

**INTERACTIVE™ Network Drivers
Overview and
Installation Instructions**

INTERACTIVE

product family

 **SunSoft**
A Sun Microsystems, Inc. Business

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INTERACTIVE Network Drivers

Version 2.1

Release Notes

July 1992

1. INTRODUCTION

INTERACTIVE™ Network Drivers Version 2.1 for INTERACTIVE UNIX® System V/386 Release 3.2 from SunSoft is a complete release of the INTERACTIVE Network Drivers extension. It fixes some bugs found in the previous release, INTERACTIVE Network Drivers Version 2.0, and contains some new drivers.

These release notes supplement the Version 2.0 release notes and describe only the differences between Version 2.0 and 2.1.

2. NEW DRIVERS IN VERSION 2.1

New drivers added in this release are:

i5960	Intel® Embedded 82596 card
itr0	IBM® Token Ring
emat0	3COM® 3C507

3. BUG FIXES AND UPDATES IN VERSION 2.1

Bug fixes in this release include:

wd0 The default address for the primary network card has been changed to d0000 – d3fff to accommodate 16-bit networking cards. The default address for the second, third, and fourth network cards have also been altered to d6000 – d9fff.

The problem in sysadm that prevented the addition of a second WD card via the addinterface menu in sysadm has now been fixed.

wk0 The wk0 driver for the Western Digital Token Ring card has been removed from this subset. Standard Microsystems Corporation, the company that now sells the Western Digital cards, has dropped this

model from its product line. The driver that was supplied with Version 2.0 of INTERACTIVE Network Drivers should still work properly. If you do not have Version 2.0 of INTERACTIVE Network Drivers, and you are planning to use this card, contact technical support.

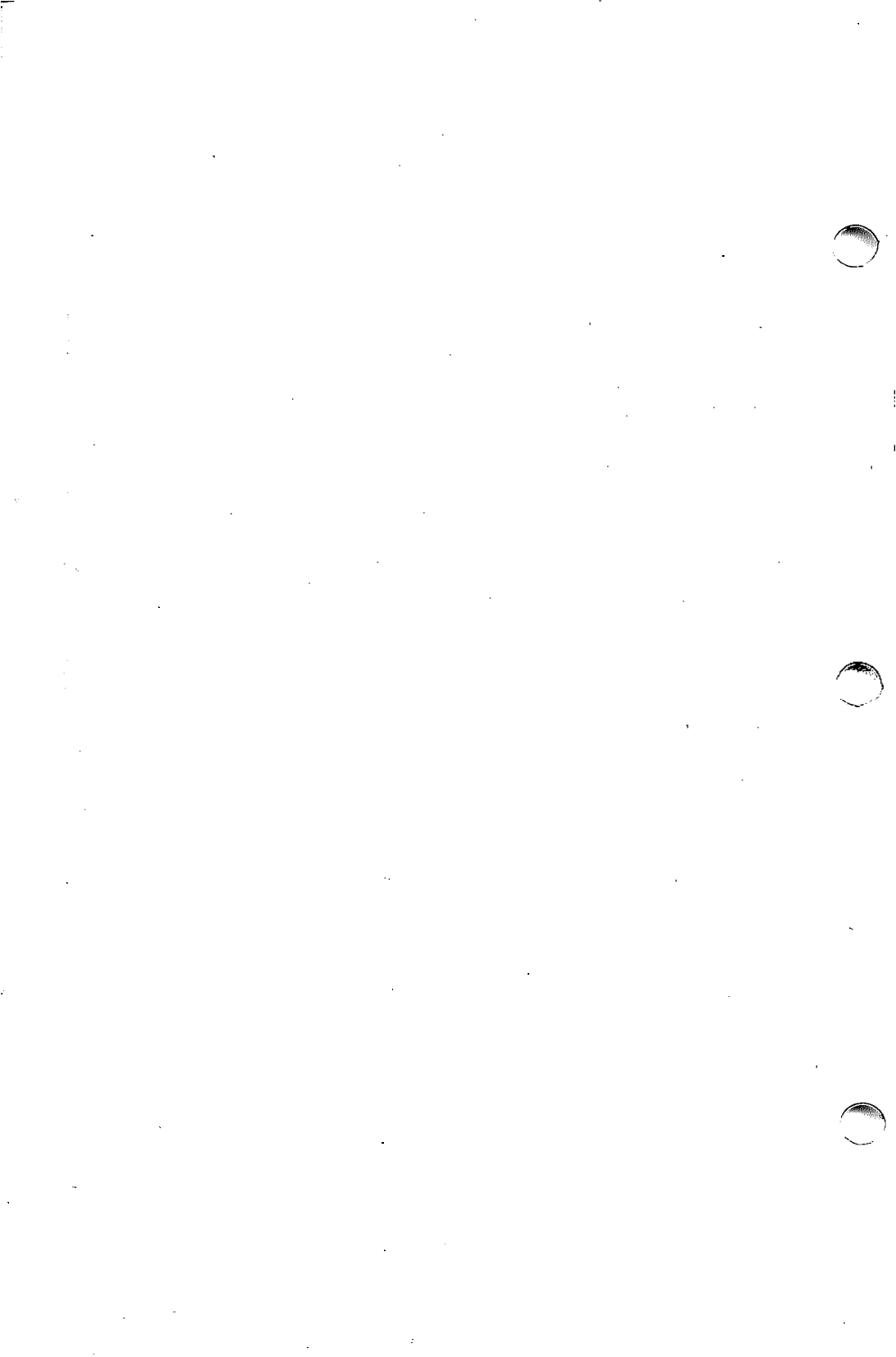
Intel Embedded 82596

This driver supports the Ethernet chip set on the motherboard of Intel's new LP486 Series of Personal Computers, also referred to as the Professional Workstation Series.

