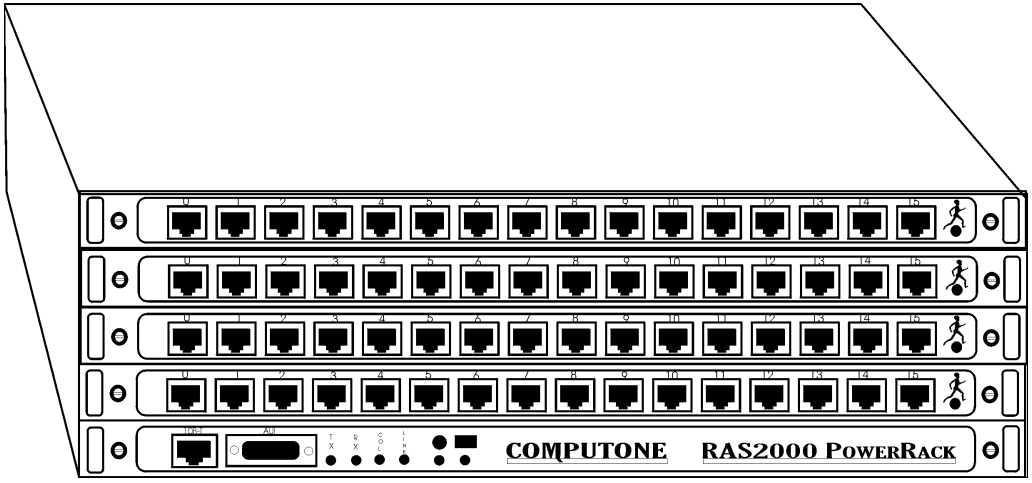
IntelliServer RAS 2000 TM
PowerRack
Hardware Guide



COMPUTONE
Corporation

1060 Windward Ridge Parkway, Suite 100 Alpharetta, GA, 30005-3992 (USA)
(800) 241-3946 s Outside U.S./Canada: (770) 625-0000
FAX: (770) 625-0013 email: sales@computone.com
INTERNET World Wide Web - http://www.computone.com

Computone Corporation
1060 Windward Ridge Parkway
Alpharetta, GA 30005-3992
U.S.A.

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(770) 625-0000 ext. 2002
(770) 625-0013 (FAX)

Technical Support can be contacted by email at the Internet address **support@computone.com**

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Contents

CHAPTER 1

Introducing the RAS 2000 PowerRack

The RAS 2000 PowerRack (RAS 2000) is the newest member of Computone's IntelliServer family of high performance network access servers. It provides remote access with up to 64 high-speed asynchronous serial ports and provides local access through standard Ethernet network connections.

The RAS 2000 has many features that are especially valuable to larger remote-access providers. These include:

- Up to 64 PPP/SLIP connections
- 19" rack mount or table-top installation
- Serial Line speeds up to 921,600 baud

This manual is divided into three parts:

- Chapter 1 gives an overview of the RAS 2000 PowerRack and its features.
- Chapter 2 explains how to unpack and install the RAS 2000 PowerRack hardware.
- Chapter 3 shows how to connect modems, terminals, printers, and other serial devices to the RAS 2000 PowerRack.

Table 1-1 provides a software feature comparison between the RAS 2000 PowerRack and the PowerRack.

Table 1- 1. Software Feature Comparison

Parameter	RAS 2000 PowerRack	PowerRack
Net Booting	Unique boot file	Unique boot file
Version No.	"RAS 2000 PowerRack"	"Computone IntelliServer PowerRack"
Configuration File	Unique file, upward compatible	Unique file
TFTP site load	Yes	Yes
Flash Loading	Yes	No
NVRAM Layout	Unique, upward compatible	Unique
NT RAS	Yes	No
Protocols & Extensions		
PPP	Yes	Yes
TCP/IP	Yes	Yes
SLIP/CSLIP	Yes	Yes
ARP/RARP	Yes	Yes
DNS	Yes	Yes
BOOTP	Yes	Yes
TFTP	Yes	Yes
RADIUS/RIP	Yes	Yes
rlogin	Yes	Yes
telnet, telnetd	Yes	Yes
REVERSE telnet	Yes	Yes
REMOTE CONSOLE	No	No
ping	Yes	Yes
rcp/rsh	Yes	Yes
ROTARY LINES	Yes	Yes
IP PACKET FILTERING	Yes	Yes
SUBNET ROUTING	Yes	Yes
CHAP/PAP Authentication	Yes	Yes

Table 1- 1. Software Feature Comparison

Parameter	RAS 2000 PowerRack	PowerRack
Notes: 1) When getting upgrades from our FTP site, examine the file names and descriptions to ensure you download the correct software. 2) You cannot save a configuration to a host and then restore it to a different model of IntelliServer. If you attempt to do this, the IntelliServer will report an error, "Bad Magic Number" which means that the file you are attempting to restore the configuration from is not in the proper format.		

Table 1-2 provides a hardware feature comparison between the RAS 2000 PowerRack and the PowerRack.

Table 1- 2. Hardware Feature Comparison

Parameter	RAS 2000 PowerRack	PowerRack
Cabinet	19 in. rack/table top mount	19 in. rack/table top mount
Engine Card	RISC-860	RISC-440
CPU Speed	60 MHz	20 MHz
RAM	8 MB	4 MB
ROM	1 MB	512 KB
Connectors	AUI & 10BASE-T	AUI & BNC
REX Cards	REX-16RJ-232	REX-16RJ-232
Connectors	RJ-45	RJ-45
Cables		
Modems, ISDN terminal adapters & DCE devices	VP-RJ-BD/M Cable	VP-RJ-BD/M Cable
Terminals, Printers, & DTE devices	VP-RJ-DB/T Cable	VP-RJ-DB/T Cable
Notes:		

Welcome to the RAS 2000 PowerRack

The RAS 2000 PowerRack is an expandable asynchronous communications server that includes a long list of standard features and extensive protocol support. It combines the functionality of a high-performance terminal server with the extended capabilities of a communications server.

