KZPDA-AA PCI Adapter Board

Installation and Configuration

Part Number: EK-KZPDA-IN. A01

Digital Equipment Corporation
Maynard, Massachusetts

March 1996

FCC Notice: The equipment described in this manual generates, uses, and may emit radio frequency energy. The equipment has been type tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules, which are designed to provide reasonable protection against such radio frequency interference.

Operation of this equipment in a residential area may cause interference, in which case the user at his own expense will be required to take whatever measures are required to correct the interference.

European Common Market:

Warning! This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Actung! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

Avertisement! Cet appareil et un appareil de Classe A. Dans un environnement résidential, cet appareil peut provoquer des brouillages radioélectriques. Dans ce cas, il peut être demandé à l'utilisateur de prendre les mesures appropriées.

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Preface

Introduction

The KZPDA-AA is a processor-independent PCI adapter board that allows you to connect Alpha based, PCI-compatible computers to Fast Wide SCSI.

This document explains how to install and configure a KZPDA-AA PCI host adapter board into the following computers:

AlphaServer 1000
AlphaServer 1000A
AlphaServer 2000
AlphaServer 2100
AlphaServer 2100A

Audience

This guide is intended for system managers and others who are responsible for managing and upgrading AlphaServer systems.

For More Information

Document Title	Part Number
AlphaServer 1000 Owner's Guide	EK-DTLSV-OG
AlphaServer 1000A Owner's Guide	EK-ALPSV-0G
AlphaServer 2000 Owner's Guide	EK-400MP-IN
AlphaServer 2100 Owner's Guide	EK-KN450-OP
AlphaServer 2100A Owner's Guide	EK-2100A-OP
AlphaServer 2000/2100/2100A Firmware Reference Guide	EK-AXPFW-RM

1
Introduction

This chapter describes the KZPDA-AA product kit contents and prerequisites for installing the board. Read this chapter before you begin the installation.

KZPDA-AA Kit Contents

The product kit contains the following items. Verify that you have all of the items before proceeding.

- KZPDA-AA PCI board
- Antistatic packaging bag
- EEROM configuration diskette and driver for Windows NT (AK-QPBCA-CA)
- Documentation (this document)

Prerequisites

Review the following prerequisites before you begin the installation.

Operating System Support

Information on operating system support for AlphaServer hardware options is available on the Internet as follows. The document is entitled "Supported Options List."

AlphaServer 1000	ftp://ftp.digital.com/pub/Digital/Alpha/systems/as1000/docs/ or http://www.digital.com/info/alphaserver/products.html
AlphaServer 1000A	ftp://ftp.digital.com/pub/Digital/Alpha/systems/as1000a/docs/ or http://www.digital.com/info/alphaserver/products.html
AlphaServer 2000/2100	ftp://ftp.digital.com/pub/Digital/Alpha/systems/as2100/docs/ or http://www.digital.com/info/alphaserver/products.html
AlphaServer 2100A	ftp://ftp.digital.com/pub/Digital/Alpha/systems/as2100a/docs/ or http://www.digital.com/info/alphaserver/products.html

Firmware Revision Levels

System	Minimum Firmware Revision Level
AlphaServer 1000	SRM V4.44 ARC V4.46
AlphaServer 1000A	SRM V3.1-23 ARC 4.46
AlphaServer 2000/2100/2100A	SRM V4.3

Cables

The following SCSI cables ordered from Digital are required to correctly install and configure the KZPDA-AA PCI board.

Part Number	Description
BN21K-xx	External SCSI-P cable
PB7HA-BA	Internal wide SCSI cable kit (for AlphaServer 1000 and AlphaServer 1000A only)

Adapter and Cable for AlphaServer 2100 4/200

AlphaServer 2100 4/200 systems have an 8-bit (narrow) internal StorageWorks shelf, which requires an adapter and cable to connect the KZPDA-AA board to the 8-bit shelf. To order, call 1-800-DIGITAL. AlphaServer 2100 4/200 systems that have a 16-bit (wide) second shelf do not require these items.

SCSI 50-LD male to 68-HD male adapter	H4086-AA
50-pin cable	BC25R-3B

SCSI Considerations

Observe the following requirements for SCSI devices.

Cable Length. The entire SCSI bus length, from terminator to terminator, must not exceed 3 meters for Fast, single-ended SCSI. In order to comply with the SCSI bus specification, the KZPDA board should be used only in single-ended mode.

Device IDs. Each SCSI device on the bus must have a unique ID. The ID of a device installed in a StorageWorks enclosure is set automatically by the slot. Other SCSI devices may require changing jumpers or switches to set the ID.

Termination. Each end of the SCSI bus must be terminated. The KZPDA-AA board provides active termination for one end of the bus. By default, this termination is enabled.

Technical Support

For technical support within the U.S.A., call 1-800-354-9000. In Canada, call 1-800-267-5251 (English) or 1-800-267-2603 (French). For international technical support, call your authorized Digital Partner.

