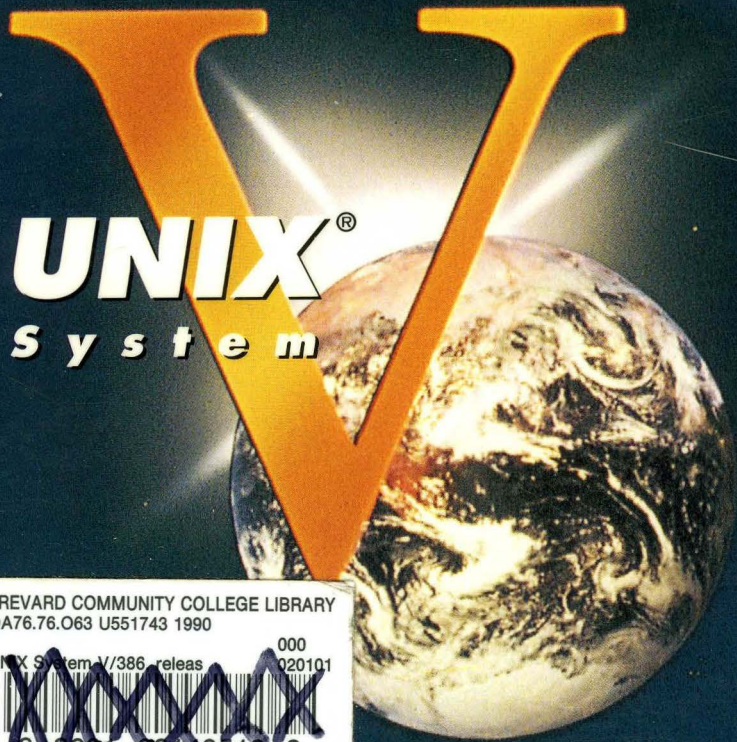




**UNIX<sup>®</sup> SYSTEM V/386  
RELEASE 4**

**MULTIBUS<sup>®</sup> Installation and  
Configuration Guide**



**UNIX Software Operation**



***UNIX<sup>®</sup> SYSTEM V/386  
RELEASE 4***

***MULTIBUS<sup>®</sup> Installation and  
Configuration Guide***



**UNIX Software Operation**

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# 1. INTRODUCTION

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# 1 Introduction

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# Document Overview

This document provides a set of instructions to follow while installing the UNIX® System V/386 Release 4 operating system on an Intel System 320 (MULTIBUS® I-based), an Intel System 520 (MULTIBUS II-based), or an Intel SYP Modules Development Platform (MULTIBUS II-based) microcomputer. The steps guide you through the bootup and installation processes. This document is arranged as follows:

- Introduction**            Introduces the document and its organization.
- Before You Start**    Defines hardware requirements and introduces the menu interface.
- System 320-Specific Installation Instructions**  
                             Provides step-by-step instructions to guide you through operating system installation on the System 320.
- System 520-Specific Installation Instructions**  
                             Provides step-by-step instructions to guide you through operating system installation on the System 520.
- System MDP-Specific Installation Instructions**  
                             Provides step-by-step instructions to guide you through operating system installation on the System Modules Development Platform.
- System V/386 Installation**  
                             Guides the user through the UNIX System V/386 installation menus.
- Software Packages Installation**  
                             Explains the installation of the additional software packages provided on the UNIX System V/386 installation tape.
- Appendix A**            Device Drivers
- Appendix B**            Tunable Parameters
- Appendix C**            Hard Disk Drive Parameters
- Appendix D**            Related Publications

## Reader Profile

These instructions are written for the system administrator who is familiar with the hardware, the software, and installation and configuration concerns.

## Notation

The following notational conventions are used throughout this manual:

- input**            User input, such as commands, options, arguments to commands, directory names, and file names, will appear in constant width. In user-entry instructions, "Enter wd" is the same as "Type the characters wd, then press <RETURN>".
- output**            System output, such as prompt signs and responses to commands, appear in constant width type.
- variable*           Names of variables to which values must be assigned (such as *filename*) appear in *italic*.
- command (#) or command (# iref)**  
Refers to a command, library call, or system call. A command name followed by a number refers to a command in the UNIX System V manual set; a command followed by a number and the letters "iref" in parentheses refers to other references that are in the UNIX System V/386 MULTIBUS Reference Manual.



## 2. BEFORE YOU START



---

# 2 Before You Start

---

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## Overview

This chapter describes the hardware requirements and the menu interface used during UNIX System V/386 installation.

## Hardware Requirements

For additional information on the systems listed below, refer to the manual(s) that come with each system.

An Intel System 320 (MULTIBUS I-based) system requires the following equipment to boot UNIX System V/386 (as defined in the System 320 Installation Guide):

- An iSBC® 386/XX processor board
- A minimum of four megabytes of RAM
- A minimum of an 80 megabyte hard disk drive
- A cartridge tape drive and an iSBC 214 or an iSBC 221 controller board

An Intel System 520 (MULTIBUS II-based) system requires the following equipment to boot UNIX System V/386 (as defined in the System 520 Installation Guide):

- An iSBC 386/1XX processor board with a minimum of four megabytes of RAM .
- A minimum of an 80 megabyte hard disk drive.
- An iSBC 386/258 controller board with a minimum of one megabyte of RAM and an iSBX® 279 graphics module.
- A CSM/002 module on the 386/258 board or a CSM/001 board in slot 0.
- A cartridge tape drive and a 1.2 megabyte flexible disk drive.
- A second iSBC 386/1XX processor board can be installed in the system. If this option is installed, then a second hard disk drive (80 megabyte minimum) is required.

An Intel SYP Modules Development Platform (MULTIBUS II-based) system requires the following equipment to boot UNIX System V/386 (as defined in the SYP Modules Development Platform User's Guide):

- An iSBC 386/1XX processor board in slot 3 with a minimum of four megabytes of RAM.
- An iSBX 354 module installed on the processor board.
- A minimum of an 80 megabyte hard disk drive.
- A cartridge tape drive and an iSBC 186/224A controller.
- A second iSBC 386/1XX (with an iSBX 354) board can reside in slot 5. If this option is installed, then a second hard disk drive (80 megabyte minimum) is also required.



The firmware upgrade kit must be installed on the processor boards(s) of the SYMPDP before UNIX System V/386 can be installed.

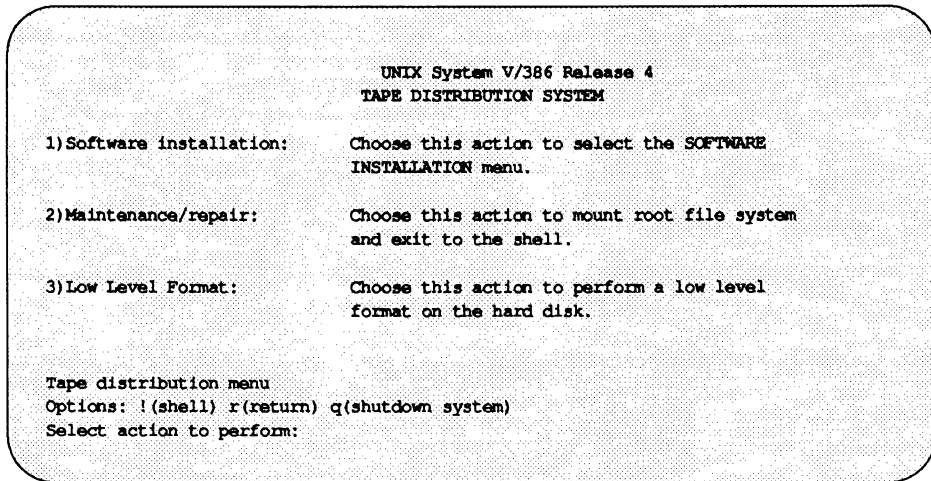
## Menu Interface

This section describes the general menu interface for the UNIX System V/386 installation program. As you can see in Figure 2-1, each menu deals with two distinct sets of objects. The first are menu selections; they are the main items that appear in the main portion of the screen. The rest are menu options.

### Menu Selections

Menu selections can be chosen in either of two ways: by entering the number to the left of the selection description, or by entering enough letters of the description to uniquely identify that menu selection (the letters necessary to make this type of selection are displayed on the screen in capital letters).

---

**Figure 2-1: Menu Interface**

---

## Menu Options

Menu options appear at the bottom of the screen. They are the same for each menu screen. They are always a single-character command. The three standard menu options are:

- ! (shell) Typing ! causes the system to escape the installation menus and enter the shell. To return to the installation menus type <CTRL>d (Press the CONTROL key and the d key simultaneously).
- r (return) Typing r at any menu level returns you to the main menu.
- q (shutdown system) Typing q causes the installation process to quit. This option will unmount file systems and perform other housekeeping prior to halting the system.

