AlphaServer Intelligent Peripheral Platform

Owner's Guide

Order Number: EK-ASIPP-OG. A01

Digital Equipment Corporation
Maynard, Massachusetts

FCC Notice:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

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 may be required to correct the interference.

EMI Notice:

This product complies with the following domestic and international standards:

- Domestic: FCC Part 15, Class A

- International: CISPR22 (Europe EN55022 Class A).

EC Notice:

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.

ACOUSTICS:

Preliminary declared values per ISO 9296 and ISO 7779:

	Sound Power Level L_{wAd}, B	Sound Pressure Level L_{pAm}, dBA (Bystander Positions)
Idle	6.5	50
Operating	6.5	50

Current values for specific configurations are available from Digital representatives. 1 B = 10 dBA.

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Preface

Overview

The *AlphaServer Intelligent Peripheral Platform Owner's Guide* describes how to set up, operate, troubleshoot, and maintain an AlphaServer Intelligent Peripheral (IP) Platform. If information is available elsewhere, this manual provides a reference to the appropriate documentation. This manual is intended for qualified system managers and technical end users trained in the installation and the servicing of computer systems.

Organization

This guide is organized as follows:

The **Preface** provides an overview of this guide.

Chapter 1 describes the basic AlphaServer IP Platform configurations, the required and optional hardware, and the factory-installed software.

Chapter 2 provides instructions for setting up the AlphaServer IP Platform hardware.

Chapter 3 describes how to turn on the AlphaServer IP Platform. It also discusses how to use the IP Platform console workstation using terminal emulation.

Chapter 4 explains how to reconfigure the AlphaServer IP Platform.

Chapter 5 provides basic troubleshooting information.

Appendix A provides system and environmental specifications.

Appendix B provides field wiring details for the 120 Vac and 240 Vac power controllers.

Appendix C provides field wiring details for the -48 Vdc power controllers.

Appendix D contains a wiring diagram of the DEChub 90 communications subsystem.

Appendix E contains diagrams of the IP duplex platform.

Appendix F contains diagrams of the IP simplex platform.

The **Glossary** defines technical terms related to the product.

The **Index** locates the main topics in this guide.

Conventions

This document uses the following conventions:

Convention	Description
IP	Describes an industry-standard acronym for Intelligent Peripheral.
Note	Calls attention to any item of information that may be of special importance to the reader.
Caution	Contains essential information to avoid damage to the equipment.
Warning	Contains essential information for the safety of the user.

Related Documentation

For additional information on the AlphaServer Intelligent Peripheral (IP) Platform subsystem components and related software, refer to the documentation in the following tables. Order numbers may change as documents are revised or updated. Check with your Digital sales representative for additional information.

AlphaServer IP Peripheral Platform	Order Number
Intelligent Peripheral Fault Manager For Digital UNIX Installation and User's Guide	AA–QN0FA–TE
AlphaServer Intelligent Peripheral Platform System Manager's Guide	AA–QU0JA–TE

AlphaServer 1000 Processor	Order Number
AlphaServer 1000 Rackmount Owner's Guide	EK–RMALP–OG
Digital UNIX Installation Guide	AA–PS2DE–TE
StorageWorks KZPSA PCI-to-SCSI Storage Adapter User's Guide	EK-KZPSA-UG

BA35*x*–S*x* Modular Storage Shelf	Order Number
StorageWorks Family User's Guide	EK-BA350-UG
BA350 Modular Storage Shelf Subsystem Configuration Guide	EK–BA350–CG
SCSI Signal Converter Service Manual/DWZZA-VA	EK–DWZAA–SV
RZ Series Disk Drive Installation Guide - Models RZ35, RZ26, RZ27, RZ28	EK–DRZ01–IG

DEChub 90 Communication Subsystem	Order Number
DEChub 90 Ethernet Backplane Owner's Manual	EK–DEHUB–OM
DECbridge 90 Owner's Manual	EK–DEWGB–OM
DECrepeater 90C Owner's Manual	EK–DECMR–OM
DECagent 90 User's Information	EK–DENMA–UI
DECserver 90M Owner's Manual	EK–DSRVH–OM
DECbrouter 90 Installation and Operating Information	EK–DECBR–OM

IP ISA Bus Expansion Chassis	Order Number
AlphaServer Voice Platform Hardware Installation Guide	EK–VOICE–IN
Dialogic Voice Hardware Reference	BX–QLTUA–TE
Dialogic Network Hardware Reference	BX–QLTTA–TE
Dialogic VR/160 Hardware Reference	BX–QLTVA–TE
Dialogic FAX/120 Hardware Reference	BX–QLTSA–TE

IP Platform Console Workstation	Order Number
Digital AlphaStation 200 Series User Information	EK–PCDTA–UI
HUBwatch Use	AA–PW4BE–TE
HUBwatch Installation and Configuration Manual	AA–Q358C–TE
POLYCENTER System Watchdog Agent and Consolidator for Digital UNIX	QA–3A5AA–GZ

Reader's Comments

Digital welcomes your comments on this or any other manual. You can send your comments to Digital in the following ways:

• Internet electronic mail: *readers_comment@zk3.dec.com*

• Mail:

>   Digital Equipment Corporation
>   Shared Engineering Services
>   PKO3-2/A9
>   129 Parker Street
>   Maynard, MA 01754-2199

For additional information, call 1-800-DIGITAL.

1

Product Overview

1.1 Introduction

This chapter includes the following topics:

- IP Platform overview
- IP Platform features
- AlphaServer IP Platform required and optional hardware

1.2 IP Platform Overview

The AlphaServer Intelligent Peripheral (IP) Platform provides a full suite of hardware and software components for voice processing, telephony and data communications, management, processing, and storage. These components are combined to make a high performance, high availability, rackmount-configured IP Platform, that meets certain standards and specifications.

While the specific set and type of resources for any one of the following categories can be tailored for a particular installation (for example; amount of storage, type of voice resources), there are three basic AlphaServer IP Platform configurations upon which all platform systems are built:

- IP Simplex Network System (CT–ATVP2–AA, CT–ATVP2–AB, CT–ATVP2–DC)
- IP Duplex Network System (CT–ATVP1–AA, CT–ATVP1–AB, CT–ATVP1–DC)
- AlphaServer Voice Platform (CT–VC7RH–FA, CT–VC7RH–FB) that is used as an IP lab or development system

Each rackmount platform requires an AlphaStation IP Platform console workstation, or equivalent, running the Digital UNIX operating system to perform the following:

- Display each AlphaServer 1000 system console in separate windows.
- Display all system alarm messages in a single window by means of POLYCENTER System Watchdog Consolidator.
- Run and display HUBwatch for Digital UNIX operating system.

Basic AlphaServer IP Platform management functions are designed to ensure the integrity of the platform and to allow for the management of the platform itself. The management functions include alarming based on critical events; for example, logging of events and activities, management of the individual resources, and system security. These functions are described in the *Intelligent Peripheral Fault Manager For Digital UNIX Installation and User's Guide*.

1.2.1 IP Simplex Network System

The simplex network dystem is a NEBS-compatible rackmount system intended for live network implementations. It contains *one* each of the following components:

- IP Platform console workstation

- AlphaServer 1000 system running the Digital UNIX operating system

- IP Platform ISA bus expansion chassis with an IP alarm panel (also known as the Dialogic Telco Platform (DTP))

- DEChub 90 communication subsystem

- StorageWorks BA35*x*–S*x* mass storage disk drive subsystem

- Rackmount power controller subsystem (120 Vac, 240 Vac, or -48 Vdc models)

The IP simplex system may be field upgraded to a duplex system, and has extra Ethernet and KZPSA cards to make field upgrading to duplex systems easier.

Refer to Appendix F for a diagram of the IP Simplex network system.

1.2.2 IP Duplex Network System

The duplex rackmount configuration is a NEBS-compatible rackmount system intended for live network implementations. The duplex system includes the IP Platform console workstation and two each of the following components:

- AlphaServer 1000 system running the Digital UNIX operating system

- IP Platform ISA bus expansion chassis with an IP alarm panel (also known as the Dialogic Telco Platform (DTP))

- DEChub 90 communication subsystem (See DEChub 90 wiring diagram in Appendix D)

- StorageWorks BA35*x*–S*x* mass storage disk drive subsystems (connected together with BN21W–0B and BN21K–XX SCSI bus cables) with disks that can be striped and/or mirrored

DECsafe software is included for enhanced availability with application-defined failover services.

Refer to Appendix E for a diagram of the IP duplex network system.

1.2.3 AlphaServer Voice Platform (IP Lab System)

The AlphaServer Voice Platform is a pedestal AlphaServer 1000 system that can function in either an office or computer room environment. It is not intended for live network implementations, but for use as a development system, a test system, or a demonstration unit.

The AlphaServer Voice Platform is used to develop and test voice and other applications by telecommunications service providers. No alarm or system management layered products are included with this system. Refer to the *AlphaServer Voice Platform Hardware Installation Guide*.

1.2.4 Factory Installed Software

The IP Platform console workstation supplied by Digital Equipment Corporation is delivered to the customer with the following factory-installed software:

- Digital UNIX operating system
- HUBwatch for Digital UNIX operating system
- POLYCENTER System Watchdog

Each rackmount AlphaServer 1000 system supplied by Digital Equipment Corporation is delivered to the customer with the following factory-installed software:

- Digital UNIX operating system
- Dialogic drivers for Digital UNIX that offer the following functionality:
    - Voice processing (digitization, call control)
    - Telephony network interfaces (loop-start, T-1, E-1)
    - FAX
    - Voice recognition
- POLYCENTER System Watchdog Consolidator/Agent
- POLYCENTER Advanced File System Utilities
- Digital UNIX Logical Storage Manager
- DECsafe Available Server for Digital UNIX (duplex systems only)
- Intelligent Peripheral Fault Manager for the Digital UNIX operating system
- DIGI Acceleport UNIX Driver

The simplex and duplex systems include the IP Fault Manager software that detects various system events and performs preconfigured actions for each event. The IP Fault Manager also receives event actions from the POLYCENTER System Watchdog, and performs those actions such as setting and clearing the IP alarm panel status display lights (LEDs).

Solution developers can also use the IP Fault Manager to display application alarm events on the IP alarm panel and to log events. A complete description of the IP Fault Manager is included in the *Intelligent Peripheral Fault Manager For Digital UNIX Installation and User's Guide*.

For additional information on how to use the factory-installed software, refer to the individual product's documentation.

1.3 System Features

This section provides a brief description of the system features of the AlphaServer IP Platform.

1.3.1 User Interfaces

The AlphaServer IP Platform is designed to work in real-time, public networks of telecommunications service providers. System and network management activities are performed by means of a separate data communications network rather than the telephony communications network (for example, voice or signaling). Both graphic user interfaces (GUI) and character cell displays are supported, depending on the interfaces provided by the layered products on the IP Platform.

Command line or character cell displays are used for objects that do not have a GUI, or as a supplement to those with a GUI. Command line interfaces can be run over a low-speed dial-up modem with minimal communication protocol support.

1.3.2 Maintainability

The simplex and duplex configurations are designed with front access for all user devices contained in the AlphaServer 1000 system, the IP Platform ISA bus expansion chassis, and the modular storage shelf BA35*x*–S*x* subsystem. All nonuser devices have rear access. This includes the power controller, data communications devices in DEChub 90 communication subsystem, and network wiring.

The AlphaServer 1000 system and the IP ISA bus expansion chassis are slide mounted for ease of maintenance.

The BA35*x*–S*x* application storage disks are hot-swappable.

All devices in the DEChub 90 communication subsystem (other than the DEChub 90 power supply) are hot-swappable.

1.3.3 Reliability

Each Digital Equipment Corporation component of this system will function reliably over time as long as the hardware options used are not altered. All the Digital options used in the design of this system meet Digital Equipment Corporation standards for reliability. However, the reliability of the equipment supplied by other vendors is determined by the manufacturer of each device.

1.3.4 Upgrading

Additional hardware and software options may be added to your AlphaServer IP Platform components. For a complete list of available options, refer to the individual component's documentation listed in the Related Documentation section of this guide.

_____ **Important** _____

FCC and safety review is valid **only** for options listed in this guide.

_____

1.3.5 Digital Equipment Corporation and Industry Standards

The AlphaServer IP Platform conforms to the industry standards outlined in the following subsections.

1.3.5.1 Telecommunications Interfaces

The AlphaServer IP Platform conforms to the following telecommunications interface standards:

- ITU SS7, MTP, SCCP, ISDN User Part (1992, White Book)
- T-1 (24-channel, PCM encoded analog) digital network interface
- E-1 (30-channel, PCM encoded analog) digital network interface
- Loop-start signaling
- Ground-start signaling
- E&M wink-start signaling

1.3.5.2 Safety and Electromagnetic Compatibility

The AlphaServer IP Platform conforms to the following safety and electromagnetic compatibility standards:

- DEC STD 102, Rev. E
- DEC STD 103, Rev. B
- DEC STD 119
- FCC Part 15, Subpart J
- CSA (Canadian Standards Association) C22.2 No. 950-93
- UL (Underwriters Laboratory) 1950

1.3.6 System Security

The AlphaServer IP Platform contains front and rear key locking doors to limit access to system components. Each AlphaServer IP Platform comes with a duplicate set of front and rear door keys.

In addition, each AlphaServer 1000 system contains a key to lock the individual processor. Refer to the *AlphaServer 1000 Rackmount Owner's Guide* for instructions on locking the AlphaServer 1000 system.

_____ **Note** _____

Record the key number for each cabinet door and each CPU. Store this information in a safe place; you will need the information if replacement is necessary.

_____

1.4 Required and Optional Hardware

This section provides a brief description of each subsystem of the AlphaServer IP Platform, and lists the required and optional hardware.

1.4.1 AlphaServer 1000 System

This section describes the AlphaServer 1000 system. It also lists the hardware available for the processor.

1.4.1.1 Overview

The AlphaServer 1000 system is an Alpha uniprocessor server running the Digital UNIX operating system. A single cabinet can support up to two AlphaServer processors. The AlphaServer 1000 processor drives all functions within the IP Platform, including voice processing, management, and communications. In addition, application, service, and other layered software run on an AlphaServer processor. The processor offers high reliability features such as ECC memory and ECC cache.

The AlphaServer 1000 system includes:

- 10 expansion slots: 2 PCI slots, 1 PCI/EISA combination slot, and 7 EISA slots

- 20 standard memory SIMM sockets

- 64 MB memory

- Integrated PCI-based SCSI-2 controller with direct memory access and external SCSI-2 connector

- Multiple drive bays supporting a 1.44 MB floppy diskette, RRD4*x-xx* CD–ROM, 1 available removable media drive bay, and 3 3.5-inch hard disks

- Integrated SVGA graphics controller

- 2 serial ports (9-pin) and one enhanced bi-directional parallel port (25-pin)

For additional information on the AlphaServer 1000 system features and capabilities, see the *AlphaServer 1000 Rackmount Owner's Guide*.

