hp AlphaServer GS320/160/80
V7.3 Console Firmware Release

Notes

This document contains firmware enhancements and update procedures. Start with Read Me First.
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Scope

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

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

Golden Rules

Update all console firmware before installing or updating an operating system to ensure compatibility. Ensure firmware is updated to the latest revision level.

AlphaServer systems recently shipped may have a higher console firmware revision than the firmware revision listed in this release. A higher firmware revision normally indicates support for the installed operating system.

It is not recommended to load firmware that is older than what is presently installed.

On-Line Technical Resources

Firmware Web site:
http://www.hp.com
Click on Server, click on HP Alphaservers then click on firmware

Technical Support:
http://h20000.www2.hp.com/bizsupport/TechSupport/Home.jsp
http://www1.itrc.hp.com/service/home/home.do

Technical Information:

hp Alpha Retain Trust Program

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

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

Firmware Changes This Release

SRM Firmware Changes
- **Kgpsa driver** - the console will fail to login into the fibre-channel fabric switch, if the connection is moved from one switch port to another, on certain new Brocade fibre-channel switches. 
  Solution: When attempting to login to a fibre-channel switch port, use an SDID of zero and the switch will provide the new SDID to the host adapter
- **Wwidmgr** - the console supports a number of environmental variables to facilitate boot and crash dump to fibre-channel storage volumes. Presently there are four (4) WWIDx variables that define the world-wide-ID of a storage volume and eight (8) Nx variables that define the path to the storage volumes. The console uses these variables to define the volumes that may be used for boot or crash dump devices. 
  Solution: Increase the number of Nx (16) and WWIDx (8) console environmental variables.

Micros - SCM, PSM, HPM, PBM, XSROM - no changes.
Note - There were reported cases where the CSB firmware (HPM) has failed to update. After performing the MICRO update, verify that the version and date code of the individual sections are all the same. If a subsequent firmware update fails a complete power cycle may be required. (e.g. cycling the power circuit breakers.)

I/O Option Firmware - no changes
Console Firmware, I/O Adapters and Operating System Revisions

**TABLE 1. Console Firmware Revision**

<table>
<thead>
<tr>
<th>Firmware Component</th>
<th>Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRM Console</td>
<td>V7.3-1 *</td>
</tr>
<tr>
<td>VMS PALCode</td>
<td>V1.98-2</td>
</tr>
<tr>
<td>UNIX PALCode</td>
<td>V1.92-1</td>
</tr>
<tr>
<td>ISP10x0 FW</td>
<td>V5.57</td>
</tr>
<tr>
<td>XSROM</td>
<td>V6.6 (01.26/00:24)</td>
</tr>
<tr>
<td>SCM Micro</td>
<td>V6.6 (01.22/01:02)</td>
</tr>
<tr>
<td>PSM Micro</td>
<td>V6.6 (01.22/01:01)</td>
</tr>
<tr>
<td>PBM Micro</td>
<td>V6.6 (01.22/01:02)</td>
</tr>
<tr>
<td>HPM Micro</td>
<td>V6.6 (01.22/01:02)</td>
</tr>
</tbody>
</table>

* indicates firmware changed in this release.

**TABLE 2. I/O Adapters Firmware Revision**

<table>
<thead>
<tr>
<th>PCI Adapter</th>
<th>Fw Revision</th>
<th>PCI Adapter</th>
<th>Fw Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIPCA</td>
<td>4.20</td>
<td>DEFPA</td>
<td>3.20</td>
</tr>
<tr>
<td>FCA-2354</td>
<td>CS3.93A0</td>
<td>FCA-2384</td>
<td>HS1.91X6</td>
</tr>
<tr>
<td>FCA-2684</td>
<td>TS1.91X6</td>
<td>KGPSA-BA</td>
<td>SS3.20X7</td>
</tr>
<tr>
<td>KGPSA-CA</td>
<td>DS2.93A0</td>
<td>KZPCC</td>
<td>Adapter FW: CQ17, SMOR Utility: 1.12</td>
</tr>
<tr>
<td>KZPDC</td>
<td>3.56</td>
<td>KZPSA</td>
<td>A12</td>
</tr>
</tbody>
</table>

NOTE: Although the update program contains firmware images for KGPSA-BC and KZPSA, these adapters are not officially supported on GS80/160/320 Systems. CCMAB (Memory Channel) is supported, but firmware update support is not provided nor needed.

