DEC 7000/10000 AXP
VAX 7000/10000
Systems Overview

Order Number EK–71XEA–OV. A01

This document describes the VAX 7000, VAX 10000, DEC 7000, and DEC 10000 AXP systems. It also presents the hardware documentation sets that support these products.

Contents

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Preface

Intended Audience

This document is written for system owners, customer service engineers, and self- maintenance customers using these systems and their hardware documentation.

Document Structure

This manual uses a structured documentation design. Topics are organized into sections for ease of reference. Each topic begins with an abstract. Next is an illustration or example, followed by descriptive text.

This manual has two chapters as follows:

- **Chapter 1, Systems,** compares and contrasts four enterprise levels: The DEC 7000 and DEC 10000 Alpha AXP systems based on the DECchip 21064 with RISC (reduced instruction set computer) architecture and the VAX 7000 and VAX 10000 systems with CISC (complex instruction set computer) architecture.

- **Chapter 2, Documentation,** decribes the design and scope of the hardware documentation set. It maps the levels of information designed into each manual and defines the audiences.

Conventions Used in This Document

Terminology. Unless specified otherwise, the use of "system" refers to a DEC 7000 AXP, DEC 10000 AXP, VAX 7000, or VAX 10000 system. The DEC 7000 and 10000 AXP systems use the Alpha AXP architecture.

Icons. The icons shown below are used in illustrations for designating part placement in the system described. A shaded area in the icon shows the location of the component or part being discussed.
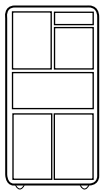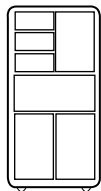
Front   Rear

Chapter 1

Systems

This chapter compares and describes the VAX 7000, VAX 10000, DEC 7000, and DEC 10000 systems. Sections include:

- VAX and Alpha AXP Compared
- The Basic Platform
- Plug- In Units
- I/O Expansion
- Power
- Console
- Power- Up Testing
- Upgrading from VAX to Alpha AXP

1.1 VAX and Alpha AXP Compared

Alpha AXP is a new RISC-based architecture which uses the world's fastest microprocessor. For customers committed to the VAX architecture, VAX systems' CISC-based architecture provides high performance. Both architectures run on the same platform.

Table 1-1   Feature Comparison by Operating System[1]

Feature	DEC OSF/1 AXP	OpenVMS AXP	OpenVMS VAX
CPUs	1 to 6	1 to 6	1 to 6
Memory	_____ 64 Mbytes min. _____		
		3.5 Gbytes max.	
10 Mbit/s LANs	8 DEMNAs	6 DEMNAs	16 DEMNAs
100 Mbit/s LANs	8 DEMFAs	4 DEMFAs	7 DEMFAs
CI Storage	1 CIXCD	2 CIXCDs	10 CIXCDs
DSSI Storage	None	9 KFMSBs[2]	12 KFMSAs[2]
SDI Storage	6 KDM70s[3]	_____ 12 KDM70s[3] _____	
SCSI Storage	8 KZMSAs[2]	9 KZMSAs[2,4]	None

[1] Configurations are accurate as of this printing, and may change over time. Check the *Systems and Options Catalog* for any changes.
[2] Two buses on each adapter.
[3] Eight ports on each adapter.
[4] Access to SCSI- 2 devices is available through StorageWorks HSx controllers.

The world's fastest microprocessor implements the Alpha AXP RISC- based architecture for the highest system performance through the 1990s.   Alpha AXP systems owe their fast performance to the DECchip 21064 microprocessor which provides 64- bit addressing. The chip has been designed to accommodate high- performance features like multiple instruction issue and symmetric multiprocessing. DEC 7000 and 10000 systems are the server entries in this new family.

VAX 7000 and 10000 systems have CISC- based architecture. The VAX 7000 and 10000 systems are the fastest VAXes ever created for customers who are committed to the VAX architecture.

Both VAX and DEC systems run the OpenVMS operating system, which is compatible with existing VAX systems (see Table 1- 1). Both VAX and DEC systems run on the same platform (see Section 1.2). This consistent platform allows ease of migration from the VAX architecture to the Alpha AXP architecture for your hardware and also for your applications and data.

Table 1- 2   Comparison of 7000 and 10000 Systems

Feature	7000 Systems	10000 Systems
Cabinets	1 system cabinet 0 to 2 expander cabinets No UPS/PCS cabinets	1 system cabinet 1 or 2 I/O cabinets 1 or 2 UPS/PCS cabinets
N+1 redundant power regulators	Optional	Standard
Power factor correction	_____Standard_____	
Battery backup	Optional — 11 minutes	Standard — 60 minutes

1.2 The Basic Platform

All four systems share the same basic platform. This ensures protection for your hardware investment and enables simple upgrading from a VAX to an Alpha AXP system.

