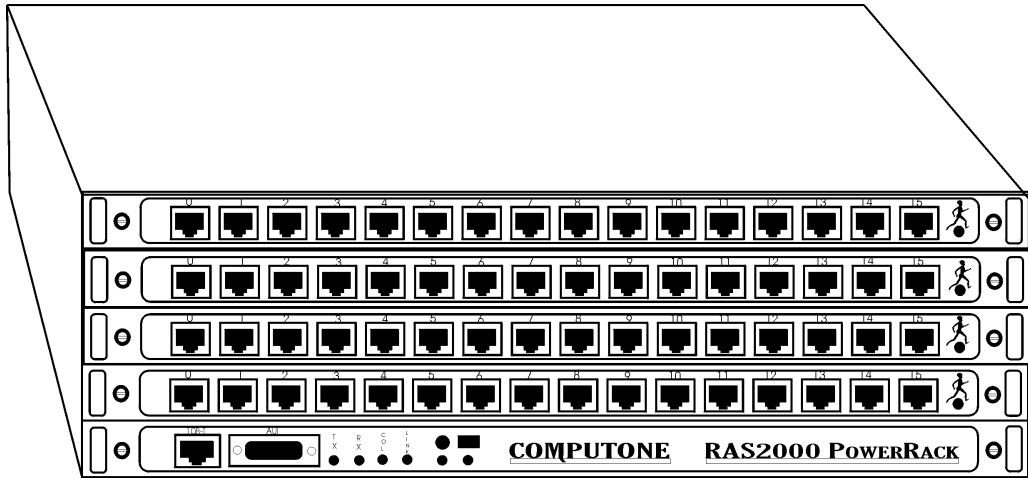# *IntelliServer RAS 2000 ^{TM}*
PowerRack
Windows NT Supplement

Computone Corporation
1060 Windward Ridge Parkway, Suite 100
Alpharetta, GA 30005-3992
U.S.A.

Support Information: If you require technical support, contact your Computone dealer or Computone Technical Support. The Computone Technical Support staff can be reached by phone at the following numbers, from 8:30 a.m. to 8:00 p.m. Eastern time, Monday through Friday:

> (800) 241-3946 ext. 2002
> (770) 625-0000 ext. 2002
> (770) 625-0013 (FAX

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

IntelliServer RAS 2000 PowerRack Windows NT Supplement   P/N: 0-13087, Rev. A

Contents

RAS 2000 Software

The RAS 2000 PowerRack introduces a new system board with several major performance improvements. When compared to its predecessor, the IntelliServer PowerRack, the RAS 2000 PowerRack boasts a RISC processor that runs 50% faster, has double the cache, a 10-Base-T ethernet controller that has double the throughput capacity, additional non-volatile memory, and a writable operating system flash through which upgrades and bug fixes can be loaded.

For this release, all operational functionality of the original PowerRack has been ported over to the RAS 2000, with an exception that should reduce the load of managing multiple units. While BOOTP and TFTP functionality have been maintained for configuration file downloads, support for booting directly from a TFTP site has been replaced with the ability to download and either execute or save a kernel image from a TFTP site. The main advantage to this is that kernel upgrades no longer need to be stored on a TFTP site and made available continuously. They may be downloaded and stored permanently on the RAS 2000.

Features

The RAS 2000 PowerRack software is almost identical in features and functions to the software used on the original IntelliServer PowerRack. In order to get the most out of the RAS 2000 PowerRack's improved hardware design, you should be aware of some important differences between the IntelliServer RAS 2000 PowerRack and the original IntelliServer PowerRack, as explained in this section.

The RAS 2000 PowerRack differences are:

- RISC processor (RISC-860)
- Software and configuration files
- Port configuration
- Factory default
- Greater throughput
- Increased CPU speed (30 Mhz)

This section further explains these software differences.

Different Software

Because of the hardware differences between the IntelliServer PowerRack and RAS 2000 PowerRack, software intended for one cannot be loaded on the other.

Table 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

Table 1. Software Feature Comparison

Parameter	RAS 2000 PowerRack	PowerRack
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

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.

