



Tyne Users Manual

Getting to know your Tyne RISC PC
the ultimate blend of performance and compatibility.



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This warranty does "not" cover:

- Damage during shipments other than the original shipment to purchaser
- Damage caused by impact with other objects, dropping, falling, or other accidental damages
- Damage incurred by user mishandling, including the improper installation of peripheral cards, memory or other objects not authorized by DeskStation Technology Incorporated
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- Damage caused by natural events such as weather
- Damage caused by any other abuse, misuse or misapplication

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Important

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. If not installed and used in accordance with this instruction manual, the Tyne R4600 may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference requiring users to correct the interference at their own expense. Modifications to the Tyne R4600 not expressly approved by DeskStation Technology, Inc. could void the user's authority to operate this system

Life Support Policy

DeskStation's products are not authorized for use as critical components of life support devices or systems unless a specific written agreement pertaining to such intended use is executed between the user and an officer of DTI.

1. Life support devices or systems are devices which (a) are intended for surgical implant into the body or (b) support or sustain life and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Notice

The Tyne RISC PC has been designed as a Microsoft Windows NT platform. Windows NT is the only operating system that is supported. Please follow the directions contained in this manual for installing Windows NT.

DeskStation Technology assures no compatibility of the Tyne RISC PC with any operating system other than Windows NT.

DeskStation Technology always welcomes any feedback. Therefore, any comments or suggestions you might have are encouraged.

Introducing the Tyne RISC PC

*The Tyne RISC PC design incorporates the power of a workstation
with the expandability of a PC.*

System Features

The Tyne RISC PC is an innovative system engineered and produced by DeskStation Technology, Inc. The Tyne has been designed to combine the power of a RISC based processor with the flexibility of PC based peripherals. The resulting machine sets a new standard in performance and value.

The Tyne is packaged to include the following:

- *Color SVGA monitor (optional)*
- *SVGA Graphics Card (VESA or ISA)*
- *CD-ROM Drive*
- *1.44 MB Floppy Drive(s)*
- *SCSI Hard Disk Drive (s)*
- *Minimum of 16 MB RAM*
- *SCSI Controller Adapter*
- *I/O Controller Card*

Every complete system that DeskStation ships has undergone a significant burn-in. This burn-in process tests the motherboard as well as its interaction with the peripheral devices that you ordered.

This manual will provide a brief introduction to your Tyne. Topics discussed will include configuration of the equipment, loading of Windows NT, and the installation of additional memory in the Tyne.

System Specifications

These specifications are for our standard configuration; your system may contain optional equipment. All specifications are subject to change without notice or obligation.

•CPU Type:	MIPS RISC R4600PC
•FPU Type:	Integrated in CPU
•Primary Cache:	16KB I-Cache, 16KB D-Cache
•Cache Subsystem:	
-Size	512 KB, or 2 MB Unified Write-Through
-Width	128 bit
-Bandwidth	200 MB/second
•CPU Speed:	33MHz Externally/133MHz Internally
•Memory Subsystems:	
Capacity	6 MB standard; expandable to 256 MB ¹
-Bus Width	64-bits
-Bandwidth	40MB/second
-Interface	Four 36Bit SIMM Sockets
-PROM	256KB
-NVRAM	8 KB
-Memory Expansion (80 or 70 nanoseconds)	4-72 pin SIMMs 1Mx36 bit (16 Meg) 2-72 pin SIMMs 4Mx36 bit (32 Meg) 4-72 pin SIMMs 4Mx36 bit (64 Meg) 2-72 pin SIMMs 4Mx36bit & 2-72 pin SIMMs 1Mx36bit(40Meg) 2-72 pin SIMMs 16Mx36bit (128Meg) 4-72 pin SIMMS 16Mx36bit (256Meg) ²
•Keyboard Controller:	Keyboard with 6 pin DIN PC/AT form
•Bus:	VESA local-bus, provided by DeskStation's Logicore chipset. Chipset supports DeskStation authorized VESA and ISA peripheral cards.
•Mouse:	Serial Mouse
•Board Dimensions:	13.75"Width x 12"Depth x .060" Height
•Package Dimensions:	Varies with chassis.
•Weight:	35-55 Lbs. (varies with chassis)
•Expandability:	2 VESA, 4 ISA Slots
•Power:	115/230 Watt Power Supply
•Current:	25A @+5V 10A @+12V 0.5A @-5V 0.5A @-12V
•AC Voltage:	115 VAC or 230 VAC
•AC Frequency:	50-66Hz
•RFI/EMI Emissions:	FCC Part 15 Class A
•Operating Temperature:	50F to 95F (10C to 35C)
•Storage Temperature:	0F to 140F
•ESD:	to 10kV no damage

¹ Support for 16 mb. memory configurations will be available shortly, contact DeskStation support for more information.
² Systems with 2 mb. of secondary cache support 256 MB of RAM. 512K cache systems only support 128 MB as a maximum.

Viewing Your System

This page offers a front view of the standard chassis that your Tyne R4600 is configured in. On the following page is a back view of the same chassis.

Front View

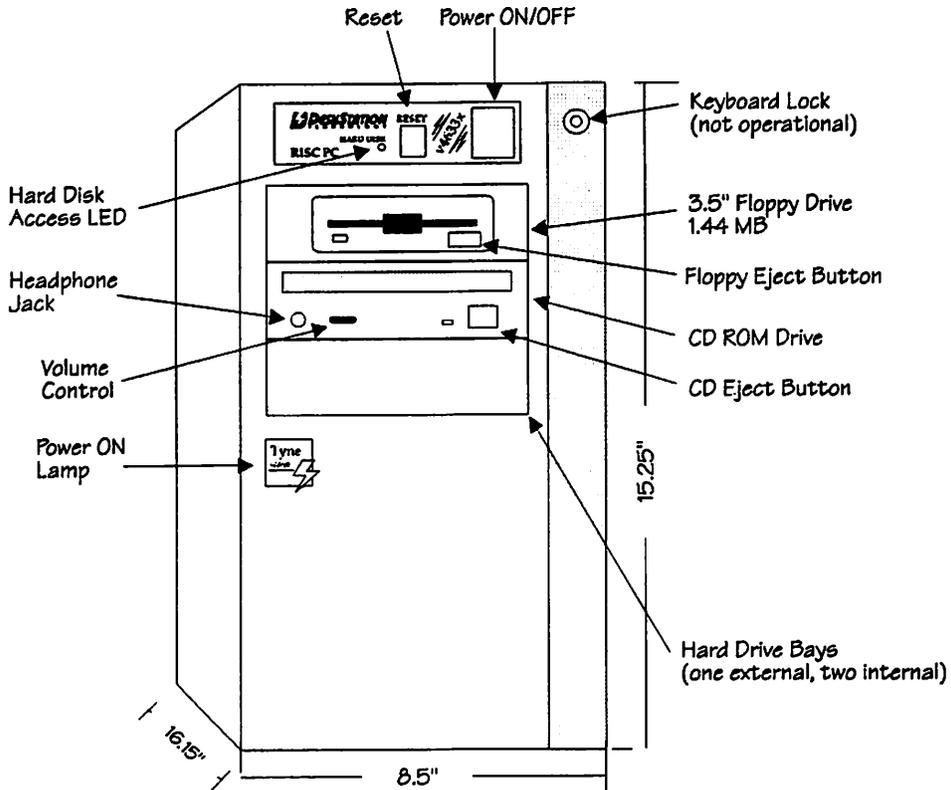


Figure 1-1

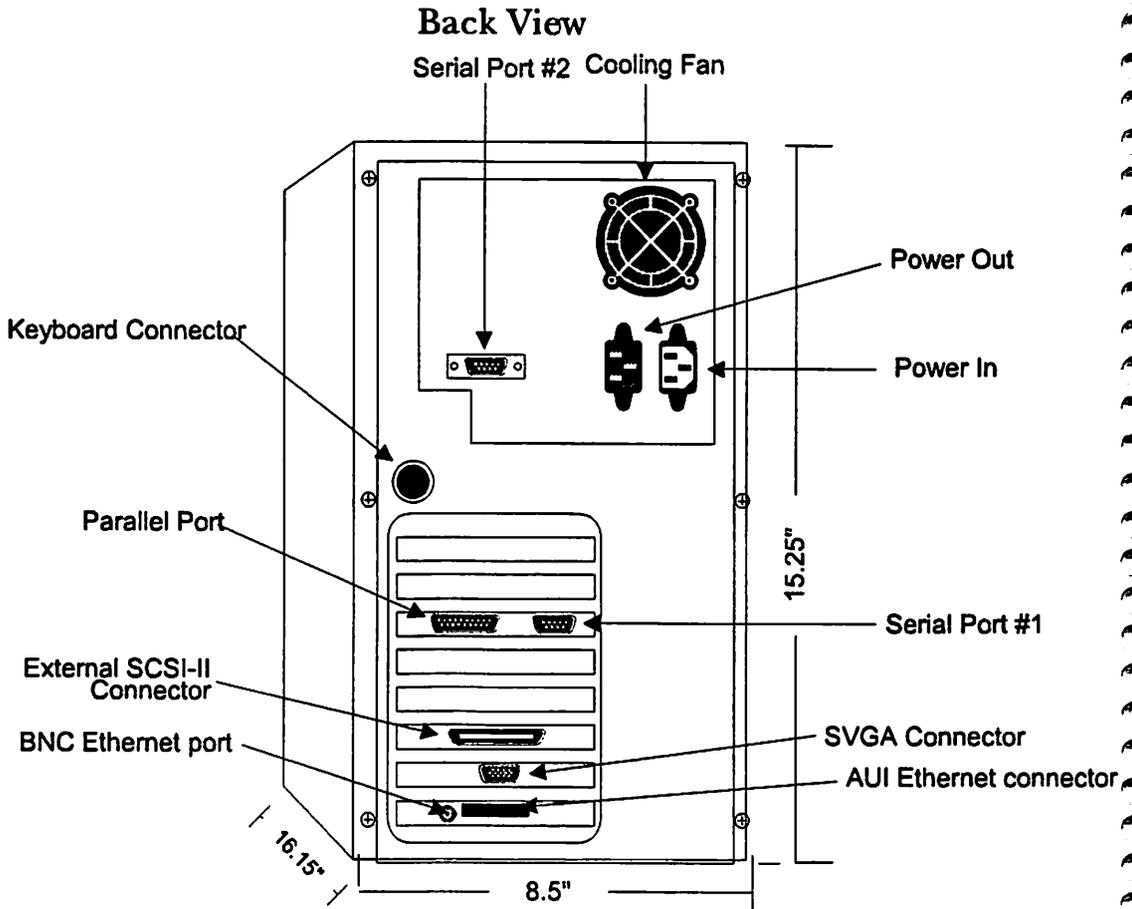


Figure 1-2

Setting up your machine

This section provides procedural information in regards to setting up your Tyne RISC PC as well as the installation of Windows NT.

Bringing Your Machine “Up”

1. Take a moment to review Figure 1-1 and 1-2. By focusing your attention on the “rear view” of the system, it will become apparent as to where each cable provided with your system should be plugged. On every system these cables include: power, mouse and keyboard. Some of our systems include other peripherals and devices. For these machines, other cables may be included.
2. Securely plug each of the provided cables into their proper jacks. It is important to plug each device in *securely*. If they are not plugged in properly, problems might arise in the operation of the system. The power cable, rather than plugging directly into a wall outlet, should be plugged into a power strip or universal power supply (UPS). Some power strips provide surge protection and keep your machine from experiencing electrical spikes that can often cause irreparable damage to systems.
3. There are environmental conditions that must be addressed in regards to your Tyne RISC PC. Because of the speed of your system, proper ventilation is *absolutely* necessary. To that end, it is important that the internal power fans are never blocked. Furthermore, machines should never be exposed to extreme environmental conditions, i.e. rain, snow, dust, dirt, extreme heat, or moisture.