Figure 1‑1   The Basic Platform—System Cabinet

Front   Rear

Cabinet Control System

LSB Card Cage

Power System

Cooling System
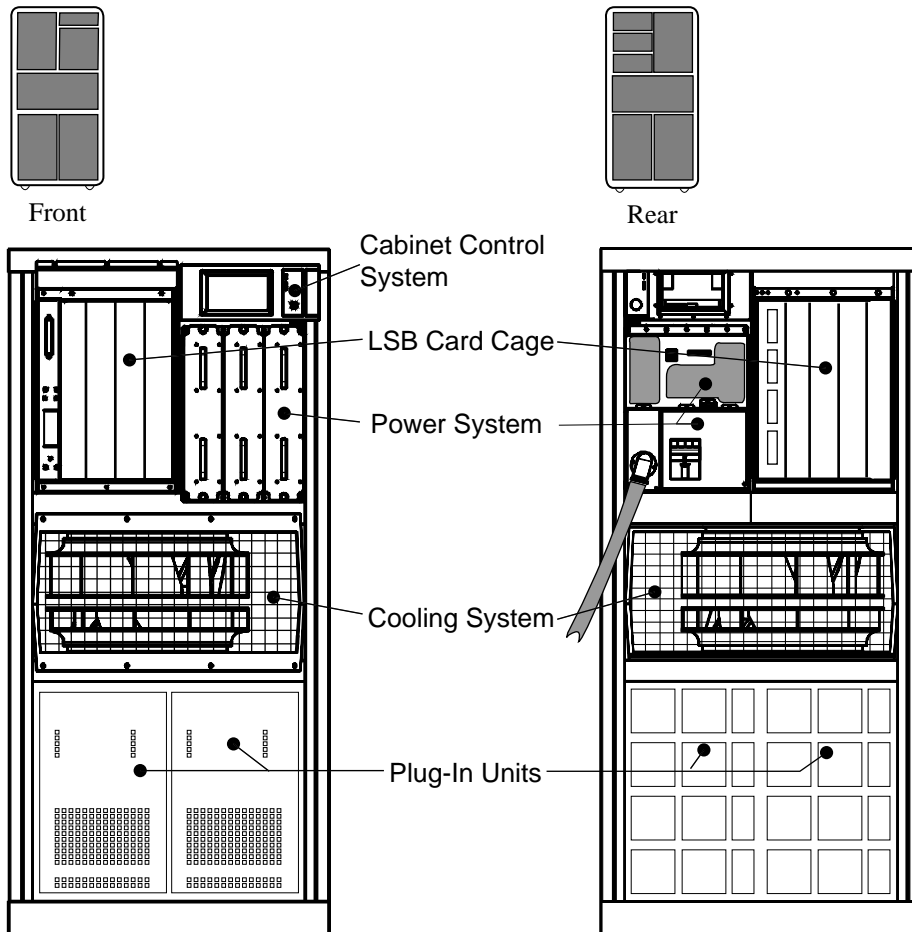
Plug-In Units

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About the Basic Platform

The platform contains the following components:

- Cabinet control system
- LSB 9- slot card cage with processor, memory, and IOP modules
- Power and cooling systems
- One or more plug- in units for I/O, disks, and batteries

A removable media device, the RRD42[1] compact disk drive, is standard in DEC systems; a TF85 tape drive is optional in VAX systems. The media devices are next to the control panel in the main system cabinet. The 10000 systems come in 3 and 5- cabinet variants providing very large standard I/O capacity. One or two expander cabinets can be added to 7000 systems to accommodate additional I/O capacity.

Figure 1- 2   System Footprints Compared
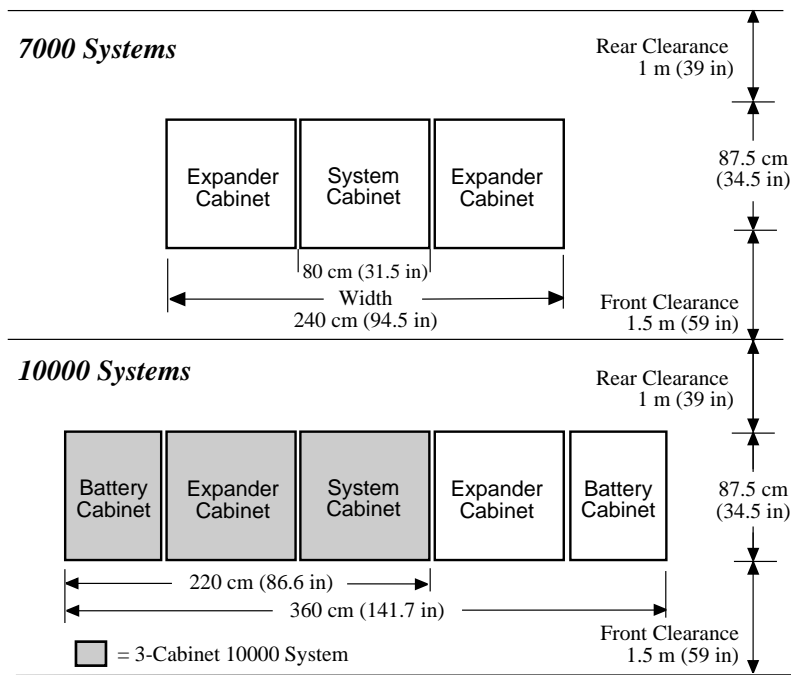
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[1] The RRD42 requires a dedicated KZMSA port in an XMI plug- in unit in the main cabinet.

1.3 Plug-In Units

Plug-in units (PIUs) can be installed in the main and expander cabinets as shown in Figure 1-3. Both cabinets have space for PIUs in the bottom. The expander cabinet also has space for two PIUs in the top quadrants.

Figure 1-3   Location of PIU Quadrants
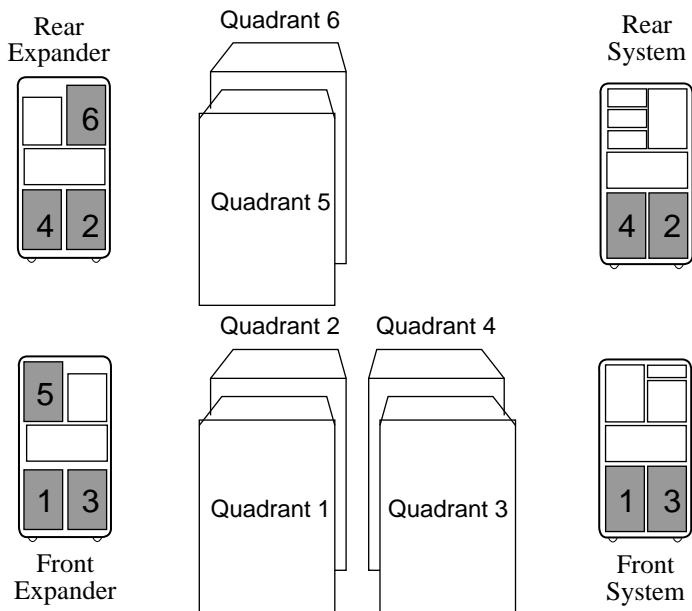
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About Plug- In Units

Plug- in units (PIUs) house options in the main and expander cabinets.

Three buses may be added as PIUs (see Table 1- 3):

— XMI

— Futurebus+

— VAXBI

Storage and power PIUs include:

— SCSI disks and tapes

— DSSI disks

— Batteries

PIUs are located in the PIU expansion bays, known as quadrants (see Figure 1- 3). The main cabinet has four PIU quadrants in its base, and each expander cabinet has six. The XMI, VAXBI, and battery PIUs each require two quadrants; the Futurebus+ and disk PIUs each require one quadrant. For specific configuration limitations, see Digital's *Systems and Options Catalog*.

Table 1- 3   I/O Buses

I/O Buses		DEC 7000 and 10000	VAX 7000 and 10000
XMI	(12 slots/bus)[1]	1 to 4/system	1 to 4/system
Futurebus+	(9 slots/bus)[1]	0 or 1	None
VAXBI	(5 slots/bus)[1]	None	0 to 6
VME	(External)[2]	—	0 to 8

[1] Number of slots available per bus.
[2] An XMI- to- VME bus option is available for VAX systems. It is not a PIU; the interface is external to the system cabinet.

1.4 I/O Expansion

The expander cabinet looks like the main cabinet, but without an LSB card cage or a control panel. Disk plug- in units may be installed in the space that would be occupied by the LSB card cage.

