to complete for each device.

                          DO NOT ABORT!

SRM28           Updating to v5.9-331...  Verifying v5.9-331...  PASSED.

SRM             Updating to v5.9-331...  Verifying v5.9-331...  PASSED.

UPD>
```

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

```
UPD> exit
```

```
Initializing....
     .
     .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
     .
     .
initializing pka pkb pkc ewa dqa dqb pga

AlphaServer Console V5.9-331, built on Mar 14 2001 at 11:25:22
P00>>>
```

3.2 Checking Firmware version

3.2.1 "show firmware" Command Example (for V7.2firmware)

```
P00>>>show firmware
SRM Console V7.2-1, built on Jun 16 2005
PALcode OpenVMS PALcode V1.98-2,
1
Micro Firmware V6.6
QBB0.PSM PSM V6.6|PSM FS V5.6|XSROM
QBB0.CPU0 SROM V9.0-11
QBB0.CPU1 SROM V9.0-11
QBB0.CPU2 SROM V9.0-11
QBB0.CPU3 SROM V6.0-7
PBP0.SIO SCM V6.6|SCM FS V5.6|SRM
QBB1.PSM PSM V6.6|PSM FS V5.6|XSROM
QBB1.CPU0 SROM V6.0-7
QBB1.CPU1 SROM V6.0-7
QBB1.CPU2 SROM V9.0-11
QBB1.CPU3 SROM V6.0-7
QBB2.PSM PSM V6.6|PSM FS V5.6|XSROM
QBB2.CPU0 SROM V6.0-7
QBB2.CPU1 SROM V9.0-11
QBB2.CPU2 SROM V9.0-11
QBB2.CPU3 SROM V6.0-7
PBP1.SIO SCM V6.6|SCM FS V5.6|SRM
QBB3.PSM PSM V6.6|PSM FS V5.6|XSROM
QBB3.CPU0 SROM V6.0-7
QBB3.CPU1 SROM V6.0-7
QBB3.CPU2 SROM V9.0-11
QBB3.CPU3 SROM V9.0-11
HSW8 HPM V6.6|HPM FS V5.6
PBP0.PBP0 PBM V6.6|PBM FS V5.6
PBP2.PBP0 PBM V6.6|PBM FS V5.6
PBP1.PBP0 PBM V6.6|PBM FS V5.6
PBP3.PBP0 PBM V6.6|PBM FS V5.6
P00>>>
```

3.3 Checking CSB Micro Firmware Revisions

To display the current firmware revisions for the various Micros on the CSB Bus, use the "show csb" command at the SCM Prompt. The following example is for a 16-Processor System, having 3 SCMs, 4 PSMs, 3 PBMs, and 1 HPM Micro. **The firmware revisions shown are not necessarily the latest revisions currently available. They are provided as examples only.**

```
SCM_E0> sho csb

CSB Type         Firmware Revision      FSL Revision  Power State

10  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
11  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
12  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
13  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
14  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
15  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
16  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
17  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
18  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
19  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
1A  PBM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
30  PSM          V06.6   (01.22/01:01)  V5.6 (05.31)  ON           SrvSw:
NORMAL
30    XSROM      V06.6   (01.26/00:24)
C0    CPU0/SROM  V9.0-11                               ON
C1    CPU1/SROM  V9.0-11                               ON
C2    CPU2/SROM  V9.0-11                               ON
C3    CPU3/SROM  V9.0-11                               ON
C0    IOR0                                            ON
C1    IOR1                                            ON
C2    IOR2                                            ON
C3    IOR3                                            ON
31  PSM          V06.6   (01.22/01:01)  V5.6 (05.31)  ON           SrvSw:
NORMAL
31    XSROM      V06.6   (01.26/00:24)
C4    CPU0/SROM  V9.0-11                               ON
C5    CPU1/SROM  V9.0-11                               ON
C6    CPU2/SROM  V9.0-11                               ON
C7    CPU3/SROM  V9.0-11                               ON
C4    IOR0                                            ON
C5    IOR1                                            ON
C6    IOR2                                            ON
C7    IOR3                                            ON
32  PSM          V06.6   (01.22/01:01)  V5.6 (05.31)  ON           SrvSw:
NORMAL
32    XSROM      V06.6   (01.26/00:24)
C8    CPU0/SROM  V9.0-11                               ON
C9    CPU1/SROM  V9.0-11                               ON
CA    CPU2/SROM  V9.0-11                               ON
CB    CPU3/SROM  V9.0-11                               ON
C8    IOR0                                            ON
C9    IOR1                                            ON
```