2
Installing the KZPDA-AA Board

This chapter explains how to install the KZPDA-AA board and verify the installation.

Installation Procedure

Before You Begin

Generally, the only tool you need to install the PCI adapter board is a Phillips screwdriver.

Caution

Static electricity can damage electronic components. Use an antistatic wrist strap while handling the components.

Step 1: Perform a power shutdown.

A. Perform an orderly shutdown of the operating system.

B. Set all power switches on the computer and peripherals to the “off” position.

C. Unplug the power cord (or cords) from the wall socket, then disconnect the cord from the system unit. Unplug any external devices.

D. Remove the system cover or panels from your system to access the PCI slots. Refer to your hardware system documentation, if necessary.

Step 2: Install the KZPDA-AA PCI adapter board.

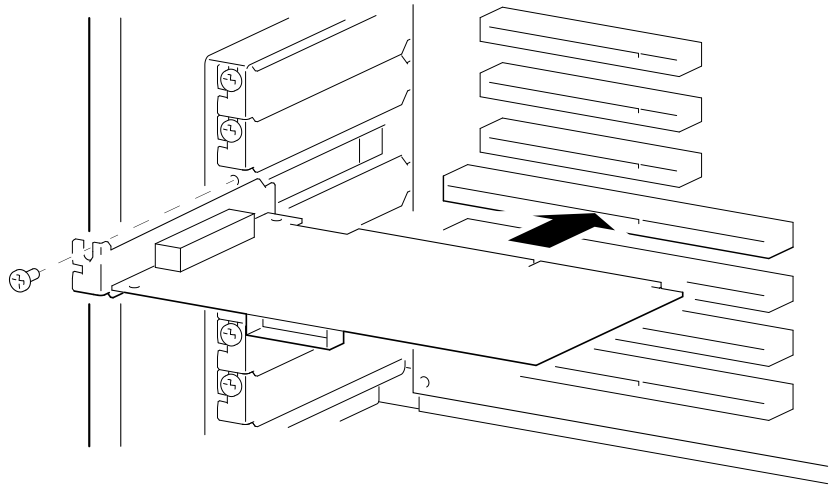
A. Remove the option slot cover from an available PCI slot. Retain the screw for use in installing the KZPDA board.

B. Install the board into an available PCI slot. Push the board firmly into place. Secure the board with the screw from the PCI slot cover.

Note

For optimal performance on the AlphaServer 1000A system, it is recommended that you install the KZPDA board into a primary PCI slot. PCI slots are labeled "Primary" or "Secondary" on the AlphaServer 1000A backplane. The primary slots are the top three PCI slots.

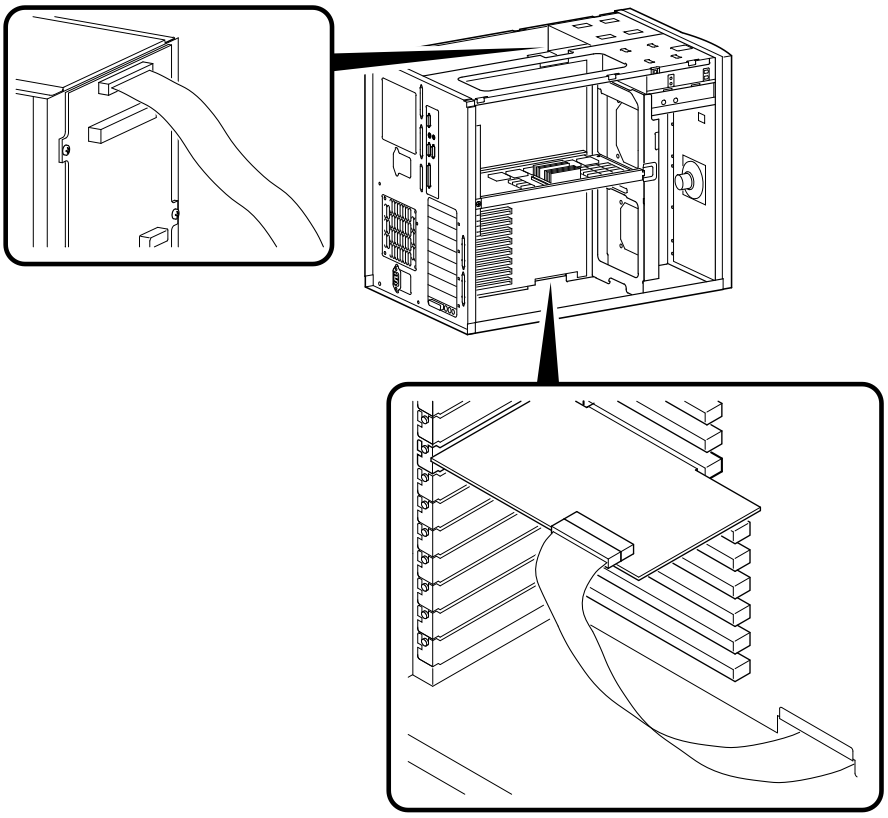
Figure 2-1: Installing the Board



Step 3: Connect the SCSI cable.