Figure 1- 4   Expander Cabinet

Front   Rear

Disk Plug-In Units

Power System

Cooling System
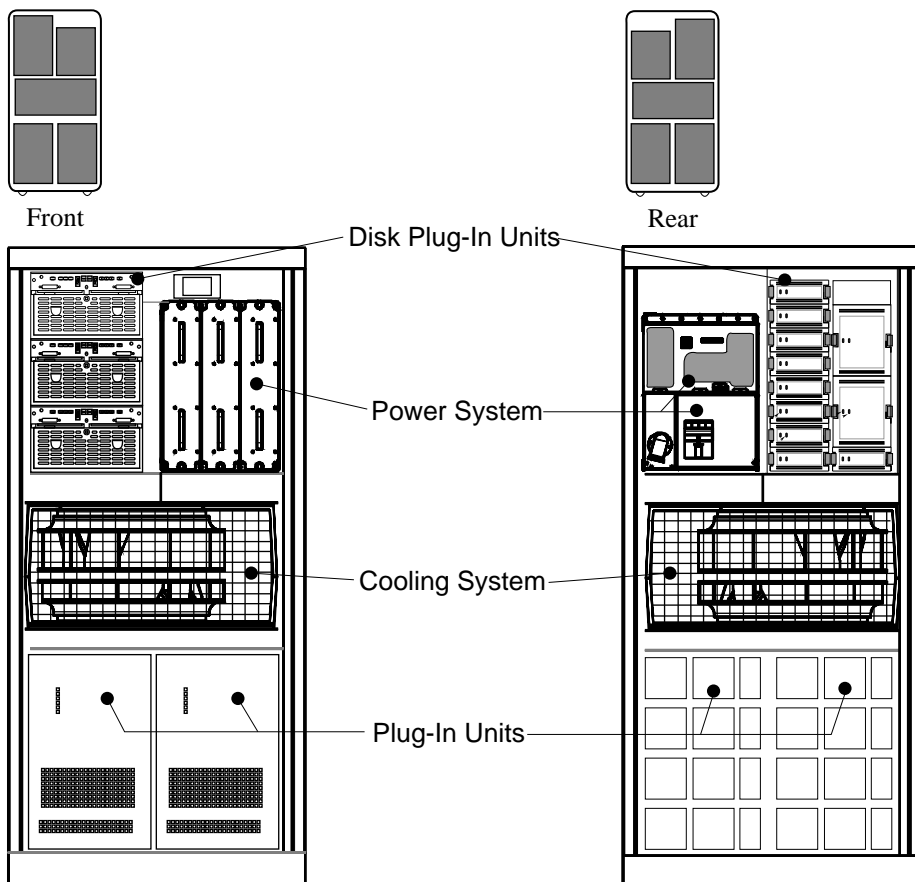
Plug-In Units

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About the Expander Cabinet

The expander cabinet has the same frame as the main cabinet; the contents, however, differ. The expander cabinet does not have an LSB card cage or a control panel, and it can have disk plug- in units in the upper part of the cabinet. The 7000 and 10000 systems have different cabinet variations (see Table 1- 4).

Expander Cabinet Configuration Rules

- Each 7000 system can have one or two expander cabinets. The first expander cabinet is placed to the right of the system cabinet and the second to the left. See Figure 1- 5.

- The expander cabinet can contain a removable media device (RRD42[1] in AXP systems; TF85 in VAX systems) located in the top front of the cabinet.

- The configuration rules for the lower quadrants of the system cabinet also apply to the lower quadrants of the expander cabinet.

- Only disk plug- in units may be installed in the upper quadrants of the expander cabinet.

Figure 1- 5   7000 System with Two Expander Cabinets
(front view)
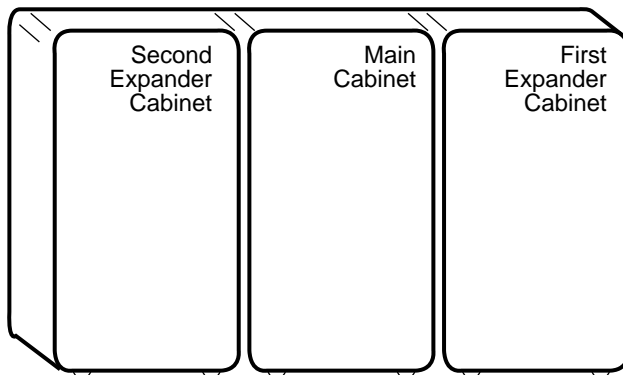
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[1] The RRD42 requires a dedicated KZMSA port in an XMI plug- in unit in the same expander cabinet.

1.5 Power

The power system consists of an AC input box, DC distribution box, and one to three power regulators. An N+1 redundant power system is available to ensure continued system availability in the event of a power regulator failure.

Figure 1-6 Power System

Power Regulators

AC Input Box

DC Distribution Box

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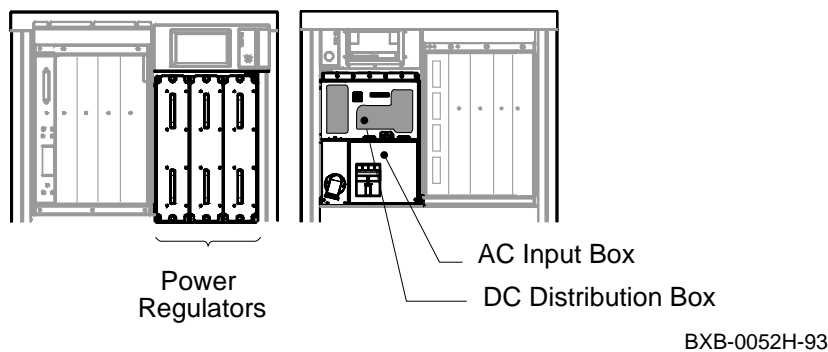
Figure 1-7 Power Receptacles

US, Canada

A **50-60 Hz (120/208 V NOMINAL)**
   NEMA L21-30R

PHASE X
NEUTRAL
PHASE Y
GND
PHASE Z

Europe, GIA

B **50-60 Hz (380-415 V NOMINAL)**
   IEC 309 TYPE

PHASE 3
PHASE 2
NEUTRAL
PHASE 1
GND

Japan

C **50-60 Hz (202 V NOMINAL)**
   NEMA L21-30R

PHASE X
PHASE Y
GND
PHASE Z

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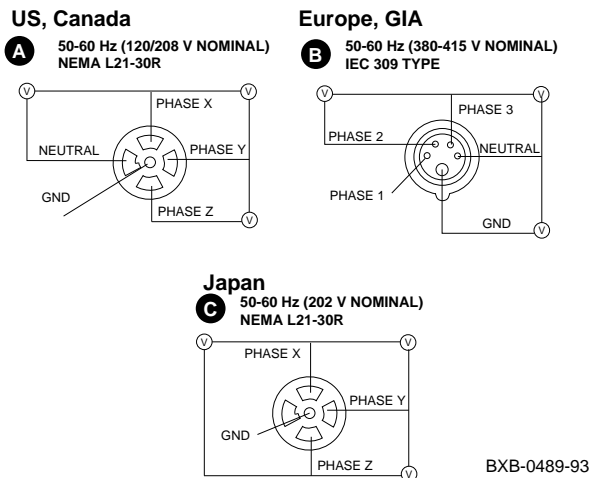
The N+1 redundant power system allows for higher system availability in the event of a power regulator failure. Systems can be configured with up to three power regulators per cabinet, ensuring that even the most heavily configured systems can keep operating if a power regulator fails. Optional system level UPS (uninterruptible power system) capability is available to support all elements in the CPU and I/O expander cabinets: CPU, memory, I/O channels and devices, and in- cabinet disk storage.