INTERACTIVE Network Drivers Overview and Installation Instructions

CONTENTS

1. INTRODUCTION	1
1.1 Features Supported by Network Drivers	1
2. IMPORTANT NOTES FOR USERS OF INTERACTIVE TCP/IP, VERSION 1.2	3
2.1 Order of Installation	3
2.2 Driver Naming Conventions	3
2.3 Configuring Networking Boards	3
2.4 Using the 3COM 3C507 EtherLink 16 Driver	4
3. INSTALLING THE NETWORK DRIVERS	5
4. CONFIGURING THE NETWORK DRIVERS	8
4.1 I/O Address and IRQ Values	8
4.2 Configuring One Driver	9
4.3 Configuring Additional Drivers	16
5. CHANGING THE PARAMETERS OF PREVIOUSLY CONFIGURED BOARDS	19
6. REMOVING NETWORK DRIVERS FROM THE SYSTEM	21
7. DISPLAYING CURRENTLY CONFIGURED NETWORK DRIVERS	22



INTERACTIVE Network Drivers

Overview and Installation Instructions

1. INTRODUCTION

The INTERACTIVE™ Network Drivers extension from SunSoft is supplied with some SunSoft™ networking products, such as INTERACTIVE TCP/IP. You will use the same `sysadm` installation procedure used for all of the INTERACTIVE UNIX® System V/386 Release 3.2 software to install the software driver support for a variety of popular networking boards. Refer to the manufacturer's installation instructions included with your board for specific information about installation procedures and configuration options.

1.1 Features Supported by Network Drivers

The following table lists the features supported by the network drivers:

<i>Board</i>	<i>Driver Name</i>	<i>Bus</i>	<i>Type</i>	<i>802.2 LLC1</i>	<i>802.2 LLC2</i>	<i>SNAP</i>	<i>Novell 802.3</i>	<i>Multicast</i>	<i>Set Address</i>	<i>INTERACTIVE Multiboard</i>
3COM 3C501	ec0	AT/EISA	Ethernet	yes	no	yes	yes	no	yes	no
3COM 3C503	e10	AT/EISA	Ethernet	yes	no	yes	yes	yes	yes	no
3COM 3C507	emat0	AT/EISA	Ethernet	yes	no	no	no	no	yes	yes
3COM 3C523	emc0	MCA	Ethernet	no	no	no	no	yes	yes	no
Intel Embedded 82596	i596	EISA	Ethernet	yes	no	no	no	no	no	N/A
IBM Token Ring	itr0	AT/EISA	Token Ring	yes	no	yes	yes	yes	yes	yes
Novell NE2000	ne0	AT	Ethernet	no	no	no	yes	no	yes	no
Racal InterLan ES3210	es0	EISA	Ethernet	no	no	no	no	yes	yes	no
Racal InterLan NI5210 and NI9210	ni0	AT/EISA/ MCA	Ethernet	no	no	yes	no	yes	yes	no
Racal InterLan NI6510	ni0	AT	Ethernet	no	no	yes	yes	yes	yes	no
Ungermann-Bass PC NIC	ub0	AT/EISA	Ethernet	yes	no	yes	yes	yes	yes	no
Western Digital WD8003 and WD8013	wd0	AT/EISA/ MCA	Ethernet	yes	no	yes	yes	yes	yes	yes
XIRCOM	pe0	parallel port	Ethernet	yes	no	yes	yes	no	no	no

2. IMPORTANT NOTES FOR USERS OF INTERACTIVE TCP/IP, VERSION 1.2

2.1 Order of Installation

Due to header file differences between INTERACTIVE TCP/IP Version 1.2 and the Network Drivers extension, you could have problems building a new kernel.

⇒ To avoid these problems, be sure that INTERACTIVE TCP/IP is installed and configured *first*; then you can install the Network Drivers extension.

2.2 Driver Naming Conventions

If you are currently running Version 1.2 of INTERACTIVE TCP/IP, note that the naming convention for the Network Drivers has changed. Once you have installed the INTERACTIVE Network Drivers extension, INTERACTIVE TCP/IP will not work unless you edit the `/etc/netd.cf` file and change the driver name.

For example, in Version 1.2 of INTERACTIVE TCP/IP, the Western Digital 8003/8013 driver is named `wd`. When you install the Network Drivers extension, this driver is named `wd0`. Use any editor to edit the `/etc/netd.cf` file and replace every occurrence of `wd` with the new designation `wd0`. Also note that if your system is at init level 3, you will need to change to init level 2, then back to init level 3, before this change will take effect.

Refer to the table in section 1.1 for a list of the available devices and their driver names. Also refer to the driver setup options menu in section 4.2, noting that if you install multiple boards, for example, a second Western Digital 8003/8013, the new driver name will be `wd1`.

2.3 Configuring Networking Boards

If you are currently running Version 1.2 of INTERACTIVE TCP/IP and you plan to configure one or more of these network drivers, you will no longer be able to use the `sysadm tcpipmgmt` utility to reconfigure your networking boards. You should instead use the `sysadm configure` option from the `netdrv` menu under the Software menu.

Note that the **ADD DRIVER** and **REMOVE DRIVER** facilities provided on the Configuration Menu of the `kconfig` utility do not apply to the network drivers.

