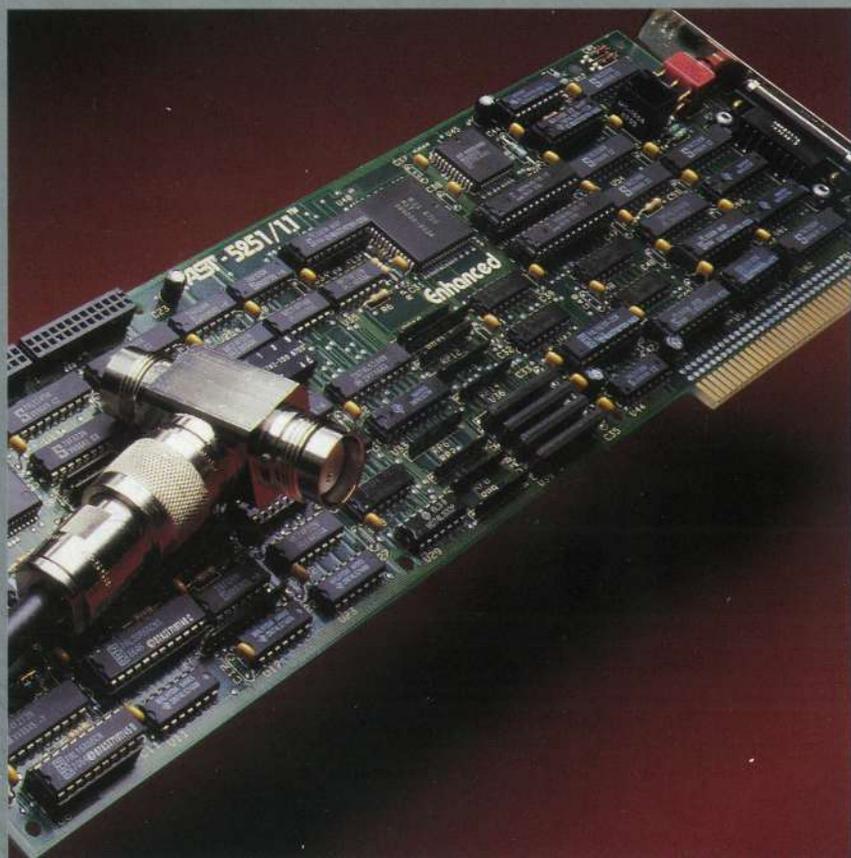


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*User's Manual*



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<input type="checkbox"/> Distributor <input type="checkbox"/> Mail <input type="checkbox"/> Sys. House/VAR		<input type="checkbox"/> <25 <input type="checkbox"/> 50-100 <input type="checkbox"/> >500		<input type="checkbox"/> <50 <input type="checkbox"/> 100-500 <input type="checkbox"/> >1000	
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**for the**  
**IBM Personal Computer,**  
**PC XT, PC AT, and**  
**Other IBM-Compatible Systems**

User's Manual  
000492-001 A  
April 1987

AST RESEARCH, INC.  
Irvine, California  
(714) 863-1333

First Edition (April 1987)

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## INTRODUCING AST-5251/11

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AST-5251/11™ is a combination hardware/software product that allows your AST Premium/286, IBM Personal Computer (PC), PC XT, or PC AT to locally attach through a twinax cable to IBM System/34/36/38<sup>(R)</sup> (hereafter referred to as System/3X), IBM 5251 Model 12, or IBM 5294 Control Unit.

With AST-5251/11, your PC provides the functions of an IBM 5250 Display Station, allowing you to share data with and run programs on the host computer while maintaining the independent computing power of the PC -- all without changes to the host operating system.

AST-5251/11 provides increased productivity and efficiency by freeing the host system for major tasks -- in other words, offloading work to the PC. You can use your PC to switch between sessions, working with the disk operating system (DOS) in the foreground and communicating with the host system in the background.

### Features

AST-5251/11 provides the following features:

- *IBM Application Program Interface compatibility.*
- *IBM 5251 Model 11, IBM 5291 Models 1 and 2, or IBM 5292-1 Display Station emulation.*
- *Multiple Sessions:* AST-5251/11 Plus can emulate up to seven display sessions and seven printer sessions, not exceeding a combined total of seven sessions.
- *DESQview Support:* Supports the DESQview program, which allows you to find several programs at the same time and switch between them instantly.

- *Hot Key*: Provides a simple key sequence to switch directly from one emulation session to another or between DOS and an emulation session.
- *Custom Software Configuration*: Allows you to configure the software according to your unique needs via a menu-driven program (CFG5251.EXE).
- *IBM 5219, 5224, 5225, and 5256 Printer Emulation*: Allows any parallel or serial printer connected to the PC to appear as one of the following:
  - IBM 5256 Models 1, 2, and 3.
  - IBM 5224 Models 1 and 2.
  - IBM 5225 Models 1, 2, 3, and 4.
  - IBM 5219 Models D01 and D02.
- *Printer Optimization*: Allows you to adjust timing constants to optimize the performance of parallel printers.
- *Separate Printer Translation*: Allows each emulated printer to have its own EBCDIC-to-PC/ASCII translation table.
- *Keyboard Macros*: Allows you to create macros for frequently used key sequences. Up to 250 mnemonic codes may be entered in each macro.
- *Keyboard Remapping*: Facilitates international support as well as providing more flexibility for North American users.
- *File Transfer Support*: Provides bidirectional data transfer with built-in data conversion. All translation tables (EBCDIC-to-PC/ASCII and PC/ASCII-to-EBCDIC) are configurable.

- *Security*: Allows you to secure the emulation program, configuration program, and hot-key sequence from unauthorized users.
- *Lotus 1-2-3™ Graphics Software Compatibility*: The hot-key function restores all graphics memory on a display adapter (such as the AST-5250/Display) compatible with Lotus 1-2-3 graphics.
- *Auto Sign-On*: All configured display sessions can sequence through multiple emulation tasks upon start-up. This function is not restricted to sign-on; up to 250 key scan codes can be sent to the host (for example, to submit batch jobs).
- *Help Screen*: Provides information about keyboard remapping and special key sequences. You can modify this screen to meet your own requirements by editing the help file (AST5251.HLP).
- *Snapshot*: allows you to save up to ten display screens in PC memory (emulation mode only). You can recall these screen "snapshots" at any point in your session. To save snapshots in PC disk files, run the Screen Dump program (SNAPDUMP.EXE) from DOS mode.
- *Diacritic Mode*: Supports the diacritics of a 5250 Display Station.
- *Hexadecimal Mode*: Allows entering hexadecimal codes for input characters on the System/3X.
- *Printer Status Menu*: Provides a convenient means of reporting or selecting printer characteristics such as: host on- or off-line, attached to DOS or emulation, linefeed, formfeed, characters/inch, lines/inch, user-defined string, and printer check error messages.

- *Status Line*: In addition to 5250 edge indicators (line 25), the Status Line reports: (1) all configured sessions and their type; (2) messages waiting on a session other than the foreground task; and (3) the foreground session's host station address.
- *Termination Safety Catch*: Helps prevent accidental loss of data by requiring you to confirm that you want to terminate your emulation session.
- *AST-5250/Display Adapter Board Support*: Supports all 5250 attributes and displayable characters.
- *Cursor Selection*: Allows you to dynamically select a block or underscore cursor during emulation.
- *World Trade Keyboard*: Supports international keyboards.
- *80-, 101-, and 102-key typewriter support.*
- *IBM System/36 PC Compatibility.*
- *Dual Monitor Support*: Supports a PC using two display adapters via the hot key while in a normal mode.
- *DOS Start-Up*: Allows emulation to automatically hot key to DOS upon start-up.
- *IBM PC Support/36/38 Compatibility.*
- *IBM System/34/36/38 File Support Utility Compatibility.*
- *AST-5251/11 Quick Configuration Program*: Outlines the quick installation, configuration, and operation processes for AST-5251/11.

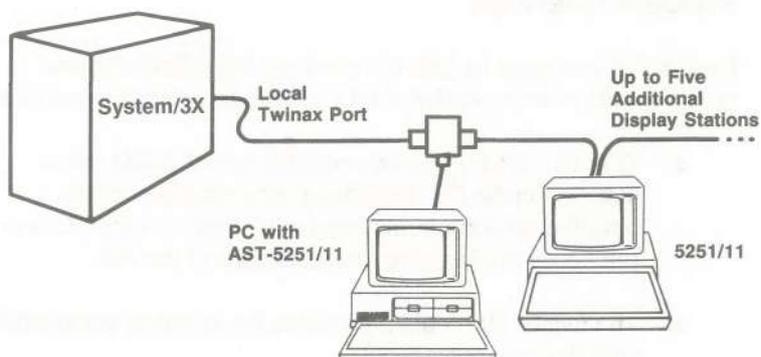
## Product Overview

Everything you need to gain the productivity, efficiency, and cost-benefits of using AST-5251/11 is included with the product:

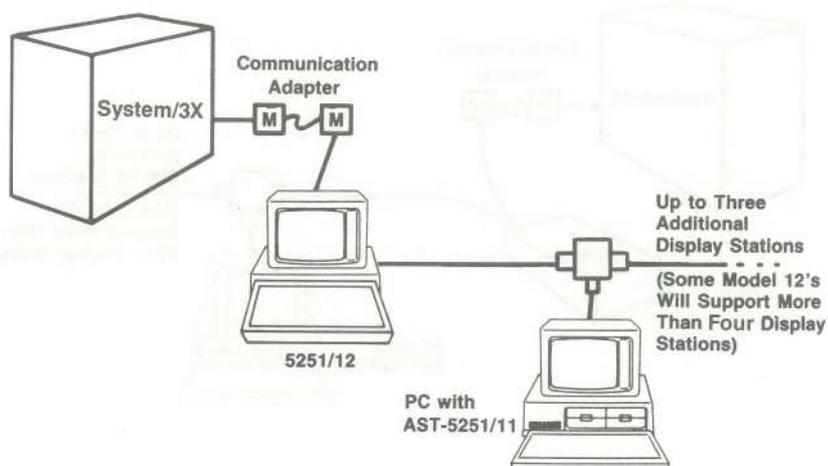
- The AST-5251/11 twinax adapter board (TAB) when installed in the PC, provides processing power for handling the communications link between the PC and the host without using the resources of the PC.
- The twinax stub cable, provides the physical connection with the host system.
- The AST-5251/11 emulation software, transforms the keyboard and PC operation to an IBM 5250 Display Station. It provides bidirectional file transfer capability between the host and the PC. It supports a hot key that enables you to switch between DOS and host sessions as well as multiple emulation sessions.

The AST-5251/11 product can be connected to your System/3X in one of several ways:

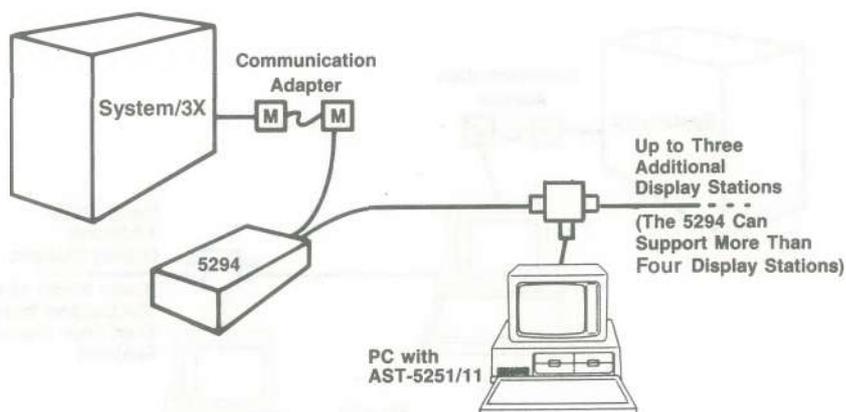
- As one or more of seven devices on any local twinax line. (Refer to Figure 1.)
- As one or more devices connected in series on an IBM 5251 Model 12. The maximum number of devices depends on the model. (Refer to Figure 2.)
- As one or more devices connected in series to an IBM 5294 Control Unit. (Refer to Figure 3.)



**Figure 1. AST-5251/11 Configuration -- Connected to System/3X.**



**Figure 2. AST-5251/11 Configuration -- Connected to an IBM 5251/12.**



**Figure 3. AST-5251/11 Configuration -- Connected to a IBM 5294 Control Unit.**

## Hardware Overview

The AST-5251/11 TAB is a microprocessor-controlled, full-length printed circuit board (PCB). It is installed in one of the supported IBM PC models to communicate with an IBM System/3X when the AST5251/11 emulation software is loaded into the PC memory. The TAB provides the processing power and microcode to regulate the communications link and emulate the twinax protocol.

The TAB's microprocessor works with the communication controller to provide faster, more efficient processing. The controller uses 16 KB of memory for processing. The controller works as a high speed processor along with the protocol handler to maintain the twinax line.

The 128 KB dynamic random access memory (DRAM), dual-ported memory arbitration logic, and shared memory maintain the TAB to PC interface. This interface allows the microprocessor in the PC to view a 16 or 32 KB window of the TAB's memory space. Window size is a function of the configuration (see Section 4).

Occupying eight consecutive input/output (I/O) address locations, the TAB provides four jumper selectable ranges for the starting address locations.

A termination toggle switch allows the PC to be the last device on the twinax cable or one of multiple devices on the cable (terminator selection).

The TAB connects to the host system twinax cable by a stub cable assembly and T-connector; both are included in the AST-5251/11 package. The stub cable connects to the board through a DA15S connector. The T-connector provides a "cable-through" feature so other units can be installed farther down the cable from the System/3X.

The TAB complies with the Federal Communications Commission (FCC) Class A radio frequency (RF) emissions control standards.

## Software Overview

The AST-5251/11 emulation software controls the PC emulation of the IBM 5250 Display Station and IBM 5250 printer. The software provides an interface that controls the TAB while providing the user with a replica of the IBM 5250 Display Station (both screen and keyboard) and the IBM 5250 printer (when a parallel and/or serial printer is attached to the PC).

The AST-5251/11 emulation software is divided into two distinct modules: (1) the *kernel*, supporting the twinax protocol, display and printer emulation, and the application program interface (API); and (2) the *application presentation services* (APS), uses the API to transfer information to and from the user. The kernel communicates with the System/3X and maintains the host connection; the APS controls the PC's keyboard and display.

A basic illustration of the functional modules is shown in Figure 4.

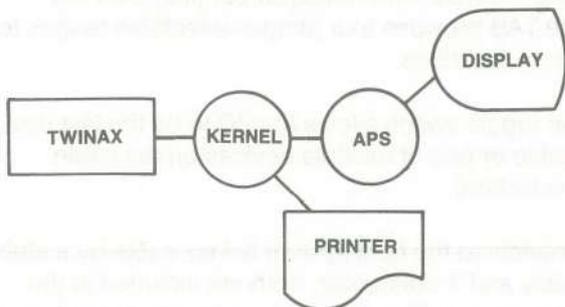


Figure 4. Relationship Between Emulation Software Modules.

The emulation software provides the key mapping of PC keys to 5250 keys. It also provides an 80-character x 25-line display image on which line 25 corresponds to the 5250 display indicators. Different areas on the Status Line (line 25) indicate the status and system information -- that is, System Available, Message Waiting, Keyboard Shift, Insert Mode, Input Inhibited, and Cursor Location.

The data displayed can have the following attributes: column separator, normal video, reverse video, high-intensity video, blinking video, and nondisplaying video. The attributes you can use are determined by your display adapter. Most color and graphics display adapters do not support underscore. Most PC display adapters do not support column separators or other attribute combinations. Refer to your display adapter manual to determine the attributes you can use.

Another function of the emulation software is to switch between different sessions on the PC without terminating the current applications. For example, a hot-key sequence allows you to switch between a 5250 display emulation session and a normal DOS task.

The API portion of the software allows you to "hook" into the same interface used for communications between the protocol driver and the APS. This feature is included for use by experienced systems programmers.

An additional software capability is provided through the bidirectional file transfer software, which allows the user to send and receive files between the host System/3X and the PC.

Finally, a specially-designed configuration program (CFG5251.EXE) is included. This menu-driven program allows you to create keyboard layouts for specific uses and specify the environment under in the emulator will be running.

## Security Features

AST-5251/11 supports the following security features:

- *System/3X Password:* You can configure the System/3X to require passwords for sign-on.
- *Emulation Program Password:* A separate password may be required to execute the emulation program. This prevents unauthorized users from gaining access to the System/3X even when the System/3X password is included in the configuration profile for automatic sign-on.
- *Configuration Program Password:* You can secure the configuration entry program so that a user must supply a password before making changes to the emulation parameters.
- *Hot-Key Disable:* The hot key allows users to switch from emulation mode to DOS so they can execute the file transfer software. To prevent unauthorized use of file transfer, the configuration program allows you to disable the hot-key function for selected users. This function is protected by the configuration program password.