Table 1- 4 Power Requirements and Variations

Parameter	US, Canada	Europe, GIA	Japan
Nominal voltage	120/208 V	380–415 V	202 V
Frequency range	50–60 Hz on all systems		
Phases	_____3- phase star_____ 4- wire N- GND		4- wire mid- GND or 3- wire junction GND
Max. input/phase	24 A rms	12.8 A rms	24 A rms
Surge current	_____50A peak on systems_____		
Uninterruptible power system/battery backup	_____Standard on 10000 systems_____ Optional on 7000 systems		
Built- in power conditioning	_____Standard on all systems_____		
N+1 power	_____Standard on 10000 systems_____ Optional on 7000 systems		
Cabinet Variations by Power	**Ⓐ**	**Ⓑ**	**Ⓒ**
7000 system cabinets	H9F00- AA	H9F00- AB	H9F00- AC
7000 expander cabinets	H9F00- BA	H9F00- BB	H9F00- BC
10000 system cabinets	H9F00- CA	H9F00- CB	H9F00- CC
10000 expander cabinets	H9F00- DA	H9F00- DB	H9F00- DC

1.6 Console

Console commands allow the user to configure and boot their system. They also enable access to I/O, memory, and environment parameters. All four systems have the same console commands.

Figure 1-8   Console Commands

Basic Console Commands	
Command	**Parameters**
boot	device_list
build	option
cdp	device
clear	option or envar
continue	
create	envar
deposit/examine	value
help	[command]
initialize	device
set/show	name value
start/stop	id or address
test	
update	device

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Several basic commands tailor the boot process to the system environment. Unlike earlier consoles, enhanced code simplifies the boot command; boot strings previously had to be specified with each connecting adapter's bus and node switches. Now, the console computes the path to the specified adapter. Device nomenclature is all that is required.

The console provides information on attached devices, not just those in the system cabinet but those connected directly to the system (e.g., by CI, external disks, SCSI, DSSI). The show device command reports data from up to 32 nodes or 300 disk or tape drives.

Environment variables are a subset of console parameters that modify the recovery behavior of the system. An environment variable is a name associated with a value set and maintained by the console program and is manipulated using the *set, show*, and *clear* console commands.

Environment variable values preserved across a system reset or power failure (written into EEPROM by the console) are called nonvolatile. The other class of environment variables is volatile; that is, they may be changed at the console, but following a system reset, the value returns to the default value.

For more information, see the *Console Reference Manual*.

Figure 1-9   Environment Variables

Environment Variables	
Variable	**Default Value**
auto_action	Halt
baud	9600
bootdef_dev	
boot_file	
boot_osflags	
boot_reset	On
cpu	n
cpu_enabled	0xff
cpu_primary	0xff
d_harderr	Halt
d_report	Summary
d_softerr	Continue
dump_dev	
enable_audit	On
interleave	default
language	36 (English)
system_variant	0

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1.7 Power-Up Testing

The systems are self-diagnosing. At power-up, the boot processor prints out self-test results. These extensive self-tests are automatically invoked at power-up.   Figure 1-10 keys the selt-test display to the testing being done.

Figure 1-10 Power-Up Test Sequence


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

   .  .  +  .  .  .  +  .  +  .  +  .  .  +   C0 XMI +
   +  .  .  +  .  .  +  .  .  +  .  +  .  +   C1 XMI +
   .  .  .  .  .  .  .  .  .  .  .  .  .  .   C2
   .  .  .  .  .  .  .  .  .  .  .  .  .  .   C3

