Preparing for a System Installation

HR-04118-0C
CRAY T3E Air-Cooled Systems
Last Modified: June 1997

Figures

Tables

Record of Revision

April 1996

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Revision A: July 1996

This version incorporates changes to the equipment separation limits in Figure 2 and to the maximum power consumption specification for the CRAY T3E AC cabinet on page 17. All other versions of this document are obsolete.

Revision B: November 1996

This version incorporates the multiple-cabinet shipping information in the "Site Requirements" section; it adds Table 1, Figure 4, and Figure 5. All other versions of this document are obsolete.

Revision C: June 1997

The "Environmental Requirements" section on page 15 now includes a note about installation requirements that relate to the EMC Directive.

Figure 7 on page 20 and Figure 8 on page 20 contain updated information.

The "Summary" section on page 41 adds a Web site listing.

Overview

This document provides information that helps management and site preparation personnel prepare suitable environments for CRAY T3E air-cooled (AC) computer system installations. It includes site specifications and requirements that you may use as a guide during the site planning and preparation process.

Cray Research site planning representatives are available for site planning consultations; contact a site planning representative by telephone at +1 715 726 2820, by e-mail at *site@cray.com*, or at *http://site.cray.com* on the Web.

You should also discuss your site planning, preparation, and installation plans with your Cray Research account manager.

Use the following steps as a planning guide for your system installation:

1. Identify the space, power, and environmental requirements for the system.
2. Select a location for the system and identify any necessary modifications.
3. Prepare the site according to the guidelines in this publication. You may use the site planning checklist on page 39 as a guide.

System Configurations

The CRAY T3E AC computer system consists of a variety of standard and optional equipment. The configuration of each computer system depends on customer needs and requirements.

A standard CRAY T3E AC computer system consists of the following components:

- One to six CRAY T3E AC cabinets
- PC-10 peripheral cabinet(s)
- One system workstation (SWS)
- Other peripheral equipment

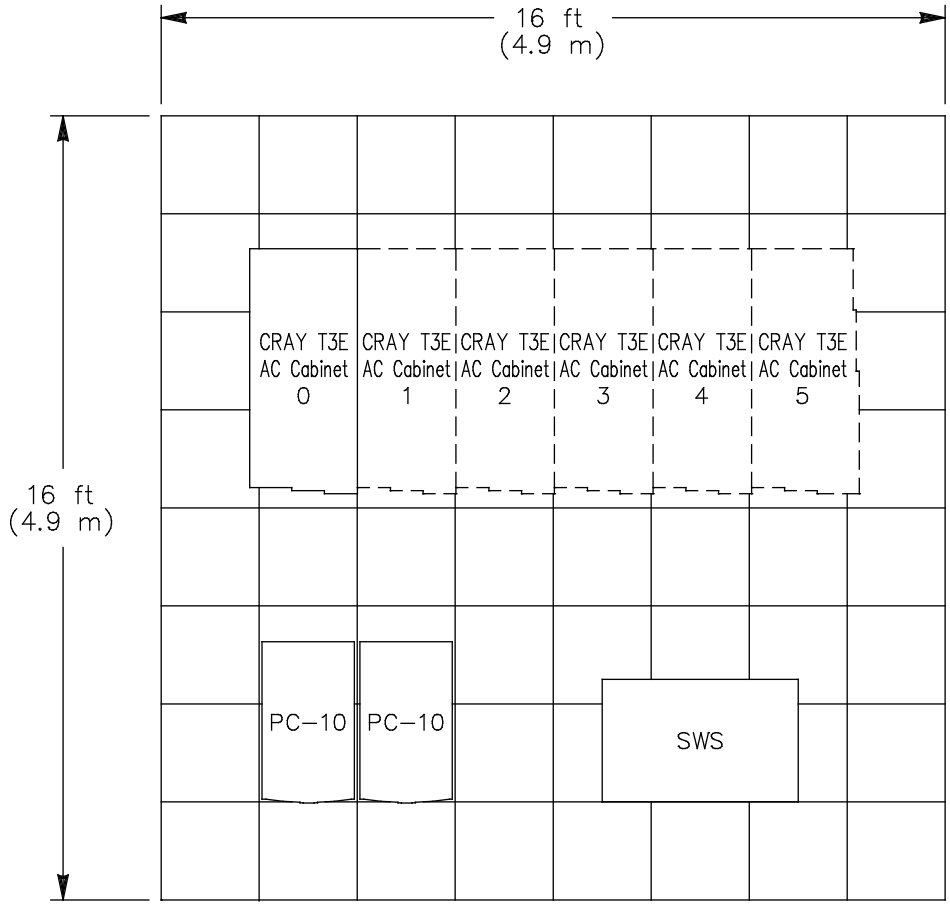
Each CRAY T3E AC cabinet contains power supplies, a fan blower assembly, a warning and control system, and processing elements (PEs). The processing elements in each CRAY T3E AC cabinet function either as support PEs or as user PEs. A single-cabinet configuration contains a maximum of 16 user PEs, a two-cabinet configuration contains a maximum of 40 user PEs, and a six-cabinet configuration contains a maximum of 128 user PEs.

Each CRAY T3E AC system also includes a minimum of one PC-10 cabinet. Each PC-10 cabinet contains an input power subrack and various air-cooled subracks that provide input/output and data storage capabilities for the CRAY T3E AC computer system. Examples of subracks contained in a PC-10 cabinet include the node subrack (NSR-1), the multipurpose node (MPN-1) subrack, the disk subsystem fibre channel (DSF-1) subrack, the disk subsystem SCSI (DSS-1) subrack, and the fiber-optic extender (FOX-1).

The system workstation (SWS) consists of a SPARC® based Sun™ workstation that provides monitoring, diagnosis, control, and configuration management for Cray Research computer systems. You may order optional equipment for the SWS, such as an LP-7 laser printer and a table. Depending on your specific requirements, you may also order other optional peripheral equipment with the CRAY T3E AC system.

Figure 1 illustrates a typical computer room floor plan for a CRAY T3E AC computer system: a 16 ft x 16 ft (4.9 m x 4.9 m) floor with 24 in. x 24 in. floor panels.

Figure 1. Typical CRAY T3E AC Computer System Floor Plan

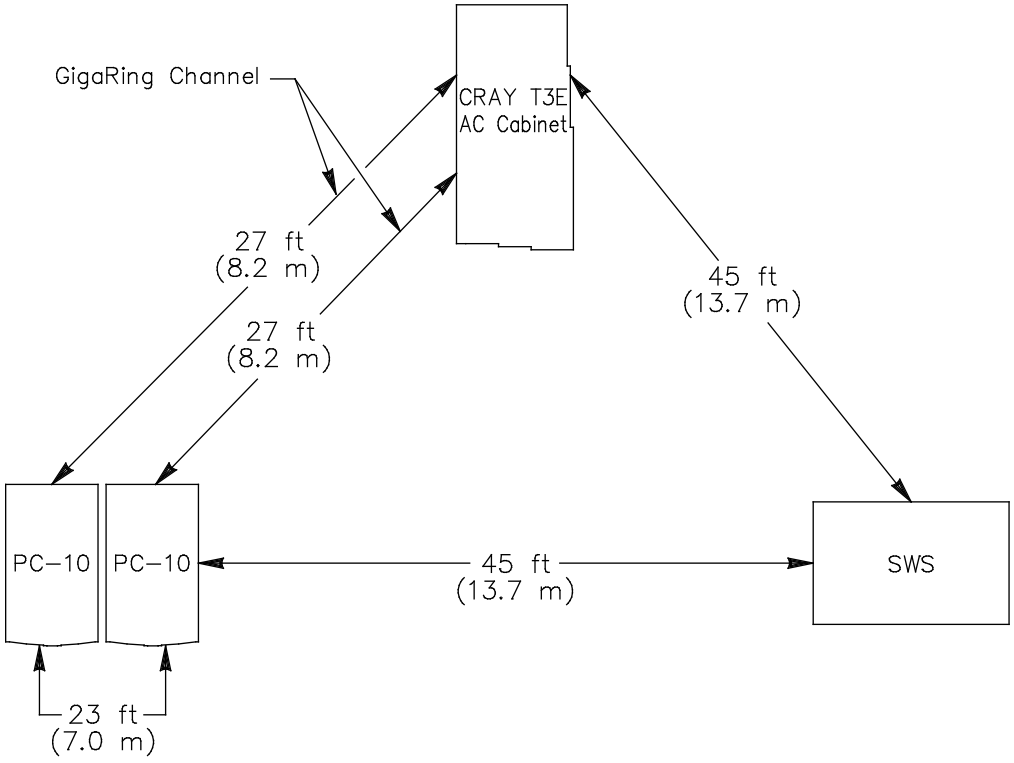


Equipment Separation Limits

Prior to any site preparation, the arrangement of computer equipment within the facility must meet certain placement and separation requirements. You should prepare drawings that illustrate the arrangement and location of the computer equipment; you may ask Cray Research site planning personnel for assistance with the drawings.

Figure 2 illustrates the maximum recommended equipment separation limits for a CRAY T3E AC computer system without optional cables or channel extenders. You may order optional cables that extend the maximum cable length between the CRAY T3E AC cabinet and the SWS to 90 ft (27.4 m). You may also order optional channel extenders that extend the maximum cable length between cabinets on the GigaRing™ channel to 656 ft (200 m). Contact your Cray Research account manager to order the optional cables and channel extenders.

Figure 2. CRAY T3E AC Computer System Equipment Separation Limits



Site Requirements

Use the following information to plan your access route and to meet the environmental and power requirements for your system.

Planning Your Access Route

The standard dock height for freight trailers in the USA is 48.00 in. (1219 mm) from the ground. If your dock is not the standard height, you must provide a forklift or other means to unload the system. The maximum access incline should not exceed 10 degrees (height:length = 1:6). If you have concerns about your site access route, contact a site planning representative by telephone at +1 715 726 2820 or by e-mail at *site@cray.com*.

Each single-cabinet shipping pallet for the CRAY T3E AC cabinet and the PC-10 cabinet comes with an attached ramp for system removal from the pallet. You must provide a pallet jack to move each CRAY T3E AC single-cabinet pallet and each PC-10 pallet to the system location.

If you order multiple CRAY T3E AC cabinets, the cabinets can be shipped in two different ways. The preferred way for multiple cabinets is to ship them on a multiple-cabinet pallet. A Cray Research-supplied ROL-A-LIFT must be used to move the multiple-cabinet pallet to the system location and to remove the system from the pallet. A multiple-cabinet system can also be shipped on single-cabinet pallets, if the access route will not accommodate a multiple-cabinet pallet. Please note, however, that a multiple-cabinet system that ships on single-cabinet pallets requires more installation time than a system that ships on a multiple-cabinet pallet.