```
    33  PSM          V06.6   (01.22/01:01)  V5.6 (05.31)  ON           SrvSw:
NORMAL
    33    XSROM      V06.6   (01.26/00:24)
    CC    CPU0/SROM  V9.0-11                               ON
    CD    CPU1/SROM  V9.0-11                               ON
    CE    CPU2/SROM  V9.0-11                               ON
    CC    IOR0                                           ON
    CD    IOR1                                           ON
    34  PSM          V06.6   (01.22/01:01)  V5.6 (05.31)  ON           SrvSw:
NORMAL
    34    XSROM      V06.6   (01.26/00:24)
    D0    CPU0/SROM  V9.0-11                               ON
    D1    CPU1/SROM  V9.0-11                               ON
    D2    CPU2/SROM  V9.0-11                               ON
    D3    CPU3/SROM  V9.0-11                               ON
    D0    IOR0                                           ON
    D1    IOR1                                           ON
    35  PSM          V06.6   (01.22/01:01)  V5.6 (05.31)  ON           SrvSw:
NORMAL
    35    XSROM      V06.6   (01.26/00:24)
    D4    CPU0/SROM  V6.0-7                                ON
    D5    CPU1/SROM  V6.0-7                                ON
    D6    CPU2/SROM  V6.0-7                                ON
    D7    CPU3/SROM  V6.0-7                                ON
    D4    IOR0                                           ON
    D5    IOR1                                           ON
    D6    IOR2                                           ON
    D7    IOR3                                           ON
    36  PSM          V06.6   (01.22/01:01)  V5.6 (05.31)  VAUX         SrvSw:
SERVICE
    36    XSROM      V06.6   (01.26/00:24)
    D8    CPU0/SROM  X0.0-0                                OFF
    D9    CPU1/SROM  X0.0-0                                OFF
    DA    CPU2/SROM  X0.0-0                                OFF
    DB    CPU3/SROM  X0.0-0                                OFF
    D8    IOR0                                           OFF
    D9    IOR1                                           OFF
    DA    IOR2                                           OFF
    DB    IOR3                                           OFF
    37  PSM          V06.6   (01.22/01:01)  V5.6 (05.31)  ON           SrvSw:
NORMAL
    37    XSROM      V06.6   (01.26/00:24)
    DC    CPU0/SROM  V6.0-7                                ON
    DD    CPU1/SROM  X0.0-7                                ON
    DE    CPU2/SROM  V6.0-7                                ON
    DC    IOR0                                           ON
    DD    IOR1                                           ON
    DE    IOR2                                           ON
    DF    IOR3                                           ON
    40  HPM          V06.6   (01.22/01:02)  V5.6 (05.31)  ON
    E0  SCM MASTER   V06.6   (01.22/01:02)  V5.6 (05.31)  ON
    E1  SCM SLAVE    V06.6   (01.22/01:02)  V5.6 (09.13)  ON
Ineligible
    E2  SCM SLAVE    V06.6   (01.22/01:02)  V5.6(09.13)