## Functions Not Supported

The following functions and special features of the 5251 Model 11 Display Station are not supported.

- Magnetic stripe reader.
- Selector lightpen.
- Printable characters are limited to those defined by the 96-character ASCII character set.

- Some special characters (for example, the DUP character) cannot be displayed on the PC and are replaced by different symbols.

**NOTE**

The AST-5250/Display adapter card supports an extended ASCII character set, whereby printable characters are not limited to 96 and special characters may be displayed (188 multinational character set).

**NOTES**

## ABOUT THIS MANUAL

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Part I, "Getting Started", provides enough information to get most users up and running. This manual is designed as a user's manual; while the *AST-5250/Emulation Program Base Manual* provides emulation reference material.

### How to Find What You're Looking For...

*For Information on Compatibility, System Requirements, and the System/3X Connection:*

"Before You Begin" (Section 1) provides important considerations for connecting to a host System/3X. Specific twinaxial hardware and cabling information can be found in Appendix A.

*To Customize the Hardware Configuration:*

Most users can use the factory configured twinax adapter board (TAB). To modify shared memory, IRQ, I/O or termination selections turn to Section 2. The configuration program (Section 4) overrides the addresses and types (device/unit numbers) set on the board.

*For Advanced Software Configuration:*

When you enter the configuration program (CFG5251), you can use either the quick configuration or the full configuration. Section 4 provides a step by step, task-oriented, full configuration program overview. The *AST-5251/11 Quick Start Supplement* provides instructions for using the quick configuration.

*For Technical Information Specific to AST-5251/11:*

The appendices provide technical information specific to AST-5251/11. To find more general 5250 emulation information refer to the *AST-5250/Emulation Program Base Manual*.

## Format Notation

The following format notation is used throughout this manual:

- *Uppercase* characters indicate items (such as commands) that you enter exactly as shown. However, you can enter those items in any combination of upper or lowercase letters.
- *Boldface* indicates information that you enter, as contrasted to system prompts or messages (which are shown in regular typeface). A boldface entry can be a parameter such as a file name or a key to press.
- *Square brackets* ([ ]) indicate an optional term which is included or omitted at your discretion. The brackets are not entered.
- *Lowercase letters* represent parameters that are defined by the user. While the user defines the parameters, they must satisfy the conditions of the command description.
- *Angle brackets* tell you to press a key. For example, <Esc> instructs you to press the "Esc" key. You do not have to press the "Enter" key unless you are specifically told to do so.
- System prompts and messages are shown in *color*.
- *Hexadecimal numbers* are indicated with a leading zero (0) and a trailing lowercase "h" (for example, 013Eh).

## Related Documentation

This manual assumes that you are familiar with both the operation of the IBM PC under PC-DOS and the functions and operation of the IBM 5251 Model 11 Display Station as it relates to the host system to be used. However, the following publications of the IBM Corporation may be useful to you for reference:

For the IBM PC:

- *Guide to Operations.*
- *Disk Operating System.*
- *Technical Reference Guide.*

For the installation and operation of the Display Station:

- *IBM 5250 Information Display System Planning and Site Preparation Guide, GA21-9337.*
- *IBM 5251 Display Station Models 1 and 11, GA21-9248.*
- *IBM 5291 Display Station Operator's Guide, GA21-9409.*
- *IBM 5292 Color Display Station Models 1 and 2 Operator's Guide, GA21-9416.*
- *IBM 5250 Information Display System Introduction, GA21-9246.*
- *IBM 5250 Information Display System Functions Reference Manual, SA21-9247.*
- *IBM 5251 Display Station Models 2 and 12 Operator's Guide, GA21-9323.*

For the supported printers:

- *IBM 5224 Printer Operator's Guide, GA34-0092.*
- *IBM 5225 Models 1,2,3, and 4 Printer Operator's Guide, GA34-0054.*
- *IBM 5256 Printer Operator's Guide, GA21-9260.*

## About This Manual

- *IBM 5219 D01/D02 Printer Setup Procedures/ Operations Guide*, GA23-1019.

For the System/34 host users:

- *IBM System/34 Installation and Modification Reference Manual*, SC21-7689.

For the System/36 host users:

- *IBM System/36 Changing Your System Configuration*, SC21-9052.

For the System/38 host users:

- *IBM System/38 Guide to Program Product Installation and Device Configuration*, GC21-7775.

For AST Research:

- *AST-5250/Emulation Program Base Manual*, 00425-001.
- *AST-5251/11 Quick Start Supplement*, 000449-001.

## **PART I. GETTING STARTED**

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1. Before You Begin . . .
2. Setting the Switches and Jumpers
3. Putting the AST-5251/11 Board in Your PC

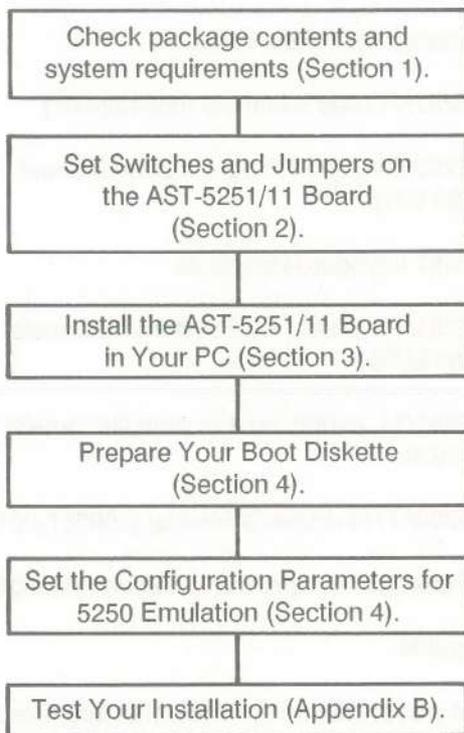
**NOTES**

EXERCISES ON THE USE OF THE

THESE EXERCISES ARE INTENDED TO  
BE USED AS A GUIDE TO THE STUDY  
OF THE SUBJECT MATTER



This section presents information you need to know before you install the AST-5251/11. Figure 1-1 shows an overview of the steps you'll take as you read through Part I, "Getting Started".



**Figure 1-1. Installation Overview.**

## 1.1 Checking the Contents

Before you begin installing your AST-5251/11 hardware and software be sure that you received the following items in the AST-5251/11 package:

- AST-5251/11 Twinax Adapter Board.
- Twinax stub cable assembly (DA15S to twinax).
- T-connector for twinax cable.
- *AST-5251/11 User's Manual* (000492-001).
- *AST-5250/Emulation Program Base Manual* (000493-001).
- AST-5251 keyboard templates.
- AST-5251/11, 8-inch, host system file transfer diskette for System/34/36.
- AST-5251/11, 8-inch, host system file transfer diskette for System/38.
- *AST-5250FT/11-A User's Manual* (000207-001).
- *AST-5250FT/11-A Operator's Manual* (000208-001).
- Card guide.

AST-5251/11 is a sophisticated product that interfaces with a host system. Explicit steps for installation and configuration are contained in this manual so that the installation process goes smoothly. However, if you have a problem interfacing the AST-5251/11 with your host system after you have completed all instructions, refer to the troubleshooting information in Appendix B for solutions. If you cannot solve the problem, call your dealer or AST Technical Support.

Before calling your dealer or AST Technical Support, please complete the checklist given in Appendix D so that all pertinent information is available. Having the information available saves time and helps your dealer or the AST support personnel identify the nature of the problem.

## 1.2 Compatibility and System Requirements

The following two subsections describe the minimum hardware and software prerequisites for operation with AST-5251/11. Also, AST-5251/11 compatibility considerations are listed.

### 1.2.1 Hardware

The AST-5251/11 twinax adapter board (TAB) is compatible with the AST Premium/286, IBM PC (original 64-kilobyte (KB) and newer 256-KB system board), PC XT, PC AT, and some IBM-compatible systems. However, AST-5251/11 may not operate in some environments because of the limited number of interrupt lines in the PC design. Compatibility with expansion products from other vendors is not guaranteed.

The minimum hardware requirements for the PC are as follows:

- 256 KB of random access memory (RAM) without file transfer or 512 KB of RAM with file transfer. (Later versions of the disk operating system (DOS) may require more memory.)
- One double-sided, double-density diskette drive.
- An AST-5250/Display, an IBM-compatible monochrome adapter board, or an IBM-compatible color/graphics adapter board.
- An 80-character x 25-line display device.
- One IRQ (interrupt request line).

- A 16 KB PC memory "segment" (see the shared memory appendix).
- Optionally, a parallel or serial printer port and IBM PC-compatible printer (if printer support is desired).

### 1.2.2 Software

AST-5251/11 requires DOS version 2.0, or a subsequent version. All AST-5251/11 emulation software is included with the package.

## 1.3 What You Need to Know Before Your Start

This section provides information that your host system support personnel will need to help you configure and connect your PC to the host system. You should give the appropriate systems personnel this information and, in turn, receive some specific information from them that you need to complete the AST-5251/11 installation/configuration process. However, you also need to be aware of the considerations involved in connecting your PC to the host system.

### NOTE

Do not continue with the installation/configuration of AST-5251/11 until you have received approval and information from the appropriate person responsible for your host system.

### 1.3.1 Physical Considerations

Your host System/3X supports IBM 5250 information display system display stations (for example, IBM 5251 Models 11, 5291, or 5292-1) to connect the PC as one of these display stations.

Although your host system supports the 5250 display stations, you must consult a host systems person in planning where and how to connect your PC.

The host systems person will help you determine the specific device arrangement to fit your needs by checking the current layout of the host system. That is, the twinax cables and the devices attached to the cables/lines are mapped out so that the systems person can decide where to add devices and can assign station address numbers when the need occurs.

The following list gives some important considerations that the host systems person needs to know to help you connect to the host system.

- The PC containing the AST-5251/11 product can be connected as one of up to seven work stations on a direct twinax line.
- The PC containing the AST-5251/11 product can be connected to a IBM 5251 Model 12 as one or more display stations.
- The PC containing the AST-5251/11 product can be connected to a 5294 Control Unit as one or more work stations.
- If the System/3X supports an IBM 5291 Display Station, attach your PC as an IBM 5291 Display Station if you are using a monochrome (black and white) display with your PC.

If the System/3X supports an IBM 5292 Display Station, use a color display on your PC and attach the PC as an IBM 5292-1 Model 1 Display Station.

The host systems person *must* know what specific IBM work station model your PC will emulate.

- If you are attaching an IBM-compatible printer to the PC which will emulate a 5250 printer, you must notify the host systems person and get a correct station address number for the printer and the printer type and model that will be emulated.
- The maximum twinax cable length between the host system and the last, locally attached display station is 5000 feet or 1525 meters.
- The minimum twinax cable length between two T-connectors on the line is 3.3 feet or 1 meter.
- The AST-5251/11 product includes a stub cable assembly to connect the twinax adapter board (TAB) in the PC to the host cable. One T-connector is also included. It can be used as a "cable through" connection if the PC is not the last display station on the line.

The TAB must be configured based on whether or not it is the last work station on the line. The factory configuration is set for the PC to be the last work station on the line. (The line is terminated.)

The Termination Switch selector on the rear or the TAB must be changed if the cable through is used. (See Section 2.1.3 for instructions about changing the Termination Switch.)

- Any direct twinax cable line can have only 11 junctions. Each display station or PC, printer, cable splice, or station protector is considered to be a junction.

### 1.3.2 Password Assignment

You should get a "password" that allows you to access the host system. In most installations, users of the host system must identify themselves to sign-on and be allowed access to programs and information.

Your host systems personnel should assign a password to you and then set up the host system so that it recognizes your password when you want to sign-on using your PC.

**NOTES**

This section explains how to set the switches and jumpers on your AST-5251/11 twinax adapter board (TAB). You should refer to the information that you obtained from the host systems person (Section 1.3.3) to configure the board to operate correctly when the PC is attached to the host system.

### 2.1 Configuring the TAB

Although the TAB is configured at the factory, you may need to change it based on either the host information or your PC configuration.

The three settings that must be configured, or checked if you choose to use the factory configuration are:

- Interrupt request level (IRQ) selection.
- I/O address selection.
- Terminator selection toggle switch.

If the default, factory configuration settings for IRQ or I/O address are changed, the configuration program (CFG5251.EXE) must be modified to reflect these changes. See Section 4 for instructions on using the configuration program.

The jumper placements and switch settings for various configuration options are explained in the following subsections.

Figure 2-1 is a simplified layout of the TAB showing the location of the jumper blocks and switch banks. The AST-5251/11 Plus option is included only with AST-5251/11 Plus.

Getting Started

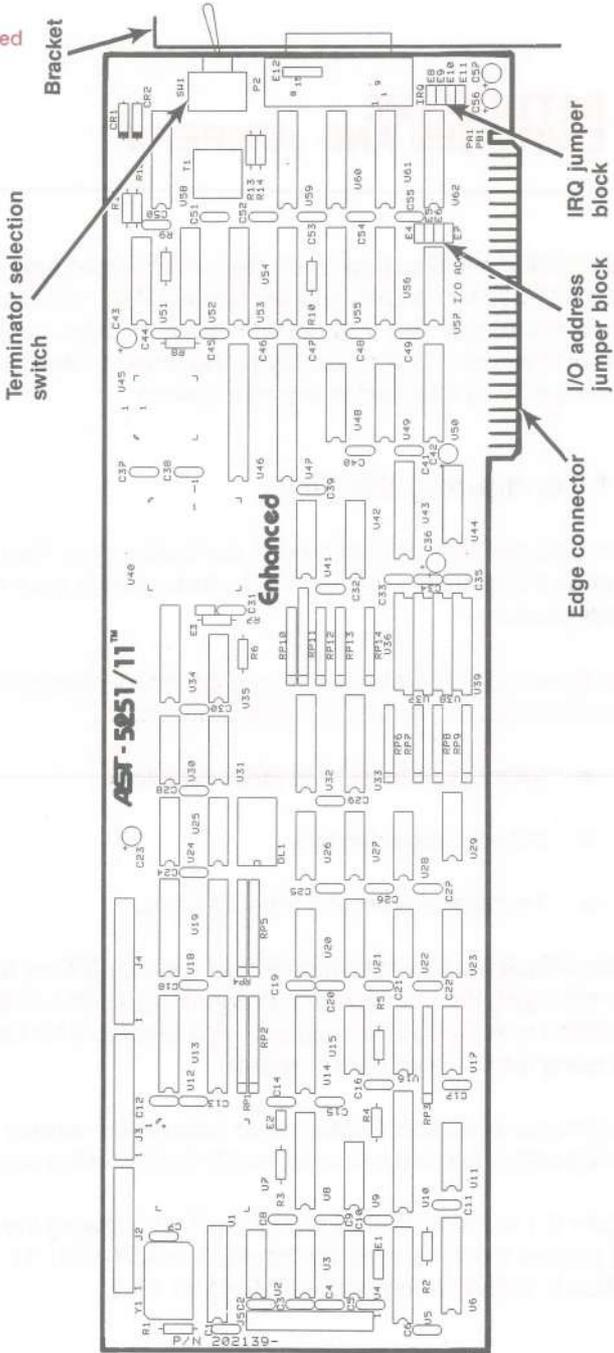


Figure 2-1. Twinax Adapter Board Layout.

### 2.1.1 IRQ Level Selection

The TAB requires the use of one IRQ.

Locate the block of jumper-pin pairs labeled "IRQ" on the lower portion of the board above the edge connector. (See Figure 2-1.) The jumper-pin pairs are labeled E8, E9, E10, and E11; they correspond to the interrupt levels on the PC.

One jumper must be installed to select a level. The factory configuration selects IRQ2 (interrupt request level two) as shown in Figure 2-2.

E8	<input checked="" type="radio"/>	<input type="radio"/>	IRQ2
E9	<input type="radio"/>	<input type="radio"/>	IRQ3
E10	<input type="radio"/>	<input type="radio"/>	IRQ4
E11	<input type="radio"/>	<input type="radio"/>	IRQ5

Figure 2-2. Factory Configuration -- IRQ Level 2.

Select the highest priority interrupt (lowest number) that does not interfere with other options installed in your PC. Move the jumper to the number of the interrupt level that you want to select.

Check the manuals for any expansion options installed in your PC to determine which interrupt levels are used. Also, refer to your IBM manuals for the interrupt levels used for the various models.

If you move the jumper, be sure it is securely pushed onto the pins when you replace it. Also, be sure your user-specified or the default configuration file (AST5251.CFG) reflects this change.