               .  A1 A0 .  .  .  .  .  .   ILV
               .128 128 .  .  .  .  .  .   256Mb

Firmware Rev = V1.0-1625 SROM Rev = V1.0-0  SYS SN = GAO1234567
P00 >>>
```
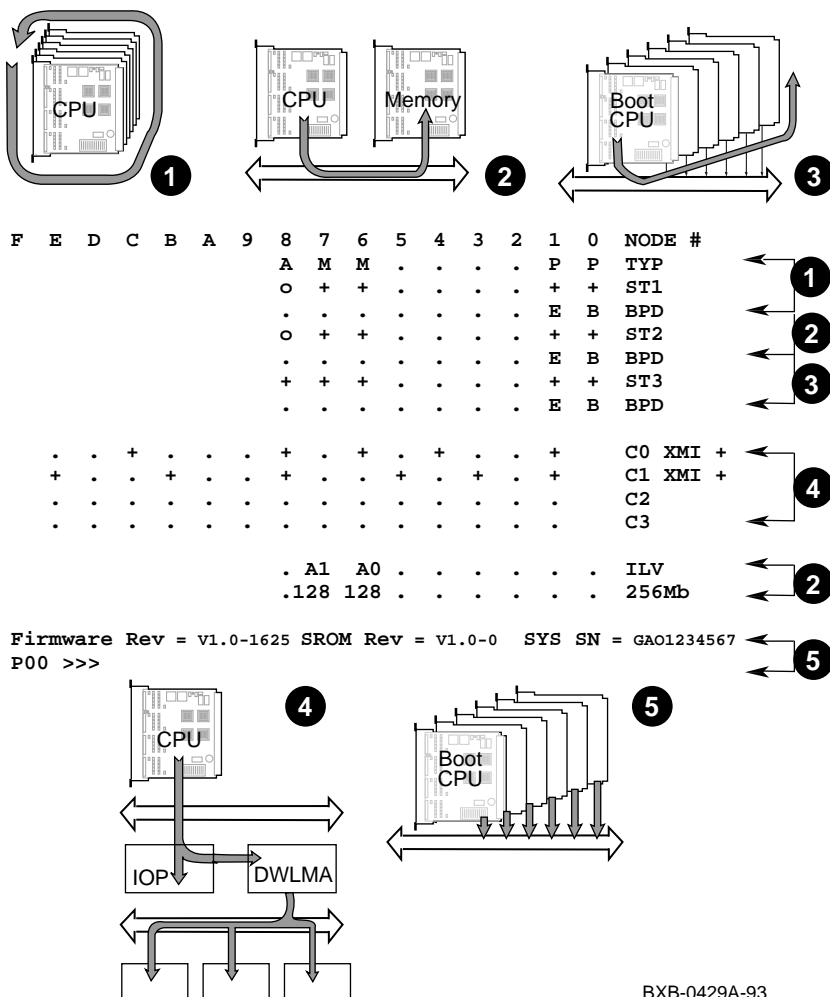
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Power- up tests are invoked without operator intervention at power- up and at any system initialization. The tests provide a thorough verification of system components prior to coming online with the console prompt (see Figure 1- 10).

❶ Processors run on- board self- tests and select a boot processor.
❷ Boot processor configures memory, runs CPU/memory tests, copies console to memory, and enters multiprocessor mode.
❸ CPU/multiprocessor tests are run, and the boot processor is determined again.
❹ Boot processor tests and reports IOP and I/O bus adapter test results. The boot processor probes other buses and results.
❺ Boot processor halts in console mode or boots the operating system.

In power- up self- test, on- board and system exercisers are invoked. Modules run self- tests and report results through LEDs and the self- test display. Processors, memory, I/O devices, IOP and bus interface modules are tested. System exercisers verify interfaces between components.

In previous products, loadable diagnostics were run under VAX diagnostic supervisor (VAX/DS) control. Because of the native exerciser tests, the need for loadable diagnostics is eliminated.

At installation, for example, you turn the keyswitch to Enable, wait for the console prompt, and then proceed directly to booting the operating system. No further testing is necessary.

1.8 Upgrading from VAX to Alpha AXP

VAX 7000 systems provide expansion and investment protection similar to the VAX 6000 family. You can add processors and upgrade as your computing needs grow.

Figure 1-11 Investment Protection: VAX to Alpha AXP
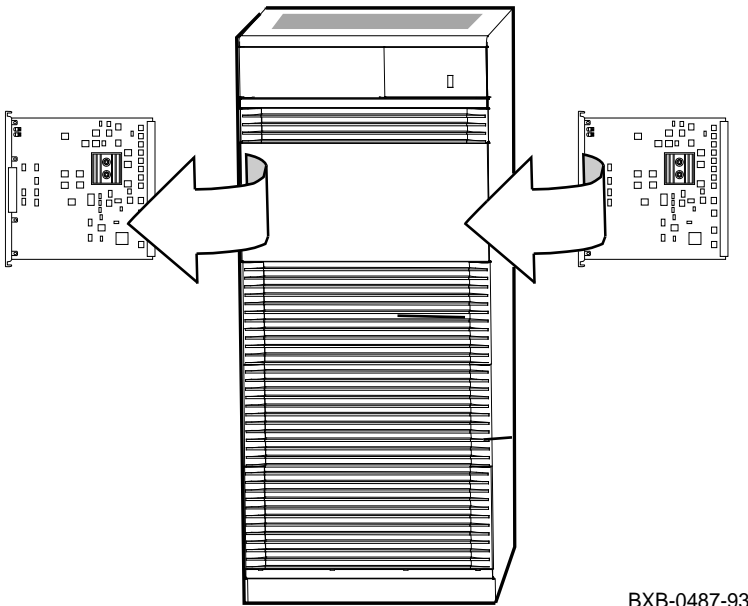
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And, finally, you don't have to choose. Your investment is protected. You can move from the VAX architecture to Alpha AXP when your computing needs dictate. Your platform supports both architectures.

Chapter 2

Documentation

This chapter covers the hardware documentation sets. In addition to the hardware documentation, there are document sets for your operating system and for your applications.
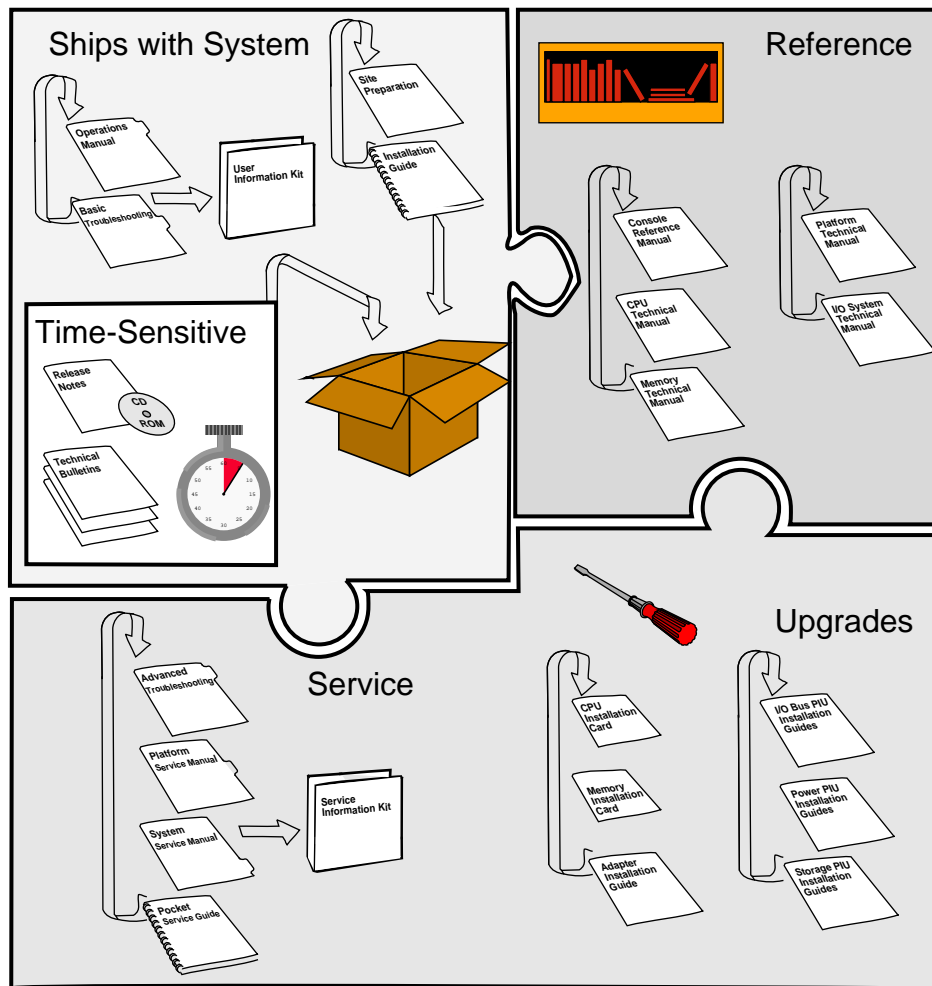
Sections in this chapter include:

- Documentation Map
- Time- Sensitive Information
- What Ships with the System?
- Reference
- Service
- Upgrades
- More Information

2.1 Documentation Map

Hardware documentation fits into four pieces: user information, reference, maintenance material, and time-sensitive information. See Figure 2-1.

Figure 2-1   Documentation Map

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The hardware documentation set was designed and packaged with the user in mind. The books are targeted to arrive in the proper hands at the time they are needed.

The most time- sensitive documents are the release notes and technical bulletins. Release notes contain the most current information about fixes and updates. Technical bulletins contain information on newly released features. Both ship with each system. See Section 2.3.

Also shipping with the system are books needed to install and operate the hardware. The audience is the owner/operator and the installer. These books include the *Operations Manual*, *Basic Troubleshooting,* and the *Installation Guide.*