The RAS 2000 extends your corporate network to remote users worldwide. Network users can now work anywhere and gain access for your network, remote client access, multi-user host access, and remote office access. In addition, it provides high performance, scalability from 16 to 64 serial lines, full protocol and feature support (see Table 1-1), and an easy-to-use design.

The RAS 2000 PowerRack provides:

- Transparent remote access to Ethernet LANs
- Easy access to INTERNET services
- TCP/IP traffic routing using the industry standard PPP protocol
- PC clients with dial-in access into the network for shell, telnet, or rlogin access
- Industry standard TCP/IP client software such as available in Windows95, Windows NT Workstation, UNIX, Windows 3.x and Macintosh with third party PPP client software
- Easy-to-use dial-up router functionality for serial connection to a home office, INTERNET services, or dial-in/dial-out modem accesses for remote or branch offices

RAS 2000: Highest Performance and Rack-Mount Convenience

The new PowerRack provides high performance with the convenience of an enclosure that can be rack mounted or set on a table. Serial port bit rates up to 921.6 Kbps on all serial channels meet and exceed the most demanding throughput requirements using V.34 modems and/or ISDN links.

The RAS 2000 PowerRack can be connected directly to a TCP/IP Ethernet LAN or can be booted independently and operated as a stand-alone unit. It requires no special operating system device drivers which simplifies upgrades and TCP/IP host cross-platform connectivity.

Flexibility and Speed

The RAS 2000 is a compact, high-performance communications server complete with a 32-bit MIPS-R3000 compatible CPU, 8 MB of RAM, resident multi-tasking operating system, and menu-driven interface. It supports all standard RS232 serial devices: terminals, PCs, printers, modems, bar code scanners, and POS equipment.

Each connected serial device can communicate at baud rates of up to 921.6 Kbps full-duplex. The RAS 2000 also includes a utility that allows a UNIX network host to access ports as if they were local tty devices. Modem ports can be used for both dial-in and dial-out access, thus ending the requirement for dedicated inbound and outbound modems. Shared resources such as printers and modems can be assigned to shared "hunt groups."

RADIUS and RIP Support Features

The RAS 2000's extensive protocol support includes rlogin, telnet, telnetd, reverse telnet, RADIUS, RIP, plus a special IP Filtering feature that allows you to define and regulate the flow of selected IP packets.

The standard feature list includes full PPP, SLIP, and CSLIP support, permitting IP devices to be connected over an RS232 serial port at up to 921.6Kbps. This offers an ideal solution for sites that wish to implement cost-effective remote access, INTERNET access, and LAN-to-LAN interconnections.

Easy To Install

The RAS 2000 PowerRack is equipped with 16 serial ports and is expandable with three additional sixteen-port serial cards (REX-16RJ-232). These cards come with integral front panels and provide a total of 64 physical ports, 96 login sessions, and up to 64 PPP/SLIP connections. The serial cards slide into chassis card guides and are secured with front panel screw locks. All connections, except for the power cable, are conveniently located and visible from the front.

RAS 2000 units and expansion modules are easy to install and can be mounted on a desk, floor, or rack. Surge/spike protection is standard on all transmit (TxD) and receive (RxD) and data set signals.

CHAPTER 2

Hardware & Installation Overview

This chapter gives an overview of the RAS 2000 PowerRack hardware and its installation, including the following:

- Unpacking and inspection
- Hardware overview
- Line voltage selection
- Installing mounting hardware
- Adding serial ports
- Connecting

Important Notices

The following are important points:

- Read all installation instructions before connecting power
- Do not install in areas where the ambient temperature exceeds recommended limits. The RAS 2000 PowerRack is designed for ambient temperatures in the range of 10^{o} to 35^{o} Celsius (50^{o} to 95^{o}F).
- When installing the RAS 2000 PowerRack in a rack enclosure, make sure you do not create a hazardous situation due to uneven mechanical loading. The PowerRack is not designed to support the weight of other equipment.
- The RAS 2000 PowerRack's power cord contains a ground pin. Always plug the power cord into a power receptacle which has a reliable earth ground. Do not use extensions, power strips, and so on, unless they are also grounded.

DANGER: Electrical Shock Hazard. Grounding circuit continuity is vital for safe operation of the RAS 2000 PowerRack. Never operate the RAS 2000 with grounding connector disconnected.

Unpacking and Inspection

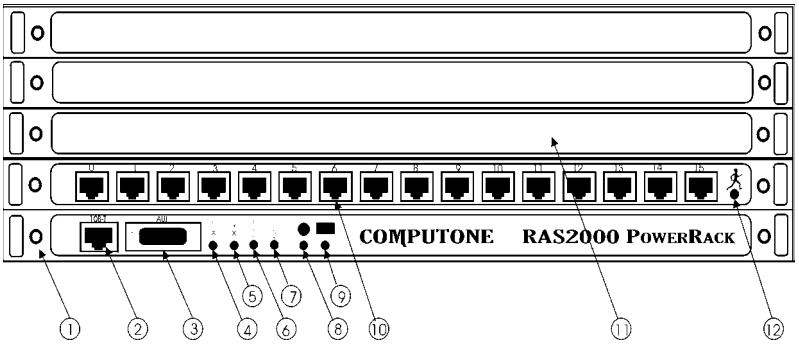
The RAS 2000 PowerRack is shipped with the following items:

- RAS 2000 PowerRack
- RAS 2000 Hardware Installation Guide (this book)
- RAS 2000 Configuration Guide
- RAS 2000 Read Me First card
- Warranty Registration card
- Power cord
- Cable - VP-RJ-DB/M (Cable ID 2-20121)
- Mounting accessory kit, which contains:
  - (2) Rack mounting brackets
  - (1) Sheet of labels
  - (4) Black pan head Phillips screws (#6-32 $^{1}/_{4}$”)
  - (4) Truss head screws (#4-40 $^{5}/_{16}$”)
  - (4) Pan head Phillips screws (#M6x8)
  - (4) Pan head Phillips screws (#10-32x$^{1}/_{2}$)
  - (4) Black rubber feet

Please make sure you have everything on the above list. If you don’t, call your Sales representative at Computone at 770-625-0000.