1.4.1.2 AlphaServer 1000 Required and Optional Hardware

Table 1–1 lists the required and optional hardware available for the AlphaServer 1000 processor. All hardware listed in Table 1–1 can be ordered separately as spare parts.

Table 1–1   AlphaServer 1000 Required and Optional Hardware

Part Number	Description	Simplex	Duplex	Lab
PB7RH-FA (120 Vac) or PB7RH-FB (240 Vac)	RM AlphaServer 1000 4/2*xx* Digital UNIX System, 64 MB memory, includes RRD4*x-xx* CD–ROM, RX23 floppy drive, RZ28 2 GB SCSI drive for system disk	1	2	0
TLZ07-FA	TLZ07 4 GB tape drive, housed in the AlphaServer 1000 systems. Used for backups and bulk data loads	1	2	1
PB7MA-AC	64 MB memory. Additional memory for CPU. Brings total up to minimum 128 MB in the AlphaServer system	1	2	Opt
DNSES-AA	DNSES synchronous controller (EISA module). Used to terminate Signaling System 7 (SS7) links on the AlphaServer 1000 system	Opt	Opt	Opt
DE425	32-bit Ethernet EISA bus controller, 10Base-T. Provides interconnection of all system components	2	4	Opt
KZPSA-BB	PCI bus to fast, wide, differential (FWD) SCSI bus adapter (PCI module). Provides redundant access to all application storage devices from all processors	2	4	Opt
2T-VC220-IP	AT bus expansion kit (EISA/ISA module) Access I/O transmitter and receiver modules and 2-meter cable	1	2	0
RZ26 or RZ28	RZ26 or RZ28 extra disks. Used for storing application files and data. **Note**: Each AlphaServer 1000 system in the simplex and duplex configurations are preconfigured with one disk for system files and data	Opt	Opt	1
2T-DGACC-AA	4-port Acceleport module (serial interface)	1	2	opt

1.4.2 Modular Storage Shelf Subsystem (BA35x–Sx)

This section provides a brief description of the modular storage shelf subsystem.

1.4.2.1 Overview

The StorageWorks disk drive subsystem is a rackmount storage resource provided to solution developers and service developers creating applications on the AlphaServer IP Platform. The shelves are contained in a separate chassis that provides a flexible capacity for adding and hot-swapping disks.

The shelf is a self-contained unit with embedded backplane routing with two SCSI buses. It can be configured for maximum connectivity (1 SCSI bus) or for maximum performance (2 SCSI buses).

Each StorageWorks modular storage shelf houses all the application storage disks in a rackmount shelf. The following table lists the number and type of disks that can be used. For additional information, see the *BA350 Modular Storage Shelf Subsystem Configuration Guide*.

1.4.2.2 Modular Storage Shelf Required and Optional Hardware

Table 1–2 lists the hardware requirements and options for the modular storage shelf BA35x–Sx.

Table 1–2 Modular Storage Shelf (BA35x–Sx) Required and Optional Hardware

Part Number	Description	Simplex	Duplex	Lab
BA35x–Sx	Rackmount StorageWorks in BA35x–Sx enclosure	1	2	Opt
RZ26L-VA or RZ28-VA	StorageWorks disks for BA35x enclosure. RZ26L 1.05 GB disks or RZ28 2.1 GB disks. The -VA models have a plastic enclosure.	Opt	Opt	Opt
DWZZA-VA	Fast, wide, differential to single ended SCSI converter for BA35x–Sx. Terminates SCSI bus at storage unit	1	2	0
H885-AA	Tri-link connector block	1	2	0
H879-AA	SCSI terminator	1	4	0

1.4.3 DEChub 90 Data Communication Subsystem

This section provides a brief description of the DEChub 90 data communication subsystem.

1.4.3.1 Overview

The DEChub 90 data communication subsystem provides a variety of communications resources to allow applications and other software running on the platform to exchange information with external entities.

Data communications interfaces (to operations systems, administration systems, maintenance systems, and other application support systems) supported include:

- X.25
- TCP/IP
- Ethernet
- RS-232
- Interface to dial-up modem

A number of modules, which can each have different fault management protocols, can be inserted into the DEChub 90 communication subsystem. Table 1–3 lists the modules offered with the IP platform, and the type of management protocols that can be used.

Table 1–3   DEChub 90 Module Management Protocols

Model	Description	Management
DEWB2-NA or DEWBR-NA	DECbrouter 90 multiprotocol bridge/router	HUBwatch, SNMP
DECMR-MA	DECrepeater 90C 6-channel repeater	Managed by HUBwatch through DECagent and DECbridge 90
DSRVH-NA	DECserver 90M 8-channel terminal server	Remote console (Telnet & MOP), SNMP, TSM, HUBwatch
DENMA-MA	DECagent 90 SNMP agent	HUBwatch
DEWGB-MA	DECbridge 90	HUBwatch

The DECagent 90 module acts as a translator for the network management station (NMS), which is the AlphaStation IP Platform console workstation running HUBwatch. The DECagent 90 module accepts Simple Network Management Protocol (SNMP) TCP/IP data packets over the Ethernet from the NMS, and translates them into Maintenance Operations Protocol console carrier (MOP/CC) for the DECserver 90M, and into Remote Bridge Management Software (RBMS) for the DECbridge 90. The MAC address, which is a unique 48-bit binary number (usually represented as a 12-digit hexadecimal number), is encoded in a device's circuitry to identify it on a local area network.

The DECbrouter 90 is managed using SNMP.

DECbridge is needed to manage the DECrepeater.

In a simplex configuration, the AlphaServer 1000 system has two Ethernet cards, however, only one module is connected to the DECrepeater for Ethernet communications. For duplex systems, there are two DEChub workgroups, and each AlphaServer system's second Ethernet card is cross-connected to the other DEChub Workgroup's DECrepeater.

The AlphaServer 1000 console port is connected to the DECserver 90M. Modem connectivity is available from the DECserver by connecting to an external modem.

The AlphaStation console workstation is connected to the DECrepeater.

Refer to Appendix D for a wiring diagram of the DEChub 90 communication subsystem that shows the wiring connections between the DEChub 90 modules, the AlphaServer 1000 system, the IP Platform console workstation, and the Ethernet.

The *Intelligent Peripheral Fault Manager For Digital UNIX Installation and User's Guide* contains additional information on the fault management software.

1.4.3.2 DEChub 90 Required and Optional Hardware

Table 1–4 lists the hardware available for this subsystem. All hardware listed in Table 1–4 can be ordered separately as spare parts.

Table 1–4 DEChub 90 Required and Optional Hardware

Part Number	Description	Simplex	Duplex	Lab
DEHUB-BA	DEChub 90 communication backplane. Rackmount assembly is reinforced	1	2	0
DEWB2-NA or DEWBR-NA	DECbrouter 90 module: multiprotocol bridge/router	Opt	Opt	0
DECMR-MA	DECrepeater 90C module: 6-port repeater that connects PC and workstation Ethernet segments by means of 10Base2 Ethernet LAN	1	2	0
DSRVH-NA	DECserver 90M module: 8-port multiprotocol repeater (LAT, SLIP, Telnet, PPP) for connecting terminals, printers, and PCs (in terminal emulation mode)	1	2	0
DENMA-MA	DECagent 90 module: SNMP agent, which in conjunction with HUBwatch software, can help manage the DEChub 90 communication subsystem and its modules	1	2	0
DEWGB-MA	DECbridge 90 module: Contains local traffic within the workgroup as it forwards traffic that has a destination elsewhere on the backbone	1	2	0

DECbrouter protocols routed include: TCP/IP, DECnet IV and V, CLNP (OSI), Novell IPX, AppleTalk (Phase 11), Banyan VINES, Xerox XNS, and SNA/SDLC.

Routing protocols supported are IGRP, Integrated IS-IS, RIP, EGP, BGP, OSPF, RIP(IPX), RTMP, and SDLC tunneling in IP.

Data links supported are HDLC, PPP, X.25, SMDS, ISDN, and Frame Relay.

1.4.4 Intelligent Peripheral (IP) ISA Bus Expansion Chassis

This section describes the IP ISA bus expansion chassis.

1.4.4.1 Overview

The Dialogic Telco Platform (DTP) is used as a 14-slot IP ISA bus expansion chassis for the AlphaServer 1000 system. The IP ISA bus expansion chassis contains all Dialogic voice modules for its associated AlphaServer 1000 simplex and duplex systems. The DTP features automatic and programmable alarm indicators.

The IP ISA bus expansion chassis connects to the AlphaServer 1000 system as follows:

- The IP ISA bus expansion chassis connects to the AlphaServer 1000 EISA bus by means of the AT (ISA) bus expansion kit.

- The IP alarm panel connects to the AlphaServer 1000 system by means of two RS-232 serial communication ports.

1.4.4.2 IP ISA Bus Expansion Chassis with IP Alarm Panel

The AlphaServer IP Platform, which has visual and audio alarm indicators, responds to system and platform events by setting and resetting the display lights on the IP alarm panel.

There are two serial line connections from the AlphaServer 1000 system to the IP alarm panel to control or obtain status from the display indicators:

- Alarm board serial port - For alarm signaling and alarm status requests.

- Maintenance center serial port - For receiving alarm board detected alarm conditions and acknowledgments.

The IP Fault Manager (see the *Intelligent Peripheral Fault Manager For Digital UNIX Installation and User's Guide*) uses both the alarm board and the maintenance center serial ports for communication with the IP alarm panel, and to monitor the status of the IP ISA bus expansion chassis. Alarms can be reset manually or remotely.

The *Dialogic Telco Platform User's Reference*, which comes with the AlphaServer IP Platform, contains complete diagrams and instructions for using the IP alarm panel.

1.4.4.3 IP ISA Bus Expansion Chassis Required and Optional Hardware

The IP ISA bus expansion chassis connects to the AlphaServer 1000 EISA bus by means of the AT (ISA) bus expansion kit. The AT (ISA) bus expansion kit includes transmitter and receiver modules and an interconnecting cable. The transmitter module resides in the AlphaServer 1000 system, the receiver module resides in the IP ISA expansion chassis, and the cable connects both modules.

Table 1–5 contains the required and optional hardware for the IP ISA bus expansion chassis. All hardware listed in Table 1–5 can be ordered separately as spare parts.

Table 1–5   IP ISA Bus Expansion Chassis Required and Optional Hardware

Part Number	Description	Simplex	Duplex	Lab
2T-VCDTP-xx[1]	IP ISA bus expansion chassis: houses voice modules and IP alarm panel	1	2	0
2T-VC24T-xx[1]	Dialogic D/240SC-T1, 24-channel, high-density voice-processing and network-interface module	Opt	Opt	Opt
2T-VC211-xx[1]	Dialogic DTI/211, 24-channel, standard-density, T-1 network-interface module	Opt	Opt	Opt
2T-VC212-xx[1]	Dialogic DTI/212, 30-channel, standard-density, E-1 network-interface module	Opt	Opt	Opt
2T-VC320-xx[1]	Dialogic D/320SC, 32-channel, high-density, voice-processing module	Opt	Opt	Opt
2T-VCLSI-xx[1]	Dialogic LSI/120, 12-channel, standard-density, analog loop-start network-interface module	Opt	Opt	Opt
2T-VC121-xx[1]	Dialogic D/121B, 12-channel, standard-density, analog loop-start call-processing module	Opt	Opt	Opt
2T-VCFAX-xx[1]	Dialogic FAX/120, 12-channel, standard-density, FAX processing module	Opt	Opt	Opt
2T-VCF4E-xx[1]	Dialogic VFX/40E, 4-channel, low-density, analog loop-start call-processing and 14,400 b/s FAX processing module	Opt	Opt	Opt
2T-VCVRP-xx[1]	Dialogic VRP, 4/8/12/16-channel, standard-density, voice-recognition module	Opt	Opt	Opt
2T-VCVR4-xx[1]	Dialogic VRM/40, 4-channel, discrete voice-recognition daughterboard	Opt	Opt	Opt
2T-VCVR2-xx[1]	Dialogic VRM/2C, 2-channel, continuous voice-recognition daughterboard	Opt	Opt	Opt
2T-VCDMX-xx[1]	Dialogic DMX: Digital Matrix Switch connecting up to four PCM expansion buses (PEBs)	Opt	Opt	Opt
2T-VC220-IP	Access I/O AT bus expansion kit with 2-meter cable	1	2	0

[1]xx represents a two-letter country code. Contact your Digital sales representative for additional information.

1.4.5 IP Power Supply Subsystem

This section briefly describes the IP power supply subsystem.

1.4.5.1 Overview

Each rackmount simplex and duplex IP Platform contains two power controllers located in the bottom rack of the cabinet. Each controller provides power to one DEChub communication subsystem, one IP ISA bus expansion chassis, one BA35*x*–S*x* modular storage shelf, and one AlphaServer 1000 processor.

The AlphaServer IP Platform supports the following redundant power supply models: 120 Vac, 240 Vac, or -48 Vdc. In addition, each processor and associated voice, storage, and communication resource has its own individual power supply.

Refer to Appendix B and Appendix C for instructions on field wiring the power controllers for power.

1.4.5.2 IP Power Controller Required and Optional Hardware

Table 1–6 lists the required and optional hardware for the IP power controller.

Table 1–6 IP Power Controller Required and Optional Hardware

Part Number	Description	Simplex	Duplex	Lab
877-DA	120 Vac power controller subsystem	2	2	0
877-E	240 Vac power controller subsystem	2	2	0
70-32657-01	-48 Vdc power supply subsystem (-48 Vdc to -288 Vdc dual converter)	1	1	0

1.4.6 IP Platform Console Workstation

An IP Platform console workstation is required for each simplex or duplex system. The workstation may be a Digital supplied system; it must comply with the requirements listed in the following paragraph.

The AlphaStation IP Platform console workstation runs the Digital UNIX operating system in order to:

- Display each AlphaServer 1000 system console in a terminal emulation window.

- Display each AlphaServer 1000 Digital UNIX process in a terminal emulation window.

- Display alarm messages from the IP Fault Manager by means of POLYCENTER System Watchdog Consolidator.

- Run and display HUBwatch for Digital UNIX operating system.

- Support dual rail Ethernet.

In addition to the above, the Alpha System Reference Manual (SRM) console can be used to boot the Digital UNIX operating system, view and configure system components, and run the EISA Configuration Utility (ECU). For complete information on using the AlphaStation system, refer to user information shipped with the product.