Cray Research recommends that you leave each system cabinet on its shipping pallet until it reaches its final location. If the pallet does not fit through the planned access route because of limited doorway, corner, or elevator space, you might need to partially disassemble the pallet. Table 1 provides the CRAY T3E AC cabinet shipping specifications.

Table 1. CRAY T3E AC Cabinet Shipping Specifications

Number of CRAY T3E AC Cabinets	Shipping Specifications			
	Height	Width	Depth	Weight
One	77.50 in. (1969 mm)[a]	39.25 in. (997 mm)	74.00 in. (1880 mm)	1,640 lbs (744 kg)
Two	75.50 in. (1918 mm)[a]	63.75 in. (1619 mm)[b]	54.50 in. (1384 mm)[c]	3,000 lbs (1361 kg)[c]
Three	75.50 in. (1918 mm)[a]	63.75 in. (1619 mm)[b]	78.50 in. (1994 mm)[c]	4,400 lbs (1996 kg)[c]

[a] Add 1.00 in. (25 mm) for rolling height.

[b] If the front and rear doors and the lower protective board are removed, the width is reduced to 58.25 in. (1480 mm).

[c] Add 34.00 in. (864 mm) and 500 lbs (227 kg) if ROL-A-LIFTs are attached to the shipping pallet.

NOTE: A *maximum* of three CRAY T3E AC cabinets can ship on a multiple-cabinet pallet.

Figure 3 illustrates the shipping configuration of the single-cabinet CRAY T3E AC computer system. Refer to Table 1 on page 10 and to the "System Physical Specifications" on page 25 for more information about the computer cabinet.

Figure 3. CRAY T3E AC Single-cabinet Shipping Configuration

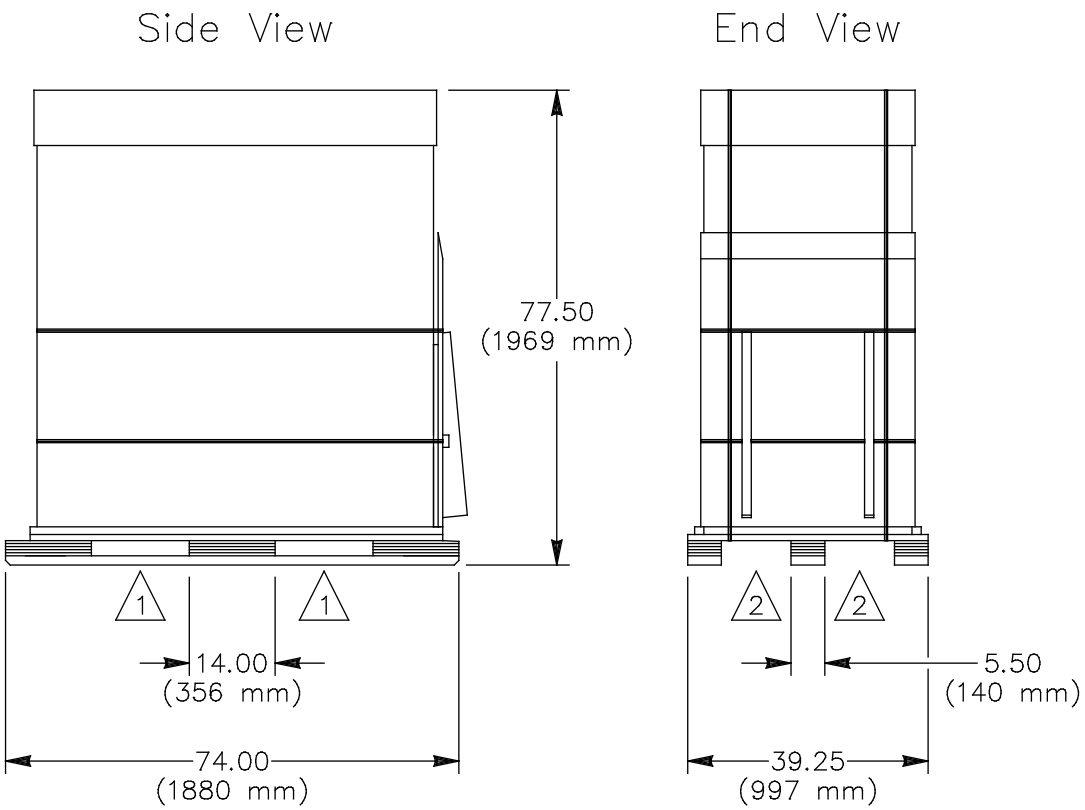


Figure 4 illustrates the shipping configuration of the two-cabinet CRAY T3E AC computer system. Refer to Table 1 on page 10 and to the "System Physical Specifications" on page 25 for more information about the computer cabinets.

Figure 4. CRAY T3E AC Two-cabinet Shipping Configuration

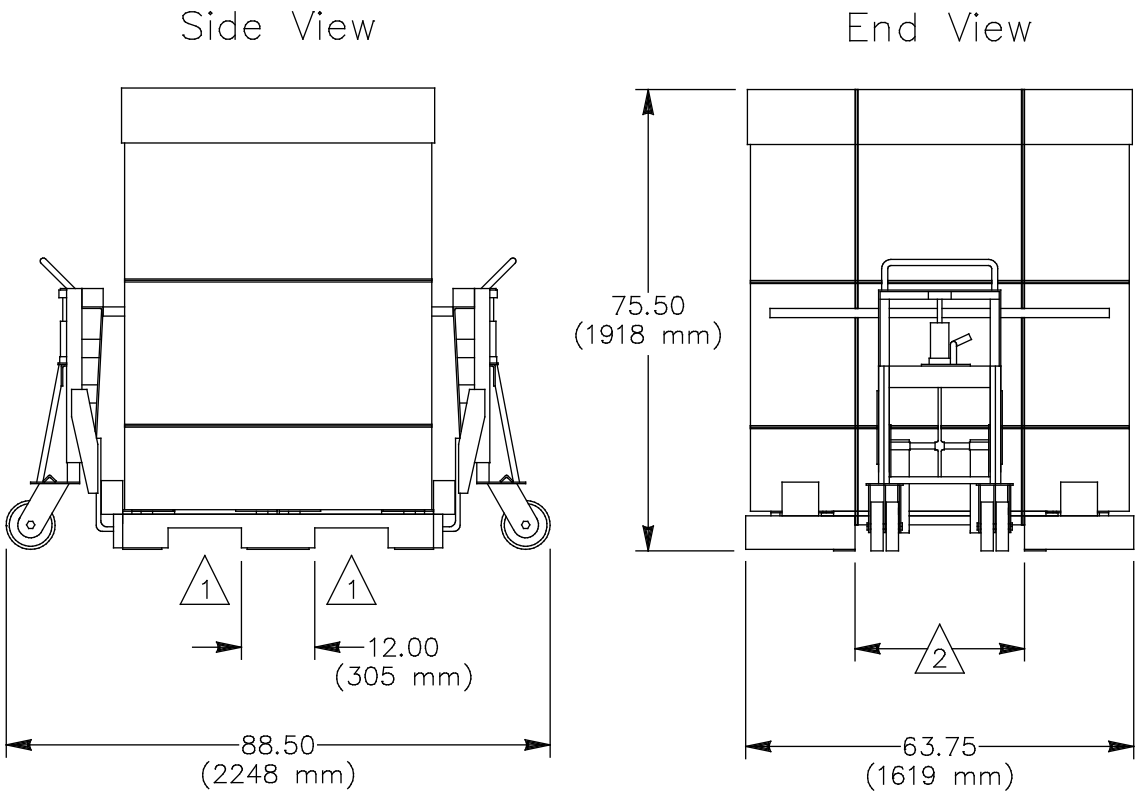
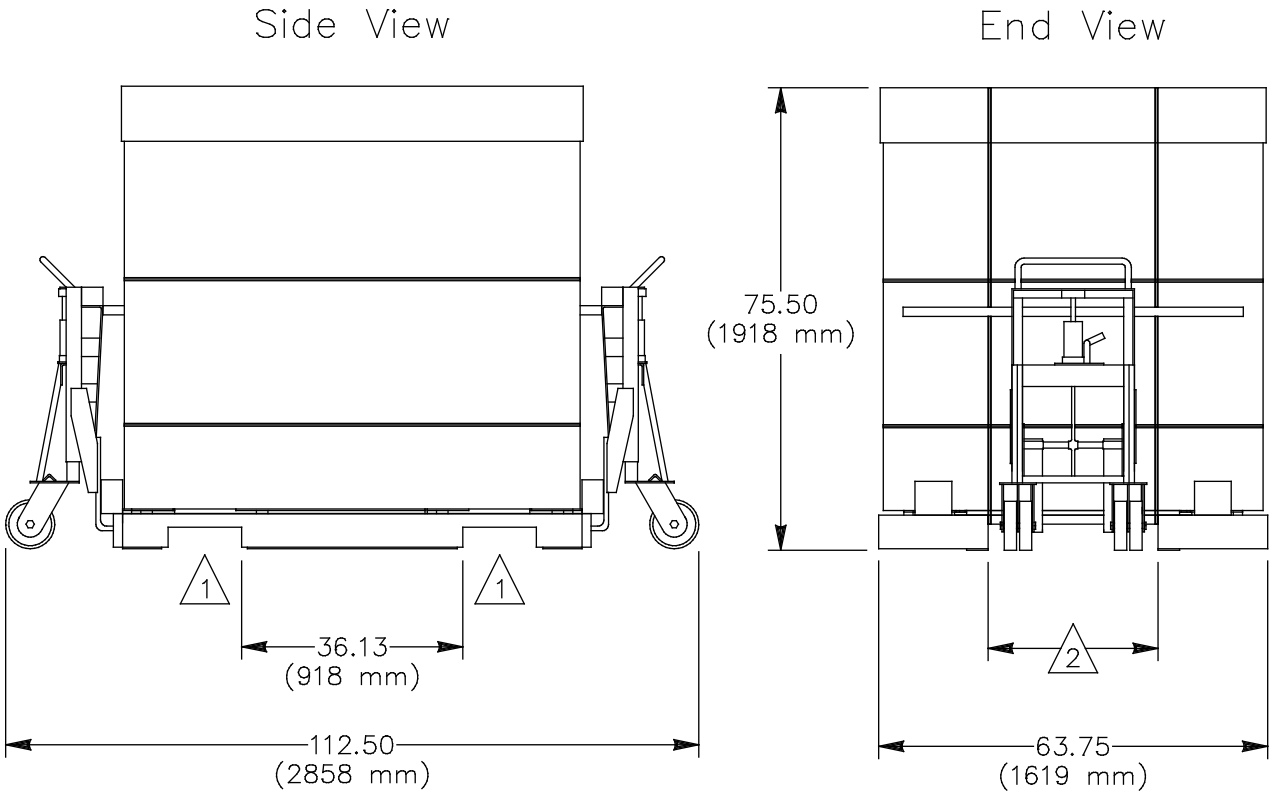


Figure 5 illustrates the shipping configuration of the three-cabinet CRAY T3E AC computer system. Refer to Table 1 on page 10 and to the "System Physical Specifications" on page 25 for more information about the computer cabinets.