Once all the cables are plugged-in and the machine is placed in proper environmental conditions, it is time to “power up” your machine and verify that it is working properly.

Understanding the ARCS BIOS

You are now at the point that you can turn on your system. After verifying that everything is set up as earlier specified, simply depress the power switch on the machine as well as your monitor and you should see Figure 2-1. This screen is our ARCS BIOS. It may take as long as 2 minutes for this BIOS to diagnose every peripheral device and drive that is in your system. Be patient as it is worth the wait. Our BIOS is the best place to start troubleshooting if you should have a problem. As you can see in Figure 2-1, the ARCS BIOS is very comprehensive and can aid you greatly if your problem lies in the configuration of your machine. It is explained in more detail in Appendix B. This figure is a representation of the ARCS BIOS screen that appears when you boot your machine. Familiarize yourself with this screen so that you understand what the different column headings mean.

ARCS BIOS

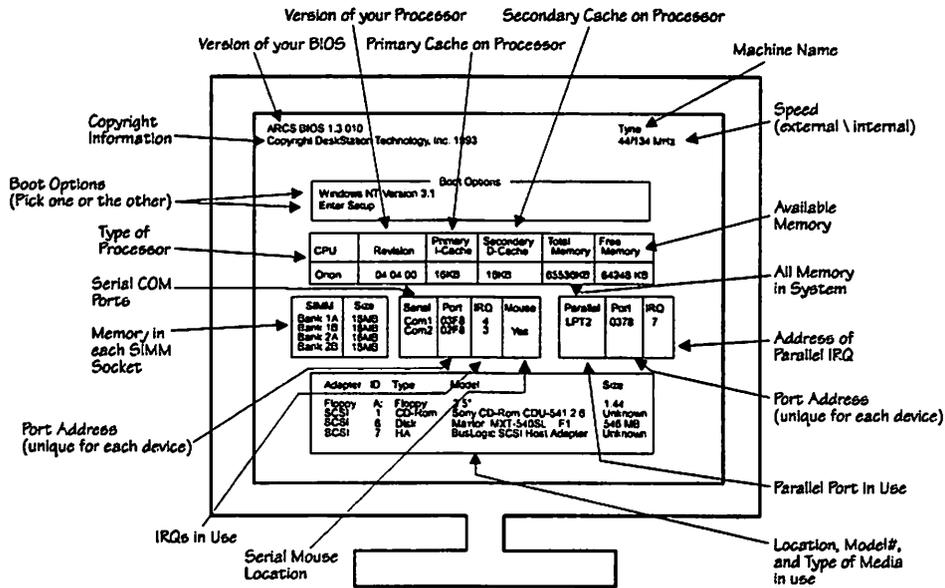


Figure 2-1

After the ARCS BIOS successfully begins, you will have one or two boot options. If Windows NT 3.1 has been pre-installed on your machine you will see something similar to Figure 2-2. You can toggle between these options with the arrow keys and you can select them by depressing "Enter." If your machine was not purchased with Windows NT then your only option will be to "Enter Setup." From this menu, you will be able to install Windows NT on your Tyne RISC PC.

Boot Option Menu

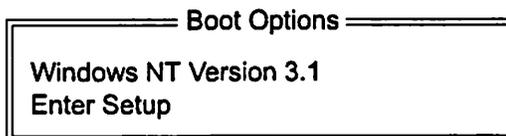


Figure 2-2

Setting The Time And Date

Prior to beginning the process of installing Windows NT, you might like to verify that the time and date are correct for the machine that you purchased. To do this follow these two simple steps:

Step 1.

Enter Setup - Entering setup can be accomplished by depressing the "Enter" key once the selection is highlighted. Enter Setup will be highlighted automatically if Windows NT has not been pre-installed. Otherwise, you can toggle between the choices by using the arrow keys.

Step 2.

Set Time and Date - Once you depressed the "Enter" key, you will be faced with five choices: Run a Program, Environment Variables, Set Time and Date, Advanced Setup, and System Configuration. From this menu, highlight Set Time and Date. Once highlighted, depress the "Enter" key. You will shortly see the Time and Date Screen.

Verify that the current time and date are correct. If they are correct, simply depress the "Esc" key until you get back to the Enter Setup Screen. If they are not correct, delete the incorrect values and replace them with the correct values using the numeric keys. Once completed, press the "Esc" key until you get back to the Enter Setup Screen.

Windows NT Installation Assistance

Please refer to the Windows NT manual for installation instructions. We have included a couple scenarios that will help you understand and troubleshoot basic situations that might arise.

Preparing a new Hard Disk

If you are installing Windows NT on a new hard disk you need to run the "arcinst.exe" utility to define the system partition that Windows NT will use to load from. On your Tyne RISC PC this partition must be formatted as FAT in order to be recognized by the ARCS BIOS. The files that reside in the system partition are static and do not change unless you are installing a new version of Windows NT. It is recommended that you create a 5 MB. partition to hold these system files and use the rest of the disk for Windows NT and other files. Follow these instructions to setup your System partition.

1. Turn on the Tyne system.
2. Insert the Windows NT CD-ROM disk into the CD-ROM caddie supplied, then insert the caddie into the CD-ROM drive.
3. At the ARCSBIOS menu use the keyboard arrow keys to select ENTER SETUP, and press the enter key.
4. Choose RUN A PROGRAM from the menu and press enter.
5. Type "CD:\MIPSARCINST.EXE" and press enter now.
6. Choose CONFIGURE PARTITIONS and press enter now.
7. Select the disk that you want to put Windows NT Advanced Server system on and press enter now. NOTE: The disks are identified by their SCSI ID. If you do not know the ID of the disk you want to install on, you can go back to the main ARCS BIOS screen to determine the disk for each ID.
8. The program will prompt you for a partition size. Type 5 and press enter to create a 5 MB system partition.

NOTE: If your boot disk has a capacity greater than one gigabyte, the ARCS BIOS needs the initial partition, for *both* the system files and the Windows NT files, to be less than one gigabyte. Please create a 100 to 900 MB. FAT partition to include both the system files and the "winnt" files. EG: Type "100" to create a 100 MB partition for the system and Windows NT files.

9. Press enter again now.
10. You will next be asked if you want this partition to be a system partition, type "Y" now. The partition will now be formatted and identified as the system partition for use by Windows NT.
11. Press escape Three times to return to the ARCS BIOS SETUP menu.

The disk is now ready for installation of Windows NT.

Installing Windows NT

On the Tyne RISC PC, the Windows NT installation program, SETUPLDR, is launched from the ARCS BIOS. The following instructions detail how to start the Windows NT installation process from the ARCS BIOS:

1. Turn on the Tyne system.
2. Insert the Windows NT CD-ROM disk into the CD-ROM caddie supplied, then insert the caddie into the CD-ROM drive.
3. Choose **RUN A PROGRAM** and press enter.
4. Type **"CD:\MIPS\SETUPLDR"** and press enter.
5. The Windows NT screen will pop up. Press enter now. Complete the installation as described in the Windows NT manual.

NOTE: If you have received a "Tyne Installation Disk" for the version of Windows NT you will be installing, please insert the disk supplied into the 3.5" drive bay. The Custom Installation option is required to install the proper files off of the Tyne Installation Disk. Press "C" to initiate the Custom Installation option. At the next screen you will be shown the system configuration of your computer. Select **COMPUTER TYPE** and press enter. Select **OTHER-REQUIRES DISK FROM HARDWARE MANUFACTURER** and press enter. Select the option shown and press enter. Select **THE ABOVE LIST MATCHES MY COMPUTER** and press enter. Complete the installation as described in the Windows NT manual.

Deleting Old Installation Sets from the ARCS BIOS Screen

When new versions of Windows NT are installed a new "Environment Variable" set is created to track the installation information necessary to start Windows NT. The Windows NT Resource Kit provides detailed information on these Environment Variable sets. Sometimes an old installation is deleted or written over and choices will appear in the ARCS BIOS screen that are no longer pertinent. The following instructions detail how to delete those Environment Variable choices. **NOTE:** Be careful not to delete the active installation set.

1. At the **SETUP** menu choose **ENVIRONMENT VARIABLES** and press enter.
2. Select **DELETE ENVIRONMENT VARIABLES** and press enter.
3. This program will prompt you with the first set of environment variables it sees. Select the Environment Variable set you would like to delete and press enter. It will then prompt you for a Y or N response to verify that this is the variable you want to delete. Type a "Y" and press enter.

Press escape to return to the **SETUP** menu.

Windows NT™ Installation (Graphically)

Use Up and Down Arrow Keys to Toggle Between Selection

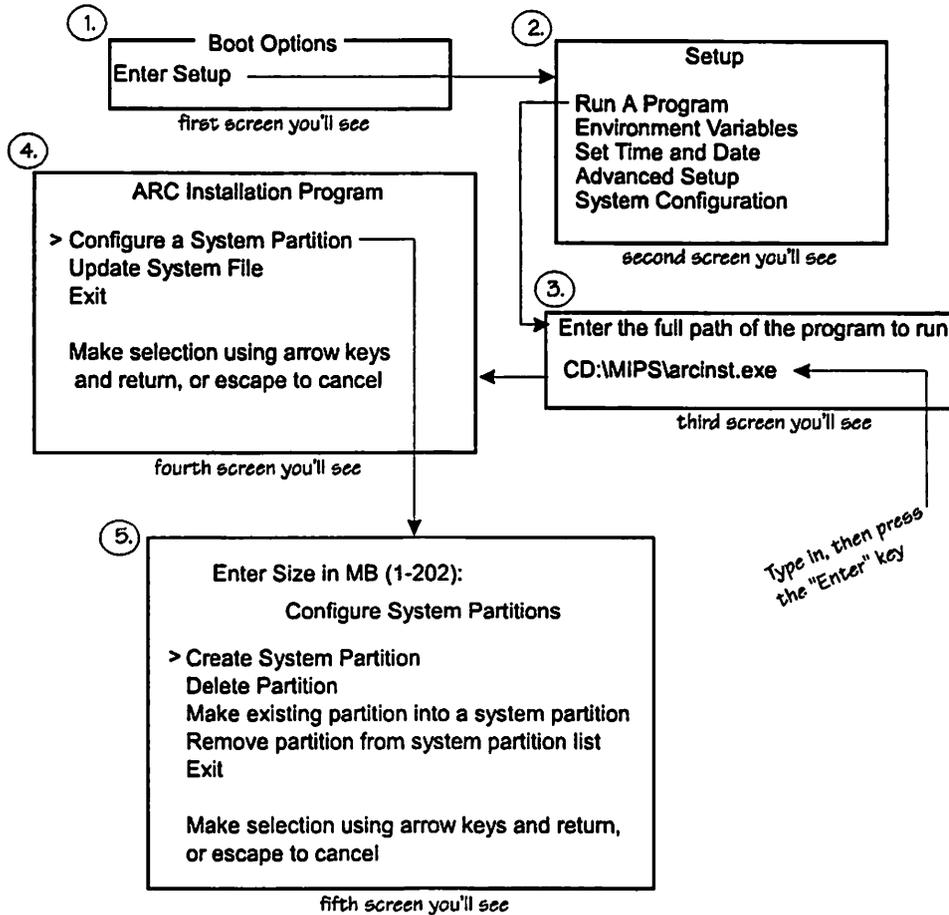


Figure 2-3

A Closer Look at Your Motherboard

This section provides information in regards to the motherboard of your new system. By using this chapter, you can understand and troubleshoot basic hardware situations that might arise.