Table 1–7 contains the required and optional hardware for the console workstation.

Table 1–7 IP Platform Console Workstation Required and Optional Hardware

Part Number	Description	WS
PB420-AA	AlphaStation operator workstation running Digital UNIX operating system for remote console and remote management of either the simplex or duplex IP system	1
DE4*x*	32-bit Ethernet EISA bus controller, 10Base-T	1[1]
RRD4*x-xx*	CD–ROM	1

[1]The AlphaStation console workstation comes with an Ethernet interface. For the duplex system, another Ethernet EISA bus controller is needed so that the console workstation has separate connections to both DEChub 90 communication subsystems

1.4.7 External Hardware Options

Table 1–8 contains external hardware options.

Table 1–8 External Required and Optional Hardware

Part Number	Description	WS
LA75S-AA	LA75 Plus Companion printer for hardcopy system output	0

1.4.7.1 Ordering Options

The list of supported options is subject to change. Contact your sales representative for the current supported options and ordering information.

2

Installing the AlphaServer IP Platform Hardware

2.1 Introduction

This chapter includes the following topics:

- Factory-installed hardware
- Site preparation
- Hardware setup

2.2 Factory Installed Hardware

The AlphaServer Intelligent Peripheral (IP) Platform is configured and delivered according to customer specification, with all hardware and software factory-installed. It is shipped ready for connection to a customer's power source and network hardware.

Note

Value-added Implementation Services (VIS) is available for the AlphaServer IP Platform products. VIS provides high-quality integration, test verification and site installation; each process is performed by experienced service personnel. See your Digital sales representative for additional information.

2.3 Site Preparation

This section describes the site-specific installation requirements for the IP Platform.

Caution

Review your system warranty. It may require that a Digital service representative install your system to prevent damage to equipment or software.

2.3.1 Preinstallation Considerations

Before you install the AlphaServer IP Platform, ensure that:

- The installation site meets the specifications and environmental conditions listed in Appendix A. For more information about planning and preparing the installation site for a computer network for a free-standing system, refer to the *Site Environmental Preparation Guide* (available by calling 1-800-DIGITAL).

- The power source is correct for your system, and is one of the following models: 120 Vac, 240 Vac, or -48 Vdc.

- You have the correct number of T-1, E-1, or loop-start network connections and adequate cabling.

Note

The T-1 cable length from the network to the AlphaServer IP Platform cannot exceed 199.6 m (655 ft) without a repeater. Do **not** use a repeater for cable lengths less than 199.6 m (655 ft).

- A suitable location exists for the workstation and monitor, if applicable.

- The system is located in an area that provides 61 cm (24 in.) clearance from the rear of the cabinet, and 91 cm (36 in.) from the front of the cabinet for ventilation and servicing.

- Personnel are appropriately trained in the installation and operation of this system.

2.4 Hardware Setup

This section describes the installation and setup of the IP Platform console workstation.

Warning

Only a qualified service person should install the system. A qualified service person is an individual who has the technical training and experience to be aware of the:

* Hazards to which they are exposed in performing a task

* Measures to minimize the danger to themselves or other persons

A qualified service person need not be a Digital service representative.

2.4.1 IP Platform Console Workstation

To install the IP Platform console workstation, perform the following steps:

1. Connect the workstation system parts (cables and power cords)

2. Connect the IP Platform console workstation to the DEChub 90 communication subsystem

2.4.1.1 Installing the IP Platform Workstation

To connect the IP Platform console workstation cables and power cords, and to lock the console workstation, refer to the *Digital AlphaStation 200 Series User Information*.

2.4.1.2 Connecting the IP Platform Console Workstation to the DEChub 90 Ethernet Backplane

The IP Platform console workstation connects to the DEChub 90 Ethernet backplane by means of the DECrepeater 90C module. For the IP duplex network system, each Ethernet card is connected to a different DEChub 90 repeater.

Connect the Ethernet cable from the IP Platform console workstation to any port on the DECrepeater 90C module using the ThinWire port.

Refer to Appendix D for a wiring diagram of the DEChub 90 communication subsystem for the IP duplex network system.

2.4.2 Installing the IP Platform

After you have verified the installation site and installed the IP Platform console workstation, you need to install the AlphaServer IP Platform by performing the following steps:

1. Position the cabinet allowing a 60.96 cm (24 in) minimum rear aisle clearance and a 76.20 cm (30 in) minimum front aisle clearance.

2. Level the cabinet using the four-point leveling hardware.

3. Bolt the AlphaServer IP Platform to the floor at the cabinet base (and optionally at the top), using the appropriate NEBS-conforming hardware.

4. Connect to the network hardware (see Section 2.4.2.1).

5. Connect the IP Platform to the appropriate power supply. See Appendix B and Appendix C for instructions on wiring the controllers that your system was built to accept. Refer to the power ratings listed on the cabinet part number label.

6. Verify the hardware setup. Before you turn on the system, check to ensure that the IP Platform is properly secured, and the power controller and network hardware connections are correct.

7. Power up the system. See Section 3.3.

2.4.2.1 Connecting the Network Hardware

This section describes how to install Dialogic's voice-processing, voice-recognition, and network-interface T-1, E-1, and loop-start modules to the building's network hardware.

Refer to the *Dialogic Network Hardware Reference* and the *Dialogic Voice Hardware Reference* for diagrams of the Dialogic modules and for additional information on the Dialogic modules. All Dialogic modules are installed in the IP ISA expansion chassis.

Note

If you install multiple T1 or E1 modules (part numbers 2T-VC24T-xx or 2T-VC212-XX), do **not** use adjacent slots in the IP ISA expansion chassis. Use every other slot for the T1 or E1 modules. Use the available slots between the T1 or E1 modules for other functions.

2.4.2.1.1 Connecting Dialogic D/240SC-T1 and DTI/211 T-1 Modules On the rear bracket of the D/240SC-T1 and DTI/211 network modules is an RJ-48C jack for connecting to the T-1 network. The cabling between this jack and the CSU or other DSX-1 equipment should be 4-pair telephone line or equivalent. The network interface module of the cable should consist of an RJ-48C plug. The user is responsible for supplying an appropriate cable for these connections. The pin designations for the network interface module cable end for D/240SC-T1 modules are in Table 2–1.

Table 2–1 T-1 to D/240SC-T1 Pin Designations

Signal	Pin(s)
Receive ring: input to network interface module	1
Receive tip: input to network interface module	2
No connection	3,6
Transmit ring: output from network interface module	5
Transmit tip: output from network interface module	4
Optional shield	7,8

The pin designations for the network interface module cable end for DTI/211 T-1 modules are in Table 2–2.

Table 2–2 T-1 to DTI/211 Pin Designations

Signal	Pin(s)
Receive ring: input to network interface module	1
Receive tip: input to network interface module	2
No connection	3,6
Transmit ring: output from network interface module	4

(continued on next page)

Table 2–2 (Cont.) T-1 to DTI/211 Pin Designations

Signal	Pin(s)
Transmit tip: output from network interface module	5
Optional shield	7,8

Refer to the *Dialogic Network Hardware Reference* for additional information on DTI/211 T-1 modules. Refer to the *Dialogic Voice Hardware Reference* for additional information on D/240SC-T1 modules.

2.4.2.1.2 Connecting Dialogic DTI/212 E-1 Modules (75-Ohm) The Dialogic DTI/212 E-1 modules come in 75-ohm and 120-ohm versions. If you have a DTI/212 120-ohm module, see Section 2.4.2.1.3. Refer to the *Dialogic Network Hardware Reference* for additional information on DTI/212 E-1 modules.

On the rear bracket of the DTI/212 75-ohm module are two BNC-type jacks for connecting to the external E-1 network. The cabling between these jacks and the external E-1 network should be 75-ohm coaxial. The DTI/212 end of the cable should consist of a BNC-type male connector. The user is responsible for supplying an appropriate cable for these connections. The pin designations for the DTI/212 75-ohm cable ends are given in Table 2–3.

Table 2–3 E-1 to DTI/212 75-ohm Pin Designations

Signal	Jack/Pin
Transmit data: output from DTI/212 (tip)	J201A center
Transmit data: output from DTI/212 (ring)	J201A shield
Receive data: input to DTI/212 (tip)	J201B center
Receive data: input to DTI/212 (ring)	J201B shield

To cable the DTI/212 75-ohm module to the E-1 network, follow these steps:

1. Attach the appropriate end of the E-1 to DTI/212 (receive) cable to jack J201B on the rear bracket of the DTI/212 module. Carefully push the BNC connector onto the jack and lock by turning a quarter-turn clockwise.

2. Attach the appropriate end of the DTI/212 to E-1 (transmit) cable to jack J201A on the rear bracket of the DTI/212 module. Carefully push the BNC connector onto the jack and lock by turning a quarter-turn clockwise.

2.4.2.1.3 Connecting Dialogic DTI/212 E-1 Modules (120-ohm) On the rear bracket of the DTI/212 120-ohm module is an RJ-48C jack for connecting to the external E-1 network. The cabling between this jack and the CSU should be 120-ohm twisted pair or equivalent. The DTI/212 120-ohm end of the cable should consist of an RJ-48C plug. The user is responsible for supplying an appropriate cable for these connections. The pin designations for the DTI/212 120-ohm cable ends are given in Table 2–4.

Table 2–4 E-1 to DTI/212 120-Ohm Pin Designations

Signal	Pin(s)
Receive ring: input to the DTI/212 120-ohm module	1
Receive tip: input to the DTI/212 120-ohm module	2
No connection	3,6
Transmit ring: output from DTI/212 120-ohm module	5
Transmit tip: output from DTI/212 120-ohm module	4
Optional shield	7,8

To cable the DTI/212 120-ohm module to the E-1 network, follow these steps:

1. Align the RJ-48C connector at the DTI/212 120-ohm module end of the E-1 to DTI/212 120-ohm cable with jack J201 on the rear bracket of the DTI/212 module.

2. Gently push the cable connector into the RJ-48C jack until it snaps into place.

2.4.2.1.4 Connecting Dialogic LSI/120 Loop-Start Module The customer is responsible for supplying additional cabling to connect the LSI/120 network interface module to the telephone company lines.

Refer to the *Dialogic Network Hardware Reference* for additional information on LSI/120 modules.

You can choose from the following connection options:

- Use Digital's BC22F cable. This cable has a DB-25 connector on one end (to connect to the LSI/120), and a 50-pin connector on the other end that provides 12 tip and ring pin pairs that are compatible with a standard RJ-21X USOC jack.

- Use Dialogic's SA/120 RJ–11 assembly. This assembly accepts the 50-pin male connector from the SA/120 RJ-21 cable and terminates with 12 RJ–11 connectors. This cable allows you to connect individual subscriber lines to the LSI/120.

The pin-out specifications in Table 2–5 and Table 2–6 are for connector P3 on the LSI/120. This cable uses a 25-pin female DB-25 connector (Amphenol part number 745495-2 or equivalent) on the LSI/120 end, and a 50-pin jack (Amphenol part number 157-72500-3 or equivalent) that is compatible with an RJ-21X USOC jack.

Table 2–5 LSI/120 Loop-Start 25-Pin Designations

TIP 8	1	14	RING 12
RING 8	2	15	TIP 12
TIP 9	3	16	RING 11
RING 9	4	17	TIP 11
TIP 4	5	18	RING 10
RING 4	6	19	TIP 10
TIP 7	7	20	TIP 3
RING 7	8	21	RING 3
TIP 6	9	22	RING 1
RING 6	10	23	TIP 1
TIP 5	11	24	RING 2
RING 5	12	25	TIP 2
RESERVED	13		

Table 2–6 LSI/120 Loop-Start 50-Pin Designations

RING 1	1	26	TIP 1
RING 2	2	27	TIP 2
RING 3	3	28	TIP 3
RING 4	4	29	TIP 4
RING 5	5	30	TIP 5
RING 6	6	31	TIP 6
RING 7	7	32	TIP 7
RING 8	8	33	TIP 8
RING 9	9	34	TIP 9
RING 10	10	35	TIP 10
RING 11	11	36	TIP 11
RING 12	12	37	TIP 12
RING NC	13	38	TIP NC
RING NC	14	39	TIP NC
RING NC	15	40	TIP NC
RING NC	16	41	TIP NC
RING NC	17	42	TIP NC
RING NC	18	43	TIP NC
RING NC	19	44	TIP NC
RING NC	20	45	TIP NC
RING NC	21	46	TIP NC
RING NC	22	47	TIP NC
RING NC	23	48	TIP NC
RING NC	24	49	TIP NC
RING NC	25	50	TIP NC

2.4.2.2 IP Power Controller

The AlphaServer IP Platform supports the following redundant power supply models: 120 Vac, 240 Vac, or -48 Vdc. Each simplex and duplex rackmount system has two power controllers located in the bottom rack of the cabinet. Each controller supports one DEChub 90 communication subsystem, BA35x–Sx, ISA expansion chassis, and an AlphaServer 1000 processor.

Instructions for wiring the power controllers to the building's power source (120 Vac, 240 Vac, or -48 Vdc models), are included in Appendix B and Appendix C.

2.4.3 Locking Your System

The AlphaServer IP Platform is protected by a key lock in the front and rear door panels. Duplicate interchangeable sets of keys are provided for both front and rear locks.

The AlphaServer 1000 system also comes with a set of keys for each CPU.

_____ **Note** _____

Store the keys in a safe place. Record the key number for each cabinet door and each CPU. Store this information in a safe place; you will need the information if replacement is necessary.

_____

The *AlphaServer 1000 Rackmount Owner's Guide* contains additional information about the AlphaServer 1000 locking procedure.

3

Basic Operation

3.1 Introduction

This chapter describes the basic operation of the:

- Intelligent Peripheral (IP) Platform console workstation
- AlphaServer Intelligent Peripheral (IP) Platform
- IP Platform subsystem components

3.2 IP Platform Console Workstation Operation

This section describes how to turn on and operate the IP Platform console workstation.

To turn the IP Platform console workstation on, push the system unit power button and the monitor power button.

Refer to the *Digital AlphaStation 200 Series User Information* for instructions on the following:

- Using the console
- Accessing the system from a remote location
- Interpreting startup messages
- Using SRM commands

3.2.1 Digital Supplied Factory Configured IP Platform Console Workstation

If your AlphaStation workstation is supplied by Digital, it comes factory configured to display each AlphaServer 1000 system console in a separate window. Processor windows can be used to do the following:

- Display alarm messages from the IP Fault Manager by means of the POLYCENTER System Watchdog Consolidator.
- Run and display HUBwatch for Digital UNIX operating system.
- Control the AlphaServer 1000 console by means of a remote terminal emulation window.
- Establish a remote Digital UNIX login session on the AlphaServer 1000 system by means of a terminal emulation window.