Figure 5. CRAY T3E AC Three-cabinet Shipping Configuration

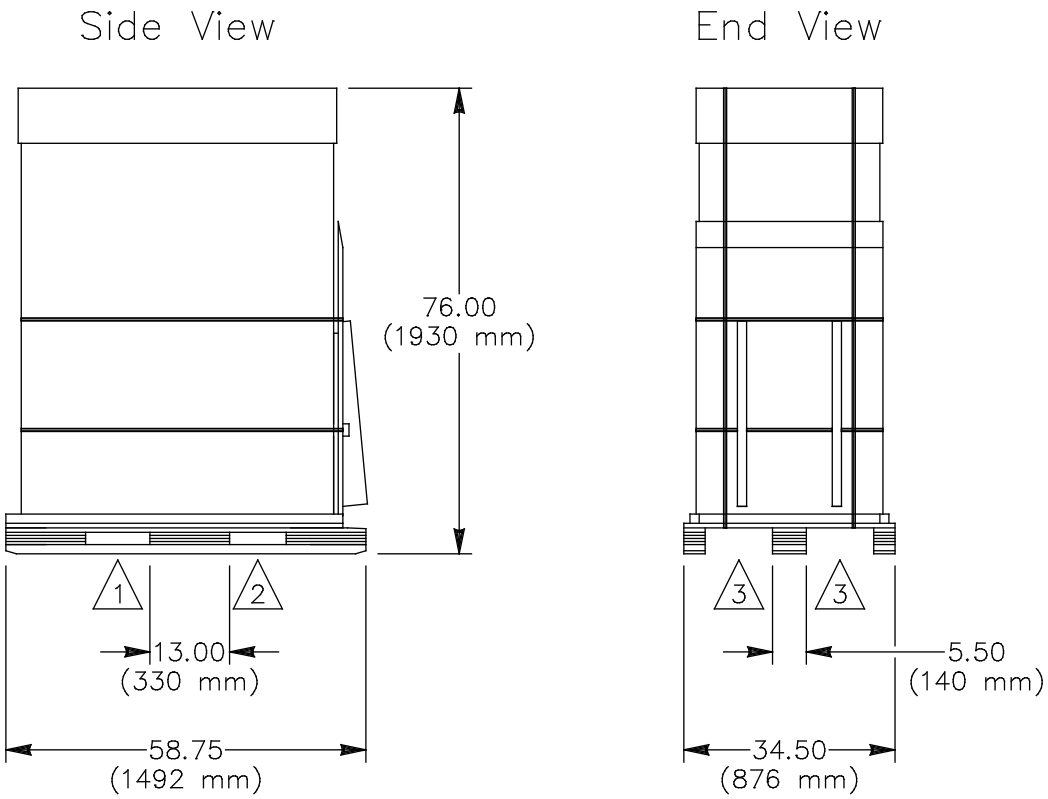


1 Lift opening 12.00 x 3.50 (305 mm x 89 mm)

2 Lift opening 27.75 x 4.25 (705 mm x 108 mm)

Figure 6 illustrates the shipping configuration of the PC-10 cabinet.

Figure 6. PC-10 Cabinet Shipping Configuration



1 Lift opening 10.50 x 2.00 (267 mm x 51 mm)

2 Lift opening 9.25 x 2.00 (235 mm x 51 mm)

3 Lift opening 11.00 x 4.25 (279 mm x 108 mm)

Environmental Requirements

You must design your environmental control system (such as computer room air-conditioning units) so that the intake air to the system meets the requirements specified in Table 2. Each system cabinet receives intake air through the front of the cabinet and exhausts heated air through the back of the cabinet. When you install the system, ensure that heated air from other equipment does not discharge toward the air intakes of the computer system cabinets. The equipment can overheat if heated exhaust air enters the front intake of the CRAY T3E AC or PC-10 cabinet.

If the system is significantly colder (a difference of 40 °F [22 °C] or more) than the environment in which you will install it, leave the system in its shipping crate (at its final destination) for 24 hours to prevent thermal shock and condensation.

NOTE: Based on the performed tests, the essential requirements of the EMC Directive have been met if this equipment is installed in an industrial area with less than 3V/m radiated disturbance.

Table 2. Environmental Requirements

Characteristic	Specification
Temperatures:	
Operating	60 to 86 °F (16 to 30 °C)
Temperature rate of change	Less than 10 °F (6 °C) per hour
Nonoperating	34 to 120 °F (1 to 49 °C)
Shipping	-40 to 140 °F (-40 to 60 °C)
Storage	34 to 120 °F (1 to 49 °C)
Relative Humidity:	
Operating	20% to 80% noncondensing
Nonoperating	20% to 80% noncondensing
Shipping	5% to 95% noncondensing
Storage	10% to 80% noncondensing
Altitude:	0 to 6,562 ft (0 to 2000 m)

Facility Power Requirements

Table 3 lists the power requirements for a single CRAY T3E AC cabinet, a PC-10 cabinet, a system workstation, an optional laser printer (LP-7), a Microcom® modem, and an optional Telebit® NetBlazer® dial-up router.

Cray Research recommends that all power circuits that supply power to the CRAY T3E AC system originate from the same electrical distribution panel. Electrical work and installations must comply with applicable local, state, and national electrical codes.

Cray Research makes every effort to minimize the effects of power failures and interruptions to the hardware. Studies indicate that computer systems that are subject to repeated power interruptions and fluctuations experience higher component failure rates than systems with a stable power source. Cray Research encourages you to install a stable power source, such as an uninterruptible power system (UPS), to reduce the possibility of component failures. Cray Research can provide a UPS for your CRAY T3E AC system. For information about the UPS, contact your account manager.

Each CRAY T3E AC cabinet and PC-10 cabinet requires its own customer-supplied circuit breaker and receptacle. If you cannot obtain the proper receptacles, you may purchase them from Cray Research through your account manager.

Each piece of support equipment requires its own customer-supplied receptacle(s).

- The system workstation requires three customer-supplied receptacles.
- The laser printer (optional) requires one customer-supplied receptacle.
- The Microcom modem requires one customer-supplied receptacle.
- The NetBlazer router (optional) requires one customer-supplied receptacle.

Table 3. Facility Power Requirements

Electrical Service	Specification
Each CRAY T3E AC Cabinet Requires:	
Voltage	200 to 240 Vac +6% to -10%, 3 phase or 400 Vac +10% to -10%, 3 phase
Frequency	50 or 60 Hz ± 5%
Circuit breaker	200 to 240 Vac, 40 amp or 400 Vac, 20 amp
Maximum power consumption	5.00 kVA (4.75 kW) [a]
Hold-up time	60 milliseconds at full load
Total harmonic distortion (THD)	Less than 15% at full load
Power cable	4-ft (1.2-m) pluggable drop cord
Receptacle: North America and Japan International	 200 to 240 Vac, Hubbell® #460C9W, 60 amp [b] 400 Vac, Hubbell #532C6W, 32 amp [b]
Each Peripheral Cabinet (PC-10) Requires:	
Voltage	200 to 240 Vac +6% to -10%, 3 phase or 400 Vac +10% to -10%, 3 phase
Frequency	50 or 60 Hz ± 5%
Circuit breaker	200 to 240 Vac, 30 amp or 400 Vac, 20 amp
Maximum power consumption	5.26 kVA (5.00 kW) [a]
Hold-up time	16 milliseconds at full load
Total harmonic distortion (THD)	Configuration dependent
Power cable	8-ft (2.4-m) pluggable drop cord
Receptacle: North America and Japan International	 200 to 240 Vac, Hubbell #430C9W, 30 amp [b] 400 Vac, Hubbell #532C6W, 32 amp [b]

Table 3. Facility Power Requirements (continued)

Electrical Service	Specification
The System Workstation (SWS) Requires:	
Voltage	100 to 120 Vac or 200 to 240 Vac, single phase
Frequency	50 or 60 Hz ± 5%
Circuit Breaker	15 amp
Power consumption	590 watts
Power cable	8-ft (2.4-m) pluggable drop cord
Receptacles: North America and Japan (3 required) International (3 required)	 NEMA #5-15R or equivalent IEC309, single phase, 16 amp
The Optional Laser Printer (LP-7) Requires:	
Voltage	100 to 120 Vac or 200 to 240 Vac, single phase
Frequency	50 or 60 Hz ± 5%
Circuit breaker	15 amp
Power consumption	180 watts
Power cable	6-ft (1.8-m) pluggable drop cord
Receptacle: North America and Japan International	 NEMA #5-15R or equivalent IEC309, single phase, 16 amp
The Microcom Modem Requires:	
Voltage: North America	100 to 120 Vac, single phase
Frequency	60 Hz ± 5%
Circuit breaker	15 amp
Power consumption	10 watts
Power cable	6-ft (1.8-m) pluggable drop cord
Receptacle: North America	NEMA #5-15R or equivalent
The Optional NetBlazer Router Requires:	
Voltage	100 to 120 Vac or 200 to 240 Vac, single phase
Frequency	50 or 60 Hz ± 5%
Circuit breaker	15 amp
Power consumption	90 watts
Power cable	8-ft (2.4-m) pluggable drop cord
Receptacle: North America and Japan International	 NEMA #5-15R or equivalent IEC309, single phase, 16 amp

[a] Refer to a machine unit specification (MUS) for the actual power consumption. You can obtain an MUS from your site planning representative.

[b] The Hubbell connectors listed for these applications require an adapter to accept conduit. If you use conduit, you may substitute the following Hubbell connectors with back boxes: substitute Hubbell #460R9W for Hubbell #460C9W, Hubbell #532R6W for Hubbell #532C6W, and Hubbell #430R9W for Hubbell #430C9W.