**TABLE 3. Console and OS Revision**

<table>
<thead>
<tr>
<th>SRM Console Fw</th>
<th>CSB Micro Fw</th>
<th>OpenVMS</th>
<th>Tru64UNIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>V7.3-1 *</td>
<td>V6.6</td>
<td>V7.3-1, V7.3-2, V7.2-2</td>
<td>V5.1B, V5.1A, V4.0G</td>
</tr>
<tr>
<td>V7.2-1</td>
<td>V6.6</td>
<td>V7.3-2, V7.3-1, V7.2-2</td>
<td>V5.1B, V5.1A, V4.0G</td>
</tr>
</tbody>
</table>

* indicates firmware has changed since the previous release.
Procedures

Updating Firmware

This chapter explains the firmware update procedure by using the Loadable Firmware Update utility on the firmware update CD. It also contains a list of other procedures.

Update All Firmware

This procedure updates all firmware. The SRM console is initialized and then the firmware CD is booted from the SRM console prompt. This prompts the Loadable Firmware Utility [LFU] to run. The procedure to update all firmware is as follows:

- Initialize the SRM console to ensure the system is in a quiescent state. 
  P00>>> init 
- Boot the firmware CD and press the ENTER key when prompted with the LFU filename. 
  P00>>> boot dqa0 
  Hit <RETURN> at the prompt to use the default bootfile. 
  Bootfile: < Press ENTER KEY> 
  The LFU is loaded and the LFU prompt is displayed UPD>. 
- Update ALL firmware from the LFU. 
  Answer Yes when prompted. 
  UPD> update * 

Exit the LFU 
UPD> exit 
End of procedure

Update CSB Firmware

Update Firmware from a Serial Console

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.

Check for Customized Setting

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.

De-Partition System Before Updating Firmware
De-partition the system before updating micros firmware from the LFU. It is recommended that the user first do the following:

**TABLE 1. Departition System Procedure**

- **SCM_E0> show nvr**
  - Record the value \(<n>\) of NVR variable “hp_count” to use later.
- **SCM_E0> set hp_count 0**
- **SCM_E0> p off**
- **SCM_E0> p on**
  - Run the LFU and update firmware
- **SCM_E0> set hp_count <n>**

**Recovering from a Failed LFU Update**

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.

**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.
Procedures

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.

PC or Laptop Operating System Setup

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

**TABLE 2. COM1 Port Setting for Windows NT 4.0**

- From Start, select Settings then select Control Panel.
- From Control Panel select Ports then select COM1.
- At COM1 set: the following parameters:
  - BAUD RATE: 9600
  - DATA BITS: 8
  - PARITY: None
  - STOP BITS: 1
  - FLOW CONTROL: Xon/Xoff
- Select Advanced
- At Advanced Setting for COM1, disable (uncheck) FIFO Enable and leave all other settings at the default.
- Click OK back through the dialog boxes, shutdown, reboot and verify the COM1 parameters match.
**TABLE 3. COM1 Port Settings for Windows 2000**

- From Start, select Settings the select Control Panel.
- From Control Panel select System.
- From System select Hardware tab.
- From Hardware tab select Device Manager.
- Expand Ports and select Communication Port (COM1).
- At the Communications Port Properties set the following:
  - BAUD RATE: 57600
  - DATA BITS: 8
  - PARITY: None
  - STOP BITS: 1
  - FLOW CONTROL: Xon/Xoff
- Select Advanced.
- At Advanced Setting for COM1, deselect Use FIFO buffers.
- Click OK back through the dialog boxes. No need to reboot.

**TABLE 4. COM1 Port Settings for Windows 95**

- From Start, select Settings the select Control Panel.
- From Control Panel select System.
- From System Properties select Hardware Manager tab.
- Expand Ports and select Communication Port (COM1).
- At the Communications Port Properties set the following:
  - BAUD RATE: 57600
  - DATA BITS: 8
  - PARITY: None
  - STOP BITS: 1
  - FLOW CONTROL: Xon/Xoff
- Select Advanced.
- At Advanced Setting for COM1, deselect Use FIFO buffers.
- Click OK back through the dialog boxes. No need to reboot.