Features of the Motherboard

The first thing that you'll notice when you look at the motherboard of the Tyne RISC PC is that it looks identical to any VESA-based full sized PC. Unlike classic workstations, the Tyne RISC PC uses standard power connectors, a standard keyboard jack, standard VESA sockets, and standard SIMM sockets and modules. Thus, no special knowledge is necessary to configure your Tyne RISC PC.

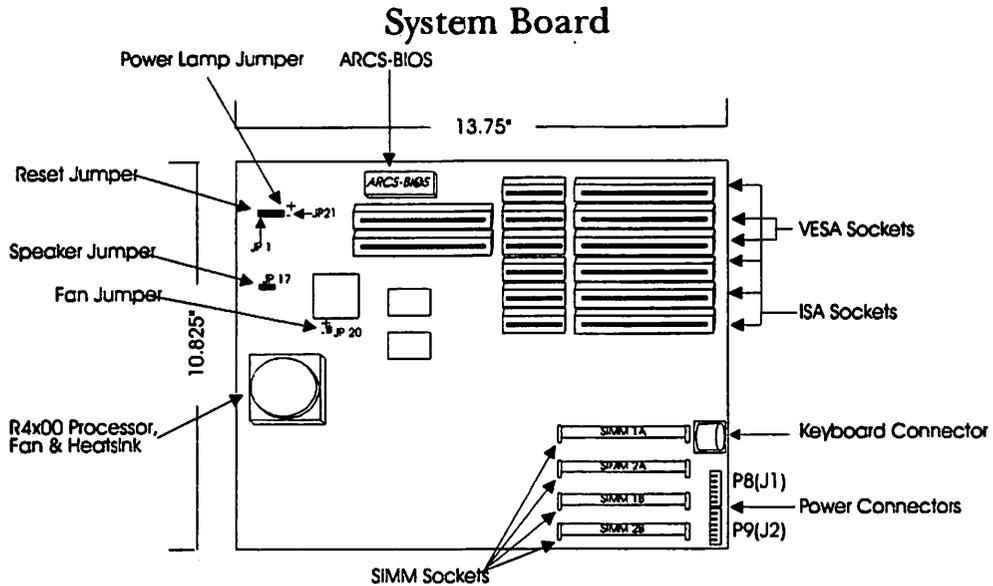


Figure 2-4

Jumper Settings for the Tyne RISC PC

These are the jumper settings for the motherboard of the Tyne RISC PC. To find these in your system, please refer to Figure 2-2.

Jumper	Pin Type	Connection	Function
JP 1	2 Pin	Reset Wire	Reset Machine
JP 21	2 Pin	Green/Black Wire	Power "on" Light
JP 17	4 Pin	Grey/White Wire	Speaker
JP 20	2 Pin	Red/Black Wire	Processor Fan

Table 2-1

Installing More Memory in your Tyne RISC PC

The Tyne R4600 can be configured with anywhere from 16MB of RAM³ to 256MB of RAM⁴. The Tyne RISC PC uses 1M x 36 4 MB. SIMMs, 4M x 36 16 MB. SIMMs and 16M x 36 64 MB. SIMM modules. The modules must be properly populated in order for the system to function properly. After installing your new memory, the ARCS BIOS will immediately recognize the new configuration. This can be seen as you bring up your machine (Figure 2-1). By following the simple instructions ahead, installing SIMMs can be very easy.

³Support for 16 mb. memory configurations will be available shortly, contact DeskStation support for more information.

⁴Systems with 2 mb. of secondary cache support 256 MB of RAM. 512K cache systems only support 128 MB as a maximum.

Step 1. Where are the SIMMs on the motherboard?

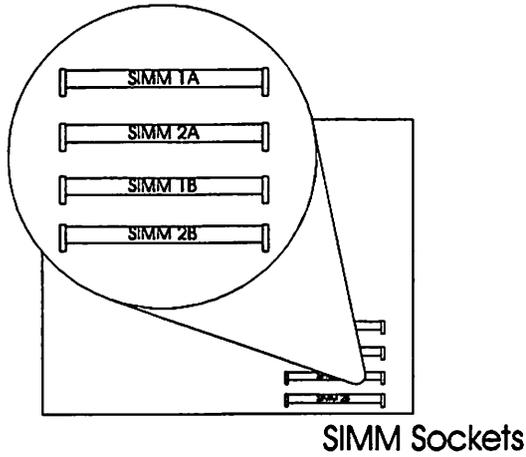


Figure 2-5

Step 2. What type of SIMMs do we use?

SIMM Type	Configuration	Speed
4 Megabyte SIMM ⁵	1MB x 36	70 NS
16 Megabyte SIMM	4MB x 36	70 NS
64 Megabyte SIMM	16MB x 36	70 NS

Table 2-2

⁵Support for 16 mb. memory configurations will be available shortly, contact DeskStation support for more information.

Step 3. How do I install these modules?

Memory can be installed by placing the module into the socket as shown below (Figure 2-5). The SIMM sockets we use are keyed, so don't worry about getting pin 1 wrong (it is impossible). When removing a SIMM module from its socket, it is important to be careful as the sockets can often be fragile. It is best to use a thin flathead screwdriver to relieve the brackets holding the SIMMs in place.

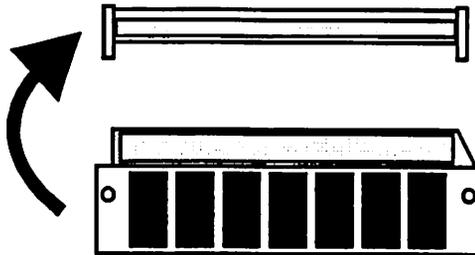


Figure 2-6

Step 4. Which SIMM sockets should I populate?

All SIMM modules are not created equal. When determining where to place your SIMMs, you should refer to the table below:

Bank 1A	Bank 2A	Bank 1B	Bank 2B	Total
4MB SIMM	4MB SIMM	4MB SIMM	4MB SIMM	16MB (see below)
16MB SIMM		16MB SIMM		32MB
16MB SIMM	4MB SIMM	16MB SIMM	4MB SIMM	40 MB
16MB SIMM	16MB SIMM	16MB SIMM	16MB SIMM	64 MB
64MB SIMM		64MB SIMM		128 MB
64MB SIMM	4MB SIMM	64MB SIMM	4MB SIMM	136 MB ⁶
64MB SIMM	16MB SIMM	64MB SIMM	16MB SIMM	160 MB
64MB SIMM	64MB SIMM	64MB SIMM	64MB SIMM	256 MB

Table 2-3

⁶Systems with 2 mb. of secondary cache support up to 256 MB of RAM. 512K cache systems only support 128 MB as a maximum.

Upgrading your ARCS BIOS in your Tyne RISC PC

It is very possible, in fact likely, that you will never be asked to upgrade your BIOS on your Tyne RISC PC. However, for those of you who used your Tyne RISC PC with the beta version of Windows NT or those of you who experience difficulties that can only be solved by upgrading your BIOS, you will find instructions below in regards to this.

1. Take out your old BIOS. The best way to perform this task is with a small flat-head screwdriver. Gently, pry the BIOS from its socket. This task should not require a great deal of force.
2. Insert the BIOS into its proper socket as in Figure 2-6. Be cognizant of the pins as they are extremely fragile. Please inspect the pins to see that they are not bent. The machine will not function properly if the pins are bent.

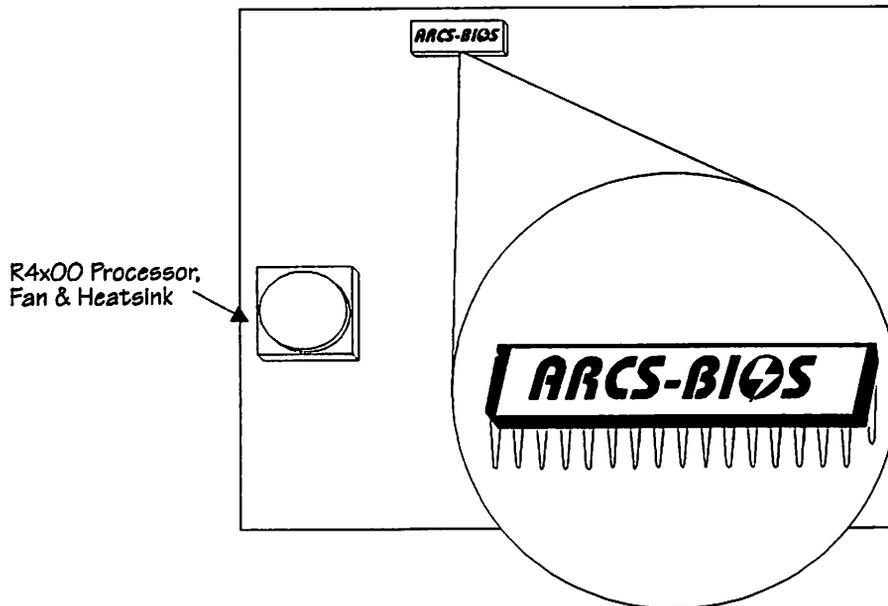


Figure 2-7

Troubleshooting the Tyne RISC PC

This section provides information to assist in determining system problems.

Problems?

If you are experiencing difficulties with your Tyne RISC PC, here are some questions to answer to help determine the problem:

Are all the installed adapters certified for operation in the Tyne RISC PC?

Adapters added to your system must be supported by both Windows NT and DeskStation. Be sure any new adapters are listed in the latest Windows NT Hardware Compatibility List.⁷ Many adapters, such as SCSI and Video adapters, must be supported from the ARCS BIOS. Contact DeskStation Support for information concerning adapter support.

What has changed since the system last worked?

Many times changes to the system may have catastrophic consequences. If you can, return the system to its prior state. Windows NT supports a "Last Known Good" setting while starting up. Return to the Last Known Good if you changed to an inoperable video mode, or switched SCSI adapters without adding the driver to Windows NT.

Are all the adapters and memory securely seated in their sockets?

Shipping and movement of the system can cause devices to lose their connections with their sockets. Be sure that the devices shown in the BIOS match what is installed in the system. If the screen stays black on power-up, but you see hard disk lights and hear a beep, open up the system and verify that the memory is seated securely. Also check all the adapter boards to make sure they are secured in their slots.

⁷This list is available from Microsoft, or can be retrieved from the "WINNT" Forum on CompuServe or from the Microsoft FTP Server on the Internet at "FTP.MICROSOFT.COM."

Is the SCSI Chain setup correctly?

If the system hangs while “Detecting SCSI Devices” chances are the SCSI chain is not setup correctly, or multiple SCSI devices are set to the same SCSI IDs. Verify that there is proper termination at the start and end of the SCSI bus, and that each device has a unique ID.

Did you check the Event Viewer for Windows NT diagnostic information?

Windows NT provides an excellent logging tool, the Event Viewer, to trap system and application events. It is located in the “Administrative Tools” group that is created when Windows NT is installed. Please check this log to get a better understanding of what is going wrong with your system.

DeskStation Technical Support

(913) 599-1900

It will greatly assist your support representative if before calling you have ready the system configuration and the answers to the above questions.

