

# AlphaServer 8200/8400

## Release Notes

Part Number: EK-T8284-RN. D01

### **March 1997**

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

**Digital Equipment Corporation**  
**Maynard, Massachusetts**



# AlphaServer 8200/8400 Release Notes

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

- Clock Module
- Minimum Revision Requirements
- Memory Configuration
- Diagnostics
- Console Behavior
- 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.

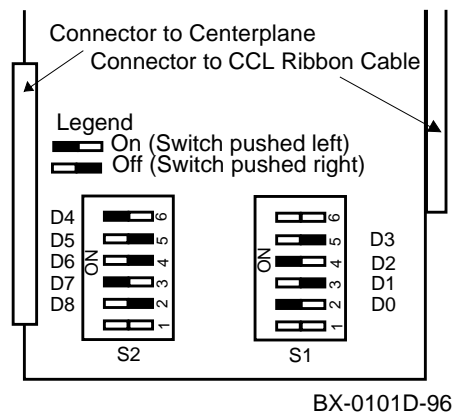
## Clock Module

**The system clock module must support the speed of the CPU modules.**

Check that the system has the clock module installed that supports the CPU modules.

| CPU                          | Clock Required |
|------------------------------|----------------|
| KN7CE-AB (5/440)             | 54-24776-01    |
| KN7CD-AA or KN7CD-AB (5/350) | 54-21728-06    |
| KN7CC-AA or KN7CC-AB (5/300) | 54-21728-05    |

The 54-24776-01 clock, which is programmable, should be set as shown here for use with the 440 MHz CPUs.



## Minimum Revision Requirements

| Option                           | Module Type    | Module Number | DIGITAL UNIX    | OpenVMS            | Console Revision | DECevent |
|----------------------------------|----------------|---------------|-----------------|--------------------|------------------|----------|
| KN7CC                            | 300 CPU        | E2056         | V3.2B           | V6.2               | V2.2-102         | V2.3     |
| KN7CD                            | 350 CPU        | E2061         | V3.2B           | V6.2               | V3.0-9           | V2.3     |
| KN7CE<br>Rev. C & D              | 440 CPU        | E2062         | V3.2G,<br>V4.0A | V6.2-1H3<br>V7.1   | V4.0-4           | V2.3     |
| KN7CE<br>Rev.E01/E02<br>or later | 440 CPU        | E2062         | V3.2G,<br>V4.0A | V6.2-1H3*<br>V7.1* | V4.3             | V2.3     |
| MS7CC-GA                         | 4 GB<br>memory | E2037         | V3.2G<br>V4.0B  | V6.2-1H3*<br>V7.1* | V4.8-6           | V2.3*    |

\* Patch files need to be applied.

## Memory Configuration

### KN7CC Memory Restriction

1. **Certain revisions of the KN7CC module require a restricted memory configuration. Memory configurations are limited to 1, 2, or 4 same-size MS7CC modules.**

If your memory configuration is invalid, you will see the following error message:

```
***Illegal memory configuration***
```

To correct this problem, remove or add memory modules until your configuration conforms to one of these supported configurations, and reboot. All systems are shipped in supported configurations. Configuration rules are documented in the *DIGITAL Systems and Options Catalog*.

Any combination of MS7CC modules is supported with the following revisions of the KN7CC module:

KN7CC-AA — H07 revision or higher

KN7CC-AB — P08 revision or higher

2. **Not all KN7CC modules support the 4-Gbyte memory module.**

The following revisions of the KN7CC module support the 4-Gbyte memory module:

KN7CC-AA — H07 revision or higher

KN7CC-AB — P08 revision or higher

### KDM70 Memory Restriction

3. **Under the DIGITAL UNIX operating system, memory cannot exceed 1 Gbyte in a system with a KDM70 controller.**

See the current DIGITAL UNIX software product description.

## Diagnostics

### LFU Error Messages

1. **There is a possible intermittent problem during self-test on systems that have a PCI hose port connected to an I/O expansion cabinet.**

The KFTIA/KFTHA tests 11 and 13 may fail, showing a minus in the self-test display for that port. If this occurs, reinitialize the system, and the indication of an error will go away, if it is not a genuine hardware error.

## Console Behavior

### Running the ARC Utilities

1. **If you need to run an ARC utility such as the EISA Configuration Utility (ECU), you may need to set up the terminal with characteristics required for running the utilities.**

Check that the terminal uses 8-bit controls, no parity, and 1 stop bit. Also, the XON/XOFF buffers must be 128 bytes or greater, and an Escape key must be defined.

On the VT510 terminal, you need to:

- Define the Escape key.
- Set the Flow control threshold to High (768).

See the *VT510 Video Terminal Installation and Operating Information* (EK-VT510-IA).

Before running a utility, print out the *Firmware Update Procedures and Release Notes* included on the CD-ROM. Read and understand the items related to using the utilities.