**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 as shown in the tables above.
TABLE 5. KEAterm V5.1 Session for PC or Laptop COM1 Port

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

TABLE 6. PowerTerm 525 Settings

- From Start go to Programs and select PowerTerm.
- At Connect set:
  Session typeCOM
  Terminal typeVT420-8
  Baud Rate9600
  Stop Bits1
  Port Number1
  Parity8/none
  Flow ControlXon/Xoff
  – click Connect
- From the Communications menu, select File Transfer Setup and set:
  Host Data Type8-Bit (DOS – Ascii)
  PC Data Type8-Bit (DOS – Ascii)
  click OK
**Procedures**

*Opening a Previsously Created Terminal Session*

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

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

**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 first be downloaded to the master SCM local terminal port. If a microprocessor is in fail-safe FSL mode because its firmware is corrupt, this command must be used. The example shows a sample master SCM update of a PSM module in QBB0:

Preparation - 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. The show csb command shows the target is off and the PSM switch is in the Service position.
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...

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.

The flash update completes.
### SCM Update Conditions

**Master and Slave SCM**

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 SCM-ROM.HEX file must be connected physically to the target standard I/O local port.

**XSROM**

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

**PBM**

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.

**HPM**

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

### Properly Power On or Reset a System

This is the preferred procedure to Power Off or to Reset a system either partitioned and non-partitioned.

On hard partitioned systems, use the SRM console commands `power off` or `reset`. 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.

**Do not use power off or reset a partition from the SCM monitor.**

Although it is possible to power down and reset partitions from the SCM, that partition may not power up properly and may result unpredictable behavior of the rest of the system. This is similar to the requirement of initiating power on and off of individual CPUs from the SRM console or operating system.

### Increasing Heap Size in SRM Console

The SRM console internal heap has been increased from 1MB to 2MB in order to accommodate larger configurations. 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 using the appropriately applying the `set heap-expand <value>` command and then the `init` command.

Set System Serial Number  

In order to write the system serial number, the system must first be powered off, de-partitioned then powered on. Then at the console prompt, the `set sys_serial_num` command can be issued from the SRM console. The console instructs the SCM (via shared RAM) to propagate the serial number to every FRU in the system that contains an FC EEPROM. Progress messages are displayed to the console to indicate which nodes are being programmed. See the notes that follow the example:
Procedures

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>>> show sys_serial_num
sys_serial_num              ni12345678
P00>>>

Note 1: 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 2: The set sys_serial_num command can take minutes to complete. After issuing the command, wait for the console prompt before proceeding.

Programming Third Party Memory DIMMs

The SRM console build –dimm command writes part number and serial number into DIMMs not manufactured by Compaq. Using the show fru command, the manufacturer’s part and serial numbers are displayed in the appropriate columns, but the new part and serial numbers are also displayed under the Model/Other and Alias/Misc columns respectively.

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

- The set sys_serial_num command must be executed before the DIMMs can be programmed.
- The SCM’s non-volatile variable dimm_read_dis must be set to a 0. This must be done prior to poweron.
- 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.
- 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.

The following is an example of a build –dimm command executed on a 16P system:

P00>>>build -dimm
This operation can take as long as 3 minutes per QBB. 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>>>

Running SMOR Utility

Running the SMOR Utility on the KZPCC 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 the SMOR Utility from the SRM Console using a serial terminal, on a KZPCC named pza0. User actions are in bold type:

Invoke BIOS Emulator in order to run SMOR

- P00>>> run bios pza0

Screen blanks here, wait a few seconds, then new screen appears. The utility is running the graphics console emulation on the serial port.

- Press <SPACE> key to hold this screen (until you press another key).
- Press the <ESC> key + <H> key.

  The <ESC> key is used to emulate the functionality of the <ALT> key. For example, to deliver the <ALT + H> key combination, 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> + <3> key. To deliver the <ESC> key itself, press the <ESC> key and then the <SPACE> key.

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

  Press the <SPACE>+ <SPACE> key or waits ~15 seconds.
  Screen blanks here, wait ~15 seconds, then new screen appears

Screen displays:
I2O SCSI BIOS v001.2H (1999/10/15)

Distributed Processing Technology

Copyright 1996-99 All Rights Reserved
Press <CTRL+D> for DPT Setup, Waiting for devices

Press <CTRL+D> keys
<<Screen blanks here, wait ~15 seconds, then new screen appears.
Procedures

File RAID Action Help
Screen displays:

|Copyright 1986-2000 Distributed Processing Technology, Corp.
All Rights Reserved

Scanning for devices on HBA 0

0     ID     15
Channel 0 :
Channel 1 :
Channel 2 :
Channel 3 : XXXXXXXXXXXXXXXX

Run SMOR Utility as described in the SMOR documentation.