Use the illustrations that follow to determine the correct SCSI cabling for your system.

Figure 2-2: Internal SCSI Cable Connection (AlphaServer 1000)



Note

This illustration shows the AlphaServer 1000 system. The connection is identical in the AlphaServer 1000A system.

Figure 2-3: Internal SCSI Cable Connection (AlphaServer 2000)

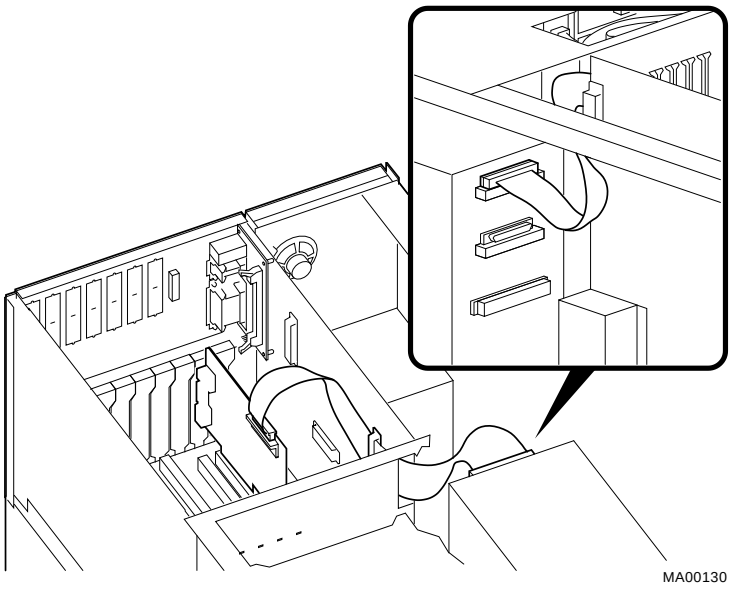
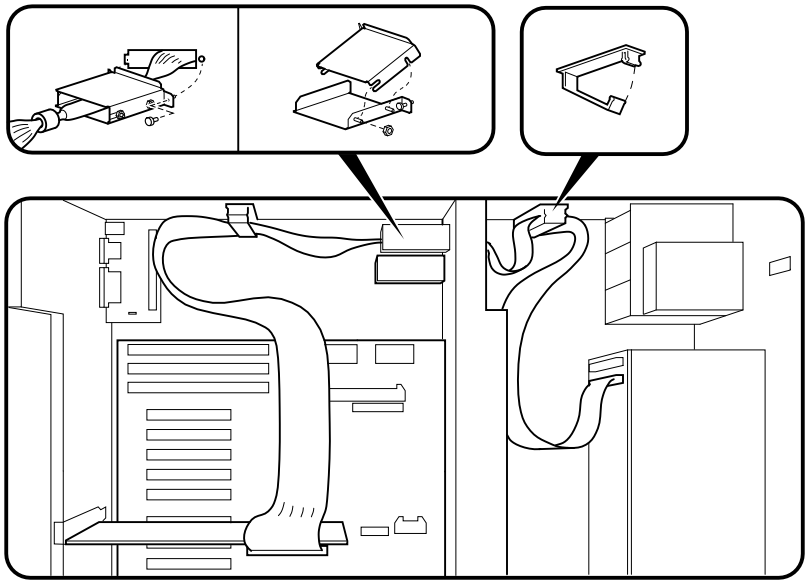


Figure 2-4: Internal SCSI Cable Connection (AlphaServer 2100/2100A)



Note

This illustration shows the AlphaServer 2100A system. The connections are identical in the AlphaServer 2100 system.

Step 4: Reinstall panels and doors and reconnect power cords.

Step 5: Power on the system and peripherals.

After you power on the system, the SRM console prompt is displayed.

Note

If your system is configured to power up to the Windows NT Boot menu, you need to switch to the SRM console to complete the verification outlined in Step 6 below. Refer to your system Owner's Guide, if necessary.

Step 6: Verify the Installation

A. Enter the `show config` command at the `SRM` console prompt and observe the display. Sample displays are shown on the following pages.

- On AlphaServer 2000, 2100, and 2100A systems, each KZPDA-AA board should appear on the display as a DECchip 21050-AA and a QLogic ISP1020 SCSI controller.
- On AlphaServer 1000 and 1000A systems, each KZPDA-AA board should appear on the display as a PCI to PCI Bridge Chip and an ISP1020 SCSI controller.

