3X-KZPEA Release Notes

KZPEA-DB Ultra 160 64-Bit PCI–SCSI Dual Channel Storage Adapter Module

Be sure to read these notes and the provided User Guide before installing the KZPEA-DB Ultra 160 SCSI Storage Adapter Module into your AlphaServer.

NOTE: Please refer to the latest version of these release notes, which can be found on the KZPEA Web Page. The KZPEA web page can be accessed by clicking on the appropriate link on the HP AlphaServer storage options page at the following URL:

http://h18002.www1.hp.com/alphaserver/products/storage/index.html

The KZPEA-DB Ultra 160 SCSI Storage Adapter is a very high performance PCI option module that connects devices attached to its two 16-bit Ultra3 160MB/s LVD/SE SCSI ports to a PCI based host AlphaServer system. The module supports both 32 and 64 bit PCI slots.

> *Note: The KZPEA supports SCSI bus speeds up to Ultra3 160MB/sec when using LVD signaling (requiring multi-mode or LVD only terminators on the bus). The fastest the adapter can run in SE mode is UltraSCSI speeds.*

This document describes any known issues or restrictions when using the KZPEA-DB Ultra 160 SCSI Storage Adapter within your system configuration. This document contains four sections:

- Parts List for the KZPEA-DB

- Supported HP Systems

- Restrictions and Notes

- Shared Bus Support

PARTS LIST for KZPEA-DB

Part Number	Description
30-56150-03	PCB, PCI, 64bit/66MHz, U3 SCSI adapter module
EK-KZPEA-UG	KZPEA User's Guide
EK-KZPEA-RN	Adapter release notes, this document
3R-Q00LA-3V	HP options warranty

SUPPORTED HP SYSTEMS

The KZPEA-DB is supported on the following AlphaServer systems with the minimum required operating system and SRM console revisions:

NOTE: Please refer to release notes on the KZPEA Web page for the latest information on supported platforms that may be added after this initial release.

Tru64 UNIX Non-Shared Bus

Supported AlphaServer System	Number of Adapters Supported	Minimum Revision Operating System Required	Minimum Revision SRM Console Required
XP900	1	V5.1 with Patch Kit 3[1]	V5.8
XP1000	1	V5.1 with Patch Kit 3[1]	V5.8
DS10	1	V5.1 with Patch Kit 3[1]	V5.8
DS10L	1	V5.1 with Patch Kit 3[1]	V5.8
DS20E	4	V5.1A	V6.0
DS20L	1	V5.1A with Patch Kit 4[2]	V6.0
DS25	4	V5.1A with Patch Kit 4[2]	V6.0
ES40	4	V5.1A	V6.0
ES45	4	V5.1A	V6.0
GS80[3]	4	V5.1A with Patch Kit 4[2]	V6.3
GS160	4	V5.1A with Patch Kit 4[2]	V6.3
GS320	4	V5.1A with Patch Kit 4[2]	V6.3
ES47 Tower	4	V5.1B with Patch Kit 1	V6.5
ES47[4]	2	V5.1B with Patch Kit 1	V6.5
ES80[5]	24	V5.1B with Patch Kit 1	V6.5
GS1280	32	V5.1B with Patch Kit 1	V6.5

Tru64 UNIX Shared Bus

Supported AlphaServer System	Number of Adapters Supported	Minimum Revision Operating System Required	Minimum Revision SRM Console Required
DS10	1	V5.1A with Patch Kit 4[2]	V6.3
DS20E	4	V5.1A with Patch Kit 4[2]	V6.3
DS25	4	V5.1A with Patch Kit 4[2]	V6.3
ES40	4	V5.1A with Patch Kit 4[2]	V6.3
ES45	4	V5.1A with Patch Kit 4[2]	V6.3
ES47	6	V5.1B with Patch Kit 1	V6.5
ES80	6	V5.1B with Patch Kit 1	V6.5
GS1280	6	V5.1B with Patch Kit 1	V6.5

---

[1] The full name of the V5.1 Patch Kit 3 is `T64V51AS0003-20010521.tar`

[2] The full name of the V5.1A Patch Kit 4 is `T64V51AB21AS0004-20030206.tar`

[3] See Restrictions and Notes section for use of drives having Arbitration Fairness only.