Network Connections

Cray Research ships a 12-port, twisted-pair concentrator with at least one of the PC-10 cabinets in your system configuration. You may need to provide an Ethernet transceiver to match your network protocol to the system. The transceiver must support IEEE 802.3 and Ethernet version 2.0 specification and use the signal quality error (SQE) heartbeat feature. The available network interfaces for the system are Ethernet, FDDI, HIPPI, and asynchronous transfer mode (ATM).

NOTE: You must locate the SWS within 45 ft (13.7 m) of the CRAY T3E AC cabinet and the PC-10 cabinet if you use the standard 50-ft (15.2-m) Ethernet cable that Cray Research supplies.

The maintenance Ethernet network connects the quad Ethernet in the SWS to the concentrator in the PC-10 cabinet. Use the maintenance Ethernet network for maintenance only.

You may connect the customer Ethernet network directly to the twisted-pair connector on the SWS. However, if you wish to connect the customer Ethernet network with an AUI connection to the SWS, you must use an adapter cable (Cray Research part number 90395800 or Sun Microsystems, Inc. part number X981A). Refer to the remote support illustrations in the following subsection.

Remote Support

Remote support is an optional maintenance feature for your system. Cray Research support personnel use a modem as a data communication link to troubleshoot and maintain Cray Research computer systems. If site security regulations permit the use of a modem, contact the local telephone company well in advance of system delivery to arrange for installation of the appropriate telephone line. In the United States and Canada, you should install a public-switched dedicated data telephone line, such as a telephone, an X.25 pad, or an ISDN terminal adapter. Cray Research recommends that you install another telephone near the system for general use. For system installations outside the United States and Canada, please contact your account manager for the modem type and telephone line requirements. Figure 7 illustrates the remote support configuration with the Microcom modem.

If you order the optional Telebit NetBlazer router, your local Cray Research service representative completes a network request form prior to shipment. A Remote Support network administrator will then assign a registered Internet address. Remote Support administrators and Cray Research Service personnel install and configure the appropriate software on the Telebit NetBlazer router. Figure 8 illustrates the configuration with the Telebit NetBlazer dial-up router.

Figure 7. Remote Support, Modem-only configuration

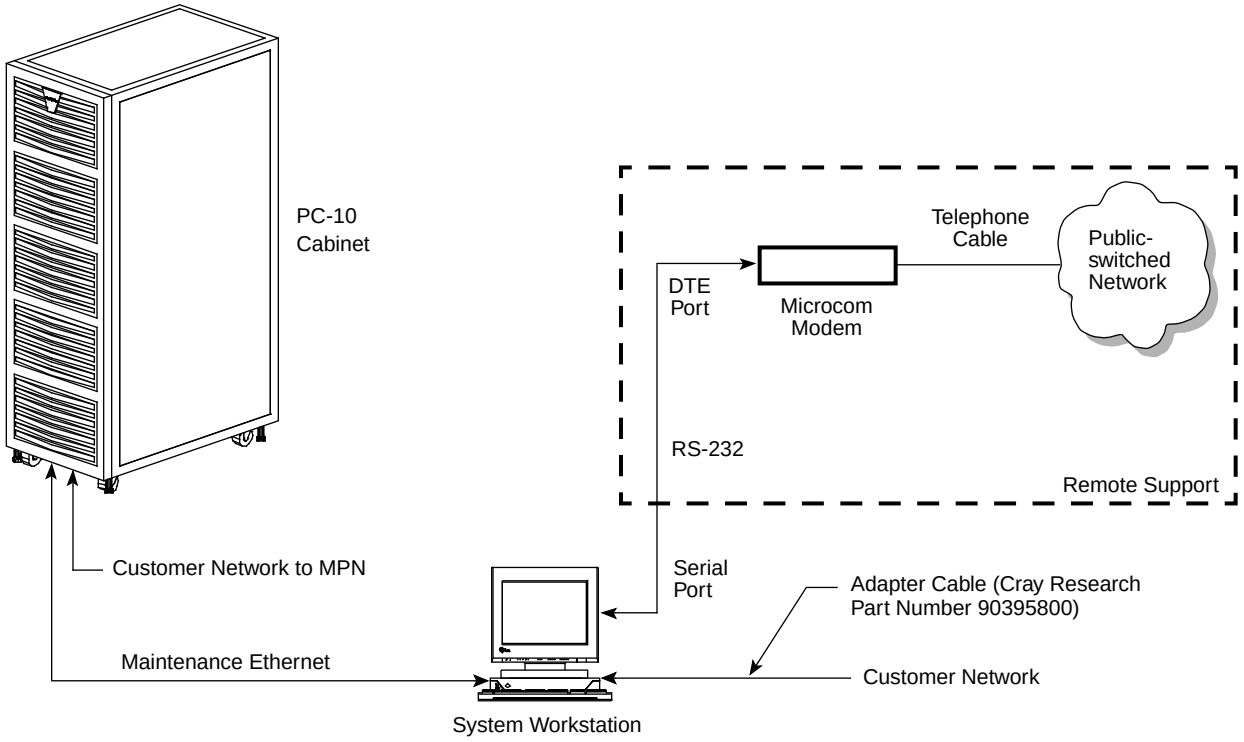
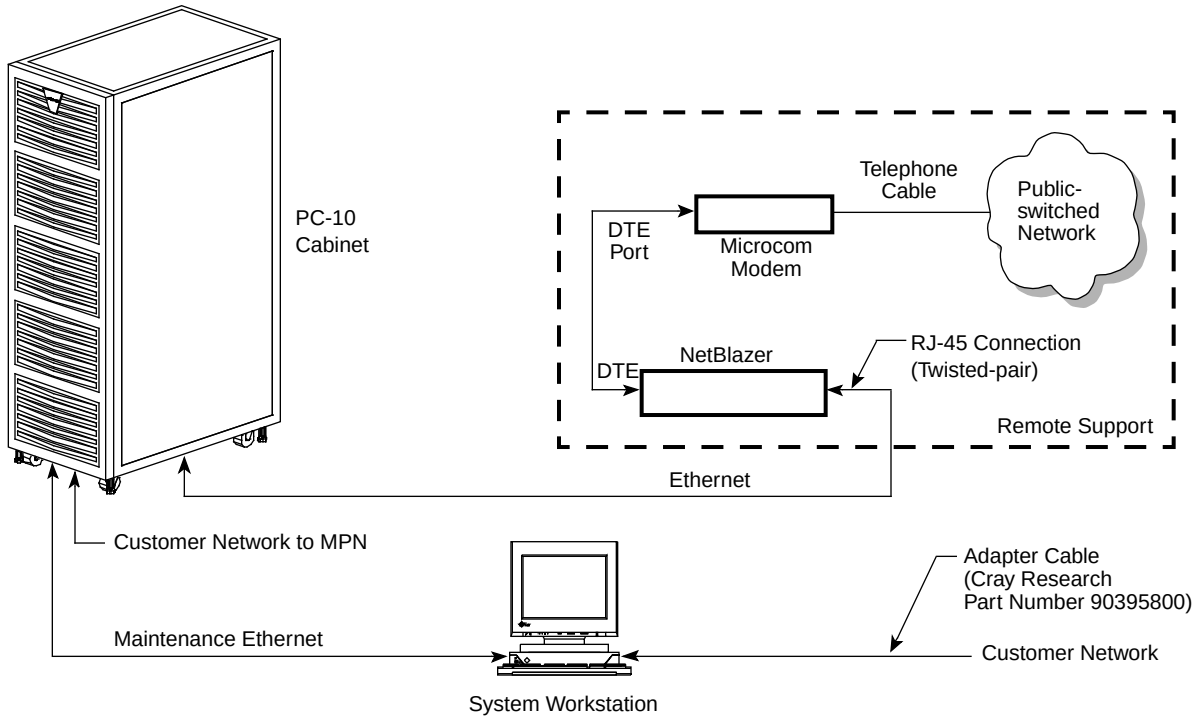


Figure 8. Remote Support, Optional NetBlazer Configuration



Raised-floor Installation

The CRAY T3E AC system does not require a raised-floor system. However, Cray Research recommends a raised-floor system because it provides convenient routes for underfloor air and for power and communication cabling. Cray Research recommends a minimum raised-floor height of 12.00 in. (305 mm).

The computer room floor must support the weight of all system cabinets in your configuration. Each cabinet rests on four casters that concentrate the weight of the cabinet on a small surface area. Each cabinet that you install on a raised floor requires floor cutouts. When you design your raised-floor system, place perforated floor panels or floor grilles near the base of the front of the cabinets, not directly under them. Figure 9 illustrates the floor cutouts for the CRAY T3E AC cabinet, and Figure 10 illustrates the floor cutout for the PC-10 cabinet.

Additional floor support pedestals increase the structural strength of the raised floor. If your computer site lies in an earthquake zone, you can secure the computer system components to the computer room subfloor for added stability. The CRAY T3E AC cabinet and the PC-10 cabinet each contain four threaded fastening points for stabilizing the cabinet.

If you have any questions about the structural capabilities of any floor, please contact a qualified structural engineer. If you do not install your system on a raised floor, Cray Research recommends that you install flat cable covers to protect cables from damage and computer room personnel from injury.

