



AlphaServer GS60/140 and 8200/8400 Release Notes

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This document supplies the hardware release notes for the AlphaServer GS60/140 and 8200/8400 systems and is intended for use by customer service engineers, self-maintenance customers, and technical system managers.

This document covers the hardware release notes. Sections in this document include:

- Compaq AlphaServer Brand Name
- Minimum Revision Requirements
- System Configuration Cautions
- Handling of PAL Mode Halts
- Operating System Related
- PCI Options
- SCSI Ports
- Installation of DECEvent
- Installation of MPH Software

For further reference, see the system *Firmware Update Procedures and Release Notes*. They can be printed from the Alpha Systems Firmware CD-ROM, AG-PTMW*-BE, where asterisk represents the latest version.

For more information or software or firmware updates, you can access the following Web sites:

General Support: <http://www.digital.com/services>

Console Firmware: <http://ftp.digital.com/pub/DEC/Alpha/firmware/>

DECEvent: <http://www.service.digital.com/decevent/>

Operating System Patches: http://www.service.digital.com/html/patch_service.html

Network Drivers: <http://www.networks.digital.com/>

Compaq AlphaServer Brand Name

This document applies to the Compaq AlphaServer GS60 and GS140 systems as well as the AlphaServer 8200 and 8400 systems. The AlphaServer 8200 and 8400 systems were introduced by Digital Equipment Corporation in 1995. Now Compaq Computer Corporation, with the introduction of the Alpha 21264 chip, is calling the latest offering Compaq AlphaServer Global Solutions (GS) systems.

The Compaq AlphaServer GS60 and GS140 systems offer all the robust features of the current 8200/8400 product plus the fastest processors in the industry, the Alpha 21264 (EV6), a new blue enclosure, and a Compaq AlphaServer brand name. The GS60 offers the same five-slot system bus with support for up to six CPUs, up to 12 Gbytes memory, and the same I/O options supported by the AlphaServer 8200. The GS140 has the same nine-slot system bus with support for up to 14 CPUs, up to 28 Gbytes memory, and the same I/O options as the AlphaServer 8400.

The hardware manuals were originally written to describe the DIGITAL AlphaServer 8200 and 8400 systems. Although the console displays show an 8200 or 8400 system, the same examples and descriptions apply to the GS60 and GS140 systems. Only the identification line at the bottom of the display is different. A sample GS140 console display is shown in Example 1.

AlphaServer 8200 and 8400 systems can be upgraded to the new GS60 and GS140 systems, respectively, with simple to install CPU module upgrades and minimal operating system updates.

Example 1 Sample GS140 Console Display

```

F E D C B A 9 8 7 6 5 4 3 2 1 0 NODE #
      A A M . . . M P P TYP
      O O + . . . + ++ ++ ST1
      . . . . . . . EE EB BPD
      O O + . . . + ++ ++ ST2
      . . . . . . . EE EB BPD
      + + + . . . + ++ ++ ST3
      . . . . . . . EE EB BPD

      + + + + . + + + C0 PCI +
+ . . . . . + . . . . . C1 XMI +
+ . . . . . + . . + + . . . C4 XMI +
. . . . . . . . . . . . . C5
. . . . . . . . . . . . . C6
. . . . . . . . . . . + C7 PCI +
      . . . . . . + +      EISA+

      . . A1 . . . A0 . . ILV
      . .1GB . . .1GB . . 2GB
❶ Compaq AlphaServer GS140 4-6/525 Console V5.3-1, 1-SEP-1998 03:49:54
SROM V1.1, OpenVMS PALcode V1.39-1, Digital UNIX PALcode V1.40-1
System Serial=NI84177052, OS=OpenVMS, 8:43:39 September 1, 1998
Configuring I/O adapters...
.
.
.
P00>>>

```

- ❶ Indicates the type of system, the number of processors, the CMOS technology and speed, and the console firmware version.