[4] ES47 internal I/O 4 max per SBB; external I/O 8 max per PCI Drawer; ES47 M2 with external I/O 24 max

[5] ES80 internal I/O 4 max per SBB; external I/O 8 max per PCI Drawer; ES80 M8 with external I/O – 24 max

OpenVMS[6]

Supported AlphaServer System	Number of Adapters Supported	Minimum Revision Operating System Required	Minimum Revision SRM Console Required
XP900	1	V7.2-2, V7.3[7]	V6.0
XP1000	1	V7.2-2, V7.3	V6.0
DS10	1	V7.2-2, V7.3	V6.0
DS10L	1	V7.2-2, V7.3	V6.0
DS20E	4	V7.2-2, V7.3	V6.0
DS25	4	V7.2-2, V7.3	V6.0
ES40	4	V7.2-2, V7.3	V6.0
ES45	4	V7.2-2, V7.3	V6.0
GS80	4	V7.2-2, V7.3	V6.1
GS160	4	V7.2-2, V7.3	V6.1
GS320	4	V7.2-2, V7.3	V6.1
ES47 Tower	4	V7.3-1	V6.5
ES47	12	V7.3-1	V6.5
ES80	12	V7.3-1	V6.5
GS1280	12	V7.3-1	V6.5

System and Operating System Notes:

- The minimum Tru64 UNIX Version 5.1A driver is version 2.269B chim 360, except for shared SCSI bus configurations.
- **For shared SCSI bus configurations, the minimum Tru64 UNIX Version 5.1A driver is version 2.273 chim 364A3, via Patch Kit 4.**
- HP strongly recommends that installations include the latest TIMA kits for the OpenVMS version in use. At the time of this publication, the TIMA kits for the KZPEA are:
  DEC-AXPVMS-VMS722_FIBRE_SCSI-V0200--4.PCSI, for OpenVMS 7.2-2
  DEC-AXPVMS-VMS73_FIBRE_SCSI-V0400--4.PCSI, for OpenVMS 7.3
  DEC-AXPVMS-VMS731_FIBRE_SCSI-V0100--4.PCSI, for OpenVMS 7.3-1
  For ES47, ES80 and GS1280:
  DEC-AXPVMS-VMS731-EV7-V0100
  The latest TIMA kits can be obtained from the following FTP site:
  http://ftp1.support.compaq.com/public/vms/axp/
- ES40 support is only with EV68 systems. There is no ES40 support for EV6 or EV67 systems.
- DS20E systems must have one of the following specific part numbers:
  DA-56PAB-DA/EA/FA/DW/EW/FW   DY-56PAB-DA/EA/FA/DW/EW/FW
  DA-56RAA-DA/EA/FA/DW/EW/FW   DY-56RAA-DA/EA/FA/DW/EW/FW

---

[6] Open VMS does not support Shared SCSI bus configuration for the KZPEA.

[7] Refer to the following "System and Operating System Notes" for TIMA kit information.

RESTRICTIONS and NOTES

StorageWorks Components

1) The following table lists the only currently supported universal device enclosures:

Component	Description
DS-SSL14-RS	4254 Storage Enclosure, dual bus, Ultra2 (80MB/sec) I/O, dual power supply
DS-SL13R-BA	4354 Storage Enclosure, dual bus, Ultra3 (160MB/sec) I/O, dual power supply
DS-SL13R-AA	4314R Storage Enclosure, single bus, Ultra3 (160MB/sec) I/O, single power supply

Note: Tape devices are currently not supported in a shared KZPEA bus configuration.