Appendix A. Adapter Card Information

This section provides information in regards to the jumper settings for some of the common cards that are shipped and supported by our machine. For updated support information, contact DeskStation support at (913) 599-1900.

IRQ Default Settings

(options are included in parenthesis):

IRQ	Use
0	Timers
1	Keyboard
2	Open (typically used for Token Ring, Sound Blaster or 3COM Ethernet)
3	COM2
4	COM1
5	Open (typically used for SMC Ethernet adapter)
6	Floppy
7	LPT1
8	Clock
9	Same as IRQ 2
10	Open (typically used for second SCSI adapter or 16-bit Serial card)
11	Typically used for initial SCSI adapter
12	Open (typically used for second SCSI adapter, Network or 16-bit Serial card)
13	Not Available for use
14	Typically used for IDE-can be open if IDE is disabled
15	Open (typically used for second IDE or network interface)

NOTE: The WinMSD utility that is included with Windows NT 3.5 provides detailed IRQ information.

SCSI Adapters

The Tyne RISC PC currently supports BusLogic SCSI adapters and the Adaptec 154xB and 154xC. Use of an unsupported SCSI adapter will result in system failures. Please contact DeskStation Support for updated information if you believe another adapter is supported by Windows NT and will work.

NOTE: The ARCS BIOS will detect and list SCSI adapters and devices that are recognized to the system. If this detection fails or is incorrect, be sure to check for conflicting SCSI IDs and proper termination.

NOTE: On a SCSI chain there can be up to 8 devices. One address is used by the SCSI controller card, leaving seven addresses open for other devices. What SCSI termination does is tell the SCSI controller where the beginning and the end of the chain are. *There must always be terminators at the beginning and the end of the chain.*

There are three types of terminators. These are: terminators on individual devices, terminating resistor packs on the SCSI controller card, and external terminators for terminating external devices. Deskstation always removes the terminators from the SCSI controller card in order to ease confusion. If there are no external SCSI devices attached to your SCSI card the external terminator must be installed. If there are any external devices attached then the last external device must have a terminator installed.

In addition most internal SCSI devices, such as hard drives, come with terminators installed. Since the last device on the chain must have a terminator, that device may be left unchanged. The devices in the middle of the chain must have their terminators pulled however. See your SCSI host card manual and SCSI device manuals for more information on this topic

NOTE: Before removing your existing SCSI controller and installing a different adapter, make sure you change the SCSI controller driver setup in Windows NT. If you do not do this step before installing any new SCSI controller, Windows NT will not boot properly and you will have to reinstall your old adapter in order to get back into Windows NT.

Configuration with a Single SCSI Adapter

BusLogic BT545-S ISA SCSI-II Adapter

DeskStation installs the BT 545-S adapter with the IRQ set to 11, the Port Address set to 330H and the Floppy controller disabled (since we utilize the Floppy controller on the Multi-I/O card). To configure it in this manner, do the following:

1. On Switch Bay Two, set Switch 5 from the ON to the OFF position. This disables the BIOS, which is not needed under Windows NT.
2. Pull the jumpers off W15 and W16 to disable the Floppy Controller.

BusLogic BT445-S VESA SCSI-II Adapter

DeskStation installs the BT 445-S adapter with the IRQ set to 11, the Port Address set to 330H and the Floppy controller disabled (since we utilize the Floppy controller on the Multi-I/O card). To configure it in this manner, do the following:

1. On Switch Bay Two, set Switch 5 from the ON to the OFF position. This disables the BIOS, which is not needed under Windows NT.
2. Pull the jumpers off W15 and W16 to disable the Floppy Controller.

Adaptec 1542-B

1. Look at the card and locate jumper block J6. Remove the jumper from the pair of pins at pin 1.
2. Find jumper block 8 and remove the jumper from the pair of pins at pin 1.

Adaptec 1542-C

1. On the card there is a switch bank.
2. On the switch bank move switches 1, 5, 6, 7, and 8 from the default (up) position to the down, or open position.

DeskStation provides a software utility to set the software settings on the card for IRQ, negotiations etc. Please refer to the BusLogic BT445-S for the recommended settings. To run this

1. At the ARC BIOS menu screen choose the option "enter setup"
2. At the Setup menu screen choose "Run A Program"
3. Insert the Tyne Add-in Utilities disk in Drive A.
4. Type "a:\desktech\adaptec.exe" and press Enter
5. Using the arrow keys and spacebar, change the IRQ setting to 11 (if the default card).
6. Change the base address to 330.
7. Press escape and type "Y" to save settings.
8. Press any key to reboot.
9. Remove the Tyne add-in utilities disk.
10. NOTE: Be sure that the Windows NT Control Panel settings match these settings.

Configuration with Multiple SCSI Adapters

NOTE: For simplicity these instructions assume that all SCSI adapters will be from the same manufacturer

When configuring multiple SCSI adapters it is important to select IRQs and Port Addresses that are not already in use.. It is also important when using Windows NT 3.1 that the "default" SCSI adapter chain contains the boot partition for Windows NT. For the BusLogic and Adaptec SCSI cards detailed here, the port address determines which SCSI adapter is initialized first. The adapter that is set to the 330H port address will be first. The following instructions set the second SCSI adapter to an available port address and IRQ (when the system is setup as default).

NOTE: Windows NT 3.5 allows the boot partition to be located on any available SCSI chain, so it is only necessary to set each card to available IRQs and port addresses for proper operation.

ARCS BIOS NOTES when using multiple SCSI adapters:

The ARCS BIOS will only recognize and list the first detected SCSI adapter and the devices attached to it. If the SCSI adapters are set incorrectly, the ARCS BIOS may not detect or display any SCSI devices. If this occurs, Windows NT will not start and you should recheck your adapters for proper settings and proper installation.

Multiple BusLogic BT545-S ISA SCSI-II Adapters

DeskStation installs the BT 545-S adapter with the IRQ set to 11, the Port Address set to 330H and the Floppy controller disabled (since we utilize the Floppy controller on the Multi-I/O card). The second BT 545-S adapter is set to IRQ 10, the Port Address set to 134H and the Floppy controller disabled as well. To configure them in this manner do the following:

1. On Switch Bay Two, set Switch 5 from the ON to the OFF position. This disables the BIOS, which is not needed under Windows NT.
2. Pull the jumpers off W15 and W16 to disable the Floppy Controller.
3. Now configure the second card the same as for a single 545-s (repeat steps 1 and 2).
4. On Switch Bay Two change switch 1 from the ON to the OFF position. This will set the port address to 134H so this adapter will not be recognized first.
5. On Switch Bay Two change switch 6 from the default to the closed position. This will set the IRQ to 10. Be sure this IRQ is not in use by any other adapters.
6. On the card itself pull the jumper on W6 off it's pins and place it on the pins for W7. This sets the jumpers to match the Switch Bay settings for the IRQ address.

Multiple BusLogic BT445-S VESA SCSI-II Adapters

DeskStation installs the BT 445-S adapter with the IRQ set to 11, the Port Address set to 330H and the Floppy controller disabled (since we utilize the Floppy controller on the Multi-I/O card). The second BT 445-S adapter is set to IRQ 10, the Port Address set to 134H and the Floppy controller disabled as well. To configure them in this manner do the following:

1. On Switch Bay Two, set Switch 5 from the ON to the OFF position. This disables the BIOS, which is not needed under Windows NT.
2. Pull the jumpers off W15 and W16 to disable the Floppy Controller.
3. Now configure the second card the same as for a single 545-s (repeat steps 1 and 2).
4. On Switch Bay Two change switch 1 from the ON to the OFF position. This will set the port address to 134H so this adapter will not be recognized first.
5. On Switch Bay Two change switch 6 from the default to the closed position. This will set the IRQ to 10. Be sure this IRQ is not in use by any other adapters.
6. On the card itself pull the jumper on W6 off it's pins and place it on the pins for W7. This sets the jumpers to match the Switch Bay settings for the IRQ address.

Multiple Adaptec 1542-C SCSI-II Adapters

Initial Adapter Settings

1. On the card there is a switch bank.
2. On the switch bank move switches 1, 5, 6, 7, and 8 from the default (up) position to the down, or open position.

Secondary Adapter Settings:

1. Configure both cards the same as for a single 1542c.
2. On card two change switches 2, and 6 back to the up position.

Display Adapter Configuration

Deskstation Technology currently supports 4 different video cards for Tyne. These cards are: Orchid Fahrenheit 1280 Plus ISA, Orchid Fahrenheit 1280 plus VLB (REV. C only), ACTIX Graphics Engine VLB, and the Appian Renegade VLB.

The default settings on these cards are correct and should not be changed.

Configuration of an IO/IDE card

Settings on any IO/IDE card to be used in the Tyne should not be changed.

Configuration of a Network Card.

Supported network cards are typically configured with jumpers on the board. It is important to match the adapter's settings with Windows NT's settings. To set the Windows NT settings, follow the instructions on using the "Network" portion of the Control Panel.

NOTE: If you have problems with the network after installing and setting up the adapter, be sure to check the Event Viewer log for possible indications of what the problem may be. The Event Viewer is found in the "Administrative Tools" program group that is setup in the default installation of Windows NT.

Configuring the Elite 16 Plus Network Card.

DeskStation has developed a utility that is run from the ARCS BIOS to software configure the SMC Elite 16 Plus network card. The following instructions can be followed to run this program and setup the network card through the "soft" settings. The Elite 16 can also be "hard" configured using jumpers on the card. If you use the "hard" settings, be sure that the options are not conflicting with other devices installed within the machine.

1. At the ARC BIOS menu screen choose the option "enter setup"
2. At the Setup menu screen choose "Run A Program"
3. Insert the Tyne Add-in Utilities disk in Drive A.
4. Type "a:\desktech\smc.exe" and press Enter
5. Using the arrow keys and spacebar, change the IRQ setting to 5 (if available).
6. Change the base address to 240 (if available).
7. Change the ROM base address to cc000 (if available).
8. Press escape and type "Y" to save settings.
9. Press any key to reboot.
10. Remove the Tyne add-in utilities disk.
11. **NOTE:** Be sure that the Windows NT Control Panel settings match these settings.

Configuring a 3COM network card.

1. On the card locate jumper block J3 and move the jumper to the pin pair labeled cc000 to set the port address to cc000.
2. Locate jumper block J1 and move the jumper to the pin pair labeled 280 to set the port address to 280.

Tape Drive Support

Before connecting a tape drive to the Tyne RISC PC, verify that it is included in the most recent "Microsoft Windows NT Hardware Compatibility List⁸."

NOTE: DeskStation cannot guarantee support of every device. If you would like a list of DeskStation tested devices, contact DeskStation Support at (913) 599-1900.

⁸This list is available from Microsoft, or can be retrieved from the "WINNT" Forum on CompuServe or from the Microsoft FTP Server on the Internet at "FTP.MICROSOFT.COM."

Appendix B. System Utilities

In this section, we provide instructions on navigating your way through the ARCS BIOS. This will help you get familiar with the options the BIOS supports.

The ARCS environment

The Advanced RISC Computing Specification (ARCS) environment was developed to provide a hardware independent firmware layer to support certain operating systems. The Microsoft Windows NT operating system requires this firmware layer. The ARCS environment is a collection of system services that allows programs to be loaded and executed, system resources to be mapped and allocated, and environment variables to be manipulated. The DeskStation Technology ARCS BIOS firmware provides a menu-oriented interface to the ARCS services. Software programs can be written that understand how to interface to the ARCS environment. The program SETUPLDR (used to install Windows NT) is such a program. DeskStation Technology also provides ARCS applications for configuring some ISA and VESA add-in boards. NOTE: Applications designed to run in the ARCS environment will not function under any other operating system (such as MS-DOS or Windows).