Refer to the *Digital AlphaStation 200 Series User Information* for more console workstation operating information.

3.2.2 Customer Supplied Nonconfigured IP Platform Console Workstation

If the software on your AlphaStation workstation was not factory-configured by Digital, you need to install the Digital UNIX operating system, the HUBwatch for Digital UNIX software, and the POLYCENTER System Watchdog Agent and Consolidator software, to monitor your system. Refer to the installation guides for these products (see the Related Documentation section of this guide).

3.2.3 Remote Access to the AlphaServer 1000 system from the IP Platform Console Workstation

You can invoke console mode from a remote IP Platform console workstation to monitor the IP Platform or to boot the Digital UNIX operating system.

The AlphaServer 1000 system is connected to the IP Platform console workstation by means of the DECserver 90M (see the DEChub 90 wiring diagram in Appendix D). To invoke console mode remotely, establish a LAN session from the IP Platform console workstation to the DECserver 90M. Once the session is established, connect to the AlphaServer 1000 system using one of the following network protocols: LAT, Telnet, SLIP, TN3270, CSLIP, and PPP. You can also use DECserver 90M connect services to connect to the AlphaServer 1000 system.

3.3 Turning on the AlphaServer IP Platform

After the AlphaServer IP Platform is properly secured, plugged in, and connected to the building's network hardware, you are ready to power up the system. Refer to Appendix E and Appendix F for the IP Platform diagrams to assist you in locating the system components.

3.3.1 Step I: Console Workstation

Using the documentation that came with your workstation as a guide, power up the console workstation.

_____ Note _____

Connect the IP Platform console workstation to the DEChub 90 Ethernet Backplane. See section Section 2.4.1.2.

_____

3.3.2 Step II: IP Platform

Prior to turning on the circuit breakers for the 120 Vac or 240 Vac controllers, ensure that the neon indicator is **on**, indicating that an ac voltage is present. The -48 Vdc controller does not have an indicator for voltage; it should be connected to the -48 Vdc battery/power source prior to turning on the circuit breakers.

To power up the AlphaServer IP Platform, follow these steps:

1. Switch the circuit breakers at each power controller (located in the rear of the cabinet) to the **on** position. The modular storage shelf BA35*x*–S*x* and the DEChub 90 communication subsystems automatically power up.

   _____ **Caution** _____

   Each power controller panel has a toggle switch located next to the circuit breakers. The toggle switch should always be at the *local* position to provide power to the IP Platform.

   _____

2. Turn the switches on the front and back of the IP ISA bus expansion chassis to the **on** position. Use the documentation that came with the Dialogic Telco Platform (DTP) as a guide.

   _____ **Important** _____

   The IP ISA expansion chassis must be turned **on** prior to turning on the AlphaServer 1000 system.

   _____

3.3.3 Step III: AlphaServer 1000 System

Turn the AlphaServer 1000 system on by pressing the On/Off switch on the front of the AlphaServer 1000 unit. The green On/Off indicator on the front of the system will illuminate.

As described in the following sections, each subsystem within the IP Platform initiates its own self-test at power-up. The following sections describe what a successful power-up of the subsystem components looks like.

3.4 IP ISA Bus Expansion Chassis Operation

The IP alarm panel is responsible for communicating the operating status of the IP ISA bus expansion subsystem as well as other components of the IP Platform.

The IP alarm panel has eleven LED indicators that are visible through the front alarm panel of the expansion box. These Light Emitting Diodes (LEDs) indicate the following:

- System status

- Alarm status

- Power supply status

Immediately after the alarm module power is turned on, the alarm module self-test runs diagnostic checks. Upon completion of the startup procedure, the IP alarm panel indicates a successful startup as displayed in Figure 3–1.

Figure 3–1 Trouble Free IP Alarm Panel
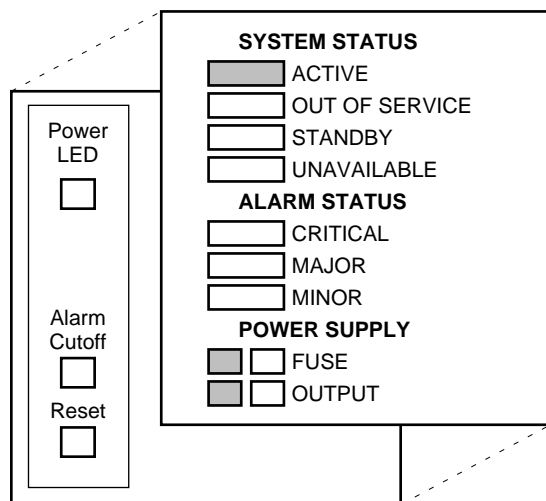
ML011793

_____ **Note** _____

The alarm panel opens (left to right), and provides access to the power LED, the alarm cutoff button, and the reset button.

_____

Refer to the _Intelligent Peripheral Fault Manager For Digital UNIX Installation and User's Guide_ and the _Dialogic Telco Platform User's Reference_ for additional information on the IP alarm panel and fault management.

3.5 AlphaServer 1000 System

<hr>
Important
<hr>

Before you can power on the AlphaServer 1000 system, recheck
the connections to the IP Platform console workstation. See section
Section 2.4.1.2.

<hr>

Once the AlphaServer 1000 system power is turned on, the screen on the IP
Platform console workstation displays test codes and initialization messages.
When the startup procedure is complete, the following occurs:

*   The IP Platform console workstation terminal emulation window displays the
    SRM console prompt (>>>).

*   The operator control panel on the front of the AlphaServer 1000 system
    displays the message "Model 4/2*xx*."

Boot the Digital UNIX system by typing boot at the console prompt. For duplex
systems, type boot at each processor window. The AlphaServer 1000 system has
booted successfully when the Digital UNIX prompt (#) appears.

Refer to the *Digital UNIX Installation Guide* for installation instructions on
booting a Digital UNIX system.

Refer to the *AlphaServer 1000 Rackmount Owner's Guide*, for additional
information on the operation of the AlphaServer 1000 system.

3.6 Modular Storage Shelf BA35*x*–S*x* Subsystem Operation

There are eight StorageWorks building blocks (SBBs) on each modular storage
shelf BA35*x*–S*x* subsystem. The StorageWorks Building Block (SBB) slots are
numbered 0 through 7 from right to left with the power supply SBB in slot 7. On
the IP simplex system, the storage SBBs are in slots 0-6. On the duplex system,
the available storage SBBs are in slots 0-5.

<hr>
Note
<hr>

The SCSI address for the SSB device is defined automatically by the SSB
slot location.

<hr>

After power is supplied to the IP Platform, observe the status LEDs for the
following successful indications:

*   On a power supply SBB, both green status LEDs should be on.

*   On a storage SBB, the green device activity LED is either on, flashing, or off.
    The amber device fault LED is off.

Additional information on the following modular storage shelf BA35*x*–S*x*
components can be found in the *StorageWorks Family User's Guide*.

*   Component functions

*   Shelf status

*   Power unit status

- Storage device status
- StorageWorks building block SSB replacement procedures
- Shelf replacement procedures
- Power supplies
- SCSI buses

For information on how to monitor the StorageWorks disks, refer to the *Intelligent Peripheral Fault Manager For Digital UNIX Installation and User's Guide*.

3.7 DEChub 90 Communication Subsystem Operation

A number of modules can be inserted into the DEChub 90 Ethernet backplane, depending upon the customer-specified network configuration. The individual network modules have panel status indicators and diagnostic LEDs, which indicate the status of the module.

To interpret the panel status indicators and LED displays, refer to the individual module's documentation. The Related Documentation section of this guide lists the documentation for each network module.

The HUBwatch for Digital UNIX network management software monitors the status and activity of the DEChub 90 installed modules. HUBwatch manages the network modules installed in the DEChub 90 communication subsystem, as well as the hub itself, by using SNMP commands and displaying messages in a terminal emulation window on the IP Platform console workstation.

For information on using HUBwatch to monitor the IP Platform network modules, refer to the HUBwatch for Digital UNIX documentation listed in the Related Documentation section of this guide,

_____ **Note** _____

The DECbridge module must be located in slot 8.
The DECagent module must be located in slot 7.
All other modules may be located in any available slot.

_____

4

Reconfiguring the AlphaServer IP Platform

4.1 Introduction

In order to upgrade the AlphaServer IP Platform or replace defective parts, you need to remove and install components within the IP Platform. These components are within the individual AlphaServer 1000 system, IP ISA bus expansion chassis, modular storage shelf BA35*x*–S*x*, and DEChub 90 communication subsystems. After you change any IP Platform component, you may want to verify or modify the system configuration.

This chapter lists the components of the IP Platform subsystem that may need to be removed or installed, and the procedure for viewing and modifying the subsystem configurations using the IP Platform console workstation SRM commands.

Before you attempt to install third-party devices inside your system unit, check with the third-party vendor to ensure that your system hardware and operating system software support the device.

Caution

Static electricity can damage electronic components. Use the antistatic wriststrap located in the inside rear cabinet door pocket. Additionally, use an antistatic mat when you handle internal components.

4.2 AlphaServer 1000 System Configurations

The components of the AlphaServer 1000 system that may need to be replaced or upgraded include:

- Storage devices
- Memory modules
- CPU motherboard
  - EISA modules
    * DE42*x* Ethernet controllers (qty=2)
    * Access I/O transmitter module (AT bus expansion kit)
    * Multi-purpose serial interface controller
  - PCI modules
    * KZPSA-BB SCSI controller (qty=2)
- Power supply

The KZPSA-BB PCI-to-SCSI adapter comes with its own utilities diskette that can be used to modify the adapter parameters. See the *StorageWorks KZPSA PCI-to-SCSI Storage Adapter User's Guide* for a complete description of the adapter.

After modifying the above components, and before you boot the Digital UNIX operating system, you can use the SRM console commands from the IP Platform console workstation to examine the system configurations of these components, and make modifications if necessary.

The EISA Configuration Utility (ECU) *must* be run whenever you add, remove, or move an EISA or ISA card within the AlphaServer 1000 system. The ECU is a menu-based utility run from the SRM console that provides online help to guide you through the configuration process.

The DIGI Acceleport serial interface module comes with a configuration diskette. Copy the configuration files from this diskette onto the Digital (ECU) diskette prior to running the ECU to register the DIGI Acceleport module.

_____ **Note** _____

Do not move the slot location of the Access I/O transmitter module, or the DIGI Acceleport serial interface module. Changing the location of these modules may result in configuration problems.

_____

Table 4–1 describes some of the basic SRM console commands used to verify system configurations on systems running the Digital UNIX operating system.

Table 4–1   SRM Console Configuration Commands

Command	Description
show config	Displays the buses on the system and the devices found on those buses.
show device	Displays the devices and controllers on the system.
show memory	Displays the main memory configuration.
set and show	Sets and displays the environment variables.

Refer to the *AlphaServer 1000 Rackmount Owner's Guide* for complete instructions on using the ECU and SRM console commands, or type help at the SRM prompt (>>>).

4.3 IP ISA Bus Expansion Chassis Configuration

The AlphaServer IP ISA bus expansion chassis provides a flexible capacity for adding voice modules of varying types based on products from Dialogic. See Section 1.4 for a complete list of available IP ISA bus expansion options.

Note

If you install multiple T1 or E1 modules (part numbers 2T-VC24T-xx or 2T-VC212-XX), do **not** use adjacent slots in the IP ISA expansion chassis. Use every other slot for the T1 or E1 modules. Use available slots between the T1 or E1 modules for other functions.

Once the Dialogic voice modules are physically installed, you need to configure them by running the ECU from the IP Platform console workstation. Use the ECU to register the modules with the system hardware, and to reserve the addresses and interrupt request levels (IRQs) that are to be used by the modules. The ECU attempts to identify and resolve resource conflicts. The ECU may also be used to determine unused I/O ports, shared memory address, and IRQs.

In addition to the Dialogic voice modules, other components within the IP ISA bus expansion chassis that may need to be installed or removed include the:

- Fan filters

- Fans

- Power supply

- Battery

- Alarm board

- Access I/O transceiver (AT bus expansion kit)

For a complete description of installing and configuring the voice-option modules, and the IP ISA bus expansion chassis hardware components, refer to the *AlphaServer Voice Platform Hardware Installation Guide*.

Faulty Dialogic parts can be mailed to Dialogic according to their Return Material Authorization (RMA) procedure outlined in the *Dialogic Telco Platform User's Reference*.

4.4 Modular Storage Shelf BA35*x*–S*x* Subsystem Configuration

The modular storage shelf BA35*x*–S*x* contains the following components that may need to be removed and replaced:

- StorageWorks building blocks (SBBs)

- DWZZA-VA SCSI bus converter

- H885-AA tri-link connector block

- H879-AA SCSI terminator

- Disk drives

- Power supply

<hr>
Important
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Once a device has been initialized on a SCSI bus with a specific device
address, moving the device to another bus or changing the device address
can cause problems.

<hr>

Refer to the *StorageWorks Family User's Guide* for specific instructions on
adding and removing StorageWorks components, and setting the correct device
addresses.

4.5 DEChub 90 Communication Subsystem Configuration

The DEChub 90 communication subsystem contains several required and
optional DEChub 90 modules that can be installed onto the DEChub 90 Ethernet
backplane. Each DEChub 90 module has its own documentation, which is listed
in the Related Documentation section of this guide. This documentation should
be referred to when adding or removing that module from the DEChub 90
subsystem.

The DEChub 90 modules are the:

- DECrepeater 90C

- DECserver 90M

- DECagent 90

- DECbridge 90

- DEChub 90 power supply

- DECbrouter 90 (optional)

After physically adding or removing a DEChub 90 module, use the HUBwatch for
Digital UNIX software to logically add or remove the module from the network,
and to view or modify the network configurations.

HUBwatch uses a realistic diagram of the DEChub 90 network that allows you to
double click on a module to access additional module management windows. You
can use these windows to manage the hub configuration, and to logically add or
remove individual network modules.

For a complete description of using HUBwatch to manage the DEChub 90
subsystem, see the *HUBwatch Use* documentation or HUBwatch online Help,
which provides step-by-step instructions for performing specific HUBwatch
management tasks.

5

System Troubleshooting

5.1 Introduction

This chapter describes procedures for resolving problems with the components of the AlphaServer Intelligent Peripheral (IP) Platform. If the subsystem troubleshooting is discussed in another manual, a reference is provided to that documentation.

Before servicing the system, be aware of any service agreement that exists for your system. The agreement helps determine the level of maintenance for self-maintenance customers.