SCM_E0>
```

3.4 Updating CSB Micro Firmware Using the CD

NOTE 1 : It is recommended that you run the LFU from the serial line with the "console" environment variable set to "serial" mode. In "graphics" mode, after updating CSB Micros, the graphics monitor will go blank, and you will have to do an SCM "p on" command from the serial line, to restart the system.

NOTE 2 : Sometimes new revisions of firmware may require the EEPROM (which contains CSB NVR settings) to be re-initialized and customized settings to be lost. It is recommended that before the LFU is run, the User should check for customized settings using SCM "show nvr" command, and write them down for later restoration using the SCM "set" command. After the LFU is run the user should do "show nvr" and if the message is printed "~E~ EEPROM VERSION MISMATCH. Execute Build EEPROM Cmd", the user should do a "build eeprom" command, followed by "set" commands to restore any customized settings.

NOTE 3 : Before using the LFU to update CSB Micro Firmware on Partitioned systems, the user MUST DE-PARTITION THE SYSTEM. It is recommended that the user first do a "show nvr" and write down the value of the NVR variable "hp_count", and then "set hp_count 0" to disable partitioning, followed by commands to "p off" and "p on".

```
SCM_E0> set hp_count 0
SCM_E0> p off
    .
    .
    .
SCM_E0> p on
```

Then the user should run the LFU, and after that the user should use the "set hp_count x" (where x is the saved value of hp_count) command to restore partitioning.

CSB Micro Firmware Update Example Using LFU :

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

```
P00>>>init


OpenVMS PALcode V1.98-2, Tru64 UNIX PALcode V1.92-1

system = QBB 0 1 2 3         + HS
 QBB 0 = CPU 0 1 2 3 + Mem 0   2 3 + Dir + IOP + PCA 0 1     + GP  (Hard QBB 0)
 QBB 1 = CPU 0 1 2 3 + Mem 0       + Dir + IOP + PCA         + GP  (Hard QBB 1)
 QBB 2 = CPU 0 1 2 3 + Mem 0 1     + Dir + IOP + PCA         + GP  (Hard QBB 2)
 QBB 3 = CPU 0 1 2 3 + Mem 0 1     + Dir + IOP + PCA     2   + GP  (Hard QBB 3)
micro firmware version is V6.6
shared RAM version is 1.6
    .
    .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
    .
    .
```

```
AlphaServer Console V7.2-7, built on Jun 1 2006 at 13:40:02
P00>>>
```

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

```
P00>>>sho dev
dka0.0.0.1.0              DKA0              COMPAQ BB00921B91  3B05
dkb0.0.0.1.28             DKB0              COMPAQ BB00921B91  3B05
dkc0.0.0.5.29             DKC0              COMPAQ BB00911CA0  3B05
dkc100.1.0.5.29           DKC100            COMPAQ BB00911CA0  3B05
dkc200.2.0.5.29           DKC200            COMPAQ BB00911CA0  3B05
dkc300.3.0.5.29           DKC300            COMPAQ BB00911CA0  3B05
dkc400.4.0.5.29           DKC400            COMPAQ BB00911CA0  3B05
dkc500.5.0.5.29           DKC500            COMPAQ BB00911CA0  3B05
dqa0.0.0.15.0             DQA0                COMPAQ CDR-8435  0013
dqb0.0.0.15.28            DQB0                COMPAQ CDR-8435  0013
dva0.0.0.1000.0           DVA0
dvb0.0.0.1000.28
ewa0.0.0.4.29             EWA0              08-00-2B-C4-7F-EE
pga0.0.0.1.2              PGA0        WWN 2000-0000-c921-0c22
pka0.7.0.1.0              PKA0                  SCSI Bus ID 7  5.57
pkb0.7.0.1.28             PKB0                  SCSI Bus ID 7  5.57
pkc0.7.0.5.29             PKC0                  SCSI Bus ID 7  5.57
P00>>>
```

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