Port Speeds

Because of improved hardware design, the RAS 2000 PowerRack supports line speeds up to 921,600. When configuring a port, the following speeds are available:

50	300	3600	56000	230400
75	600	4800	57600	307200
110	1200	7200	64000	460800
134.5	1800	9600	76800	921600
150	2000	19200	115200	
200	2400	38400	153600	

Port Numberin

On the RAS 2000 PowerRack, the CPU Engine card is installed in the lowest slot of the enclosure (slot 0). Slot 1 is next to the processor card and always contains ports 0 through 15. As you install additional ports, use slots 2 through 4 in order:

> Slot 2 always contains ports 16-31

> Slot 3 always contains ports 32-47

> Slot 4 always contains ports 48-63

If for any reason it should become necessary to remove one of the REX cards, the remaining ports keep the same numbers. If you remove a REX card out of the middle, it leaves a gap in the port numbers that the RAS 2000 PowerRack recognizes.

Factory Defaults Differences

When the RAS 2000 is using factory default configuration, the lowest and the highest port number in each slot are enabled as login ports and can be used for initial configuration with a terminal. (In a 64-port installation, that would be ports 0, 8, 16, 24, 32, 40, 48, and 56.)

The RAS 2000 PowerRack uses unique software that is not interchangeable with the other IntelliServer PowerRack models. The main differences are:

- Windows NT support
- Flashable kernel

NT RAS (Remote Access Service)

Typically, RAS servers are implemented in an NT environment using modem attached to serial ports local to the NT server. Devices such as fax servers, modem pool servers, and outbound fax servers are a few applications that would use this available source of modem connections.

This design does not implement RAS or fax servers directly. Rather, it describes the method by which a host machine may gain effective control of a UART on the RAS 2000 PowerRack. Once a host's driver establishes communication with a RAS 2000 PowerRack, it attaches to one or more remote serial ports (RSP) and presents them as "logical" serial ports to the host operating system. In the case of NT, these appear as COM ports.

The following sections describe how to configure Remote Serial Ports on the RAS 2000 and how to install the Windows NT driver.

Windows NT Software Installation

This section explains the Windows NT 4.0 software installation.

Windows NT 4.0

To install the RAS 2000 driver in a Windows NT 4.0 environment, use the following procedure:

1. Select *Settings / Control Panel / Network / Adapters* then *Add*.
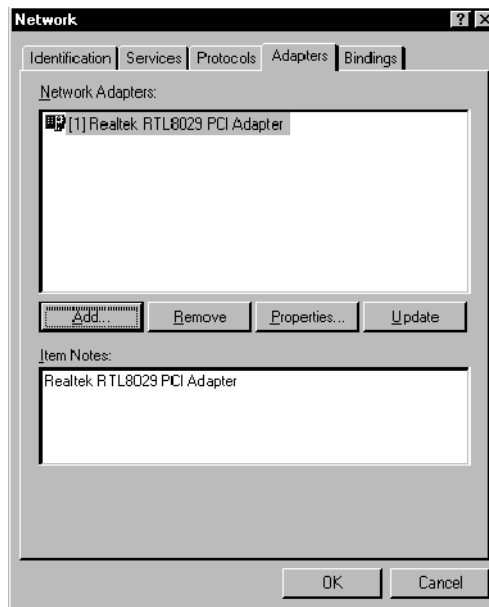
Figure 1. Accessing the Network

2. Select *Have Disk*.
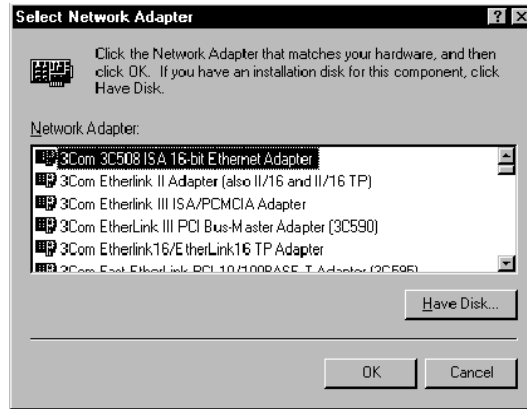
Figure 2. Selecting the Ethernet Adapter

3. Insert your RAS 2000 software diskette or CD ROM and specify its drive designator
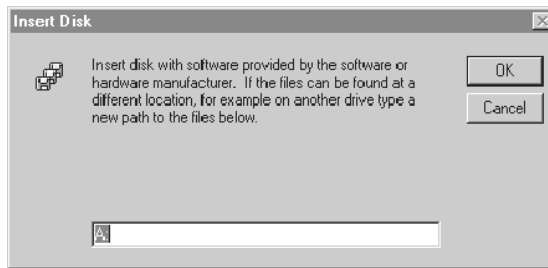
Figure 3. Specifying the Load Drive

