AlphaServer TS202C
V6.8a Firmware Release Notes and Update Procedure

1 Scope

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

1.1 Audience

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

1.2 Golden Rules

Update all console firmware before installing or updating an operating system to ensure compatibility. Console firmware for AlphaServer TS202c systems consists of six firmware entities: SRM, ipmi_booter, ipmi_rt, ipmi_sdr, SROM, and TIG. Ensure each firmware entity is updated to the latest revision level.

Please do not load firmware older than what is presently installed. AlphaServer systems recently shipped may have a higher console firmware revision than the firmware revision listed in this release. The higher firmware revision normally indicates support for the installed operating system.

The revision number of the console firmware and the Alpha Firmware CD are mutually exclusive.

1.3 Internet Links to Firmware & Documents

http://h18002.www1.hp.com/alphaserver/support.html - click on Alpha firmware updates

http://ftp.digital.com/pub/DEC/Alpha/firmware/readme.html - firmware index & docs

1.4 Order Documentation

Table 1-1 AlphaServer TS202c Documentation	
Service and Upgrade	Part Number: #520944-001
Hardware Installation	Part Number: #520940-001

1.5 hp Alpha Retain Trust Program

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

2   Read Me First

2.1   Console Changes this Release

Console Enhancements
- Loadable Firmware Utility [LFU] – For "non-interactive updates", IPMI firmware is updated only if the firmware revision is newer then the existing version in the system. For "interactive updates", the user can force an ipmi update regardless of fw revision by answering prompts from the LFU.

2.2 Revisions and Compatibility

The following table shows the revisions of the components of this firmware release, together with the versions of the operating systems that are current at the time of this firmware release. This release of firmware is compatible with, and supports, these versions of the operating systems, and any earlier versions of the operating systems that have been supported on this platform. Any future versions 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 2-1 Operating System and Firmware Revision Matrix[1]		
Operating System		Tru64 Unix **-** V5.1B
PALCode	OpenVMS	V1.98-35
	Tru64 Unix	V1.92-32
Console Firmware	SRM	V6.8-17 *
	SROM	V1.3F
	TIG	17
IPMI Manageability Firmware	ipmi_booter	1.0a
	ipmi_rt	1.0b
	ipmi_sdr	1.0a
		* Firmware change since previous frelease
Please upgrade all firmware to keep your system current in terms of console enhancements, device support, and bug fixes. Please refer to the Operating System Release Notes that may list exceptions or recommendations.		

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[1] Items in **BOLD type** denote a revision change since the last firmware release

2.3 Helpful Hints

2.3.1 FRU Table - Clearing Error Flags

Use the following commands to clear the error flags in the FRU table:

P00>>> **clear_error all** – clears error flags

P00>>> **init** – Type init to reinitialize the system

After servicing a system, it is recommended to clear the error flags before booting an operating system.

2.3.2 Info Commands

The info commands are used to display or to clear the console error log. The console error log data is volatile. It is erased when the system is power cycled. After servicing a system, it is recommended to clear the console error log before booting an operating system.

P00>>> **info 7** - will display recorded events from the console error log.

P00>>> **info 8** - will clear the console error log

2.4   AlphaServer TS202c Manageability Subsystem

2.4.1   QLogic ® Zircon IPMI Firmware Version

- Runtime V1.0B

- Booter V1.0A

- SDDR V1.0A

SUPPORTED COMMANDS:
See the Section 3.3 for a list of the IPMI commands supported with this release.

MINIMUM HARDWARE:
This release requires Pass 2 (or later) Falcon hardware (54-30410-02) or Falcon CB hardware (54-30520-01). **This software is not supported and should not be installed on Pass 1 Falcon platforms.**

ISSUES ADDRESSED WITH THIS V6.3 RELEASE: No changes since V6.3.
- Added additional available packets to the Block Transfer input queue to avoid discarded requests.
- Added informational alarms to inform the user when the Block Transfer driver is forced to discard packets.
- Restructured and simplified the implementation of the Block Transfer BMC-To-Host interrupt scheme to eliminate certain Tru64 UNIX timeout errors.
- Now allow only one response in the Block Transfer BMC-To-Host FIFO at a time; this corrects a flaw that would cause responses to sit in the FIFO unread.
- Corrected Block Transfer input packet queue processing to ensure all packets get removed from queue and processed in a timely fashion.
- Removed unused code to conserve space.
- Added 'hidden' command to disable thermal event generation. This command is for use during HALT testing in manufacturing and is **NOT** supported for customer use.
- Removed customer-facing references to Compaq.
- Firmware no longer enables the LPC interface on the BSC.
- Firmware now supports OEM SDR records that contain either the HP or Compaq manufacturer ID. (See **RESTRICTIONS** for additional information.)
- Incorporated code into I2C driver to eliminate intermittent data loss during slave transactions.
- Firmware now allows 'p off' command to be issued when the CPU or BIO enables are not engaged.
- Incorporated HP manufacturer ID into OEM SDR records. (To receive this change, user must install SDR Build Record Repository 1.0A. See **RESTRICTIONS** for additional information.)
- Increase upper threshold on 3.3V sensor in power supply to compensate for distribution drops
- Increased resources reserved for I2C slave command processing to eliminate occasional lost requests.