## Messages

At different points during the installation process, the system sends you messages like, `Checking installed UNIX system files`. Some messages (those displayed when an error is detected, for instance) require you to press `<RETURN>` before the program continues. The system prompts you at these times.



### 3. SYSTEM 320 SPECIFIC



---

# 3 System 320 Specific Installation Instructions

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# Introduction

This chapter provides instructions for installing UNIX System V/386 on an Intel System 320 (SYP 320). It also contains information on setting up the serial ports and the parallel port on the back of the system.

## Installation Instructions

### Step 1. Prepare System for Installation

Do this step if your system is running a previous release of System V/386. Skip this step if you are installing on a new system.

To prepare the system for installation, perform the following:

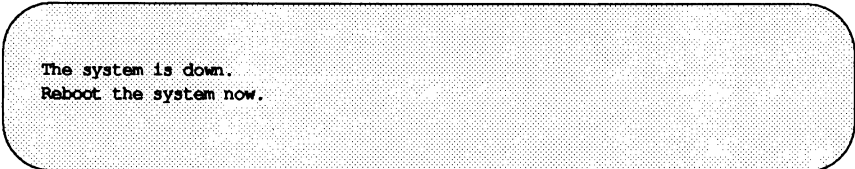
1. Login as the root user.
2. Backup all user files using the `cpio(1)` command (see `cpio(1)` in the *UNIX System V/386 System Administrators Reference Manual*).
3. Enter shutdown. Various messages appear, followed by a one minute delay. At the end of the delay, the following message appears:



```
Do you want to continue? (y or n):
```

Enter `y`.

More messages appear. The system is shut down when the following message appears:



```
The system is down.  
Reboot the system now.
```

## Step 2. Reset the System

Insert the key into the lock on the system. Turn the key clockwise to the **reset** position, and then back to the **unLock** position. When characters start to appear on the screen, press **<SHIFT> U**. (Note that you may need to press **<SHIFT> U** several times before the system responds.)

Messages will appear on the screen informing you that the system confidence tests (SCTs) have begun.



As the tests begin, note the SCTs version you have. You will need this information later.

## Step 3. Follow the Prompts

### SYP320 (with an SCT version earlier than 1.3)

After the system confidence tests are complete, the following message will appear:

Break to DMON-386 monitor (y or [n])?

Enter **y**.

The system waits only ten seconds for a response. Because of this short timeout, you must respond quickly. If you miss the timeout period, go back to Step 2 and start again.



You can bypass the SCTs by pressing **<CTRL> c** while they are executing. This activates the System Debug Monitor (SDM). At the SDM prompt, enter **wd** to get to DMON.

If you accidentally reach the SDM (System Debug Monitor) prompt (**.**) instead of the DMON prompt (**>**), enter **wd** to get to DMON.

**SYP320 (with an SCT version of 1.3)**

After the system confidence tests are complete, the following message will appear.



Break to MON386 (32-bit monitor) (y or [n])?

Enter n.

When the following message appears. Enter y.



Break to 1SDM monitor (y or [n])?

(The system waits only ten seconds for a response. If you miss the timeout period, the system will try to boot. Go back to Step 2 and start again.)

If the system has not been powered down, you can type <CTRL> c any time during the system confidence tests. Doing this will take you directly to the SDM monitor.

**NOTE**

After powering on the system, let the system confidence tests run to completion.

**Step 4. Insert Installation Tape into the Tape Drive**

Insert the installation tape into the tape drive.



When inserting the tape into the tape drive, position the tape so that the protective hinged flap is the first portion of the tape to enter the drive and that it is positioned on the left side of the tape.

## Step 5. Boot System from the Tape Drive

### SYP320 (with an SCT version earlier than 1.3)

Enter `b":wta0:"` at the `>` prompt (the DMON prompt). (The double-quote marks and the colons are required.)

The system boots from the tape drive and displays some sign-on messages.

### SYP320 (with an SCT version of 1.3)

Enter `b:wta0:` at the `.` prompt (the SDM prompt).

The system boots from the tape drive and displays some sign-on messages.

## Step 6. Install the UNIX System V/386 Operating System

Perform the steps in Chapter 6, "System V/386 Installation." After you have completed the steps in Chapter 6, return to this chapter and continue with Step 7.

## Step 7. Reboot the System



Do not continue until the UNIX System V/386 operating system is shut down.

Reset the system and, after characters start to appear on the screen, enter `<SHIFT> U`. You may have to enter `<SHIFT> U` repeatedly until the system responds.

When the system confidence tests (SCTs) start to run, note the SCT version.

**SYP320 (with an SCT version earlier than 1.3)**

To bypass the system confidence tests, enter `<CTRL> c` while the tests are running. The tests stop. Now, enter `wd` to get to the `>` prompt. At the `>` prompt, enter `b`.

**SYP320 (with an SCT version of 1.3)**

To bypass the system confidence tests, enter `<CTRL> c` while the tests are running. The tests stop and the `.` prompt appears. At the `.` prompt, enter `b`.

**Step 8. Install Packages**

Perform the steps in Chapter 7, "Software Packages Installation." After you have completed the steps in Chapter 7, return to this chapter and continue with Step 9.

**Step 9. System Setup**

Software installation is now complete. Before using your system, do the following:

- Set the time, time zone, and date.
- Add users and groups.
- Set passwords for administrative accounts.
- Set passwords for system accounts.
- Assign a node name to the system.

Use the `sysadm` utility to perform all of the above tasks. For information on using `sysadm`, refer to the following three chapters in the *UNIX System V/386 System Administrator's Guide*:

- System Setup
- User and Group Management
- Using the `sysadm` Interface

## Step 10 Restore User Files

Skip this step if you are installing a new system.

Restore the user files that you backed up in Step 1. For more information on restoring your system, see the *UNIX System V/386 System Administrators Guide*.



The structure of the file system in UNIX System V/386 Release 4 is different than in past releases. When restoring user files, make sure they are placed in the correct directories.

## Setting Up Ports

This section provides additional information you will need for connecting terminals and printers to the serial ports and parallel port of the System 320.

### Using the Serial Ports

A System 320 comes with four serial ports in addition to the serial port used by the console terminal. You can add eight more ports by installing an iSBC 547 board in slot 2. Table 3-1 lists the ports and their device names. To these 12 ports you can connect terminals, modems, and printers.



**Table 3-1: SYP320 Port Designations**

Slot	Board	Port	Device Name
1	iSBC 546	J1	/dev/tty000
		J2	/dev/tty001
		J3	/dev/tty002
		J4	/dev/tty003
2	iSBC 547 (optional)	J1	/dev/tty100
		J2	/dev/tty101
		J3	/dev/tty102
		J4	/dev/tty103
		J5	/dev/tty104
		J6	/dev/tty105
		J7	/dev/tty106
		J8	/dev/tty107

Before using these ports, you must create a port monitor and identify, with a service tag, each port you want the monitor to control.

A port monitor manages the activities of ports. It identifies each port with the service tag. To use four serial ports, create four service tags; one for each port. There are three ways to create a port monitor and service tags:

#### `quick_terminal`

This is a selection in the `sysadm` menu utility. It is the easiest way of activating the serial ports. `quick_terminal` automatically creates the port monitor and the service tags. However, it is the least flexible method and does not allow you to customize the port monitor or the service tags. To access `quick_terminal`, enter `sysadm ports`. (An example of using `quick_terminal` is given later.)

#### `port_monitors` and `port_services`

These two are also selections in the `sysadm` menu utility. `port_monitors` creates a port monitor. `port_services` creates a service tag for a port and assigns the tag to a port monitor. This method is more flexible but also more

complicated to use. To access `port_monitors` and `port_services`, enter `sysadm` ports.

### `sacadm` and `pmadm`

These are commands and are not part of the `sysadm` menus utility. `sacadm` creates a port monitor. `pmadm` creates a service tag for a port and assigns the tag to a port monitor. This is the most flexible method and the most complicated to use. Use this method if you want a shell script to create a port monitor and service tags.

If you are a novice system administrator, use the `quick_terminal` method. For more information about the other two methods, refer to the chapter "Service Access" in the *UNIX System V/386 System Administrator's Guide*.

### An Example of Using `quick_terminal`

This example shows how to use `quick_terminal` to activate serial ports on a System 320. For this example, the system contains an iSBC 546 board in slot 1; the optional iSBC 547 is not present. At the end of this example, all four ports on the iSBC 546 will be activated.