Following a hardware or software reset of the Tyne RISC PC, the ARCS BIOS firmware will attempt to automatically detect the hardware configuration of the PC. Some of the hardware components require user intervention before they can be detected properly. The firmware provides a set of system utilities designed to facilitate configuration of those components.

When the ARCS BIOS firmware has booted, a Boot Options menu is presented. Figure B-1 shows a typical Boot Options menu. The user can select from one or more operating system environments. The last entry in the menu is Enter Setup. This menu item is used to enter the system utilities portion of the ARCS BIOS. Figure B-1 shows a Setup menu.

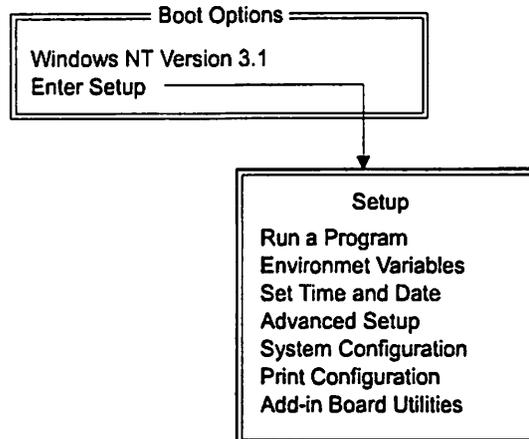


Figure B-1

ARCS Pathnames

The ARCS environment uses pathnames to specify peripheral devices and files. The device pathname is a string containing the component nodes which specify the path to the device. The System Configuration option of system utilities can be used to view all devices and paths currently recognized by the ARCS environment. For example, a floppy disk device may be specified as `multi()disk()fdisk()`.

As an example of ARCS pathnames, the path for the loader program for Windows NT may be specified as `scsi()disk(6)rdisk()partition(1)\os\nt\osloader.exe`. In this example, `scsi()disk(6)rdisk()` indicates a SCSI harddisk. `Partition(1)` is necessary to indicate the logical device partition on the disk.

The following table lists several sample device and file pathnames:

<code>multi()disk()fdisk()\foo.exe</code>	floppy disk
<code>scsi()disk(6)fdisk()partition(1)\foo.exe</code>	SCSI disk (ID = 6)
<code>scsi()cdrom(1)rdisk()\foo.exe</code>	SCSI CD-ROM (ID = 1)
<code>eisa()disk()rdisk(1)partition(2)\foo.exe</code>	partition 2 of the slave IDE drive
<code>multi()par()</code>	parallel printer port
<code>multi()video()</code>	video console output

Files are read from (or written to) devices. The pathname for a file is composed of the path of the device, followed by the path of the file on the device. Magnetic media devices can have directories and subdirectories. The complete directory path to the file must be specified in the pathname. Backslashes are used to separate directory names (as in MS-DOS). Wildcard characters are *not* allowed in the ARCS environment.

NOTE: DeskStation's ARCS BIOS creates "mappings" to identify certain devices. This provides a shortcut to files and is a familiar access point to MS-DOS users. At the bottom of the main ARCS BIOS window you will see the mappings associated with your current setup.

Setup menu

The Setup menu is the main level menu for the system utilities. The user can select from various system utility options. Each of these options will be described in the following sections.

Run a Program

The Run a Program option is used to load and execute special ARCS applications. This option is used primarily during the installation of the Microsoft Windows NT operating system. However, this can also be used to run certain ISA or VESA board configuration utilities. Figure B-2 shows the steps necessary to get to this menu.

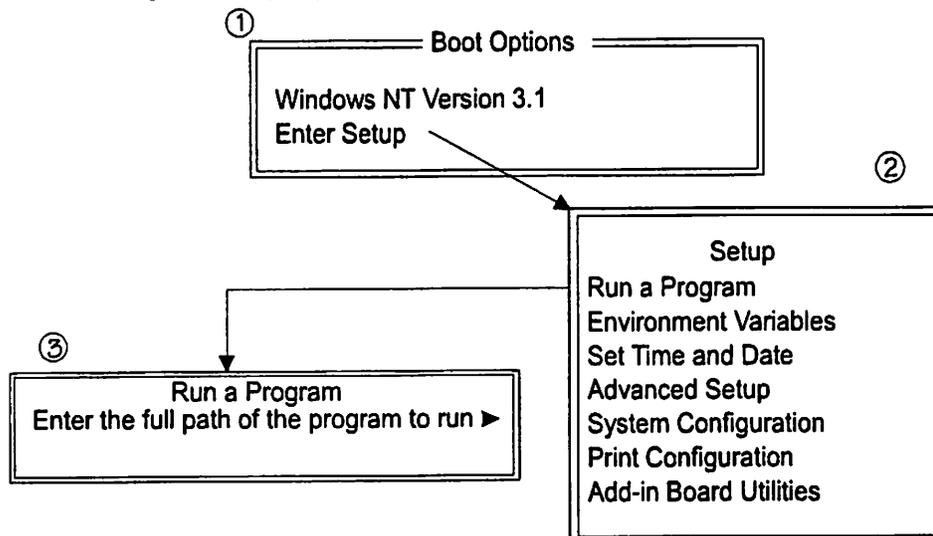


Figure B-2

Load and execute an ARCS application

In the Setup menu, choose the Run a Program option. The UP ARROW and DOWN ARROW key can be used to move between options. When Run a Program is highlighted, press the ENTER key to select the option. A text box will be presented, and will prompt for the full path of the program to execute. Enter the device and filename of the application to be executed. When the pathname has been entered, press the ENTER key. If the pathname is incorrect, or the filename does not exist, text boxes will be presented indicating the error.

When the Run a Program text box and prompt is displayed, the ESCAPE key will abort this function and return to the main Setup menu.

Run a Program is typically used only for executing ARCINST.EXE and SETUPLDR when installing Windows NT. DeskStation Technology has developed applications for configuring certain ISA and VESA add-in boards. However, the Add-In Board Utilities option of the Setup menu provides a much more convenient method of accessing those utilities.

Environment Variables

Windows NT requires that certain environment variables be loaded for proper operation of the operating system. These environment variables are used to point to the disk partitions and directories containing operating system files. The environment variables are stored in non-volatile memory by the ARCS environment.

DeskStation's ARCS BIOS allows more than one set of environment variables to be configured. Each environment variable set can specify a unique operating system environment. For example, more than one version of Windows NT can be installed onto a hard drive. Each copy can reside in a separate partition or directory. The environment variable sets will load the correct operating system files.

Certain environment variables can contain unique values for each environment variable set. Others have one value that is global to all sets. The following table lists the environment variable names which can contain unique values to each set. Any other variable name is considered to be global.

- ConsoleIn
- ConsoleOut
- SystemPartition
- OsLoader
- OsLoadPartition
- OsLoadFileName
- OsLoadOption
- LoadIdentifier

NOTE: The environment variable name is not case sensitive. The value of the environment variable is case sensitive. Each environment variable set is identified by the value of the LoadIdentifier variable.

The DeskStation ARCS BIOS provides utilities for creating, editing, and deleting environment variables and environment variable sets. Typically, it is not necessary to create or delete environment variable sets. The Windows NT installation process (ARCINST.EXE) manages that task.

Selection of the Environment Variables item from the Setup menu will activate the Environment Variables sub menu. This sub menu is shown in figure B-1. The UP ARROW and DOWN ARROW keys are used to move between selections in this menu. The ENTER key selects a menu item. The ESCAPE key exits the menu without selecting an item.

The figure below, B-3 shows the steps to edit your environment variables.

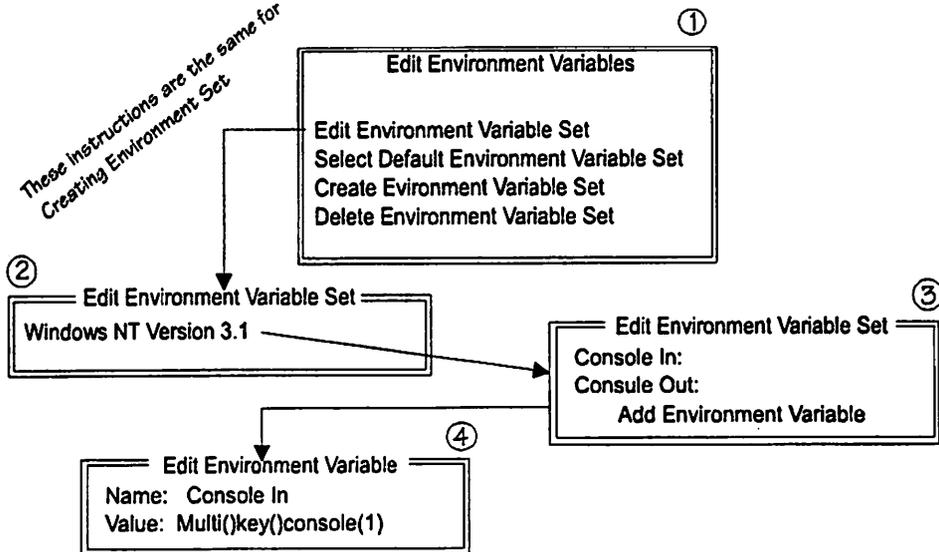


Figure B-3

This utility is used to view and modify environment variable values. Global environment variables can be created, modified, or deleted. Several environment variables can have values unique to each environment variable set. Those variables are listed in the previous section. The values of set-specific variables can be modified, or set to blank. Those variables can only be deleted if the value in all sets is set to an empty-string.

Edit Environment Variable Set

Selection of the Edit Environment Variable Set menu item will present a menu of environment variable sets. Each set is identified by the value of the LoadIdentifier variable for that set. Selection of a set is accomplished in a manner similar to any other ARCS BIOS menu. Move to the desired set and press the ENTER key.

After choosing an environment variable set, an Edit Environment Variable Set menu is presented. Each item in the menu contains the name and value of an environment variable. Select an item to modify the value of the variable. The last item in the list is Add Environment Variable. Note: The menu box is fixed in length. If all variable names do not fit in the box, the DOWN ARROW key can be used to scroll to items at the bottom of the list.

If an environment variable is selected, a text box is presented with the name and value of the variable. Only the value field can be modified. The BACKSPACE key is the only editing tool recognized in this text box. Use the BACKSPACE key to remove text characters. Type new characters to change the value. To delete the environment variable, use the BACKSPACE key to delete all characters in the value field. When editing is finished, press the ENTER key to register the new environment variable value. Use the ESCAPE key to abort from the text box without changing the value.

Add Environment Variable

Selecting the Add Environment Variable menu item will present an Add Environment Variable text box. The name and value fields can be edited. Enter the environment variable name and press the ENTER key. Enter the value for the variable and press the ENTER key. The new variable will be created. The ESCAPE key can be pressed to abort from the text box without creating a new variable.

After the environment variable set has been modified, press the ESCAPE key to exit this menu. The ESCAPE key will save the environment variable values to non-volatile memory.

Select Default Environment Variable Set

The Select Default Environment Variable Set will move the select set to the top of the Boot Options list. This mechanism essentially selects an environment to be loaded automatically, after system reset.