### 2.1.2 I/O Address Selection

The TAB uses eight consecutive I/O addresses that may be selected in one of four ranges of addresses. The address range is selected by placing a jumper over the pin pair that corresponds to that address range.

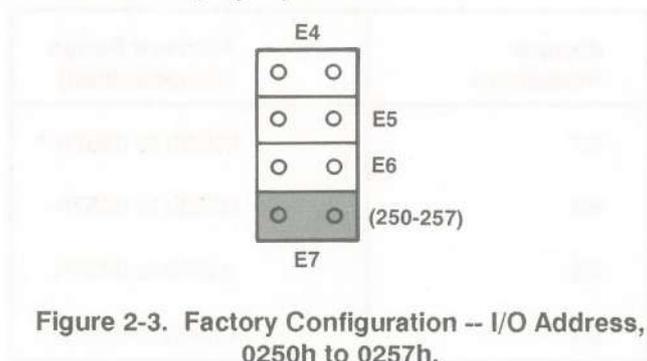
Locate the vertically oriented block of jumper-pin pairs labeled E4 through E7 on the lower portion of the board above the edge connector. (See Figure 2-1.) The four address ranges and the corresponding jumper placements are listed in Table 2-1.

**Table 2-1. Jumper Placements and Address Ranges.**

Jumper Placement	Address Range (Hexadecimal)
E7	0250h to 0257h *
E6	0350h to 0357h
E5	0450h to 0457h
E4	0550h to 0557h

\* Factory configuration

Figure 2-3 shows the factory configuration (addresses 0250h to 0257h) that is selected by a jumper on E4.



**Figure 2-3. Factory Configuration -- I/O Address, 0250h to 0257h.**

If a board in your PC already uses the factory selected address, remove the jumper and replace it over one of the other three address ranges.

If you move the jumper, be sure to push it securely onto the pins. Also, be sure your user-specified or the default configuration file (AST5251.CFG) reflects this change.

### 2.1.3 Terminator Selection

If the PC is the last physical device on the twinax cable, it must be identified as the "terminator" or end of the line. This selection is made by moving the toggle switch to the up position marked "TERM". If your PC is not the last device on the cable, it is acting as a passthrough PC. Position the toggle switch to the down position marked "THRU". Only one physical device on the twinax cable can be identified as TERM.

Figure 2-4 show a rear view of the TAB's bracket with termination switch and DA15P connector.

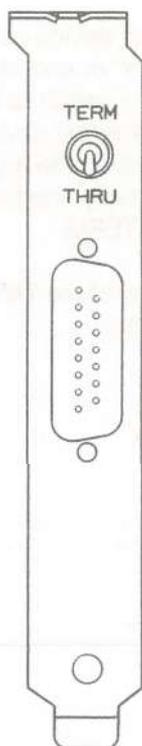


Figure 2-4. Termination Switch Selector.

### 2.1.4 Recording the Configuration

At this point, the configuration of the TAB is complete, and you are ready to install it in the PC.

Before you install the board, turn to Appendix E, which is a checklist of information in case you need to call your dealer or AST for technical support, and record your configuration on the blank templates shown for jumper placements and switch settings. You will then have a record of the board configuration for future reference, which saves opening the PC cover and recording the information if a problem occurs.

**NOTES**

This section describes how to install the twinax adapter board (TAB) in your PC. You can install the board in any full-length expansion slot on the system board.

Before you can install the TAB in your PC, turn off the PC, disconnect any device attached to it, and remove the PC cover.

### 3.1 Removing the PC Cover

#### CAUTION

Be sure the power switch is off and the power cord is unplugged from the wall outlet. Turn off any other equipment connected to the computer. Installing any component while the power is on can permanently damage your computer and its components.

You will need a hex wrench and a flathead screwdriver or nut driver to perform the following procedure.

### STEP 1

*Remove the PC cover:* Use a flathead screwdriver or nut driver to remove the cover mounting screws from your PC (see your PC's manual for the location of the cover mounting screws).

*AST Premium/286:* After removing the back panel screws, slide the cover past the ON/OFF switch. Then, lift the cover off the unit as shown in Figure 3-1.

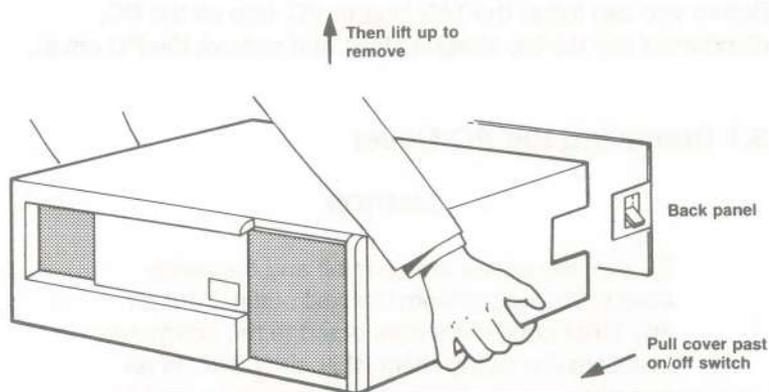
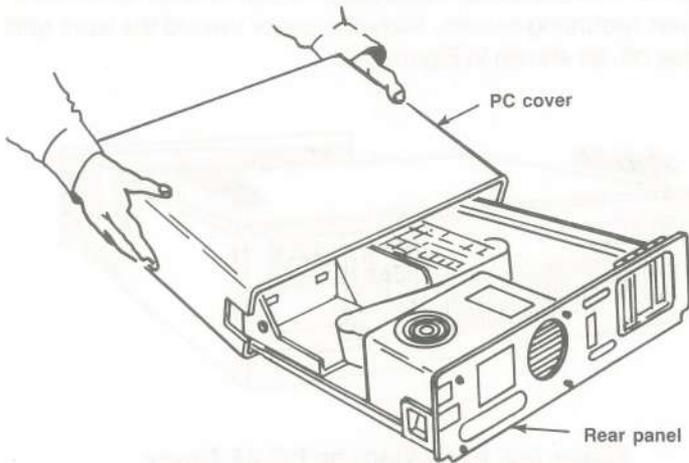


Figure 3-1. Removing the AST Premium/286 Cover.

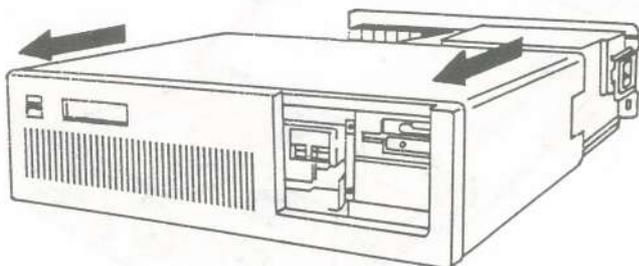
*IBM PC and PC XT:* Once you have removed the cover mounting screws, pull the PC cover off as shown in Figure 3-2.



**Figure 3-2. Removing the PC Cover (PC and PC XT).**

## Getting Started

*PC AT:* Unlock the key lock at the front of the PC AT by turning the key counterclockwise. Remove the back panel (which is attached to the PC AT with plastic fastener strips) from the rear of the PC AT. Use a flathead screwdriver or hex wrench to remove the cover mounting screws. Slide the cover toward the front until it comes off, as shown in Figure 3-3.



**Figure 3-3. Removing the PC AT Cover.**

## 3.2 Inserting AST-5251/11 into Your PC

### STEP 1

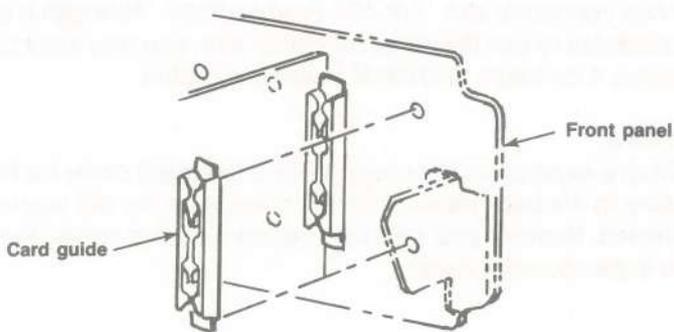
*Select an open expansion slot:* The TAB requires one full-length slot. *For a PC AT:* You can install the board into a one- or two-connector slot. *For AST Premium/286:* Although it is acceptable to use the three-connector slot, you may want to reserve it for future FASTRAM board installation.

### STEP 2

*Remove expansion slot cover:* Locate the metal cover for the cutout in the back panel of the PC chassis for the slot you have selected. Remove and save the bracket retaining screw. Remove the expansion slot cover.

**STEP 3**

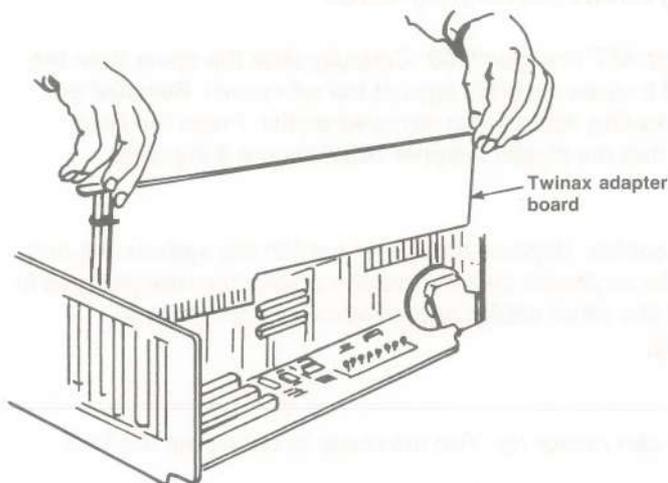
*Install the card guide:* The TAB comes with a plastic card guide. Install the plastic card guide (if one is not already installed) on the inside of the front panel of the PC for the slot that will hold your TAB (Figure 3-4).



**Figure 3-4. Installing the Plastic Card Guide.**

**STEP 4**

*Install the TAB:* Line up your TAB with the expansion slot connector and position its front bottom corner in the card guide channel. Lower the board until its edge connector is resting on the expansion slot receptacle. Using an evenly distributed pressure, press the TAB straight down until it seats in the expansion slot (Figure 3-5).



**Figure 3-5. Installing the AST-5251/11 Board.**

**STEP 5**

*Secure the board to the rear of the PC chassis:* Use the screw you removed from the expansion slot cover in STEP 2.

### 3.3 Replacing the PC Cover and Installing the Cables

#### STEP 1

*Replace PC cover:*

*PC and PC XT:* Carefully slide the cover from the front until it stops securely against the rear panel. Reinstall the cover mounting screws you removed earlier.

*PC AT and AST Premium/286:* Carefully slide the cover from the front until it stops securely against the rear panel. Reinstall the cover mounting screws you removed earlier. Press the back panel so that the plastic fastener strips secure it in place.

#### STEP 2

*Replace cables:* Replace the power cord to the system unit and be sure the keyboard and the monitor connectors are plugged in. Reattach any other cables and connectors you removed previously.

#### STEP 3

*Now you can power up:* You are ready to check out the TAB.

### 3.4 Upgrading to AST-5251/11 Plus

This section describes how to upgrade your AST-5251/11 to AST-5251/11 Plus by adding a 16-pin, programmable read-only memory (PROM) chip.

#### CAUTION

Be sure the power switch is off and the power cord is unplugged from the wall outlet. Turn off any other equipment connected to the computer. Installing any component while the power is on can permanently damage your computer and its components.

You will need a flathead screwdriver or nut driver, and a phillips screwdriver to perform the following procedure.

**STEP 1**

*Remove the PC cover:* Follow the instructions found under STEP 1 of Section 3.2.

**STEP 2**

*Remove the TAB:* Remove and retain the screw securing the TAB to the rear of the PC chassis. Slide the TAB out of the expansion slot. Leave the plastic card guide in the slot.

**STEP 3**

*Install the PROM onto the TAB:* AST-5251/11 Plus comes with a 16-pin chip (part number 107000-498). Insert the chip so that the pin 1 indicator (the small white dot on the top-left corner) points away from the board's bracket. See Figure 3-6 for the actual pin location.

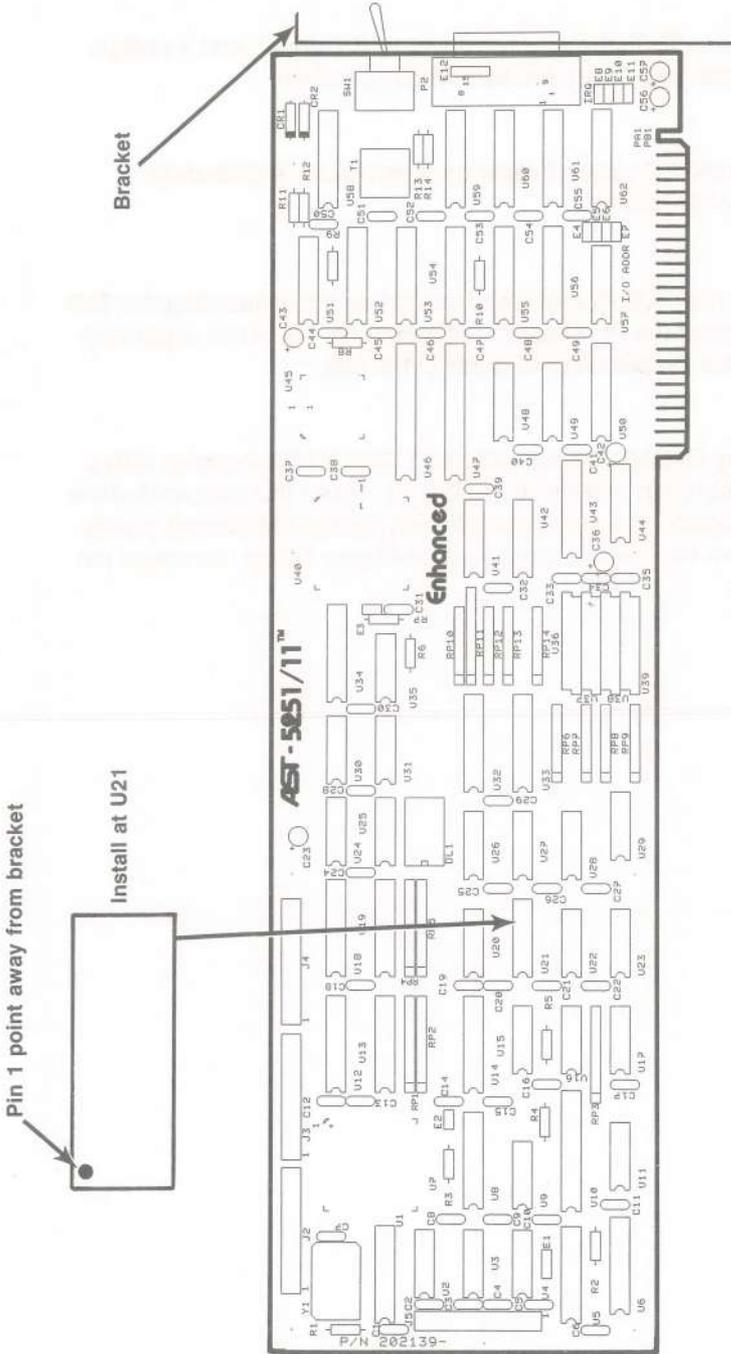


Figure 3-6. Installing the AST-5251/11 PLUS Chip on the TAB.

**STEP 4**

*Replace the TAB:* Follow the instructions found under STEPS 4 through 7 in Section 3.2.

**3.5 Connecting to the Host Cable**

This section explains how to attach the AST-5251/11 twinax "stub" cable assembly to your PC and how to connect to the host twinax cable. The twinax stub cable supplied with your AST-5251/11 package is 12 inches (one foot or 0.3 meters) in length. It connects to the 15-pin, D-shell connector on the TAB to the host system twinax cable.

Your host systems personnel should attach any additional twinax cable necessary to bring the line within the physical reach of your PC.

Your stub cable is fully assembled and tested. The PC end has a 15-pin D-shell socket connector and the host-end a twinax connector, which attaches to the supplied T-connector.

You can disconnect the PC work station at the stub cable without disrupting other work stations on the same daisy chain, if the PC is not the last physical device on the twinax line.