1. Login as root.
2. Enter `sysadm` ports. The Service Access Management menu appears.
3. Select `quick_terminal`. A smaller menu, also titled Service Access Management, appears.
4. Select `add`. The Quick Terminal Setup form appears.
5. Select choices by pressing `F2`. A menu appears that lists the device names of the serial ports (`/dev/tty000` through `/dev/tty003`).
6. Position the cursor next to `/dev/tty000`. Select this entry by pressing mark (`F2`). Select `/dev/tty001` through `/dev/tty003` in the same manner.
7. Press `<RETURN>`. The Choices menu disappears and the entries you marked appear in the Quick Terminal Setup form.

8. The default baud rate is set to 9600. If you want to change the baud rate, press the tab key. If you do not want to change the baud rate, skip to Step 11.
9. Select choices by pressing F2. A list of baud rates appear.
10. By using the up or down arrow key, highlight the desired baud rate and press <RETURN>. The Choices menu disappears and the baud rate you selected appears in the Quick Terminal Setup form.
11. Press save (F3). A warning appears saying that the ports were set up. Ignore this warning.
12. Press cont (F3).
13. Exit `sysadm` by pressing `cmd-mnu` (F7) and selecting `exit`. The serial ports are now enabled.



The system may not recognize the function keys on your terminal. If this happens, type <CNTRL>F and then press the corresponding number. For example, typing <CNTRL>F and then 2 is the same as pressing F2.

## Using the Parallel Port

The System 320 contains one parallel port on the iSBC 546 board (slot 1). A printer with a parallel interface can be connected to this port. The device name for this port is `/dev/lp`. For information on using this port with a printer, read the chapter "LP Print Service Administration" in the *UNIX System V/386 System Administrator's Guide*.



## 4. SYSTEM 520 SPECIFIC

---

# 4 System 520 Specific Installation Instructions

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---

# Introduction

This chapter provides instructions for installing UNIX System V/386 on an Intel System 520. It also contains information on setting up the serial ports on the back of the system.

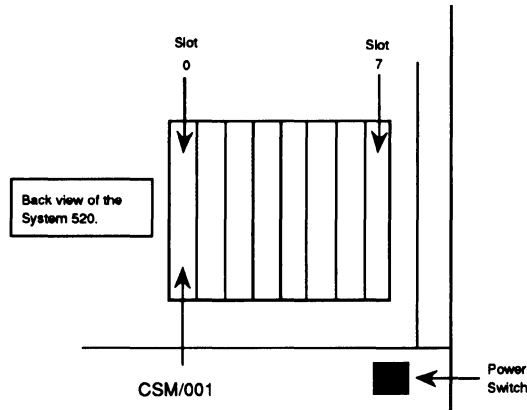
## Before You Start

### Which CSM Board is in Your System?

Before you can begin installation, you must determine which version of the CSM (Central Services Module) board is in your system; a CSM/001 or a CSM/002. The difference can easily be determined by looking at the back panel of your system (See Figure 4-1 and 4-2).

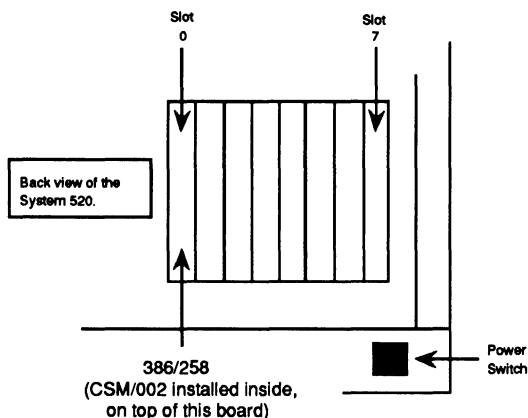
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**Figure 4-1: System 520 with the CSM/001 Board**





**Figure 4-2: System 520 with the CSM/002 Board**



A system with a CSM/001 board contains a board in slot 0 labeled SBC CSM/001. A system with a CSM/002 board contains a board in slot 0 labeled iSBC386/258. The CSM/002 resides inside the system on the 386/258 board.

The installation instructions in this chapter are for both systems. Most of the instructions are the same. Whenever there are differences, the following two symbols appear:



This symbol precedes instructions for systems with a CSM/001 board.



This symbol precedes instructions for systems with a CSM/002 board.

## The Windows

The System 520 uses windowing to display many operations on one screen. Figure 4-3 shows how the windows appear when a fully operational single-processor system (with UNIX System V/386 installed) is first booted. The three windows are:

### Console Window

This window is used as the system console. All UNIX System V/386 commands are entered using this window.

### SDM Window

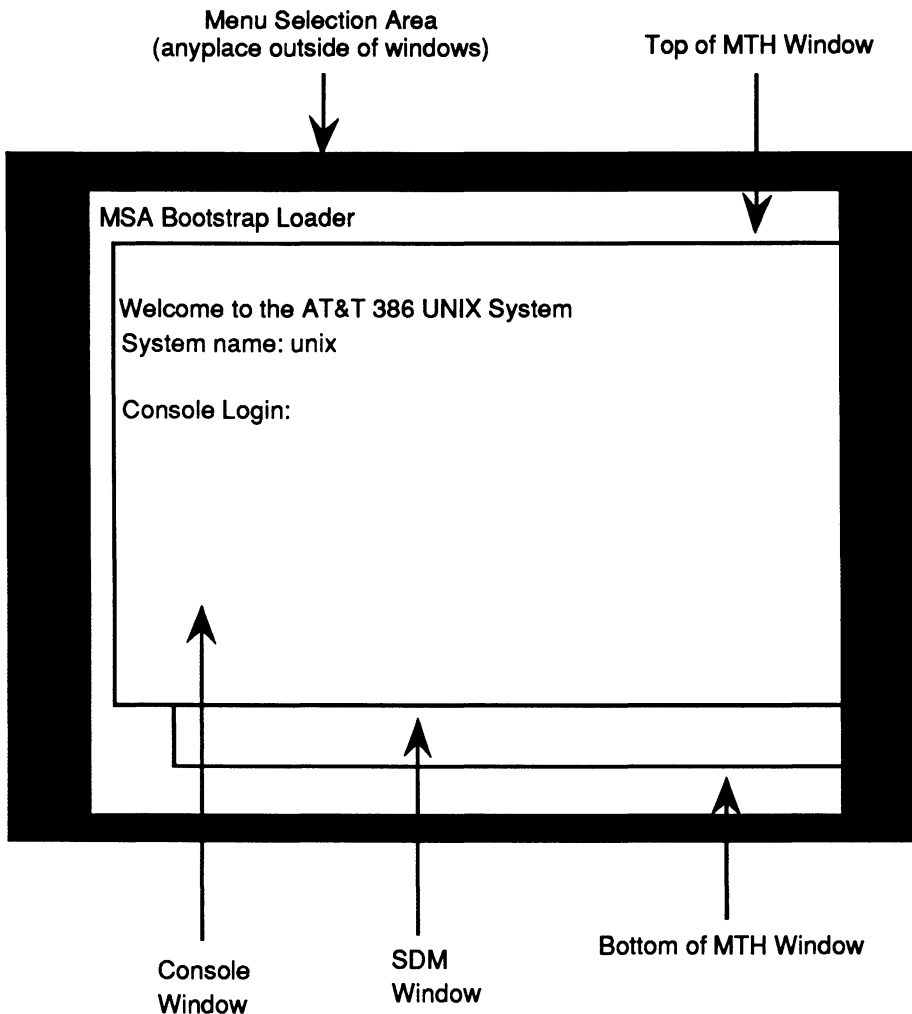
This window is for the System Debug Monitor (SDM).