RESTRICTIONS:
1. Prior to installing SDR Build Record Repository 1.09 (or later), the user **MUST** install runtime image 1.0A or later. Additionally, after installing SDR Build Record Repository 1.09 (or later), the user must **NOT** roll back the runtime image to a version prior to 1.0A. **Failure to adhere to these**

restrictions will cause the manageability subsystem to malfunction and may render the subsystem inoperable.

2. For the 'Get Firmware ID' command to function properly, SRM version V6.1-4 or later must be installed on the Falcon platform.
3. The minimum supported SDR Build Record Repository is version 1.01. The repository must be brought to this version or later **prior** to updating the runtime image to version 1.01 or later.
4. All IPMB transactions to/from the BMC/BSC MUST be halted before an LFU update is performed. This includes, but is not limited to, transactions from IPMI compliant cPCI peripherals installed in the cPCI slots. Failure to stop IPMB traffic prior to performing an LFU update may render the BMC and/or BSC inoperable.
5. Manageability Release Runtime 0.0F / Booter 0.0A is the minimum release level that must be installed on the BMC and BSC **before** the LFU can be utilized to perform firmware updates.

ADDITIONAL NOTES:
1. In order to get the currently accepted sensor thresholds, the user is encouraged to install the latest version of the SDR Build Record Repository (1.0A) with the installation of this release. (See **RESTRICTIONS** for additional information.)
2. The error message "ERROR: Unable to log SEL error entry." may be displayed to the serial interface (cli> prompt) when the manageability subsystem is being updated via the SRM LFU utility. Because SEL entries are disabled when the manageability subsystem is in update mode, this is expected behavior and can be ignored.

3   Firmware Update Procedure

This chapter explains how to update firmware using the Loadable Firmware utility [LFU]. The LFU filename for your system is invoked after booting the Alpha Systems Firmware Update CD. Pressing the ENTER key loads and starts up the LFU.

3.1   Update Firmware from the Alpha System's Firmware Update CD

Insert Firmware CD into drive. Boot the CD then press the enter key after Bootfile:	P00>>> show device P00>>> boot dqa0 Bootfile: UPD> **exit** Do you want to do a manual update? [y/(n)] **Y** UPD> **update** … UPD> **exit**	Find the CD-ROM device ID Press enter to use default firmware **Exit** **Yes** puts LFU to manual mode **Update** all firmware. Re: 3.2.2.1 **Exit** will leave the LFU, load the firmware into flash memory and initialize the system.

3.2   Loadable Firmware Utility [LFU] Commands

The Loadable Firmware Utility is the mechanism to update console and system manageability firmware. The LFU operates in default and manual mode. Default-update mode allows updating SRM, SROM, ipmi_booter, and ipmi_rt firmware. Manual-update mode allows updating all firmware. It is recommended to use manual mode to ensure all firmware is updated.

Booting the firmware CD or a firmware update image invokes the LFU and displays the LFU UPD> prompt. The LFU is now in its default-update mode. Be sure to use manual-update mode to update ipmi_sdr and TIG firmware.

This section describes the most commonly used LFU commands. Type HELP at the LFU prompt (UPD>) to list all LFU commands.

3.2.1 LFU List Command

Use the **list** command to display memory-loaded images and currently supported flash ROM's. Note the different output of the list command in default-update and manual-update mode.

Example

UPD> **list**

Device	Current Revision	Filename	Update Revision
SRM	V6.2-1	srm_fw	V6.2-3
ipmi_booter	1.00	ipmi_booter_fw	1.02
ipmi_rt	1.05	ipmi_runtime_fw	1.08
srom	V1.1-F	srom_fw	V1.1-F

UPD> exit

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

UPD> **list**

Device	Current Revision	Filename	Update Revision
SRM	V6.2-1	srm_fw	V6.2-3
ipmi_booter	1.00	ipmi_booter_fw	1.02
ipmi_rt	1.05	ipmi_runtime_fw	1.08
ipmi_sdr	1.05	ipmi_sdr_fw	1.08
srom	V1.1-F	srom_fw	V1.1-F
tig	14	tig_fw	14