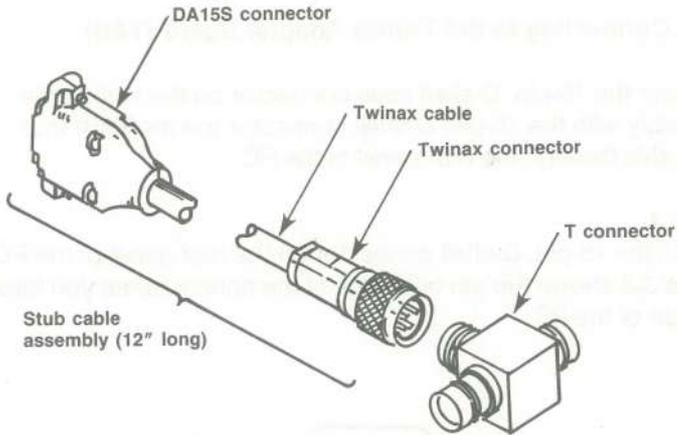
Observe the following guidelines when setting up your PC as a 5250 work station:

- As many as seven work stations can be connected in series to a local work station line.
- As many as eight work stations and PCs can be connected to a 5251/12 display station. A maximum of as eight work stations and PCs can be connected to a 5294 controller.
- Each PC must have a station address assigned for each session that it uses. Each address used by a display session or a printer session is considered one of the

maximum number of work stations allowed on a work station line.

- There must be at least 3.3 feet (1 meter) between any two T-connectors.
- A given work station line can have no more than 11 junctions. Each display, printer, PC, cable splice, or station protector is considered a junction.
- If the last work station on a line is not a PC and does not have the cable-through feature, it must remain the last work station on that line. A PC cannot be added to the end of such a line.
- The maximum cabling distance between the host and the last work station on the twinax cable is 5000 feet (1525 meters).

Figure 3-7 illustrates the stub cable and T-connector you received with AST-5251/11.



**Figure 3-7. Twinax Stub Cable and T-Connector.**

The following subsections describe the cable connections for the stub cable: (1) to the PC; (2) to the T-connector; and (3) to a standard twinax connector.

Appendix A provides additional information about the twinax cable assembly. It lists the twinax cable specifications, shows the 15-pin D-shell connector pinouts, and explains assembly instructions for preparing a twinax stub cable for use with the system.

### 3.5.1 Connecting to the Twinax Adapter Board (TAB)

Connect the 15-pin, D-shell male connector on the stub cable assembly with the 15-pin, D-shell connector (on the TAB) that protrudes through the rear panel of the PC.

#### STEP 1

Locate the 15-pin, D-shell connector on the rear panel of the PC. Figure 3-8 shows the pin openings of the connector as you face the rear of the PC.

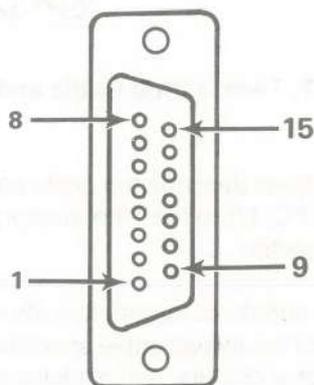


Figure 3-8. 15-Pin D-Shell Connector on PC Rear Panel.

**STEP 2**

The 15-pin, D-shell socket connector on the stub cable assembly will only fit into the 15-pin, D-shell connector on the rear panel one way. Match the long row of pins with the long row of openings in the receiving D-shell connector.

Push the cable connector firmly into the mating connector.



**STEP 3**

Tighten the mounting screws on the cable connector to secure the connection. Figure 3-9 shows the mounting screws.

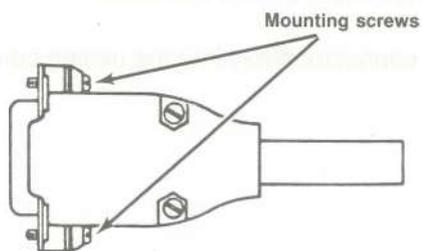


Figure 3-9. Connector Mounting Screws.

### 3.5.2 Connecting the T-Connector

If your PC is not the last work station on the line, you will connect the T-connector to the end of the stub cable assembly attached to the TAB (in the PC). Then you will connect the twinax cable from the units above your PC and below your PC (on the host twinax cable) to the T-connector.

Figure 3-10 is a simple illustration of this sequence.

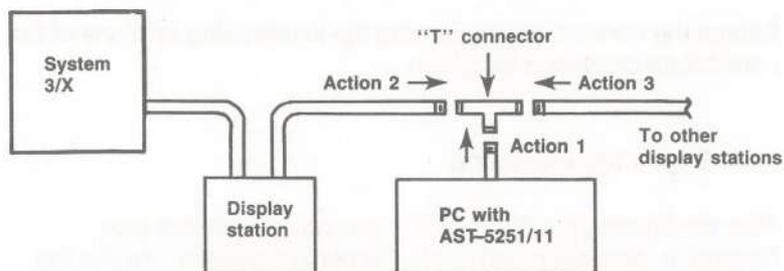


Figure 3-10. Connecting to the T-Connector (Cable-Through).

### STEP 1

To connect the stub cable assembly onto the T-connector, insert the middle, threaded leg (socket) of the T-connector into the "knurled" plug body of the stub cable connector and turn the knurled ring section clockwise to tighten the connection.

### STEP 2

If your PC is not the last work station on the line, connect the twinax cables from the units above and below your PC on the line onto the threaded legs of the T-connector (cable-through).

Secure the connections by turning the knurled ring sections of the connectors clockwise to tighten.

## 3.5.4 Beginning Emulation

After configuring the AST-5251/11 emulation software (see Section 4), emulation can begin. To begin emulation, invoke the batch file AST5251.BAT. Invoke the file by completing the steps that apply to your system.

*For floppy-based system:*

1. Place your copy of the AST-5251/11 software in drive A.
2. Change your default drive to A.
3. Specify **AST5251** < Enter > .

*For hard disk system:*

1. Install the AST-5251/11 software on your hard disk.
2. Change your default drive and directory to the drive and directory that contains the AST-5251/11 emulation software.
3. Specify **AST5251** < Enter > .

After the AST-5251/11 emulation program is loaded the screen blanks and a Status Line appears across the bottom of your screen. *For System/36/38:* a sign-on screen will be displayed, if the System Available (SA) indicator is on. *For System 34:* specify **<Shift>-<F1> <Caps Lock>** to obtain a sign-on screen.

You can now use your PC as a personal computer or an IBM 5250 Display Station. Use the hot-key sequence **<Alt>-<Esc>** to switch back and forth between emulation and PC sessions. (See the *AST-5250/Emulation Program Base Manual* for more information on hot keys.)

If the System Available indicator is off and the cursor is in the top right corner of your screen, check you PC configuration and cable connections. (See *AST-5250/Emulation Program Base Manual* for more information.)

**NOTES**

## **PART II. USING AST-5251/11**

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### 4. Software Configuration

NOTES

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Once you have the twinax adapter board (TAB) installed, the twinax cable connected, and the host system running, you are ready to configure the AST-5251/11 emulation software. First, you need to make both backup and working copies of the emulation software files. Next, create a software configuration file that establishes your work station profile (station emulation parameters, PC hardware parameters, and printer parameters).

If you don't need a customized work station profile, you can simply invoke the emulation startup programs (as discussed in Section 3.5.3) and use the AST-5251/11 default parameters. Refer to Appendix A for a listing of default parameters.

If you want to alter one or more of the parameters, you can customize your software by using the menu-driven software configuration program (CFG5251.EXE) provided on the AST-5251/11 master diskette.

### 4.1 Backup Diskette Files

Your AST-5251/11 backup diskettes should contain the following files. For information on making a backup diskette see your *AST-5250/Emulation Program Base Manual*.

#### *KERNEL.EXE*

This file is the executable "kernel" portion of the AST-5251/11 software. The kernel communicates with the System/3X and maintains the host connection. The kernel includes all communication driver software downloaded onto the board.

#### *APS.EXE*

This file is the executable application presentation services (APS) portion of the AST-5251/11 software. The APS controls the PC's keyboard and display.

*AST5251.EXE*

This is a disk operating system (DOS) batch file that sequentially executes the KERNEL and APS commands so that the user does not need to.

*ASTKBD.BAT*

This is a DOS batch file that selects the country keyboard file to be copied into AST5251.KBD. It is used to update to the proper international keyboard file. This file creates a system configuration file (AST5251.HLP) - a file that provides the help screen that contains the keyboard remapping information and special key sequences used by 5250 emulation.

*ASTFT11.EXE*

This file enables you to do bidirectional file transfers between the host System/3X and the PC.

*CFG5251.EXE*

This file provides a menu-driven procedure to configure AST-5251/11. It creates a system configuration file (AST5251.CFG) - a file that establishes work and display station parameters, PC hardware parameters, and printer parameters.

*SNAPDUMP.EXE*

This program saves emulation, snapshot save screens to disk files and can display these files to the user.

*DISPLAY.COM*

This file enables the user with an AST-5250/Display adapter to switch between graphics and regular modes.

*AI-PIF.DVP*

This file is a DESQview program information file (.PIF) which allows the user to use the emulation in the DESQview environment.

*SIGNON.EXE*

This file allows the user to send text and control keys from the DOS environment.

***SIGNON.HLP***

This file contains help text for the SIGNON.EXE program.

***AST5251.HLP***

This file contains the help text displayed when the user requests on-line help.

***SHUTDOWN.EXE***

This file allows you to terminate emulation from the DOS environment.

***READ.ME***

This file provides a supplement to the AST-5251/11 manuals. The files listed in Table 4-1 will also be included on your backup diskette. These files can be renamed as AST5251.KBD.

Keyboard files:

**Table 4-1. International EBCDIC Character Sets.**

File Name	Description
AUSTRIA.KBD	Austria
BELGIUM.KBD	Belgium
BRAZIL.KBD	Brazil
CANADA.KBD	Canada (USA)
CANADIAN.KBD	Canada (French)
DENMARK.KBD	Denmark
FINLAND.KBD	Finland
FRANCE_A.KBD	France (AZERTY)
FRANCE_Q.KBD	France (QWERTY)
GERMANY.KBD	Germany
INTERNAT.KBD	International
ITALY.KBD	Italy
NORWAY.KBD	Norway
PORTUGAL.KBD	Portugal
SPAIN.KBD	Spain
SPANISH_.KBD	Spanish Speaking
SWEDEN.KDB	Sweden
UNITED_K.KBD	United Kingdom
UNITED_S.KBD	United States
USA_PC_K.KBD	United States (PC Keyboard)
US_ENHAN.KBD	US Enhanced

*UNITED\_S.HLP**USA\_PC\_K.HLP**US\_ENHAN.HLP*

These files contain the help text displayed when the user requests

on-line help for USA 5251, USA PC, and USA Enhanced keyboards, respectively.

*IBM5251.KBD*

This file contains the keyboard and display configuration that supports the 188 EBCDIC character set of the IBM 5251 terminal. (Use only with the AST-5250/Display adapter.)

*IBM5291.KBD*

This file contains the keyboard and display configuration that supports the 188 EBCDIC character set of the IBM 5291 terminal. (Use only with the AST-5250/Display adapter.)

*IBM5292.KBD*

This file contains the keyboard and display configuration that supports the 188 EBCDIC character set of the IBM 5292-1 terminal. (Use only with the AST-5250/Display adapter.)

**NOTE**

UNITED\_S.HLP is a standard file that is, under normal conditions, automatically copied by the program to AST5251.HLP. If you use USA\_PC\_K.KBD you must copy UNITED\_S.HLP over AST5251.HLP.

*Turbo Laser emulation files:*

*5219.BAT*

This file copies the appropriate files to the AST TurboLaser for 5219 printer support on COM2.

*5219.CFG*

This file is an example of the AST5251.CFG file with COM2 configured as a 5219 printer.

*5219.SET*

This is the AST TurboLaser information file that is used by 5219.BAT for 5219 TurboLaser emulation.

#### *5224.BAT*

This file copies the appropriate files to the AST TurboLaser for 5224 printer support on COM2.

#### *5224.CFG*

This file is an example of the AST5251.CFG file with COM2 configured as a 5224 printer.

#### *5224.SET*

This is the AST TurboLaser information file used by 5224.BAT for 5224 TurboLaser emulation.

## **4.2 Working Diskettes Files**

Not all of the AST-5251/11 files need to be resident on your working diskette. Use the following guidelines to determine which files you should put on your working diskette.

- You need two files - KERNEL.EXE and APS.EXE - to emulate an IBM 5251/11 display station.
- If you want to use the file transfer capability, you will need the file transfer program (ASTFT11.EXE).
- The AST5251.KBD file needs to be available only if default keyboard configuration is not desired.
- The following files are created by the configuration program task selection of EBCDIC to ASCII translation.

For parallel:

**ASTLPTx.CFG**

where:

x is LPT port 1, 2, or 3.

For serial:

**ASTCOMx.CFG**

where:

x is COM 1 or COM 2.

AST-5251/11 software can be run only after DOS has been loaded. Your working diskette should include DOS and the COMMAND.COM file. (To create a system diskette, use the FORMAT command with the /S parameter. Refer to your DOS Manual for details.) See your *AST-5250/Emulation Program Base Manual* for information on working/operating diskettes.

### 4.3 Using the Software Configuration Program

The AST-5251/11 software configuration program is menu-driven and is, in general, self-explanatory. However, each task within this program is described in detail in this subsection.

The following provides information on *cursor control* and special key usage, for the configuration program:

- The configuration program menus offer several options: the *currently selected option* is highlighted in reverse-video.
- To select the desired option, press the Right- or Left-Arrow keys (the cursor keys) and press < **Enter** >.

- To exit a menu and provide the configuration program with a specific entry, press <Esc>. The entry will be one of the following:
  - The selected entry will be configured, if you have followed the selection process described above.
  - The previously configured option will be selected again, if no further entries have been made.
  - The default configuration value will be entered.

#### 4.3.1 AST-5251/11 TASK Orientation

Figure 4-1 provides an overview of AST-5251/11 system configuration and associated tasks. You need to change the software parameters only if your specific configuration does not match the default settings (see Appendix A).