B. On AlphaServer 1000 and AlphaServer 1000A systems, check that the value of the bus_probe_algorithm environment variable is set to "new," and if not, reset it to "new" as shown in the following example:

```
>>> show bus_probe_algorithm
bus_probe_algorithm        old
>>> set bus_probe_algorithm new
>>> show bus_probe_algorithm
bus_probe_algorithm        new
```

AlphaServer 2100/2100A show config Display

```
P00>>> show config
                    Digital Equipment Corporation
                       AlphaServer 2100 5/250

SRM Console 4.3-169        VMS PALcode V1.15-4, OSF PALcode V1.18-3


Component      Status       Board ID
CPU 0             P         B2040-AA DECchip (tm) 21164-1
Memory 0          P         B2021-CA   128 MB
I/O                         B2110-AA
                            dva0.0.0.0.1           RX26

Slot    Option              Hose 0, Bus 0, PCI
  1     NCR 53C810          pka0.7.0.1.0            SCSI Bus ID 7
                            dka0.0.0.1.0            RZ28
                            dka600.6.0.1.0          RRD44
  2     Intel 82375EB                               Bridge to Hose 1, EISA
  6     DECchip 21050-AA                            Bridge to Bus 1, PCI
  7     DECchip 21050-AA                            Bridge to Bus 2, PCI

Slot    Option              Hose 0, Bus 1, PCI
 0      QLogic ISP1020      pkb0.7.0.1001.0         SCSI Bus ID 7
                            dkb0.0.0.1001.0         RZ28
                            dkb100.1.0.1001.0       RZ28

Slot    Option              Hose 0, Bus 2, PCI
  0     QLogic ISP1020      pkc0.7.0.2001.0         SCSI Bus ID 7
                            dkc0.0.0.2001.0         RZ28
                            dkc200.2.0.2001.0       RZ28

Slot    Option              Hose 1, Bus 0, EISA
  7     CPQ3011
P00>>>
```

AlphaServer 1000 show config Display

```
>>> show config

Firmware
SRM Console: V3.1-1
ARC Console: 4.44
PALcode:     VMS PALcode X5.48-114, OSF PALcode X1.35-83
Serial Rom:  X2.4

Processor
DECchip (tm) 21064A-6


MEMORY

     384 Meg of System Memory
     Bank 0 = 128 Mbytes() Starting at 0x00000000
     Bank 1 = 128 Mbytes() Starting at 0x08000000
     Bank 2 = 128 Mbytes() Starting at 0x10000000


PCI Bus

     Bus 00  Slot 06: NCR     810 Scsi Controller
                           pka0.7.0.6.0          SCSI Bus ID 7
                           dka0.0.0.6.0          RZ28
                           dka200.2.0.6.0        RZ28J
                           dka300.3.0.6.0        RZ26J
                           dka400.4.0.6.0        RRD43
                           mka500.5.0.6.0        TLZ06

     Bus 00  Slot 07: Intel   8275EB PCI to Eisa Bridge

     Bus 00  Slot 11: Digital PCI to PCI Bridge Chip

       Bus 01  Slot 00: ISP1020 Scsi Controller

                            pkb0.7.0.1001.0       SCSI Bus ID 7
                            dkb400.4.0.1001.0     RZ28J
                            dkb500.5.0.1001.0     RZ28L
                            dkb600.6.0.1001.0     RZ26J

     Bus 00  Slot 12: Compaq 1280/P

     Bus 00  Slot 13: Vendor: 1000  Device: 8003

EISA Bus Modules (installed)

     Slot 3  DEC2           pua0.7.0.3.1          DSSI Bus ID 7

>>>
```

AlphaServer 1000A show config Display (Installation on Primary PCI Bus)

The AlphaServer 1000A `show config` display should appear as follows when the KZPDA board is installed in a primary PCI slot.

```
>>> show config

Firmware
SRM Console: X4.4-8159
ARC Console: 4.44
PALcode:     VMS PALcode X5.48-122, OSF PALcode X1.35-85
Serial Rom:  X2.3

Processor
DECchip (tm) 21064A-6


MEMORY
     64 Meg of System Memory
     Bank 0 = 64 Mbytes() Starting at 0x00000000


PCI Bus
     Bus 00  Slot 07: Intel   8275EB PCI to Eisa Bridge

     Bus 00  Slot 08: Digital PCI to PCI Bridge Chip

       Bus 02  Slot 00: ISP1020 Scsi Controller

                        pka0.7.0.2000.0       SCSI Bus ID 7

     Bus 00  Slot 11: Digital PCI to PCI Bridge Chip

       Bus 03  Slot 00: ISP1020 Scsi Controller

                        pkb0.7.0.3001.0       SCSI Bus ID 7

     Bus 00  Slot 12: DECchip 21040 Network Controller

                        ewb0.0.0.12.0         08-00-2B-E5-C9-B0


EISA Bus Modules (installed)
     Slot 2  CPQ3011

>>>
```

AlphaServer 1000A show config Display (Installation on Secondary PCI Bus)