### MTH Window

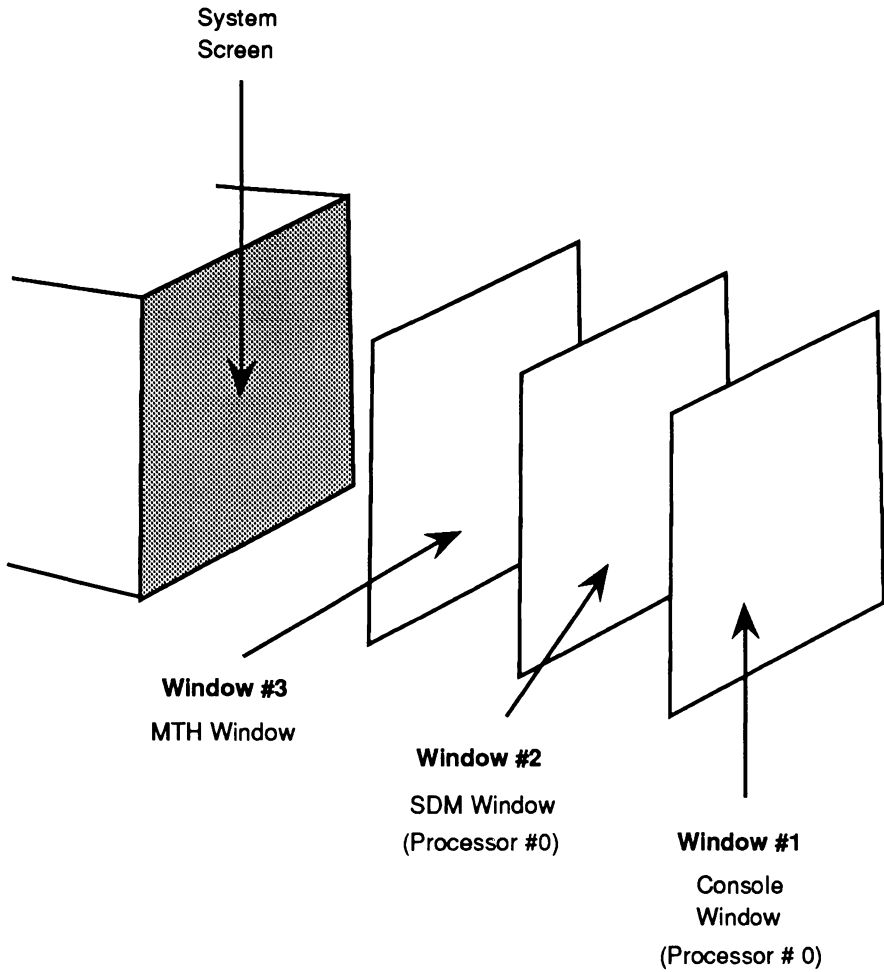
This window is for the Master Test Handler. When the system is first powered up or rebooted, this is the first window to be displayed. All of the initial diagnostic tests for the system use this window.

As you can see in Figure 4-3, the windows are layered on top of each other. Figure 4-4 shows how the windows are layered.

**Figure 4-3: Initial Window Placement for Single Processor System 520**



**Figure 4-4: Initial Layering of Windows (Single Processor System)**



The windows can be resized, moved, and reoriented by using the mouse. Read the appendix, "iSBX 279 Windows Interface," in the *UNIX System V/386 MULTIBUS Reference Manual* to learn how to manipulate the windows using the mouse.

### Dual Processor System

Before installing UNIX System V/386 on a dual processor system, make sure:

- The correct firmware is installed on the second processor.
- The second processor board is installed in the correct slot (slot 3 with a CSM/002; slot 4 with a CSM/001).
- A second hard disk drive is installed in the system.

## Installation Instructions

### Step 1. Prepare System for Installation

Do this step if your system is running a previous release of System V/386. Skip this step if you are installing on a new system. To prepare the system for installation, perform the following:

1. Login as the root user.
2. Backup all user files using the `cpio` command [see `cpio(1)`].
3. Enter shutdown. Various messages appear, followed by a one minute delay.

At the end of the delay in the final step, the following message will appear:



```
Do you want to continue? (y or n)
```

Enter `y`.

When the the following message appears, the system is shut down:

```
The system is down.  
Reboot the system now.
```

### Dual Processor SYP 520

Perform Step 1 for both processors. The following message must appear in the SDM window of each processor before you can continue with Step 2:

```
Reboot the system now.
```

## Step 2. Reset the System

Insert the key into the lock on the system. Turn the key clockwise to the reset position, and then back to the unlock position. When characters start to appear on the screen, press <shift> U. (Note that you may need to press <shift> U several times before the system responds.)

The following selections appear on the screen:

```
1 -> Run System Diagnostics (Selected if no character  
entered)  
2 -> Go to Operator Interface  
3 -> Go to Boot Phase (Skip system diagnostics)
```

Select the second option by pressing the 2 key.

### Step 3. Modify the Boot Parameters

- a. When the MTH [x]> prompt (Master Test Handler) appears, enter mp (this stands for modify parameters). The system displays one of the following:

CSM  
001

Modify Boot Parameters for slot 1:  
Modify parameters: "#" deletes, "." quits, <CR> advances  
new parameter

CSM  
002

Modify Boot Parameters for slot 0:  
Modify parameters: "#" deletes, "." quits, <CR> advances  
new parameter

- b. Enter bl\_boot\_device=scf (This directs the board in slot 0 (or 1 if you have a CSM/001), the 386/258, to boot from the floppy). The system displays: new parameter
- c. Enter . (period).
- d. When the system displays: save changes ([y] or n), press <RETURN>.
- e. Do one of the following:

CSM  
001

Change the slot number from zero to three by entering s3  
at the MTH prompt. The system displays:  
Default slot is 3  
MTH [1]>

CSM  
002

Change the slot number from zero to two by entering s2  
at the MTH prompt. The system displays:  
Default slot is 2  
MTH [0]>

f. Enter mp. The system responds with one of the following:

CSM  
001

Modify Boot Parameters for slot 3:  
Modify parameters: "#" deletes, "." quits, <CR> advances  
new parameter

CSM  
002

Modify Boot Parameters for slot 2:  
Modify parameters: "#" deletes, "." quits, <CR> advances  
new parameter

g. Enter bl\_boot\_device=pct (This directs the board in slot 2 (or 3 if you have a CSM/001), the 386/1XX, to boot from the tape drive.). The system displays: new parameter

h. Enter . (period).

i. When the system displays save changes ([y] or n), press <RETURN>.

## Step 4. Insert the Diskette and Tape

Insert the installation diskette into the disk drive and the tape into the tape drive.

### NOTE

When inserting the diskette into the tape drive, position the diskette so that the label on it is facing up in the nearest (to you) right hand corner of the diskette.

When inserting the tape into the tape drive, position the tape so that the protective hinged flap is the first portion of the tape to enter the drive and that it is positioned on the left side of the tape.

## Step 5. Boot the System

At the MTH [x]> prompt, enter b.



## Step 6. Install the UNIX System V/386 Operating System

Perform the steps in Chapter 6, "System V/386 Installation." After you have completed the steps in Chapter 6, return to this chapter and continue with Step 7.

## Step 7. Remove the Tape and Diskette and Reboot the System



Do not continue until the UNIX System V/386 operating system is shut down.

Remove the tape and the diskette and reset the system. When characters start to appear on the screen, enter <SHIFT> U. You may have to enter <SHIFT> U repeatedly until the system responds. After the sign-on message is displayed, the following choices will appear on the screen.

```
1 --> Run System Diagnostics (Selected if no character
entered)
2 --> Go to Operator Interface
3 --> Go to Boot Phase (Skip system diagnostics)
```

Select option 3. This causes the system to automatically boot the UNIX System V/386 operating system.

## Step 8. Install Packages


Perform the steps in Chapter 7, "Software Packages Installation," then return to this chapter. If you are installing on a single processor system, continue with Step 10. If you are installing on a dual processor system, continue with Step 9.


---

## Step 9. Repeat the Installation Process (Dual Processor System only)


Perform this subset of steps if you have a second 386/1XX processor board and a second hard disk drive installed in your system. If you have a single processor system, continue with Step 10.

1. Reset the system after the system is shut down. Select option 2 when the menu for the MTH (Master Test Handler) appears.
2. Do one of the following:

 Enter s3 when the MTH [1]> prompt appears.

 Enter s2 when the MTH [0]> prompt appears.

3. Enter mp.
4. Enter bl\_boot\_device=pcw.
5. Enter . (period).
6. When the system displays save changes ([y] or n), press <RETURN>.
7. Do one of the following:

 Enter s4 when the MTH [1]> prompt appears.

 Enter s3 when the MTH [0]> prompt appears.

8. Enter `mp`.
9. Enter `b1_boot_device=pct`.
10. Enter `.` (period).
11. When the system displays `save changes ([y] or n)`, press `<RETURN>`.
12. Insert the installation tape into the tape drive.
13. Enter `b`. Processor 0 boots from the hard disk drive and processor 1 boots from the tape drive.
14. (Optional Step) This step makes the installation process easier by assigning function keys to each of the windows displayed on the screen. This is an optional (but recommended) step and is not required for installation. If you want windows to have function keys assigned to them, you must make the assignments each time the system is rebooted.

After the system boots up, the screen on the system terminal appears similar to the one shown in Figure 4-5. There are five windows present on the screen. Figure 4-6 shows how the windows are layered. The note following "Step 21" explains how to assign a function key to each window. Before beginning these steps, read the appendix "iSBX 279 Windows Interface" in the *UNIX System V/386 MULTIBUS Reference Manual*.

15. Perform the steps in Chapter 6, "System V/386 Installation."
16. Remove the tape from the tape drive.
17. Shutdown the system and reboot. Remember, you must shutdown both processors. The message `Reboot the system now.` must appear on the SDM window for each processor before you can reboot the system.
18. When the MTH (Master Test Handler) menu appears, select option 3, `Go to Boot Phase (Skip system diagnostics)`.
19. Perform the steps in Chapter 7, "Software Packages Installation."
20. As in Step 17, shutdown the system and reboot.
21. When the MTH menu appears, select option 3: `Go to Boot Phase (Skip system diagnostics)`. Processor 0 boots first, and then processor 1.