Figure 9. CRAY T3E AC Cabinet Floor Cutouts

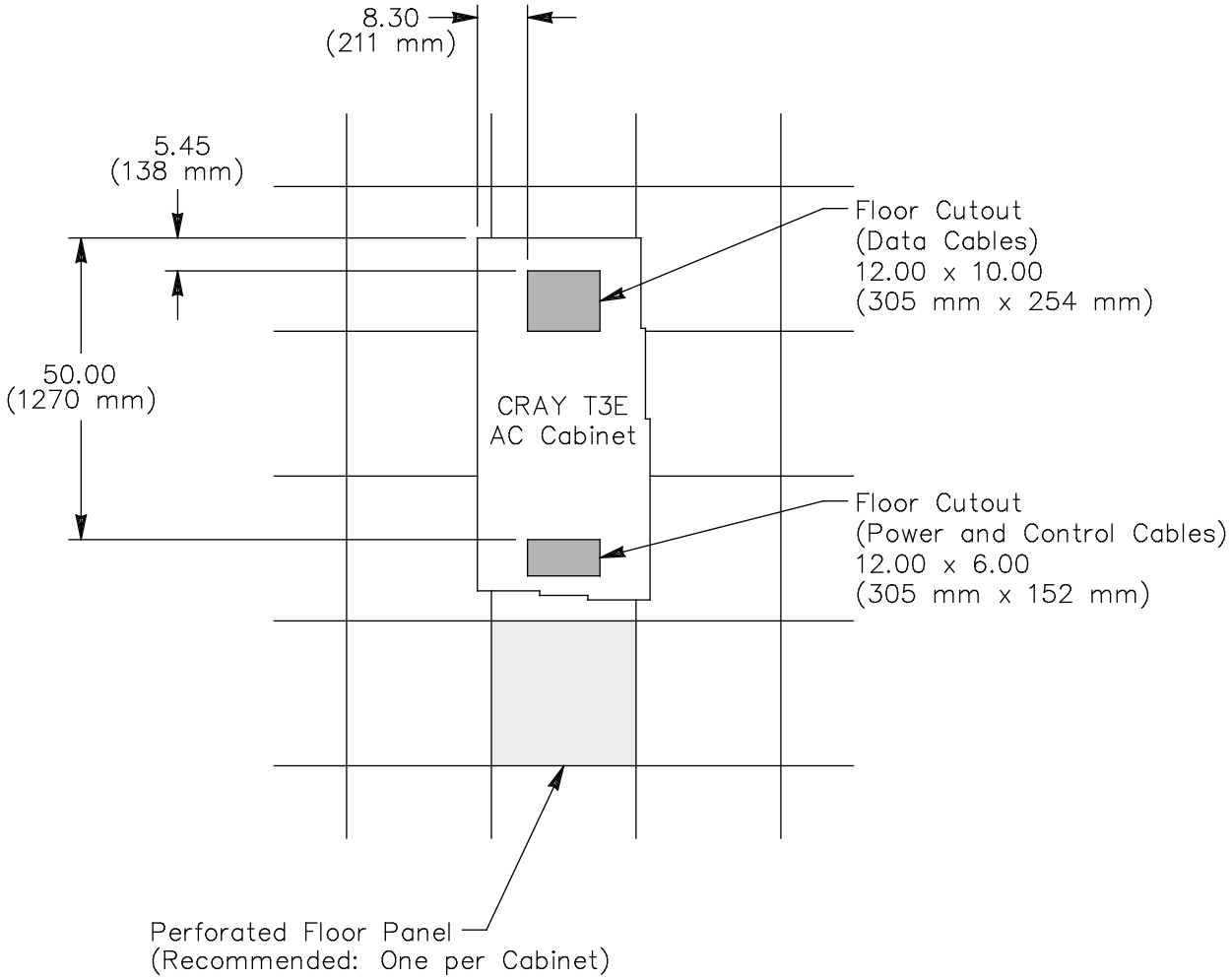
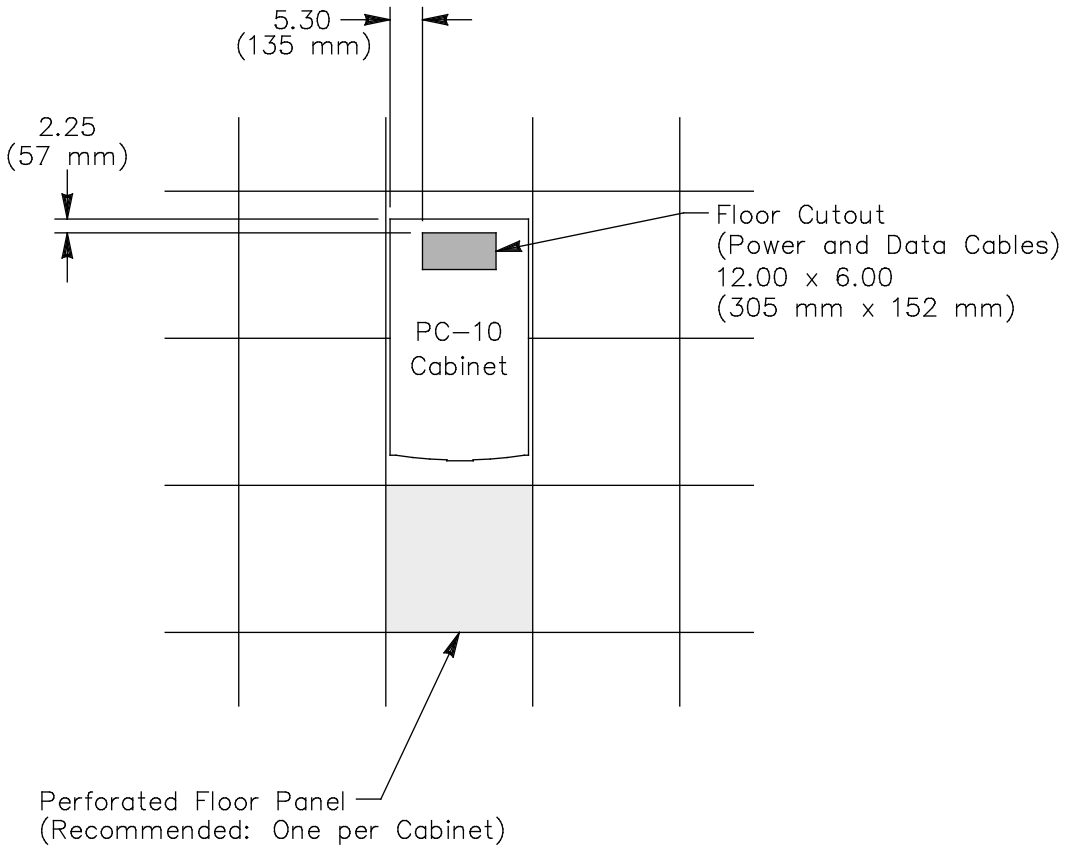


Figure 10. PC-10 Cabinet Floor Cutouts



System Physical Specifications

The CRAY T3E AC computer system consists of a variety of standard and optional equipment. Each cabinet or peripheral device and each system configuration has unique physical characteristics.

Table 4 provides the specifications for the CRAY T3E AC cabinet, PC-10 cabinet, system workstation (SWS), laser printer (LP-7), Microcom modem, and Telebit NetBlazer dial-up router. The following subsections describe the system components in detail.

NOTE: All specifications in Table 4 are per cabinet unless otherwise noted.

Table 4. CRAY T3E AC System Physical Specifications

Characteristic	Specification
CRAY T3E AC Cabinet	
Height	72.30 in. (1836 mm)
Width of cabinet configurations:	
One cabinet	28.65 in. (728 mm)
Two cabinets	52.75 in. (1340 mm)
Three cabinets	76.90 in. (1953 mm)
Four cabinets	101.00 in. (2565 mm)
Five cabinets	125.15 in. (3179 mm)
Six cabinets	149.25 in. (3791 mm)
Depth	60.05 in. (1525 mm)
Maximum operational weight	1,423 lbs (645 kg)
Maximum shipping weight:	
One cabinet	1,640 lbs (744 kg)
Two cabinets	3,000 lbs (1361kg)
Three cabinets	4,400 lbs (1996 kg)
Access requirement	36.00 in. (914 mm) front and back
Acoustical noise level	58 dBa at 3.3 ft (1 m)
Maximum heat dissipation to air	16.21 kBtu/hr (4.75 kW) [a]
Cooling requirement	Ambient air
Maximum airflow	1500 CFM (0.71 m^3/s)

Table 4. CRAY T3E AC System Physical Specifications (continued)

Characteristic	Specification
PC-10 Cabinet	
Height	70.20 in. (1783 mm)
Width	22.60 in. (574 mm)
Depth	39.50 in. (1003 mm)
Maximum operational weight	951 lbs (431 kg)
Maximum shipping weight	1,116 lbs (506 kg)
Access requirements	36.00 in. (914 mm) front and back
Acoustical noise level	67 dBa at 3.3 ft (1 m)
Maximum heat dissipation to air	17.06 kBtu/hr (5.00 kW) [a]
Cooling requirement	Ambient air
Maximum airflow	2700 CFM (1.27 m^3/s)
System Workstation	
Height	19.85 in. (504 mm)
Width	30.00 in. (762 mm)
Depth	25.50 in. (648 mm)
Weight	79 lbs (36 kg)
Cooling requirement	Ambient air
Heat dissipation to air	2,010 Btu/hr
Optional Laser Printer	
Height	6.50 in. (165 mm)
Width	14.00 in. (356 mm)
Depth	14.50 in. (368 mm)
Weight	16 lbs (7 kg)
Cooling requirement	Ambient air
Heat dissipation to air	610 Btu/hr
Microcom Modem	
Height	1.00 in (25 mm)
Width	4.25 in. (108 mm)
Depth	5.20 in. (132 mm)
Weight	1 lb (0.5 kg)
Cooling requirement	Ambient air
Heat dissipation to air	30 Btu/hr

Table 4. CRAY T3E AC System Physical Specifications (continued)

Characteristic	Specification
Optional NetBlazer Router	
Height	2.40 in. (61 mm)
Width	8.50 in. (216 mm)
Depth	13.00 in. (330 mm)
Weight	4 lbs (1.8 kg)
Cooling requirement	Ambient air
Heat dissipation to air	90 Btu/hr

[a] Refer to a machine unit specification (MUS) for the actual power consumption. You can obtain an MUS from your site planning representative.

CRAY T3E AC Cabinet

The CRAY T3E AC system can contain a single cabinet or multiple cabinets; a maximum configuration contains six CRAY T3E AC cabinets. A single-cabinet configuration contains a maximum of 16 user processing elements (PEs), a two-cabinet configuration contains a maximum of 40 user PEs, and a six-cabinet configuration contains a maximum of 128 user PEs. Each cabinet includes casters for mobility and leveling pads for stability. The power drop cord is located in the front, and the system modules can be accessed from the rear of each CRAY T3E AC cabinet. Figure 11 illustrates the minimum cabinet configuration, and Figure 12 illustrates the maximum cabinet configuration.