2) The following disk drives have a minimum required firmware version for use in a shared KZPEA SCSI bus configuration:

Bare Drive Part Number	Model Number (Product ID)	Minimum Firmware Revision
251872-001	BF01865222	B009
251872-002	BF03665223	B009
233806-002	BD0186459A	B011
233806-003	BD0366459B	B011
233806-004	BD0726459C	B011
180732-001	BD009635CB	BDCB
180732-002	BD018635CC	BDCB
180732-003	BD03663622	BDCB
142686-001	BD00962373	BCJG
142689-001	BD01862376	BCJG
153274-001	BD00912578	BCJG
153275-001	BD01812579	BCJG

The following procedures can be used to identify any devices listed above and to verify correct device firmware:

With the drive in hand, look for the model number on the drive label similar to BDxxxxxxxx. Reference the above table and note the minimum firmware required if the drive is listed here. Use either of the two methods below to verify the drive's firmware version.

1) With drive in the system and at the console, type   >>>show device.
2) With drive in the system and Tru64 booted, type #scu -p scan edt show edt

The console and Tru64 commands shown above will list the Product ID and the drive firmware revision.

3) For KZPEA use in GS160/GS320 AlphaServers and for all full shelf support, the KZPEA configurations must not include any disk drives having Arbitration Fairness disabled. Below is a list of known unsupported drives having Arbitration Fairness disabled:

Bare Drive P/N	Model Number (Product ID)	Arbitration Fairness Enabled	Bare Drive P/N	Model Number (Product ID)	Arbitration Fairness Enabled
349536-001	BD00411933	No	142687-001	BD00972374	No
349539-001	BD00421936	No	142689-001	BD01862376	No
349537-001	BD00911934	No	142686-001	BD00962373	No
349540-001	BD00921937	No	127968-001	BC036122C3	No
349541-001	BC01821938	No	127965-001	BD018122C0	No
103600-001	BB00411C48	No	127966-001	BD018222C1	No
103605-001	BB00911C49	No	127962-001	BD009122BA	No
313723-001	BB00921791	No	127963-001	BD009222BB	No
313810-001	BB00421793	No	104921-001	BA03611C9B	No
127893-001	BB018122B7	No	104922-001	BB01811C9C	No
127894-001	BB018222B8	No	388139-001	BB01821AC3	No
127890-001	BB00912301	No	104923-001	BB00911CA0	No
127891-001	BB009222B5	No	388210-001	BB00921B91	No
127980-001	BD018122C9	No	175552-001	BB00913466	No
127981-001	BD018222CA	No	175552-002	BB01813467	No
127977-001	BD009122C6	No	175552-003	BB00923468	No
127978-001	BD009222C7	No	175552-004	BB01823469	No
163587-002	BD01862A67	No	176493-003	BD0366349C	No
163587-005	BD01872A6A	No	176493-002	BD0186349B	No
163587-001	BD00962A66	No	176493-001	BD0096349A	No
163587-004	BD00972A69	No	176493-007	BD036734A5	No
142693-001	BC0367237A	No	176493-006	BD018734A4	No
153275-001	BD01812579	No	176493-005	BD009734A3	No
142690-001	BD01872377	No	188014-001	BF00963643	No
153274-001	BD00912578	No	188014-002	BF01863644	No

The following procedures can be used to identify any unsupported devices listed above:

With the drive in hand, look for the model number on the drive label similar to BDxxxxxxxx, and reference the above table. Alternatively, the following procedures can be used to view the model number (Product ID) of devices already installed in the system's configuration.

1) With drive in the system and at the console, type: >>>show device.
2) With drive in the system and Tru64 booted, type: #scu -p scan edt show edt
3) With drive in the system and VMS booted, type: > show device /full /page

NOTE: Users should reference their specific platform's Supported Options List at the following URL for additional information on supported devices.

http://h18002.www1.hp.com/alphaserver/products/options.html

Hardware/Firmware Notes

On any XP1000 system the KZPEA-DB module can only be installed in a 64-bit PCI slot.