At this point you may want to reassign the window function keys to the windows (see the following NOTE).



While performing the following steps, think of the windows as a deck of cards; each window being a "card" in the deck. The window in the foreground is the top card of the deck. This process assigns a function key to the top card (window) of the deck and then places that card (window) on the bottom of the deck. You then assign another function key to the next card in the deck; placing that card on the bottom when you are done. Repeat this cycle until all of the cards (windows) have a function key assigned to them.

Refer to Figure 4-6 while performing the following steps:

- a. Use the **Map Window** menu selection to assign function key **F1** to Window #1 (the console window for processor 1).
- b. Use the **Push to Background** menu selection to place Window #1 in the background. The next window displayed is the SDM window for processor 1.
- c. Assign **F2** to Window #2 (SDM window for processor 1). Place this window in the background using **Push to Background**.
- d. Assign **F3** to Window #3 (console window for processor 0). Place this window in the background.
- e. Assign **F4** to Window #4 (SDM window for processor 0). Place this window in the background.
- f. Assign **F5** to Window #5 (the **MTH** window). Place this window in the background. The console window for processor 1 (Window #1) should now appear in the foreground.

**Figure 4-5: Initial Window Placement for Dual Processor System 520**

Step 9. Repeat the Installation Process  
(Dual Processor System only) (continued)

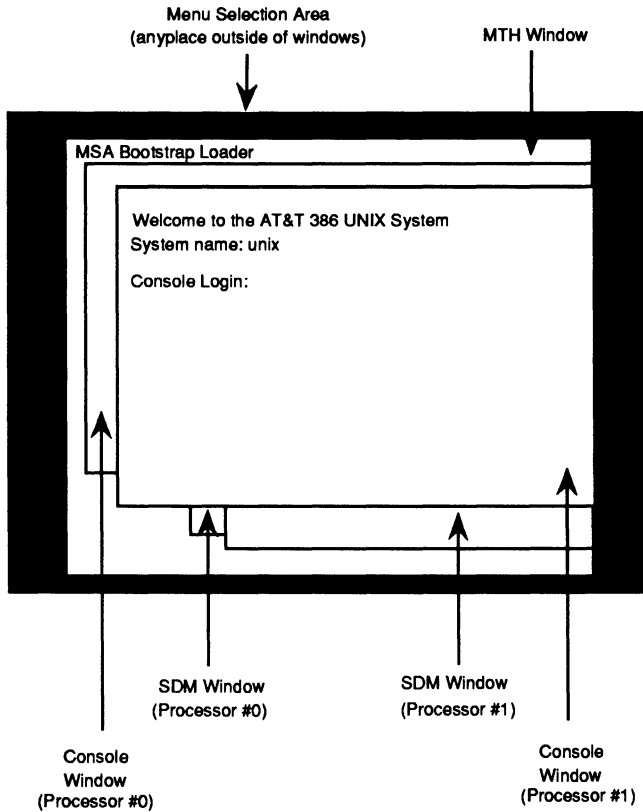
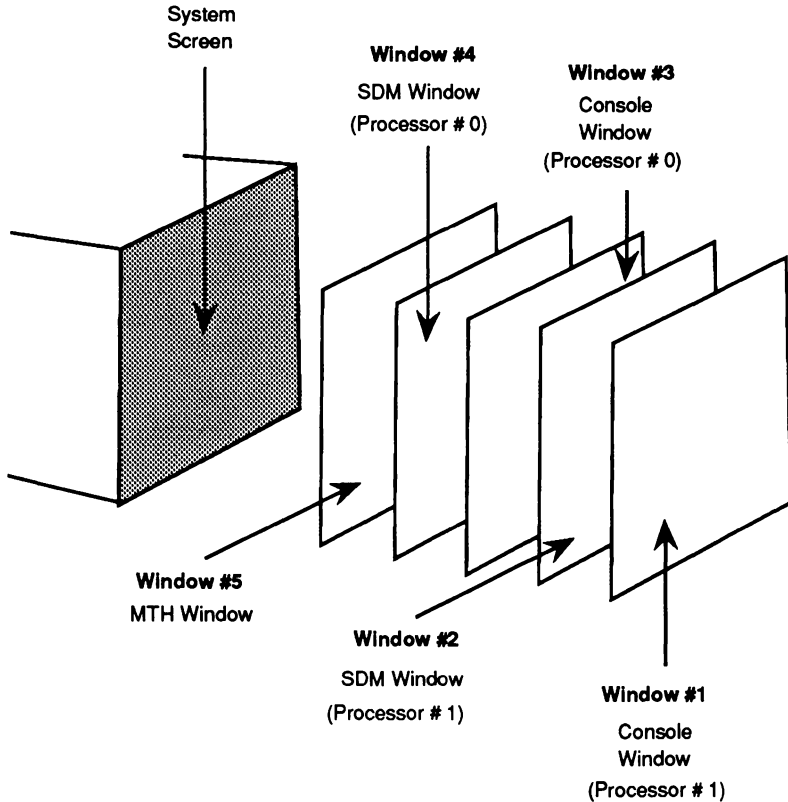


Figure 4-6: Initial Layering of Windows (Dual Processor System)

Step 9. Repeat the Installation Process  
(Dual Processor System only) (continued)



## Step 10. System Setup

Software installation is now complete. Before using your system, do the following:

- Set the time, time zone, and date.
- Add users and groups.
- Set passwords for administrative accounts.
- Set passwords for system accounts.
- Assign a node name to the system.

Use the `sysadm` utility to perform all of the above tasks. For information on using `sysadm`, refer to the following three chapters in the *UNIX System V/386 System Administrator's Guide*:

- System Setup
- User and Group Management
- Using the `sysadm` Interface

### Dual Processor System:

The `sysadm` utility needs to be run on both processors.

## Step 11. Restore User Files

Skip this step if you are installing a new system.

Restore the user files that you backed up in Step 1. For more information on restoring your system, see the *UNIX System V/386 System Administrators Guide*.



The structure of the file system in UNIX System V/386 Release 4 is different than in past releases. When restoring user files, make sure they are placed in the correct directories.

## Setting Up The Serial Ports

This section provides information on setting up the serial ports of the System 520.

### Single Processor System

A System 520 comes with six serial ports that are on an iSBC 186/410 board in slot 6. Table 4-1 lists the ports and their device names. To these ports you can connect terminals, modems, and printers.

**Table 4-1: Default Port Designations**

Slot	Board	Port	Device Name
6	iSBC 186/410	J1	/dev/tty012
		J2	/dev/tty013
		J3	/dev/tty014
		J4	/dev/tty015
		J5	/dev/tty016
		J6	/dev/tty017

**NOTE**

A device named /dev/ttyxxx can be either serial ports or windows controlled by the iSBX 279 board.

You can add more ports by installing one or more of the following types of boards:

- an iSBC 186/410 board
- an iSBC MIX/386 PP board with 1, 2, or 3 MIX450 modules
- a MPI 450 board
- an iSBC 186/450 board





Unlike earlier releases of UNIX System V/386, reconfiguring the system to support new serial ports will change the device-name-to-port mapping of existing ports and windows.

To assign device names to ports you add, you have to configure the `atcs` driver so that it knows about the ports. See the `atcs(7iref)` description in the *UNIX System V/386 MULTIBUS Reference Manual* for more information on reconfiguring the `atcs` driver to support more ports.

Before using these ports for terminals or for dial-in modems, you must create a port monitor and identify, with a service tag, each port you want the monitor to control.

A port monitor manages the activities of ports. It identifies each port with the service tag. To use four serial ports, create four service tags; one for each port. There are three ways to create a port monitor and service tags:

### `quick_terminal`

This is a selection in the `sysadm` menu utility. It is the easiest way of activating the serial ports. `quick_terminal` automatically creates the port monitor and the service tags. However, it is the least flexible method and does not allow you to customize the port monitor or the service tags. To access `quick_terminal`, enter `sysadm ports`. (An example of using `quick_terminal` is given later.)

### `port_monitors` and `port_services`

These two are also selections in the `sysadm` menu utility. `port_monitors` creates a port monitor. `port_services` creates a service tag for a port and assigns the tag to a port monitor. This method is more flexible but also more complicated to use. To access `port_monitors` and `port_services`, enter `sysadm ports`.

### `sacadm` and `pmadm`

These are commands and are not part of the `sysadm` menus utility. `sacadm` creates a port monitor. `pmadm` creates a service tag for a port and assigns the tag to a port monitor. This is the most flexible method and the most complicated to use. Use this method if you want a shell script to create a port monitor and service tags.