2. **Adding configuration files is not supported by the EISA Configuration Utility (ECU).**

Do not use ECU to copy configuration files. To copy a configuration file from a floppy disk supplied with the adapter to the system configuration disk, you must use a PC running DOS, Windows for Workgroups, Windows 95, or Windows NT.

When you run ECU, be sure to enable the write protect switch.

### Show Power Command

3. **You need to reinitialize the system after any show power command. Also, the console response to a show power command always reports "PIUx Status: BAD."**

Reset the system after show power commands. Ignore the message. This will be fixed in a future console release.

### Standard I/O Module KBD and Mouse Not Supported

4. **The console display shows DECchip 21040-AA (a network device), KBD (keyboard), and MOUSE, even though they are not supported.**

Sample console display:

```
C1 PCI connected to kftia0          pci1
0+   SIO                          4828086 0003  sio0
4+   ISP1020                      10201077 0001  isp4
5+   DECchip 21040-AA            21011 0023  tulip3
```

|    |                    |       |      |         |
|----|--------------------|-------|------|---------|
| 7+ | DAC960             | 11069 | 0000 | dac0    |
|    | Controllers on SIO |       |      | sio0    |
| 0+ | DECchip 21040-AA   | 21011 | 0000 | tulip2  |
| 1+ | FLOPPY             | 2     | 0000 | floppy0 |
| 2+ | KBD                | 3     | 0000 | kbd0    |
| 3+ | MOUSE              | 4     | 0000 | mouse0  |

The network device, keyboard, and mouse are not available for use.

### Show Device Command

5. In a multi-host DSSI cluster off a KFMSB device, the console's show device command occasionally requires a system reset to continue operation.

Reinitialize the system. This will be fixed in a future console release.

6. If there are more than 26 SCSI channels in a system, the show device command assigns an erroneous device name. Booting is not allowed off adapter channels with controller letters greater than 'z'.

Reconfigure the system so that the boot device is on one of the first 26 SCSI channels. This will be fixed in a future console release.

### Date Command

7. The console date command should not be used.

The system clock should be set at the operating system level.

### Use of Console Terminal

8. The console terminal is not to be used as the primary user interface for text editing.

## Operating System Related

1. As part of installation, check with DIGITAL Customer Services to see if any patches to the operating system are recommended based on system configuration and operating system revision.

If you see the following symptoms, contact DIGITAL Customer Service for these or any other patches that may apply to your configuration.

1. OpenVMS V6.2-1H3 and V7.0  
Error log entry with wide SCSI disks connected to the KFTIA (ITIOP) I/O module:  
ENTRY TYPE - Device Error  
VMS SCSI error type - Send SCSI Command Failed  
Port status - Unknown Port Status (hex value is 32C)  
[PKQDRIVER.EXE]
2. OpenVMS V6.2-1H3  
INCONSTATE crash during a mount command.  
[SYS\$PKSDRIVER.EXE]

3. OpenVMS V7.0  
Existing system processes and newly created processes move to COMO state and remain in that state indefinitely.  
[SYS\$VM.EXE]
4. OpenVMS V7.0 and V6.2-1H3  
On systems with multiple KZPSA controllers and/or systems with greater than 4 Gbytes memory, controller and device errors appear in the error log. Processes accessing erroring devices get stuck in RWAST or LEF state.  
[SYS\$PKSDRIVER.EXE]

## 2. 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."

## 3. With the OpenVMS operating system, DECevent cannot process error log files larger than 10-Kbyte blocks.

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 DCL commands can be used to process a large file:

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

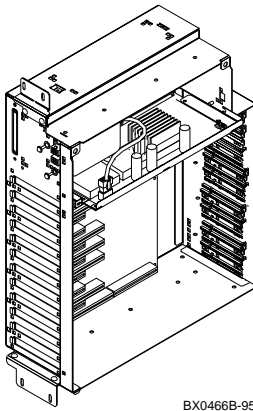
Then type:

```
$dia "file_name"
```

## PCI Options

### Configuration Restrictions

1. All DEFPA-xx and ML-200-xx modules must be installed in the four highest-numbered PCI slots in the DWLPA\* shelf. (This restriction does not apply to DWLPB shelves.)



The highest-numbered slots are next to the power supply, which is at the top in this figure. (The PCI shelf is horizontal in 8200 systems.)

Installing any of these options in the other eight PCI slots will result in intermittent operation and possible system crash. The console will display an error message if an illegal DWLPA configuration is detected.

2. Under OpenVMS, only one CCMAA adapter is supported in some DWLPAs\*.

You can have two CCMAA adapters in a DWLPB card cage, or one in a DWLPA and one in a DWLPB.

3. The standard I/O module of the KFE70 option does not offer Ethernet support.

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

### Software Support of Third-Party Devices

4. The DWLPA\* does not correctly support PCI devices that require level-sensitive device interrupts. (This restriction does not apply to DWLPB shelves.)