2.4 Using the 3COM 3C507 EtherLink 16 Driver

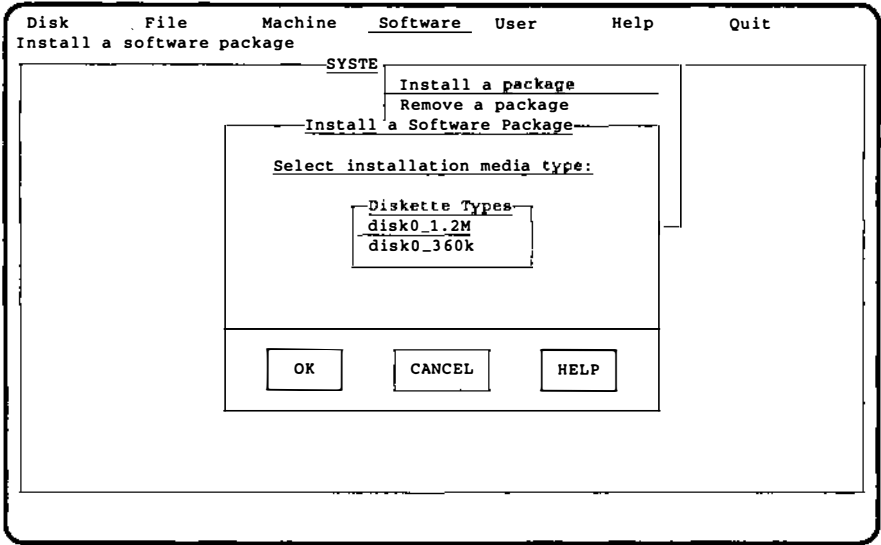
When selecting a shared memory address, be sure to run the `3C507` program under DOS on your EtherDisk. This program provides an internal RAM test program with which you can verify whether your shared memory address is overlapped by others (such as BIOS shadow RAM or video RAM). If your first test fails on a particular shared memory address, you must use another I/O address.

3. INSTALLING THE NETWORK DRIVERS

1. Log in as `sysadm` or `su` to `root` and type:

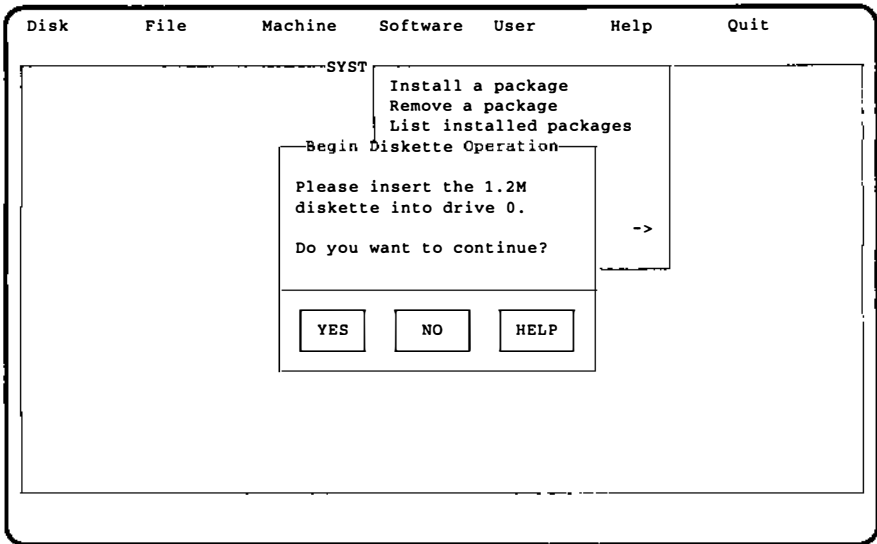
```
# sysadm installpkg
```

Your screen will look similar to this:

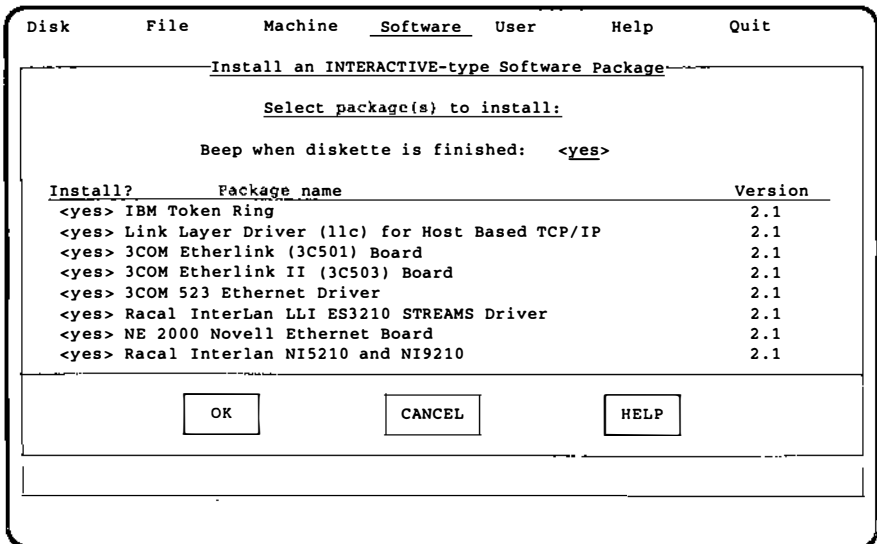


Note that if your system has two diskette drives, the system will ask you to select the drive number of the drive from which you want to install.

2. Select the type of diskettes you are using for installation, then move to the `OK` button and press `ENTER`. Your screen will look similar to this:



3. Insert the first *INTERACTIVE Network Drivers* diskette into the drive and press **ENTER**. Your screen will look similar to this:



- ⇒ The installation of the drivers ec0, el0, emat, ni0, n10, pe0, and ub0 requires that the Link Level Driver for Host-Based TCP/IP already be installed on the system.

Note that the 3COM® 523 driver works only with a Micro Channel® architecture bus.

- Note that you may install more drivers than you currently plan to use without affecting your system (except for the storage space required). By default, the system will install all of the drivers listed on your screen; however, you may choose to install only some of the drivers listed. For example, to install the Western Digital EtherCard PLUS and the 3COM EtherLink® (3C501) boards, change the default `yes` setting in front of all the other drivers to `no`. Only those drivers to be installed should be preceded by a `yes` on your screen. (Be sure to use the `PAGE-UP` or `PAGE-DOWN` keys to scroll the complete list of drivers available.) Then select the `OK` button.