A video adapter card is recommended to run the on-board configuration utility. On systems such as the HP DS10L, this is not possible since there is only 1 available PCI slot, which precludes the use of a KZPEA board and a video board. On these systems and any others where the choice may be limited to using the serial mode of console operation the following steps are suggested:

> At the SRM console prompt, ensure that the console mode of operation is set to "serial."
> Go into the KZPEA configuration utility by typing "run bios pkx0", where x is the assigned letter of the board's channel A. Once the utility is started and the user has typed control A in response to the board's inquiry as to whether any of the factory settings need to be changed – at this point the terminal's setup mode must be invoked to enable the cursor as the KZPEA configuration utility disables the cursor when it starts running. When the cursor is enabled, exit out of the terminal's setup mode to return to the KZPEA utility and proceed from there.
>
> If your terminal does not present either a flashing cursor or a highlight to indicate where the cursor is, you will not be able to use the serial emulation mode to configure the KZPEA module. Therefore, you must have a video board installed in your system or you must configure the KZPEA in another system and then install it in your system.

KZPEA modules have a restriction with certain graphics modules:

Restricted Graphics:	Non-Restricted Graphics:
SN-DEPVZ-AA	SN-PBXGB-AA
SN-DEPVD-AA	SN-PBXGD-AD
	SN-PBXGD-AE
	SN-PBXGK-BB see note below
	SN-PBXGF-AB see note below
	3X-PBXGG-AA

Note: These two graphics adapters are in the restricted column if you are using a version of the SRM console that is earlier than 6.0.

Note: PCI buses containing any restricted graphics modules are limited to one KZPEA adapter on that PCI bus.

Note: On systems with an SN-PBXGD-AD (PowerStorm 300) Video Adapter installed, the printed circuit board (which has part number 54-25563-01) must be at a minimum revision of C06 in order for the KZPEA to be installed on the same PCI bus.

Note: On systems with an SN-PBXGD-AE (PowerStorm 350) Video Adapter installed, the printed circuit board (which is part number 54-25561-01) must be at a minimum revision of B05 in order for the KZPEA to be installed on the same PCI bus. There is an alternate printed circuit board used for this video adapter (which is part number 54-25561-02) and it must be at a minimum revision of A03 in order for the KZPEA to be installed on the same PCI bus.

Refer to the *KZPEA User Guide* regarding the board's SCSI configuration options and their settings.

SRM Console Notes

Installations that use version 6.0 or earlier of the SRM console must use the "set pk*0_host_id" feature under SRM as well as setting the host SCSI ID under the "run bios pk*0" feature of the system. These actions are required to change the SCSI ID of a port on the KZPEA board.

Version 6.1 and later of the SRM console will only support using the "run bios pk *0" method of setting the host SCSI ID on the KZPEA board. If you attempt to use the "set pk*0_host _id" feature under SRM console version 6.1 the following message will appear:

" Protected from attempted operation"

Software Notes

The minimum acceptable version of Compaq Analyze is 4.0.

The driver for Tru64 UNIX currently does not do domain validation on warm swaps. Domain validation is only performed during boot time and is performed to ensure that the SCSI bus speed negotiated with the device can be executed without data corruption or bus errors. If an error or corruption occurs during domain validation the speed of the transfers will be ratcheted down until no errors are detected.

Warm swaps will force a negotiation with the device that may result in an increase or decrease in SCSI bus transfer speed, depending on the device. A problem would occur using the Adaptec controller if you were using a SCSI-2 storage shelf with SCSI-2 devices and then warm swapped a SCSI-2 device with an ULTRA-160 device. Both the adapter and device would negotiate for the ULTRA-160 speed on a SCSI-2 storage shelf. The subsequent transfers would result in data corruption.