```
P00>>>boot dqa0
(boot dqa0.0.0.15.0)
block 0 of dqa0.0.0.15.0 is a valid boot block
reading 1082 blocks from dqa0.0.0.15.0
bootstrap code read in
base = 5f4000, image_start = 0, image_bytes = 87400
initializing HWRPB at 2000
initializing page table at 7ffe8000
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.

```
The default bootfile for this platform is

        [GS320]GS320_V59B.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 dqa0.0.0.15.0 for the option firmware files. . .
Copying DFXAA320 from dqa0.0.0.15.0. . .
Copying KZPSAA12 from dqa0.0.0.15.0. . .
Copying CIPCA420 from dqa0.0.0.15.0. . .
```

```
Copying KG8381A4 from dqa0.0.0.15.0. . .
Copying KG7303A1 from dqa0.0.0.15.0. . .


               ***** 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

SRM28             v5.9-331            srm_fw              v5.9-331

SRM               v5.9-331            srm_fw              v5.9-331

pga0             DS3.03A1             kgpsa_8k_fw        DS3.81A4

micro             V5.8(11.08/01:01)   micro_fw            V5.9(03.14/11:04)

                                      cipca_fw           A420

                                      dfxaa_fw             3.20

                                      kgpsa_7k_fw        SS3.03A1

                                      kzpsa_fw           A12

UPD>
```

6. Enter <update micro> command as shown, and answer yes to the question (note - if the user enters <update *>, all possible firmware pieces are updated - SRM, Micros, and I/O adapters. Actually, <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 micro

Confirm update on:
micro
[Y/(N)]Y  <USER HITS "Y" KEY>
WARNING: updates may take several minutes to complete for each device.

                          DO NOT ABORT!

micro           Updating to V5.9(03.14/11:04)...
```

```
Updating SCM nodes E0,E1
Update Cmd processed
Transferring hex file...........Flash ON........Flash ON........Flash
ON........Flash ON.......
    .
    .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
    .
    .
~I~ SCM powered via PBM
SCM_E0>
   Firmware Update is now complete.  If you require a partitioned system,
   please set your HP_COUNT and 'POWER ON -ALL'.  For non-partitioned systems
   enter 'POWER ON'

SCM_E0>
~I~ CSB Node 40 connection added
SCM_E0>
```

7. Enter <p on> command as shown :

```
SCM_E0> p on
Powering on PCI Box 0
Powering on PCI Box 1
QBB-0 Powering ON

~I~ Testing OCP Switch- passed
Power ON Phase INIT
QBB-1 Powering ON
QBB-2 Powering ON
QBB-3 Powering ON
    .
    .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
    .
    .
AlphaServer Console V5.9-331, built on Mar 14 2001 at 11:25:22
P00>>>
```

3.5 Updating PCI I/O Adapter Firmware Using the CD

NOTE: It is recommended that you run the LFU from the serial line with the "console" environment variable set to "serial" mode. In "graphics" mode, after updating CSB Micros, the graphics monitor will go blank, and you will have to do an SCM "p on" command from the serial line, to restart the system.

PCI I/O Adapter Firmware Update Example Using LFU :

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

```
P00>>>init


OpenVMS PALcode V1.90-3, Tru64 UNIX PALcode V1.86-2

system = QBB 0 1 2 3         + HS
 QBB 0 = CPU 0 1 2 3 + Mem 0   2 3 + Dir + IOP + PCA 0 1     + GP  (Hard QBB 0)
 QBB 1 = CPU 0 1 2 3 + Mem 0       + Dir + IOP + PCA         + GP  (Hard QBB 1)
 QBB 2 = CPU 0 1 2 3 + Mem 0 1     + Dir + IOP + PCA         + GP  (Hard QBB 2)
 QBB 3 = CPU 0 1 2 3 + Mem 0 1     + Dir + IOP + PCA     2   + GP  (Hard QBB 3)
micro firmware version is V5.9
shared RAM version is 1.4
    .
    .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
    .
    .
AlphaServer Console V5.9-331, built on Mar 14 2001 at 11:25:22
P00>>>
```

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