For rack installation, the black #6-32 pan head Phillips screws are used to fasten the rack mounting brackets to the PowerRack. Supplied also are the M6x8 screws for mounting the PowerRack into your rack enclosure. Some enclosures use one size and some use the other. For desk-top installation, the #4-40 screws are used to secure the rubber feet to the bottom of the RAS 2000 PowerRack.

Figure 2-1 shows the RAS 2000 PowerRack front panel.

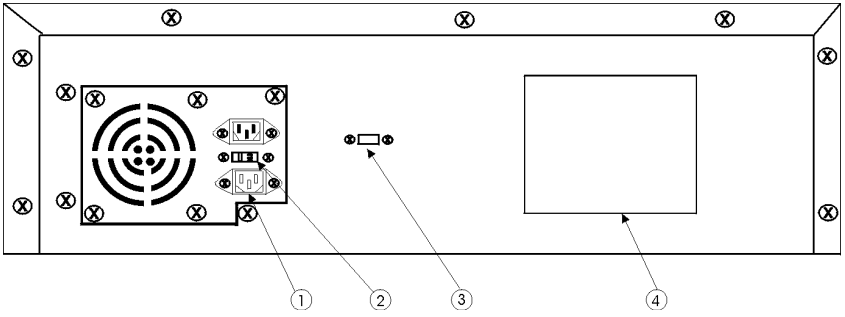


1	RISC-866 Engine Card	7	Link
2	10 Base-T Connector	8	Status Indictor LED
3	AUI Connector	9	Status Indicator LED
4	Transmit LED	10	Serial Port Connector
5	Receive LED	11	REX Card Expansion Slot
6	Collision Detect	12	Activity Indicator LED

NOTE: The status LED functions are defined in the *RAS 2000 Software Supplement*.

Figure 2-1. RAS 2000 Front Panel

Figure 2-2 shows the RAS 2000 PowerRack back panel.



1 Power receptacle
2 Line voltage selection switch
3 On/Off switch
4 Product label

Figure 2-2. RAS 2000 Back Panel

As you can see from the front view in Figure 2-1, the RAS 2000 PowerRack has five slots. The RISC-860 Engine card comes installed in the bottom slot (slot 0) and must remain there. This card contains the RISC CPU and memory and has the 10-Base-T and the AUI connectors to attach to your local Ethernet network. The RISC-860 also has two status indicator lights (LEDs) which indicate whether the RAS 2000 is operating normally or has encountered an error condition. The meaning of the lights is the same as on other IntelliServer products and is explained in the *RAS 2000 Software Supplement*. Generally, the lights flash green during normal operation, yellow during power-on self-test, and red to indicate hardware faults or other serious error conditions.

The remaining four slots are for REX Serial Interface cards, The first REX is already installed next to the RISC-866 card. Each REX card contains 16 asynchronous serial ports. Additional REX cards may be installed in the remaining slots to support up to 64 ports. On the right side of each REX card is an activity light which indicates when ports on that card are actively in use.

On the rear panel of the RAS 2000 PowerRack you will find the line voltage selector switch, the main power on/off switch and a place to connect the power cord.

NOTE: The RAS 2000 PowerRack is designed to operate at ambient temperatures in the range of 10^{o} - 35^{o} C (50^{o} - 95^{o}F).

Selecting the Line Voltage

The RAS 2000 PowerRack has a line voltage selector switch on the back of the chassis, between the two power plug receptacles (see Figure 2-2).

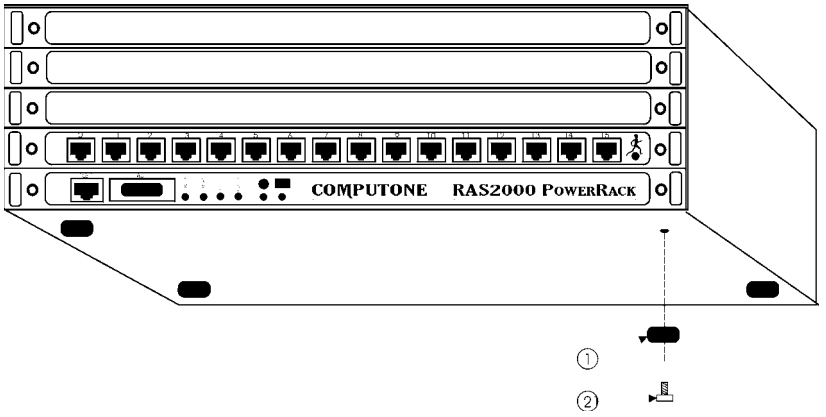
NOTE: The switch is factory set for 115 VAC.

CAUTION: If you are using the RAS 2000 PowerRack with 220- 240 VAC, you **MUST** switch to the 230V position. If you do not do this, you will cause permanent damage to the RAS 2000 PowerRack. Damage resulting from failure to follow these instructions is not covered under warranty.

You can install the RAS 2000 PowerRack in a 19-inch rack or on a desk top. To mount it in a rack, attach the mounting brackets (mounting “ears”).

Desk Top Mounting

For desk top operation, attach rubber feet to the bottom of the unit. The mounting accessory kit shipped with each RAS 2000 PowerRack contains mounting brackets, rubber feet, and the screws needed for attaching them.



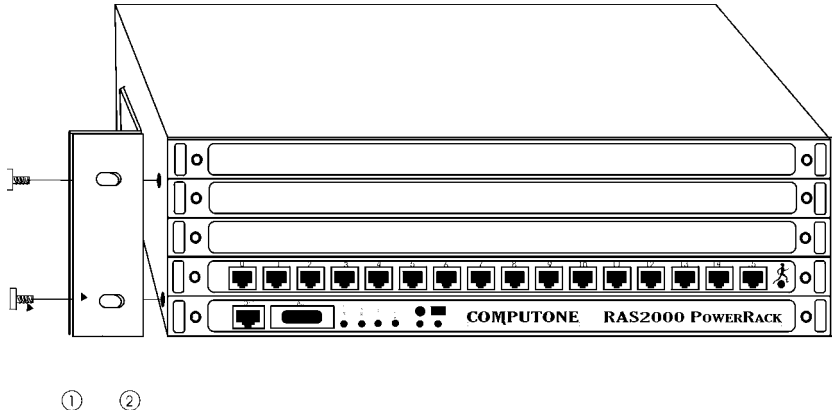
1 Rubber foot
2 #6-32 x 1/4” black pan head Phillips screw

Figure 2-3. Installing the Mounting Feet

Rack Mounting

Attach each rack mount bracket to the RAS 2000 PowerRack using the #6-32 1/4” black pan head Phillips screws for each bracket. Attach the brackets to the front of the PowerRack or the back (see Figure 2-4). Some installers want the Ethernet and serial cables to face the front of the rack enclosure and some want them to the back. Install the brackets on the end that is to face the front.

