



EK-ASCRA-CL. B01

Installation Guide for *Ready-To-Go* Clusters

1. Product Description

The Ready-To-Go Cluster is a pre-packaged, pre-configured, and pre-tested TruCluster Available Server. There is no single part number that creates a cluster. Rather, the *cluster* consists of the following:

- Two AlphaServers (DS10, DS20, OR ES40) and a system disk for each
- Two shared RA3000 shelves or one RA8000 RAID arrays
- One Cluster Cabinet

AlphaServer DS10 Cluster Cabinet (DA-AAHZA-HA/HB)	
Requires 2 of the following systems:	
DS10 Tru64 UNIX 6/466 128MB Memory	DA-PB10A-AB
DS10 Tru64 UNIX 6/466 256MB Memory	DA-PB10A-AC
DS10 Tru64 UNIX 6/466 512MB Memory	DA-PB10A-AD
AlphaServer DS20 Cluster Cabinet (DA-AAHZA-JA/JB)	
Requires 2 of the following systems:	
DS20 Tru64 UNIX 6/500 128MB Memory	DA-55NJA-CA
DS20 Tru64 UNIX 6/500 256MB Memory	DA-55NJA-DA
DS20 Tru64 UNIX 6/500 512MB Memory	DA-55NJA-EA
DS20 Tru64 UNIX 6/500 1 GB Memory	DA-55NJA-FA
AlphaServer ES40 Cluster Cabinet (DA-AAHZA-KA/KB)	
Requires 2 of the following systems:	
ES40 Tru64 UNIX 6/500 1GB Memory	DA-64AAA-DA
ES40 Tru64 UNIX 6/500 2GB Memory	DA-64AAA-EA

The DIGITAL UNIX and DIGITAL TruCluster software is pre-loaded and ready to be configured.

The TruCluster Available Server is a high-availability solution for applications that normally run in a single server environment. Shared SCSI buses are used to share disks among cluster members and common networks connect them together for communication. The cluster software monitors the health of key components to ensure the availability of applications if they become unhealthy.

2. Storage

The Ready-To-Go Cluster uses either StorageWorks RA3000 (for DS10 or DS20 systems) or StorageWorks RA8000 (for ES40 Model 2 systems) and comes standard with two (2) RZ1DA-VW 9.1 GB UltraSCSI disks. Related Information

Additional information regarding Hardware and Software can be found in the following documents:

- AA-ROJAC-TE TruCluster Software Products *Release Notes*
- AA-R88GA-TE TruCluster Software Products *Hardware Configuration*
- AA-R88JA-TE TruCluster Software Products *Administration*
- AA-QL8PC-TE TruCluster Software Products *Application Programming Interfaces*
- AA-R88HA-TE TruCluster Software Products *Software Installation*
- AA-QLGB-TE Digital Unix *Installation Guide*
- AA-QLMB-TE Digital Unix *Release Notes*
- AA-PS2RD-TE Digital Unix *System Administration*
- AA-PS2SC-TE Digital Unix Network Administration

3. Prerequisite Requirements

A. Power

- | | | |
|--------------------|-------------------|--------------------|
| • Voltage: | 100 VAC – 120 VAC | 220 - 240 VAC |
| • Power: | Two times 30 Amp | Two times 16 Amp |
| • Power Connector: | Two L5-30P | Two IEC309, 16 Amp |
| • Frequency: | 50/60 Hz | 50/60 Hz |

B. Operating Environment

- Operating Temperature: 10 - 40 °C (50 - 104°F)
- Operating Humidity: 20 - 80%
- Heat Dissipation: 4800 w, 16382 BTU/hr max.
- Space Requirements: 170 cm high x 60 cm wide x 90 cm deep
(67 in. high x 23.6 in. wide x 35.4 in. deep)

C. Additional Hardware

An SVGA compatible monitor, keyboard, and mouse are needed to manage the cluster. The following items can be used:

- Video Monitor: SN-VRQV5-24 (with country specific power cord)
- Keyboard: SN-LKQ97-AA (with country specific variation)
- Mouse: PBQWS-WA

4. Preparing for Installation

The Ready-To-Go package comes completely cabled and with Digital UNIX and TruCluster software loaded on the system disks. For additional detail about what software was loaded on your system disk and the configuration information, see the Factory-Installed Software Information Sheet that was shipped with your cluster. When the systems are powered up, the software will configure itself, based on inputs you provide.