To correct a problem, locate the troubleshooting section for that component and refer to the appropriate documentation. If you cannot correct the problem, report it to your service representative.

_____ **Warning** _____

Only a qualified service person should install the system. A qualified service person is an individual who has the technical training and experience to be aware of the:

* Hazards to which they are exposed in performing a task

* Measures to minimize the danger to themselves or other persons

A qualified service person need not be a Digital service representative.

_____

5.2 AlphaServer 1000 Subsystem

The *AlphaServer 1000 Rackmount Owner's Guide* provides the instructions on completing the following tasks or resolving these particular problems:

• Confirming that EISA modules or memory modules are properly configured

• Running a diagnostic test of the entire system, showing its status, or terminating the testing

• Checking the startup display when you turn on the system

• What to do if:

 – The power supply has shut down

 – Startup tests do not complete

 – The system cannot boot the operating system

 – The operating system reports errors, is hung, or crashes

 – The system cannot access a mass storage device

- Storage devices are missing from the `show device` display

- The system indicates network problems, an EISA module is not configured, or a PCI module is unseen by the system

- The monitor or the terminal is not working

- The keyboard and mouse are not working

- The system repeatedly shuts down after 10 seconds

- The system does not see or cannot access RAID drives

- The Flash ROM is corrupted and the system cannot access console mode

5.3 IP ISA Bus Expansion Chassis

The IP ISA bus expansion chassis contains the IP alarm panel that uses visual and audio alarm indicators to display the status of the IP Platform, including the IP ISA bus expansion chassis (see Figure 3–1). The IP alarm panel activates alarms if it detects a failure as long as the main alarm board processor does not fail.

The IP Fault Manager, which runs on each AlphaServer 1000 system, sends messages to the IP alarm panel to perform activities such as setting or clearing the alarm status or providing the current system status LED setting.

The alarm status is set to one of the following based on the severity of the event:

- Critical

- Major

- Minor

Alarms can be reset manually or remotely.

The status of the Dialogic voice modules is handled at the application level and not by the IP Fault Manager software.

For a complete description of the IP alarm panel, its LED status displays, and interaction with the IP Fault Manager software, see the *Intelligent Peripheral Fault Manager For Digital UNIX Installation and User's Guide*.

The *Dialogic Telco Platform User's Reference* contains additional diagrams and troubleshooting information on the Dialogic hardware, within the IP ISA bus expansion chassis.

5.4 Modular Storage Shelf BA35*x*–S*x* Subsystem

The modular storage shelf BA35*x*–S*x* uses the LEDs of its StorageWorks building blocks (SBBs) to indicate problems within the power unit, storage devices, and StorageWorks shelf. Depending upon the problem, these displays can be flashing, on, or off. The *StorageWorks Family User's Guide* provides instructions on how to interpret these displays.

5.5 DEChub 90 Communication Subsystem

The DEChub 90 Ethernet backplane contains network modules that communicate their hardware status by means of the individual module's LED displays on the front panel. The interpretation of these LEDs is unique to each module. To troubleshoot the network modules, refer to the documentation for each unit; the documentation is listed in the Related Documentation section of this guide.

The HUBwatch for Digital UNIX software is used to identify the source of DEChub 90 network problems such as the following:

- General display problems
- Access server problems
- Community problems
- Agent problems
- Performance problems

Refer to *HUBwatch Use* or your module owner's manual for additional information.

5.6 AlphaServer IP Power Controllers

If the power controllers do not function properly, perform the following steps:

1. Prior to turning on the circuit breakers for the 120 Vac or 240 Vac controllers, ensure that the neon indicator is **on**, indicating that an ac voltage is present. The -48 Vdc controller does not have an indicator for voltage. It should be connected to the -48 Vdc battery/power source prior to turning on the circuit breakers.

2. Check that the circuit breakers are on for each of the two power controllers.

3. Ensure that the toggle switch on each of the power controllers (120 Vac and 240 Vac controllers) is set to *local*.

_____ **Note** _____

The toggle switch should remain in the *local* position to ensure power to the system. If this switch is accidentally moved out of *local* position, the AlphaServer IP Platform powers down.

_____

5.7 IP Platform Console Workstation and Printers

For help with system troubleshooting the IP Platform console workstation, as well as information on error beep codes and diagnostic LED codes, refer to the troubleshooting information in the following document: *Digital AlphaStation 200 Series User Information*.

For help with printer problems, refer to the owner's manual for that product.

A

AlphaServer IP Platform Specifications

A.1 Physical Dimensions

Table A–1 contains the physical dimensions for the AlphaServer Intelligent Peripheral (IP) Platform.

Table A–1   Physical Dimensions

Dimension	Specification
Depth	96.52 cm (38.0 in.) including doors
Width	55.88 cm (22.0 in.)
Height	220.01 cm (86.62 in.) including cable trough
Height	204.77 cm (80.62 in.) without cable trough
Weight	385.56 kg (850 lbs) for fully loaded duplex system
Front aisle	76.2 cm (30.0 in.) minimum clearance
Rear aisle	60.96 cm (24.0 in.) minimum clearance

A.2 Electrical Specifications

Table A–2 contains the electrical specifications for *each* IP Platform power controller.

Table A–2   Electrical Specifications for Each Power Controller

Specification	Range
Input voltage	120 Vac *or* 240 Vac *or* -48 Vdc
Frequency (ac only)	50-60 Hz
Input current maximum	8.0 A at 120 Vac *or* 4.0 A at 240 Vac *or* 50 A at -48 Vdc

A.3 System Environmental Specifications

Table A–3 contains the environmental specifications for the AlphaServer IP Platform.

Table A–3 Environmental Specifications

Operating/Storage Conditions	
Temperature range	10°C to 40°C (50°F to 104°F)
Barometric pressure	760 mm (29.92 in. Hg)
Relative humidity	20% to 80% (noncondensing)
Minimum dew point	2°C (36°F)
Maximum altitude	2,438 m (8,000 ft)[1]
Maximum wet bulb temperature	28°C (82°F)

Nonoperating Conditions	
Temperature range	-40°C to 66°C (-40°F to 151°F)
Relative humidity	20% to 85% (noncondensing)
Maximum altitude	4,877 m (16,000 ft)[1]

[1]The maximum allowable operating temperature above 2,438 m (8,000 ft) is reduced 1.8°C/1,000 m (1.0°F/1,000 ft).

A.4 NEBS Compatibility

The AlphaServer IP Platform is intended for deployment in telecommunications central office (CO) environments, and is compatible with Bellcore's Network Equipment-Building Systems (NEBS) specification TR-NWT-000063.

Some of the NEBS-compatible (conforming) hardware requirements supported by the AlphaServer IP Platform are:

- Simplex or duplex system housed within a single electronic equipment cabinet.

- Cabinet of welded steel construction has locking front and rear doors, bolt-down provisions at the cabinet base and top, four-wheel rugged castor base, four-point leveling, and cable egress from top or bottom of the cabinet.

- Integral cable trough attached to the top-rear half of the cabinet, and for larger systems, forms a continuous cable trough along the cabinet top-rear.

- 120 Vac, 240 Vac, and -48 Vdc dual-feed power models are available for the duplex system.

- Weight is 385.56 kg (850 lbs).

_____ **Note** _____

Floor loading is approximately 38.56 kg (85 lbs) per square foot according to NEBS weight calculation rules. Maximum allowed is 52.16 kg (115 lbs) per square foot.

_____

- Operating relative humidity of 20% to 80%.

- Acoustic noise is less than 65 dBA.

- Meets FCC Class A specifications.

- Meets UL and other international safety specifications.

NEBS nonconforming features are:

- Cabinet depth is 96.52 cm (38 in.)

- Printer and monitor are table-top mounted.

The AlphaServer IP Platform simplex and duplex system is contained within one single bay 177.8 cm (70 in.) panel space cabinet (except for console devices/system management workstation).

B

Field Wiring the 877-DA (120 Vac) and 877-E (240 Vac) Power Controllers

B.1 Field Wiring the 877-DA and 877-E Power Controllers

The following sections describe how to field wire the 877-DA and 877-E power controllers.

_____ Warning _____

The person(s) installing the system should be aware of the 1993 NEC (National Electrical Code) requirements for data processing equipment installation, Article 645, 645-2. Failure to follow these requirements could result in personal injury and damage to the equipment.

Only a qualified service person should install the system. A qualified service person is an individual who has the technical training and experience to be aware of the:

* Hazards to which they are exposed in performing a task

* Measures to minimize the danger to themselves or other persons

A qualified service person need not be a Digital service representative.

_____

B.1.1 Removing the Power Cord

Remove the power cord as follows:

1. Ensure that all power has been disconnected for at least five (5) minutes prior to disassembling the power cord at the power controller.

2. Remove the sheet-metal cover surrounding the power cord strain-relief bushing by removing the four (4) #8-32 x 5/16 Phillips pan-head screws and sliding the cover away from the strain-relief bushing. This exposes the line-filter terminals. Each terminal is marked (neutral, phase, or ground).

3. Observe the wire color/polarity as follows:

   Blue: Neutral
   Brown: Phase
   Green/yellow: Ground

4. Remove the #10-32 hex nut and ring terminal/wire from each terminal.

5. Remove the wire from the strain-relief bushing by turning the knurled knob on the end of the bushing until it is loose.

B.1.2 Installing Suitable Field Wiring

The following subsections describe how to install suitable field wiring.

B.1.2.1 Field Wiring Recommendations

Table B–1 lists the field wiring recommendations for *each* power controller:

Table B–1 Field Wiring Recommendations

Input Power Requirement	877-DA	877-E
Input voltage	120 Vac @ 60 Hz nominal	240 Vac @ 50 Hz nominal
Input current	24 A maximum	12 A maximum
Inrush peak	500 A maximum	250 A maximum

- **Recommended wire**: Wire should be U/L recognized and CSA certified for 105°C (221°F), with insulation rated for 600 Vac. Each of the 3-wire conductors should be a minimum of 10 AWG stranded.

- **Recommended ring terminal lugs**: Ring terminals should be UL recognized and CSA certified for 105°C (221°F), with insulation rated for 600 Vac. They should be sized for the correct insulation diameter of the wire that is used with a maximum lug outside diameter of .38 inches, and a lug inside diameter for a #10 stud (Example: Burndy #BA10E-10M or equal).

- **Crimping tools**: The correct crimping tools must be used for the selected ring terminal/wire size. A double crimp on the ring terminal for the green/yellow conductor is recommended, or tooling that provides a double crimp should be used. A double crimp is recommended on all ring terminals.

B.1.2.2 Installing the Wiring

1. Loosen and position the strain-relief bushing in the direction desired. Observe that the strain-relief cover allows the strain-relief bushing to be positioned in 60 degree increments.

2. Retorque the retaining nut to 60 +/- 5 in. lb.

3. Insert all conductors through the strain-relief bushing.

   _____ **Note** _____

   It is recommended that the green/yellow conductor be approximately 2.54 cm (1.0 in.) longer than the other two conductors.

   _____

   Retorque the knurled knob, hand tight. Conductors should be restrained by a strain-relief.

4. Connect the appropriate wire conductor/ring terminal to the line-filter studs as follows:

   a. Observe the wire color/polarity as follows:

      Blue: Neutral
      Brown: Phase
      Green/yellow: Ground

   b. Retorque the #10-32 hex nuts to 18 +/- 2 in. lb.

   c. Reinstall the strain-relief bushing metal cover using the four (4) #8-32 x 5/16 Phillips pan-head screws, and torque to 14 +/- 2 in. lb.

C

Field Wiring the -48 Vdc Power Controllers for Power

C.1 Field Wiring the -48 Vdc Power Controllers

The following sections describe how to field wire the -48 Vdc power controllers.

—————————————— Warning ——————————————

The person(s) installing the system should be aware of the 1993 NEC (National Electrical Code) requirements for data processing equipment installation, Article 645, 645-2. Failure to follow these requirements could result in personal injury and damage to the equipment.

Only a qualified service person should install the system. A qualified service person is an individual who has the technical training and experience to be aware of the:

*   Hazards to which they are exposed in performing a task

*   Measures to minimize the danger to themselves or other persons

A qualified service person need not be a Digital service representative.

—————————————————————————————————————

C.1.1 Installing Suitable Field Wiring

The following subsections describe how to install suitable field wiring.

C.1.1.1 Field Wiring Recommendations

Table C–1 lists the field wiring recommendations for *each* side of the -48 Vdc power controller. The -48 Vdc power controller has dual power feeds.

Table C–1   Field Wiring Recommendations for Each Power Feed

Input Power Requirement	-48 Vdc Power Controller
Input voltage	-48 Vdc
Input current	50 A max
Inrush peak	6 A max soft start limited

- **Recommended wire**: Wire should be U/L recognized and CSA certified for 105°C (221°F), with insulation rated for 600 Vac. Each of the 3-wire conductors should be a minimum of 4 AWG stranded.

Warning

High energy hazard. Proper precautions required.

C.1.1.2 Installing the Wiring

1. Strip the wire insulation to approximately 1.27 cm (.50 in.).

2. Insert the wire into the terminal block as follows:

   a. Observe the wire color/polarity

      Black: -48 Vdc
      White: +48 Vdc
      Green/yellow: Ground

   b. Torque the #10-32 compression screws to 18 +/- 2 in. lb.

D

AlphaServer IP Platform DEChub 90 Wiring Diagram

D.1 Introduction

The following diagram of the Intelligent Peripheral (IP) duplex platform displays the wiring connections between the AlphaServer 1000 processors, the IP Platform console workstation, the DEChub 90 modules, and the Ethernet.