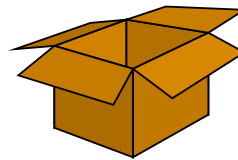
The other two categories are service and reference. Service books are distributed to self- maintenance customers and to Digital service engineers, and reference books can be ordered as needed.

Advanced Troubleshooting and other service documents are written for upgrade installations, for self-maintenance customers, and for Digital service engineers performing routine maintenance and troubleshooting on systems. See Section 2.5 and Section 2.6.
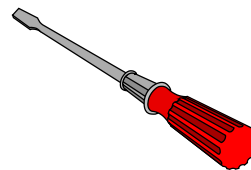
The *Console Reference Manual* takes the *Operations Manual* to an advanced level. Other reference material is designed for customers who are writing operating systems, machine- level applications, or who need an in- depth knowledge of the system components. Reference material is also used by Digital service engineers. See Section 2.4.

2.2 Time-Sensitive Information

Time-sensitive information ships with each system: hardware release notes and any relevant technical bulletins. A CD-ROM also ships, containing the most current release of console-diagnostic files and documentation.

Figure 2-2   Time-Sensitive Information
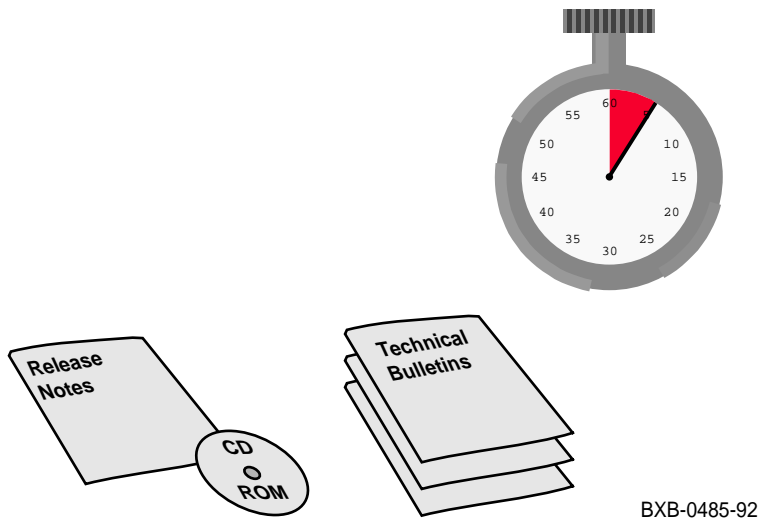
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Table 2-1 Time-Sensitive Information

Document	Order Number
Release Notes	
DEC 7000 AXP System Release Notes	EK–70XE*–RN
DEC 10000 AXP System Release Notes	EK–10XE*–RN
VAX 7000 System Release Notes	EK–700E*–RN
VAX 10000 System Release Notes	EK–100E*–RN
Alpha AXP Systems Firmware Release Notes	AA–PW8Y*–TE
VAX 7000/10000 Firmware Release Notes	AA–PQW2*–TE
Technical Bulletins	
DEC 7000/10000 AXP Technical Bulletin No. 1	EK–70TBA–T1
DEC 7000/10000 AXP Technical Bulletin No. 2	EK–70TBA–T2

The release notes describe any features, fixes, or bugs found since the product started shipping. Release notes are updated often with new releases of console/diagnostics software. A CD-ROM containing the most current console and diagnostics code accompanies the release notes.

Technical bulletins present product enhancements as new modules and features are released. The bulletins give user, maintenance, and reference level information added to the basic systems.

2.3 What Ships with the System?

Each system ships with the user information kit (two manuals), the installation kit (two manuals), and the time- sensitive information.
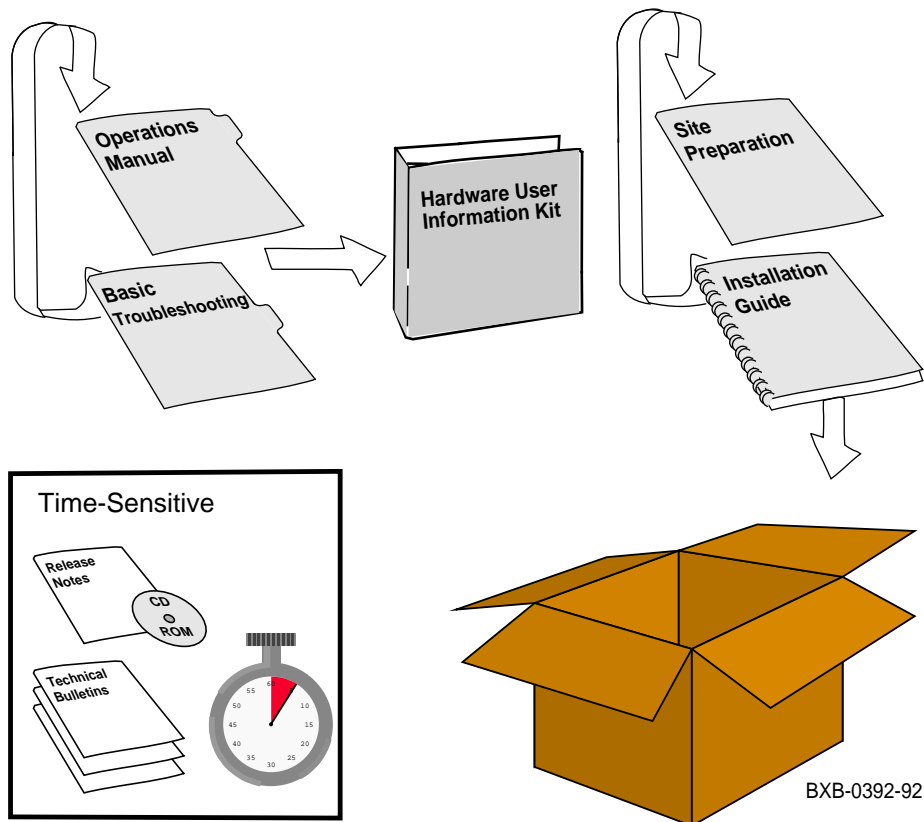
Figure 2- 3   What Ships with the System?

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Table 2-2 System Kits

Document	7000 Systems Order Number	10000 Systems Order Number
Installation Kit[1]	**EK–7000*–DK**	**EK–1000*–DK**
Site Preparation Guide	EK–7000*–SP	EK–1000*–SP
Installation Guide	EK–700E*–IN	EK–100E*–IN
Hardware User Information Kit[2]	**EK–7001*–DK**	**EK–1001*–DK**
Operations Manual	EK–7000*–OP	EK–1000*–OP
Basic Troubleshooting	EK–7000*–TS	EK–1000*–TS

[1] Consists of two separate manuals. When ordered as a kit, they are shipped shrink-wrapped together.

[2] These manuals are in a binder shipped as a kit. They can also be ordered separately.

Installation Kit

- *Site Preparation Guide*
  describes system environmental, electrical, and space requirements.

- *Installation Guide*
  leads service engineers through the initial installation of the system. This book is intended as a one-time use document, for initial installation only.