Minimum Revision Requirements

Option	Module Type	Module Number	DIGITAL UNIX	OpenVMS	Windows NT	Console Revision	DECevent/DECevent NT
KN7CF	5/625 CPU	E2065	V3.2G, V4.0B	V6.2-1H3 V7.1	V4.0	T5.1-19 ¹	V2.6/V2.2
KN7CG	6/525 CPU	E2063	V4.0E	V7.1-2	V4.0EE ²	V5.3	V2.9/N.A.
MS7CC-GA	4 GB MEM	E2037	V3.2G V4.0B	V6.2-1H3 ³ V7.1 ³	V4.0	V4.8-6 ¹	V2.4/V2.2

¹ Version specified is for OpenVMS and DIGITAL UNIX. Console firmware version V5.1-30 or higher is required for Windows NT AlphaServer 8200/8400 systems.

² Service Pack 3 or higher is required.

³ The OpenVMS V6.2-1H3 patch kit ALPCPUC06_062, or, OpenVMS V7.1 patch kit ALPCPUC02_071, is required for the following:

- AlphaServer 8200/8400 systems that include one or more MS7CC-GA 4 GB memory modules. This operating system patch is required for accurate SIMM isolation of correctable read data errors.

System Configuration Cautions

KFE70 Standard I/O Module

The network, keyboard, and mouse connections on the KFE70 standard I/O module are not supported.

For graphics systems requiring keyboard and mouse support, the KFE72 can be used.

Handling of PAL Mode Halts

If the system halts with either a double-error halt or a machine check while in PAL mode, you can get information on the halt condition.

Two AlphaServer 8200/8400 halt conditions require special consideration:

- Double-error halt, halt code 06
- Machine check while in PAL mode halt, halt code 07

A double-error halt occurs when a subsequent machine check occurs while a machine check is in progress. A machine check while in PAL mode halt occurs when a CPU experiences a machine check while executing in PAL mode. Following either of these events, continued system operation is not possible. And since the hardware error state cannot be collected through normal mechanisms, there may be no related system error log entry or operating system memory dump file. As a result of this, the minimum hardware error state necessary to isolate the failure to its root cause is captured by console and PAL firmware and stored in the CPU module's nonvolatile EEPROM (flashrom) halt area. Subsequently, during the diagnosis of a PAL mode halt, a **show eeprom halt** SRM console command should be entered to retrieve this information. (This command should be performed on each CPU module).

The AlphaServer 8200/8400 SRM console provides a nonvolatile area in each processor module's EEPROM for the storage of halt frames. A halt frame is built upon the occurrence of a CPU double-error halt or machine check while in PAL mode halt. For console versions V4.8-6 and earlier, the EEPROM halt area provides space for the storage of four frames per CPU; the first four PAL mode halt events are saved. Once four frames have been saved, it will be necessary to reinitialize the EEPROM halt area to enable the storage of subsequent events. This may be accomplished through the console **clear eeprom halt** command. Due to halt frame enhancements, console versions V4.9-20 and later provide space for the storage of only two frames per CPU; the first two occurrences are saved. The halt frame is timestamped with the contents of the CPU Watch Chip TOY Clock registers. On OpenVMS systems, the TOY Clock Year Register contains the year, in hex, since 1900 while, on DIGITAL UNIX systems, this register contains the year since 1952. Additionally, it should be realized that since the primary CPU is used to maintain the system time, the watch chip registers on secondary CPU modules may not contain the accurate time of year. Therefore, the timestamp contained within the halt frame for a secondary CPU should NOT be used to determine the time of occurrence.

Operating System Related

1. The size for swap space and dump files needs to be evaluated in large memory configurations.

DIGITAL UNIX

With large memory configurations, system administrators need to consider the probability of system crashes, average workloads, and the size of physical memory when setting the swap disk partition sizes. Before running in production mode, please review Section 6.1.2 of the *UNIX System Administration* manual, Adding Swap Space, and Section 3.8.1 of the *UNIX Installation Guide*.

In summary, swap size is a function of system administration goals, physical memory size, and workload. Things to consider when setting swap size:

- Full dumps require swap to be the same size as physical memory plus a suggested 2 Mbytes.
- Partial dumps are a function of system tuning parameters plus a suggested 2 Mbytes.
- Swap will occur on a small memory configuration, and ample swap sizes should be considered.
- In deferred swap allocation mode, the more physical memory you have the less swap space you will need.

In some systems dump usage will require more swap space than virtual memory usage. In others, the reverse will be true. Thus, both must be estimated and the larger size used when configuring swap space.

OpenVMS

The recommended method for the creation and sizing of dump files on OpenVMS systems is to use AUTOGEN.COM. This is run automatically during installation of OpenVMS and can be run at any other time at the system manager's discretion.