UPD>

3.2.2 LFU Update Command

3.2.2.1 Update All Firmware in LFU Manual Mode

```
UPD> exit

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

UPD> update   [will update SRM, SROM, TIG, ipmi_booter, ipmi_rt, and ipmi_sdr firmware]

Confirm update on:

SRM
ipmi_booter
ipmi_rt
ipmi_sdr
srom
tig              [Y/(N)] Y

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

                  DO NOT ABORT!

SRM         Updating to X6.2-3...  Verifying V6.2-4...  PASSED.


ipmi_booter     Updating to 1.02...

IMPORTANT:

    All activity on the Intelligent Platform Management
    Bus (IPMB) that is being generated by add-on devices must
    be terminated prior to performing this update.
    (Add-on devices include, but are not limited to, IPMB
    controllers on cPCI peripherals.)

    *** FAILURE TO DO SO MAY RESULT IN FIRMWARE CORRUPTION THAT ***
    *** WILL RENDER THE MANAGEABILITY SUBSYSTEM INOPERABLE.     ***

Do you want to continue [Y/(N)]?Y
 Verifying 1.02...
Functionality not available to verify file with flash for IPMI Booter.
 PASSED.

 ipmi_rt        Updating to 1.08...

 IMPORTANT:

    All activity on the Intelligent Platform Management
    Bus (IPMB) that is being generated by add-on devices must
    be terminated prior to performing this update.
    (Add-on devices include, but are not limited to, IPMB
    controllers on cPCI peripherals.)

    *** FAILURE TO DO SO MAY RESULT IN FIRMWARE CORRUPTION THAT ***
    *** WILL RENDER THE MANAGEABILITY SUBSYSTEM INOPERABLE.     ***
```

```
Do you want to continue [Y/(N)]?Y
   Verifying 1.08...
Functionality not available to verify file with flash for IPMI Runtime.
   PASSED

ipmi_sdr      Updating to 1.08...

IMPORTANT:

      All activity on the Intelligent Platform Management
      Bus (IPMB) that is being generated by add-on devices must
      be terminated prior to performing this update.
      (Add-on devices include, but are not limited to, IPMB
      controllers on cPCI peripherals.)

      *** FAILURE TO DO SO MAY RESULT IN FIRMWARE CORRUPTION THAT ***
      *** WILL RENDER THE MANAGEABILITY SUBSYSTEM INOPERABLE.      ***

Do you want to continue [Y/(N)]?Y

The BMC flash file system will be completely erased and rebuilt.
Do you want to continue [Y/(N)]?Y
WARNING: update will take several minutes to complete.
DO NOT ABORT!
   Verifing 1.08...
Functionality not available to verify file with flash for IPMI SDR.
   PASSED.

srom          Updating to V1.1-F...  Verifying V1.1-F...  PASSED.

tig           Updating to 14...  Verifying 14...  PASSED.

UPD> exit [will leave LFU, load update firmware into FlashROM, and init to console prompt]
```

3.3 AlphaServer TS202c IPMI Command Status

Release: (Runtime 1.0B / Booter 1.0A -Updated: July, 2002)

Note: Unless otherwise indicated below, the TS202c Manageability Subsystem will only support the mandatory IPMI commands as indicated in the Intelligent Platform Management Interface Specification Version 1.0 Revision 1.1. **M** = Mandatory, **S** = Supported

IPM Device 'Global' Commands			
Command	**M**	**S**	**Comments**
Get Device ID	♦	♦	
Cold Reset		♦	
Warm Reset		♦	Performs Cold Reset
Get Self Test Results	♦	♦	
Manufacturing Test On			
Set ACPI Power State			
Get ACPI Power State			
Get Device GUID			
Broadcast 'Get Device ID'	♦	♦	

BMC System Interface Commands			
Command	**M**	**S**	**Comments**
Set BMC Global Enables	♦	♦	
Get BMC Global Enables	♦	♦	
Clear Message Buffer Flags	♦	♦	
Get Message Buffer Flags	♦	♦	
Enable Message Channel Receive		♦	
Get Message	♦	♦	
Send Message	♦	♦	
Read Event Message Buffer			
Get BT Interface Capabilities	♦	♦	
Master Write-Read I2C	♦	♦	

BMC Watchdog Timer Commands			
Command	**M**	**S**	**Comments**
Reset Watchdog Timer	♦	♦	
Set Watchdog Timer	♦	♦	
Get Watchdog Timer	♦	♦	

Event Commands			
Command	**M**	**S**	**Comments**
Set Event Receiver			
Get Event Receiver			
Platform Event	♦	♦	

Chassis Commands			
Command	**M**	**S**	**Comments**
Get Chassis Status			
Chassis Control			
Get POH Counter			

SEL Commands			
Command	**M**	**S**	**Comments**
Get SEL Info	♦	♦	
Get SEL Allocation Info		♦	
Reserve SEL		♦	
Get SEL Entry	♦	♦	
Add SEL Entry	♦	♦	
Partial Add SEL Entry			
Delete SEL Entry			
Clear SEL	♦	♦	
Get SEL Time	♦	♦	
Set SEL Time	♦	♦	