4. Highlight the **Computone RAS 2000 PowerRack Adapter** and select *OK*.
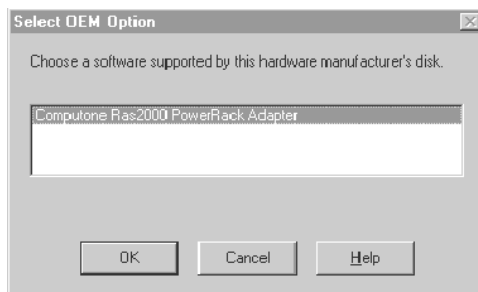
Figure 4 Selecting the Adapter Software

5. Configure the RAS 2000 Setup parameters, then select *Appl* .
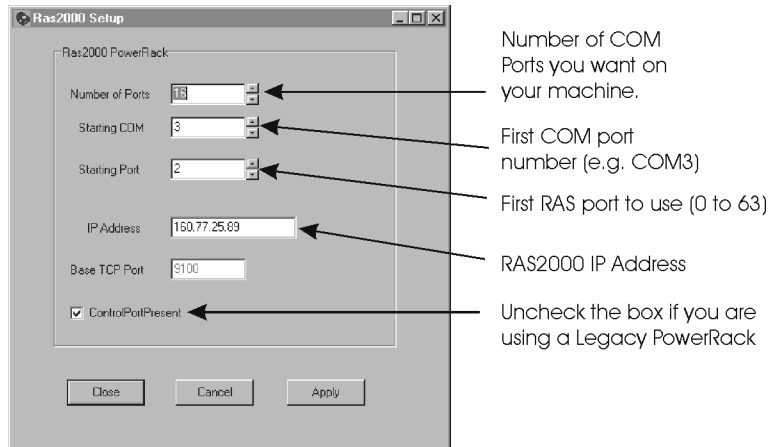
Figure 5. Configuring the Parameters

6. Confirm that the Computone RAS 2000 PowerRack is now a listed entry.
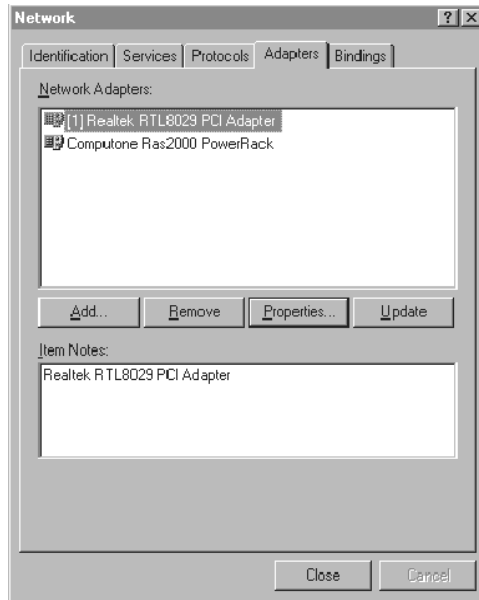
Figure 6. Confirming Installation

When you choose *Close*, you will be prompted to reboot. If you need to change one of the parameters, highlight the *Computone RAS2000 PowerRack* entry then select *Properties*. You are taken back to the Figure 5 screen where you can change the parameters.

■ End of Procedure

Remote Serial Port Configuration

The purpose of this section is to provide a quick start reference for configuring the RAS 2000 in a Windows NT environment. This document is not intended as a replacement for the spiral bound *IntelliServer Configuration Guide.* The *IntelliServer Configuration Guide* should be referenced for detailed explanations of the settings listed, as well as any settings listed as *default/blank*. This document establishes quick start guidelines for the following topics.

- IntelliServer configuration
- Remote serial ports
- Saving your configuration

RAS 2000 Configuration

The IntelliServer line of products can be set up in a number of different ways. For basic setup instructions and guidelines for your particular environment, refer to the *IntelliServer Configuration Guide* (chapters 9 & 10) for detailed setup. The following configuration information should be used in troubleshooting and initial setup as a basic guideline. Once configured with a console, proceed with the following.