For details, see Section 15.15 of the *OpenVMS V7.1 System Manager's Manual: Tuning, Monitoring, and Complex Systems*, entitled "Creating and Modifying Page, Swap, and Dump Files."

2. DECEvent may not be able to process certain error log files that are too large. For OpenVMS, this issue occurs with files larger than 10 Kbytes. On DIGITAL UNIX, this issue occurs on smaller files.

Avoid large error log files by monitoring the file size and creating a new one if it gets too big. However, if necessary the following commands can be used to process a large file:

VMS:

```
$ana/err/binary="file_name"/since="start_date_time"/before="end_date_time"  
$dia "file_name"
```

UNIX:

```
uerf -b <file_name> -t s:<start_date_time> e:<end_date_time>  
dia -f <file_name>
```

PCI Options

Configuration Restrictions

The standard I/O module of the KFE70 and KFE72 options does not offer Ethernet support.

The connectors are there and the console display indicates these devices in response to a **show device** command, but these connectors are not supported.

SCSI Ports

KZPAA Adapter Supported for CD-ROM Only

The KZPAA PCI SCSI adapter has been qualified only for use with the CD-ROM device.

Use with other SCSI devices has not been tested and is not supported.

Installation of DECEvent

AlphaServer GS60/140 and 8200/8400 systems installed and/or supported by Compaq Computer Corporation are required to have all appropriate Service tools installed and verified as part of the installation process.

DIGITAL DECEvent provides critical error event translation and analysis for AlphaServer GS60/140 and 8200/8400 systems running OpenVMS, DIGITAL UNIX, and Windows NT. (Note that DECEvent is not yet supported on GS60/140 systems with the Windows NT operating system.)

The kit contains the following functionality:

- Translation (binary to text)
- Reporting
- Analysis
- Notification (OpenVMS and DIGITAL UNIX only)
- GUI (Graphical User Interface)

On OpenVMS and DIGITAL UNIX systems, the analysis and notification portions of DECEvent are protected functionality. To enable this functionality, you must obtain a PAK (Product Authorization Key) from your local Compaq Service Representative. DECEvent, however, does perform binary to text translations without a PAK installed.

Installation with DIGITAL UNIX

DECEvent is on the CD-ROM that ships with your system.

Follow DECEvent installation procedures described in detail in the DECEvent installation guide on the CD.

Installation with OpenVMS

DECEvent is on the CD-ROM that ships with your system. DECEvent is installed using the OpenVMS installation command procedure VMSINSTAL.COM located in SYS\$UPDATE. The installation procedure is described in detail in the DECEvent installation guide. See OpenVMS Alpha Release Notes and Installation Procedures for further information.

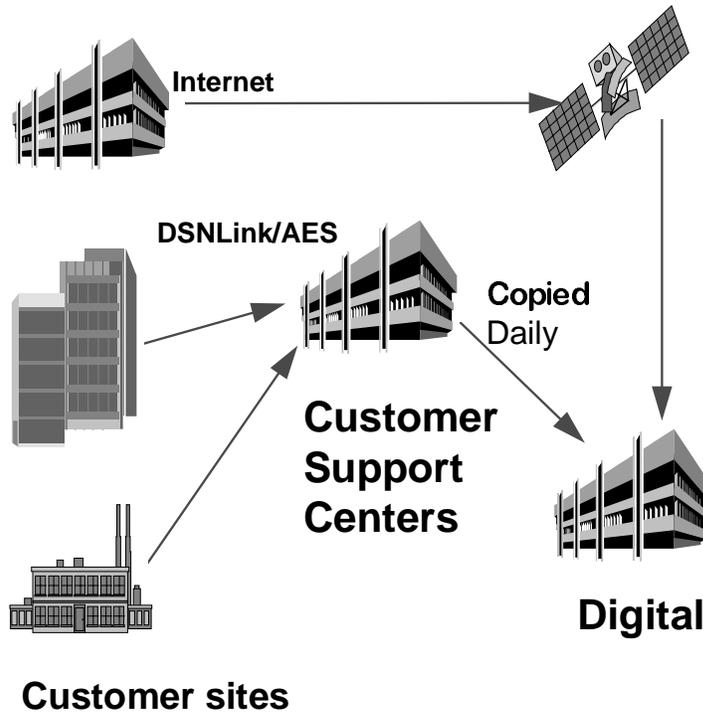
Installation with Windows NT

Install DECEvent from the CD-ROM that ships with your system. Follow the instructions in the *DECEvent NT Getting Started Guide for AlphaServer 8200/8400*, which can be downloaded from the DECEvent Web site.