Figure 11. CRAY T3E AC Minimum Cabinet Configuration (1 cabinet)

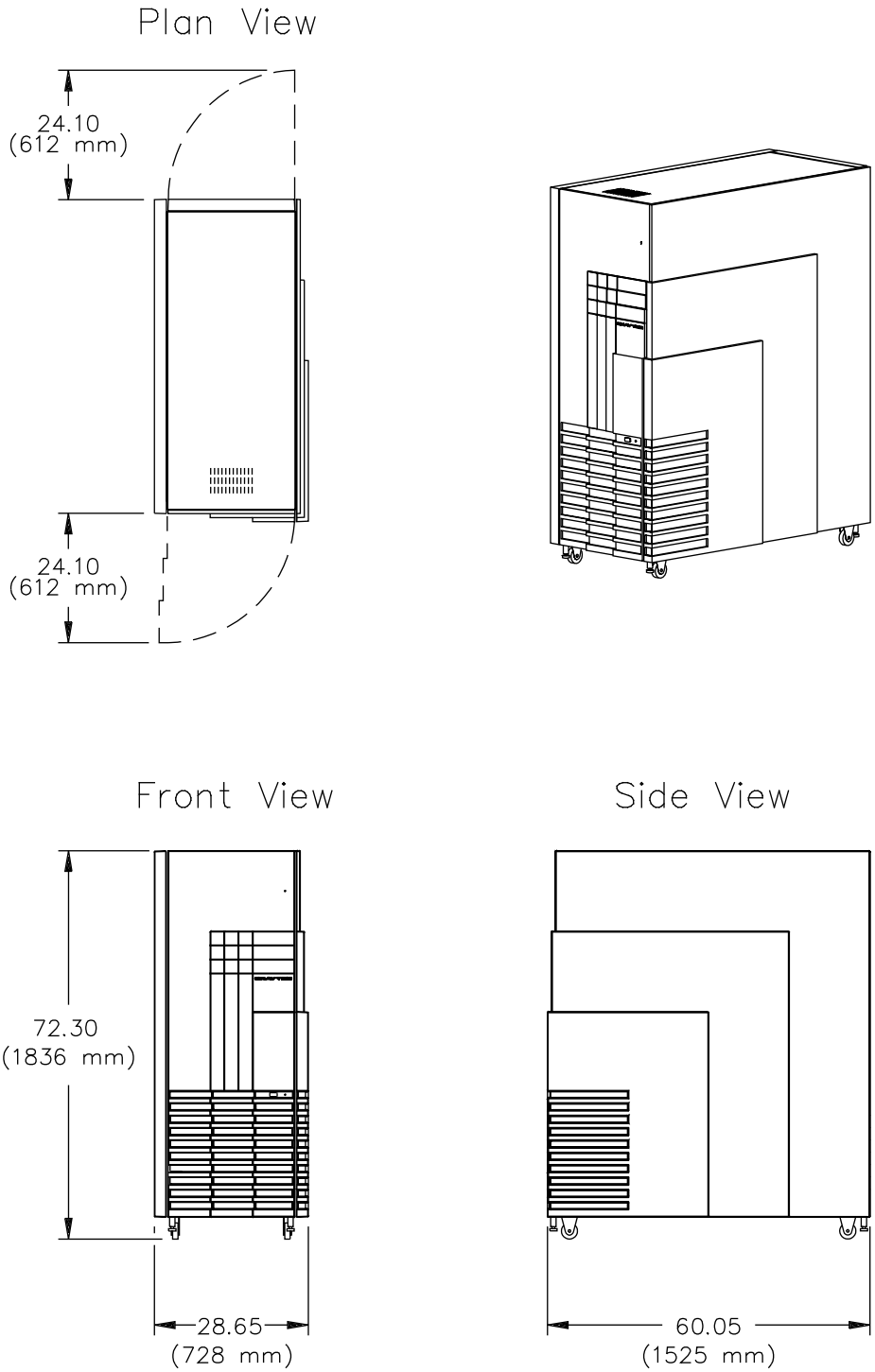
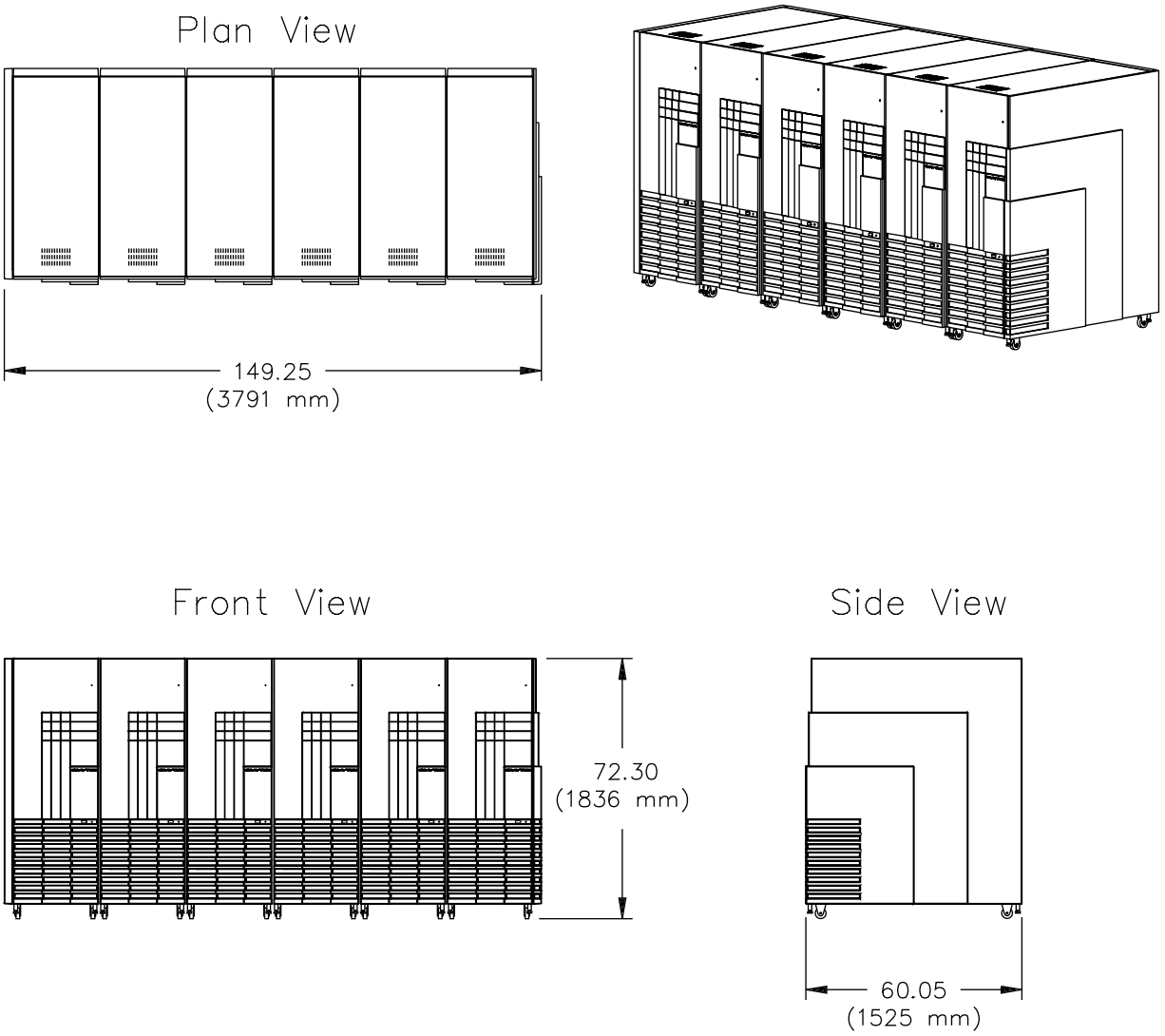


Figure 12. CRAY T3E AC Maximum Cabinet Configuration (6 cabinets)



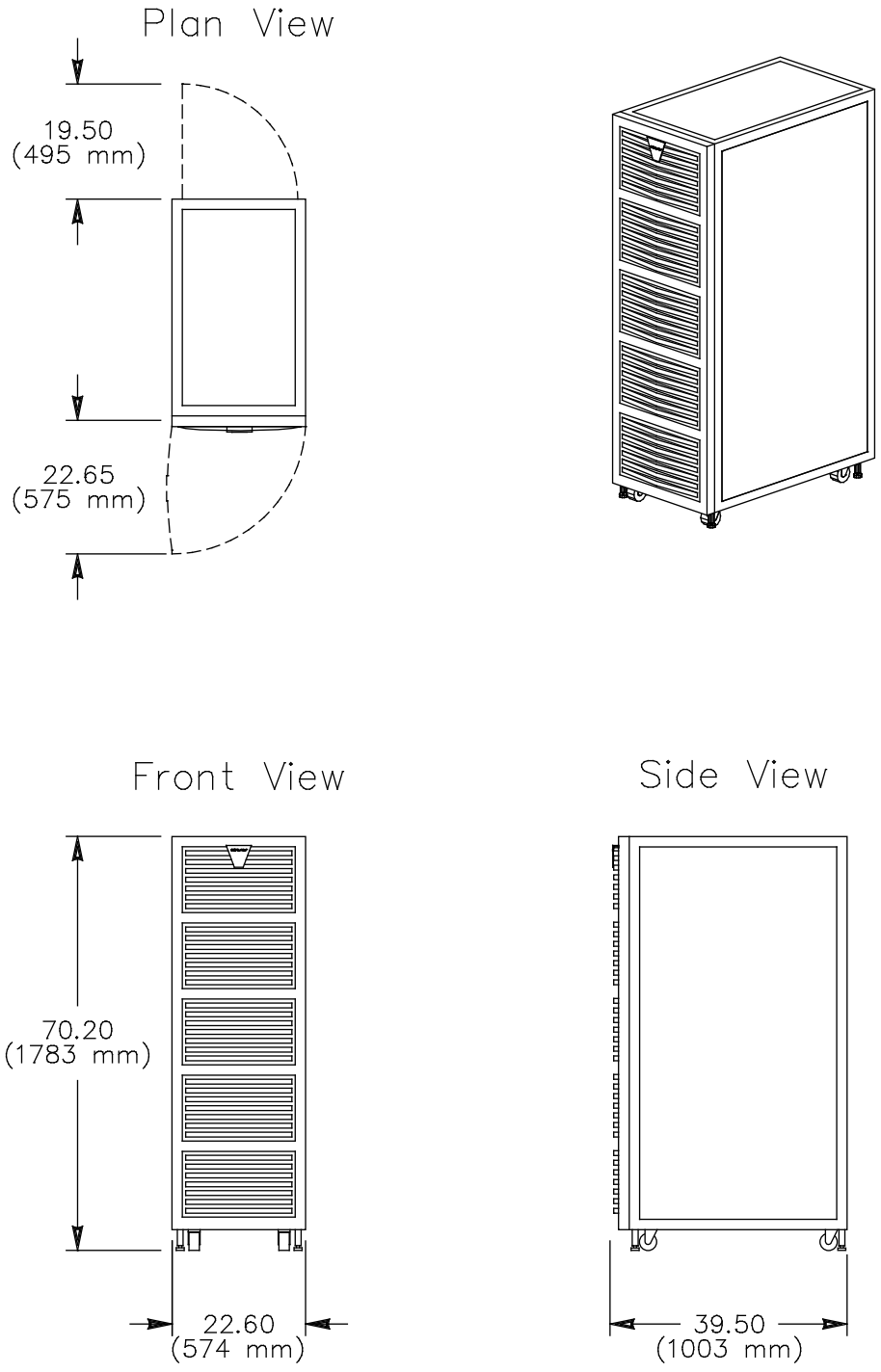
Peripheral Cabinet (PC-10)

Each CRAY T3E AC system includes a minimum of one PC-10 cabinet. Each PC-10 cabinet contains an input power subrack and various air-cooled subracks that provide input/output and data storage capabilities. The input/output subracks network the CRAY T3E AC computer system, customer devices, user workstations, peripheral controllers, and various industry-standard communication channels. Depending on your peripheral requirements, the PC-10 cabinet can contain any combination of the following subracks:

- Node subrack (NSR-1)
- Multipurpose node (MPN-1)
- Disk subsystem fibre channel (DSF-1)
- Disk subsystem SCSI (DSS-1)
- Fiber-optic extender (FOX-1)
- Ethernet concentrator
- Micro Annex™ communications server

Figure 13 illustrates the PC-10 cabinet.