```
P00>>>sho dev
dka0.0.0.1.0               DKA0              COMPAQ BB00921B91  3B05
dkb0.0.0.1.28              DKB0              COMPAQ BB00921B91  3B05
dkc0.0.0.5.29              DKC0              COMPAQ BB00911CA0  3B05
dkc100.1.0.5.29            DKC100            COMPAQ BB00911CA0  3B05
dkc200.2.0.5.29            DKC200            COMPAQ BB00911CA0  3B05
dkc300.3.0.5.29            DKC300            COMPAQ BB00911CA0  3B05
dkc400.4.0.5.29            DKC400            COMPAQ BB00911CA0  3B05
dkc500.5.0.5.29            DKC500            COMPAQ BB00911CA0  3B05
dqa0.0.0.15.0              DQA0                COMPAQ CDR-8435  0013
dqb0.0.0.15.28             DQB0                COMPAQ CDR-8435  0013
dva0.0.0.1000.0            DVA0
dvb0.0.0.1000.28
ewa0.0.0.4.29              EWA0              08-00-2B-C4-7F-EE
pga0.0.0.1.2               PGA0        WWN 2000-0000-c921-0c22
pka0.7.0.1.0               PKA0                  SCSI Bus ID 7  5.57
pkb0.7.0.1.28              PKB0                  SCSI Bus ID 7  5.57
pkc0.7.0.5.29              PKC0                  SCSI Bus ID 7  5.57
P00>>>
```

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

```
P00>>>boot dqa0
(boot dqa0.0.0.15.0)
block 0 of dqa0.0.0.15.0 is a valid boot block
reading 1082 blocks from dqa0.0.0.15.0
bootstrap code read in
base = 5f4000, image_start = 0, image_bytes = 87400
initializing HWRPB at 2000
initializing page table at 7ffe8000
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.

```
The default bootfile for this platform is

        [GS320]GS320_V59B.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 dqa0.0.0.15.0 for the option firmware files. . .
Copying DFXAA320 from dqa0.0.0.15.0. . .
Copying KZPSAA12 from dqa0.0.0.15.0. . .
Copying CIPCA420 from dqa0.0.0.15.0. . .
Copying KG8381A4 from dqa0.0.0.15.0. . .
Copying KG7303A1 from dqa0.0.0.15.0. . .


                ***** 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

SRM28             v5.9-331            srm_fw              v5.9-331

SRM               v5.9-331            srm_fw              v5.9-331

pga0             DS3.03A1             kgpsa_8k_fw        DS3.81A4

micro             V5.9(03.14/11:04)   micro_fw            V5.9(03.14/11:04)

                                      cipca_fw           A420

                                      dfxaa_fw             3.20

                                      kgpsa_7k_fw        SS3.03A1

                                      kzpsa_fw           A12

UPD>
```

6. In this example, we will update the KGPSA Adapter (pga0).
Enter <update pga*> command as shown, and answer yes to the question (note - if the user enters <update *>, all possible firmware pieces are updated - SRM, Micros, and I/O adapters. Actually,

<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 pga*

Confirm update on:
pga0
[Y/(N)]Y  <USER HITS "Y" KEY>
WARNING: updates may take several minutes to complete for each device.

                          DO NOT ABORT!

pga0            Updating to DS3.81A4...  Verifying DS3.81A4...  PASSED.