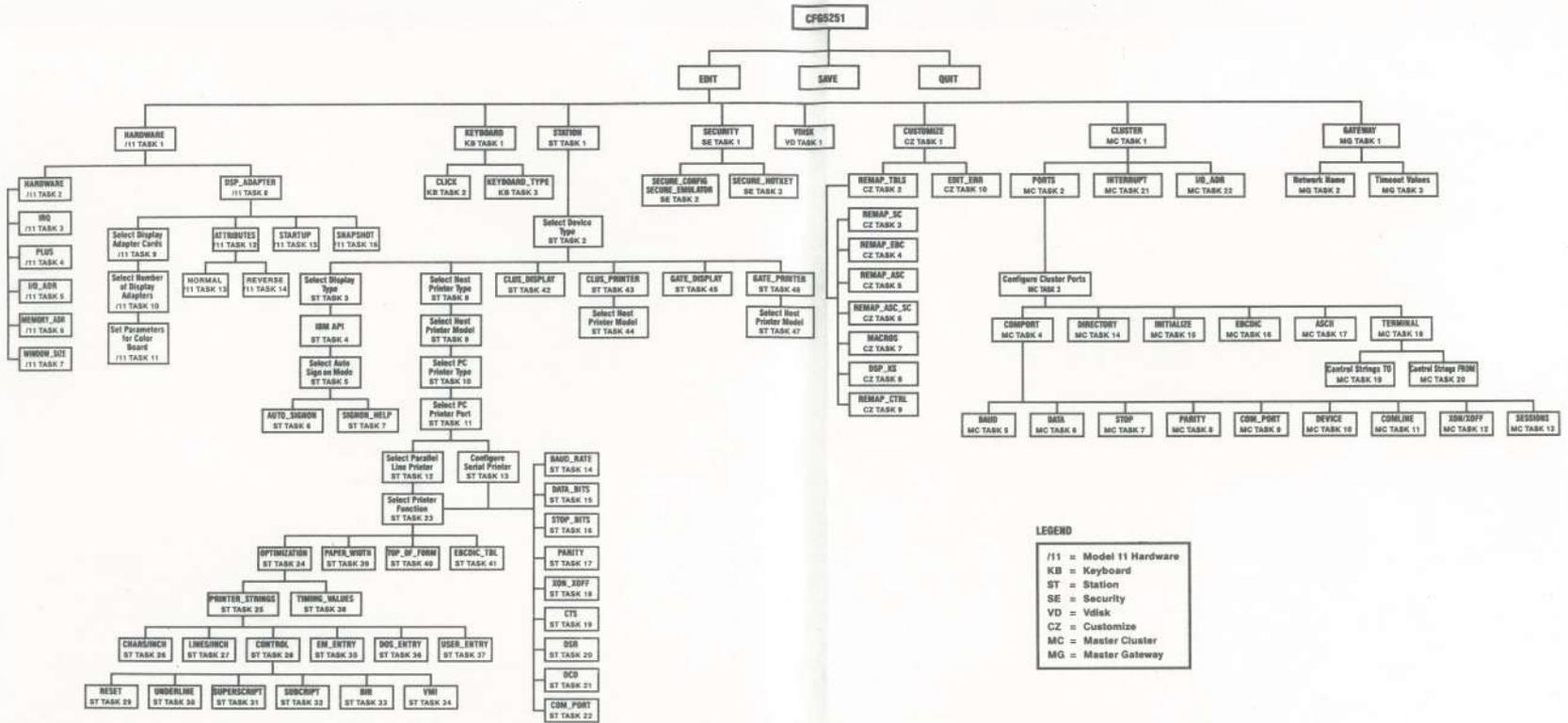


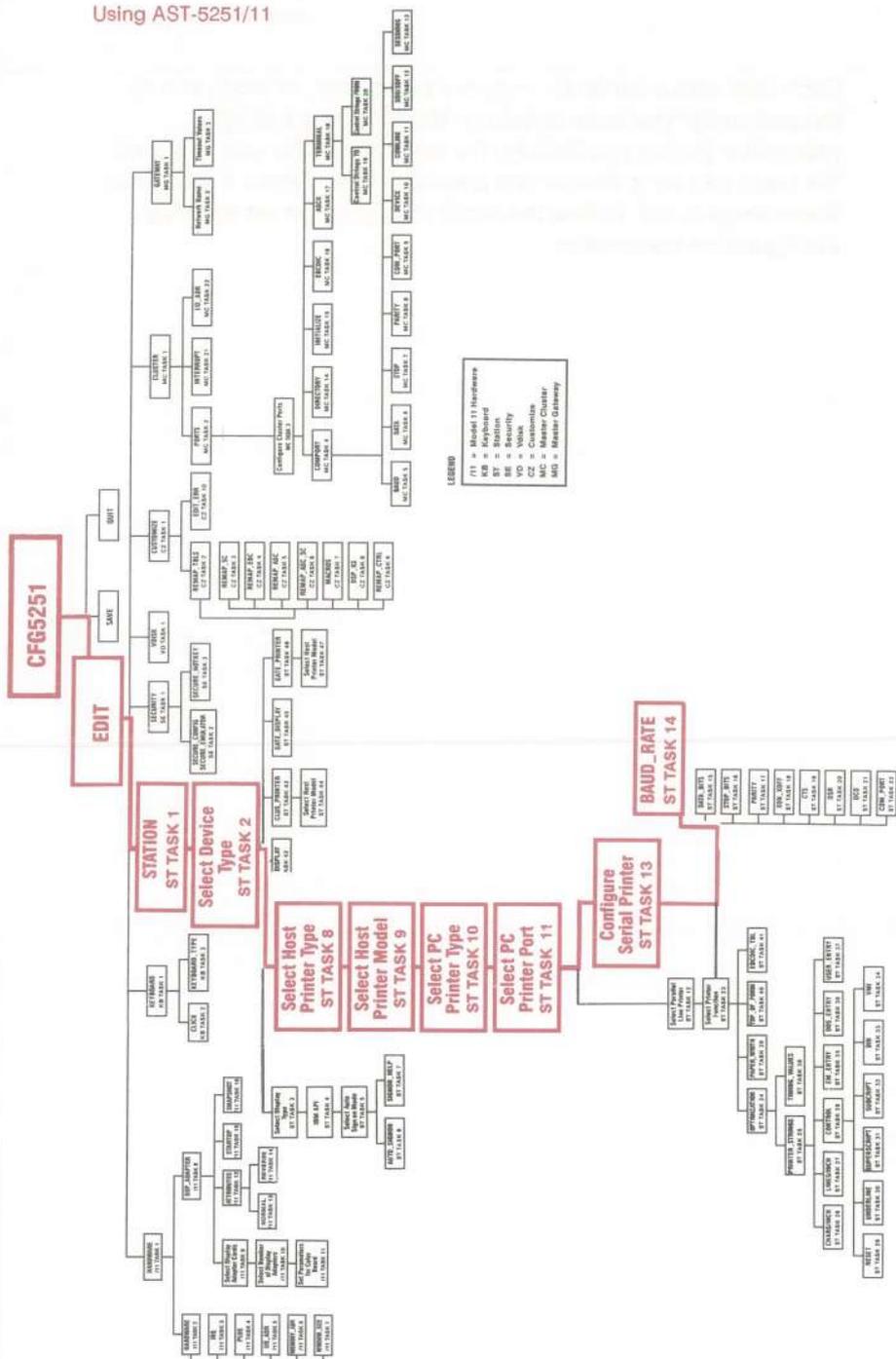
Figure 4-1. AST-5251/11 Software Configuration.

**NOTES**



Using AST-5251/11

Each task sets a particular software parameter; or leads you to the parameter you want to set up. The following example procedure guides you through the tasks that allow you to set up the baud rate for a station with a serial printer. Figure 4-2 outlines these steps in red. Follow the same procedure to set up other configuration parameters.



**STEP 1**

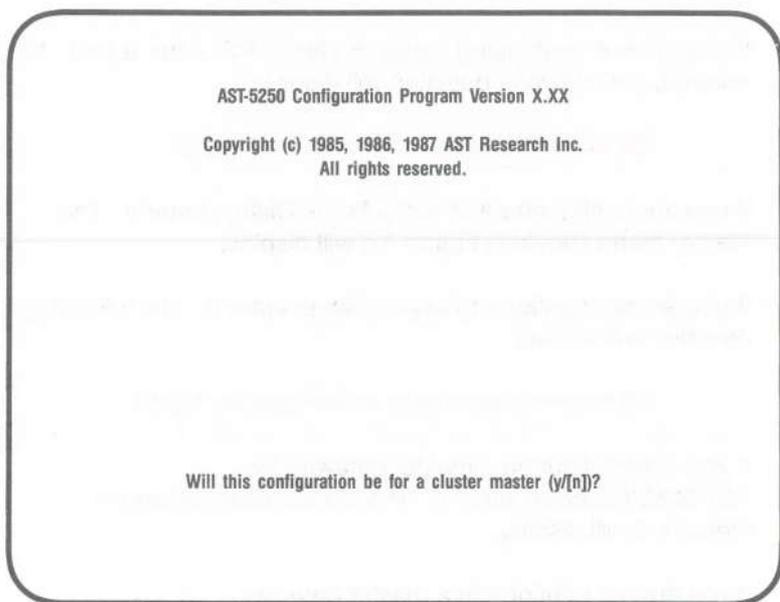
Boot your system and establish both the drive and the directory where the AST-5251/11 software configuration program (CFG5251.EXE) resides as the default drive and directory.

**STEP 2**

To change the software parameters, invoke the software configuration program by entering the following command:

**A> CFG5251 <Enter>**

A screen similar to the following will be displayed.



**Figure 4-3. AST-5251/11 Initial Screen Display.**

### STEP 3

Type **n** and press **<Enter>** as a response to each question that displays.

The initial screen display is used by all AST-5250 emulation products. During normal installation, answer **y** (yes) to the question that applies to your product. The questions displayed are as follows:

Will this configuration be for a master cluster (y/[n])?

If you are configuring a master cluster PC for an AST-5250/Cluster product, enter **y** (yes). If **y** is entered, the Master menu shown in Figure 4-4 will display.

If you are not configuring a master cluster PC, enter **n** (no). If **n** is entered, the following question will display:

Will this configuration be for async dialup (y/[n])?

If you are configuring AST-5250/Async Dialup, enter **y**. The Master menu shown in Figure 4-4 will display.

If you are not configuring async dialup, enter **n**. The following question will display:

Will this configuration be for a master gateway (y/[n])?

If you are configuring a master gateway for AST-5250/Gateway, enter **y**. The Master menu shown in Figure 4-4 will display.

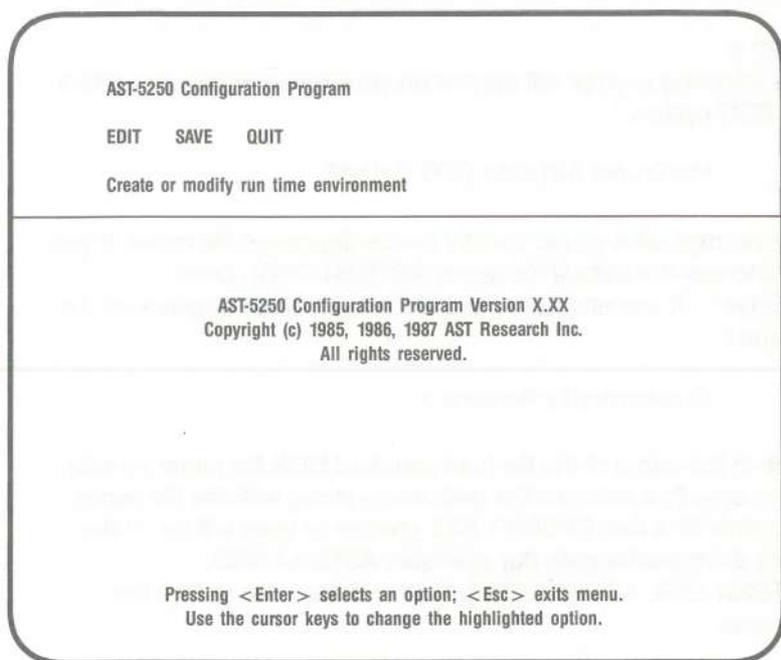
If you are not configuring a master gateway, enter **n**. The following question will display:

Would you like to use the AST5251 quick start configurator (y/[n])?

If you would like to use the quick start configurator, enter **y**. The quick start configurator is an abridged version of the full configuration program. For most users, quick start provides the

options needed to bring the emulation software up and running. Complete instruction on using the quick start configurator are provided in the *AST-5251/11 Quick Start Supplement*. If *y* is entered, the quick start default screen will display.

If you would like to use the full configuration program (as shown in this example), enter *n*. The Master menu shown in Figure 4-4 will display.



**Figure 4-4. Master Menu.**

The master menu presents the following options:

**EDIT**

This option allows you to create a new configuration file or edit an existing one.

**SAVE**

This option allows you to save the configuration file on disk.

**QUIT**

This option allows you to exit from the configuration program and return to DOS.

**STEP 4**

Position the reverse-video marker over *EDIT* and press **<Enter>**.

**STEP 5**

The following prompt will appear on your screen when you select the *EDIT* option:

Modify file:AST5251.CFG ([y]/n)?

This prompt asks you to specify the configuration file name. If you want to use the default file name (AST5251.CFG), press **<Enter>**. If you answer "n" the following prompt appears on the screen:

Create/modify filename >

Type in the name of the file (use standard DOS file name syntax). If you specify a drive and/or path name along with the file name, any other files that CFG5251.EXE creates or uses will be on the same drive and/or path (for example, AST5251.KBD, AST5251.ERR, AST5251.CFG). Press **<Enter>** to accept the filename.

**NOTE**

You can create more than one customized software configuration file. For example, you might create one file for when you want to use a single display and two printers, and another for when you want to use several displays and international keyboards. Take this into consideration when naming a software configuration file.

**STEP 6**

Because this example is provided as a help procedure, you can skip this step and continue with the full configuration program (See STEP 7). Execute the following procedure to set up a baud rate for a serial printer:

1. Position the reverse-video marker over *EDIT* and press **<Enter>**.
2. Press **<Enter>** in response to the modify file question/prompt presented on your screen.
3. Position the reverse-video marker over *STATION* and press **<Enter>**. Position the reverse-video marker over station address 3, press **<Enter>** (ST TASK 1).
4. Position the reverse-video marker over *PRINTER* press **<Enter>** (ST TASK 2).
5. Position the reverse-video marker over 5224 in the Select Host Printer Type menu and press **<Enter>** (ST TASK 8).
6. Position the reverse-video marker over 5224-1 and press **<Enter>** (ST TASK 9).
7. Position the reverse-video marker over *EPSON* and press **<Enter>** (ST TASK 10).

8. Position the reverse-video marker over *SERIAL* in the Select Printer Port menu and press < **Enter** > (ST TASK 11).
9. Position the reverse-video marker over *BAUD\_RATE* and press < **Enter** > (ST TASK 13).
10. Select the appropriate baud rate with the reverse-video marker, and press < **Enter** > (ST TASK 14). The program will present the screen and menu line previously shown in ST TASK 13.
11. Save the configuration: press < **Esc** > until you reach the initial EDIT screen, position the reverse-video marker over *SAVE*, press < **Enter** >, and press < **Enter** > again to save the new configuration.

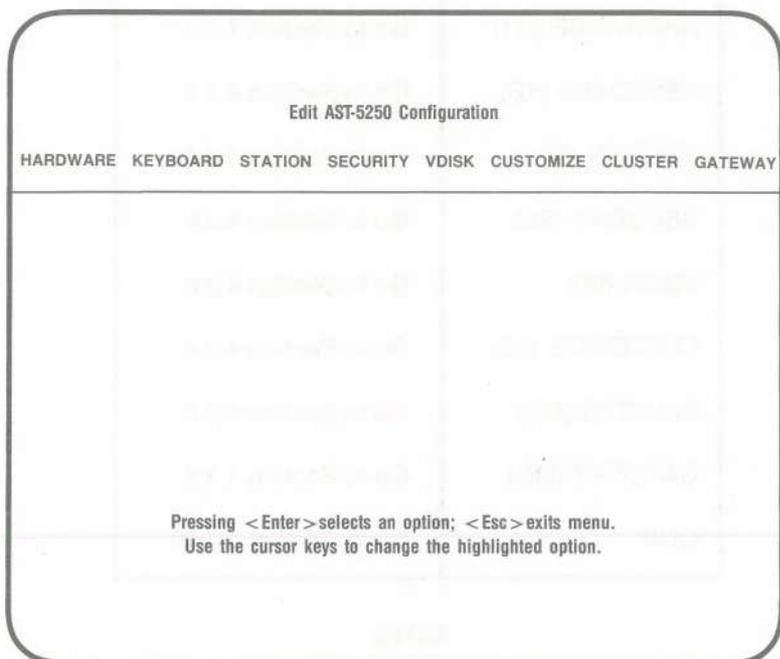
#### NOTE

You can SAVE and exit the configuration program by placing the reverse-video marker over *QUIT*, pressing < **Enter** >, and answering the exit questions appropriately. All saved changes will update the configuration file until the file is saved again.

#### STEP 7

You are now ready to set the AST-5251/11 parameters to your specific needs. You can select the major parameters that you want to set up. These include parameters that govern the TAB, display adapter, keyboard, work stations, system security status, virtual disk, keyboard customization, and master cluster and master gateway operation.

Follow preceding STEPS 1 through 5; as soon as a file name has been specified for the configuration file (STEP 5), the following screen will be displayed:



**Figure 4-5. Main Menu Screen Display.**

Position the reverse-video marker over the parameter you want to set up, press **<Enter>**, and proceed to the section specified for that configuration module in Table 4-2.

When these parameters have all been appropriately set, press **<Esc>**, return to the master menu (Figure 4-4), and then SAVE/QUIT (Section 4.3.10) your configuration.

**Table 4-2. Configuration Module Options.**

Module	Section
HARDWARE (/11)	Go to Section 4.3.2.
KEYBOARD (KB)	Go to Section 4.3.3.
STATION (ST)	Go to Section 4.3.4.
SECURITY (SE)	Go to Section 4.3.5.
VDISK (VD)	Go to Section 4.3.6.
CUSTOMIZE (CZ)	Go to Section 4.3.7.
CLUSTER (MC)	Go to Section 4.3.8.
GATEWAY (MG)	Go to Section 4.3.9.
QUIT	Go to Section 4.3.10.

**NOTE**

If at any time you want to leave the configuration program and exit to DOS, you can do so by selecting the QUIT option. This will enable you to either abort the configuration procedure without any changes to the configuration file or to save your changes. If you select the QUIT or SAVE options, you should refer to Section 4.3.10.

### 4.3.2 Hardware (AST-5251/11) TASKs

This section provides instruction for configuring your TAB hardware and display adapter.

#### /11 TASK 1

*Task Objective:* Select AST-5251/11 configuration options.

*Explanation of Task:* This task allows you to configure either the TAB hardware or the display adapter.

*Procedure:*

1. The following menu line displays on your screen:  

```
HARDWARE    DSP_ADAPTER QUIT
```
2. Select the parameter you want to set up and then go to the task specified for that parameter in Table 4-3.
3. When you have finished configuring the hardware options press <Esc> and go the main menu.

**Table 4-3. /11 TASK 1 Options.**

Option	TASK
HARDWARE	Go to 11/ TASK 2.
DSP_ADAPTER	Go to :11/ TASK 7.
QUIT	Go to Section 4.3.10

## /11 TASK 2

*Task Objective:* Modify TAB selections.