The AlphaServer 1000A `show config` display should appear as follows when the KZPDA board is installed in a secondary PCI slot.

```
>>>show config

Firmware
SRM Console: X4.4-8159
ARC Console: 4.44
PALcode:     VMS PALcode X5.48-122, OSF PALcode X1.35-85
Serial Rom:  X2.3

Processor
DECchip (tm) 21064A-6


MEMORY
     64 Meg of System Memory
     Bank 0 = 64 Mbytes() Starting at 0x00000000


PCI Bus

     Bus 00  Slot 07: Intel   8275EB PCI to Eisa Bridge

     Bus 00  Slot 08: Digital PCI to PCI Bridge Chip

       Bus 02  Slot 00: ISP1020 Scsi Controller

                        pka0.7.0.2000.0       SCSI Bus ID 7

       Bus 02  Slot 01: Digital PCI to PCI Bridge Chip

       Bus 03  Slot 00: ISP1020 Scsi Controller

                        pkb0.7.0.3001.0       SCSI Bus ID 7

     Bus 00  Slot 12: DECchip 21040 Network Controller

                        ewb0.0.0.12.0         08-00-2B-E5-C9-B0


EISA Bus Modules (installed)
     Slot 2  CPQ3011

>>>
```

3
EEROM Configuration Utility

EEROM Parameter Settings

The KZPDA host adapter board ships with factory default EEROM parameters that determine how the board operates and interacts with connected devices. The default EEROM parameter settings were chosen to provide the best performance optimization for most system configurations. If you want to change the parameter settings, refer to Table 3-1 through Table 3-5.

The KZPDA board also ships with a diskette containing the ISP1020 EEROM Configuration Utility for Alpha, which you can use to change parameter settings. A description of the EEROM configuration utility and how to use it to change parameter settings is presented in the following section.

The EEROM Configuration Utility

The ISP1020 EEROM Configuration Utility for Alpha provides you with a means to access and change the host-specific and device-specific parameters stored in EEROM on the KZPDA host adapter board. It runs from the ARC console of Alpha systems.

The utility displays on a VGA monitor or a VT320 or newer generation terminal.

The major steps required to change EEROM settings include:

- Setting terminal, if displaying on a terminal
- Starting the utility
- Changing the appropriate host adapter or device-specific parameters

Setting Terminal

To display the EEROM configuration utility on a VT320 or newer generation terminal, set your terminal to: VT300 mode, 8 bit controls.

Starting the EEROM Configuration Utility

To start the EEROM Configuration Utility, follow these steps:

Note

If your system does not power up to the ARC console but does power up to the SRM console, type `arc` to start the ARC console or refer to your system owner's guide for help.

1. If your system runs Windows NT, it should power up to the ARC console. The ARC console screen appears as shown in Figure 3-1.

   If your system runs Digital UNIX or OpenVMS, type `arc` or set the os_type variable to NT by typing: `set os_type nt`, and reboot your system.

Figure 3-1: ARC Console Screen

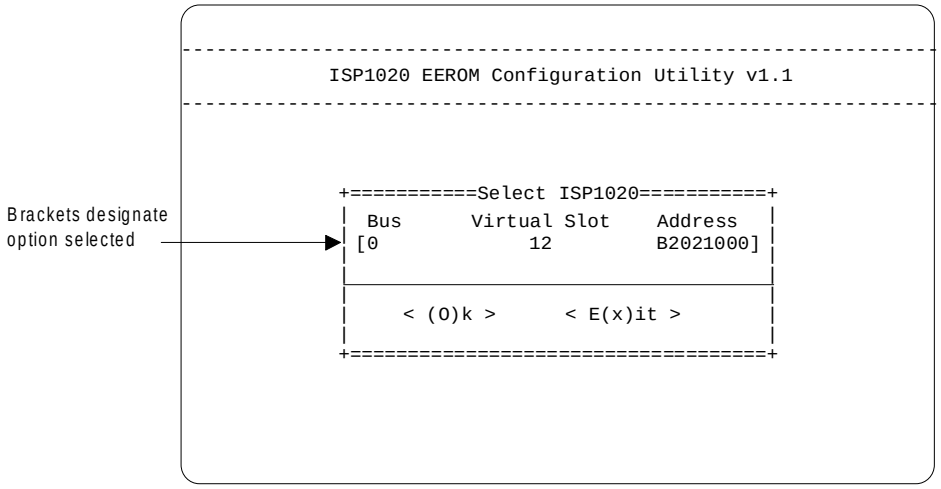
```
ARC Multiboot DEC Version 2.07
Copyright (c) 1993 Microsoft Corporation
Copyright (c) 1993 Digital Equipment
Corporation

Boot Menu
      Boot Windows NT
      Boot an alternate operating system
      Run a program
      Supplementary menu ...

Use the arrow keys to select, then press
Enter.
```

2. Insert the diskette containing the eeromcfg.exe file into the appropriate diskette drive.
3. Use the up and down arrow keys to highlight the Run a Program option from the Boot menu on the ARC console, and press Enter to select it. The `Program to run:` prompt appears.
4. Type the following and press Enter:

   `Program to run:` **`a:eeromcfg`**

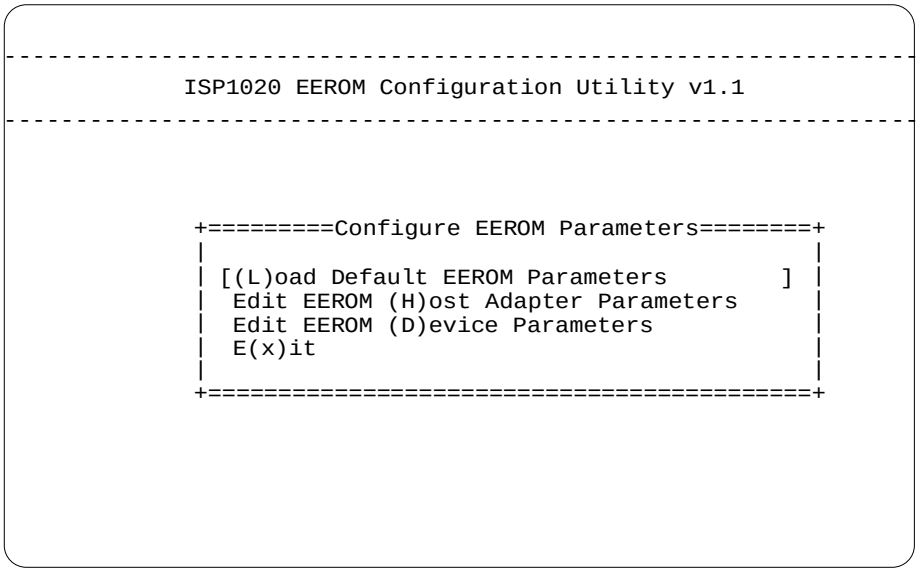
The Select ISP1020 screen appears similar to the one shown in Figure 3-2.

Figure 3-2: Select ISP 1020 Screen



5. Use the up and down arrow keys to move the selector brackets to the ISP1020 that you want to configure, and press Enter. The EEROM configuration utility main menu appears, as shown in Figure 3-3.

Figure 3-3: EEROM Configuration Utility Main Menu



6. Use the up and down arrow keys to move the bracket selector to a menu option and press Enter to select the option.

Changing EEROM Parameters

This section describes how to change:

- Host adapter parameter settings, which control the general operation of the host adapter board
- Device EEROM parameter settings, which control how the host adapter board interacts with connected devices

Table 3-1 and Table 3-3 provide a listing and description of the EEROM parameters.

Changing Host Adapter Parameters

To change host adapter parameters, follow these steps:

1. Use the up and down arrow keys or type (H)ost to move the bracket selector to the Edit EEROM Host Adapter Parameters option on the Configure EEROM Parameters menu and press Enter. The Edit EEROM Host Adapter Parameters Screen appears as shown in Figure 3-4.

   Refer to Table 3-1 for a list of the host adapter parameter default settings, parameter descriptions, and optional parameter settings.

Figure 3-4: Edit EEROM Host Adapter Parameters Screen

```
+==============Edit EEROM Host Adapter Parameters=============+
|                                                             |
|    Parameters              Default              New         |
|FIFO Threshold                 2                [2     ]    |
|Host Adapter Enable            1                [1     ]    |
|Initiator SCSI ID              7                [7     ]    |
|Bus Reset Delay                1                [1     ]    |
|Retry Count                    0                [1     ]    |
|Retry Delay                    1                [1     ]    |
|Asynchronous Data Setup Time   6                [6     ]    |
|REQ/ACK Active Negation        1                [1     ]    |
|Data Line Active Negation      1                [1     ]    |
|Data DMA Burst Enable          1                [1     ]    |
|Command DMA Burst Enable       1                [1     ]    |
|Tag Aging                      8                [8     ]    |
|Low Term Enable                1                [1     ]    |
|High Term Enable               1                [1     ]    |
|Selection Timeout              250              [250   ]    |
|Maximum Queue Depth            256              [256   ]    |
|Single Ended or Differential   0                [0     ]    |
|-------------------------------------------------------------|
|                 <(O)K>            <(C)ancel>                |
+=============================================================+
```

2. Press Enter or use the up and down arrow keys to move through the list of parameters. To change a parameter value, backspace over the value in the “New” field and type in a new value. If you enter a value out of the range for this parameter, the utility will display an error message indicating the valid range.

3. When you finish changing host adapter parameters, press (O)K to confirm your changes. (Press (C)ancel if you want to return to the main menu without saving changes.) If you press (O)K, a confirmation screen appears.
4. Press “y” to save changes and return to the main menu, or press “n” to return to the main menu without saving changes.

Note

If you choose not to save your changes, your changes will appear on the host adapter parameters screen until you press E(x)it from the main menu. Pressing E(x)it from the main screen clears your changes to the host adapter parameters without affecting current host adapter parameters.