Please review the Digital Unix *Installation Guide* and the TruCluster Software Products *Software Installation* manual prior to powering up the systems.

To install your system:

- Ensure that the installation location meets the prerequisite power and operational environment requirements. Remember that the *Ready To Go* package requires two 30 Amp, 100-120 VAC power receptacles or two 16 Amp, 220-240 VAC power receptacles.
- Unpack the system and move it to the place of installation. Connect the systems to the correct power. Attach a monitor, keyboard, and mouse.

Perform the hardware verification and software configuration as described below.

5. Hardware Verification

Verify that the hardware is functional as follows:

- Connect the monitor, keyboard, and mouse.
- Connect power.
- Enable the HALT button (to prevent the system from performing an automatic boot).
- Power up one system, including the CPU, monitor, and RAID controller.
- Type *show device* to insure that the system can see the disks.
- Repeat the above steps with the second system.

6. Software Installation

The Ready to Go cluster comes with Factory Installed Software (FIS). This software will run a configuration program when it is first loaded. It will ask a few questions as it configures the software. Please have the following information ready before you start this process:

- Super User password.
- Date, Time and local Time Zone.

Please Note:

1. The Factory Installed Software assigns a default system name and IP address for the cluster network interconnect on each system. After completion of the FIS installation, you may change this system name and IP address, if desired. If you wish to change this information, be certain to make the desired changes BEFORE running the cluster setup utility.
2. The Factory Installed Software has the following licenses preloaded:
 - OSF-BASE
 - DECEVENT
 - OSF-SVR
 - ASE-OA
 - OSF-USR

The NSR and Performance Manager products are pre-installed, however the licenses for these optional products are not preloaded. Digital UNIX will display a warning message that the licenses for these products are not installed. This is normal, and will not effect the installation.

To configure the software:

1. Power up both systems and verify the hardware as described in section 5.
2. Boot the first system.
3. Answer the questions with your specific information.
4. Boot the second system.
5. Answer the questions with your specific information.
6. Make any changes to the cluster network interconnect name and IP addresses at this time.
7. Run the cluster setup utility, ASEMGR. Refer to the TruCluster Software Products *Software Installation* manual for information on how to run this utility.
8. Run the cluster verification utility, CLU_IVP. Refer to the TruCluster Software Products *Software Installation* manual for information on how to run this utility.
9. Install any additional applications and license PAKs.
10. Configure the second network interconnect with your specific information.

For further information on UNIX clusters, refer to the following url:

http://www.unix.digital.com/faqs/publications/pub_page/cluster_list.html

For information on tuning clusters in the above doc set, refer to the following url:

<http://www.unix.digital.com/cluster/index.html> .

7. Configuring Additional Applications

Specific instructions for the configuration of other applications, such as NFS, FTP Server, Time Daemon, and IP Server can be found in the TruCluster Software Products Software Installation manual.

8. Ready to Go Cluster Bill of Materials

The following tables are the Bill of Materials for each of the cluster cabinets. At the end of each Bill of Material are the part numbers required to complete the cluster, ie, the 2 systems, integration, and an example of system disks. A complete cluster consists of all of these items.