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 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), I2OBIO.12H (I2O BIOS code), and SMOR0033.112 (SMOR code).

Service a Non-Master PCI Drawer in an OpenVMS Galaxy Partition

This procedure can be used to replace a bad module in a non-master PCI drawer or to add new options to a PCI drawer. This procedure is for systems 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.

With all partitions in the system are assumed to be running OpenVMS, 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
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.
Procedures

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

... boot
$ 

End of Procedure

UART Communication Settings

The following are the default settings for all UART-related SCM variables. The SCM variables are set to these values when either the SCM EEPROM checksum test fails or when a user has installed the RMC_DEFAULTS jumper.

The SCM 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 back to “through mode” if it has been modified.

<table>
<thead>
<tr>
<th>UART Type</th>
<th>Baud Rate</th>
<th>Flow Control</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>local</td>
<td>9600</td>
<td>soft</td>
<td>None (n/a)</td>
</tr>
<tr>
<td>COM1</td>
<td>9600</td>
<td>hard</td>
<td>Through</td>
</tr>
<tr>
<td>modem</td>
<td>9600</td>
<td>hard</td>
<td>None (n/a)</td>
</tr>
</tbody>
</table>
Recommended Settings

Baud Rate - The recommended setting for is 9600 baud for all three UARTs. This is because, at higher settings, we have experienced symptoms of serial character loss and corruption due to terminal emulator programs improperly rendering the data sent to them from the SCM. For example, 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 symptom is to reduce the baud rate. We have found no other combination of terminal window settings which guarantee data integrity.

COM1 Flow Control (for Tru64UNIX) - Although the firmware default for the COM1 flow control setting is **hard**, the default setting for Tru64Unix is **soft**. If a user wants Tru64Unix to use soft flow control then the /etc/gettydefs file must be edited to keep Tru64UNIX from changing the setting; especially when a user wishes to run the OPA0 console at any speed other than 9600. To ensure flow control do the following:

- Tru64UNIX must first be booted up at 9600
- Modify the /etc/gettydefs the file. modified
- Change the the baud rates at the operator console.
- Restart Tru64UNIX to 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.

During the SMC software installs 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. For example, the Tru64UNIX sysman utility. To run such a program, configuration changes are required 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:
Procedures

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: Odd behavior has been seen with using the first port of the DS90M terminal server. With flow control 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.

Enabling Redundant PCI Power Supplies

Symptom - For PBM micro images dated between Jan 12, 2000 and Mar 29, 2001 (including firmware releases V5.6 through the V5.9B), adding a power supply to a PCI drawer does not automatically get enabled. Update firmware to V6.0 or greater. The expected behavior is the power supply is enabled when added to the PCI Drawer. If a PBM micro 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: The system can be powered off and back on via either the CLI or the keyswitch. This will take down the entire system.

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.

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

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The two most significant bits of the 16 bit IPR represents 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.
## Workarounds and Restrictions