*Explanation of Task:* Set up parameters for the TAB. You can specify the interrupt channel (IRQ), input/output (I/O) address, whether AST-5251/11-PLUS is installed for multiple devices, and shared memory address, .

*Procedure:*

1. The following menu line displays on your screen:

IRQ PLUS I/O\_ADDR MEMORY\_ADR WINDOW\_SIZE QUIT

2. Select the parameter you want to set up and then go to the task specified for that parameter in Table 4-4.
3. When all TAB parameters are appropriately set up, press <Esc> and go to /11 TASK 1.

### NOTE

The IRQ and I/O must be changed from their default values if the jumpers on the TAB have been altered from the standard factory configuration. That is, if the jumpers have been changed, the software configuration must be changed correspondingly; and if the jumpers have not been changed, the software configuration must not be changed.

Table 4-4. /11 TASK 2 Options.

Option	TASK
IRQ	Go to /11 TASK 3.
PLUS	Go to /11 TASK 4.
I/O_ADDR	Go to /11 TASK 5.
MEMORY_ADR	Go to /11 TASK 6.
WINDOW_SIZE	Go to /11 TASK 7.
QUIT	Go to Section 4.3.10.

**/11 TASK 3**

*Task Objective:* Modify interrupt selection.

*Explanation of Task:* Specify the interrupt channel (2 through 5) to be used by the TAB. The selected channel must be the same as the one established by the IRQ jumper blocks on the TAB. The factory-set default value of the IRQ is 2.

*Procedure:*

1. Select the *IRQ* option. The following menu line displays on your screen:  

```
2 3 4 5 QUIT
```
2. Select the interrupt channel number you want for your TAB.
3. Return to /11 TASK 2.

#### **/11 TASK 4**

*Task Objective:* Specify AST-5251/11 PLUS status.

*Explanation of Task:* Specify whether or not AST-5251/11 PLUS is installed on you TAB. If the PLUS option is installed, you can address and configure multiple display stations. If the option is not installed, you can only address and configure a single display station.

*Procedure:*

1. Select the AST-5251/11 PLUS option. The following menu line displays on your screen:

INSTALLED NOT\_INSTALLED QUIT

2. Select *INSTALLED* or *NOT\_INSTALLED* and return to /11 TASK 2.

#### **/11 TASK 5**

*Task Objective:* Modify the I/O address selection.

*Explanation of Task:* Specify the I/O address (250, 350, 450, or 550) to be used by your TAB. The selected address must be the same as the one established by the I/O address jumper block on the TAB. The factory-set, default value of the I/O address is 250.

*Procedure:*

1. Select the *I/O\_ADDR* option. The following menu line displays on your screen:

250 350 450 550 QUIT

2. Select the the I/O address number you want to for your TAB.
3. Return to /11 TASK 2.

**/11 TASK 6**

*Task Objective:* Modify the shared memory address selection.

*Explanation of Task:* Specify the shared memory address used by the TAB. To avoid conflicts with other boards using shared memory, see Appendix D. The factory-set, default value of the shared memory address is 0D000h.

*Procedure:*

1. Select the *MEMORY\_ADR* option. The following message and prompt displays on your screen:

Current shared memory address: D000

Enter new shared memory address > \_

2. Select the shared memory address you want to set up for your TAB. Locations must be entered in increments of 0400h -- on 16 KB boundaries -- starting at 0800h to 0F000h (for example, 8000, 8400, or 8800).
3. Press **<Enter>** and go to /11 TASK 2; or press **<Esc>** to keep the current value and exit the menu.

**/11 TASK 7**

*Task Objective:* Increase window size beyond the computed value.

**NOTE**

The default setting of this parameter is appropriate in all but very unusual circumstances.

*Explanation of Task:* Window size is the size of the shared memory segment the TAB uses to operate. The size of this segment is normally computed from the number and type of displays configured. The window can be set to 16 KB (the default), 32 KB, or 64 KB (see Appendix D). In most

circumstances, this computed value is appropriate. However, if you must increase the window size beyond the computed value, this option allows you to do so. This parameter sets the *minimum* window size: the actual window size is either the value of this parameter, or the computed value, whichever is larger.

*Procedure:*

1. Select the *WINDOW\_SIZE* option. The following menu line displays on your screen:

DEFAULT 32 64 QUIT

2. Select the appropriate window size and return to /11 TASK 2.

**/11 TASK 8**

*Task Objective:* Modify the display adapter parameters.

*Explanation of Task:* Set up parameters for your display station.

*Procedure:*

1. Select the *DSP ADAPTER* option. The following menu line displays on your screen:

DSP\_ADAPTER ATTRIBUTES STARTUP SNAPSHOT QUIT

2. Select the display parameter you want to set up and then go to the task specified for that parameter in Table 4-5.
3. When all display parameters have been appropriately set, press **<Esc>** and then go to /11 TASK 1.

Table 4-5. /11 TASK 8 Options.

Option	/11 TASK
DISPLAY ADAPTER	Go to /11 TASK 9.
ATTRIBUTES	Go to /11 TASK 12.
STARTUP	Go to /11 TASK 15.
SNAPSHOT	Go to /11 TASK 16.
QUIT	Go to Section 4.3.10.

**/11 TASK 9**

*Task Objective:* Select the display adapter card type.

*Explanation of Task:* Select the number of display adapter cards in your system and configure the emulation software for the type of display adapter card installed in your PC. If you have more than one display adapter card installed in your PC, you should specify display parameters for your primary display adapter. The primary display adapter is the only one used during emulation.

*Procedure:*

1. Select the *DSP ADAPTER* option. The following menu line displays on your screen:
2. Select the type of display adapter card installed in your PC. Go to the task specified for the adapter type in Table 4-6.

**NOTE**

Select the *COLOR* adapter for use with COMPAQ portables and AT&T 6300 computers.

- When you have finished setting up display adapter card parameters, press < **Esc** > and go to /11 TASK 8.

**Table 4-6. /11 TASK 9 Options.**

<b>Options</b>	<b>/11 TASK</b>
ADAPTER_CARDS	Go to /11 TASK 10.
MONO	Press < <b>Esc</b> > and go to /11 TASK 8.
COLOR	Press < <b>Esc</b> > and go to /11 TASK 11.
PREVIEW	Press < <b>Esc</b> > and go to /11 TASK 8.
5250/DSP	Press < <b>Esc</b> > and go to /11 TASK 8.
QUIT	Go to Section 4.3.10.

**NOTE**

For MONO, PREVIEW, and 5250/DSP press < **Enter** > to select display adapter type and then < **Esc** > to return to /11 TASK 8.

**/11 TASK 10**

*Task Objective:* Specify the number of installed adapter cards.

*Explanation of Task:* Select the number of adapter cards in your PC.

*Procedure:*

1. Select the *ADAPTER\_CARDS* option. The following menu line displays on your screen:

1 2 QUIT

2. Select the number of display adapter cards in your PC and return to /11 TASK 9.

**/11 TASK 11**

*Task Objective:* Set parameters for a color board.

*Explanation of Task:* If you select the *COLOR* option, you must establish whether you are setting up a color or composite monitor. You must establish whether or not the video output is to be buffered by the emulator software to reduce video snow. The *NO\_SNOW* option is specifically intended for display adapter models that may need the extra video buffering.

*Procedure:*

1. Select the *COLOR* option. The following menu line displays on your screen:

COLOR COMPOSITE SNOW NO\_SNOW QUIT

2. Select the parameters you want to establish.

#### NOTE

Select *COMPOSITE* for COMPAQ portables and AT&T 6300.

3. When you have finished specifying the parameters for your color board, press <Esc> and go to /11 TASK 9.

#### /11 TASK 11

*Task Objective:* Modify the display attributes.

*Explanation of Task:* Set up your display for either a normal-video presentation (light characters on a dark background) or a reverse-video presentation (dark characters on a light background). This parameter cannot be set if you are using the AST-5250/Display adapter.

#### *Procedure:*

1. Select the *ATTRIBUTES* option. The following menu line displays on your screen:

NORMAL REVERSE QUIT

2. Select the display type you want to establish.
3. If you are selecting a normal display, go to /11 TASK 13.
4. If you are selecting a reverse-video display, go to /11 TASK 14.
5. Return to /11 TASK 8.

**/11 TASK 13**

*Task Objective:* Modify the normal-video attributes.

*Explanation of Task:* Modify the standard display attributes. The *AST-5250/Emulation Program Base Manual* provides a full list of all display attributes with a cross reference between the standard 5251 attribute hexadecimal code and the standard PC attribute hexadecimal code. For example, by altering the display attributes, you could cause the 5250 *blink* attribute (hexadecimal 28) to create a *reverse-video* display by changing the PC attribute from 87 to 70.

**NOTE**

Figure 4-6 and the following example are for a monochrome display. If you are setting up another display adapter, the procedure will be the same.

*Procedure:*

1. When you select *NORMAL*, Figure 4-6 displays on your screen:

5251 ATTRIBUTES	PC MONOCHROME ATTRIBUTES							
(20-27)	07	70	0F	70	01	01	09	07
(28-2F)	87	F0	8F	F0	81	81	89	07
(30-37)	87	F0	8F	F0	81	81	89	07
(38-3F)	87	F0	8F	F0	81	81	89	07

Enter 5250 Hex attribute to change or <ESC> to return >

**Figure 4-6. /11 TASK 13 Screen Display.**

2. In response to the prompt appearing just beneath the attribute table, specify the hexadecimal code for the 5250 attribute to be changed (see the *AST-5250 Emulation Program Base Manual*) and press **<Enter>**. (For example, if you wanted to reassign a new value to the 5250 blink code you would enter 28.) The following prompt displays on your screen:

Enter new PC attribute >

3. Enter the hexadecimal code for the *new* PC attribute to replace the selected 5250 attribute. For example, to change the standard 5250 *blink* attribute to a *reverse-video* attribute, you would enter 70.
4. Repeat steps 2 and 3 until you finish setting your display attributes.
5. Press **<Esc>** and go to /11 TASK 12.

#### /11 TASK 14

*Task Objective:* Modify the reverse-video attributes.

*Explanation of Task:* Modify the reverse-video display attributes. Appendix C of the *AST-5250/Emulation Program Base Manual* provides a full list of all display attributes with a cross reference between the standard 5250 attribute hexadecimal code and the standard PC attribute hexadecimal code. For example, by altering the display attributes, you can cause the 5250 *blink* attribute (hexadecimal 28) to create a *reverse-video* display by changing the PC attribute from 87 to 70.

*Procedure:*

1. When you select *REVERSE*, Figure 4-7 displays on your screen:

5251 ATTRIBUTES	PC MONOCHROME ATTRIBUTES							
	REVERSED FOREGROUND & BACKGROUND							
(20-27)	70	07	70	07	01	01	09	70
(28-2F)	F0	87	F0	87	81	81	89	70
(30-37)	70	07	70	0F	01	01	09	70
(38-3F)	F0	87	F0	8A	81	81	89	70

Enter 5250 Hex attribute to change or <ESC> to return >

Figure 4-7. /11 TASK 14 Screen Display.

2. In response to the prompt appearing just beneath the attribute table, enter the hexadecimal code for the 5250 attribute to be changed (see the *AST-5250 Emulation Program Base Manual*) and press <Enter>. For example, if you wanted to reassign a new value to the 5250 blink code, you would enter 28. The following prompt displays on your screen:

Enter new PC attribute >

3. In response to this prompt, enter the hexadecimal code for the *new* PC attribute to replace the standard 5251 attribute and then press <Enter>. For example, to change the 5250 *blink* attribute to a *reverse-video* attribute, you would enter 70.

4. Repeat steps 2 and 3 until you finish setting up the display attributes.
5. Press <Esc> and go to /11 TASK 13.

#### **/11 TASK 15**

*Task Objective:* Select the startup mode.

*Explanation of Task:* Set the software to start up in either DOS or emulation (host session) mode. If you start up in emulation mode, you can easily switch back and forth between your host session and a DOS task (see the *AST-5250/Emulation Program Base Manual*).

*Procedure:*

1. Select the *STARTUP* option. The following menu line displays on your screen:
2. Select the desired startup mode.
3. Go to /11 TASK 8.

#### **/11 TASK 16**

*Task Objective:* Set the number of snapshot display screens that may be stored.

*Explanation of Task:* Designate the number of snapshot screens the user may store. Snapshot screens are used during emulation to store screen displays in memory. Snapshot screens can be called up for reference at a later time. As many as ten screens can be stored; however, you should be aware that you will be reserving approximately 2 kilobytes (KB) of memory space for each screen you designate at this time. This memory space will be unavailable for other usage regardless of whether or not it is being used to store display snapshots.

*Procedure:*

1. Select the *SNAPSHOT* option. The following menu line displays on your screen:

NONE 1 2 3 4 5 6 7 8 9 10 QUIT

2. Select the number of screens you want to be able to save.
3. Go to /11 TASK 8.

### 4.3.3 Keyboard (KB) TASKs

This section provides instructions for configuring your keyboard parameters.

#### KB TASK 1

*Task Objective:* Set the keyboard parameters.

*Explanation of Task:* Set the keyboard parameters for your station. These parameters include *CLICK* and *KEYBOARD\_TYPE*.

*Procedure:*

1. The following menu line displays on your screen.

CLICK KEYBOARD\_TYPE QUIT

2. Select the option you want to set up and go to the task specified for that option in Table 4-6.
3. When all parameters have been appropriately set up, press <Esc>, and return to the main menu (Figure 4-5) for another configuration module selection.

Table 4-7. KB TASK 1 Options.

Option	KB TASK
CLICK	Go to KB TASK 2.
KEYBOARD_TYPE	Go to KB TASK 3.
QUIT	Go to Section 4.3.10

**KB TASK 2**

*Task Objective:* Set the click option.

*Explanation of Task:* Enable or disable the audible click sounded each time a key is pressed.

*Procedure:*

1. Select the *CLICK* option. The following menu line displays on your screen:

CLICK\_ON   CLICK\_OFF   QUIT

2. Select whether you want the click feature enabled or disabled.
3. Go to KB TASK 1.

**KB TASK 3**

*Task Objective:* Set the keyboard type.

*Explanation of Task:* Configure your keyboard either as a standard USA (qwerty) keyboard or as a WORLD\_TRADE keyboard.

*Procedure:*

1. Select the **KEYBOARD\_TYPE** option. The following menu line displays on your screen:
2. Select the type of keyboard you want to set up. Then go to KB TASK 1.

#### 4.3.4 Station (ST) TASKs

This section provides instructions for configuring your station parameters. See the *AST-5250/Emulation Program Base Manual* for a discussion of stations, sessions, and sharing.

##### ST TASK 1

*Task Objective:* Select the primary station address.

*Explanation of Task:* Specify your printer/display station address.

*Procedure:*

1. The following menu line displays on your screen:

0 1 2 3 4 5 6 QUIT

##### NOTE

Displayed near the center of your screen is a table showing the current configuration of any station addresses that have already been set up.

2. Select the station address you wish to set up and go to ST TASK 2.
3. When you have finished configuring the station address press <Esc> and go to Section 4.3.10.

##### NOTE

If the default station address of 0 is not desired, it should be deleted from the configuration.

Select the 0, press <Enter>, and the following message displays:

Station address 0 is already configured, do you wish to delete it (y[n])?

Press <Y> and then <Enter>. The station address will be deleted from the configuration.

## ST TASK 2

*Task Objective:* Select the device type.

*Explanation of Task:* Specify the device type (display or printer) to configure.

*Procedure:*

1. When you select a station address the following menu line displays on your screen:

DISPLAY PRINTER CLUS\_DISPLAY CLUS\_PRINTER GATE\_DISPLAY GATE\_PRINTER QUIT

2. Select the device type you want and go to the appropriate task specified for the device types in Table 4-8.
3. Press <Esc> and go to ST TASK 1.

**Table 4-8. ST TASK 2 Options.**

Option	ST TASK
DISPLAY	Go to ST TASK 3.
PRINTER	Go to ST TASK 8.
CLUS_DISPLAY	Go to ST TASK 42.
CLUS_PRINTER	Go to ST TASK 43.
GATE_DISPLAY	Go to ST TASK 45.
GATE_PRINTER	Go to ST TASK 46.
QUIT	Go to Section 4.3.10

### NOTE

The following message indicates the configuration status of all addresses already configured. A printer and display station cannot both be assigned the same address. Therefore, if you have already given display status to a given station address, the following message prompt displays on your screen:

Station Address is already configured as a  
DISPLAY (PRINTER) Do you want to change it  
(y/[n])?

If you respond with a **y** (yes), the printer will be assigned to the selected address.

### ST TASK 3

*Task Objective:* Select the display type.

*Explanation of Task:* Specify the display station type. The default display type is 5251/11.