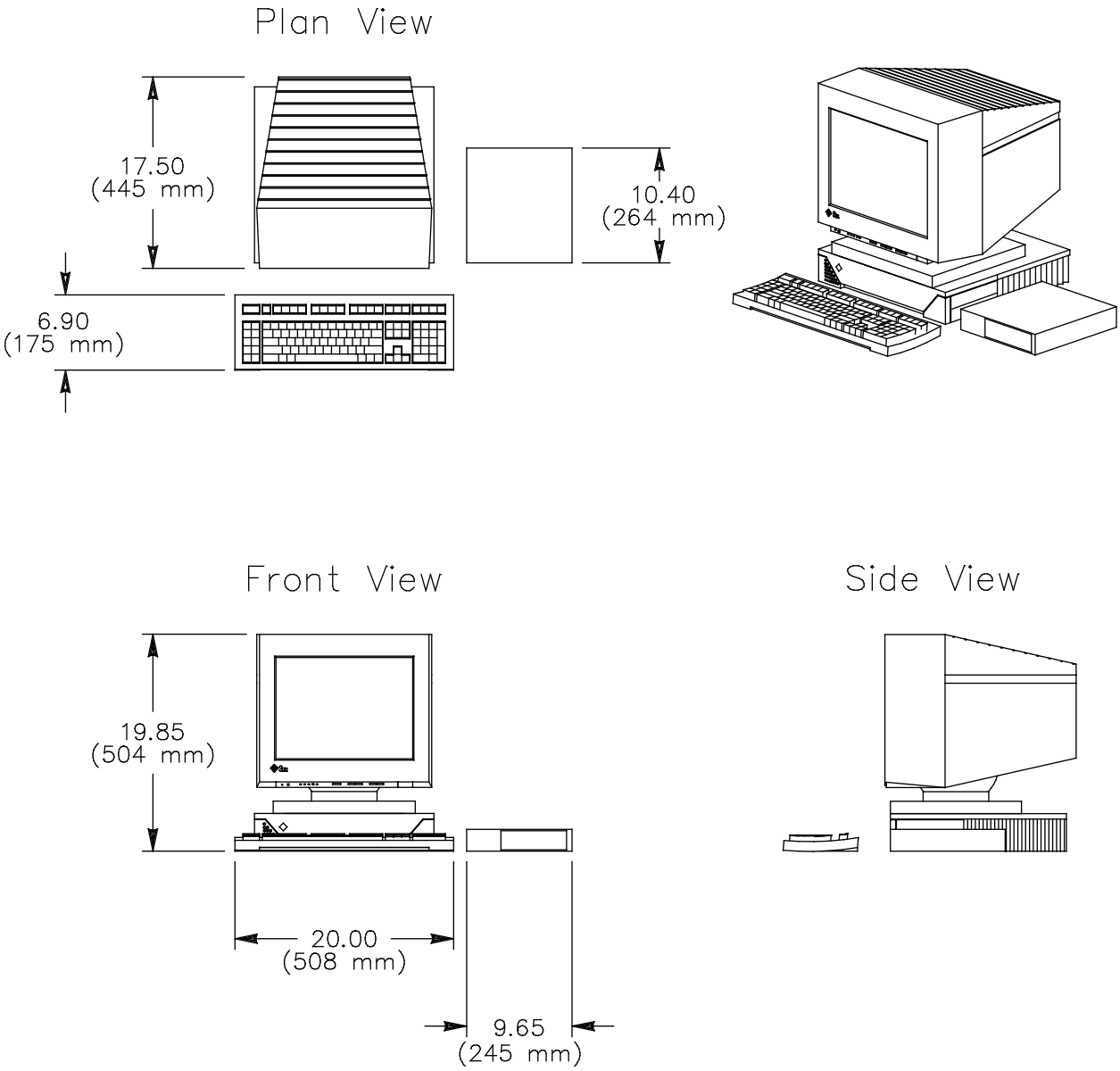
Figure 13. PC-10 Cabinet



System Workstation

The system workstation (SWS) is a SPARC based Sun workstation that provides monitoring, diagnosis, control, and configuration management for the CRAY T3E AC computer system. Cray Research offers an optional 30 in. x 48 in. (762 mm x 1219 mm) table that you may order for the SWS. Refer to Table 4 for the SWS specifications and to Figure 14 for an illustration of the SWS.

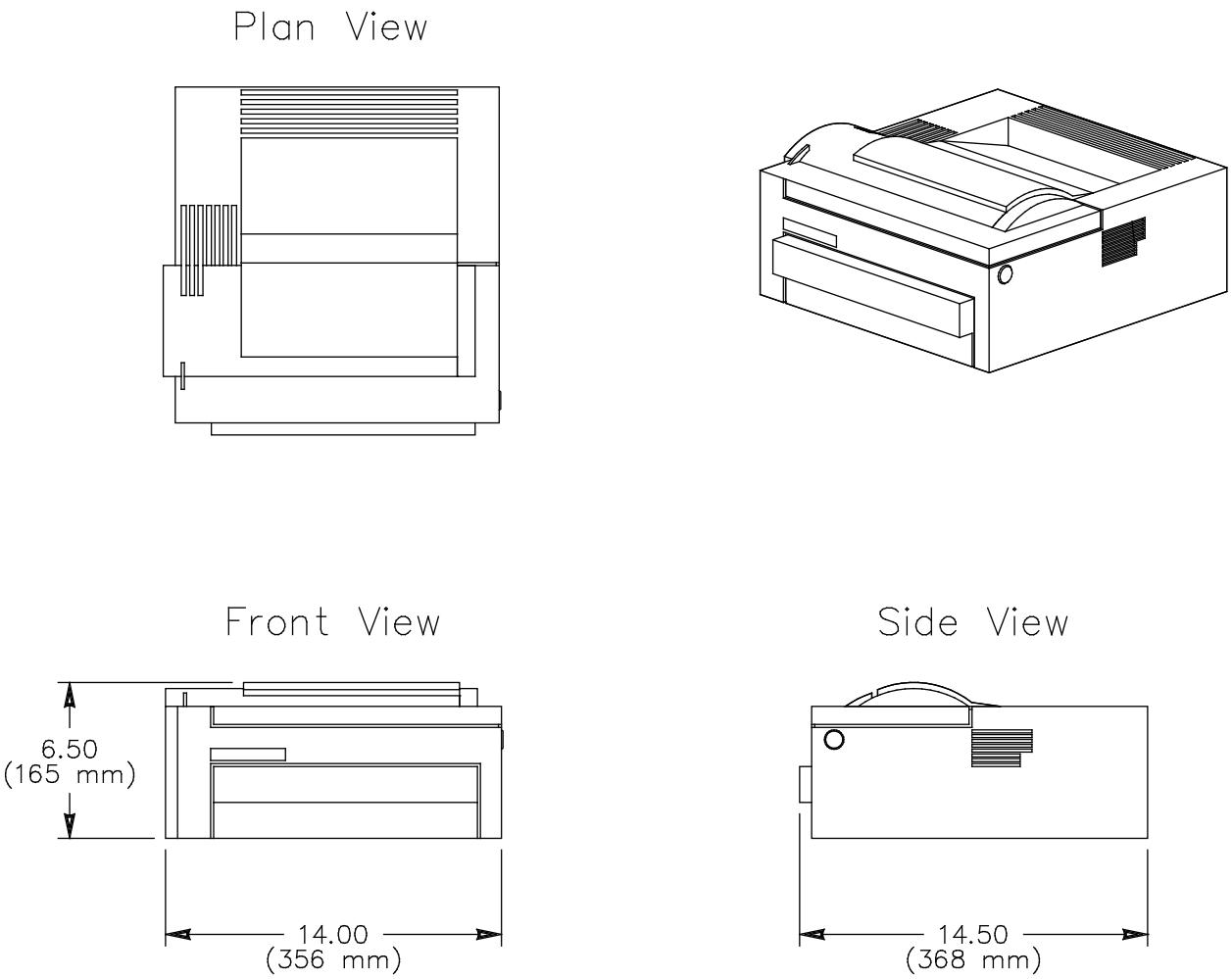
Figure 14. System Workstation (SWS)



Optional Laser Printer (LP-7)

The optional laser printer (LP-7) connects to the SWS. Figure 15 illustrates the LP-7 laser printer.

Figure 15. Optional Laser Printer (LP-7)



Refer to Table 3 for the power requirements of the optional laser printer (LP-7). Refer to Table 4 for the physical dimensions and cooling requirements of the optional laser printer (LP-7).

Microcom Modem

The CRAY T3E AC systems that are installed in North America use the Microcom DeskPorte™ 28.8S modem as the standard modem for remote support communications. The Microcom DeskPorte 28.8S offers V.fast data transfer at speeds nominally up to 28,800 bps with MNP® Class 10 Adverse Channel Enhancements® (ACE), and Dynamic Transmit Level Adjustment® (DTLA).

International sites and service centers should consult the Cray Research Remote Support Administrator assigned to their country for the appropriate model of modem. Contact your account manager to obtain the name of your Remote Support Administrator.