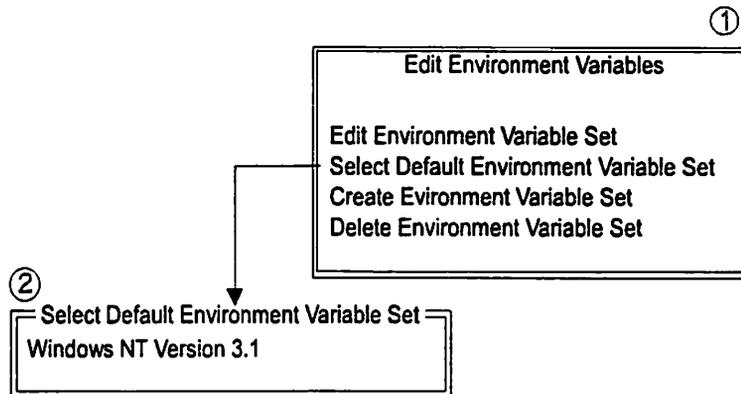


Figure B-4

The Boot Options menu contains a list of all currently active environment variable sets. Each set is identified by the value of the LoadIdentifier variable. By default, the first item in the list is highlighted. If the environment variable AUTOLOAD is set to YES, then this environment set will be used to automatically load the operating system.

Create Environment Variable Set

Figure B-3's illustration shows the same menu set that you will need to Create an Environment Set. In most cases, the application ARCINST.EXE will automatically create environment variable sets. However, a set can be created manually with the system utility Create Environment Variable Set. Selecting this option will present the Edit Environment Variable Set menu. All global environment variables will be listed with their current values. The ConsoleIn and ConsoleOut variables will be given proper values (and should not be changed). The LoadIdentifier variable will be set to "ARCS OS." Other set-specific variables will be set to empty-strings (blank value). The variables can be modified to contain appropriate values. Press the ESCAPE key to exit the menu and save the variable set.

Delete Environment Variable Set

Selection of Delete Environment Variable Set will present a list of all environment variable sets. Highlight the set desired, and press the ENTER key to delete. Press the ESCAPE key to abort this action.

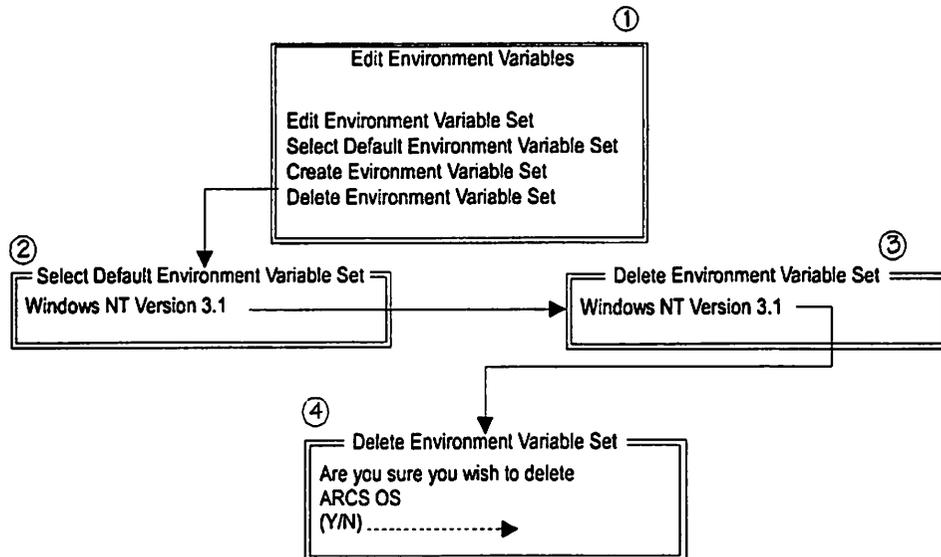


Figure B-5

Set Time and Date

The DeskStation Technology Tyne RISC PC contains a non-volatile real-time clock device. The ARCS environment provides services for an operating system to access this device. Modification of the real-time clock can be accomplished through utilities in the operating system.

Alternately, the Set Time and Date utility in the Setup menu will also the date and time. A Set time And Date text box is presented for this utility. The arrow and enter keys move the cursor between fields in the text box. The BACKSPACE key can be used to edit fields. Press the ESCAPE key to exit when the time and date are correct. It is important to verify that all fields are correct. The ESCAPE key will set the real-time clock to the values displayed. There is no abort feature for this utility.

Advance Setup

Figure B-6 is a graphical representation of the Advanced Setup Screen.

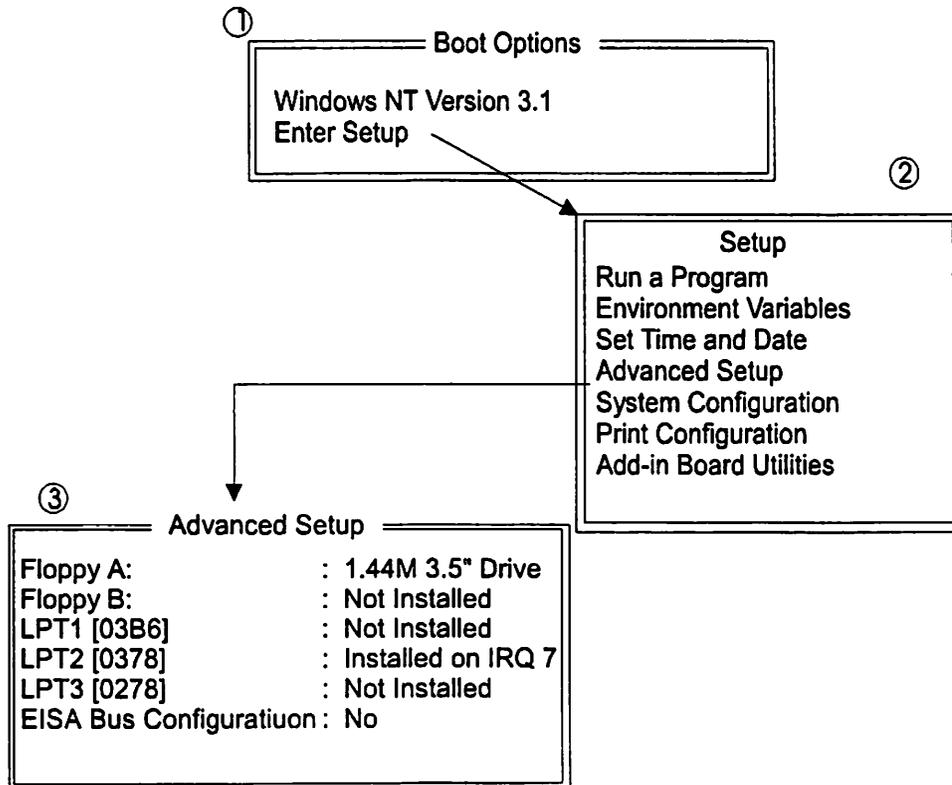


Figure B-6

The DeskStation Technology ARCS BIOS firmware automatically detects many devices and peripherals in the system. However, the items in the Advanced Setup menu may require some customer configuration. NOTE: Typically the system is automatically setup properly.

Advanced Setup allows the configuration of floppy disk drive capacity, parallel port interrupt channels, and enabling of the VESA subsystem. Floppy A: is the primary floppy disk drive (I/O port addresses 3F0 - 3F7). Floppy B: is the secondary drive (I/O port addresses 370 - 377). Each floppy menu item should be set to either "Not Installed" or to the appropriate drive type. Each parallel port (LPT) should be set to either "Not Installed" or to the correct interrupt channel. When the fields in the Advanced Setup menu are correct, press the ESCAPE key to exit the menu. A text box gives the option of saving the settings to non-volatile memory. Press the Y key to save the settings. Press the N key to exit without saving. If the Y key is pressed, the system will perform a reset.

System Configuration

Selecting the System Configuration item from the Setup menu will present a full-screen display of the ARCS component tree. The component nodes in this tree were automatically detected during the system reset process. Figure B-7 gives you a graphical representation of this configuration screen.

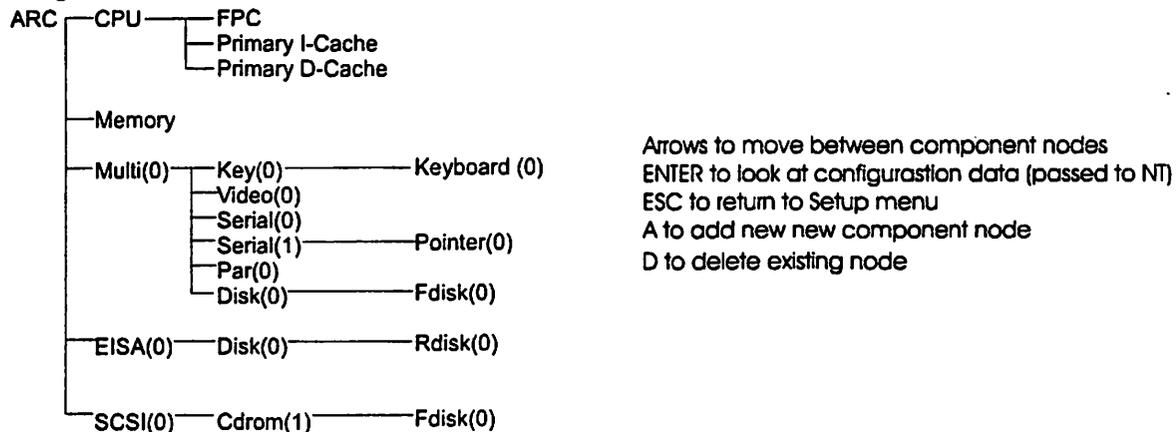


Figure B-7

All peripheral devices should be listed in this diagram. If a user suspects that any device is not being detected properly, the component tree can be used to verify the configuration.

The Configuration Tree diagram can be used to identify the syntax of the path to a peripheral device. The solid lines in the diagram depict the logical connection between component nodes in the tree. The logical partitions on a hard disk drive are not shown in the component tree. NOTE: The first node (ARC) is not required in pathnames.

The numbers in parenthesis are the keys (index) for similar nodes. The number zero is optional (scsi(0) is the same as scsi()). The lower portion of the diagram may indicate pathname short-cuts. For example, A: can be used in place of multi()disk()fdisk() in pathnames.

Certain actions can be performed on various nodes. For instance, when a hard disk or floppy disk node is highlighted a directory of the device can be performed. Remember that the ARCS BIOS only recognizes FAT partitions. Files can also be copied once a disk node is highlighted. Press the ESCAPE key to exit from this Configuration Tree display to the Setup menu.

Print Configuration

The Print Configuration utility will output a text file version of the component configuration tree. Selecting this option will present a text box prompting for a device or filename. The most useful alternatives are either a disk file name or the parallel port pathname. A dot matrix printer can be connected to the parallel port for a hardcopy of the configuration. In this case, the pathname is multi()par(). A filename can also be entered into the text box. This is useful for creating a text file giving the configuration of the system.

Add-In Board Utilities

Many ISA and VESA board vendors are developing software configurable products. These are usually much easier to configure than those products with hardware jumpers. The utility programs for configuring these boards in the DeskStation Tyne RISC PC must be executed in the ARCS environment. The Add-In Board Utilities service is used to access a menu of available utility programs. The utilities must actually be installed on a disk drive before they become available. After a utility has been used to configure a board, the firmware will usually reboot the system. Typically, the system environment has been changed during the configuration process. A system reset is necessary to reload the proper system configuration.