---

If you are a novice system administrator, use the `quick_terminal` method. For more information about the other two methods, refer to the chapter "Service Access" in the *UNIX System V/386 System Administrator's Guide*.

### Dual Processor System

Any port on the iSBC 186/410 board(s) can be enabled by both processors. However, a port cannot be used by both processors at the same time. A port is assigned to the processor that enables it first. To switch between processors, use the `ttyswitch(liref)` command.

### An Example of Using `quick_terminal`

This example shows how to use `quick_terminal` to activate serial ports on a System 520. For this example, the system contains one processor board and one iSBC 186/410 board. At the end of this example, all six ports on the iSBC 186/410 will be activated.

1. Login as root.
2. Enter `sysadm ports`. The Service Access Management menu appears.
3. Select `quick_terminal`. A smaller menu, also entitled Service Access Management, appears.
4. Select `add`. The Quick Terminal Setup form appears.
5. Select choices by pressing F2. A menu appears that lists the device names of the serial ports (`/dev/tty012` through `/dev/tty017`).
6. Position the cursor next to `/dev/tty012`. Select this entry by pressing mark (F2). Select `/dev/tty013` through `/dev/tty017` in the same manner.
7. Press `<RETURN>`. The Choices menu disappears and the entries you marked appear in the Quick Terminal Setup form.
8. The default baud rate is set to 9600. If you want to change the baud rate, press the tab key. If you do not want to change the baud rate, skip to step 11.
9. Select choices by pressing F2. A list of baud rates appear.

10. By using the up or down arrow key, highlight the desired baud rate and press <RETURN>. The Choices menu disappears and the baud rate you selected appears in the Quick Terminal Setup form.
11. Press save (F3). A warning appears saying that the ports were set up. Ignore this warning.
12. Press cont (F3).
13. Exit sysadm by pressing cmd-mnu (F7) and selecting exit. The serial ports are now enabled.



The system may not recognize the function keys on your terminal. If this happens, type <CTRL>F and then press the corresponding number. For example, typing <CTRL>F and then 2 is the same as typing F2.



## 5. SYSTEM MDP SPECIFIC

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# 5 System MDP Specific Installation Instructions

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# Introduction

This chapter provides instructions for installing UNIX System V/386 on an Intel System Modules Development Platform (SYP MDP). It also contains information on setting up the serial ports on the back of the system.



Your System MDP must have the MSA firmware upgrade kit installed on the 386/1XX processor boards(s) before this release of System V/386 can be installed. If your system is currently running System V/386 Release 3.2, your system has this firmware.

Do not proceed with these instructions if you do not have this firmware upgrade installed in your system. To get the firmware upgrade, contact your local sales office.

## Installation Instructions

### Step 1. Prepare System for Installation

Do this step if your system is running a previous release of System V/386. Skip this step if you are installing on a new system.

To prepare the system for installation, perform the following:

1. Login as the root user.
2. Backup all user files using the `cpio` command. For more information on using `cpio`, see the *UNIX System V/386 System Administrators Reference Manual*.
3. Enter shutdown. Various messages appear, followed by a one minute delay. At the end of the delay, the message `Do you want to continue? (y or n) :` appears on the screen. Enter `y`. The system is shut down when the following message appears: `The system is down.` Reboot the system now.

### Dual Processor SYPMDP:

Perform the above procedure on each console terminal.

## Step 2. Reset the System

Insert the key into the lock on the system. Turn the key clockwise to the reset position, and then back to the unLock position. When characters start to appear on the screen, press <SHIFT> U. (Note that you may need to press <SHIFT> U several times before the system responds.) The following selections appear on the screen:

```
1 --> Run System Diagnostics (Selected if no character
entered)
2 --> Go to Operator Interface
3 --> Go to Boot Phase (Skip system diagnostics)
```

Select the second option by pressing 2.

## Dual Processor SYPMDP:

Perform the above step and Steps 3 through 9 on the console terminal connected to processor 1.

## Step 3. Modify the Boot Parameters

When the MTH [3]> prompt (Master Test Handler) appears, enter mp (this stands for modify parameters). The system displays:

```
Modify Boot Parameters for slot 3:
Modify parameters: # deletes, . quits, <CR> advances
new parameter
```

Enter b1\_boot\_device=pct (This tells the board in slot 3, the 386/1XX, to boot from the tape). When the system displays: new parameter, enter . (period).



When the system displays: save changes ([y] or n), press <RETURN>.

## Step 4. Insert the Tape

Insert the installation tape into the tape drive.

**NOTE**

When inserting the tape into the tape drive, position the tape so that the protective hinged flap is the first portion of the tape to enter the drive and that it is positioned on the left side of the tape.

## Step 5. Boot the System

At the MTH [3]> prompt, enter b.

## Step 6. Install the UNIX System V/386 Operating System

Perform the steps in Chapter 6, "System V/386 Installation," then return to this chapter and continue with Step 7.

## Step 7. Reboot the System

**CAUTION**

Do not continue until the UNIX System V/386 operating system is shut down.

Reset the system and, after characters start to appear on the screen, enter <SHIFT> U. You may have to enter <SHIFT> U repeatedly until the system responds. After some initial testing is complete, the following choices appear on the screen:

- 1 → Run System Diagnostics (Selected if no character entered)
- 2 → Go to Operator Interface
- 3 → Go to Boot Phase (Skip system diagnostics)

Select option 3. This causes the system to automatically boot up the UNIX System V/386 operating system.

### **Step 8. Install Packages**

Perform the steps in Chapter 7, "Software Packages Installation," then return to this chapter. If you are installing on a single processor system, continue with Step 10. If you are installing on a dual processor system, continue with Step 9.

### **Step 9. Repeat the Installation Process (Dual Processor System only)**

Perform this subset of steps if you have a second 386/1XX processor board and a second hard disk drive installed in your system. If you have a single processor system, continue with Step 10.

1. Reset the system after the system is shut down. Select option 2 when the menu for the MTH (Master Test Handler) appears.
2. Enter `s3` when the MTH `[3]>` prompt appears.
3. Enter `mp`.
4. Enter `bl_boot_device=pcw`.
5. Enter `.` (period).
6. When the system displays: `save changes ([y] or n)`, press `<RETURN>`.
7. Enter `s5` when the MTH `[3]>` prompt appears.
8. Enter `mp`.
9. Enter `bl_boot_device=pct`.
10. Enter `bl_quasi_server_id=7`.
11. Enter `.` (period).
12. When the system displays: `save changes ([y] or n)`, press `<RETURN>`.

13. Insert the installation tape into the tape drive.
14. Enter `b`. Processor 0 boots from the hard disk drive and processor 1 boots from the tape drive.
15. Perform the steps in Chapter 6, "System V/386 Installation." You will be using the console connected to the second processor.
16. Shutdown the system and then reboot. Remember, you must shutdown both processors. The message: `The system is down. Reboot the system now.` must appear on the console for each processor before you can reboot the system.
17. When the MTH (Master Test Handler) menu appears, select option 2: `Go to Operator Interface`.
18. Enter `s5` when the MTH `[3]>` prompt appears.
19. Enter `mp`.
20. Enter `bl_boot_device=pcw`.
21. Enter `bl_quasi_server_id=7`.
22. Enter `.` (period).
23. Press `<RETURN>` when the system displays: `save changes ([y] or n)`.
24. Enter `b` to boot the system.
25. Perform the steps in Chapter 7, "Software Packages Installation."
26. As in Step 16, shutdown the system and reboot.
27. When the MTH menu appears, select option 3: `Go to Boot Phase (Skip system diagnostics)`. Processor 0 boots first, then processor 1.

## Step 10. System Setup

Software installation is now complete. Before using your system you should do the following:

- set the time, time zone, and date

- add users and groups
- set passwords for administrative accounts
- set passwords for system accounts
- assign a node name to the system

Use the `sysadm` utility to perform all of the above tasks. For information on using `sysadm`, refer to the following three chapters in the *UNIX System V/386 System Administrator's Guide*:

- System Setup
- User and Group Management
- Using the `sysadm` Interface

### Dual Processor System:

The `sysadm` utility needs to be run on both processors.



Each processor can have a separate node name.

### Step 11. Restore User Files

Skip this step if you are installing a new system.

Restore the user files that you backed up in Step 1. For more information on restoring your system, see the *UNIX System V/386 System Administrators Guide*.



The structure of the file system in UNIX System V/386 Release 4 is different than in past releases. When restoring user files, make sure they are placed in the correct directories.

## Setting Up the Serial Ports

This section provides information on setting up the serial ports of the SYPMDP.

### Single Processor System

An SYPMDP comes with six serial ports. You can add six more ports by installing an iSBC 186/410 board in slot 2. Table 5-1 lists the ports and their device names. To these ports you can connect terminals, modems, and printers.