DS10	DA-AAHZA-HA	UNIX RTG CLUSTER CAB, H9A10, RA3000 FOR DS10,120V 50/60HZ		
	-BN20Z-4E	60HZ Pwr Cord for PC to PDU	2	From System 1 and System 2 to PDU
	-BN24Q-03	UTP 10/100BaseT Xover Cable 3m	1	From System 1 NIC to System 2 NIC - cluster comm.
	-BN37A-01	Ultra 68VHD 1m Cable Assy	1	From 3-port hub to HSZ controller
	-BN38C-03	3M VHDCI to 68HD Cable Assy	2	From KZPBA-CB in Systems to 3-port hub
	-H9A10-MC	M-Series Cab, Blue, 120V	1	
	-H9C10-MC	Ballast Kit for Cabinets	2	
	-H9C10-TF	Front Door Kit, H9A10-TA	1	
	-KZPBA-CA	PCI to UltraSCSI Adapter	2	To system disk
	-KZPBA-CB	PCI to SCSI UWD, Adapter	2	To storage through hub
	2T-00083-05	Pwr Cord, Term 3-14 SJT	7	From RA3000 and UPS to PDU
	3X-BN50A-01	DS10/VS10 SCSI Cable Kit	2	From KZPBA-CA in systems to syst. disk
	DS-DWZZH-03	SCSI Hub 0 SE: 3 DIF 3.5"SBB	1	3-port hub
	DS-RZ1DA-VW	9.1GB 7200RPM UltraSCSI	2	For external storage
	DS-SWXRA-GH	RA3000 Cntrlr Shelf 110v	1	Controller shelf - includes HSZ22
	DS-SWXRA-GN	RA3000 Disk Drive Shelf 100/120	2	Disk drive shelf - also holds 3-port hub
	EK-ASCRA-CL	Raid Trucluster Factory Integration	1	Installtion guide only
	QB-05SAA-AA	TruCluster Asv U/A Doc Kit	2	Documentation and Licenses
	QA-MT4AA-H8	Tru64 Unix Alpha CDRM	1	Tru64 UNIX
	QB-5TWAB-SA	Sworks RA3000 U/A Lic/CD/Doc	1	RA3000 Licenses, docs, and software
		MANDATORY ADDITIONS		
	DA-PB10A-AB	DS10 UNIX, 128 MB	2	Mandatory option: Systems
	DS-RZ2DA-WA	9GB SYSTEM DISK	2	Mandatory option: System Disks
	YS-ASCAA-AA	FACTORY INTEGRATION	1	Mandatory option: Integration
DS10	DA-AAHZA-HB	UNIX RTG CLUSTER CAB, H9A10, RA3000 FOR DS10,240V 50/60HZ		
	Same as above Except:			
Subtract	-BN20Z-4E	60HZ Pwr Cord for PC to PDU	2	Swap out North American variants for non-North American
Add	2T-04522-03	Pwr Cord, Molded c13 Rt Angle	2	
Subtract	-H9A10-MC	M-Series Cab, Blue, 120V	1	
Add	-H9A10-MD	M-Series Cab, Blue, 240V	1	
Subtract	2T-00083-05	Pwr Cord, Term 3-14 SJT	7	
Add	2T-04522-01	Pwr Cord, Molded, C13 to C1	7	
Subtract	DS-SWXRA-GH	RA3000 Cntrlr Shelf 110v	1	
Add	DS-SWXRA-GK	RA3000 Rkmnt Subsystem, w/HSZ22	1	
		MANDATORY ADDITIONS		
	DA-PB10A-AB	DS10 UNIX, 128 MB	2	Mandatory option: Systems
	DS-RZ2DA-WA	9GB SYSTEM DISK	2	Mandatory option: System Disks
	YS-ASCAA-AA	FACTORY INTEGRATION	1	Mandatory option: Integration