Installation of MPH Software

The DIGITAL Product Performance (DPP) Program monitors and verifies the in-field performance of DIGITAL systems. This program provides DIGITAL engineering, manufacturing, and service organizations with accurate information on the performance of products at customer and DIGITAL internal sites.

The DPP group has developed a system monitoring tool called Monitoring Performance History (MPH). MPH is distributed free of charge. By running MPH, DIGITAL can provide an additional level of proactive support to help customers manage their systems' availability and reliability.



MPH collects error log entries, crash dump footprints and configuration information from the monitored systems. The information is collected weekly and is sent back to DIGITAL by either Internet mail or the DIGITAL Services Network Link (DSNLink) transport mechanisms. The information is then analyzed by the DPP group. After analysis, various reports are generated and distributed to DIGITAL engineering, manufacturing, and service groups. These groups use the information to gauge and look for ways to improve your system performance and availability.

MPH will not impact or degrade the monitored system's performance. MPH uses negligible CPU resources. Except for installation, the process is automatic. All MPH data collected is confidential to DIGITAL.

MPH for DIGITAL UNIX Systems

The latest DIGITAL UNIX MPH tape archive file, which includes the MPH kit and installation guide, can be requested by sending DSNLink mail to MPH-UNIX-KIT. After the DSNLink copy has completed, the tape archive file should be copied to the /usr/field/mph directory and expanded using the command:

```
tar xvf mph_unix021.tar
```

The DIGITAL UNIX MPH kit and installation guide is also included as part of the DIGITAL UNIX operating system (V3.2 and higher). MPH resides in the following directory:

```
/usr/field/mph.
```

The installation guide (mph_unix_installation_guide.txt) details how to install the kit. Installation time is approximately 5 minutes. The installation must be carried out using an account with root privilege.

To run the installation procedure, set default to /usr/field/mph and execute the command:

```
./MPH_UNIX021.CSH
```

MPH for DIGITAL UNIX can be stopped, started, or de-installed at any time by calling up the MPH setup program by typing:

```
mphsetup
```

MPH for OpenVMS Systems

The latest OpenVMS MPH saveset, which includes the kit and installation guide, can be requested by DSNlink by sending mail to DSN%MPH-OVMS-KIT. The OpenVMS MPH installation guide and associated documentation can be requested in text or postscript format by sending mail to DSN%MPH-OVMS-DOCUMENTATION.

The OpenVMS MPH saveset, which includes the kit and installation guide, can be found on the associated layered products CD for OpenVMS V7.0 in the directory [MPH.KIT]. Additional documentation resides in the directory [MPH.DOCUMENTATION].

For systems with factory installed software V6.2-1H2 or V6.2-1H3, the MPH kit resides in the directory [MPH.KIT] on the system disk. The installation guide and additional documentation for MPH resides in the directory [MPH.DOCUMENTATION] on the system disk.

MPH for OpenVMS systems is installed using the VMSINSTAL command procedure. The kit takes approximately 5 minutes to install on an OpenVMS cluster. On a cluster with both Alpha and VAX systems, MPH must be installed on one VAX node to monitor the VAX nodes in the cluster and on one Alpha node to monitor Alpha systems in the cluster.

To install MPH, set default to the directory that holds the MPH kit and issue the command:

```
$ @sys$update:vmsinstal mph_vms014
```

You will be asked to reply to a number of customer and system questions.

After installing MPH for OpenVMS, please remember to:

1. Start MPH on all nodes in an OpenVMS cluster.
2. Edit the system startup files to include the MPH startup command line:
@sys\$startup:mph\$startup.com.

For further information on installing MPH, refer to the MPH installation guide in the directory [MPH.DOCUMENTATION] on the system disk.

Further Information on DPP and the MPH Software

The DPP group maintains an Internet archive for all MPH kits. For further information on the DIGITAL Product Performance Program or on Monitoring Performance History software, please send electronic mail to mph_admin@dppsys.enet.dec.com.