Your screen will look similar to this:

```
Disk      File      Machine  Software_ User      Help      Quit
-----
Install Package Files
/etc/drivers/wd2/Driver.o
/etc/drivers/wd1
/etc/drivers/wd1/description
/etc/drivers/wd1/Master
/etc/drivers/wd1/Node
/etc/drivers/wd1/System
/etc/drivers/wd1/Driver.o
/etc/drivers/wd0
/etc/drivers/wd0/Node
/etc/drivers/wd0/Master
/etc/drivers/wd0/Space.c
/etc/drivers/wd0/description
/etc/drivers/wd0/System
/etc/drivers/wd0/Driver.o
106 blocks
When you are finished installing network drivers, you will
need to configure the one you wish to use. Execute the command
'sysadm netdrvrmgmt' to do this.
```

This will be repeated for each driver you want to install.

- Press `ESC` when you have finished installing the drivers.

4. CONFIGURING THE NETWORK DRIVERS

After you have installed the drivers that you want on your fixed disk, you must configure the ones you intend to use on your system.

4.1 I/O Address and IRQ Values

Each driver that controls hardware in the INTERACTIVE UNIX Operating System has an I/O address range and an IRQ vector associated with it. In general, these values must be unique for each piece of hardware. The default values of the I/O address range for each device driver supplied with the INTERACTIVE UNIX Operating System have been mapped to an I/O address space that does not overlap with the I/O address space of any other supplied device driver. This means that even if all of the drivers supported by the INTERACTIVE UNIX Operating System are configured into the kernel at the same time, there is no possibility of the I/O address range of one device overlapping with that of another device. This rule does not apply to IRQ lines. There are only 16 available IRQ lines and many of them are used by the system, as shown in the following table:

<i>Interrupt</i>	<i>Usage</i>
0	Timer
1	Keyboard
2	Used by system
3	COM2
4	COM1
5	LPT2
6	Diskette (floppy) controller
7	LPT1
8	Clock
9	Used by system
10	Free
11	Free
12	Free
13	Math coprocessor
14	Standard hard (fixed) disk controller
15	Free

There are a few free interrupts from 10 to 15. However, only 16-bit cards can utilize them. If an interrupt is used by a piece of hardware which is not present in the machine, that interrupt can be used by another peripheral. For example, if the machine has only one parallel port on

IRQ 7, IRQ 5 can then be used by another card. IRQ 2 is a special interrupt line. It can be used by the operating system if the driver is set up to use IRQ 9. This technique will not work on all machines; some motherboards use IRQ 2 internally. Also, some older graphic video boards use IRQ 2. For information on modifying driver IRQ values and I/O addresses, refer to *sdevice(7)* in the *INTERACTIVE SDS Guide and Programmer's Reference Manual*.

4.2 Configuring One Driver

⇒ Experienced users can bypass all menus and begin driver configuration immediately by typing `sysadm configure`.

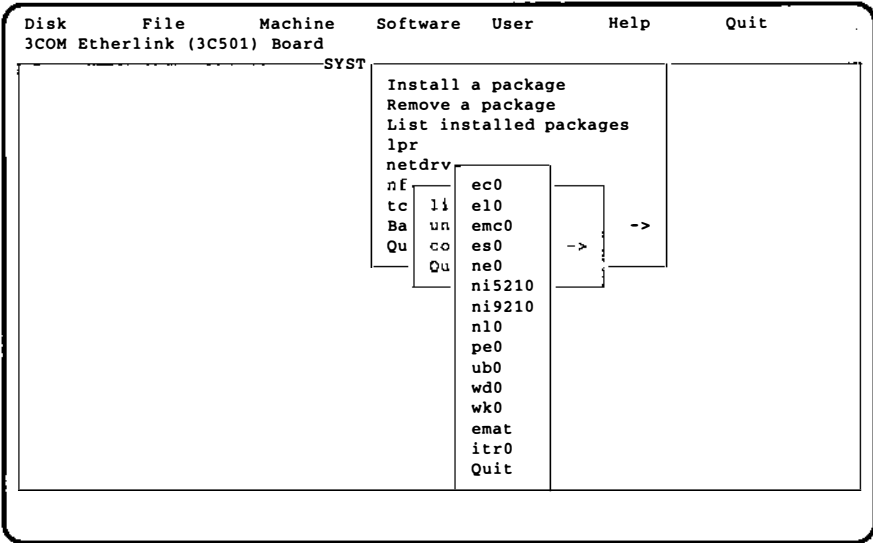
1. Log in as `sysadm` or use the `sysadm` command to access the Main menu. Select Software, then select `netdrv`. The system then displays the Network Driver Management menu:

```

Disk      File      Machine  Software  User      Help      Quit
Install a Network Driver
                                     SYSTE
                                     Install a package
                                     Remove a package
                                     List installed packages
                                     Mail System Setup
                                     netdrv   ->
                                     Ba      -->
                                     Qu      listdrv
                                             unconfigure
                                             configure  ->
                                             Quit

```

2. To configure a network driver, select `configure`. The system then displays the driver setup options. Note that only the drivers you have previously chosen to install will appear on your screen:



- Use the arrow keys, then press **ENTER** to include a board in your system. Note that the information you must supply will vary depending on the driver selected. The following example is specific to the wd0 driver for the Western Digital EtherCard PLUS board. To include the Western Digital EtherCard PLUS board in your system, select wd0, then press **ENTER**. Your screen will look similar to this:

```

INTERACTIVE
Network Driver Software Installation

WD Hardware Configuration
    
```

The wd0 driver is currently configured with the following WD hardware settings:

Note: All hardware settings are in Hex value:

```

Interrupt Request Line (IRQ).....3
Start I/O Address on I/O bus.....0x280
End I/O Address on I/O bus.....0x29f
Start Controller Shared Memory Address....0xd0000
End Controller Shared Memory Address.....0xd3fff
    
```

Do you want to use the current IRQ value [Yes]?