Installing add-in utilities

A floppy diskette is supplied with the DeskStation Tyne RISC PC containing the add-in board utilities. This floppy diskette has an application program (SETUP.EXE) that will install the utilities to a hard drive. At least one hard drive FAT partition must have been previously created for the installation to function. A global environment variable (DeskTech) will be used to indicate the location of the utilities after being installed onto a hard drive.

Insert the floppy diskette into the primary floppy drive. From the Boot Options menu, select Enter Setup. From the Setup menu, choose Run a Program. A text box will prompt for the pathname of the file to load and execute. Enter the path multi()disk()fdisk()\setup.exe (or, a:\setup.exe). If the DeskTech environment variable already exists, the setup program will attempt to copy several files to the location indicated by that variable. If the variable does not exist, then the application will present a list of all SystemPartitions. If no SystemPartition has been created, the setup application cannot continue. Use the Windows NT installation program ARCINST.EXE to create a SystemPartition.

NOTE: DeskStation Technology attempts to provide add-in board utilities for all supported ISA and VESA products currently supported. If a utility is required, and is not on the Add-In Board Utilities diskette, please contact DeskStation Technology.

Appendix C. System Errors

In this section, we offer a look at the various system errors that you might encounter. With this information, the support personnel at DeskStation can better handle any errors that might occur.

SYSTEM ERRORS

sys-0001

Component is a NULL entry

This message is not normally displayed. Please report this error condition to DeskStation Technology, Inc. Please record the events leading up to the display of this error message.

A component manipulation operation has been selected for a ARC component node which contains a NULL entry. This message represents an abnormal mode of operation for the firmware.

sys-0002

Error adding child component to configuration tree

This message is not normally displayed. Please report this error condition to DeskStation Technology, Inc. Please record the events leading up to the display of this error message.

The most likely reason for this error message is that there is not enough memory to allocate space for adding a component node to the configuration tree.

sys-0004

Error adding memory descriptor

This message is not normally displayed. Please report this error condition to DeskStation Technology, Inc. Please record the events leading up to the display of this error message.

There is not enough free memory available to add the required memory descriptor.

sys-0005

Invalid memory descriptor found

This message is not normally displayed. This message is generated by a menu option which is normally available only to technical personnel at DeskStation Technology. Please report this message to customer support at DeskStation Technology.

During a request by the user to modify or delete a memory descriptor, an invalid, unknown, or non-existent memory descriptor was specified. Please enter a valid memory descriptor identifier.

sys-0006

Error while modifying memory descriptor

This message is not normally displayed. This message is generated by a menu option which is normally available only to technical personnel at DeskStation Technology. Please report this message to customer support at DeskStation Technology.

A request has been made to modify a NULL or unknown memory descriptor.

sys-0007

Error while deleting memory descriptor

This message is not normally displayed. This message is generated by a menu option which is normally available only to technical personnel at DeskStation Technology. Please report this message to customer support at DeskStation Technology.

A request has been made to delete a NULL or unknown memory descriptor.

sys-0008

Cannot open current directory

Path = <path name>

The user has chosen to display a directory listing of the directory specified by <path name>. The directory cannot be opened. The file system on the specified device may be damaged.

sys-0009

Directory is empty

The user has chosen to display a directory listing of a disk directory that presently contains no files. The ARCS BIOS firmware will not attempt to display an empty directory.

sys-0010

Cannot open specified file

The user has chosen to display the contents of a disk file. An error was encountered while attempting to open the file for read access. The disk, the file, or the disk File Allocation Table may be damaged.

sys-0011

Cannot open destination file:

File path = <path name>

The user has chosen to perform a file copy. The file specified by <path name> cannot be opened for write access. Please verify that the path indicates a valid device and directory. Verify that the destination disk is not write protected.

sys-0012

Cannot open source file:

File path = <path name>

The user has chosen to perform a file copy. The file specified by <path name> cannot be opened for read access. Please verify that the path indicates a valid device, directory, and file name.

sys-0013

Memory Error at location xxxxxxxx

Halting system

Main memory at the specified location is not functioning normally.

Try removing and reinserting the SIMMs in the PC motherboard. (This operation must be performed only by qualified personnel, and with system power removed.)

If the system motherboard contains more than one SIMM, try removing all SIMMs. Insert one SIMM and power up the PC. If this message does not appear. Try inserting the next SIMM and reapplying power. Repeat until all SIMMs have been reinserted. If this message appears following the insertion of one SIMM, then that SIMM may be bad.

Important note: Never remove or insert SIMMs with the power applied to the PC. Damage may result to the PC or the SIMMs.

sys-0014

GetConfigurationData : Component is NULL

This message is not normally displayed. Please report this error condition to DeskStation Technology, Inc. Please record the events leading up to the display of this error message.

A component manipulation operation has been selected for a ARC component node which contains a NULL entry. This message represents an abnormal mode of operation for the firmware.

sys-0015

GetConfigurationData : ConfigurationData is NULL

This message is not normally displayed. Please report this error condition to DeskStation Technology, Inc. Please record the events leading up to the display of this error message.

A component manipulation operation has been selected for a ARC component node which contains a NULL entry. This message represents an abnormal mode of operation for the firmware.

sys-0016

DiskCacheRegisterDrive : Illegal drive path

This message is not normally displayed. Please report this error condition to DeskStation Technology, Inc. Please record the events leading up to the display of this error message.

The firmware has attempted to register a drive, but the syntax of the drive path name is not valid.

sys-0017

Attempt to open a drive not previously detected

This message is not normally displayed. Please report this error condition to DeskStation Technology, Inc. Please record the events leading up to the display of this error message.

The firmware has attempted to open a drive that has not been previously registered by the firmware.

sys-0018

Error opening EtherNet : Illegal path specification

This message is not normally displayed. Please report this error condition to DeskStation Technology, Inc. Please record the events leading up to the display of this error message.

The firmware has attempted to open a network driver, but the syntax of the path name is not valid.

sys-0019

Error reading file

This message is not normally displayed. Please report this error condition to DeskStation Technology, Inc. Please record the events leading up to the display of this error message.

An attempt was made to read from a file. The file system driver reported that the file status is in an unknown state.

SYS-0020

***Floppy disk error
SenseInterrupt() : Major Error***

Communications with the floppy disk drive have failed. Verify that the floppy disk drive and controller are functional. Verify that the cable between the controller and floppy drive is connected properly. Try using a different floppy diskette.

sys-0021

Error opening parallel port

An error was encountered while opening the parallel port. Verify that the port exists and was detected by the firmware. The hardware detection screen and the Configuration Tree are useful for verifying that the port was detected. Verify that the interrupt (IRQ) channel is properly set in the Advanced Setup menu.

If the port appears to be installed and detected, then a system error has occurred preventing the port from being opened. Report this error and the events leading up to the error to DeskStation Technology customer support.

sys-0022

Parallel port already in use

The parallel port specified by the device path is already in use by the firmware. This error does not normally occur. Repeat the operation. If the port is still in use, reboot the Tyne PC system.

sys-0023

***WD8003 : Could not clear
STOP/RESET***

An error was encountered while accessing the WD8003 network driver.

sys-0024

WD8003 : Unexpected interrupt status

An error was encountered while accessing the WD8003 network driver.

sys-0025

WD8003 : Queue overflow!!!!

An error was encountered while accessing the WD8003 network driver.

User Errors

USR-0100

Could not find add-in utilities

The user has chosen to execute the add-in board utilities. The DESKTECH environment variable was not found. The DESKTECH environment variable contains the path name for locating the add-in utility executable files.

The DESKTECH environment variable is loaded automatically when the add-in utilities are installed. Please install the utilities from the Add-In Utilities diskette provided with the Tyne PC. If the add-in utilities diskette is missing, call DeskStation Technology for a replacement.

If the hard drive containing the utilities has been reformatted, the add-in utility files on that disk may have been deleted. Please reinstall the add-in utilities.

If the DESKTECH environment variable was deleted, the firmware will not be able to locate the add-in utilities. Reinstall the utilities for proper operation of this menu option.

Refer to a section earlier in this user manual for instructions on installing the add-in utilities.

USR-0101

Cannot open destination device or file for output

The user is attempting to Print Configuration Data. The specified file or device could not be opened for write access.

The device path name may be invalid. If the path name indicates a disk file, the directory path may be invalid. The disk may be write-protected.

For output to a parallel printer, the path name is typically "multi(0)par(0)".

Verify that the path name is valid. If the request fails again, specify a path name of "multi(0)Video(0)". This will output the report to the ConsoleOut device - the video display device.

USR-0102

Not enough memory to load file image

This message is not normally displayed. Please report this error condition to DeskStation Technology, Inc. Please record the events leading up to the display of this error message.

A free memory descriptor cannot be found for loading the specified executable file. Under normal operation, this error should never be generated.

USR-0103

Error loading file: Cannot open file: Path = <file path name>

The executable file specified by <file path name> cannot be opened for read access.

Verify that the device is on-line and is readable. The ARCS BIOS hardware detection screen must show that the device is available. If the file resides on a floppy disk, verify that the diskette is inserted properly.

USR-0104

Error loading file: Cannot read file header

A file has been selected to be executed. After opening and reading the file, the contents of the file header contain an error. Verify that the file is an executable file. Try copying a new image of the file onto the disk.

USR-0105

Error loading file: Invalid file header

A file has been selected to be executed. After opening and reading the file, the contents of the file header contain an error. Verify that the file is an executable file. Try copying a new image of the file onto the disk.

USR-0106

Error loading file: Bad file relocation information

A file has been selected to be executed. After opening and reading the file, the contents of the file header contain an error. Verify that the file is an executable file. Try copying a new image of the file onto the disk.

USR-0107***Error loading file: Cannot read relocation information***

A file has been selected to be executed. After opening and reading the file, the contents of the file header contain an error. Verify that the file is an executable file. Try copying a new image of the file onto the disk.

USR-0108***Error loading file: Cannot relocate file image***

A file has been selected to be executed. After opening and reading the file, the contents of the file header contain an error. Verify that the file is an executable file. Try copying a new image of the file onto the disk.

USR-0109***Error loading file: Cannot close file***

After loading an executable file, the file could not be closed. Verify that the disk is functioning properly.

USR-0110***Error running file: Bad execution address***

After loading an executable file, the header of the file indicated an execution address which is not valid. Verify that the file is executable. Verify that the file is not corrupted. Try reloading a new copy of the file to the disk.

USR-0111***Error running file: Bad stack address***

After loading an executable file, the header of the file indicated an execution address which is not valid. Verify that the file is executable. Verify that the file is not corrupted. Try reloading a new copy of the file to the disk.

USR-0112***Error running file: Invalid Free Memory Area***

While attempting to load an executable file, an invalid free memory area was encountered. This error should never occur under normal operating conditions. Record the events leading up to the error message. Contact DeskStation Technology customer support.

The file being loaded may be corrupted. Try loading a new copy of the file to the disk before attempting to run it again.

USR-0113***Attempt to open too many drives
Maximum number of drives = <n>***

An attempt has been made to register more than <n> drives. The ARCS BIOS firmware will only allow up to that number of drives to be registered. However, Microsoft Windows NT may allow more drives to be used in the system.

The firmware must register a drive before it can be used as a SystemPartition or an OsLoadPartition. If the drive is only to be used as a data drive, then Windows NT may be able to use the additional drives.

USR-0114***Unable to open the drive***

An attempt to open the specified drive has failed. An earlier error message may indicate the nature of the error. Otherwise, repeat the desired operation. Verify that the specified drive is properly connected into the Tyne PC system. Verify that the drive was properly detected by the firmware (refer to the firmware hardware detection screen).