*Procedure:*

1. Select the *DISPLAY* option. The following menu line displays on your screen:

5251/11 5291 5292-1 QUIT

2. Select the display station type being set up and go to ST TASK 4.

**ST TASK 4**

*Task Objective:* Select IBM-API.

*Explanation of Task:* Specify if IBM Application Program Interface (API) is disabled or enabled.

*Procedure:*

1. When you select a display type, the following menu line displays on your screen:

IBM-API\_OFF IBM-API\_ON QUIT

**NOTE**

IBM-API *must* be set to IBM-API\_ON to use AST-5251/11 with IBM PC Support/36/38.

2. Select the option you want and go to ST TASK 5.

**ST TASK 5**

*Task Objective:* Create an automatic sign-on message for the emulation mode.

*Explanation of Task:* Set up a sign-on message that displays when you start up in emulation mode. The *AUTO\_SIGNON* option lets you create a sign-on message by means of mnemonic codes. The *SIGNON\_HELP* option provides information regarding these codes. This task applies only if you are setting up your system for sign-on in the emulation mode.

*Procedure:*

1. The following menu line displays on your screen:

AUTO\_SIGNON SIGNON\_HELP QUIT

2. Select the *AUTO\_SIGNON* option or, if you need help with the mnemonic codes used to set up the sign-on

message, over the *SIGNON\_HELP* option. Go to the task number specified for the selected mode in Table 4-9.

3. When you have finished creating a sign-on message, press **<Esc>**, and go to ST TASK 1.

**Table 4-9. ST TASK 5 Options.**

Options	ST TASK
AUTO_SIGNON	Go to ST TASK 6.
SIGNON_HELP	Go to ST TASK 7.
QUIT	Go to Section 4.3.10.

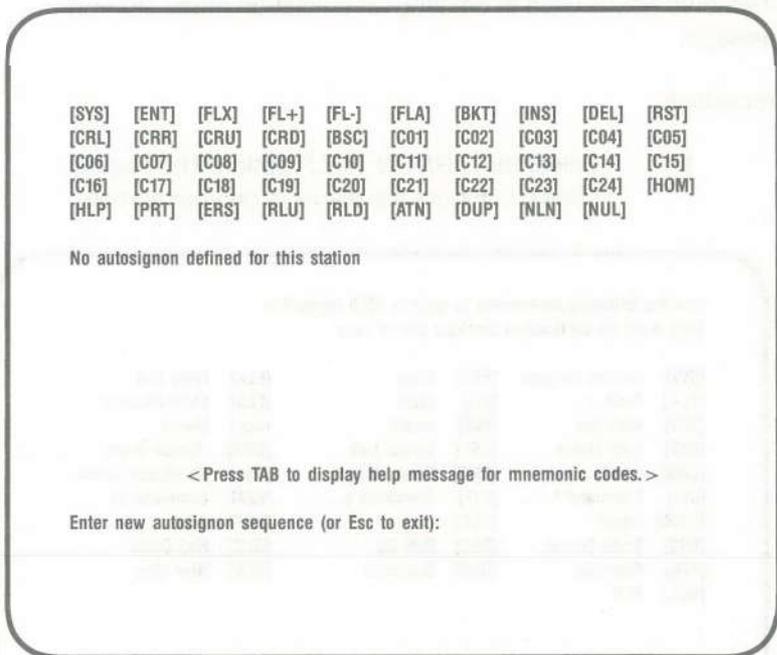
### ST TASK 6

*Task Objective:* Specify the mnemonic codes for the automatic sign-on message that will sign you onto the System/3x.

*Explanation of Task:* To sign on to the System/3X, you usually type in a sequence of characters, such as your user ID. By setting up an auto sign-on string, you can automatically send these characters by pressing the **<Alt>-<F10>** keys together. This task lets you enter the string that will sign you onto the system.

*Procedure:*

1. Select the *AUTO\_SIGNON* option. The display shown in Figure 4-8 displays on your screen:



**Figure 4-8. ST TASK 6 Screen Display.**

2. In response to the prompt, enter a sign-on message. To represent keystrokes that cannot be entered directly (such as Enter and System Request), you can type in a special mnemonic. For example, [SYS] represents <System Request> and [ENT] represents <Enter>. The mnemonic codes, your previous signon string (if any), and the prompt for your new entry display on the screen. For more information about the codes, press <Tab>. To view your previous string, press <Tab> again. Mnemonics must be entered as capital letters within square brackets, such as [ENT]. If necessary, refer to the SIGNON\_HELP option. Press <Enter>.
3. Press <Esc> and go to ST TASK 5.

## ST TASK 7

*Task Objective:* Specify sign-on help information.

*Explanation of Task:* This option provides information on the mnemonic codes used in creating an emulation mode sign-on message.

*Procedure:*

1. Select the *SIGNON\_HELP* option. The display shown in Figure 4-9 displays on your screen:

Use the following mnemonics to refer to 5250 keystrokes. They must be enclosed in brackets and in caps.

[SYS]	System Request	[ENT]	Enter	[FLX]	Field Exit
[FL+]	Field +	[FL-]	Field	[FLA]	Field Advance
[BKT]	Back Tab	[INS]	Insert	[DEL]	Delete
[RST]	Error Reset	[CRL]	Cursor Left	[CRR]	Cursor Right
[CRU]	Cursor Up	[CRD]	Cursor Down	[BSC]	Backspace Cursor
[C01]	Command 1 ...	[C0]	Command n ...	[C24]	Command 24
[HOM]	Home	[HLP]	Help	[PRT]	Print
[ERS]	Erase Screen	[RLU]	Roll Up	[RLD]	Roll Down
[ATN]	Attention	[DUP]	Duplicate	[NLN]	New Line
[NUL]	Null				

Example: [SYS] [ENT] USERID [ENT]

< Press TAB to display current sequence >

Enter new autosignon sequence (or Esc to exit):

Figure 4-9. ST TASK 7 Screen Display.

2. Determine the information you need for creating your sign-on message and press <Esc>. Go to ST TASK 5 and select the *AUTO\_SIGNON* option.

**ST TASK 8**

*Task Objective:* Select the host printer type.

*Explanation of Task:* Specify your printer station type.

*Procedure:*

1. As soon as you have assigned an address to be a printer station (ST TASK 2), the following menu line displays on your screen:

5224 5225 5256 5219 QUIT

2. Select the appropriate printer type and go to ST TASK 9.
3. Press <Esc> and go to ST TASK 10.

**ST TASK 9**

*Task Objective:* Select the host printer model.

*Explanation of Task:* Specify the host printer model for the host printer type selected.

*Procedure:*

1. The following menu line displays on your screen:

*For 5224;*

5224-1 5224-2 QUIT

*For 5225;*

5225-1 5225-2 5225-3 5225-4 QUIT

*For 5256;*

5256-1 5256-2 5256-3 QUIT

For 5219;

5219-1 5219-2 QUIT

2. Select the appropriate printer model and go to ST TASK 10; or press <Esc> and go to ST TASK 10.

### ST TASK 10

*Task Objective:* Select PC printer type.

*Explanation of Task:* Specify the PC printer type. The default printer type is Epson (default for 5219 is NEC).

*Procedure:*

1. The following menu line displays on your screen:

EPSON IBM NEC DIABLO QUIT

2. Select the PC printer type being set up and go to ST TASK 11; or press <Esc>, for the default configuration, and go to ST TASK 11.

### NOTE

Compare your printer control strings with the configuration program's for proper printer selection (see Appendix A). Select the most compatible PC printer type and edit the control strings that do not match (ST TASK 28). Usually, you select Epson for dot matrix printers and either NEC or Diablo for letter quality printers.

For the IBM PC printer type selection:

1. The following menu line displays on your screen when you select IBM.

4201 5152-1 5152-2 5182 5201-1 5216-1 QUIT

2. Select the appropriate IBM printer model and go to ST TASK 11; or press <Esc> and go to ST TASK 11.

#### NOTE

If you press <Esc> when the reverse-video marker is positioned over IBM the default IBM PC printer model 4201 is selected and you may continue to ST TASK 11.

### ST TASK 11

*Task Objective:* Select PC Printer Port: serial, parallel.

*Explanation of Task:* Set up the emulation software to use either a serial printer or a parallel printer. If you specify a serial printer, you will be required to establish various aspects of the printer control and data signals. If you specify a parallel printer, you will be required to establish the printer port number.

*Procedure:*

1. Select the PC printer type. The following menu line displays on your screen:

PARALLEL SERIAL QUIT

2. Select the type of printer currently being configured and go to the appropriate task specified for the printer type specified in Table 4-10.

Table 4-10. ST TASK 10 Options.

Option	ST TASK
PARALLEL	Go to ST TASK 12.
SERIAL	Go to ST TASK 13.
QUIT	Go to Section 4.3.10.

**ST TASK 12**

*Task Objective:* Assign the parallel printer port number.

*Explanation of Task:* Assign a parallel printer communications port number.

*Procedure:*

1. Select the *PARALLEL* option. The following menu line will be presented on your screen:

LPT1 LPT2 LPT3 QUIT

Configuring PARALLEL PRINTER Station

Address: #

Current LPT: 1

2. Select the appropriate LPT port number and go to ST TASK 23; or press <Esc> and go to ST TASK 23 without selecting an LPT port number.

**ST TASK 13**

*Task Objective:* Configure the serial printer.

*Explanation of Task:* Establish various parameters for serial printer control and data signals.

*Procedure:*

1. Select the *SERIAL* option. The following menu line displays on your screen:

```
BAUD_RATE DATA_BITS STOP_BITS PARITY XON/XOFF CTS DSR DCD COM_PORT QUIT
```

**NOTE**

Your screen will also display the current configuration of the default printer parameters.

2. Select the first parameter you wish to set up and go to the task specified for that parameter in Table 4-11.

Table 4-11. ST TASK 13 Options.

Option	ST TASK
BAUD_RATE	Go to ST TASK 14.
DATA_BITS	Go to ST TASK 15.
STOP_BITS	Go to ST TASK 16.
PARITY	Go to ST TASK 17.
XON/XOFF (transmit on/off)	Go to ST TASK 18.
CTS (clear to send)	Go to ST TASK 19.
DSR (data set ready)	Go to ST TASK 20.
DCD (data carrier detect)	Go to ST TASK 21.
COM_PORT	Go to ST TASK 22.
QUIT	Go to Section 4.3.10.

- When all parameters are appropriately set, press **<Esc>** and go to ST TASK 23.

**ST TASK 14**

*Task Objective:* Set the baud rate.

*Explanation of Task:* Specify the serial printer Baud rate.

*Procedure:*

1. Select the *BAUD RATE* option. The following menu line displays on your screen:

110 150 400 600 1200 2400 4800 9600 QUIT

2. Select the appropriate baud rate and go to ST TASK 13.

**ST TASK 15**

*Task Objective:* Set the data bits.

*Explanation of Task:* Specify the number of serial printer data bits.

*Procedure:*

1. Select the *DATA BITS* option. The following menu line displays on your screen:

7 8 QUIT

2. Select the appropriate number of data bits and go to ST TASK 13; or press <Esc> and exit to ST TASK 13.

### ST TASK 16

*Task Objective:* Set the serial printer stop bits.

*Explanation of Task:* Specify the number of serial printer stop bits.

*Procedure:*

1. Select the *STOP BITS* option. The following menu line displays on your screen:

1 2 QUIT

2. Select the appropriate number of stop bits and go to ST TASK 13.

### ST TASK 17

*Task Objective:* Set the parity.

*Explanation of Task:* Set up the serial printer parity.

*Procedure:*

1. Select the *PARITY* option. The following menu line displays on your screen:

ODD EVEN NONE QUIT

2. Select the appropriate parity configuration and go to ST TASK 13.

**ST TASK 18**

*Task Objective:* Set XON/XOFF.

*Explanation of Task:* Specify whether or not a transmit on/transmit off printer control signal is used for serial printer communications.

*Procedure:*

1. Select the XON/XOFF option. The following menu line displays on your screen:

ON OFF QUIT

2. Select the appropriate transmit on/transmit off selection and go to ST TASK 13.

**ST TASK 19**

*Task Objective:* Set clear-to-send (CTS).

*Explanation of Task:* Specify whether or not a CTS printer control signal is used for serial printer communications.

*Procedure:*

1. Select the CTS option. The following menu line displays on your screen:

CTS\_ON CTS\_OFF QUIT

2. Specify whether CTS is to be on (high) or off (low) and go to ST TASK 13.

### ST TASK 20

*Task Objective:* Set data-set-ready (DSR).

*Explanation of Task:* Specify whether or not a DSR control signal is to be used for serial printer communications.

*Procedure:*

1. Select the *DSR* option. The following menu line displays on your screen:

DSR\_ON DSR\_OFF QUIT

2. Specify whether DSR is to be on (high) or off (low) and go to ST TASK 13.

### ST TASK 21

*Task Objective:* Set data carrier detect (DCD).

*Explanation of Task:* Specify whether or not a DCD control signal is to be used in serial printer communications.

*Procedure:*

1. Select the *DCD* option. The following menu line displays on your screen:

DCD\_ON DCD\_OFF QUIT

2. Specify if DCD is to be on (high) or off (low) and go to ST TASK 13.

**ST TASK 22**

*Task Objective:* Assign the serial printer port number.

*Explanation of Task:* Assign a serial printer communications port number.

*Procedure:*

1. Select the *COM PORT* option. The following menu line displays on your screen:

COM1 COM2 QUIT

2. Select the appropriate communications port number and go to ST TASK 13.

**ST TASK 23**

*Task Objective:* Select printer function(s).

*Explanation of Task:* Configure your printer with specific functions.

*Procedure:*

1. When you select the printer functions option, the following menu line displays on your screen:

OPTIMIZATION PAPER\_WIDTH TOP\_OF\_FORM EBCDIC\_TBL QUIT

2. Select the desired printer function and go to the appropriate task specified in Table 4-12.
3. Press <Esc> and go to ST TASK 11.

Table 4-12. ST Task 23 Options.

Option	ST TASK
OPTIMIZATION	Go to ST TASK 24.
PAPER_WIDTH	Go to ST TASK 39.
TOP_OF_FORM	Go to ST TASK 40.
EBCDIC_TBL	Go to ST TASK 41.
QUIT	Go to Section 4.3.10.

**ST TASK 24**

*Task Objective:* Select special printer optimization functions.

*Explanation of Task:* Specify customized printer strings and timing values to support the specific printer(s) to which you are assigning addresses. The default is for an Epson printer.

*Procedure:*

1. Select the *OPTIMIZATION* option. The following menu line displays on your screen:

PRINTER\_STRINGS TIMING\_VALUES QUIT

2. Select the option you want to set up and go to the task specified for that option in Table 4-13.

**Table 4-13. ST TASK 24 Options.**

Option	ST TASK
PRINTER STRINGS	Go to ST TASK 25.
TIMING VALUES	Go to ST TASK 38.
QUIT	Go to Section 4.3.10

- When you are finished, press <Esc> and go to ST TASK 23.

**ST TASK 25**

*Task Objective:* Specify character strings.

*Explanation of Task:* Change, add, or delete printer control strings.

*Procedure:*

- Select the *PRINTER STRINGS* option. The following menu line displays on your screen:

CHARS/INCH LINES/INCH CONTROL EM\_ENTRY DOS\_ENTRY USER\_ENTRY QUIT

- Select the optimization characteristic you want to set up and go to the task number specified for that option in Table 4-14.

Table 4-14 ST TASK 25 Options.

Option	ST TASK
CHARS/INCH	Go to ST TASK 26.
LINES/INCH	Go to ST TASK 27.
CONTROL	Go to ST TASK 28.
EM_ENTRY	Go to ST TASK 35.
DOS_ENTRY	Go to ST TASK 36.
USER_ENTRY	Go to ST TASK 37.
QUIT	Go to Section 4.3.10.

- When you are finished setting up printer optimization, press <Esc>, and go to ST TASK 24.

### ST TASK 26

*Task Objective:* Set up the horizontal optimization.

*Explanation of Task:* Alter the default character string sequence governing a printer's horizontal output (characters-per-inch). The default is for an Epson printer. You should refer to the documentation provided with your printer to determine whether you need to alter the standard default sequences and to determine the new sequences. For example, "12 1b 57 00 1b 50" is the default character sequence that specifies a 10-characters-per-inch printer output. This task gives you opportunity to assign a new character sequence if your printer uses a different one.

## NOTE

The configuration program will automatically set these sequences, when the PC printer type is selected (ST TASK 10). You will only need to change them if your printer differs from the selected printer (for example, your printer is only 90% Epson compatible).