UPD> exit
```

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

```
UPD> exit

Initializing....
     .
     .
<SEVERAL PAGES OF PRINTOUT WILL OCCUR HERE>
     .
     .
initializing pka pkb pkc ewa dqa dqb pga

AlphaServer Console V5.9-331, built on Mar 14 2001 at 11:25:22
P00>>>
```

3.6 Procedure for Recovering from a Failed LFU Update

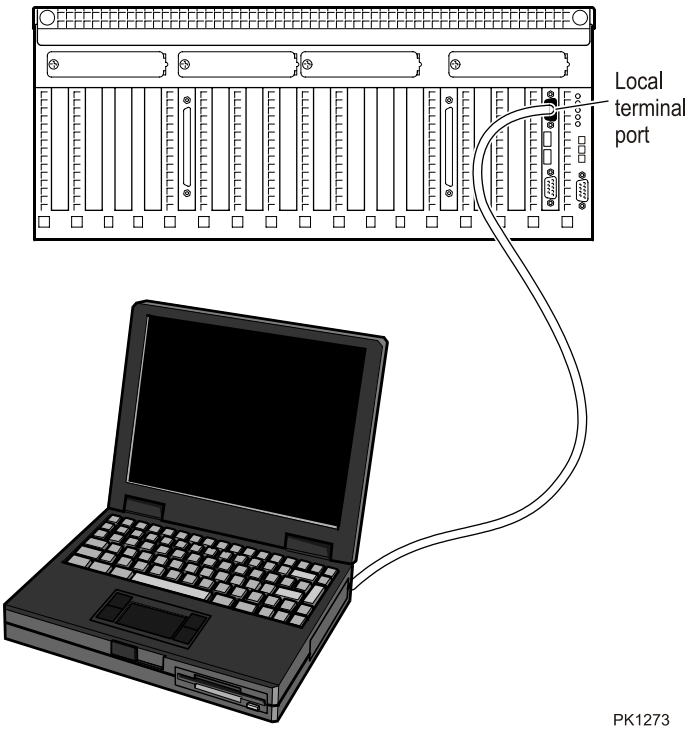
In the case of an LFU update failing the following information will describe the steps necessary to recover a CSB node to the point at which the LFU may be tried a second time.

When a CSB node fails to update it will most likely result in that node being in its Failsafe Loader (FSL). Once in this state the node can no longer be updated via the LFU utility and must be updated serially, following the steps below.

3.6.1 Hardware Connections

Use of the SCM update command requires a physical connection to the master SCM (unless the failed node is a slave SCM, in which case connect to that slave's local terminal port). If the system management console is used, you need not connect a laptop but can execute update procedures from there.

Figure: Connecting a Laptop to the Local Terminal Port



The above figure shows the connection made between a laptop and the local terminal port on the standard I/O module in the master PCI box. On this module resides the CSB master SCM. Use two nine pin to MMJ connectors (H8571-J), one for the COM1 port and the other for the laptop, and connect the two using a DEC connect office cable.

NOTE : If you are using the system management console (SMC) to do firmware updates, you need not connect your laptop since the SMC is already connected to the master PCI box.

3.6.2 PC/Laptop Operating System Preparation

When the SCM update command is used, firmware update files are downloaded from a PC or laptop into the master SCM module. Certain COM1 port settings are required.

Example: COM1 Port Settings for Windows NT 4.0

1. From Start go to Settings and select Control Panel.
2. From Control Panel select Ports.
3. From Ports select COM1 and Settings.
4. At Settings for COM1, set:
   Baud rate: 9600
   Data Bits: 8
   Parity: None

Stop Bits: 1
Flow Control: Xon/Xoff
then select Advanced

5. At Advanced Setting for COM1, disable (uncheck) FIFO Enable and leave all other settings at the default.
6. Click OK back through the dialog boxes, shutdown, reboot and verify that these settings stuck.

Example: COM1 Port Settings for Windows 2000

1. From Start go to Settings and select Control Panel.
2. From Control Panel select System.
3. From System select the Hardware tab.
4. From the Hardware tab select Device Manager.
5. Expand Ports and select Communications Port (COM1).
6. At the Communications Port (COM1) Properties, set:
   Bits per second: 57600
   Data Bits: 8
   Parity: None
   Stop Bits: 1
   Flow Control: Xon/Xoff
   then select Advanced.
7. At the Advanced Settings for COM1, deselect Use FIFO buffers.
8. Click OK back through the dialog boxes. There is no need to reboot.

Example: COM1 Port Settings for Windows 95

1. From Start go to Settings and select Control Panel.
2. From Control Panel select System.
3. From System Properties select the Hardware Manager tab.