SDR Repository Commands			
Command	**M**	**S**	**Comments**
Get SDR Repository Info	♦	♦	
Get SDR Repository Allocation Info		♦	
Reserve SDR Repository	♦	♦	
Get SDR	♦	♦	
Add SDR	♦	♦	
Partial Add SDR		♦	
Delete SDR			
Clear SDR Repository	♦	♦	
Get SDR Repository Time		♦	
Set SDR Repository Time			
Enter SDR Repository Update Mode			
Exit SDR Repository Update Mode			
Run Initialization Agent			

FRU Inventory Device Commands			
Command	**M**	**S**	**Comments**
Get FRU Inventory Area Info	♦	♦	
Read FRU Inventory Data	♦	♦	
Write FRU Inventory Data	♦	♦	

Sensor Device Commands			
Command	**M**	**S**	**Comments**
Get Device SDR Info			
Get Device SDR			
Reserve Device SDR Repository			
Get Sensor Reading Factors			
Set Sensor Hysteresis			
Get Sensor Hysteresis			
Set Sensor Threshold			
Get Sensor Threshold		♦	
Set Sensor Event Enable			
Get Sensor Event Enable			
Re-arm Sensor Events			
Get Sensor Event Status			
Get Sensor Reading	♦	♦	
Set Sensor Type			
Get Sensor Type			

TS202c Specific (OEM) Commands			
Command	**M**	**S**	**Comments**
Get BMC Status		♦	For internal use only – not supported for customer use
Set BSC Status		♦	For internal use only – not supported for customer use
Set Time		♦	Set SEL and SDR repository timestamps[1]
Power Control		♦	Power system on/off
Set Indicator LED		♦	Set state of MIA LED
Set BSC Error		♦	For internal use only – not supported for customer use
Halt System		♦	Halt platform (currently must be sent to BSC)
Reset System		♦	Reset platform
Ping		♦	'Ping' controller
Set BSC Revision		♦	For internal use only – not supported for customer use
Reload DPR FRU Data		♦	For internal use only – not supported for customer use
Read TIG Error Register		♦	For internal use only – not supported for customer use
Get SDR TS202c		♦	For internal use only – not supported for customer use
Set BSC Sensor Status		♦	For internal use only – not supported for customer use
Set BMC Sensor Status		♦	For internal use only – not supported for customer use
Set FFS		♦	For internal use only – not supported for customer use
Get Firmware ID		♦	Retrieve version information for selected firmware entity
Disable Thermal Event Generation		♦	For internal use only – not supported for customer use

[1] SEL and SDR timestamps have been merged to comply with IPMI specification. However, support for this command has been maintained for backwards compatibility.

3.4   Console Firmware Change History

3.4.1   V6.8

SRM Enhancements

- Console Recognition of the following Options
  - o   3X-DAPBA-FB, 3X-DAPBA –FB/UB Asynchronous Transfer Mode Adapters
  - o   3X-KPKON-AA Fault Management Control Module

3.4.2   V6.7

SRM Enhancements

Gigabit Ethernet driver: - Fix link status after plugging into a live Ethernet network after the system has been powered up. Symptom: Link light would turn not on after plugging in a wire until a boot or an init command.

3.4.3   V6.6

SRM Enhancements - Boot support for Gigabit Ethernet

3.4.4   V6.5

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

Bug Fix - SROM change only – Symptom: memory configuration errors because the correct values were not being retrieved from the dimm eeproms.

3.4.5   V6.4

SRM Enhancements

- Support for the "unattended LFU update" of SRM, SROM, IPMI_BOOT and IPMI_RT firmware. An unattended LFU update enables updating firmware without user intervention. This ability is invoked when setting console environment variable BOOT_OSFLAGS to the string value of "LFU". The SRM removes the string value once the LFU is invoked. For example if boot_osflags is set to LFUa, the resulting value of boot_osflags is "a" after the LFU firmware is invoked. DEGPA corrected to re-establish the link during a console callback that attempts to perform I/O on the Gigabit Ethernet device.

Problem description: Console driver for Gigabit Ethernet failed to establish a link during a Tru64 Unix RIS installation, causing the installation to fail.

Bug Fixes

- DEGPA corrected to re-establish the link during a console callback that attempts to perform I/O on the Gigabit Ethernet device.

3.4.6   V6.3A

SRM PALCode **-** Add missing step in IRQ5 interrupt masking routine. The symptom was seen only when running stress tests.

3.4.7   V6.3 – 1st Official Release

SROM Firmware - Clear BC_VALID_MODE in write-many chain

SRM Console Firmware - This release provides device recognition, boot support, and adapter firmware update support, for the 3X-KZPDC-BE/DF SmartArray 5305A adapters.

Manageability Notes - See Section 2.4.1