Figure D–1 AlphaServer IP Platform DEChub 90 Wiring Diagram (Data Communications)
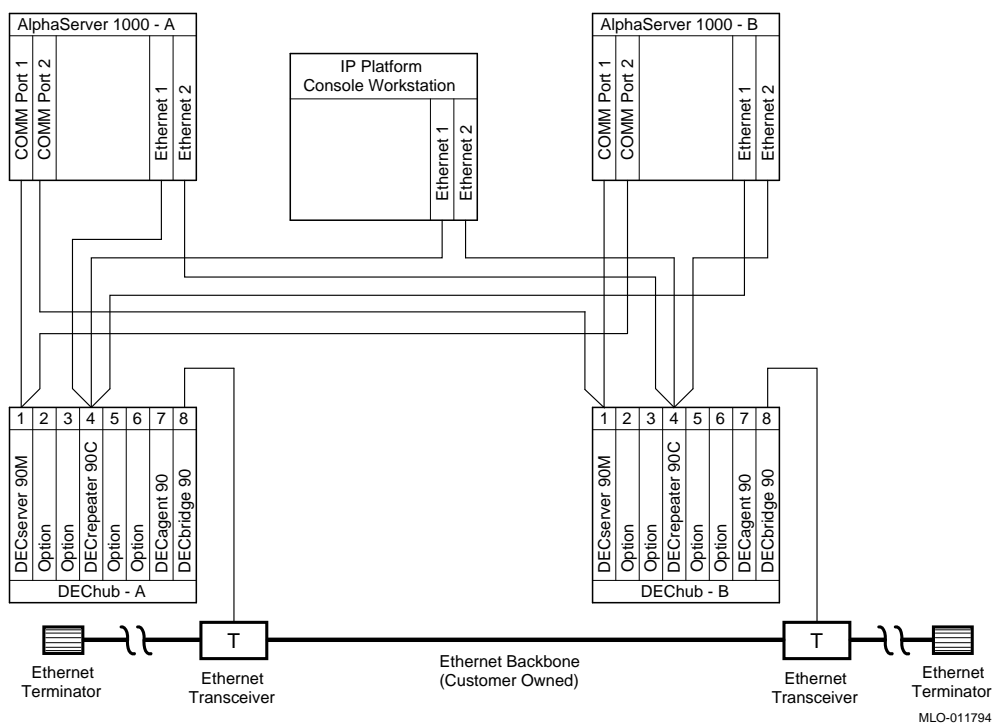
The AlphaServer IP Platform console ports are pre-configured at the factory as follows:

- CPU-A Comm port #1 connects to DEChub-A DECserver port #8
- CPU-B Comm Port #1 connects to DEChub-B DECserver port #8
- CPU-A Comm Port #2 connects to DEChub-B DECserver port #7
- CPU-B Comm Port #2 connects to DEChub-A DECserver port #7
- CPU-A Ethernet #1 connects to DEChub-A DEC repeater at any port
- CPU-A Ethernet #2 connects to DEChub-B DEC repeater at any port
- CPU-B Ethernet #1 connects to DEChub-B DEC repeater at any port
- CPU-B Ethernet #2 connects to DEChub-A DEC repeater at any port

If you want to run the EISA Configuration Utility (ECU) from a remote terminal, refer to the *AlphaServer 1000 Rackmount Owner's Guide*.

E

AlphaServer IP Platform Duplex System Diagrams

E.1 Introduction

This appendix contains diagrams of the AlphaServer Intelligent Peripheral (IP) Platform duplex systems.

E.2 AlphaServer IP Platform Duplex Systems (AC)

This section contains the front, side, and rear views of the ac duplex system.

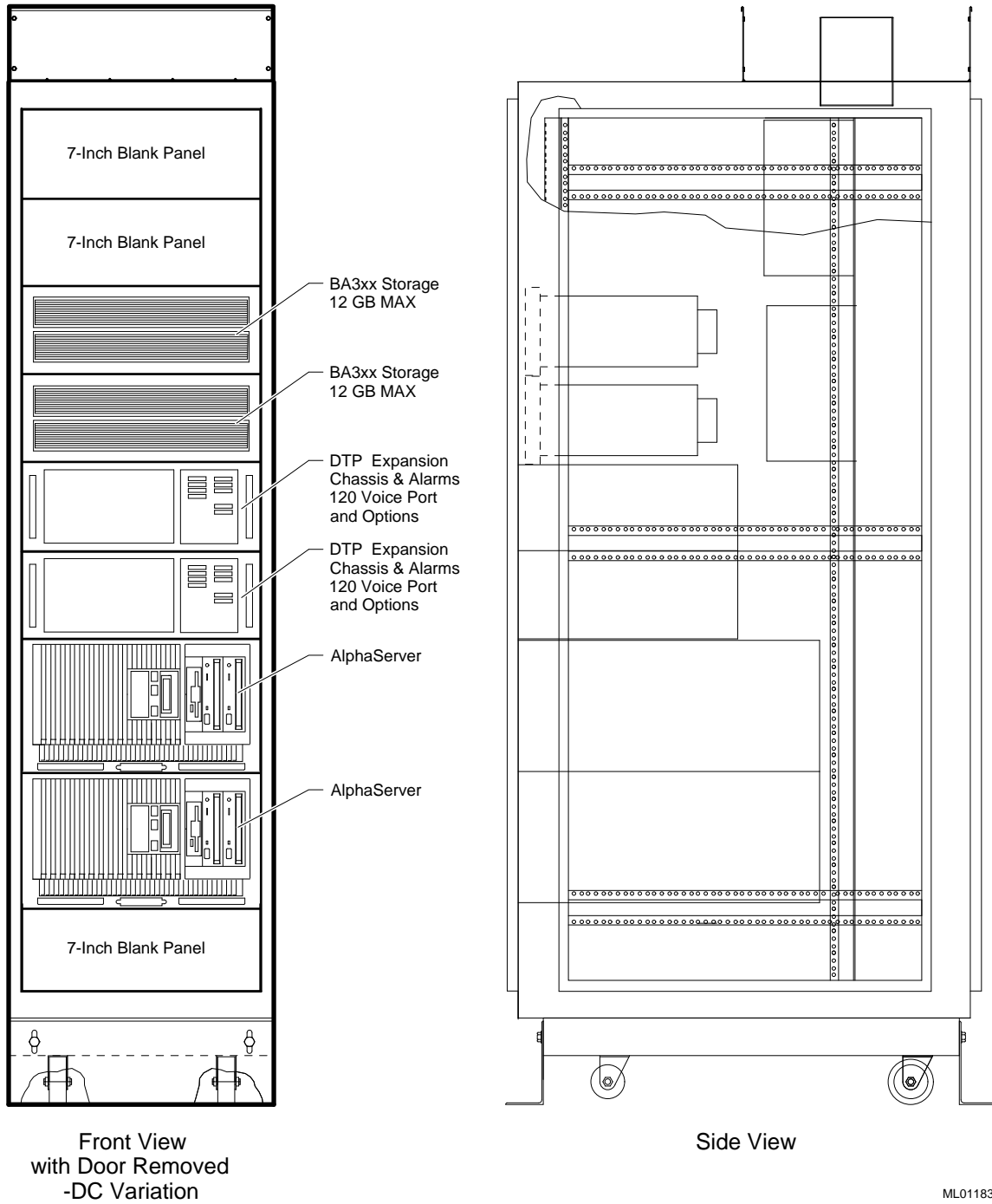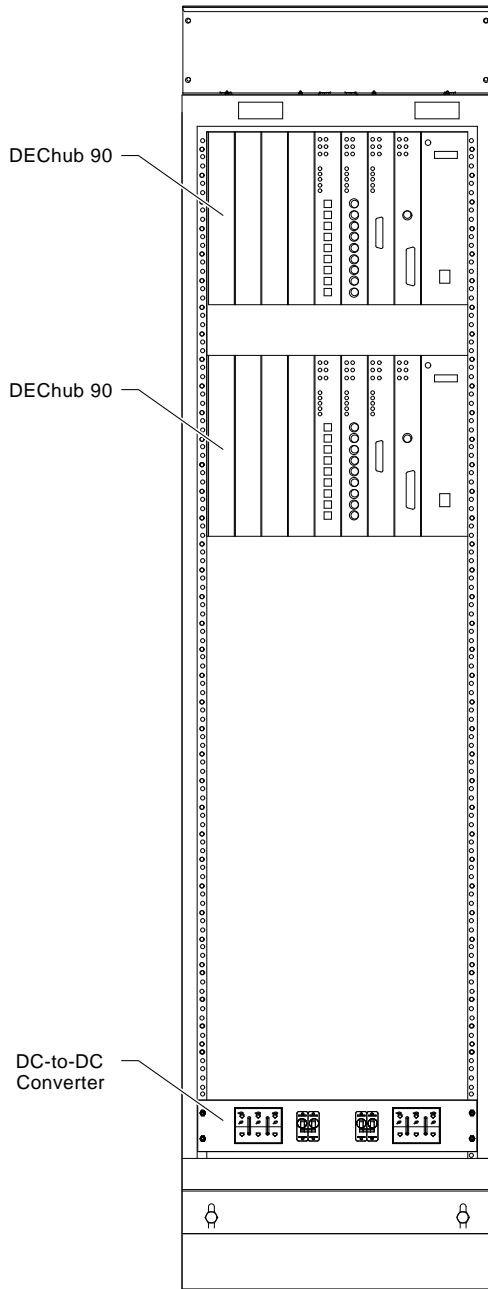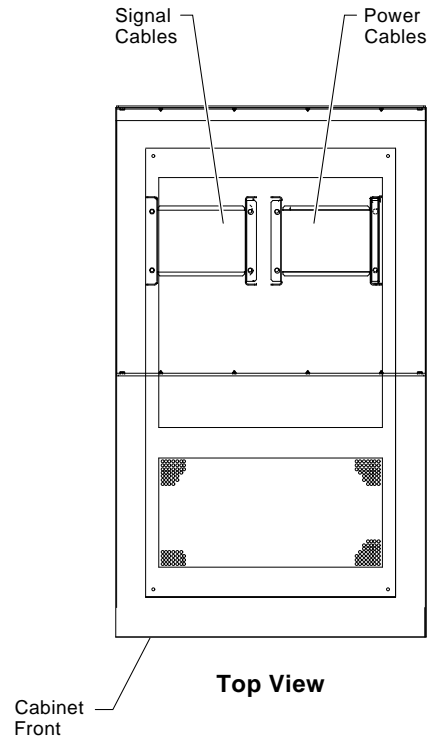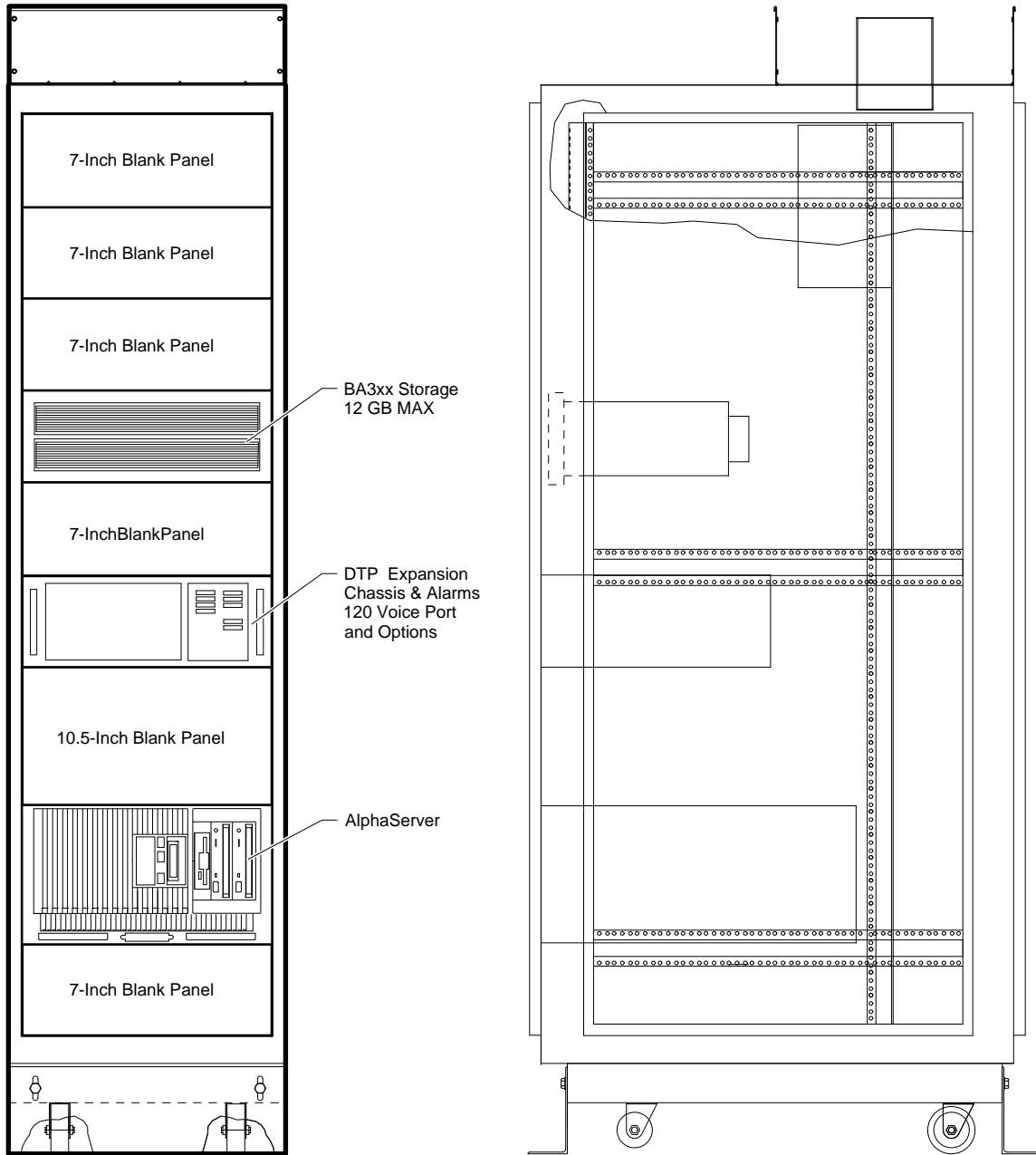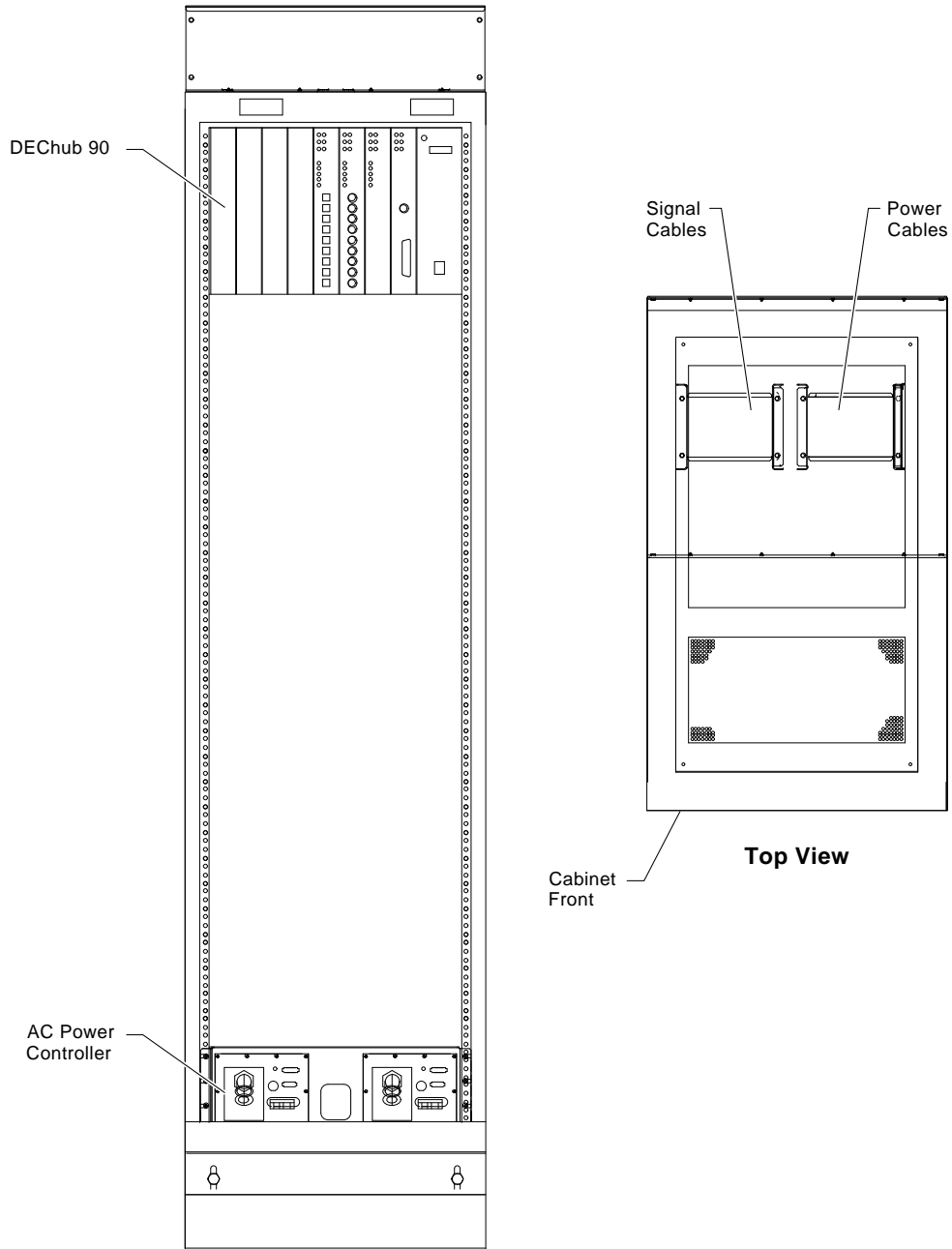**Figure E–1 IP Platform Duplex System (AC) Front and Side View**