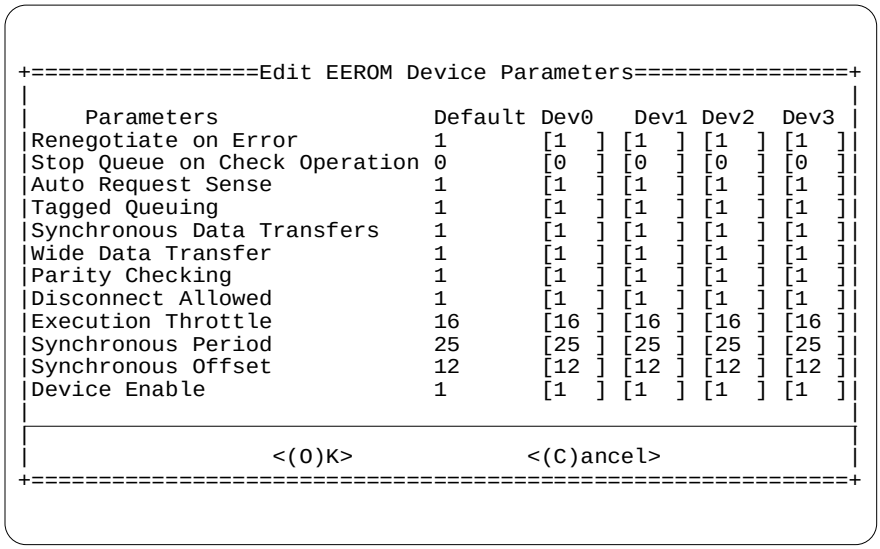
Changing Device Parameters

To change device parameters, follow these steps:

1. Use the up and down arrow keys, or type (D)evice to move the bracket selector to the Edit EEROM (D)evice Parameters option on the Configure EEROM Parameters menu, and press Enter to select. The Edit EEROM Device Parameters screen appears as shown in Figure 3-5.

Table 3-4 lists the device (specific) parameters. It indicates default settings, parameter descriptions, and available options.

Figure 3-5: Edit EEROM Device Parameters Screen



2. Use the right and left arrow keys to move between devices. The device columns scroll to the right up to device 15 (Dev15).
3. Press Enter or use the up and down arrow keys to move through the list of parameters. To change a parameter value, backspace over the value in the “New” field and type in a new value. If you enter a value out of the range for this parameter, the utility will display an error message indicating the valid range.

4. When you finish changing device adapter parameters, press (O)k to save your changes, or press (C)ancel if you do not want to save changes. If you press (O)K, a Write EEPROM Parameters screen appears. If you press (C)ancel, the main menu appears.
5. Press “y” to save changes and return to the main menu, or press “n” to return to the main menu without saving changes.

Note

If you choose not to save your changes, your changes will appear on the device adapter parameters screen until you press E(x)it from the main menu. Pressing E(x)it from the main screen clears your changes from the host adapter parameters screen without affecting current host adapter parameters.

EEROM Parameter Settings

This section describes EEROM host adapter and device-specific parameters on the KZPDA. It provides a description of each parameter, its default setting, and available options. It also lists the FIFO threshold controls and their corresponding parameter settings, the asynchronous data setup times, and the parameter selection time-out values.

Descriptions of the host adapter parameters and device-specific parameters appear in Table 3-1 and Table 3-4, respectively.

Table 3-1: Descriptions of Board Parameters (General Operation)

Parameter	Default	Description	Option
FIFO Threshold	3	Sets the FIFO threshold point at which burst transfers are requested on the host adapter. The burst transfer is triggered differently for host memory write operations and host memory read operations. The bus transfer is triggered when the FIFO byte count reaches the threshold point for host memory writes operations. The bus transfer is requested when the FIFO byte count is below the threshold point for host memory read operations.	See Table 3–2 for the FIFO threshold points available and the corresponding parameter setting to select each.
Host Adapter Enable	1	Determines whether the BIOS recognizes the host adapter. Typically enabled for Windows NT and disabled for Digital UNIX and OpenVMS.	Set to 0 to disable the host adapter without physically removing the board from your system.
Initiator SCSI ID	7	Sets the SCSI ID.	0–15
Bus Reset Delay	1	After resetting the SCSI bus, the firmware refrains from initiating any SCSI activity for the number of seconds specified by this parameter.	0–255 seconds
Retry Count	0	Specifies the number of times the firmware attempts to retry a selection time-out or a busy status.	0–255 retries.
Retry Delay	1	Sets the time (in 100-ms increments) that the firmware waits before re-attempting an operation.	0–255 in 100-ms increments
Asynchronous Data Setup Time	6	Sets the number of clock periods the host adapter board waits after driving the SCSI data signals before asserting a SCSI bus acknowledge signal.	See Table 3–3.

Table 3-1 Descriptions of Board Parameters (General Operation) (*Continued*)

Parameter	Default	Description	Option
REQ/ACK Active Negation	1	Provides active pull-up assist in single-ended mode. (The REQ and ACK signals are pulled up.) By enabling active negation, the host adapter is less sensitive to an imperfect SCSI bus.	Set to 0 to disable the active negation.
Data Line Active Negation	1	Provides active pull-up assist in single-ended mode. (The SD15-0 and SDP1-0 signals are pulled up.) By enabling active negation, the host adapter is less sensitive to an imperfect SCSI bus.	Set to 0 to disable the active negation.
Data DMA Burst Enable	1	When set to 1, performs burst transfers on the data DMA channel.	When set to 0, data is transferred in nonburst mode, with each cycle initiated by a new address phase.
Command DMA Burst Enable	1	When set to 1, performs burst transfers on the data DMA channel.	When set to 0, command packets are transferred in nonburst mode, with each cycle initiated by a new address phase.
Tag Aging	8	Ensures tagged commands are not lost in the target device. Tag aging is a backup to the time-out mechanism.	0–255 cycles, drive dependent.
Low Term Enable	1	Provides termination to the low-order eight bits.	Set to 0 if termination not required on the host adapter board.