The system displays the default settings for this particular board. The IRQ value for this device is 3, and the I/O address range for this device is 0x280 through 0x29f. This means that this I/O address range on the I/O bus is dedicated to this device. No other

device should be communicating with the CPU on addresses falling in this range.

4. If you want to use the current IRQ value, type *y*. If you have set the IRQ jumper value on the board to be a number other than 3 and you want to change this value in the system files to match your board's setting, type *n*. You will want to do this if you already have a device driver configured into the kernel that occupies that particular value (IRQ 3). If you type *n*, the system then prompts you to enter the new IRQ value:

Please enter the IRQ value for the board [3]:

5. Type in the new IRQ value, for example, 4. The system will then ask:

Do you want to use the current I/O Port address range [Yes]?

6. Press **ENTER** to accept the default if you want to use the current I/O port address range; type *n* if you want to change the value of the I/O port address range to match the value set on your board. You must be familiar with the specifications of this device in order to provide the beginning and ending values. Refer to the documentation that accompanied your board to determine the appropriate values. The system prompts you to enter the beginning I/O address (in hex) for this device. Your screen will look similar to this:

Please enter Start I/O address for the board in hex [280]:

7. Type in the new starting I/O address, for example, 400. The system will then ask you for the new ending I/O address:

Please enter End I/O address for the board in hex [29f]:

8. Type in the new ending I/O address in hex, for example, 40f. The system will then check for interrupt vector conflicts that may exist between this device and other device drivers that are currently configured into the kernel. This check detects any conflicts early in the reconfiguration process, allowing you to go back and change any conflicting values.

Note that if you are configuring the `wd0` driver *only*, you will be asked to respond to the following additional questions. (If you are configuring a different driver, different questions may be displayed.) Your screen will look similar to this:

Do you want to use the current Controller Shared Memory address range [Yes]?

Respond n. Your screen will look similar to this:

Please enter the Start Shared Memory address for the board [d0000]:

Enter the starting shared memory address, or press **ENTER** to accept the default. Your screen will look similar to this:

Please enter the End Shared Memory address for the board [d3fff]

Enter the ending shared memory address, or press **ENTER** to accept the default.

9. If there is no conflict, you may skip to step 11. If there is a conflict, your screen will look similar to this:

Checking for interrupt vector conflicts - Please wait...

There is a conflict with the device "asy" on interrupt level 4. Please resolve this conflict by changing the Interrupt Request line of either the conflicting device or the WD board.

Change the IRQ value of "wd0" in the /etc/conf/sdevice.d/wd0 file or make modifications to the configuration file of each conflicting device resident in the /etc/conf/sdevice.d directory named after the corresponding device. If you are changing the interrupt vector and request line of the WD board, then you will need to do the following:

- 1 Abort this installation.
- 2 Change the IRQ jumper on the WD board to the desired IRQ level to reflect the desired IRQ level.
- 3 Restart this installation script by executing sysadm, giving the correct value for the interrupt level when asked by the script.

This conflict must be resolved before the new kernel can be linked. Please refer to the INTERACTIVE Network Driver software and WD hardware installation manual for more detailed instructions on changing the interrupt vector, I/O address, etc.

Now interrupt this script (press CTRL \) to abort the installation...

10. If this message appears, press **CTRL** \ (or whatever the interrupt key sequence on your system is) to interrupt the configuration process. The system will prompt you to go back to the INTERACTIVE Network Driver Software Installation screen. You should then follow the instructions given on the screen above and return to step 1.

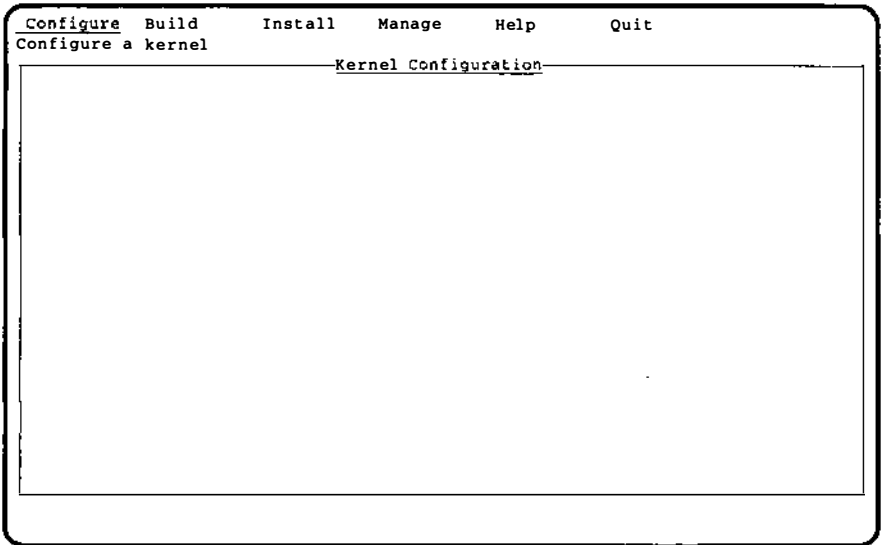
11. If there is no conflict between the IRQ value of this device and that of other devices currently listed in the file `/etc/conf/cf.d/sdevice`, your screen will look similar to this:

```
New /etc/conf/sdevice.d/wd0 file is:
wd0      Y      32  5  3  3      280  29f  d0000  d3fff

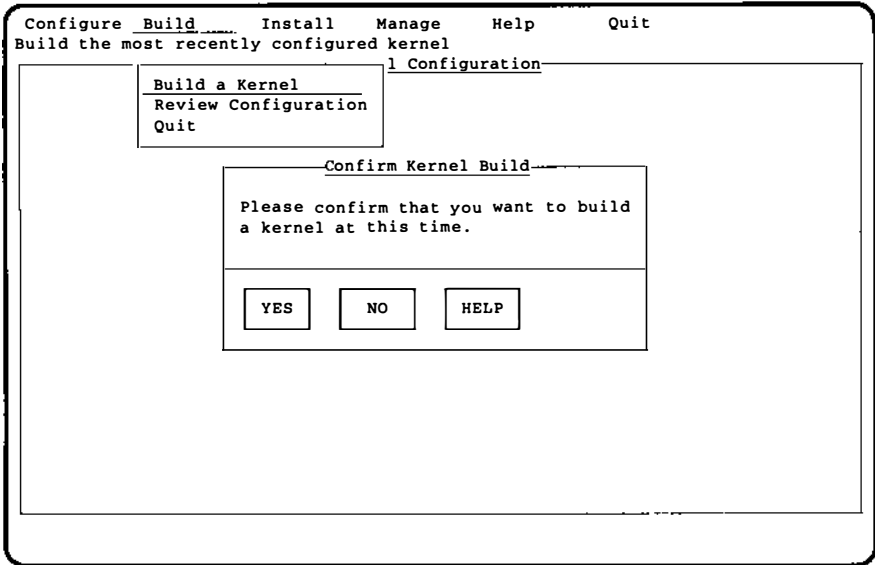
Do you wish to build a new kernel at this time? [y, n, q]
```