DS20	DA-AAHZA-JA	UNIX RTG CLUSTER CAB, H9A10, RA3000 FOR DS20,120V 50/60HZ		
	-BN20Z-4E	60HZ Pwr Cord for PC to PDU	4	From System 1 and System 2 to PDU
	-BN24Q-03	UTP 10/100BaseT Xover Cable 3m	1	From DE500 System 1 to DE500 System 2 - cluster comm.
	-BN37A-01	Ultra 68VHD 1m Cable Assy	1	From 3-port hub to HSZ controller
	-BN38C-03	3M VHDCI to 68HD Cable Assy	2	From KZPBA-CB in Systems to 3-port hub
	-DE500-BA	PCI to Fast Ethernet 10/100 UTP	2	Cluster to cluster communication
	-H9A15-MC	M-Series Cab, Blue, 120V	1	
	-H9C10-MC	Ballast Kit for Cabinets	1	
	-H9C15-TF	Front Door Kit, H9A15-TA	1	
	-KZPBA-CB	PCI to SCSI UWD, Adapter	2	To storage through hub
	-KZPCM-DA	Dual Channel PCI to USCSI Adapter	2	To system disk and external ethernet
	2T-00083-05	Pwr Cord, Term 3-14 SJT	7	From RA3000 and UPS to PDU
	2T-R1200-AB	AS1200 Ped Sys Rkmnt Kit, Blue	2	Rackmount kit for both AS1200 and DS20
	DS-DWZZH-03	SCSI Hub 0 SE: 3 DIF 3.5"SBB	1	3-port hub
	DS-RZ1DA-VW	9.1GB 7200RPM UltraSCSI	2	For external storage
	DS-SWXRA-GH	RA3000 Cntrlr Shelf 110v	1	Controller shelf - includes HSZ22
	DS-SWXRA-GN	RA3000 Disk Drive Shelf 100/120	2	Disk drive shelf - also holds 3-port hub
	EK-ASCRA-CL	Raid Trucluster Factory Integration	1	Installtion guide only
	QB-05SAA-AA	TruCluster Asv U/A Doc Kit	2	Documentation and Licenses
	QA-MT4AA-H8	Tru64 Unix Alpha CDRM	1	Tru64 UNIX
	QB-5TWAB-SA	Sworks RA3000 U/A Lic/CD/Doc	1	RA3000 Licenses, docs, and software
		MANDATORY ADDITIONS		
	DA-55NJA-CA	DS20 UNIX, 128 MB	2	Mandatory option: Systems
	DS-RZ1DA-VW	9GB SYSTEM DISK	2	Mandatory option: System Disks
	YS-ASCAA-AA	FACTORY INTEGRATION	1	Mandatory option: Integration
DS20	DA-AAHZA-JB	UNIX RTG CLUSTER CAB, H9A10, RA3000 FOR DS20,240V 50/60HZ		
	Same as above Except:			
Subtract	-BN20Z-4E	60HZ Pwr Cord for PC to PDU	4	Swap out North American variants for non-North American
Add	2T-04522-03	Pwr Cord, Molded c13 Rt Angle	4	
Subtract	-H9A15-MC	M-Series Cab, Blue, 120V	1	
Add	-H9A15-MD	M-Series Cab, Blue, 240V	1	
Subtract	2T-00083-05	Pwr Cord, Term 3-14 SJT	7	
Add	2T-04522-01	Pwr Cord, Molded, C13 to C1	7	
Subtract	DS-SWXRA-GH	RA3000 Cntrlr Shelf 110v	1	
Add	DS-SWXRA-GK	RA3000 Rkmnt Subsystem, w/HSZ22	1	
		MANDATORY ADDITIONS		
	DA-55NJA-CA	DS20 UNIX, 128 MB	2	Mandatory option: Systems
	DS-RZ1DA-VW	9GB SYSTEM DISK	2	Mandatory option: System Disks
	YS-ASCAA-AA	FACTORY INTEGRATION	1	Mandatory option: Integration

ES40	DA-AAHZA-KA	UNIX RTG CLUSTER CAB, H9A15, RA8000 FOR ES40,120V 50/60HZ		
	-BA610-4D	ES40 4 Bay Drive Cage	2	ES40 Drive Cage - embedded
	-BA61R-RM	ES40 Rackmnt Kit	2	Rackmount kit
	-BN24Q-04	UTP 10/100BaseT Xover Cable 3m	1	From DE500 System 1 to DE500 System 2 - cluster comm.
	-BN38C-03	3M VHDCI to 68HD Cable Assy	2	From KZPBA-CB in Systems to 3-port hub
	-BN46L-01	SCSI Cable - Multi Drop	2	From KZPBA-CA in Systems to TLZ10
	-DE500-BA	PCI to Fast Ethernet 10/100 UTP	4	2 for Cluster to cluster comm; 2 for external ethernet
	-H9A15-MC	M-Series Cab, Blue, 120V	1	
	-H9C15-TE	Ext Kit, Rear H9A15 Blue	1	
	-H9C15-TF	Front Door Kit, H9A15-TA	1	
	-KZPBA-CA	PCI to UltraSCSI Adapter	2	For TLZ10
	-KZPBA-CB	PCI to SCSI UWD, Adapter	2	To storage through hub
	-TLZ10-LB	12/24GB 4mm DAT, 5.25" HH	2	Tape drive for each system
	2T-00083-05	Pwr Cord, Term 3-14 SJT	2	From RA8000 and UPS to PDU
	2T-BA370-AS	BA370 Shelf, Slide Front RM	1	BA370 - mounted in front for RA8000
	DS-BA35X-HE	AC input Box BA370	1	BA370 AC input
	DS-BA35X-HH	180Watt Pwr Supply Blue	3	BA370 power supply
	DS-DWZZH-03	SCSI Hub 0 SE: 3 DIF 3.5"SBB	1	3-port hub
	DS-HS35X-BD	Dual External Cache Battery	1	
	DS-HSZ80-AH	USCSI Cntrlr 64MB Cache	1	RA8000 controller
	DS-RZ1DA-VW	9.1GB 7200RPM UltraSCSI	2	Disks for external storage
	EK-ASCRA-CL	Raid Trucluster Factory Integration	1	Installation guide only
	QB-05SAA-AA	TruCluster Asv U/A Doc Kit	2	Documentation and Licenses
	QA-MT4AA-H8	Tru64 Unix Alpha CDRM	1	Tru64 UNIX
	QB-65PAB-SA	HZS80 SW U/A LIC/MCD/DOC Pkg	1	RA8000 Licenses, docs, and software
	QB-678AA-SA	HSZ80 ACS All LIC/CDRM Pkg	1	RA8000 Licenses, docs, and software
	-BN37A-01	Ultra 68VHD 1m Cable Assy	1	3-port hub to HSZ80 controller
		MANDATORY ADDITIONS		
	DA-64AAA-CA	ES40 UNIX, 1GB	2	Mandatory option: Systems
	DS-RZ2DD-16	1GB 10000 RPM SYSTEM DISK	2	Mandatory option: System Disks
	YS-ASCAA-AA	FACTORY INTEGRATION	1	Mandatory option: Integration