After the “ears” are attached to the RAS 2000 PowerRack, install the completed assembly into your rack enclosure. Provided are both #10-32 $^1/_2$” and M6x8 pan head Phillips screws. Use the size that fits your particular rack enclosure.



1 Pan head Phillips screw
2 Mounting bracket

Figure 2-4. Attaching the Mounting Brackets

Adding Serial Ports

The RAS 2000 PowerRack comes with a RISC-866 Engine card installed in the bottom slot (slot 0). A single REX serial interface card is also installed in slot 1. This card has the first 16 serial ports and these ports are numbered 0 - 15. Additional REX cards are sold separately and you can install up to three more, for a total of 64 serial ports.

Where to Install Additional REX Cards

The first additional REX serial interface card should be installed in slot 2, use slot 3 for the next, and slot 4 for the final card. Figure 2-5 shows the card slots and port numbers.

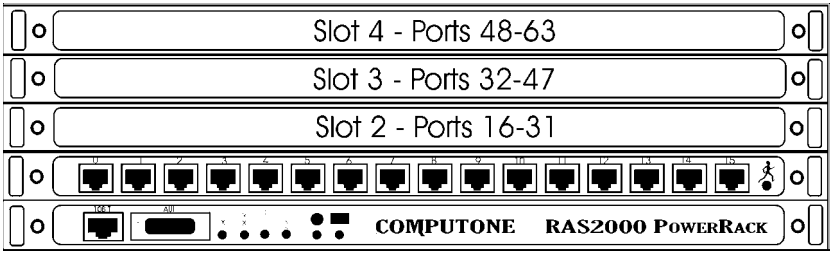


Figure 2-5. Card Slots and Port Numbers

It is possible to install REX cards in nonconsecutive slots. If you do this, the ports are still numbered according to the slots you have used. For example, if REX cards are in slots 1 and 3, with slot 2 empty, the RAS 2000 PowerRack is recognizes ports 0-15 and 32-47. Ports 16-31 are not recognized. For safety reasons, always keep unpopulated card slots covered with the card blank panels provided.

Labeling the Ports

On every REX card the ports come individually labeled 0-15, with port 0 on the left and port 15 on the right. For slot 1 these port numbers correspond to the true port numbers recognized by the RAS 2000 PowerRack For the remaining slots, the marking on the port does not correspond to its real port number. Therefore, to help you remember which ports on the additional REX cards correspond to which port number, labels are provided in the accessory kit. The labels are marked “PORTS 0-15”, PORTS 16-31”, and so on. On the front panel of each REX card there is an oval outline on the left side. The labels are designed to fit these outlines.

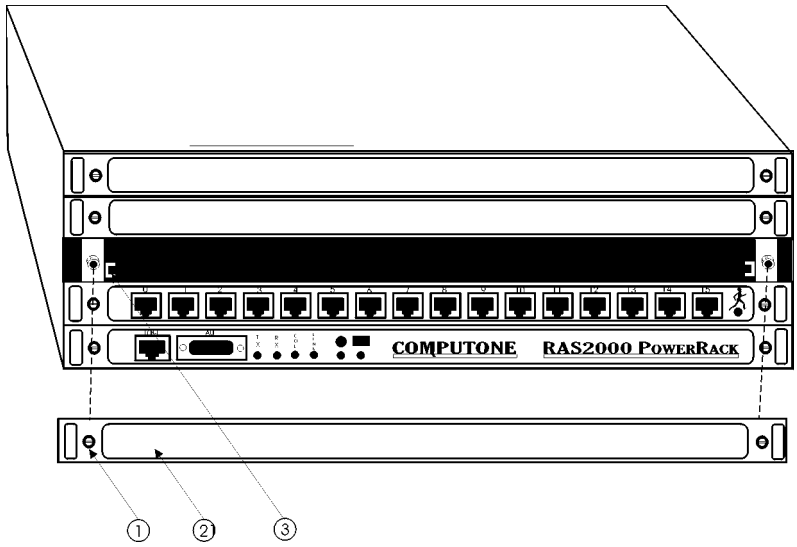
Installing Serial Cards

Use the following procedure to install a REX Serial Interface card:

CAUTION: Possible Equipment Damage. Removing and installing cards while power is applied can cause equipment damage.

1. Turn off the RAS 2000 PowerRack power using the switch on the back panel.

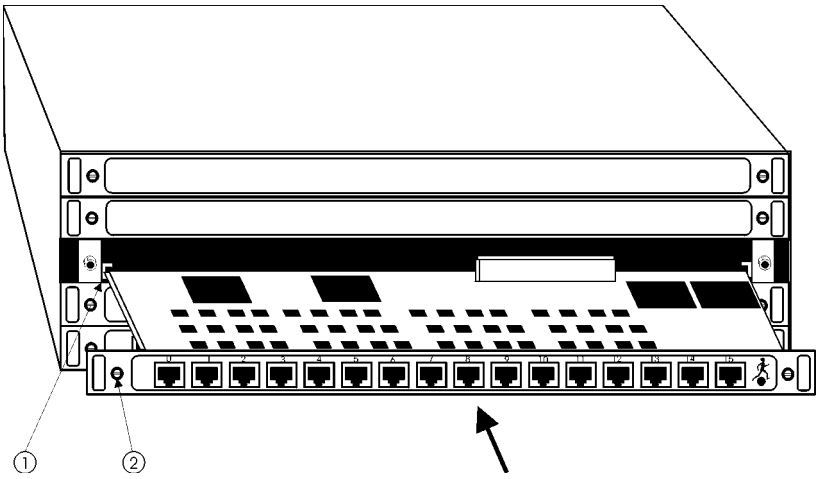
2. Ground yourself by touching the metal chassis of the PowerRack. This is done to dissipate any static charge build-up your body may have. Static electricity can damage sensitive electronic components.
3. Remove a blank from panel from an available slot of the PowerRack by loosening the two finger screws on the panel.