The system displays the device-dependent configuration file that you have just modified and asks if you are ready to build a new kernel.

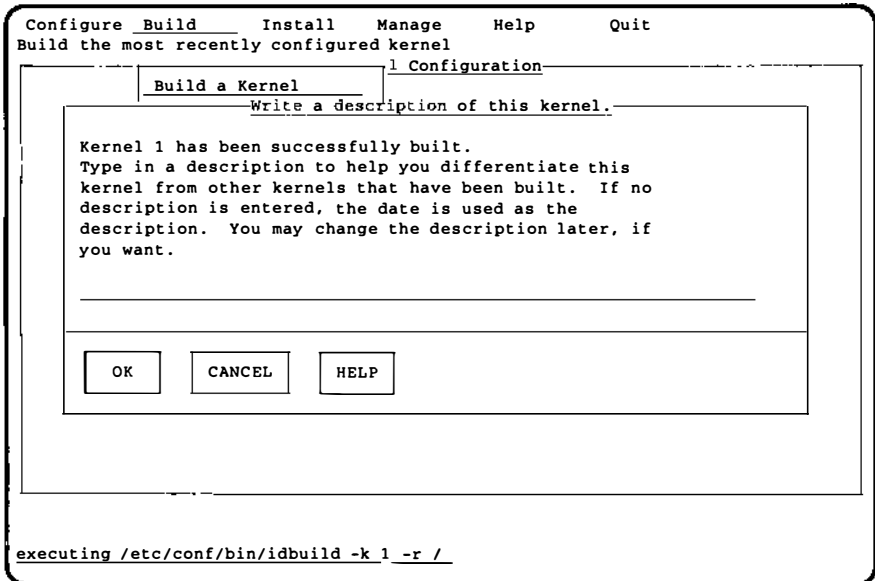
12. If you want to configure other drivers before building a new kernel, type `n`; the system will then prompt you to return to the INTERACTIVE Network Driver Software Installation screen. If you are ready to build a new kernel, type `y`. The system will then automatically call the `kconfig` program so that you can build and install a new kernel. Your screen will look similar to this:



13. Select `Build` to build a new kernel with your `wd0` driver included. The system will prompt you to confirm that you want to build a kernel. Your screen will look similar to this:



14. Select YES. When the kernel has been built, your screen will look similar to this:

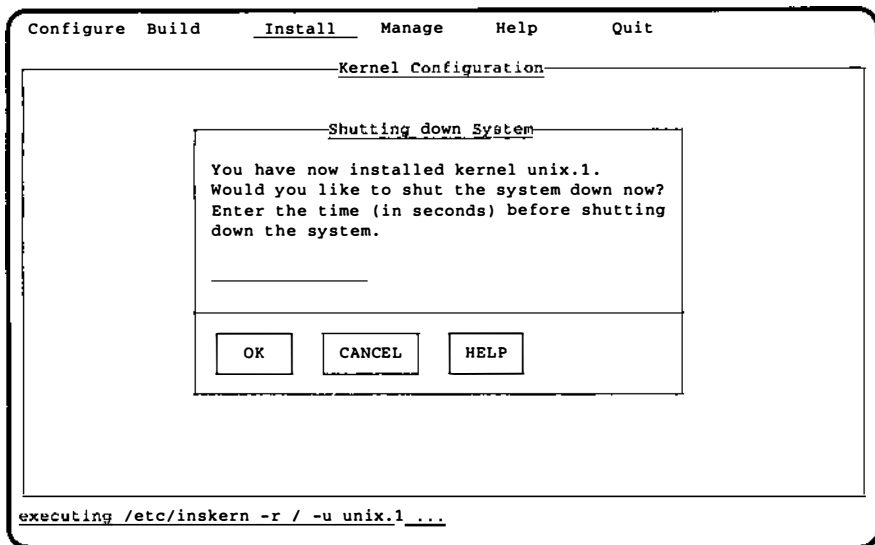


15. Type a description of the kernel, then press the OK button. The system will prompt you to install the kernel:

```
Configure  Build   Install  Manage   Help     Quit
Install a previously built kernel
-----Choose a Kernel to Install-----
Use the up and down arrow keys to scroll through the list.
Press <ENTER> to select a kernel.
-----Available Kernels-----
unix.1  Wed Jun 17 22:45:17 PDT 1992
-----
[REVIEW]  [INSTALL]  [DONE]  [HELP]
```

Note that if you have built previous kernels, they will be listed on your screen.