To configure a console terminal, see the *Read Me Firs* document or the *IntelliServer Configuration Guide*. For help with the menu system, see chapter 4, *Using the Menu Interface*, in the *IntelliServer Configuration Guide*.

Follow the directions listed to the right of the menu options. In cases where information is left blank, use the factory defaults.

Path: Main Menu /Administration /Network /IntelliServer Configuration

Table 2. **Setting the RAS 2000 Configuration**

Parameter	Description/Value
Host Name:	What you would like to call your IntelliServer
IP Address:	The IP Address of the IntelliServer
Subnet Mask:	default/blank
Broadcast Address:	default/blank
Domain Name:	default/blank
Syslog Host:	default/blank
Syslog Facility:	default/blank
Syslog Priority:	default/blank
Console Port Number:	default/blank
Ethernet Address:	IntelliServer mac address
Force AUI Port:	default/blank (see **NOTE**)
IP Filter:	default/blank (see **NOTE**)
RIP:	NONE
NOTE: Reference section *Force AUI Port* in chapter 10 of the *IntelliServer Configuration Guide* if you are using the IntelliServer's AUI port in conjunction with a transceiver.	

Configuring a Remote Serial Port

Configuring a Port

Upon completion and verification of the above, proceed with configuring the individual ports. Leave all other settings at their default. To duplicate a port configuration across multiple ports, see section, *Duplicating Port Configurations,* in chapter 5 of the *IntelliServer Configuration Guide*.

Path: Main Menu /Administration / Port / Configure a Port / Port Number

Table 3. **Configuring a Port**

Parameter	Description/Value
Port Type:	RSP (Remote Serial Port)
Comment:	default/blank
Local Term Type:	console type or console emulation type
User Name:	default/blank
Remote Term Type:	default/blank
Group:	default/blank
Modem:	YES/NO
Await Input:	NO
Dial Script:	default/blank
Modem Init:	default/blank
Speed:	Factory modem setting (i.e.115200). Select your baud rate.
Size:	8
Parity:	NONE
Stop Bits:	1
Inflow:	RTS for hardware flow control
Outflow:	CTS for hardware flow control
Auto PPP:	NO

Save

To save the configuration to non-volatile memory, use the following menu path and refer to Table 4.

Path: Main Menu / Administration / Save Configuration

Table 4. Save and Reboot

Parameter	Description/Value
Save to:	local
Host Name:	blank/default
File Name:	blank/default
Are you Sure?:	Y

Any of the above steps can be completed from the command line. For example, the command line for step 7 (Save and Reboot) is as follows:

At the # type **save**
Then type **shutdown now**

Additional problems not covered in this document or the *IntelliServer Configuration Guide* can be sent via e-mail to **support@computone.com.** Include the following information.

- IP Address of the RAS 2000 PowerRack
- A voice phone number for call back
- Modem phone number, if any
- Port number the modem is connected to, if any
- A brief description of the problem you are having

Upgrade Procedures

Upgrading the Kernel via Netbooting

The RAS 2000 comes with the correct kernel version installed. As additional features are made available, kernel files will be posted on Computone's FTP site in the **/pub/products/RAS 2000** directory. Use the following procedure to install a new kernel:

1. Download the desired kernel version from Computone's FTP site. Be sure to use the BINARY transfer mode.

2. Place the file in your TFTP server's directory.

3. Login on the RAS 2000 as root and enter the command *netboot host filename* where *host* is the name of the IP address of the TFTP server on which the file is stored and *filename* is the name of the file as it's stored on that server.

4. Login as root and enter the command *netboot -s host filename* after the RAS 2000 reboots. The *-s* option causes the downloaded kernel to be saved to nonvolatile memory without the RAS 2000 rebooting again.

■ End of Procedure

Emergency Boot Loader

While the chances of a power failure during a kernel upgrade is remote, nonetheless, it is possible. Should this occur, the image in the flash is left in an inconsistent state. The Emergency Boot Loader is designed as a method of getting a kernel loaded into memory and executing and does not attempt to save the image to flash. During the normal course of a power-up sequence, the boot loader performs several integrity checks on the PROM. It recognizes an inconsistent state and invokes the Emergency Boot Loader. In doing so, the status LEDs on the RAS 2000 (labeled with a circle and rectangle) light yellow-red and stay on.