**Table 5-1: SYPMDP Port Designations**

Slot	Board	Port	Device Name
1	iSBC 186/410	J1	/dev/tty000
		J2	/dev/tty001
		J3	/dev/tty002
		J4	/dev/tty003
		J5	/dev/tty004
		J6	/dev/tty005
2	iSBC 547 186/410 (optional)	J1	/dev/tty100
		J2	/dev/tty101
		J3	/dev/tty102
		J4	/dev/tty103
		J5	/dev/tty104
		J6	/dev/tty105

Before using these ports, you must create a port monitor and identify, with a service tag, each port you want the monitor to control.

A port monitor manages the activities of ports. It identifies each port with the service tag. To use four serial ports, create four service tags; one for each port.

There are three ways to create a port monitor and service tags:

### `quick_terminal`

This is a selection in the `sysadm` menu utility. It is the easiest way to activate the serial ports. `quick_terminal` automatically creates the port monitor and the service tags. However, it is the least flexible method and does not allow you to customize the port monitor or the service tags. To access `quick_terminal`, enter `sysadm ports`. (An example of using `quick_terminal` is given later.)

### `port_monitors` and `port_services`

These two are also selections in the `sysadm` menu utility. `port_monitors` creates a port monitor. `port_services` creates a service tag for a port and assigns the tag to a port monitor. This method is more flexible but also more complicated to use. To access `port_monitors` and `port_services`, enter `sysadm ports`.

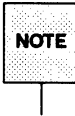
### `sacadm` and `pmadm`

These are commands and are not part of the `sysadm` menus utility. `sacadm` creates a port monitor. `pmadm` creates a service tag for a port and assigns the tag to a port monitor. This is the most flexible method and the most complicated to use. Use this method if you want a shell script to create a port monitor and service tags.

If you are a novice system administrator, use the `quick_terminal` method. For more information of the other two methods, refer to the chapter "Service Access" in the *UNIX System V/386 System Administrator's Guide*.

## Dual Processor System

The ports on the iSBC 186/410 boards are assigned to whichever processor enables the port first. A port cannot be used by both processors at the same time.



Use the `ttyswitch(1iref)` command to switch a terminal between two processors (the terminal must first be enabled on both processors).

## An Example of Using `quick_terminal`

This example shows how to use `quick_terminal` to activate serial ports on an SYPMDP. For this example, the system contains one processor board and one iSBC 186/410 board. At the end of this example, all six ports on the iSBC 186/410 will be activated.

1. Login as `root`.
2. Enter `sysadm ports`. The `Service Access Management` menu appears.
3. Select `quick_terminal`. A smaller menu, also titled `Service Access Management`, appears.
4. Select `add`. The `Quick Terminal Setup` form appears.
5. Select `choices` by pressing `F2`. A menu appears that lists the device names of the serial ports (`/dev/tty000` through `/dev/tty005`).
6. Position the cursor next to `/dev/tty000`. Select this entry by pressing `mark (F2)`. Select `/dev/tty001` through `/dev/tty005` in the same manner.
7. Press `<RETURN>`. The `Choices` menu disappears and the entries you marked appear in the `Quick Terminal Setup` form.
8. The default baud rate is set to 9600. If you want to change the baud rate, press the `tab` key. If you do not want to change the baud rate, skip to Step 11.
9. Select `choices` by pressing `F2`. A list of baud rates appear.
10. By using the `up` or `down` arrow key, highlight the desired baud rate and press `<RETURN>`. The `Choices` menu disappears and the baud rate you selected appears in the `Quick Terminal Setup` form.

11. Press **save** (F3). A warning appears saying that the ports were set up. Ignore this warning.
12. Press **cont** (F3).
13. Exit **sysadm** by pressing **cmd-mnu** (F7) and selecting **exit**. The serial ports are now enabled.

A square icon with a stippled background and the word "NOTE" in bold, uppercase letters. A vertical line extends downwards from the bottom center of the icon.

**NOTE**

The system may not recognize the function keys on your terminal. If this happens, type **<CTRL>F** and then press the corresponding number. For example, typing **<CTRL>F** and the 2 is the same as pressing **F2**.





## 6. SYSTEM V/386 INSTALLATION

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# 6 System V/386 Installation

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---

# Introduction

After booting from the installation tape, the system displays a series of installation menus. This chapter guides you through those menus to help you make the right choices.

This chapter is divided into two sections: "New Installation" and "Upgrade Installation." Perform the steps in "New Installation" if you are installing UNIX System V/386 Release 4 on a new system or on a system running a previous release of UNIX System V/386. Perform the steps in "Upgrade Installation" if the UNIX System V/386 Release 4 currently on your system has become corrupt and you want to restore it.

## New Installation

Perform these steps if you are installing UNIX System V/386 Release 4 on a new system or on a system running a previous release of UNIX System V/386.

### Step 1. Select 'Low Level Format'

After the system boots from the tape, it displays the date, time, time zone, and then the following message:

Type <RETURN> to continue

Press <RETURN>. (You will enter the correct date later when you set up the system.)

If you are installing on a system that was running a previous release of UNIX System V/386, skip to Step 5.

The Tape Distribution System menu now appears on the screen. Select Low Level Format. The Disk Format menu appears.

### Step 2. Select 'Set Disk Parameters'

Select Set Disk Parameters from the Disk Format Menu. The system displays:

Select hard disk: (default is 0):

Enter the number of the hard disk that you want to format. Zero is the first hard disk in your system and one is the second hard disk. Next, the system prompts you for:

- the number of heads
- the number of cylinders
- the number of sectors per track
- the disk interleave value (enter 1 for this value).

Enter the correct values for the hard disk in your system. Appendix C lists parameters for the hard disks available with the System 320, System 520, and System Modules Development Platform (SYPMDP).

The system then asks if the values you entered are correct. Enter **y** to continue or **n** if you want to change them.



If you enter **n**, the system reprompts you for the hard disk drive parameters. It also asks you for the value of an additional parameter: bytes per sector. Enter 1024 for this value.

After you have finished entering the hard disk parameters, the Disk Format Menu reappears.

### Step 3. Select 'Initial Format'

Select **Initial Format** from the Disk Format menu. The following warning will appear:

```
ABOUT TO FORMAT ENTIRE DRIVE
THIS WILL DESTROY ANY DATA ON /dev/rdisk/0s0. Continue (y/n)?
```

Enter **y**.

The system starts to format the hard disk drive. This process takes 5 to 30 minutes to complete, depending on the size of the hard disk drive (a 380 mega-byte hard drive takes 30 minutes). During this time, nothing is displayed on the screen.

When formatting is done, the system displays the following message:

```
Format complete.
Type <RETURN> to continue
```

Press **<RETURN>**, the Disk Format menu reappears.

---

## Step 4. Return to Tape Distribution System Menu

Enter `r` to return to the Tape Distribution System menu.

## Step 5. Select 'Software Installation'

Select **Software Installation** from the Tape Distribution Menu. The system responds with:

```
Select hard disk: (default is 0):
```

Enter the number of the hard disk you want to use to install UNIX System V/386. Zero is the first hard disk in your system and one is the second hard disk. After entering this value, the Installation Procedure menu appears.

## Step 6. Select 'New Installation'

Select **New Installation** from the Installation Procedure menu. A caution message appears:

```
You have chosen to ERASE all data on HARD DISK 0
Do you wish to continue <y/[n]>:
```

Enter `y`. The system responds:

```
Do you wish to Verify the hard disk? <y/[n]>:
```

Enter `y` if the hard disk uses the ST506 or ESDI interface. The System 320 uses this type of hard disk.

Enter `n` if the hard disk uses the SCSI interface. The System 520 and the SYPMDP use this type of hard disk.

## Step 7. Create File Systems and Slices on the Hard Disk Drive

The system displays the recommended size of each file system and slice to be placed on the hard disk drive. It then displays the following message:

```
Is this allocation acceptable to you (y/n)?
```

Enter `y` if you do not want to modify these values. If you enter `n`, the system asks you for the size of each file system and slice.



If you are not sure what to do, enter `y`.

The system then creates the file systems and slices and installs the UNIX System V/386 operating system on to the hard disk drive. This process takes approximately 30 minutes. When installation is complete, the system displays the following message:

```
Unix System V/386 installation is now complete
Type <RETURN> to continue
```

Press <RETURN>. The Installation Procedure menu reappears.

## Step 8. Shutdown the System

Enter `q`. The system begins to shut down.

## Step 9. Return to System Specific Chapter

To continue with the installation, return to the chapter that has instructions specific to your system.

## Upgrade Installation

Perform these steps if the UNIX System V/386 Release 4 operating system on your system has become corrupt and you want to restore it. Do not perform these steps if you are performing a new installation or installing a newer release of UNIX System V/386.