16. Select the kernel you want to install, then press the `INSTALL` button at the bottom of your screen to install the new kernel in the root (`/`) directory. The previous kernel will be saved in a file called `/OLD.unix`. The system will prompt you to specify an amount of time (in seconds) that users will have to log off the system. Your screen will look similar to this:

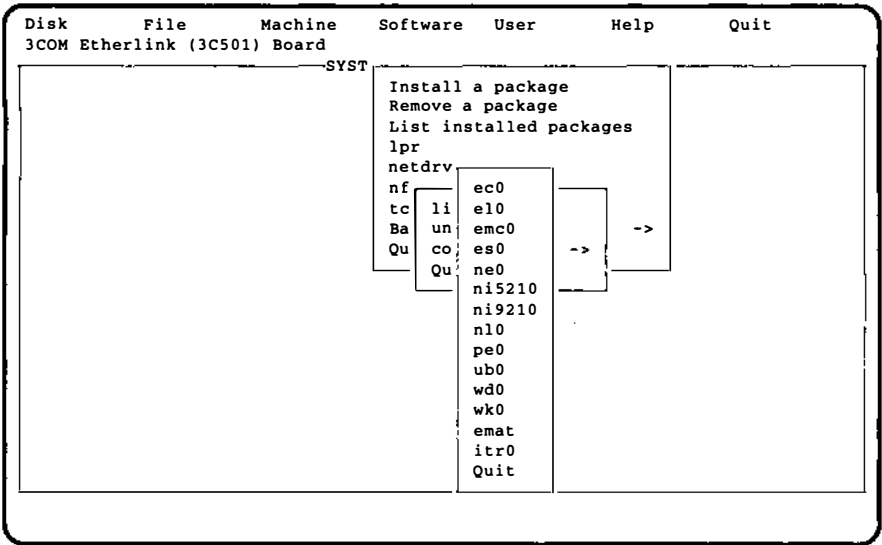


17. Type in 0 if there is no one on the system; otherwise enter a reasonable value, then press the OK button at the bottom of the screen. The system will implement the shutdown procedure.

4.3 Configuring Additional Drivers

You can configure drivers for multiple boards from the same or different manufacturers on a system.

1. Access the `netdrv` menu under `Software` and select `configure`. Your screen will look similar to this:



2. Select the driver option that corresponds to the second board you want to configure, for example, wd0, the Western Digital EtherCard PLUS. If you have already configured a driver for one Western Digital EtherCard PLUS board, the system asks:

Do you want to configure another Western Digital Board [Y/N]?

3. Type y. The system then displays:

Enter Multiple Western Digital Board #[wd1,wd2..etc]

4. If this is the second Western Digital board you are configuring, type wd1; if it is the third, type wd2, and so on. If you type wd1, your screen will look similar to this:

Western Digital Hardware Configuration

The wd1 driver is currently configured with the following WD hardware settings.

NOTE: All hardware settings are in Hex value:

```

Interrupt Request Line (IRQ).....3
Start I/O Address on I/O bus.....0x380
End I/O Address on I/O bus .....0x39f
Start Controller Shared Memory Address.....0xd6000
End Controller Shared Memory Address.....0xd9fff
    
```

These are the default device-dependent values for this board as they appear in the file /etc/conf/sdevice.d/wd1.

5. Configuration of the second driver proceeds exactly as described for a single driver except your screen will look similar to this:

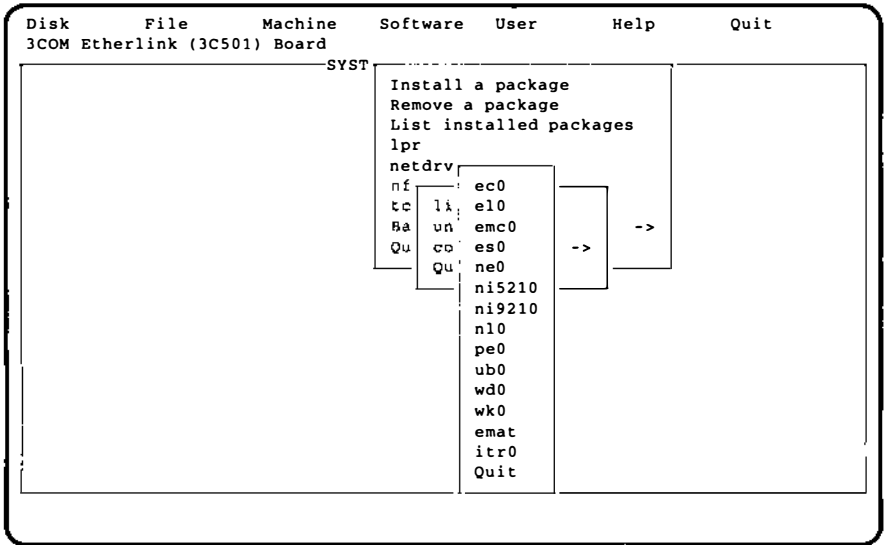
```
New /etc/conf/sdevice.d/wd1 file is:  
wd1   Y   32   5   3   3   380   39f   d6000   d9fff
```

```
Do you wish to build a new kernel at this time? [y, n, q]
```


5. CHANGING THE PARAMETERS OF PREVIOUSLY CONFIGURED BOARDS

If you want to change the parameters of a board for which you have already configured a driver, follow this procedure.

1. Access the `netdrv` menu under Software and select configure. The system displays:



2. Select the driver option that corresponds to the board you want to change, for example, `wd0`, the Western Digital EtherCard PLUS. The system asks:

Do you want to configure another Western Digital Board [Y/N]?

3. If you have only configured one board, type `n`. The parameters of `wd0` are then displayed.

If you want to change the parameters for the second Western Digital EtherCard PLUS board you have configured, answer `y` to this question. Your screen will look similar to this:

Enter Multiple Western Digital Board #[wd1,wd2..etc]

4. Type `wd1` if you want to change the parameters of the second Western Digital Board you configured; type `wd2` if you want to change the parameters of the third one, and so on. The parameters

of the board you chose are then displayed, and you can change them just as during the initial configuration.