Hardware User Information Kit

- *Operations Manual*
  explains system controls, switches, and console functions (boot, configure, query, set parameters, shutdown) to the system operator. This manual is task-oriented and describes day-to-day operations. For full descriptions of console commands, see the *Console Reference Manual*.

- *Basic Troubleshooting*
  gives first-level troubleshooting procedures for the customer. This manual includes descriptions of system self-test, indicator lights, and basic diagnostics, and is intended as a first reference book.

2.4 Reference

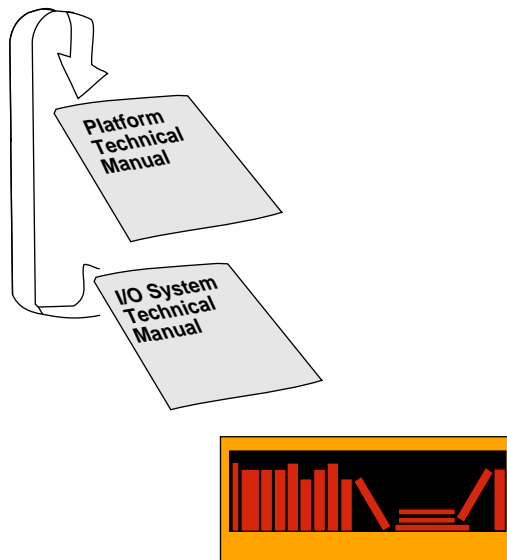**Reference manuals are written for advanced users and service engineers who require detailed technical information. Typical audiences include programmers writing machine- level applications or compilers and service engineers tracking board functions.**

Figure 2- 4   Reference

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Table 2-3   Reference Manuals

Document	Order Number
System-Level Reference	
Console Reference Manual	EK–70C0*–TM
KA7AA CPU Technical Manual [1]	EK–KA7AA–TM
KN7AA CPU Technical Manual [2]	EK–KN7AA–TM
MS7AA Memory Technical Manual	EK–MS7AA–TM
Platform-Level Reference	
Platform Technical Manual	EK–7000*–TM
I/O System Technical Manual	EK–70I0*–TM

[1] For VAX only.
[2] For DEC only.

- ***Console Reference Manual***
  describes the console program, its functions, and its language.

- ***Technical Manual**s*
  contain detailed functional descriptions. Topics include registers, transactions, operations, and error handling. The CPU, memory, and I/O technical information appear in separate manuals.

2.5 Service

There are two Service Information Kits: one for VAX 7000 systems and one for DEC 7000 systems. The kits are for Digital service engineers and self- maintenance customers.
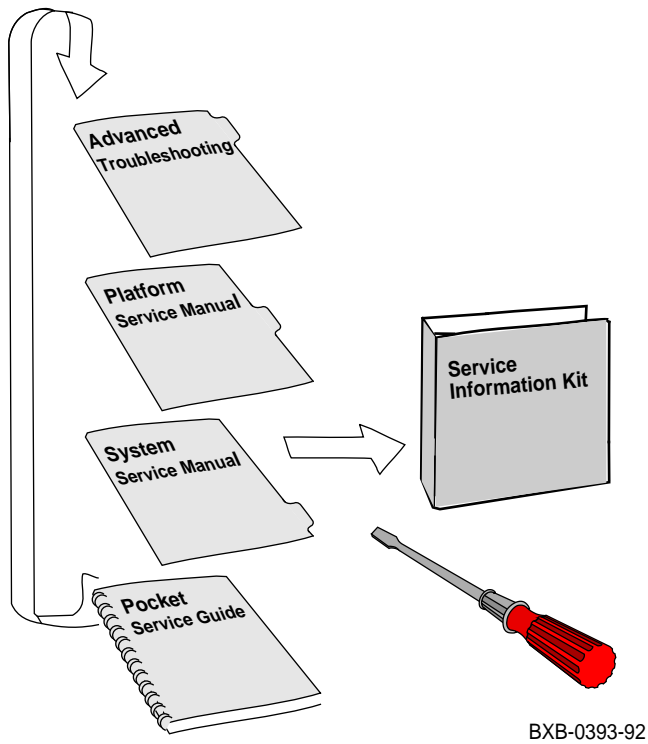
Figure 2- 5   Service Kits

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Table 2-4 Service Information Kits

Kit	Order Number
VAX 7000 kit	EK–7002A–DK
DEC 7000 AXP kit	EK–7002B–DK

Table 2-5 Manuals in the Service Information Kits

Document	7000 Systems Order Number	10000 Systems Order Number
Advanced Troubleshooting	EK–7001*–TS[1] EK–7701*–TS[2]	EK–1001*–TS[3]
Pocket Service Guide	EK–7000*–PG[1] EK–7700*–PG[2]	EK–1000*–PG[3]
Platform Service Manual	EK–7000*–SV	
System Service Manual	EK–7002*–SV	EK–1002*–SV

* Indicates the version number. Order the highest version number available.

[1] For VAX 7000 only. [3] For VAX 10000 only.
[2] For DEC 7000 only.

- *Advanced Troubleshooting* has information for customer service engineers to identify, diagnose, and repair systems. It covers advanced diagnostics, error logs, crash dump analyzers, and error registers.

- *Pocket Service Guides* have quick- reference service and troubleshooting information such as diagnostic lists, error logs, machine checks, and console commands, qualifiers, and error messages. They also contain registers and parse trees.

- *Platform Service Manual* includes field- replaceable unit (FRU) removal and replacement procedures and any special information needed for PIUs and I/O modules.

- *System Service Manuals* provide system- specific information on adding processors and memory, systems configuration, and the loadable firmware update utility.

2.6 Upgrades