ES40	DA-AAHZA-KB	UNIX RTG CLUSTER CAB, H9A15, RA8000 FOR ES40,240V 50HZ		
	Same as above Except:			
Subtract	-H9A15-MC	M-Series Cab, Blue, 120V	1	Swap out North American variants for non-North American
Add	-H9A15-MD	M-Series Cab, Blue, 240V	1	
Subtract	2T-00083-05	Pwr Cord, Term 3-14 SJT	2	
Add	2T-04522-01	Pwr Cord, Molded, C13 to C1	2	
Add	2T-04522-02	Pwr Cord, Molded c13 Rt Angle	6	Substitute for power cords in BA61R-RM
		MANDATORY ADDITIONS		
	DA-64AAA-CA	ES40 UNIX, 1GB	2	Mandatory option: Systems
	DS-RZ2DD-16	1GB 10000 RPM SYSTEM DISK	2	Mandatory option: System Disks
	YS-ASCAA-AA	FACTORY INTEGRATION	1	Mandatory option: Integration

9. Color Coding for Cluster Cabling

The table below shows cable color coding for the cables and power cords used in *Ready to Go* cluster cabinets.

17-04522-02/-03	CPU #1	PRIMARY 1	H7600 #1	NONE
		PRIMARY 2	H7600 #1	BROWN
		PRIMARY 3	H7600 #1	BROWN/BROWN
17-04522-02/-03	CPU #2	PRIMARY 1	H7600 #2	RED
		PRIMARY 2	H7600 #2	RED/BROWN
		PRIMARY 3	H7600 #2	RED/BROWN/BROWN
17-04522-01	DS-SWXRA-Gx	PRIMARY	H7600 #1	ORANGE
		SECONDARY	UPS	ORG/WHT
17-04522-01	DS-SWXRA-GH #1	PRIMARY	H7600 #1	YELLOW
		SECONDARY	UPS	YELLOW/WHT
17-04522-01	DS-SWXRA-GH #2	PRIMARY	H7600 #1	VIOLET
		SECONDARY	UPS	VIOLET/WHT
17-04522-01	DS-BA370-AA	PRIMARY	H7600 #1	GREEN
		SECONDARY	H7600 #2	GREEN/WHT
17-04522-01	BA35A-BA	PRIMARY	H7600 #1	BLUE
		SECONDARY	H7600 #2	BLUE/WHT
N/A	TOP FAN	PRIMARY	H7600 #1	GRAY
N/A	RA3000 UPS	PRIMARY	H7600 #2	WHITE

BN38C-03	CPU #1 KZPBA-CB	DS-DWZZH-03	BLUE
BN38C-03	CPU #2 KZPBA-CB	DS-DWZZH-03	GREEN
BN37A-01	DS-DWZZH-03	DS-SWXRA-Gx	RED
BN37A-0E	DS-SWXRA-Gx	DS-SWXRA-GH #1	RED/ORG
BN37A-0E	DS-SWXRA-Gx	DS-SWXRA-GH #2	RED/YELLOW
BN38C-03	CPU #1 KZPBA-CA/KZPCM-DA	BA35A-BA CH A (UPPER)	NONE
BN38C-03	CPU #2 KZPBA-CA/KZPCM-DA	BA35A-BA CH B (LOWER)	BROWN