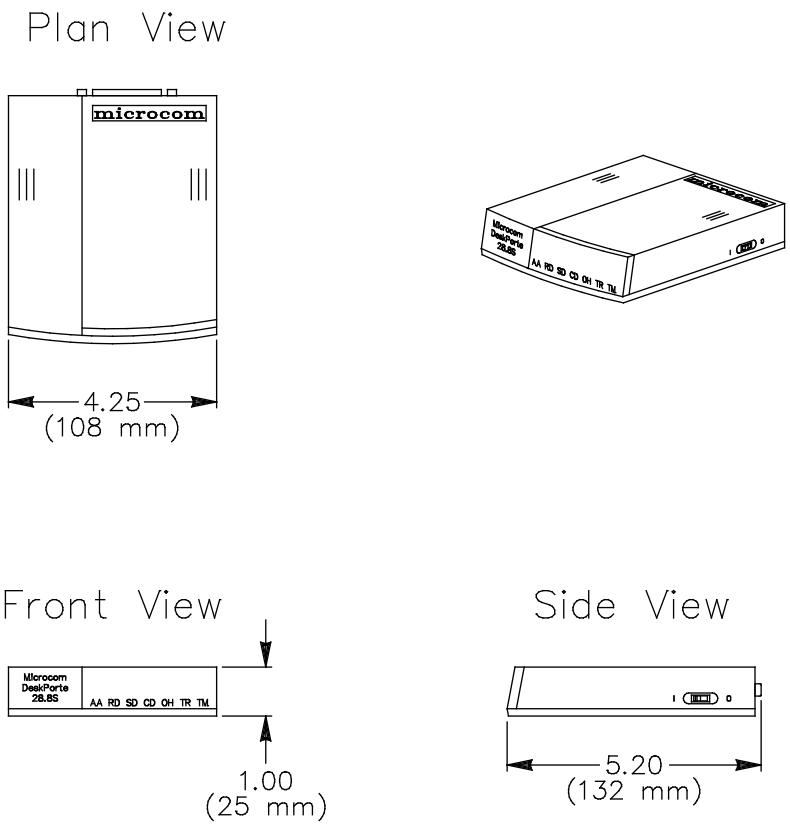
Telephone representatives might request information about the modem requirements. Refer to Table 5 for the modem requirements.

Table 5. Modem Requirements

Option	Specification
FCC registration number	CLB USA-75946-MME
Transmission rate	V.34/V.32/V.42bis (28,800 bps)
Telephone	Standard, with voice-grade line
Telephone connector	RJ11C
Line interface connector	RJ45S
Touch tone/rotary dial	Touch tone preferred
Ringer equivalence	0.8 Bd
External/internal clock	Internal
Grounding	Chassis ground to signal ground
Transmit level	Up to 115.2 kBps
Private/dial-up line	Dial-up line
Receive long space disconnect	Disabled
Transmit long space disconnect	Disabled
Data terminal ready disconnect	Enabled
Carrier fail disconnect	Enabled
Auto-answer/manual-answer	Auto-answer
Make busy in analog loopback	Disabled
Permanent/DTR controlled auto-answer	DTR controlled auto-answer
Synchronous/asynchronous	Asynchronous
9-bit/10-bit/11-bit character	10-bit character

Figure 16 illustrates the Microcom modem that enables remote support communications.

Figure 16. Microcom Modem



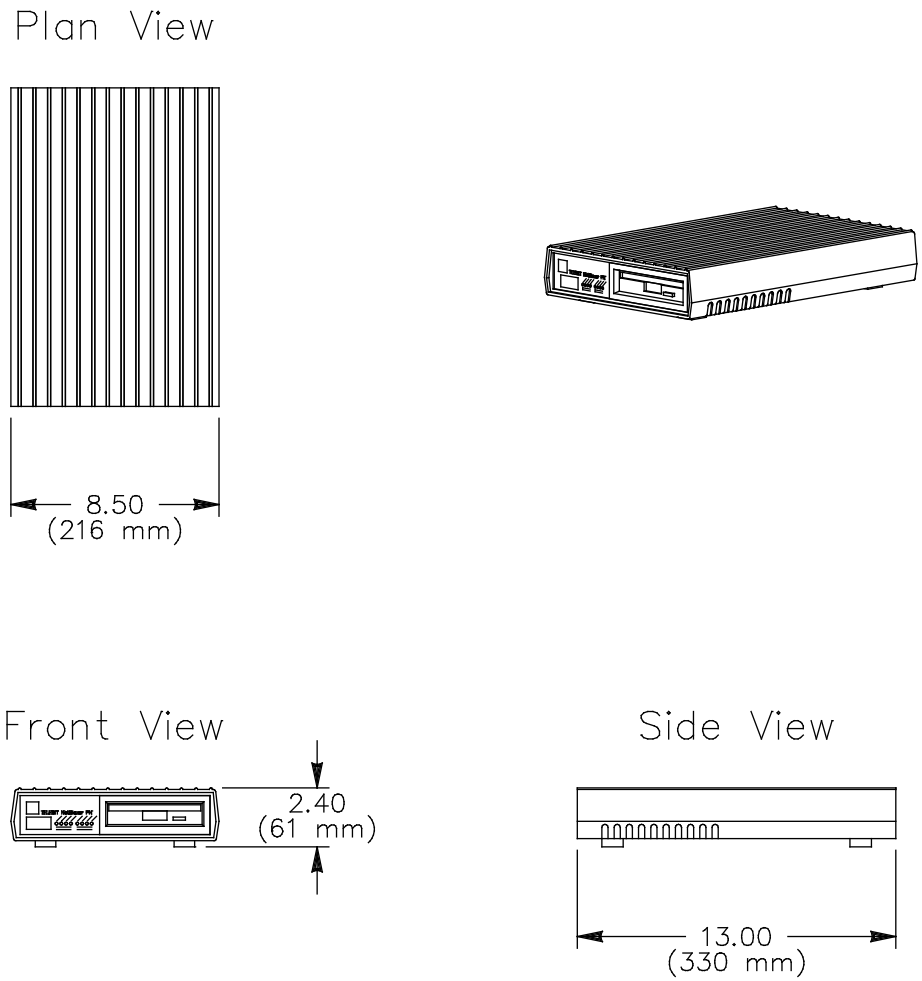
NetBlazer Dial-up Router

Cray Research uses the optional NetBlazer dial-up router model PN2 for remote hardware maintenance, system operation, and system monitoring. You may install the NetBlazer router with the CRAY T3E AC computer system for additional communication security. Table 6 lists the router specifications, and Figure 17 illustrates the NetBlazer dial-up router.

Table 6. NetBlazer Dial-up Router Specifications

Characteristic	Specification
Height	2.40 in. (61 mm)
Width	8.50 in. (216 mm)
Depth	13.00 in. (330 mm)
Weight	4 lbs (1.8 kg)
LAN interface	Ethernet (AUI, BNC, 10BaseT), switch select
Input Voltage	Single phase, 100 - 120 or 200 - 240 Vac
Frequency	50 or 60 Hz
Maximum power requirement	25 watts
Power cable	8-ft (2.4-m) pluggable drop cord
Power receptacles: North America International	 NEMA #5-15R or equivalent IEC 309, single phase, 16 amp
Agency approvals	Safety: UL478, CSA C22.2, EN 60950 TUV VDE 805 Emissions: FCC ER9 USA-74674-MD-E EN55022, TUV Vfg 243

Figure 17. NetBlazer Dial-up Router



Site Planning Checklist

Table 7 provides a site planning checklist that you can use as an organizational tool during the site planning and preparation process. During the planning process, you might find additional preparation issues at your site that the checklist does not include. To discuss your site plans and to resolve these issues, contact a Cray Research site planning representative by one of the methods listed in the summary of this document.

Table 7. Site Planning Checklist

Yes	No	Planning Issue	Comments
		Have you determined the system configuration? Configuration:_____	
		Have you determined the installation date? Date:_____	
		What is the total number of system cabinets?	
		Have you established the system location?	
		Does the equipment floor layout meet the equipment maintenance access requirements?	
		Is the equipment positioned so that the exhaust air of one heat-rejecting device does not enter the air inlet of another?	
		Have you identified an access route to the final system location?	
		Does the access route meet the access requirements outlined on page 9?	
		Does the access route meet the floor-loading requirements for the system?	
		Have you made provisions to cover irregular or engraved floor patterns along the access route to reduce vibration of the system while moving it?	
		Will customer assistants be available to help Cray Research, Inc. personnel unload, unpack, and move the system during delivery?	
		Does your loading dock meet standard freight-carrier truck requirements? If not, have you allocated a forklift for delivery? Contact your site planning representative if you have concerns about your loading dock.	
		Is a pallet jack available on-site to move the system in its shipping crate to the final system location?	
		Do the pallet-jack fork dimensions meet the requirements for the shipping crate?	
		Are the elevator and elevator door dimensions adequate?	

Table 7. Site Planning Checklist (continued)

Yes	No	Planning Issue	Comments
		Is the elevator weight capacity adequate?	
		Does each ramp in the access route have an incline that is less than 10 degrees?	
		Has the operating voltage for the CRAY T3E AC cabinet(s) and PC-10 cabinet(s) been determined?	
		Have the power receptacles for the mainframe cabinet(s) and the PC-10 cabinet(s) been ordered?	
		Are the circuit breakers for all cabinets properly installed and labeled?	
		Are the power receptacles located within 2 ft (0.6 m) of each CRAY T3E AC cabinet and each PC-10 cabinet footprint? Are all receptacles properly installed and labeled?	
		Are the floor cutouts properly positioned and free of sharp edges?	
		Are the recommended perforated floor panels properly positioned?	
		Are the receptacles for the optional router, modem, or peripherals properly wired, positioned, and labeled?	
		Have a table and chair been provided for the system workstation?	
		Is the system workstation located within 45 ft (13.7 m) of the PC-10 cabinet to meet the standard cable-length requirement?	
		Is the computer room floor rated for the system floor loading?	
		Can the computer room environment be properly maintained within the specifications listed on page 15?	
		Is additional fire suppression equipment required?	
		Are dedicated telephone lines for remote maintenance installed in the proper locations?	
		Have the required network connections been installed for the system?	
		Have the required network connections (if any) been installed for the system workstation?	
		Have all required network addresses been established?	
		Have system administrators and operators enrolled in the necessary Cray Research training courses?	

Summary

Now that you understand the basic configurations and requirements of the CRAY T3E AC computer system, you can make appropriate plans for your site. Cray Research site planning representatives are available for consultation regarding site planning and preparation. You may contact a Cray Research site planning representative by any of the following methods:

- Phone +1 715 726 2820, or in the USA: 1 800 284 2729, extension 62820
- Fax +1 715 726 2969
- E-mail *site@cray.com*
- Web site *http://site.cray.com*

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