### Step 1. Select 'Software Installation'

After the system boots from the tape, it displays the date, time, time zone, and then the following message:

```
Type <RETURN> to continue
```

Press <RETURN>.

---

The **Tape Distribution System** menu now appears on the screen. Select **Software Installation**. The system responds with:

Select hard disk: (default is 0):

Enter the number of the hard disk in which you want to perform an upgrade installation. Zero is the first hard disk and one is the second hard disk. After you specify the hard disk, the **Installation Procedure** menu appears.

## **Step 2. Select 'Upgrade Installation'**

Select **Upgrade Installation**. A warning is displayed followed by this question:

Restore saved files at end of installation <[y]/n>?

Answer **y** if you want configuration and password files restored at the end of the upgrade installation. Answering **n** causes them to be lost. If you answer **y**, the system responds with the message:

Do you wish to be selective <y/[n]>?

Answer **y** to choose the files to be restored. Answer **n** to restore all of the saved files. After answering these questions, the upgrade installation begins. Numerous messages will scroll across the screen. When the installation is finished, the following message appears:

Type <RETURN> to continue

Press <RETURN>. The **Tape Distribution System** menu appears.

## **Step 3. Shutdown the System**

Enter **q**. The system begins to shut down.

## **Step 4. Return to System Specific Chapter**

To continue with the installation, return to the chapter that has instructions specific to your system.





## 7. SOFTWARE PACKAGES INSTALLATION

---

# 7 Software Packages Installation

---

---

## Introduction

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---

# Introduction

This chapter covers the installation of the additional software packages provided on the UNIX System V/386 package tape.

## Step 1. Determine Which Packages You Have

Do not perform this step if you are installing UNIX System V/386 for the first time or installing a new release of UNIX System V/386. Perform this step only if you are installing packages and not UNIX System V/386.

Your system may already have the additional software packages installed. To determine which packages you have, perform the following steps:

- a. Log in to the system as root.
- b. At the # prompt, enter `pkginfo`.

The system displays all packages currently installed. The displayed list contains, at a minimum, this entry:

```
system dfm Built into the Base, can not be removed.
```

If there are packages installed, write down the name and version number of each package. You will use this list in Step 4.



If the packages you currently have installed are old versions and you want to install the new versions, you must remove the old versions first. To do this, use the `pkgrm` command. If you are not sure what the current versions are, continue with Steps 2.

## Step 2. Insert the Package Tape

Insert the package tape into the tape drive.

## Step 3. Run the pkgadd Program

Enter `pkgadd -d ctape1`. The system responds with this message:

```
Insert a cartridge tape into Cartridge Tape Drive.  
Type [go] when ready,  
or [q] to quit:
```

Enter go.

## Step 4. Select the Packages You Wish to Install

The system begins searching the tape for a list of available packages. The displayed list may take more than one screen. View the entire list before continuing.

Perform one of the following:

- If you have none of the packages installed and you want to install all of them, enter `all`.
- If you want to install only a few of them, enter the number of each package you want to install (separate each number with a space). The system installs the packages in the order you specify.



The packages are installed in the correct order if you enter `all`.

Some packages must be installed before others. See Table 7-1 for a list of the packages and their dependencies.

**Table 7-1: Package Dependencies**

Name	Description	Dependencies
compat	Compatibility Package	nsu and inet (for networking)
dfs	Distributed File Systems Utilities	None
ed	Editing Package	None
enetdrv	Ethernet Driver	nsu
face	AT&T Framed Access Command Environment	ed, terminf, fmli, and oam
fmli	AT&T Form and Menu Language Interpreter	None
inet	Internet Package	enetdrv
lp	Line Printer Utilities	oam (nsu for networking)
nfs	Network File System Utilities	rpc
nsu	Network Support Utilities	None
oam	Operations, Administration, and Maintenance	fmli
ots	OSI Transport Service Driver	nsu
rfs	Remote File Sharing Utilities	nsu
rpc	Remote Procedure Call Utilities	nsu
terminf	Terminal Information Utilities	None
xcp	XENIX Compatibility Package	None
windowing	AT&T Windowing Utilities	None

- Enter `q` if you do not want to install any of the packages.
- If you have old versions of software packages and you want to install new versions, you must:
  1. Exit the `pkgadd` command by entering `q`.
  2. Delete the old versions of the packages by using the `pkgrm` command.
  3. Install the new versions by using the `pkgadd` command.

Installing all of the packages takes about one hour. Some packages display the following questions:

```
The following files are already installed on the system and
are being used by another package:
<filename(s)>
```

```
Do you want to install these conflicting files [y,n,?,q]
```

```
The following files are being installed with setuid and/or
setgid permissions or are overwriting files which currently
setuid/setgid:
<filename(s)>
```

```
Do you want to install these setuid/setgid files [y,n,?,q]
```

```
This package contains scripts which will be executed with
super-user permission during the process of installing this
package.
```

```
Do you want to continue with the installation of this package
[y,n,?]
```

Answer y to these questions.



When the Operations, Administration, and Maintenance (OA&M) package is installed, the system prompts you for `basic` or `extended` menu interface. If you want help files, select `extended` menu interface.

## Step 6. Remove the Tape and Press <RETURN>

After all of the packages are installed, the following is displayed:

```
***IMPORTANT NOTICE***
This machine must now be rebooted in order to ensure
sane operation  Execute
shutdown -y -i6 -g0
and wait for the Console Login: prompt.
```

Enter `shutdown -y -g0`. The `-i6` option does not work on the System 520 or the SYPMDP. This option does work on the System 320.

This completes the package installation. Return to the chapter that has instructions specific to your system.







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# **A** Appendix A

---

## **Device Drivers**

A-1

---

## Device Drivers

This appendix lists the device drivers included in UNIX System V/386 for MULTIBUS I and MULTIBUS II systems. For more information on the drivers listed here, refer to the *UNIX System V/386 MULTIBUS Reference Manual*.

The following drivers support both MULTIBUS I and MULTIBUS II systems:

- console
- iasy
- ramd
- rtc

The following drivers support MULTIBUS I systems:

- i214
- i214tp
- i546
- i8251

The following drivers support MULTIBUS II systems:

- |           |          |
|-----------|----------|
| ■ atcs    | ■ i258tp |
| ■ bps     | ■ i354   |
| ■ cci     | ■ i410   |
| ■ d258    | ■ i530   |
| ■ dma     | ■ ics    |
| ■ edlina  | ■ mpc    |
| ■ i224a   | ■ mps    |
| ■ i224atp | ■ ots    |
| ■ i258    | ■ rci    |

---

# **B** Appendix B

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## **Tunable Parameters**

B-1

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## Tunable Parameters

Tunable parameters are used to set various table sizes and system thresholds to handle the expected system load. A complete list of tunable parameters and their recommended values can be found in the *UNIX System V/386 System Administrator's Guide*. Table B-1 shows a list of the tunable parameters Intel has changed for UNIX System V/386. They are set in `/etc/conf/cf.d/stune`.

---

**Table B-1: Tunable Parameter Values**

Parameter	Value	Parameter	Value
MAXPMEM	3967	NSTREAM	60
NBUF	700	NSTRPUSH	10
NINODE	250	STRMSGSZ	32767
NS5INODE	250	NBLK4096	72
NFILE	230	NBLK2048	26
NPROC	150	NBLK1024	42
NCLIST	250	NBLK512	36
NHBUF	256	NBLK256	26
NPBUF	40	NBLK128	66
NAUTOUP	23	NBLK64	178
NREGION	350	NBLK16	50
SPTMAP	70	NBLK4	100
NQUEUE	200		



Additional software packages added to the system may change these values. There are additional parameters used with MULTIBUS II based systems. These parameters configure the number of transport message buffers and message descriptors. For more information, refer to `dma(7iref)`, `d258(7iref)`, `iasy(7iref)`, `ics(7iref)`, `mpc(7iref)`, and `mps(7iref)`.

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# **C** Appendix C

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## **Hard Disk Drive Parameters**

C-1

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## Hard Disk Drive Parameters

This appendix lists the parameters for the hard disk drives offered in the System 320, System 520, and System MDP. For more information about a specific system, refer to the manual(s) for that system.

---

**Table C-1: Hard Disk Drive Parameter Values**

Size (MBytes)	Controller Used	Heads	Cyl	Sec/Track
80 <sup>1</sup>	214, 221 or 224A	10	830	9
140 <sup>1</sup>	214, 221 or 224A	15	918	9
380 <sup>2</sup>	221	15	1224	18
380 <sup>3</sup>	368/258	15	1224	18

---

1 = ST506 Interface

2 = ESDI Interface

3 = SCSI Interface

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# **D** Appendix D

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## **Related Publications**

D-1



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