4. Expand Ports and select Communications Port (COM1).
5. At the Communications Port (COM1) Properties, select the Port Settings tab and set:
   Bits per second: 57600
   Data Bits: 8
   Parity: None
   Stop Bits: 1
   Flow Control: Xon/Xoff
   then select Advanced.
6. At the Advanced Port Settings, deselect Use FIFO buffers.
7. Click OK back through the dialog boxes. There is no need to reboot.

3.6.3 Terminal Emulator Settings

When the SCM update command is used, firmware update files are downloaded from a host PC COM1 port to the master SCM local port on the standard I/O module. Certain terminal emulator settings are required.

Example: KEAterm V5.1 Session for PC or Laptop COM1 Port

1. From Start go to Programs and select KEA!VT and then KEA!
2. At the Session Template select Serial – click Next>.
3. At Connection Type select Serial – click Next>.
4. At Connection select the General tab and set
   Port name: COM1
   Speed: 9600
   – click Next>.
5. Then select the Options tab and in the Flow Control section set:
   Data to host: Xon/Xoff
   Data from host: Xon/Xoff
6. Then select the Rate Limiting tab and deselect (uncheck) both
   Limit data rate during Paste and ASCII send and
   Limit data rate during keyboard input and reporting
   – click Next>.
7. At Terminal Type select VT400-8bit – click Next>.
8. At File Transfer Protocol select ASCII – click Next>.
9. Click Finish to open a KEA terminal session.
10. From the Options menu select History.
    Select the VT Advanced tab
    Select (check) Auto wrap lines
    Click OK.
11. From the File menu select Save Session as
    Set Name as something like WF_SCM
    Click Save.

Example: PowerTerm 525 Settings

1. From Start go to Programs and select PowerTerm.
2. At Connect set:
   Session type COM
   Terminal type VT420-8
   Baud Rate 9600

Stop Bits	1
Port Number	1
Parity	8/none
Flow Control	Xon/Xoff

– click Connect

3. From the Communications menu, select File Transfer Setup and set:

Host Data Type	8-Bit (DOS – Ascii)
PC Data Type	8-Bit (DOS – Ascii)

click OK

3.6.3.1 Opening Previously Created Sessions

If the COM1 port KEA session was previously created, open it and from the Open Session popup, select the name you selected in step 11 of the KEA setup.

If the a PowerTerm 525 session was previously created, open it selecting the session connecting to the standard I/O module on the GS80/160/320 system.

3.6.3.2 Changing Baud Rates

Once a connection is established between the laptop/PC and the SCM you may wish to improve performance by increasing the baud rate of both the standard I/O terminal port and the COM1 port on the laptop/PC.

First at the SCM prompt:

SCM_E0> **set baud 57600**

Then make the appropriate KEAterm or PowerTerm changes to set the connection speed to 57600 also.

Be sure to return the baud rate to 9600 after you've completed your session.

3.6.4 Using the SCM Update Command

The SCM update command may be used from the master SCM to update specific firmware in the system. The firmware file must be downloaded to the master SCM local terminal port. If a microprocessor is in FSL mode because its firmware is corrupt, this command must be used.

Example : Using the Update Command