You can upgrade the system hardware at three levels: modules, PIUs, and expander cabinets. For modules, add processors, memory, and I/O adapters. For PIUs, add I/O buses, storage PIUs, power regulators, battery backup, and removable media. Expander cabinets house any components except LSB modules.

Figure 2-6   Upgrade Manuals
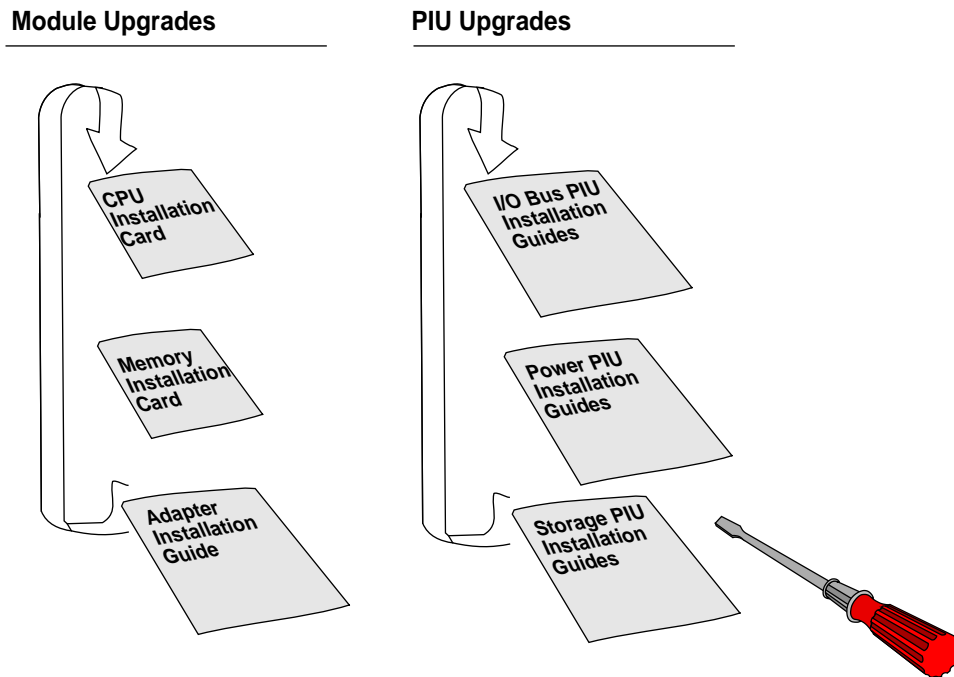
BXB-0397-93

Each upgrade kit includes the hardware components and installation instructions. Tables 2-6 and 2-7 show current upgrades; additional upgrades will become available as new options are announced. Expander cabinet installation instructions are given in the *Installation Guide.*

Table 2‑6 Module Upgrades

Document	Order Number
DEC LANcontroller 400 Installation Guide	EK–DEMNA–IN
DRB32 Hardware Installation Guide	EK–DRB32–IN
DWMVA VME Adapter Installation Guide	EK–DWMVA–IN[1]
KA7AA CPU Installation Card	EK–KA7AA–IN[1]
KFMSA Module Installation and User Manual	EK–KFMSA–IM
KN7AA CPU Installation Card	EK–KN7AA–IN[2]
KZMSA Adapter Installation Guide	EK–KXMSX–IN[1]
MS7AA Memory Installation Card	EK–MS7AA–IN

[1] For VAX only.
[2] For DEC only.

Table 2‑7 PIU Upgrades

Document	Order Number
I/O Bus PIU Upgrades	
DWLAA Futurebus+ PIU Installation Guide	EK–DWLAA–IN
DWLMA XMI PIU Installation Guide	EK–DWLMA–IN
DWMBB VAXBI Installation Guide	EK–DWMBB–IN
Power Upgrades	
H7237 Battery PIU Installation Guide	EK–H7237–IN
H7263 Power Regulator Installation Card	EK–H7263–IN
Storage PIU Upgrades	
BA654 DSSI Disk PIU Installation Guide	EK–BA654–IN
BA655 SCSI Disk and Tape PIU Installation Guide	EK–BA655–IN
Removable Media Installation Guide	EK–TFRRD–IN

2.7 More Information

For more hardware information, refer to the *Systems and Options Catalog* or Table 2- 8.

Table 2- 8   Related Documents

Title	Order Number
General Site Preparation	
Site Environmental Preparation Guide	EK–CSEPG–MA
System I/O Options	
BA350 Modular Storage Shelf Subsystem Configuration Guide	EK–BA350–CG
BA350 Modular Storage Shelf Subsystem User's Guide	EK–BA350–UG
BA350-LA Modular Storage Shelf User's Guide	EK–350LA–UG
CIXCD Handbook	EK–CIXCD–HB
CIXCD Interface Technical Manual	EK–CIXCD–TM
CIXCD Interface User Guide	EK–CIXCD–UG
DEC FDDIcontroller 400 Installation/Problem Solving	EK–DEMFA–IP
DEC FDDIcontroller 400 Technical Description	EK–DEMFA–TD
DEC LANcontroller 400 (DEMNA) Handbook	EK–DEMNA–HB
DEC LANcontroller 400 Console Users Guide	EK–DEMNA–UG
DEC LANcontroller 400 Technical Manual	EK–DEMNA–TM
DHB32 Technical Description	EK–DHB32–TD
DHB32 Users Guide	EK–DHB32–UG
DHB32 VAXBI Family Communications Adapter	EK–RFDHB–IS

Table 2-8 Related Documents (Continued)

Title	Order Number
System I/O Options (Continued)	
DMB32 Technical Manual	EK–DMB32–TD
DMB32 User Guide	EK–DMB32–UG
DRB32 Introduction	EK–DRB32–OV
DRB32 Output Tester User's Guide	EK–DRBOT–UG
DRB32 Programmable VAXBI Adapter	EK–DRB32–MG
DRB32 Technical Manual	EK–DRB32–TM
DSSI VAXcluster Installation and Troubleshooting Manual	EK–410AA–MG
DWMVA VME Adapter Technical Manual	EK–DWMVA–TM
InfoServer 150 Installation and Owner's Guide	EK–INFSV–OM
KDM70 Controller User Guide	EK–KDM70–UG
KDM70 Controller Service Manual	EK–KDM70–SV
KFMSA Module Service Guide	EK–KFMSA–SV
RRD42 Disc Drive Owner's Manual	EK–RRD42–OM
RF Series Integrated Storage Element User Guide	EK–RF72D–UG
Tx85 Series Cartridge Tape Subsystem Owner's Manual	EK–OTF85–OM
TLZ06 Cassette Tape Drive Owner's Manual	EK–TLZ06–OM
Peripherals	
Installing and Using the VT420 Video Terminal	EK–VT420–UG
LA75 Companion Printer Installation and User Guide	EK–LA75X–UG