Table 3-1 Descriptions of Board Parameters (General Operation) (*Continued*)

Parameter	Default	Description	Option
High Term Enable	1	Provides termination to the high-order eight bits.	Set to 0 if termination not required on high-order 8-bits, or not required on the board.
Selection Time-out	250	Sets the selection phase time-out value.	Table 3–4 shows the time-out values available.
Maximum Queue Depth	256	Specifies the maximum number of outstanding commands issued to each SCSI target. When the number is reached, new commands are returned with Queue Full Status.	0 to 64K commands
Single Ended or Differential	0	When set to 0, the SCSI bus is single-ended.	When set to 1, the SCSI bus is differential. This setting does not apply to the KZPDA host adapter board.

Table 3-2: FIFO Threshold Controls and Corresponding Parameter Setting

Parameter	FIFO Threshold Point
3 (default)	64 bytes full during host memory writes. 64 bytes empty during host memory reads.
2	32 bytes full during host memory writes. 32 bytes empty during host memory reads.
1	16 bytes full during host memory writes. 16 bytes empty during host memory reads.
0	8 bytes full during host memory writes. 8 bytes empty during host memory reads.

Table 3-3: Asynchronous Data Setup Time

Parameter (h)	Set-up Time (in clock periods)	Parameter (h)	Set-up Time (in clock periods)
0	1.0	8	5.0
1	1.5	9	5.5
2	2.0	A	6.0
3	2.5	B	6.5
4	3.0	C	7.0
5	3.5	D	7.5
6 (default)	4.0	E	8.0
7	4.5	F	8.5

Table 3-4: Descriptions of Device EEROM Parameters (Host Adapter to Device Interaction)

Parameter	Default	Description	Option
Renegotiate on Error	1	Set to 1, enables renegotiation for synchronous and wide data transfers (if wide transfers are enabled) after a hard reset, power cycle, or a bus device reset.	Set to 0 to disable renegotiation on error.
Stop Queue on Check Condition	0	When a command is returned with a Check Condition status, new commands are issued by the host adapter to the device.	Set to 1 to prevent the adapter from issuing new commands when a command is returned with a Check-Condition status.
Auto Request Sense	1	When a command is returned with Check Condition status the host adapter issues a request command to determine cause.	Set to 0 to disable the request command. The computer's OS must be able to correct the problem and notify the adapter when it can continue issuing commands.
Tagged Queuing	1	Allows the drive to queue multiple commands when enabled. The drive is capable of queuing multiple commands and the host adapter may issue multiple commands to the device.	Set to 0 to disable tag queuing.
Synchronous Data Transfers	1	Specifies the number of clock cycles in the data hold period for synchronous data transfers.	Set to 0 to disable synchronous data transfers.
Wide Data Transfers	1	Sets the drive to support wide SCSI data transfers.	Set to 0 to disable wide data transfers.

Table 3-4 Descriptions of Device EEROM Parameters (Host Adapter to Device Interaction) (*Continued*)

Parameter	Default	Description	Option
Parity Checking	1	The host adapter checks for odd parity on data received from the SCSI bus, the received parity is passed to the SCSI FIFO.	When set to 0, the adapter does not check for odd parity on data received from the SCSI bus and odd parity is generated for the SCSI FIFO.
Disconnect Allowed	1	Determines whether the drive can sever its communications link. Allows the drive to sever the communications link after the host adapter issues a command. The link must be reestablished (through a reconnect) before the command can continue executing.	When set to 0, disconnects are not allowed.
Execution Throttle	16	Specifies the number of tagged commands the host adapter can send to the drive until the command queue is full. When the queue is full, the host adapter waits until there are no outstanding commands before sending the tagged commands.	0–255 commands.
Synchronous Period	25	Specifies the minimum REQ/ACK period (4-ns increments) for a synchronous data transfer.	25–100 4 ns increments.
Synchronous Offset	12	Specifies the maximum number of requests (REQ) that can be sent during a synchronous data transfer before an acknowledge (ACK) is received.	0–12 requests.
Device Enable	1	The system BIOS and drivers recognize the drives attached to the adapter.	Set to 0 for the BIOS and drivers to ignore the drives.

Table 3-5: Selection Time-Out Values

Parameter	Resulting Time-Out
25	25 µs
50	50 µs
75	75 µs
100	100 µs
250	250 ms
500	500 ms
750	750 ms
1000	1 sec