Caution must be used when performing warm swaps to ensure that the hardware (adapter, storage shelf, cables, and device) supports the negotiated SCSI bus transfer speed.

Installation in a Tru64 UNIX TruCluster Server Environment

Information on a cluster installation, including existing clusters, can be found in the TruCluster Server documentation set at: **http://www.tru64unix.compaq.com/docs/pub_page/cluster_list.html**

Shared Bus Support

Installation in a Shared SCSI Bus Configuration

The KZPEA is supported in a 2 node shared SCSI bus configuration. This configuration requires the SCSI ID of each channel used in a shared bus on one of the KZPEA adapters to be changed from the default ID 7

to ID 6. Also, since the supported shared bus configuration requires the use of y-cables at each node with one adapter being in the middle of the bus, the on-board termination of both adapters in both nodes must be disabled for each channel used in a shard bus configuration. Termination is disabled by removing jumper J5 for SCSI Channel 1/A and J3 for SCSI Channel 2/B, and also setting the Host Adapter SCSI Termination to "Low OFF/High OFF" for Channel 1/A and "Disabled" for Channel 2/B with the SCSI Configuration Utility.

Refer to the *KZPEA User Guide* regarding operation of the adapter's onboard SCSI Configuration Utility.

Note: For shared bus configuration only, please disregard the "SCSI Termination" paragraph under section 2.1.2 of the *KZPEA User Guide* which states that the adapter can only be located at the end of the bus, requiring jumpers J3 and J5 to be installed.

Termination will be supplied by the storage enclosure at one end of the bus and by an external terminator at the other end of the bus.

Note: When configuring the KZPEA in a shared SCSI bus configuration which will contain a boot, cluster, quorum, or dump disk, you must connect the shared SCSI "Y" cable to Channel A of the KZPEA adapters on both nodes.

Note: Tape devices are currently not supported in a shared bus configuration.

Required Components for Shared SCSI Bus Support (per shared bus)

2-5-2 P/N	Qty.	Description
3X-BN55A-01 (Rev B01)	2	Y-Cable P/N: 17-05144-01, and Connector Plug P/N: 12-10015-01
3X-H32CT-AA	1	External LVD Ultra 160 Terminator P/N: 12-56536-01

NOTE: Included in the 3X-BN55A-01 y-cable kit is an HD68 SCSI connector plug (P/N: 12-10015-01) that MUST be installed in the internal SCSI connector of the KZPEA for proper shared bus operation. If only one of the two channels are to be used in a shared bus configuration make sure that the connector plug is attached to the correct internal SCSI connector.

SCSI Cabling Considerations for Shared Bus Support

The maximum LVD bus length for KZPEA shared SCSI bus support is 12 meters (39 feet). This includes the combined length of the two y-cables and the two SCSI cables. The y-cables are 0.6 meters each. The following cables are supported in the shared bus configuration:

2-5-2 P/N	6-3 P/N	Cable P/N	Description
3X-BC56J-03	341175-B21	313374-002	12 foot VHDCI-to-VHDCI
3X-BC56J-02	341174-B21	313374-001	6 foot VHDCI-to-VHDCI
3X-BC56J-04	164604-B21	313374-004	24 foot VHDCI-to-VHDCI

So, the maximum allowable SCSI cable combination is using (1) 6 foot 313374-001 cable and (1) 24 foot 313374-004 cable.