6. REMOVING NETWORK DRIVERS FROM THE SYSTEM

To remove a network driver from the system configuration, follow this procedure.

1. Access the `netdrv` menu under Software and select `unconfigure`. Your screen will look similar to this:

The following drivers have been configured.

```
i596
wd0
```

Enter Network Driver to be deleted from the system:

2. Type the designation for the driver you want to remove, for example, `wd0`. If the driver for this board is currently configured, the system will then display this message:

Use `kconfig` to build a new kernel without the `wd0` driver

If the driver was not configured, the system will display:

```
wd1 driver is not configured
```

7. DISPLAYING CURRENTLY CONFIGURED NETWORK DRIVERS

To display a list of currently configured network drivers, follow this procedure.

1. Access the `netdrv` menu and select `listdrv`. Your screen will look similar to this:

Current list of Network drivers configured:

```
i596      Intel Embedded 82596
ub0       Ungermann-Bass PC NIC
wd0       *Western Digital Ethernet Driver
```

Press the RETURN key to see the `netdrv` menu [?, q]:

An asterisk (*) by an entry in the list indicates that multiple drivers for more than one board of this type can be installed.

If no network drivers are installed, the system displays:

```
NO NETWORK DRIVERS ARE INSTALLED
```

NAME

emat – 3COM 3C507 EtherLink 16 high performance 16-bit adapter for Ethernet networks on an ISI or EISA bus

DESCRIPTION

The *emat* driver provides STREAMS access to the 3COM 3C507 family of Local Area Network adapters. The board provides a pool of buffers for frames received from the network and provides the management of the on-board buffers.

The driver requires the installation of the *llc* driver (see *llc(7)*). All communication with the driver is done via STREAMS messages in the Link Interface format specified in the file `/usr/include/sys/lihdr.h`.

The *emat* driver is a high performance Ethernet interface that resides as part of physical and data link ISO OSI layers. It has a maximum of 64K of shared memory. The driver's data structure uses a circular ring buffer when data is received. This implementation complements the 82586 hardware communication chip on the board and minimizes the loss of packets. The ring buffer architecture is designed to continue to receive frames even when the host is busy serving interrupts or doing other chores. It accepts valid frames up to 64K bytes which must include control information.

Configuration

Use the 3COM EtherDisk for either EtherLink16 or EtherLink16 TP, Version 1.1 or later, to change hardware configurations. The file `3c507.exe` must run when the configuration is changed. The *emat* driver has the following set of valid interrupt numbers:

3, 5, 7, 9, 10, 11, 12, 15

Shared memory I/O addresses are as follows:

0xC0000 — 16K, 32K, 48K, 64K

0xC8000 — 16K, 32K, 48K, 64K

0xD0000 — 16K, 32K, 48K, 64K

0xD8000 — 16K, 32K

0xF0000, 0xF20000, 0xF40000, 0xF60000, 0xF80000 — 64K

NOTE: When choosing a shared memory address, be sure to run the *3c507* program under DOS on your EtherDisk. This program provides an internal RAM test program. With this, you can verify whether your shared memory address is overlapped by others (such as BIOS shadow RAM or video RAM). If your test fails on certain shared memory addresses, you will have to use another I/O address.

SEE ALSO

llc(7).

ANSI/IEEE Standard 802.2 – Logical Link Control.

NAME

i596 – embedded Ethernet adapter for 82596

DESCRIPTION

The *i596* adapter is an on-board 32-bit 82596CA LAN controller for the LP486/33E, LP486SX/25E, and LP486SX/20E Intel machines (known as the L-series). The controller has two external connectors for TPE and AUI cables.

The on-board LAN controller is an Intel 82596CA operating at 33MHZ and is IEEE 802.3 compliant. The controller resides on the buffered bus of the 82358DT EISA bus controller. The *i596* driver provides STREAMS access to the on-board 82596CA Local Area Network adapter.

The *i596* driver supplies an LLI-compliant interface that is compatible with INTERACTIVE TCP/IP software.

The *i596* driver shares an 8K memory space in the main memory with the *i486* processor. There is no on-board memory to map to UNIX System kernel memory. The driver's data structure uses a circular ring buffer when data is received. The ring buffer architecture is designed to continue to receive frames even when the host is busy servicing interrupts or doing other chores.

Configuration

Each system has its own unique 6-byte Ethernet address and a default interrupt level number. These are stored in the FLASH EPROM on the system board.

The *i596* driver has a set of valid interrupt numbers:

9, 10, 11, 15

To change the default LAN interrupt level, use the EISA Configuration Utility. For further information on EISA Configuration, refer to the product guide for the above-mentioned L-series Intel machines.

NOTE: When you exit the EISA Configuration Utility, the configuration settings get stored in the battery-backed memory. Upon exit, this configuration information must agree with information stored in flash memory.

SEE ALSO

llc(7).

ANSI/IEEE Standard 802.2 – Logical Link Control.

NAME

itr – IBM Token Ring 16/4 Mg bit PC adapter board

DESCRIPTION

The *itr* driver provides STREAMS access to the IBM token ring 16/4 Mg bit PC adapter running on an ISA/EISA bus as a family of Local Area Network adapters. The board provides a pool of buffers for frames received from the network and also provides management of the on-board buffers.

The driver provides for IEEE 802.2 LLC Class 1 and Ethernet encapsulation of data. All communication with the driver is done via STREAMS messages in the Link Interface format specified in the file `/usr/include/sys/lihdr.h`.

Configuration

The `space.c` file provides a mechanism for specifying the *itr* operating parameters to the driver. If a different shared memory address or I/O port address are necessary, the `space.c` file should be updated accordingly.

SEE ALSO

llc(7).

ANSI/IEEE Standard 802.2 – Logical Link Control.