BN24Q-03/04	CPU #1 DE500-BA #1	CPU #2 DE500-BA #1	ORANGE
N/A	DS-SWXRA-GH Host 0	4N-AEASE-EA/FA	YELLOW

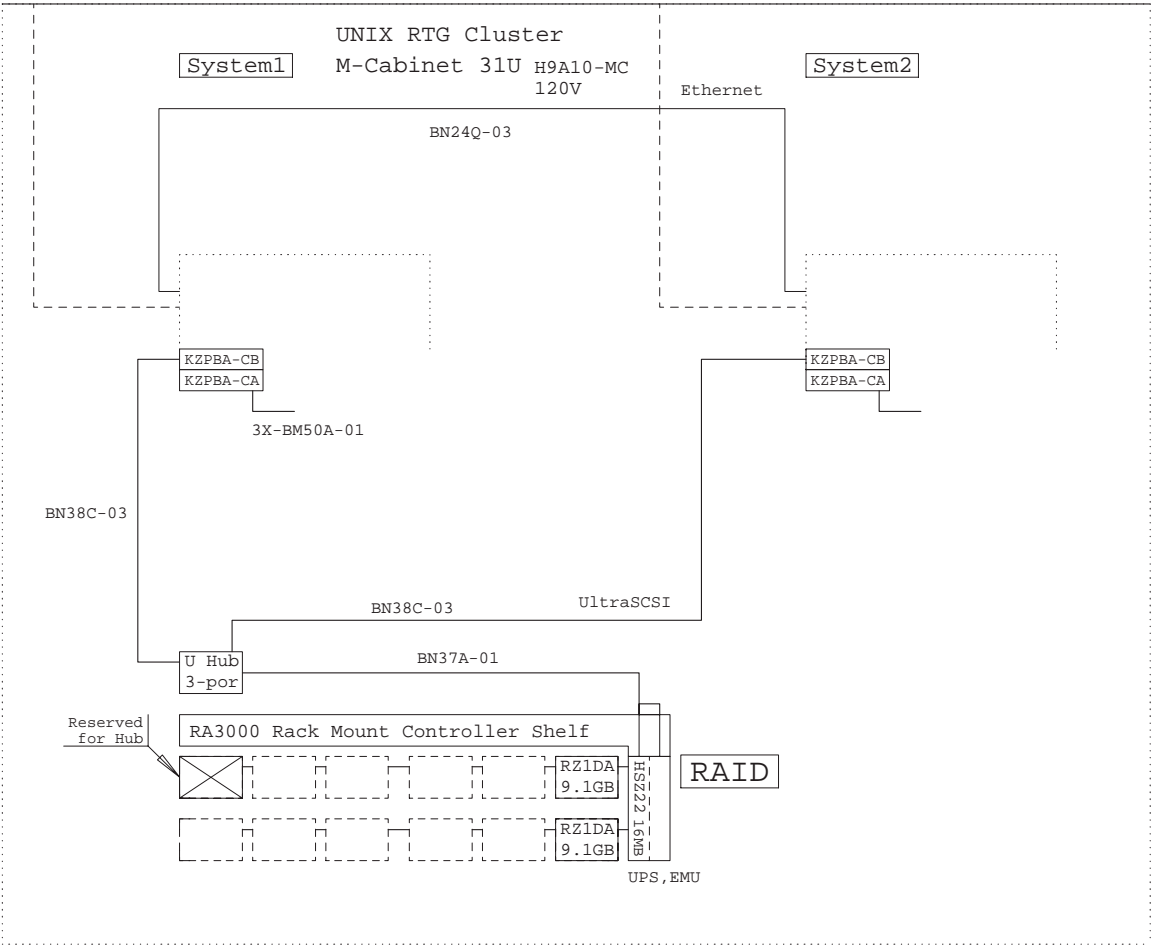
10. *Ready to Go* Cluster Cabinet Diagrams

The diagrams and tables over the next few pages give the cluster cabinet contents for the *Ready to Go* cluster cabinets for the AlphaServer DS10, DS20, and ES40.