A level-sensitive interrupt is one in which the PCI device expects to generate multiple interrupts by leaving its interrupt line asserted, without deasserting the line between interrupts. This problem may appear when third-party PCI devices are installed in the DWLPA.

All DIGITAL-supported devices either generate the necessary interrupt transitions, or use device driver software that is coded to avoid this problem. The problem can be avoided for most devices by a simple modification to the device driver interrupt service routine.

The interrupt service routine of a typical device driver performs the following steps:

1. Reads the device register which indicates the type or cause of the interrupt.
2. Processes the interrupt.
3. Writes the device register which clears or dismisses the interrupt.
4. Returns from the interrupt.

*\*Note: This restriction applies to DWLPAs with motherboard number 54-23468-01; with motherboard number 54-24721-01 there are no restrictions.*



The following algorithm should be used to avoid the problem with level-sensitive interrupts:

1. Read the device register which indicates the type or cause of the interrupt.
2. If the register does not indicate an interrupt, return.
3. Process the interrupt.
4. Write the device register which clears or dismisses the interrupt.
5. Go to step 1.

Note that this algorithm may also be preferred from a performance standpoint if the device is likely to post another interrupt while the first one is being serviced.

## SCSI Ports

### KZPAA Adapter Supported for CD-ROM Only

1. **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.

### Termination on KFTIA FWD SCSI Ports

2. **An unterminated port can generate repeated SCSI errors and prevent the system from seeing devices or booting.**

The SCSI fast wide differential (FWD) ports on the KFTIA must have a 68-pin terminator installed when not in use.

FWD ports are cabled using the CK-KFTIA-AA cabinet kit, which provides a Y-cable. The SCSI cable is connected to one leg of the Y-cable, and the other leg must be terminated.

### Tape Restriction on KFTIA SCSI Ports

3. **Multiple tape devices cannot be connected to a single SCSI port on the KFTIA module.**

Configure only one tape device from each SCSI port on the KFTIA module. This restriction will be removed in a future release of DIGITAL UNIX.

### Disabling Disconnect or Tagged Queuing on SCSI Ports

4. **When using the SCSI adapter utilities to disable SCSI disconnect or tagged queuing, you must perform additional steps.**

The utilities used are UTIL\_CLI.EXE for the KZPSA and EEROMCFG.EXE for the KFTIA SCSI ports.

1. If SCSI disconnect is disabled, tagged queuing *must also* be disabled. The utilities may not do this automatically.
2. DIGITAL UNIX provides a different mechanism for disabling tagged queuing. You should not use the console SCSI utilities to disable tagged queuing if you are running DIGITAL UNIX. Refer to the *DIGITAL UNIX Release Notes* for more information.

## **Installation of DECevent**

**AlphaServer 8200/8400 systems installed and/or supported by Digital Equipment Corporation are required to have all appropriate Service tools installed and verified as part of the installation process.**

DECevent, a proprietary Service tool, provides critical error event translation and analysis for AlphaServer 8200/8400 systems running OpenVMS and DIGITAL UNIX.

The kit contains the following functionality:

- Translation (binary to text)
- Reporting
- Analysis
- Notification
- GUI (Graphical User Interface)

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 DIGITAL 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.

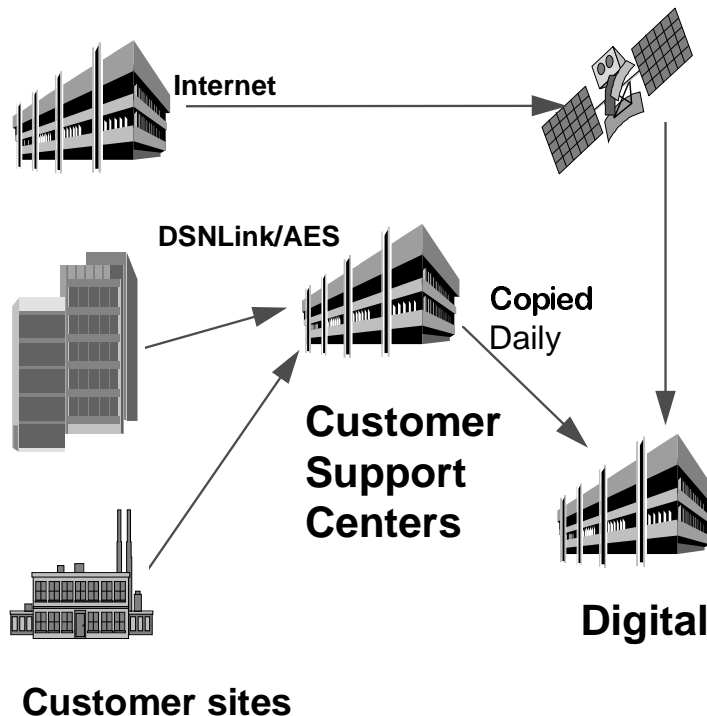
### **Installation with OpenVMS**

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 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.