Refer to Figure 1 below for an example of a supported KZPEA shared SCSI bus configuration.
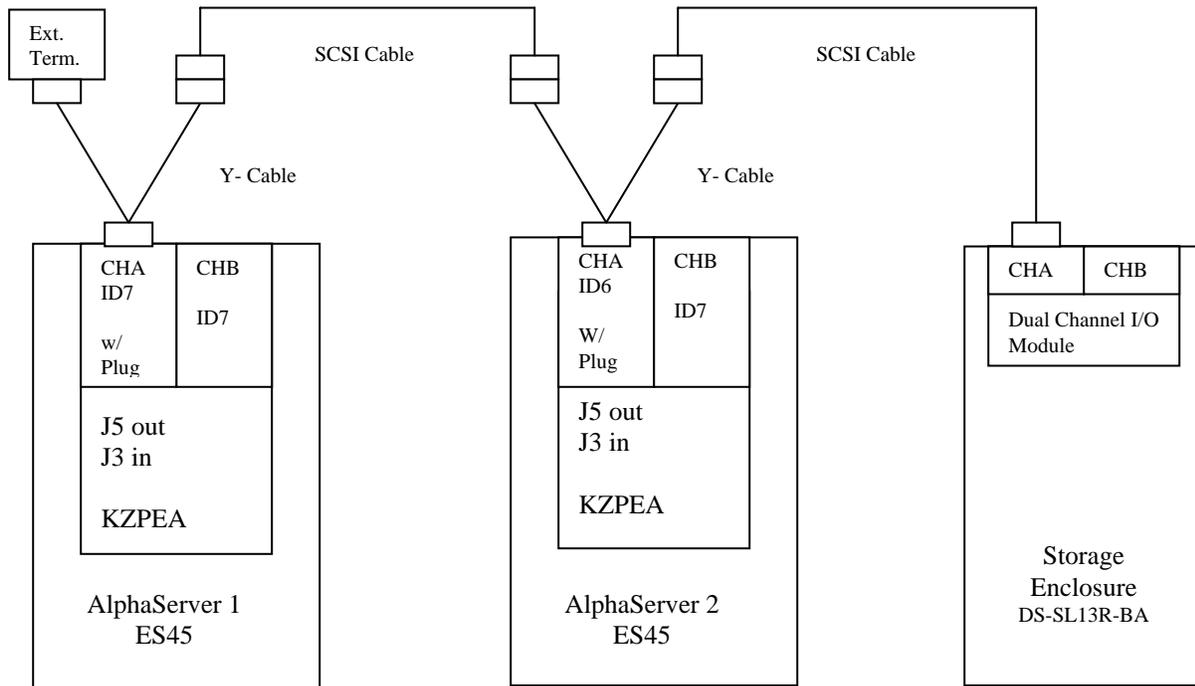
Figure 1.

KZPEA adapter configuration for shared SCSI bus installation

The following steps describe the procedure to disable on-board termination, and also to change one of the adapter's SCSI ID to 6.

1) Disconnect any attached cables and remove the on board termination jumper for the bus being configured as a shared bus. J3 for Channel 2/Band J5 for Channel 1/A. Refer to the *KZPEA User Guide* for location of these termination jumpers.

2) Power-up both AlphaServer systems, and at the console prompts perform the following:

   a) Type "show config" to display the system configuration information.
   b) Determine the name of the KZPEA adapter: e.g. pkc0, pkd0, etc.
   c) Type "init" to reinitialize the system prior to using the "run bios" command.
   d) Type "run bios pkx0" where x is the assigned letter of the board's channel A.
   e) Press CTRL-A when prompted to run the KZPEA on-board configuration utility.

3) Perform the following steps in the configuration utility on both AlphaServer systems:

   a) Select the channel (1/A or 2/B) that will be configured in a shared bus environment.
   b) Select "Configure/View Host Adapter Settings" menu.
   c) Use the arrow key to move the cursor to Host Adapter SCSI Termination, then press RETURN to select your options.
   d) Set Host Adapter SCSI Termination = "Low OFF/High OFF" if channel 1/A was selected, or "Disabled" if channel 2/B was selected. " [NOTE: B channel has different settings than A channel]
   e) On one of the shared bus AlphaServer systems, change its KZPEA SCSI ID field to 6 (default is 7) for the appropriate channel being configured into a shared bus environment.
   f) Press Esc key to get out and save the changes.
   g) Press Esc key again to exit the configuration utility. The console will reset all I/O buses at this point.