USR-0115***Error opening EtherNet:Read-only device***

An attempt was made to open the network for access other than read-only. OpenReadOnly is the only mode that is allowed for the network device driver.

USR-0116***Floppy Disk Drive door may be open***

Ensure that the floppy disk drive is inserted properly, and that the door to the drive is closed properly.

USR-0117***Detected that floppy disk was removed***

An error was encountered while accessing the floppy disk. During a read or write operation, the floppy disk drive reported that the diskette was removed. The results of the operation are indeterminate. Repeat the operation to ensure that the diskette contains valid data.

USR-0118***Floppy disk may be write-protected***

An error was encountered while writing data to the floppy diskette. The drive reported that the diskette is write-protected. Verify that the diskette is not write-protected and repeat the operation.

USR-0119***Disk Drive is not compatible with floppy disk type***

The floppy disk driver software has reported that the floppy diskette media type is not compatible with the floppy disk drive. For example, single-sided disks are no longer supported by some drives.

USR-0120***Invalid drive path name***

The path name specified for the floppy disk device is not valid. Repeat the operation with a valid device path name.

USR-0121***Error reading from floppy disk***

A communications error was encountered while reading from the floppy disk drive. Verify that a good floppy diskette is properly inserted. Verify that the floppy disk drive and controller are properly connected and operational.

USR-0122***Error writing to floppy disk***

A communications error was encountered while writing to the floppy disk drive. Verify that a good floppy diskette is properly inserted. Verify that the floppy disk drive and controller are properly connected and operational.

USR-0123***Error reading from IDE drive***

A communications error was encountered while reading from an IDE drive. Verify that the IDE drive and controller are connected properly and are functional. Verify that the drive media is good (use the CHKDSK utility in Windows NT).

USR-0124***Error writing to IDE drive***

A communications error was encountered while writing to an IDE drive. Verify that the IDE drive and controller are connected properly and are functional. Verify that the drive media is good (use the CHKDSK utility in Windows NT).

USR-0200***Cannot delete a read-only file***

An attempt was made to delete a file that is currently marked as read-only. The firmware will not allow modification or deletion of a read-only file. Remove the read-only attribute and then delete the file.

USR-0201***Cannot open specified directory or file***

An error was encountered while attempting to open a file or directory. Verify that the file, directory, and all relevant subdirectories exist. If the file does exist, then a data error may exist on the disk. Use the CHKDSK utility of Windows NT to verify that the disk is not damaged.

USR-0202***Illegal access on root directory***

The root directory of a file system was specified for a write or delete operation. The only operations allowed on the root directory are those involving reading.

USR-0203***Disk is full***

An error was encountered while allocating file space on the disk. The File Allocation Table has become full. This is an indication that there is no more free space on the disk.

Delete some files on the disk, or use a new disk.

In some cases, this message may indicate a damaged disk. There may have been an error reading or writing the File Allocation Table or the directory of the disk. If this message is reported and the disk does not appear to be full, use the CHKDSK utility in Windows NT to verify the contents of the disk.

USR-0204***Cannot seek to start of directory***

An error has occurred while attempting to open a file. The file system driver cannot seek to the directory area on the disk. The most likely cause of this problem is a hardware fault. The disk drive mechanism may be bad. If the disk is a removable disk, the media may be bad. Retry the operation. If the problem remains, try booting Windows NT. If Windows NT can run the CHKDSK utility, the problem may be fixed at that time.

Under extreme circumstances, the disk media may have to be reformatted or replaced. In the case of hard disks, the entire disk drive may have to be replaced.

USR-0205***Cannot read directory entry***

An error was encountered while reading the directory of the specified disk. Repeat the operation. If the problem still occurs, try booting Microsoft Windows NT. The CHKDSK utility will fix many disk errors in a FAT file system. If the problem cannot be fixed, the disk media may have to be reformatted.

USR-0206***Cannot write directory entry***

An error was encountered while writing to the directory of the specified disk. Repeat the operation. If the problem still occurs, try booting Microsoft Windows NT. The CHKDSK utility will fix many disk errors in a FAT file system. If the problem cannot be fixed, the disk media may have to be reformatted.

USR-0207***Error reading partition table***

An error was encountered while reading the partition information from the disk. Repeat the operation. If the problem still occurs, the disk media may have to be reformatted. Try using the disk in a different disk drive or PC system.

A disk can be divided into one or more partitions. Each partition appears to an operating system as a disk file system. The partition table retains the information needed to locate and identify the partitions on the disk. Without this information, there is no way to locate the file system directory.

USR-0208***Error reading directory***

An error was encountered while reading the directory of the specified disk. Repeat the operation. If the problem still occurs, try booting Microsoft Windows NT. The CHKDSK utility will fix many disk errors in a FAT file system. If the problem cannot be fixed, the disk media may have to be reformatted.

USR-0209***Illegal position while accessing file***

A file seek has been requested to an area which is out of the bounds of the file or directory area on the disk. This error could occur for many reasons. The File Allocation Table information may be corrupted on the disk. The program requesting the seek may have invalid data. For example, a data file may be bad, which contains instructions for seeking into a file. Verify that the data files required for this operation are valid. Use the CHKDSK utility in Windows NT to verify that the disk file system is not damaged.

USR-0210***The specified directory name already exists***

An attempt was made to create a sub directory. The requested directory name already exists in the location identified for this operation. Verify that the directory creation operation is appropriate. Rectify the directory name violation. The new directory should be given a new name.

USR-0211***Illegal path specified for directory***

An attempt was made to create a sub directory. One or more directory names in the path do not currently exist. The create directory operation can only create one directory at a time.

USR-0212***Cannot delete the file
File not found***

An error was encountered while attempting to delete a file. The file name specified was not found. Verify that the path name is correct. Repeat the operation.

USR-0213***Cannot delete directory
Directory not empty***

An attempt was made to delete a directory on the disk. The directory currently contains one or more file entries. The directory must be empty before it can be deleted by the firmware.

Remove the files from the directory and repeat the operation.

USR-0214***Cannot read boot sector***

An error was encountered while reading the boot sector of the disk. Repeat the operation. If the problem still occurs, the disk may have to be repartitioned and formatted. The boot sector is required in order to access any other area on the disk.

Under extreme circumstances, this error may indicate that the disk drive is damaged.

USR-0215***Unknown partition type***

An error was encountered while reading the partition information from the disk. The partition type is not recognized by the ARCS BIOS firmware. This error condition may not be an indication of an actual problem with the disk media. The firmware currently recognizes several types of FAT partitions, as well as, ARCS-compliant partitions. The partition could be of type NTFS, HPFS, UNIX, or unformatted. If the partition is not FAT or ARCS-compliant, then use Windows NT to access the disk partition.

The SystemPartition must be formatted as a FAT partition. The firmware must be able to read data from the SystemPartition in order to boot Windows NT.

USR-0216***Illegal path
Path = <path name>***

During an attempt to open a file, the firmware encountered an error with the path name specified. Verify that the path indicates valid information.

USR-0217***Illegal partition
Path = <path name>***

During an attempt to open a file, the firmware encountered an error with a partition number. The specified partition is out of range for the indicated device. Repeat the operation using a valid partition number. Floppy disk and CD-ROM drives only contain partition 0. Hard drives do not have a partition 0.

USR-0218***Illegal device
Path = <path name>***

During an attempt to open a file, the firmware encountered an error with the path name specified. The device name in the path is not recognized by the firmware. Verify that the path name is correct. Verify that the device was properly detected by the firmware. Repeat the operation.

USR-0219***Cannot write to file***

An error was encountered while attempting to write to a file. This error could be an indication of a hardware failure, or a media failure. Verify that any removable media is inserted properly and is not write protected.

USR-0220***File not open***

An error was encountered while attempting to close a file. The file status is not recorded as being open.

USR-0221***Cannot update directory entry***

An error was encountered while attempting to close a file. The file was open for write access. The directory entry for the file must be updated at this point to reflect any changes in the file. The firmware reported an error when writing the updated directory entry to disk. The contents of the file may be damaged or destroyed due to this error. Verify that the directory for the file system is not damaged.

USR-0222***Cannot open drive***

An error was encountered while attempting to open a drive to be formatted. This error could result from an invalid path name specifier. It could also be an indication of a hardware failure.

Verify that the path name is correctly specified. Verify that the hardware is connected properly, and is operational.

USR-0223***Illegal root directory path***

An error was encountered while attempting to open a drive to be formatted. This error could result from an invalid path name specifier. Verify that the path name is correctly specified.

USR-0300***Error reading from CD-ROM disk***

An error was encountered while attempting to read a file or directory from the CD-ROM. Verify that the CD-ROM disk is inserted properly. Verify that the CD-ROM drive and controller are connected properly and are functional. The hardware detection screen and the Configuration Tree can be used to verify that the CD-ROM drive and controller were detected properly.

If the CD-ROM drive is a SCSI device, verify that the SCSI IDs for all devices have no conflicts. Verify that the cables are connected and terminated properly. A SCSI cable must be terminated at both ends. No other termination should be installed.

Repeat the operation. Occasionally, the CD-ROM drive takes an extended period of time to read the table of contents from the disk. A read request during this time can result in a time-out of the operation. Simply repeating the operation when the device is not busy can prove to be successful.

USR-0301***File not found on CD-ROM***

The specified file name was not found on the CD-ROM disk. Verify that the name is correctly specified in the path. Verify that the correct CD-ROM is inserted. Verify that the file exists on the CD-ROM disk. Repeat the operation.

USR-0302***Cannot read directory name***

The specified directory name was not found on the CD-ROM disk. Verify that the correct disk is inserted. Verify that the desired directory exists on the CD-ROM disk. Verify that the CD-ROM is not damaged. Repeat the operation.

USR-0303***CD-ROM File System Error
Illegal Path - <path name>***

During an attempt to open a file, the firmware encountered an error with the path name specified. Verify that the path indicates valid information.

USR-0304***CD-ROM File System Error
Illegal partition - <path name>***

During an attempt to open a file, the firmware encountered an error with a partition number. The specified partition is out of range for the indicated device. Repeat the operation using a valid partition number.

USR-0305***CD-ROM File System Error
Illegal device - <path name>***

During an attempt to open a file, the firmware encountered an error with the path name specified. The device name in the path is not recognized by the firmware. Verify that the path name is correct. Verify that the device was properly detected by the firmware. Repeat the operation.

USR-0306***Cannot close CD-ROM file
File not open***

An error was encountered while attempting to close a file. The file is not currently open.

USR-0400***Too many parallel ports open
Maximum is <n>***

An attempt has been made to open too many parallel ports for simultaneous operation. The maximum number of ports allowed is indicated by the parameter <n> .

USR-0401***Parallel Port device not found***

An error was encountered while writing to a parallel port. The firmware has detected that the device was not yet opened for write access. Repeat the operation.

USR-0402***Error writing to printer port
Out of paper***

If a printer is connected to the parallel port, it has reported an out-of-paper condition.

USR-0403***Error writing to printer port
Printer error, or time-out***

If a printer is connected to the parallel port, the firmware driver has detected an error condition. Verify that the printer is connected properly, and is on-line.

USR-0500***Error opening video driver
Illegal path name***

During an attempt to open a video device, the firmware encountered an error with the path name specified. Verify that the path indicates valid information.

Appendix D. Technical Support Number

(913) 599-~~1900~~ 0911

If an error should occur that this manual cannot help you solve, please call us at 1(913)599-1900. We are pleased to help and will assist you in any way possible.