1 Finger screw
2 Card blank
3 Card guide

Figure 2-6. Removing the Card Blank

4. Slide the REX card into the chassis by inserting the card into the card guides. When the card is completely inserted, you will feel some resistance as the REX card's connector plugs into the chassis backplane.



1 Card guide
2 Finger screw

Figure 2-7. Installing the REX Serial Card

5. Secure the REX card to the chassis by tightening the screws are each side of the front panel until they are finger tight.
6. Attach the port labels provided in the accessory kit.

End of Procedure

Local Network Connection

To connect the RAS 2000 PowerRack to your local Ethernet you use either the 10-Base-T or AUI connector on the Engine Card. To connect to the 10-Base-T network, you must supply the cable to plug into the RJ-45 connector. To connect to the AUI connector requires the appropriate AUI transceiver and cable, which you also must provide.

CHAPTER 3

RAS 2000 PowerRack Serial Cabling

In this chapter you learn how to use the proper cable to connect the IntelliServer RAS 2000 PowerRack to serial devices such as modems, terminals, and printers. Some of the topics covered include:

- RJ-45 pin-out and explanation of signals
- Standard cables available from Computone
- Recommendations for building custom cables
- Sample custom cables

RAS 2000 PowerRack RJ-45 10-Pin Connectors

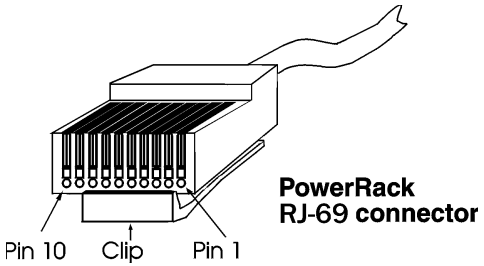


Figure 3-1: RJ-45 Connector

Table 3-1: RJ-45 Term Definitions

Pin	Direction	Signal Name	Description
1		Chassis Ground (CG)	Connected to the PowerRack's metal case.
2	Input	Ring Indicator (RI)	Modem reports an incoming call.
3	Input	Carrier Detect (CD)	Modem reports it is connected and ready to exchange data with the modem on the other end.
4	Output	Data Terminal Ready (DTR)	RAS 2000 indicates that the port is enabled.
5		Signal Ground (SG)	Reference point for all signals. Must always be present in your cable.
6	Input	Receive Data (RD)	Data coming into the PowerRack from an attached device.
7	Output	Transmit Data (TD)	Data sent from the RAS 2000 to an attached device.
8	Input	Clear To Send (CTS)	Device indicates to RAS 2000 that it has room for more data.
9	Output	Request To Send (RTS)	RAS 2000 indicates to devices that it has room to receive more data.
10	Input	Data Set Ready (DSR)	Indicates modem is ready to accept input from RAS 2000.

PowerRack RJ-45 10 Pin Connectors, (continued)

The following are important points to remember:

1. The RAS 2000 PowerRack RJ-45 connector is different from the RJ-45 connector that is used on IntelliServer SlimLine and Intelliport II products. The PowerRack uses a 10-pin connector instead of 8-pins, and the signals are wired differently. **Do not use cables intended for the SlimLine or Intelliport II on the PowerRack.**
2. The RAS 2000 uses a special high-speed RS232 interface for its Transmit Data (TD) signal, and uses a lower voltage than the other RS232 outputs. If you connect the port to a break-out box or line monitor having LED's, the transmit LED may not be as bright as the other signals. This is normal and does not indicate a hardware fault.
3. The Chassis Ground pin is usually connected to the external case of an RS232 device, and is connected to an "earth ground" through the grounding pin of the power connector. When a shielded cable is used, this pin is often connected to the cable's shield and provides protection from external electrical noise. This shield should be only connected at one end to earth ground.
4. The RAS 2000 PowerRack software does not require the use of Ring Indicator or Data Set Ready signals. Both are provided, however, for possible future use.

CAUTION: At some installation sites, it may be necessary to connect the chassis ground at one end of the cable *but not at both ends*. This is because the "earth ground" connection through the power source is not always perfect, and different "earth grounds" at different locations may have a voltage potential between them. If you connect the two devices together through the cable shield or chassis ground pin, current will flow through the shield and damage your hardware.

For more details on how the IntelliServer RAS PowerRack uses these signals, see the IntelliServer Configuration Guide.

Using Standard and Custom Cables

To connect the RAS 2000 PowerRack to serial devices, you may buy standard RAS 2000 PowerRack cables from Computone, or build your own according to the guidelines in this section.

Computone Standard Cables

Computone supplies two types of standard cables for the RAS 2000 PowerRack. One is for modems, ISDN terminal adapters and other DCE devices. The other is for terminals, printers, and other DTE devices

.

Table 3-2: Computone Standard Cables

Order Number	Supported Devices	Description	Cable ID (Label)
VP-RJ-DB/M CABLE	modems, ISDN terminal adapters, and other RS232 DCE devices	See section "Computone Standard Cables"	2-20122
VP-RJ-DB/T CABLE	most terminals, printers, and other RS232 DTE devices	See section "Computone Standard Cables"	2-20121

Table 3-3: Cable Specifications

Specifications	Description
Length	6 feet (1.8 meters)
Cabling	Shielded 10-conductor
Connectors	10-Pin RJ-45 plug 25-Pin male DB25

