

Compaq HAL for Alpha

Release Notes

April 1999

This document describes improvements, bug fixes, and known issues in HAL since the release of Compaq HAL for Alpha, Revision D.

Revision/Update Information: HAL Revision F

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Introduction

These release notes document improvements, bug fixes, and known issues in Compaq HALs for Alpha systems since the release of Compaq HALs for Alpha systems, Revision D.

Compaq HALs for Alpha systems are released at scheduled and unscheduled (out-of-cycle) times. They are released quarterly for all existing products using AlphaBIOS firmware, and out-of-cycle for the initial shipment of new products. The notes for each release indicate which products are supported by the release.

For details about using AlphaBIOS to install Windows NT on Alpha-based systems, download the AlphaBIOS User's Guide from:

<http://www.compaq.com/support/files/alphant/index.html>

Installing Compaq HAL

To install a Compaq Alpha HAL, you must run the UPDATE program and upgrade your DECKZPSX disk driver (if appropriate).

Running UPDATE

To install a Compaq Alpha HAL:

1. Unzip the file provided in your installation package, using the `-D` option (to create the proper subdirectories).
2. Run UPDATE.
If UPDATE prompts you to replace your OEM-supplied HAL, select "Yes."

Upgrading the KZPSA disk controller driver

If your system uses a DIGITAL KZPSA SCSI controller, you must upgrade your DECKZPSX disk driver to version 1.51 or higher by using UPDATE.EXE. If an older version of this driver is detected, the KZPSA driver in this revision will be installed automatically. This driver is the same as the driver in Windows NT 4.0 Service Pack 4 (SP4) and the driver in Revision D. If UPDATE prompts you to replace your OEM-supplied HAL, select "Yes."

HAL Revision F

HAL revision F is a scheduled release. It supercedes HAL revision E and Windows NT 4.0 Service Pack 5 (SP5), and supports the products shown in Appendix A.

Overview

Revision F includes bug fixes and one known issue.

A separate and later HAL revision will include HAL files for the AlphaServer DS20 and the Compaq Professional Workstation XP1000.

Bug Fixes

On the AlphaServer 2100 5/xxx, previous versions of the HAL could cause I/O errors that might corrupt your hard disk(s). This problem could occur with HAL revision D, HAL revision E, or with the HAL from Windows NT 4.0 Service Pack 4 (SP4). HAL revision F fixes this problem.

On the AlphaServer 4100, previous versions of the HAL could hang the system while it is booting. HAL revision F fixes this problem.

Known Issues

If you boot an Alpha system in debug mode as a target system connected at 19200 baud to a host system with a debug session connected at 115200 baud, the target system will hang until the host's debug session is terminated.

HAL Revision E

Revision E is a scheduled release, supercedes HAL revision D and Windows NT 4.0 Service Pack 4 (SP4), and supports the products in Appendix A.

Overview

This revision includes bug fixes and improvements. The primary improvement is serviceability, which adapts hardware error reporting mechanisms designed for AlphaServer 8200 and 8400 systems to AlphaServer 1200, 4000, and 4100 systems, and to DIGITAL Server 7300 and 5300 systems.

A separate and later HAL revision will include HAL files for the AlphaServer 8200 and 8400 models, the AlphaServer GS60, and the AlphaServer GS140.

Improvements

Improvements in this release include hardware serviceability features, new hardware support, and miscellaneous improvements.

Hardware Serviceability Features

Hardware serviceability features include:

- New mechanisms that support the AlphaServer 4x00 and 1200 family of systems. For details, see Appendix B.
- New mechanisms that support systems using the Alpha 21264 CPU.
- Reporting critical double error events to the OS event log.

New Hardware Support

Support for new systems that use the next-generation Alpha 21264 CPU was added.

Miscellaneous Improvements

Miscellaneous improvements include:

- Modifying HAL to trap VGA mode “blue screen” text so that system support engineers can obtain it from crash dump files by using kernel debuggers, such as the following:

AlphaKD> da HalErrorMessageBuffer.

- Changing AlphaServer 1000A 5/xxx by allowing warm restarts to be disabled. This change was designed to support Microsoft Cluster Server software but is available to all AlphaServer 1000a 5/xxx systems. This change is controlled in AlphaBIOS 5.68 under CMOS Setup, Advanced Settings. For proper system failover in a cluster configuration, Warm Restart must be disabled on this model.
- Changing the AlphaServer 2000, 2100, and 2100A family of systems in two ways. First, its DMA addresses now fall into the range 0x60000000 through 0x7FFFFFFF, which avoids using bit 31 in DMA addresses. And, second, its systems will run when CPU slots are skipped.
- Adding PAL files, which UPDATE.EXE will automatically install. These files include improvements in error handling, VLM support, and performance in dealing with alignment faults

Bug Fixes

Bug fixes include the following:

- Occasionally, previous versions of HAL software for the AlphaServer 2100 5/xxx systems could cause I/O errors that might corrupt your hard disk(s). This problem could occur with Revision D or E, or with the HAL in Windows NT 4.0 Service Pack 4. The HAL in this kit is Revision E1, and it fixes this problem.
- Parameter checking in IoFlushAdapterBuffer() was relaxed to allow for diskdump.sys. This workaround allows crash dump operations to complete instead of hanging the system.

Appendix A

Products Supported by Compaq Alpha HALs

AlphaPC 164LX
AlphaPC 164RX
AlphaPC 164SX
AlphaPC 264DP
AlphaServer™ 800
AlphaServer 1000 5/xxx
AlphaServer 1000A 5/xxx
AlphaServer 1200
AlphaServer 4000
AlphaServer 4100
AlphaStation 255
AlphaStation 600A
Alpha XLT
DIGITAL Personal Workstation
DIGITAL Ultimate Workstation
DIGITAL Server 3000/3300
DIGITAL Server 5000/5300
DIGITAL Server 7000/7300

Appendix B

System Error Logging Software

The System Error Logging Software for Alpha enables the system to retain hardware fault information in the system event log for subsequent retrieval and analysis by service engineers or higher-level fault analysis software.

When fatal (non-correctable) hardware errors occur, the HAL saves error information frames in the system NVRAM. These frames describe in detail the errors that occurred. After a reboot, the error logging software retrieves the error information frames from NVRAM and saves them to the system event log, where tools such as the Event Viewer or DECEvent can examine them.

When non-fatal (correctable) errors occur, the HAL and the error logging software save the error information into the system event log directly, without using NVRAM.

The error logging software consists of a system driver and a system service. In Windows NT, this service has the name "Alpha Error Logging."

For minimum functionality, this error logging software requires AlphaBIOS 5.67 or later and HAL revision E or later. For full functionality, it requires AlphaBIOS 5.68 or later and HAL revision E or later.

Supported Systems

This error logging software runs on the following systems:

- AlphaServer 1200
- AlphaServer 4000
- AlphaServer 4100
- DIGITAL Server 5000/5300
- DIGITAL Server 7000/7300
- DIGITAL Ultimate Workstation

Installation

To install the error logging software:

- Find the SysErLog.exe file provided in your installation package.
- Run SysErLog.
- Follow the instructions on the screen.