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Booting Firmware</strong></td>
<td>Booting firmware from DVD is Not Supported</td>
</tr>
<tr>
<td></td>
<td>Booting firmware is only supported from a bootable CD-ROM. Booting firmware from a bootable DVD is not supported.</td>
</tr>
<tr>
<td><strong>Galaxy Partitions</strong></td>
<td>OpenVMS 7.3-1 with Galaxy Partitions and SRM Console Firmware V6.3</td>
</tr>
<tr>
<td></td>
<td>• CPU Halted under OpenVMS - CPU migration functionality cannot be utilized on a CPU that is halted in console mode using the OpenVMS command: {stop/cpu x followed by set cpu x/migrate=y}, until the OpenVMS Remedial Kit (VMS731_SYS-V0100 or newer) has been installed.</td>
</tr>
<tr>
<td></td>
<td>• CPU Active under OpenVMS - CPU migration functionality can be utilized on an active CPU using the OpenVMS command {stop/cpu/migrate=y x}, prior to the Remedial Kit installation.</td>
</tr>
<tr>
<td></td>
<td>Full CPU migration functionality is restored after installation of the Remedial Kit.</td>
</tr>
<tr>
<td><strong>Memory Dimms - Samsung</strong></td>
<td>The build -dimm SRM console command will not work correctly on any Samsung DIMM because a section of the EEPROM used to store FRU data is write-protected.</td>
</tr>
<tr>
<td></td>
<td>Symptom - The build -dimm command will appear to complete successfully and the proper data will be displayed in the show fru command. However, when AC power is cycled and the system is powered on, the show fru command will display incorrect FRU data for Samsung DIMMs.</td>
</tr>
<tr>
<td><strong>KVM Console Switch Limitations</strong></td>
<td>Cannot Use the Run Bios Command in Graphics Mode - Use the Workaround</td>
</tr>
<tr>
<td></td>
<td>The SRM “run bios” command from the graphics console, connected through a KVM console switch, is not supported and will result in unexpected keyboard behaviour. As a workaround, use the SRM “run bios” command from the serial console via serial port connection.</td>
</tr>
<tr>
<td><strong>Cluster CI Connections</strong></td>
<td>During system initialization, cluster CI connections may be temporarily closed resulting in an &quot;SCS Disconnect Request received - break VC&quot; message at console. The driver properly recovers and re-establishes the connection so there is no negative impact from this closure.</td>
</tr>
<tr>
<td><strong>Configuring I/O Adapters using BIOS</strong></td>
<td>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 &lt;ESC&gt; to exit the BIOS and the return of a graphics mode prompt.</td>
</tr>
</tbody>
</table>
### Workarounds and Restrictions

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

**Bootstrap Address Collision Message Booting Tru64UNIX**
After updating SRM console firmware and if the console performs re-sizing of the heap, you may see the following message when booting Tru64Unix operating system: *Bootstrap address collision, image loading aborted*
The message generally indicates it is necessary to boot the generic Tru64UNIX kernel and to re-generate a new kernel in order to adjust to the new console mapping.

**SCM Monitor Usage**
- Before updating CSB Micro Firmware to the latest revisions, all micros and XSROM should currently be at the same firmware revision (all V5.6 or all V5.7 or all V5.8, etc.) for correct operation of the firmware update.
- 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. To return to the system defaults, use the **build eeprom** command or “**set srom full**” and “**set xsrom full**” commands.
- 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”).

**Hot-Swap Hot-Add Restriction**
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).

**SROM/XSROM Restriction**
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.
Workarounds and Restrictions

Fibre Channel Notes

Console Messages - Starting the KGPSA Fibre Channel Driver

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.

With V5.6 or newer console firmware, the console contains a portion of the NVRAM to indicate if the adapter should be initialized to a Fabric (Switch) or Loop topology. By default, the console initializes the KGPSA to a Fabric topology. The NVRAM is automatically formatted when the topology is set.


TABLE 1. Example of Setting Adapter Topology

<table>
<thead>
<tr>
<th>P00</th>
<th>wwidmgr -show ada</th>
</tr>
</thead>
<tbody>
<tr>
<td>item adapter WWN Cur. Topo Next Topo</td>
<td></td>
</tr>
<tr>
<td>pga0.0.0.8.1 - Nvram read failed.</td>
<td></td>
</tr>
<tr>
<td>[ 0] pga0.0.0.8.1 1000-0000-c920-05ab FABRIC UNAVAIL</td>
<td></td>
</tr>
<tr>
<td>pgb0.0.0.10.1 - Nvram read failed.</td>
<td></td>
</tr>
<tr>
<td>[ 1] pgb0.0.0.10.1 1000-0000-c921-0ce0 FABRIC UNAVAIL</td>
<td></td>
</tr>
<tr>
<td>[9999] All of the above.</td>
<td></td>
</tr>
</tbody>
</table>

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 |

Console Message - When Formatting the NVRAM

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 |
Workarounds and Restrictions

*** 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 UNA VAIL
[ 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.

Command Usage Requrement - Wwidmgr -quickset -item <n> -unit <n>
The wwidmgr -quickset -item <n> command MUST also have the "-unit" qualifier on the line for completion. For example: wwidmgr -quickset -item 10 Unit 200
With no unit number specified, the console will generate an incorrectly formatted unit number (a hashed value of the WWID).
V7.2

SRM Firmware Changes

1. New module naming has been added for the two I/O devices listed under the SRM `show config` command:
   - I/O device DE602-FA is displayed as DE602-F*.
   - I/O device DEGXA-SB/TB is displayed as DEGXA-S*/T*

2. 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 arms)

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