Standard Cable for Modems and Other DCE Devices

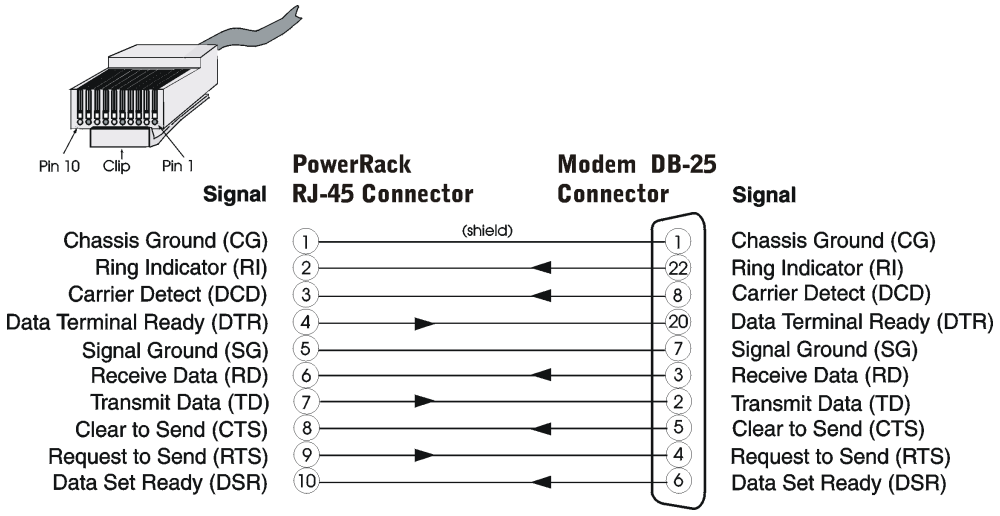


Figure 3-2: Modem & DCE Cable Pin-out

Table 3-4: Specifications for Modem & DCE Cable

Order Number:	**VP-RJ-DB/M CABLE**
Description:	A 6-foot (1.8 meter) shielded cable with a 10-pin RJ-45 plug at one end and a Male DB-25 connector at the other end.
Devices:	Modems, ISDN terminal adapters, and other DCE devices.
Marking:	This cable is marked 2-20122 for identification purposes.
CAUTION: At some installation sites, it may be necessary to connect the chassis ground at one end of the cable *but not at both ends*. This is because the "earth ground" connection through the power source is not always perfect, and different "earth grounds" at different locations may have a voltage potential between them. If you connect the two devices together through the cable shield or chassis ground pin, current will flow through the shield and damage your hardware.	

Standard Cable for Terminals and Other DTE Devices

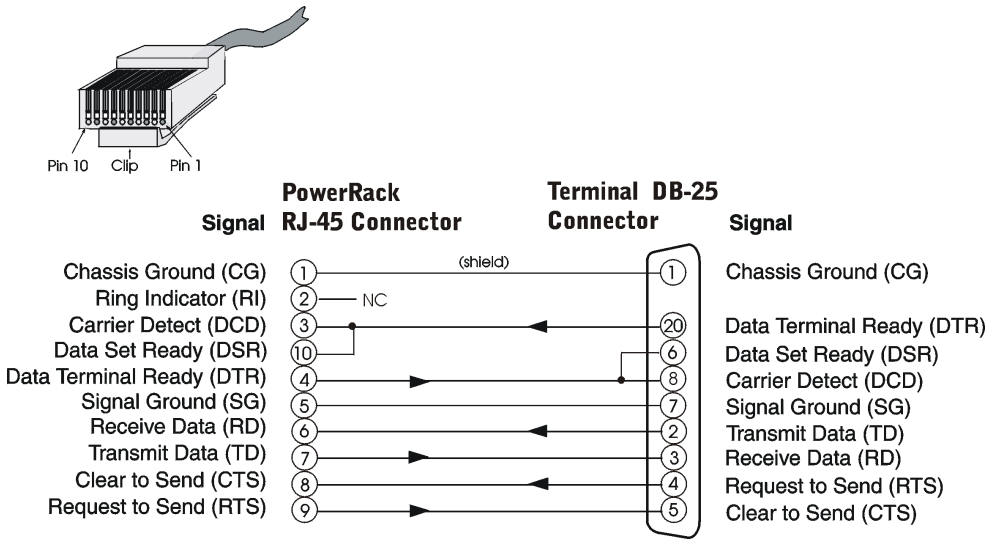


Figure 3-3: Cable Pin-out for Terminals & DTE Devices

Table 3-5: SpecificationsTerminal & DTE Devices Cable

Order Number:	**VP-RJ-DB/T CABLE**
Description:	A 6-foot (1.8 meter) shielded cable with a 10-pin RJ-45 connector at one end, and a Male DB-25 connector at the other end.
Devices:	Most terminals, printers, and other DTE devices.
Marking:	The cable is marked 2-20121 for identification purposes.
Note: Many DTE devices have special requirements. See section, *Guidelline for Custom Cables*.	

Guidelines for Custom Built Cables

Pin-out Guidelines for DCE Devices

For most modems and other DCE devices, you will want to use the pin-outs shown in Figure 3-2. Since the PowerRack does not require DSR and RI, you may omit these signals from your cable.

You can also omit the RTS and CTS signals if you are not using RTS/CTS flow control. However, we do not recommend doing this since most of the network configurations in place today require hardware flow control.

Pin-out Guidelines for DTE Devices

The standard cable shown Figure 3-3 supports a device that could use RTS/CTS flow control. If your device uses different signals for hardware flow control, adjust your cable accordingly. If you are using XON/XOFF flow control, you may be able to omit RTS/CTS entirely.

The standard cable connects the Power Rack's CD pin to the device's DTR. This allows the RAS 2000 PowerRack to log a user off when he turns off his terminal, for example. You can omit this signal if you don't require this feature.