To correct this problem, you need a:

- Computer with a communications program such as cu, Procomm, or Hyper-Terminal
- .srec file that accompanies the kernel release
- Cable to attach port 0 to a serial port on the computer (Computone cable 2-20121, for example)

Once you have everything connected, use the following procedure:

1. Specify 9600 baud, no parity, 1 stop bit, 8 data bits, and no handshaking for the serial port.

2. Power up the RAS 2000. You should get the following message:

```
There is a checksum error
in the kernel flash.

Emergency Boot Loader

EBL>
```

If you do not get this prompt, double-check all cabling and communication parameters. When you call tech support, this is the first thing they will ask you.

3. Enter "?", the following is displayed:

```
EBL< ?
??

Available commands:z
    reset
    baud <baudrate>
    load

EBL>
```

You get a list of valid commands any time you enter an invalid command. The commands are defined as follows:

Command	Description
reset	Resets RAS 2000.
baud <baudrate>	Sets baud rate on-the-fly. Once entered, you have to change the terminal's baud rate and press enter to get another prompt. If you enter an invalid baud rate, a list of valid baud rates are displayed.
load	Starts kernel load.

4. Enter *load* and press enter to start receiving the kernel. The following is displayed:

```
EBL< load
Press ESC to stop the load
```

If all goes well, the *.srec* file is sent in a plain ASCII transfer format. Upon uploading, the image is executed.

NOTE: This does not fix the original corruption in the flash, it just gets a kernel loaded and executing. Once the kernel is up and running, netboot to attempt another save of the kernel image.

5. Netboot to load and save a new kernel image (see section, *Upgrading the Kernel via Netbooting*).

■ End of Procedure

Restoring Factory Defaults

There are three ways to restore factory defaults to NVRAM:

1. Enter *restore factory* at the shell command prompt.
2. Hold the paperclip button down while powering up the RAS 2000. Release it after 1 second.
3. Connect a terminal to port 0, at 9600 baud, 8-bit characters, no parity, and 1 stop bit. and then press the ESC key while the RAS 2000 is booting (at power-up or after a "shutdown" command).

Even if you use method 2, it is recommended that you have a terminal or PC attached to port 0. The reason is that the machine has no IP address and, thus, is not accessible over the network. None of the methods above alter NVRAM so if you want the old one back, do a *restore*, *shutdown now*, or a power cycle. If you want to save the factory defaults, type in *save* just as you would when saving any other configuration.

Figure 7 shows the location of the paperclip button to restore factory defaults.
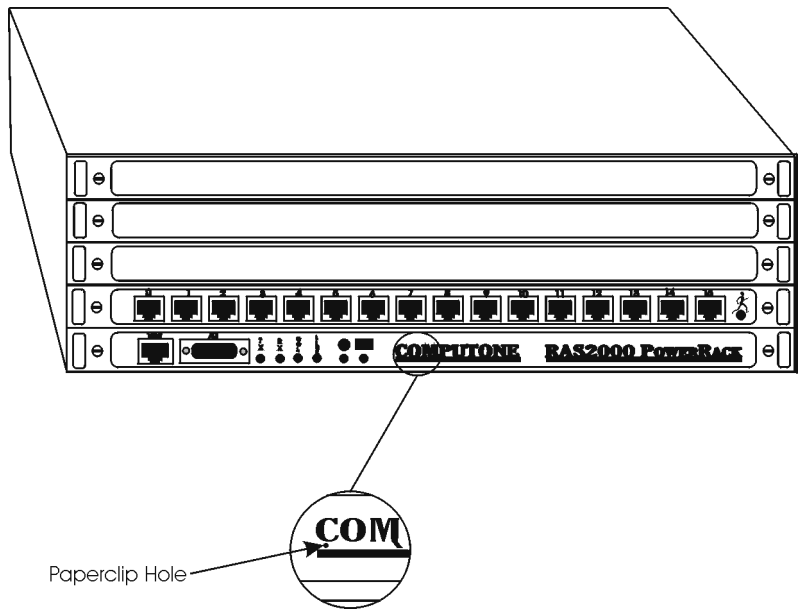
Figure 7. **Paperclip Hole Location**