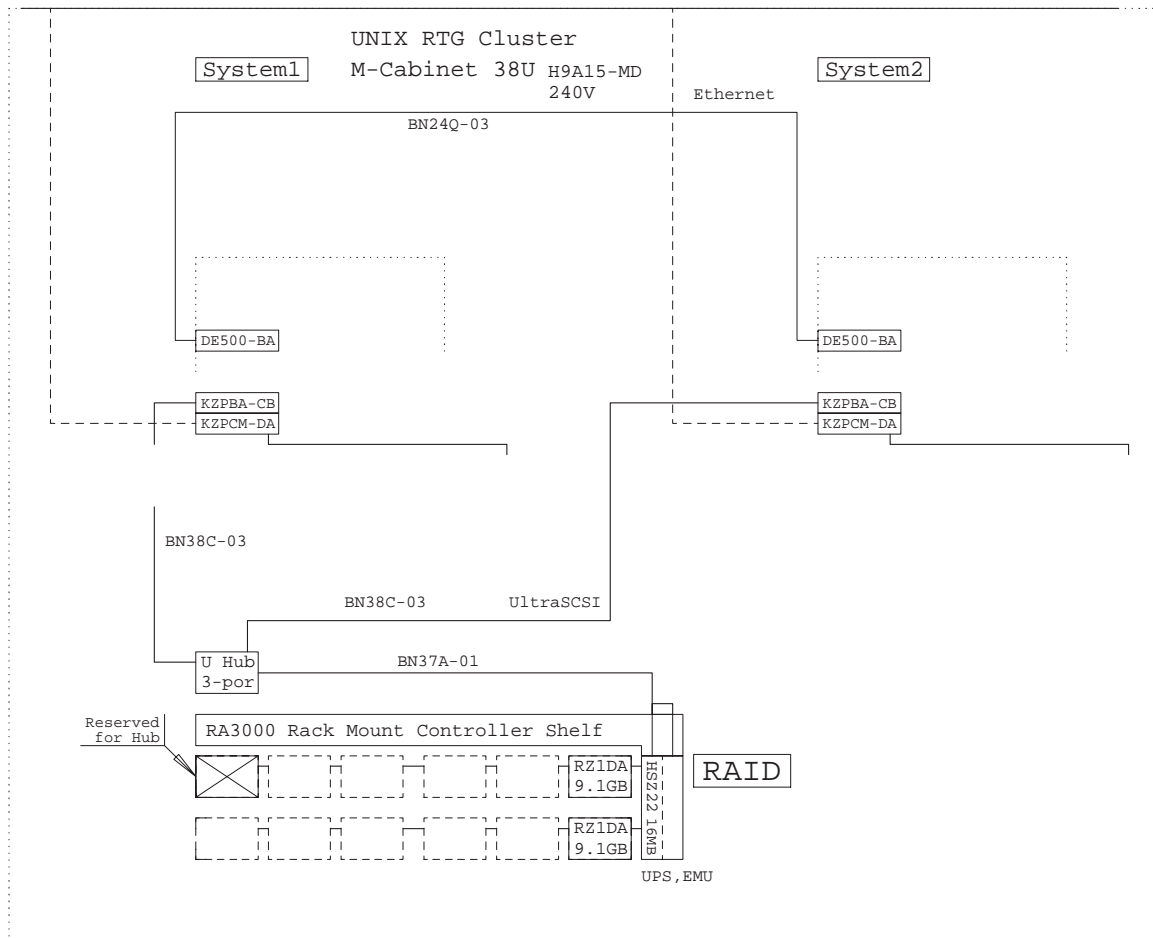
These diagrams do not show the systems in the cabinets. Rather, they have shadow figures where the two systems would fit and illustrate the system options which are bundled in the *Ready to Go* cluster cabinet Bill of Materials. During manufacturing, these bundled components, such as the DE500 and KZPBA, are assembled into the system PCI slots.

Cables are labeled to show them going to and from certain components in the cabinet. Refer to the Bill of Material notes and Cabling Table for specific information.

DA-AAHZA-HA RTG Cabinet 120V for DS10
DA-AAHZA-HB RTG Cabinet 240V for DS10



DA-AAHZA-JA RTG Cabinet 120V for DS20
 DA-AAHZA-JB RTG Cabinet 240V for DS20



DA-AAHZA-KA RTG Cabinet 120V for ES40
DA-AAHZA-KB RTG Cabinet 240V for ES40