Cable Selection Guidelines

Consider the following points when selecting a cable:

- Cable length
- For maximum noise immunity and lowest RF emissions, use a shielded cable with a 100%-coverage foil shield at the RJ-45 end.
- Conductors in the cable should be 26-28 AWG.
- While there is no particular advantage to using twisted-pair cables with RS232 installations, they are commonly available and often found in pre-wired installations. When using twisted pair cable, make sure that it adheres to the EIA/TIA-568 standard for assigning cable pairs to RJ-45 plug pins, as shown on the following page:

The table below is an example of how to connect a twisted pair cable to the RAS 2000 PowerRack's RJ-45 connector. In this example, the four twisted pairs are made up of the following colored wires:

- White-on-green twisted with green-on-white
- White-on-orange twisted with orange-on-white
- White-on-blue twisted with blue-on-white
- White-on-brown twisted with brown-on-white

Table 3-6: Assigning Cable Pairs - RJ-45 Pins

Example: Assigning Cable Pairs to RJ-45 Pins		
Pin	**Signal**	**Color of Wire**
1	Chassis Ground (CG)	None
2	Ring Indicator (RI)	White on Green
3	Carrier Detect (CD)	Green on White
4	Data Terminal Read (DTR)	White on Orange
5	Signal Ground (SG)	White on Blue
6	Receive Data (RD)	Blue on White
7	Transmit Data (TD)	Orange on White
8	Clear to Send (CTS)	White on Brown
9	Request to Send (RTS)	Brown on White
10	Data Set Ready (DSR)	None

While your twisted pair cable may not use the same color scheme as the one listed in this example, the colored wires in your cable should be twisted together in a similar fashion.

NOTE: Under no circumstances should you assign pins 6 (RD) and 7 (TD) to wires from the same pair.

Cable for Terminals with DTR Flow Control

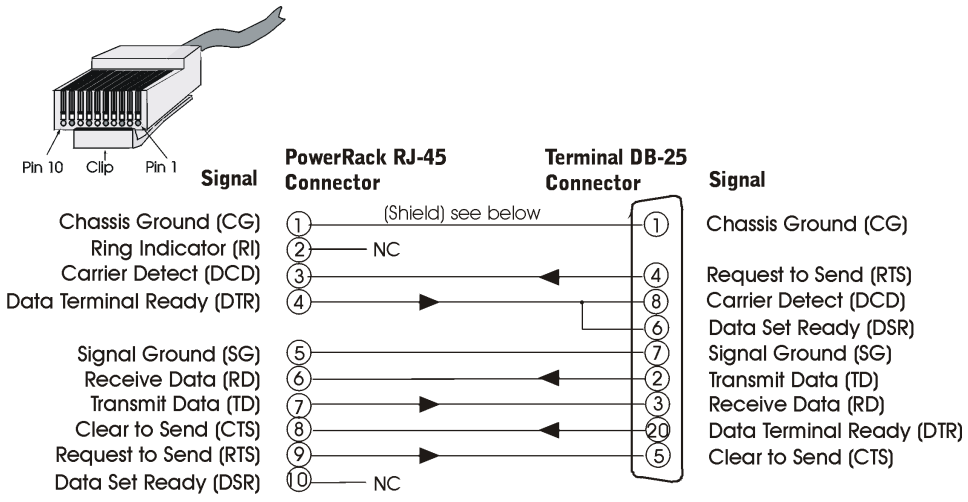


Figure 3-4: Cable Pin-outs for Terminals w/DTR Flow Control

Notes:

1. The cable shown in Figure 3-4 assumes that the terminal or other devices uses its RTS signal for flow control. Many terminals use DTR instead. If this is the case, you will need to connect the terminal's DTR to the RAS 2000's CTS, and configure the port for CTS flow control.
2. Terminals that use DTR for flow control often use RTS to indicate that the terminal is turned on. That is why the diagram on this page shows the DB-25's RTS signal connected to the PowerRack's CD signal. This can be used for logging off when the terminal powers down.

CAUTION: At some installation sites, it may be necessary to connect the chassis ground at one end of the cable *but not at both ends*. This is because the "earth ground" connection through the power source is not always perfect, and different "earth grounds" at different locations may have a voltage potential between them. If you connect the two devices together through the cable shield or chassis ground pin, current will flow through the shield and damage your hardware.

Cable for Local Terminals Using Xon/Xoff Flow Control

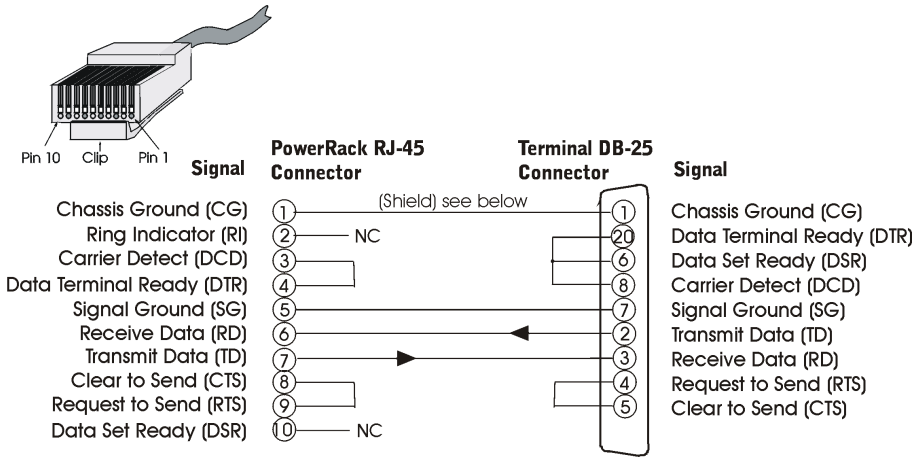


Figure 3-5: Cable Pin-outs for Terminals Using Xon/Xoff Flow Control

Notes:

1. Since the terminal is using XON/XOFF flow control, the RTS/CTS signals are not used.
2. The DTR/CD signals are not used because the local terminal should always be connected and turned on.
3. On the terminal side, DTR is connected to CTS. Many terminals will not operate unless their CTS, DSR, or DCD inputs are asserted. To reduce the wires in the cable, we use the terminal's DTR and RTS to satisfy these inputs.

CAUTION: At some installation sites, it may be necessary to connect the chassis ground at one end of the cable *but not at both ends*. This is because the "earth ground" connection through the power source is not always perfect, and different "earth grounds" at different locations may have a voltage potential between them. If you connect the two devices together through the cable shield or chassis ground pin, current will flow through the shield and damage your hardware.

WARNING: When using this cable, you should avoid powering down the terminal while it is running an application. Since the DTR and CD signals are not used, the RAS 2000 PowerRack (and the host system) will not know that the terminal has been turned

off. This means that the application will continue to run, and could produce unexpected results when the terminal is again turned on.