```
SCM_E0> power off –par 0                                                    1
SCM_E0> sho csb                                                             2
CSB Type         Firmware Revision      FSL Revision  Power State

10  PBM          T04.6   (11.03/01:09)  T4.2 (09.08)  ON
11  PBM          T04.6   (11.03/01:09)  T4.2 (09.08)  ON
12  PBM          T04.6   (11.03/01:09)  T4.2 (09.08)  ON
30  PSM          T04.5   (11.03/01:07)  T4.2 (09.08)  OFF      SrvSw: SERVICE
30    XSROM      T04.6   (11.03/02:19)                                      3
c0    CPU0/SROM  T4.2-7                                OFF
c1    CPU1/SROM  T4.2-7                                OFF
c2    CPU2/SROM  T4.2-7                                OFF
```

```
c3    CPU3/SROM  T4.2-7                                  OFF
c0    IOR0                                              OFF
c1    IOR1                                              OFF
c2    IOR2                                              OFF
c3    IOR3                                              OFF
31  PSM          T04.6   (11.03/01:07)  T4.2 (09.08)  ON       SrvSw: NORMAL
31    XSROM      T04.6   (11.03/02:19)
c4    CPU0/SROM  T4.2-7                                 On
c5    CPU1/SROM  T4.2-7                                 On
c6    CPU2/SROM  T4.2-7                                 On
c7    CPU3/SROM  T4.2-7                                 On
c4    IOR0                                              On
c5    IOR1                                              On
40  HPM          T04.6   (11.03/01:11)  T4.2 (09.08)  ON
e0  SCM MASTER   T04.6   (11.03/01:13)  T4.2 (09.08)  ON
e1  SCM SLAVE    T04.6   (11.03/01:13)  T4.2 (09.08)  ON          Ineligible
e2  SCM SLAVE    T04.6   (11.03/01:13)  T4.2 (09.08)  ON          Ineligible
e6  SCM SLAVE    T04.6   (11.03/01:13)  T4.2 (09.08)  ON          Ineligible
SCM_E0> update –csb 30                                                    4
Initiate HEX file transfer from host (press ESC-ESC to abort):
```

Conditions to Note When Using This Update Method

A master and slave SCM may be updated using this method but a master SCM cannot update a slave. To update either a master or slave the device downloading the SCMROM.HEX file must be connected physically to the target standard I/O local port.

When updating the XSROM code, the entire system may be up and running operating systems.

A consequence of updates to any of the microprocessors (with the exception of the XSROM on the PSM) is that they immediately reset once the new firmware downloads. Therefore, you want to minimize the effect of the reset on the rest of the system by isolating the QBB/partition.

When updating a PSM, the partition in which the PSM resides should be powered off.

When updating a PBM, the PCI I/O subsystem in which the PBM resides must be removed from the resources available to an operating system.

When updating an HPM, the system should be powered off.

The above Example shows a sample master SCM update of a PSM module in QBB0 :

1. The target device to be updated must be powered off. In this example the PSM is assumed to be in partition 0. It is also assumed that partition 0 has been appropriately powered off using the SRM **power off** command prior to the SCM **power off –par 0** command.
2. The **show csb** command shows the target off and the PSM switch in the Service position.

Example : Using the Update Command (Continued)

```
SCM_E0> update –csb 30                                                    1
Initiate HEX file transfer from host (press ESC-ESC to abort):

Initiate transfer of the file PSMROM.HEX to the COM1 port                 2
```

For KEAterm

```
From the Tools menu goto File Transfer and select Send to Host
Change the Files of type: to All Files (*.*)
Browse for and select the file PSMROM.HEX.
Click on OK.
```

For PowerTerm 525

```
From the Communication  menu select Send File…
At Send File select the Ascii tab
Browse for and select the file PSMROM.HEX by clicking on the browse button
next to the File Name input box.
Click OK.
```

```
:02000002C0003C
Transferring hex file . . . . . .
~I~ Flashing node 30 (please wait)
CSB download of .HEX file complete

Flash Update complete.                                          3
CSB Node 30 connection lost
CSB Node 30 connection added
SCM_E0>
```

Note in the above continuation of the example :

1. The SCM **update** command is issued. Note that it is possible to update several PSMs at a time with the command: **update –csb 30,31,32**…
2. Be sure that the terminal emulator is configured properly for the file transfer. (See previous subsection). The PSMROM.HEX file is transferred to the COM1 port.
3. The flash update completes.