7-Inch Blank Panel

7-Inch Blank Panel

BA3xx Storage
12 GB MAX

BA3xx Storage
12 GB MAX

DTP Expansion
Chassis & Alarms
120 Voice Port
and Options

DTP Expansion
Chassis & Alarms
120 Voice Port
and Options

AlphaServer

AlphaServer

7-Inch Blank Panel
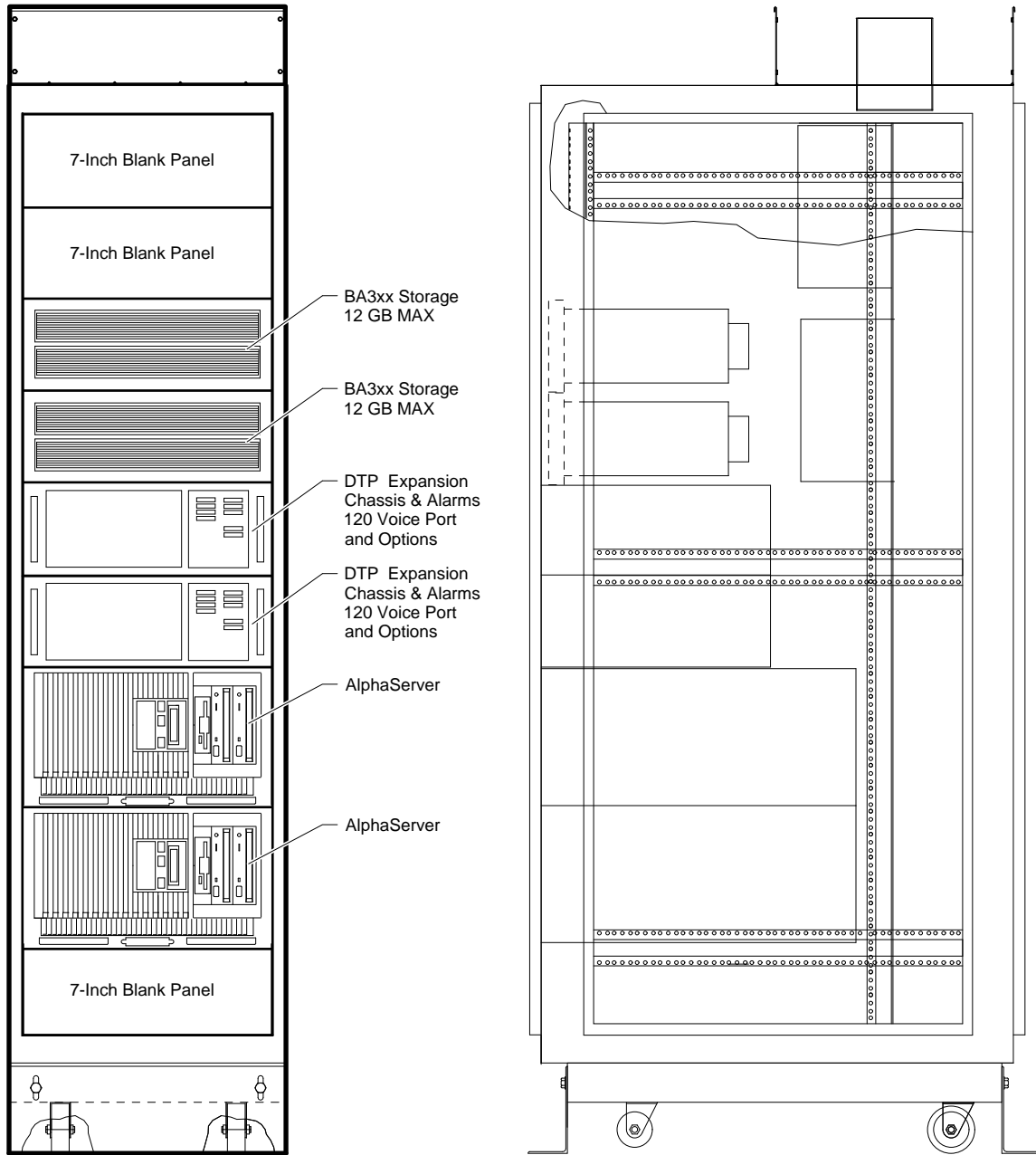
Front View
with Door Removed
-AA, -AB Variation

Side View

ML011834

Figure E–2 IP Platform Duplex System (AC) Rear View

DEChub 90

DEChub 90

Signal
Cables

Power
Cables

AC Power
Controller

Cabinet
Front

Top View

**Rear View with
Rear Door Removed**

MA00793
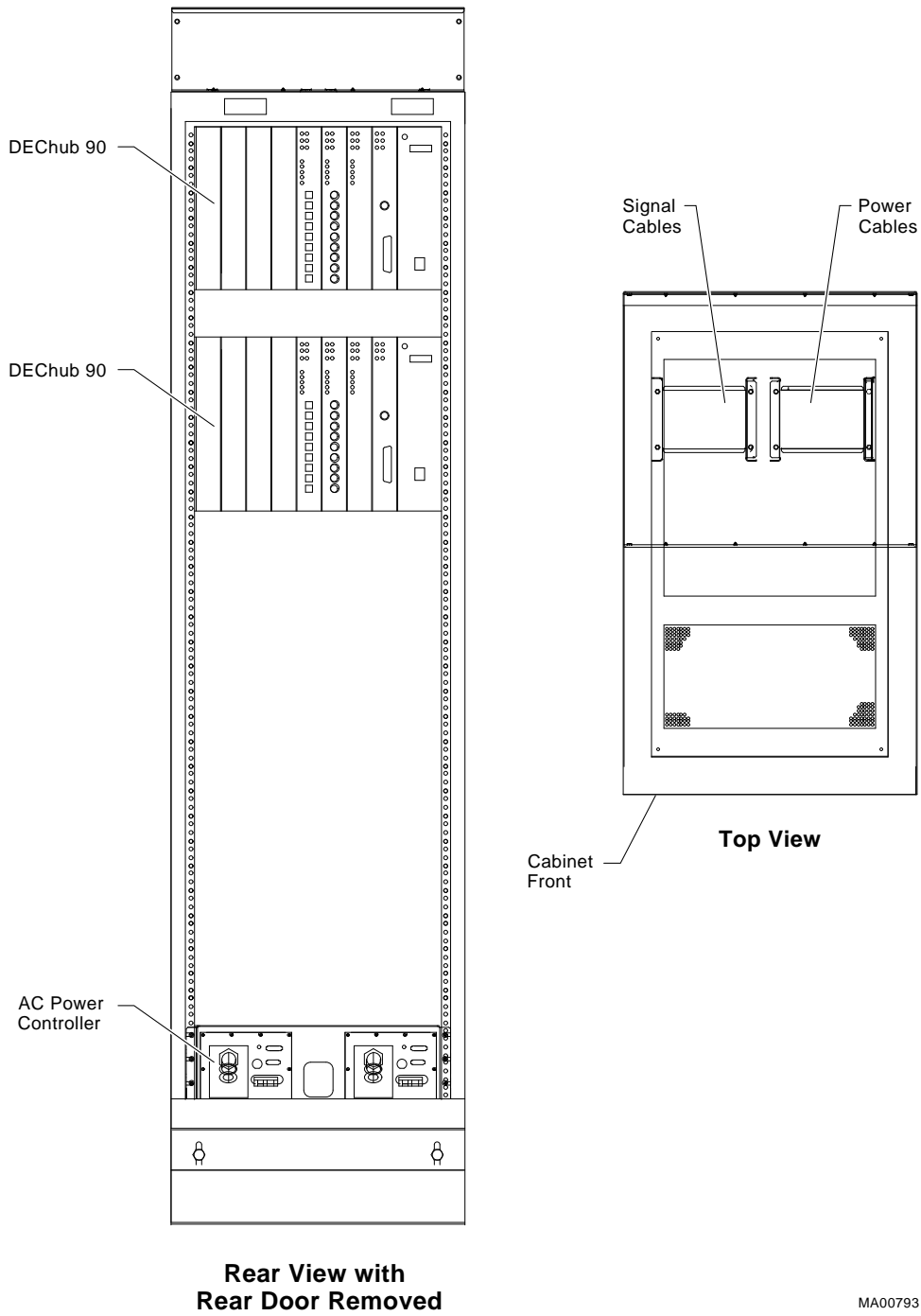
E.3 AlphaServer IP Platform Duplex Systems (DC)

This sections contains the front, side, and back views of the dc duplex systems.