Cable for Connecting Printers

Figure 3-6 shows the pin-out for a cable to connect a printer.

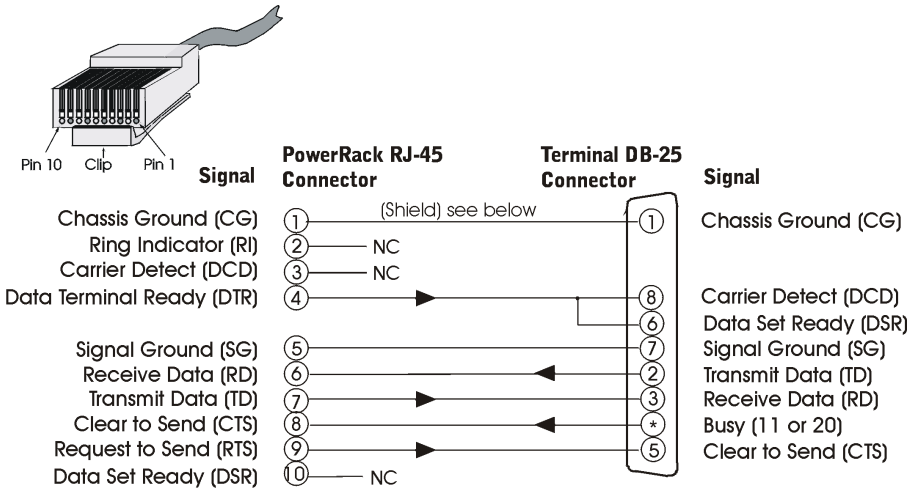


Figure 3-6: Cable Pin-out for Connecting Printers

Notes:

1. If you are using hardware flow control, configure the PowerRack port for CTS flow control. Printers usually support hardware flow control using pin 11 or 20. Consult your printer manual to see which pin is appropriate and connect it to the PowerRack's CTS pin. If you are using XON/XOFF flow control this wire is not needed.
2. The Printer's Transmit Data (TD) signal is connected to the RAS 2000 PowerRack's Receive Data (RD) signal to support XON/XOFF flow control. It can often be omitted when CTS flow control is used.

3. The RAS 2000 PowerRack's DTR is connected to the printer's DSR and CD inputs, and the RAS 2000's RTS is connected to the printer's CTS input. This is done because some printers will not operate properly unless these inputs are asserted. Check your printer manual to see if these connections are required for your printer.

CAUTION: At some installation sites, it may be necessary to connect the chassis ground at one end of the cable *but not at both ends*. This is because the "earth ground" connection through the power source is not always perfect, and different "earth grounds" at different locations may have a voltage potential between them. If you connect the two devices together through the cable shield or chassis ground pin, current will flow through the shield and damage your hardware.

Cable for Connecting to a DB9 Com. Port on a PC

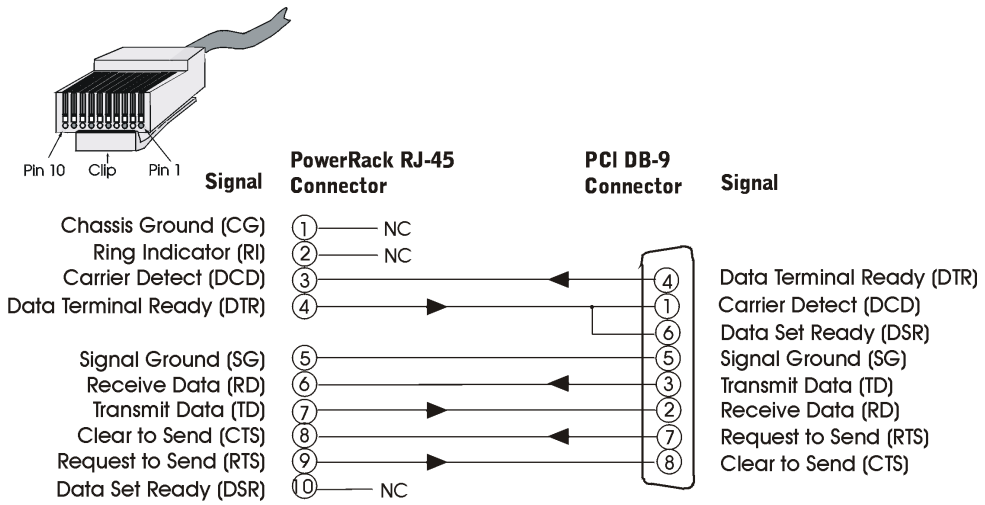


Figure 3-7: Cable Pin-out for Connecting to a DB9 Com. Port on a PC

Notes:

1. This pin-out is functionally similar to the standard DTE cables shown in Figure 3-3, adjusted for the fact that the DB9 connector uses different pin-outs.

2. Since DB9 Comm. Ports generally use male connectors, the DB9 end of your cable should be female.

DECLARATION OF CONFORMITY

Application of Council Directive(s):

_____	89336EEC_____
Manufacturer's Name:	Computone Corporation
Manufacturer's Address:	1060 Windward Ridge Pwy, Suite 100 Alpharetta. GA 30005-3992 (USA)
Importer's Name:	_____ _____ _____ _____
Type of Equipment:	COMMUNICATIONS SERVER
Model Name:	IntelliServer RAS 2000 PowerRack
Serial Number(s):	
Year of Manufacture:	_____

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Directive/Product Standards:	EMC Directive 89/336/EEC using EN55022 and EN50082-1:1992
Equipment Type/Environmental	ITE/Residential, Commercial & Light Industrial

Product meets or exceeds the levels and methods of:

IEC 801-2:1991 & IEC 1000-4-2:1995 for ESD
(8 kV air, 4 kV contact, Criteria B)

IEC 801-3:1991 for RF
(3 Vm 27 - 1000 MHz, 80% @ 1 kHz, Criteria A)

IEC 801-4: 1988 & IEC 1000-4-4:1995 for EFT/B
(Power leads 1 kV, DC & signal leads 0.5 kV, Criteria B)

Place: _____
(Signature)

Date: _____
(Full Name)

_____
(Position)