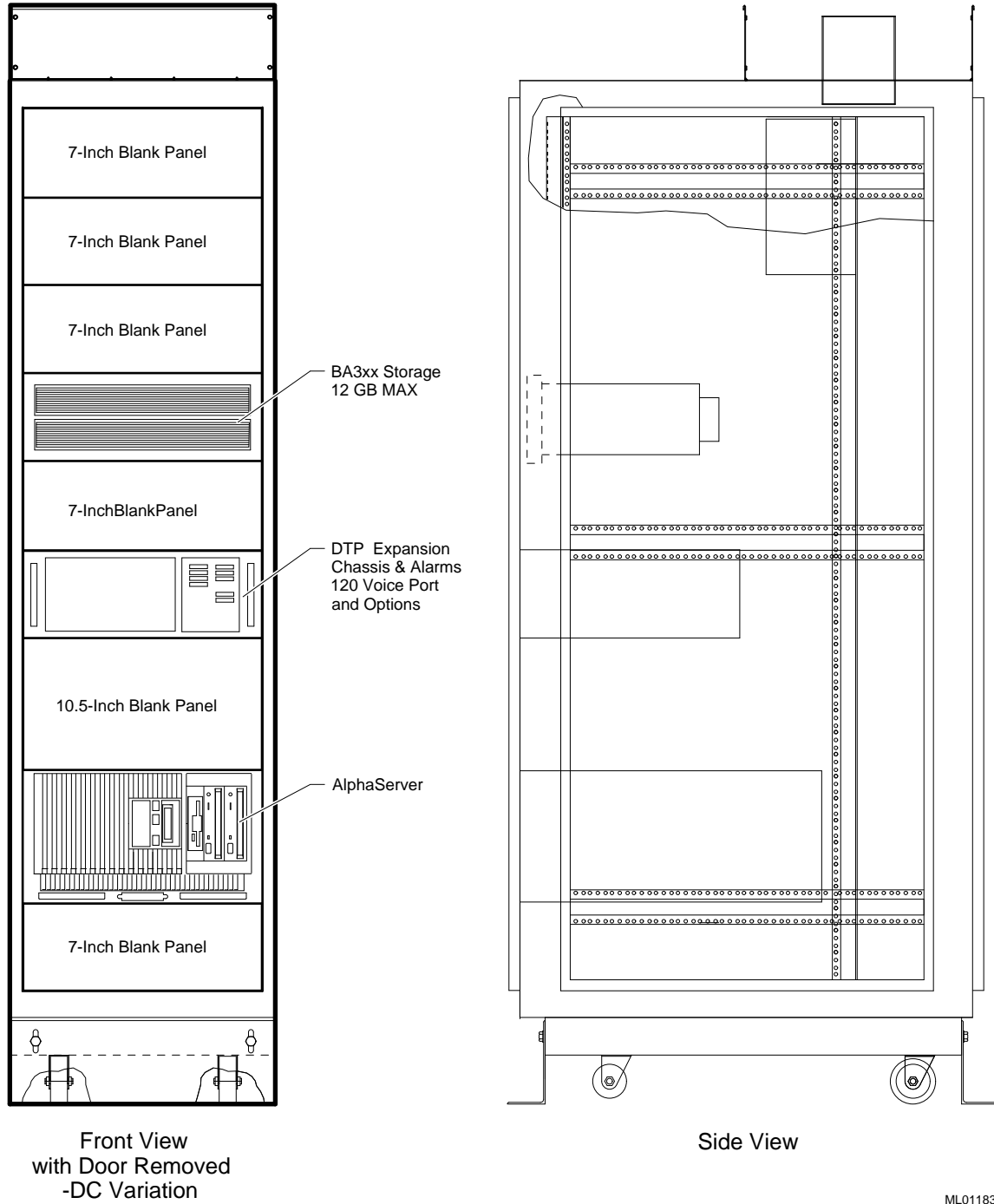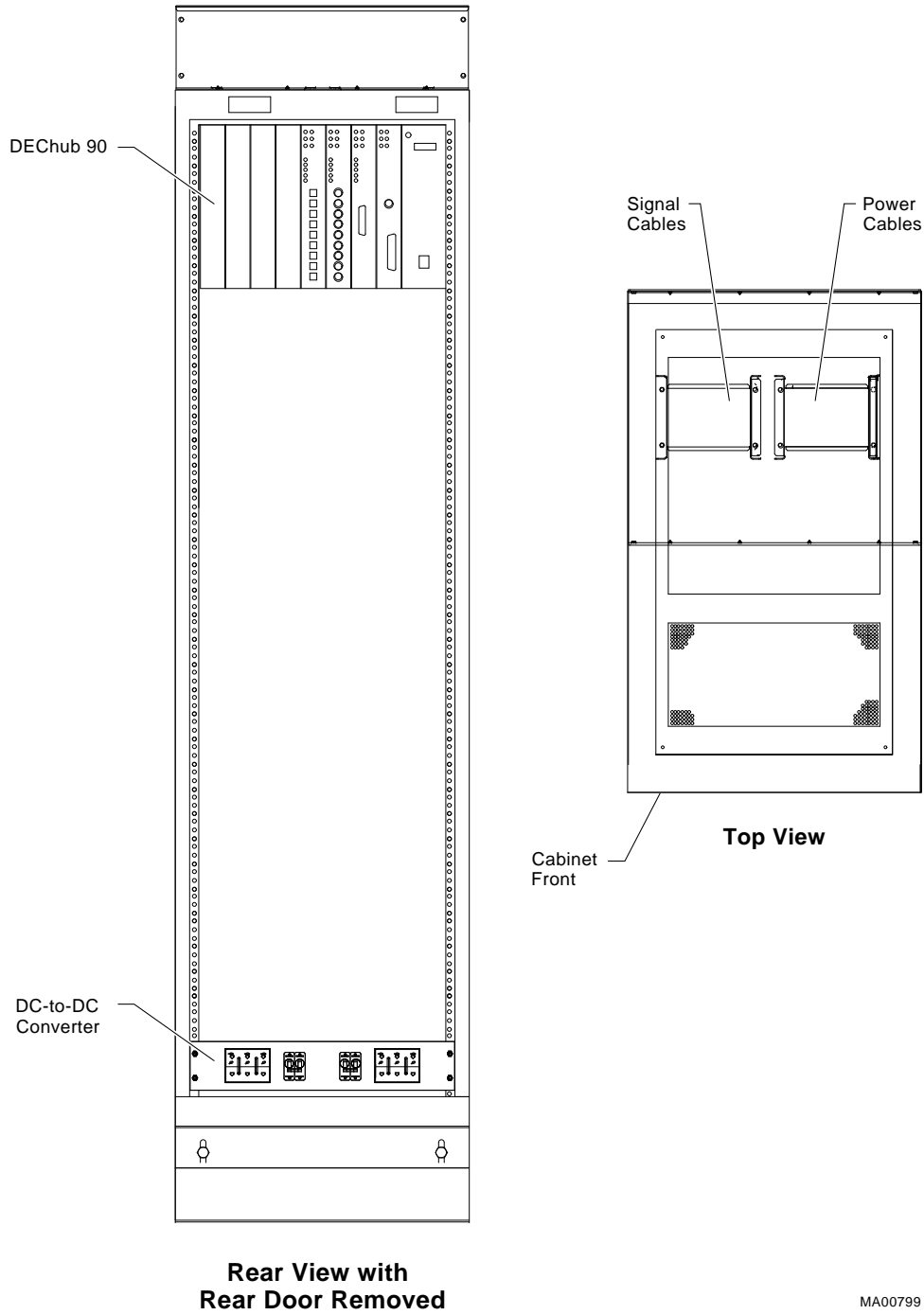**Figure E–3 IP Platform Duplex System (DC) Front and Side View**

7-Inch Blank Panel

7-Inch Blank Panel

BA3xx Storage
12 GB MAX

BA3xx Storage
12 GB MAX

DTP Expansion
Chassis & Alarms
120 Voice Port
and Options

DTP Expansion
Chassis & Alarms
120 Voice Port
and Options

AlphaServer

AlphaServer

7-Inch Blank Panel

Front View
with Door Removed
-DC Variation

Side View

ML011835

Figure E–4 IP Platform Duplex System (DC) Rear View

DEChub 90

DEChub 90

DC-to-DC
Converter

**Rear View with
Rear Door Removed**

Signal
Cables

Power
Cables

Cabinet
Front

Top View

MA00795

F

AlphaServer IP Platform Simplex System Diagrams

F.1 Introduction

This appendix contains diagrams of the AlphaServer Intelligent Peripheral (IP) Platform simplex system.

F.2 AlphaServer IP Platform Simplex Systems (AC)

This section contains the front, side, and rear views of the ac simplex platform.

Figure F–1 IP Platform Simplex System (AC) Front and Side View

Front View Panel
7-Inch Blank Panel
7-Inch Blank Panel
7-Inch Blank Panel

BA3xx Storage
12 GB MAX

7-InchBlankPanel

DTP Expansion
Chassis & Alarms
120 Voice Port
and Options

10.5-Inch Blank Panel

AlphaServer

7-Inch Blank Panel

Front View
with Door Removed
-AA,-AB Variation

Side View

ML011837

Figure F–2 IP Platform Simplex System (AC) Rear View

DEChub 90

Signal
Cables

Power
Cables

AC Power
Controller

Top View

Cabinet
Front

**Rear View with
Rear Door Removed**

MA00797

F.3 AlphaServer IP Platform Simplex Systems (DC)

This section contains the front, side, and rear views of the dc simplex platform.

Figure F–3 IP Platform Simplex System (DC) Front and Side View

7-Inch Blank Panel

7-Inch Blank Panel

7-Inch Blank Panel

BA3xx Storage
12 GB MAX

7-InchBlankPanel

DTP Expansion
Chassis & Alarms
120 Voice Port
and Options

10.5-Inch Blank Panel

AlphaServer

7-Inch Blank Panel

Front View
with Door Removed
-DC Variation

Side View

ML011836

Figure F–4 IP Platform Simplex System (DC) Rear View

DEChub 90

DC-to-DC
Converter

**Rear View with
Rear Door Removed**

Signal
Cables

Power
Cables

Cabinet
Front

Top View

MA00799

Glossary

10Base-T Ethernet network

The IEEE standard 802.3-compliant Ethernet products used for local distribution of data. These networking products characteristically use twisted-pair cable.

agent

A background task running on the object being managed. The agent responds to requests for information by the network management station (NMS). The agent is responsible for performing get and set operations, for generating the appropriate traps, and for controlling access.

AlphaServer system

Digital's new generation of server systems based on the Alpha 64-bit computing architecture.

ARC

Advanced RISC Computing (ARC) is the user interface to the console firmware for operating systems that expect firmware compliance with the Windows NT Portable Boot Loader Specification.

availability

The amount of scheduled time that a computing system provides application service during the year. Availability is typically measured as a percentage of up time per year.

backbone

A core network (usually high speed) to which multiple local area networks (LANs) are connected using bridges or brouters and over which internetwork traffic can pass.

backplane

The main module (board or panel) that connects all of the modules in a computer system.

boot device

The device from which the system bootstrap software is acquired.

boot

Short for bootstrap. To load an operating system into memory.

bridge

An intelligent, protocol-independent, store-and-forward device that operates as a Data Link layer relay. A bridge is used to connect similar or dissimilar local area networks (LANs). A collection of LANs connected by bridges is referred to as an extended LAN.

brouter

A bridge with minimal routing capabilities. In general, a brouter can deliver least-cost routing; some can also deliver minimal load balancing.

bus

A collection of many transmission lines or wires. The bus interconnects computer system components, providing a communications path for addresses, data, and control information or external terminals and systems in a communications network.

cache

A small, high-speed memory placed between slower main memory and the processor. A cache increases effective memory transfer rates and processor speed. It contains copies of data recently used by the processor and fetches several bytes of data from memory in anticipation that the processor will access the next sequential series of bytes.

CD–ROM

Compact disc read-only memory. The optical removable media used in a compact disc reader.

central processing unit (CPU)

The unit of the computer that is responsible for interpreting and executing instructions.

command line interface

One of two interfaces in the AlphaServer operator interface. The command line interface supports OpenVMS and Digital UNIX operating systems. It allows you to configure and test the system, examine and alter the system state, and boot the operating system.

console mode

The state in which the system and the console terminal operate under the control of the console program.

console subsystem

The subsystem that provides the user interface for a computer system when the operating system is not running.

console terminal

The terminal connected to the console subsystem. It is used to start the system and to direct activities between the user and the computer system.

CSU

Channel service unit. A device that terminates a digital channel on a customer's premises. It contains certain line conditioning and equalization functions, and responds to loopback commands sent from the central office.

daughterboard

A PC module that attaches to the component side of the host module.

diagnostic program

A program that finds and corrects problems with a computer system.

DSX-1

Digital Signal Cross-connect Level 1. Any equipment that supports a set of parameters for cross-connecting DS-1 (either T-1 or E-1) lines.

E-1

Another name given to the CEPT (Conference of European Postal and Telecommunications Administrations) digital telephony format. E-1 is a digital transmission channel that carries data at the rate of 2.048 Mb/s (DS-1 level).

ECC

Error correction code. The code and algorithms used by logic to facilitate error detection and correction.

EISA bus

Extended Industry Standard Architecture bus. A 32-bit industry-standard I/O bus used primarily in high-end PCs and servers.

EISA Configuration Utility (ECU)

A feature of the EISA bus that helps you select a conflict-free system configuration and perform other system services. The ECU must be run whenever you change, add, or remove an EISA or ISA controller.

environment variables

The global data structures that can be accessed from console mode. The setting of these data structures determines how a system powers up, boots the operating system, and operates.

Ethernet

The IEEE 802.3 standard local area network.

firmware

The software code stored in hardware.

hub

A central device, usually in a star topology local area network (LAN), to which each network module is attached.

initialization

The sequence of steps that prepare the computer system to start. Initialization occurs after a system has been powered up.

Interrupt request lines (IRQs)

The bus signals that connect an EISA or ISA module (for example, a disk controller) to the system so that the module can get the system's attention by means of an interrupt.

ISA

Industry Standard Architecture. An 8-bit or 16-bit industry-standard I/O bus, widely used in personal computer products. The EISA bus is a superset of the ISA bus.

LAN

Local area network. A high-speed network that supports computers connected over limited distances.

light-emitting diode (LED)

An indicator of status on an IP subsystem.

MAC (media access control) address

A unique 48-bit binary number (usually represented as a 12-digit hexadecimal number) encoded in a device's circuitry to identify it on a local area network.

Maintenance Operations Protocol (MOP) session

A logical connection using the Maintenance Operations Protocol (MOP).

mass storage device

An input/output device on which data is stored. Typical mass storage devices include disks, magnetic tapes, and CD–ROM.

module

A hardware or software component that is a self-contained system interacting with a larger system. Hardware modules are often made to plug into a main system.

network

A collection of computers, terminals, and other devices together with the hardware and software that enables them to exchange data and share resources over either short or long distances.

network management station (NMS)

A PC or workstation equipped with an Ethernet, FDDI, or Token Ring network module and HUBwatch software that enables it to communicate with and manage network modules.

network modules

Modular devices that provide network connectivity or services that can be installed in a DEChub backplane or used as standalone devices. Network modules include repeaters, concentrators, bridges, brouters, access servers, switches, and SNMP agents.

PCI

Peripheral component interconnect. An industry-standard expansion I/O bus that is the preferred bus for high-performance I/O options. PCI is available in a 32-bit version and a 64-bit version.

PCI-to-EISA bridge

The capability to transfer commonly available EISA and ISA options to the PCI bus.

protocol

A formal set of rules governing the format, timing, sequencing, and error control of exchanged messages on a data network.

RAID

Redundant arrays of independent disks. A technique that organizes disk data to improve performance and reliability. RAID has three attributes: it is a set of physical disks viewed by the user as a single logical device; the user's data is distributed across the physical set of drives in a defined manner; and redundant disk capacity is added so that the user's data can be recovered even if a drive fails.

redundant

Pertaining to duplicate or extra computing components that protect a computing system from failure.

reliability

The probability that a device or system will not fail to perform its intended functions during a specified time.

repeater

A level 1 hardware device that restores signal amplitude, waveform, and timing of signals before transmission to another network segment.

SBB

StorageWorks building block. The basic building block of the StorageWorks product line. Any device conforming to shelf mechanical and electrical standards installed in either a 3½-inch or 5¼-inch carrier is considered to be an SBB, whether it be a storage device, a power supply, or other device.

SCSI

Small Computer Systems Interface. An ANSI-standard interface for connecting disks and other peripheral devices to computer systems. Some devices are supported under the SCSI-1 specification; others are supported under the SCSI-2 specification.

server

A network node or specialized device that provides and manages access to shared network resources, such as hard disks, printers, and software.

SIMM

Single in-line memory module. A plug-in module that has RAM chips on one side, and an edge connector that matches a socket on the system module.

Simple Network Management Protocol (SNMP)

A high-level, standards-based protocol for network management, usually used in TCP/IP (Transmission Control Protocol/Internet Protocol) networks.

SNMP agent

An entity in a hardware device that executes SNMP requests.

SRM

The user interface to console firmware for operating systems that expect firmware compliance with the *Alpha System Reference Manual (SRM)*.

StorageWorks

Digital's modular storage subsystem (MSS), which is the core technology of the Alpha SCSI-2 mass storage solution. StorageWorks consists of a family of low-cost mass storage products that can be configured to meet current and future storage needs.

system disk

The device on which the operating system resides.

T-1

The digital telephony format used in North America. T-1 is a digital transmission link handling 24 voice conversations on two pairs of twisted wires.

Telnet

The TCP/IP standard protocol for remote terminal connections. Using Telnet, a user at one site can connect to a timesharing system at another site as if the user's terminal is connected directly to the remote machine.

terminal server

A module that allows a terminal to connect to a network node.

ThinWire

Ethernet cabling and technology used for local distribution of data communications. ThinWire cabling is thinner than thick wire cabling.

Transmission Control Protocol (TCP)

The transport protocol offering a connection-oriented transport service in the Internet suite of protocols.

Windows NT

The "new technology" operating system owned by Microsoft Corporation.

workgroup

A configuration that consists of a relatively small number of devices attached to a LAN that is isolated from the extended LAN backbone by a bridge or brouter.

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