## Procedure:

1. Select the *CHARS/INCH* option. The screen shown in Figure 4-10 displays on your screen.

Select Printer String Function								
ADD/CHANGE DELETE QUIT								
Add or change a character sequence								
Sequence Number	Characters per inch	Character Sequence						
1	5	12	1B	57	01	1B	50	
2	6	12	1B	57	01	1B	4D	
3	9	1B	50	15	1B	57	01	
4	10	12	1B	57	00	1B	50	
5	12	12	1B	57	00	1B	4D	
6	15	1B	57	00	1B	50	15	
7	17	1B	57	00	1B	50	15	
8	20	1B	57	00	15	1B	4D	
9								
10								

Figure 4-10. ST TASK 26 Screen Display.

2. If you want to delete a character sequence, go to step 8 of this task.

If you want to change a character sequence, Select the *ADD/CHANGE* option and press **<Enter>**. The following prompt displays near the bottom of your screen:

Enter Sequence Number >

3. In response to this prompt, key in the sequence number (from the left-most column on screen) for the character sequence you want to change and press **<Enter>**. The following prompt displays on your screen:

Enter Characters per inch or <ESC> to keep current >

4. In response to this prompt, key in the number of characters per inch for which you want to assign a specialized character sequence and press **<Enter>**. The following prompt displays on your screen:

Enter HEX sequence (max 20 digits) >

5. In response to this prompt, key in the hexadecimal character sequence your printer uses to specify the number of characters per inch you are setting up and press **<Enter>**. (Refer to the documentation provided with your printer.)
6. Repeat steps 2 through 5 until you have set up all character sequences.
7. Press **<Esc>** and go to ST TASK 25.
8. Select the *DELETE* option. The following prompt displays on your screen:

Enter Sequence Number >

- In response to this prompt, key in the sequence number (from the left-most column on screen) for the character sequence you want to change and press **<Enter>**. The display on your screen will show the selected sequence deleted.

- Press **<Esc>** and go to ST TASK 25.

### ST TASK 27

*Task Objective:* Set up the vertical optimization.

*Explanation of Task:* Alter the default character string sequence governing a printer's vertical output (lines per inch). The default is for an Epson printer. You should refer to the documentation provided with your printer to determine whether there is a need to alter the standard default sequences and to determine what the new sequences are. For example, "1B 41 0C" is the default character sequence that specifies a six-lines-per-inch printer output. This task gives you opportunity to assign a new character sequence if this is not the one used by your printer.

**Procedure:**

1. The screen shown in Figure 4-11 displays on your screen.

Select Printer String Function		
ADD/CHANGE    DELETE    QUIT		
Add or change a character sequence		
<u>Sequence Number</u>	<u>Lines per inch</u>	<u>Character Sequence</u>
1	2	1B 41 24
2	4	1B 41 12
3	6	1B 41 0C
4	8	1B 41 09
5	9	1B 41 08
6	12	1B 41 06
7	18	1B 41 04
8	24	1B 41 03
9	36	1B 41 02
10	72	1B 41 01

**Figure 4-11. ST TASK 27 Screen Display.**

2. If you want to delete a character sequence, go to step 8 of this task.

If you want to change a character sequence, Select the *ADD/CHANGE* option and press **<Enter>**. The following prompt displays near the bottom of your screen:

Enter Sequence Number >

3. In response to this prompt, key in the sequence number (from the left-most column on screen) for the character sequence you want to change and press **<Enter>**. The following prompt displays on your screen:

Enter Characters per inch or <ESC> to keep current >

4. In response to this prompt, key in the number of characters per inch for which you want to assign a specialized character sequence and press **<Enter>**. The following prompt displays on your screen:

Enter HEX sequence (max 20 digits) >

5. In response to this prompt, key in the hexadecimal character sequence your printer uses to specify the number of characters per inch you are setting up and press **<Enter>**. (Refer to the documentation provided with your printer.)
6. Repeat steps 2 through 5 until you have set up all character sequences.
7. Press **<Esc>** and go to ST TASK 25.
8. Select the *DELETE* option. The following prompt displays on your screen:

Enter Sequence Number >

9. In response to this prompt, key in the sequence number (from the leftmost column on screen) for the character sequence you want to change and press **<Enter>**. The display on your screen will show the selected sequence deleted.
10. Press **<Esc>** and go to ST TASK 25.

### ST TASK 28

*Task Objective:* Set up the PC control strings to provide specific printer modes.

*Explanation of Task:* Specify customized printer strings to alter the default character string sequence governing a printer's reset, begin/end underline, start/end superscript and subscript, sheetfeed bin selection, and vertical motion index. The software configuration default values are listed in Appendix C.

*Procedure:*

1. Select the *CONTROL* option. The following menu line displays on your screen:

RESET UNDERLINE SUPERSCRIPIT SUBSCRIPT BIN VMI QUIT

2. Select the printer mode you want to alter and go to the task number specified for that option in Table 4-15.

Table 4-15 . ST TASK 28 Options.

Option	ST TASK
RESET	Go to ST TASK 29.
UNDERLINE	Go to ST TASK 30.
SUPERSCRIPIT	Go to ST TASK 31.
SUBSCRIPT	Go to ST TASK 32.
BIN	Go to ST TASK 33.
VMI	Go to ST TASK 34.
QUIT	Go to Section 4.3.10.

**ST TASK 29**

*Task Objective:* Specify the PC printer reset string.

*Explanation of Task:* Specify the control character sequence the printer recognizes as a reset sequence.

*Procedure:*

1. Select the *RESET* option. The following message and prompt displays:

PC Printer Reset String: XX XX

Enter Hex sequence (max 20 digits) >

2. Key in the reset entry string in response to the prompt and press <Enter>.
3. Press <Esc> and go to ST TASK 28.
4. To delete the sequence, simply press <Enter>.

**ST TASK 30**

*Task Objective:* Specify the PC printer underline strings.

*Explanation of Task:* Specify the control character sequence the printer recognizes as an underline sequence.

*Procedure:*

1. Select the *UNDERLINE* option. The following message and prompt will be displayed:

START\_UNDERLINE END\_UNDERLINE QUIT

2. Select the option you want to alter. The following message and prompt will be displayed:

For *START\_UNDERLINE*;

PC Printer Start Underline String: XX XX XX

Enter Hex sequence (max 20 digits) >

For *END\_UNDERLINE*;

PC Printer End Underline String: XX XX XX

Enter Hex sequence (max 20 digits) >

3. Key in the underline entry string in response to the prompt and press <Enter>.
4. Press <Esc> and go to ST TASK 28.

### ST TASK 31

*Task Objective:* Specify the PC printer superscript strings.

*Explanation of Task:* Specify the control character sequence the printer recognizes as a superscript sequence.

*Procedure:*

1. Select the *SUPERSCRIPT* option. The following message and prompt will be displayed:

START\_SUPER END\_SUPER QUIT

2. Select the option you want to alter. The following message and prompt will be displayed:

For *START\_SUPER*;

```
PC Printer Start Superscript String: XX XX XX
Enter Hex sequence (max 20 digits) >
```

For *END\_SUPER*;

```
PC Printer End Superscript String: XX XX XX
Enter Hex sequence (max 20 digits) >
```

3. Key in the superscript entry string in response to the prompt and press <Enter>.
4. Press <Esc> and go to ST TASK 28.

### ST TASK 32

*Task Objective:* Specify the PC printer subscript strings.

*Explanation of Task:* Specify the control character sequence the printer recognizes as a subscript sequence.

*Procedure:*

1. Select the *SUBSCRIPT* option. The following message and prompt will be displayed:

```
START_SUB END_SUB QUIT
```

2. Select the option you want to alter. The following message and prompt will be displayed:

For *START\_SUB*;

PC Printer Start Subscript String: XX XX XX

Enter Hex sequence (max 20 digits) >

For *END\_SUB*;

PC Printer End Subscript String: XX XX XX

Enter Hex sequence (max 20 digits) >

3. Key in the subscript entry string in response to the prompt and press <Enter>.
4. Press <Esc> and go to ST TASK 28.

### ST TASK 33

*Task Objective:* Specify the PC printer sheet feed bin strings.

*Explanation of Task:* Specify the control character sequence the printer recognizes as a sheet feed bin sequence.

*Procedure:*

1. Select the BIN option. The following message and prompt will be displayed:
2. Select the option you want to set. The following message and prompt will be displayed:

SHEETFEED\_BIN1 SHEETFEED\_BIN2 QUIT

For *SHEETFEED\_BIN1*;

PC Printer Set Sheet Feed Bin 1 String:  
Enter Hex sequence (max 20 digits) >

For SHEETFEED\_BIN2;

PC Printer Set Sheet Feed Bin 2 String:  
Enter Hex sequence (max 20 digits) >

3. Key in the sheet feed bin entry string in response to the prompt and press <Enter>.
4. Press <Esc> and go to ST TASK 28.

### ST TASK 34

*Task Objective:* Specify the PC printer vertical motion index strings.

*Explanation of Task:* Specify the control character sequence the printer recognizes as a vertical motion index sequence.

*Procedure:*

1. Select the *VMI* option. The following message and prompt will be displayed:

BEGIN\_VMI END\_VMI VMI\_UNITS QUIT

2. Select the option you want to alter. The following message and prompt will be displayed:

For *BEGIN\_VMI*;

PC Printer Begin Vertical Motion Index String:XX XX

Enter Hex sequence (max 20 digits) >

For *END\_VMI*;

PC Printer End Vertical Motion Index String: XX XX

Enter Hex sequence (max 20 digits) >

3. Key in the vertical motion index entry string in response to the prompt and press **< Enter >**.

*For VMI\_UNITS the following message and prompt will be displayed;*

Select Vertical Motion Index units

n/48 n/72 (n-1)/48 QUIT

Vertical Motion Index in units of n/48 inches

=====

Current vmi units:

4. Select the required vmi units and go to ST TASK 28.
5. Press **< Esc >** and go to ST TASK 28.

### ST TASK 35

*Task Objective:* Specify the 5250 emulation entry string.

*Explanation of Task:* Specifies the control character sequence sent to the printer when you toggle the printer to emulation mode. To switch the printer from DOS to emulation mode, use the printer control menu in emulation (see Section 2 of the *AST-5250/Emulation Program Base Manual* for more information).

In 5256 printer emulation, you may enter an initialization string to start up the printer in a certain mode. For example, you may send a control character sequence for condensed type. With the other printer emulations, the host sends the initialization string automatically, overriding any changes you make.

*Procedure:*

1. Select the *EM\_ENTRY* option, a message/prompt similar to the following displays on your screen:

5250 Emulation Entry String: #  
Enter Hex sequence (max 20 digits) >

2. In response to this prompt, key in the emulation entry string and press <Enter>.
3. Press <Esc> and go to ST TASK 25.

**ST TASK 36**

*Task Objective:* Specify DOS (disk operating system) emulation entry string.

*Explanation of Task:* Specifies the control character sequence sent to the printer when you return the printer to DOS mode. To switch the printer to DOS from emulation mode, use the printer control menu in emulation (see Section 2 of the *AST-5250/Emulation Program Base Manual* for more information) and then use the appropriate hot-key sequence to return to DOS.

You may use the entry string to set the printer in a particular mode. For example, you may send a reset string to clear out any settings made in emulation mode.

*Procedure:*

1. Select the *DOS\_ENTRY* option. A message/prompt similar to the following displays on your screen:

5250 DOS Entry String: #  
Enter Hex sequence (max 20 digits) >

2. Key in the DOS entry string in response to the prompt and press <Enter>.
3. Press <Esc> and go to ST TASK 25.

### ST TASK 37

*Task Objective:* Specify the user control entry string.

*Explanation of Task:* Specify the control character sequence the user can send to the printer from the printer control menu. This code is sent with the printer control menu while in emulation mode (see Section 2 of the *AST-5250/Emulation Program Base Manual* for more information).

*Procedure:*

1. Select the *USER\_ENTRY* option. A message/prompt similar to the following displays on your screen:

```
5250 USER Entry String: 00
Enter Hex sequence (max 20 digits) >
```

2. In response to the prompt, key in the user control entry string and press **<Enter>**.
3. Press **<Esc>** and go to ST TASK 25.

### ST TASK 38

*Task Objective:* Modify the printer timing values.

*Explanation of Task:* Specify the timing constant that controls the relationship between the CPU speed and parallel printer speed. That is, you can speed up printer operation (while a printer is in use) at the expense of CPU speed, or you can speed up CPU operation at the expense of printer speed. The value range of the timing constant can range from 32 to 100 -- with the lower value constants resulting in a slower printer and a faster CPU and the larger value constants resulting in a faster printer but a slower CPU.

#### NOTE

This task is not applicable if you are configuring a serial printer.

*Procedure:*

1. Select the *TIMING\_VALUES* option. The following display will be shown on your screen:

Configuring PRINTER Station Address: #

Timing Constant: 32

Smaller timing constant = slower printer / faster CPU

Larger timing constant = faster printer / slower CPU

Enter timing constant (range 32 500) >

2. In response to this prompt, key in the desired value (32 to 500) for the printer timing constant.
3. Press <Esc> and go to ST TASK 24.

**ST TASK 39**

*Task Objective:* Select the printer carriage width.

*Explanation of Task:* Configure your printer paper width.

*Procedure:*

1. When you select *PAPER\_WIDTH*, the following menu line displays on your screen:

80\_COLUMN 132\_COLUMN QUIT

2. Select the desired paper width and go to ST TASK 23.

#### ST TASK 40

*Task Objective:* Select the printer top of form.

*Explanation of Task:* Configure your printer's method of reaching the top of the form.

*Procedure:*

1. When you select *TOP\_OF\_FORM*, the following menu line displays on your screen:

LINEFEED FORMFEED QUIT

2. Select LINEFEED or FORMFEED and go to ST TASK 23.

#### ST TASK 41

*Task Objective:* Change the EBCDIC printer character code.

*Explanation of Task:* Whenever the host sends data in EBCDIC format, the emulation translates these characters into ASCII characters for use by the PC printer. This task remaps the standard 5250 EBCDIC character set to the ASCII extended character set. Figure F-1 in the *AST-5250/Emulation Program Base Manual* shows the standard EBCDIC character set. This task enables you to use all or part of the extended ASCII character set even when you are in the emulation mode.

Before you begin, you should refer to Figure F-1 and determine the hex value for each 5250 EBCDIC character you want to remap. Then refer to Figure F-2 and determine the hex value for the ASCII character that is to be used for the host 5250 EBCDIC value. For example, EBCDIC hex code for the character U is E4. To remap this to the character U umlaut, you would remap the EBCDIC value with the ASCII hexadecimal value 9A (the hex code for U umlaut).

Procedure:

1. The table shown in Figure 4-12 displays on your screen:

PRINTER EBCDIC TO PC/ASCII TRANSLATION TABLE																
First Hexadecimal Character of EBCDIC Character Set																
	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	2D	2D	2D	2D	20	26	2D	2D	2D	2D	2D	2D	7B	7D	5C	30
x1	2D	2D	2D	2D	2D	2D	2F	2D	61	6A	7E	2D	41	4A	20	31
x2	2D	62	6B	73	2D	42	4B	53	32							
x3	2D	63	6C	74	2D	43	4C	54	33							
x4	2D	64	6D	75	2D	44	4D	55	34							
x5	2D	65	6E	76	2D	45	4E	56	35							
x6	2D	66	6F	77	2D	46	4F	57	36							
x7	2D	67	70	78	2D	47	50	58	37							
x8	2D	68	71	79	2D	48	51	59	38							
x9	2D	60	69	72	7A	2D	49	52	5A	39						
xA	2D	2D	2D	2D	5B	21	7C	3A	2D							
xB	2D	2D	2D	2D	2E	24	2C	23	2D							
xC	2D	2D	2D	2D	3C	2A	25	40	2D							
xD	2D	2D	2D	2D	28	29	5F	27	2D							
xE	2D	2D	2D	2D	2B	3B	3E	3D	2D							
xF	2D	2D	2D	2D	21	5E	3F	22	2D							

Second Hexadecimal Character of EBCDIC Character Set  
Enter 2 digit hex 5250 EBCDIC character code to change →

Figure 4-12. EBCDIC-to-PC/ASCII Printer Screen.

#### NOTE

Figure 4-12 shows the standard (default) EBCDIC-to-PC/ASCII printer screen. If you are editing an already-altered conversion table, the display on your screen will be different from the one shown in Figure 4-12.

2. The prompt at the bottom of your screen asks for the hexadecimal value of the EBCDIC character you want to remap. Enter this value (see Figure F-1). (For example, if you wanted to change the value of the U character, you would key in E4 (EBCDIC hexadecimal value) and then press **<Enter>**). The following prompt displays on your screen:

Enter PC/ASCII character code for the EBCDIC character (X#) in hex == >

3. Now key in the hexadecimal value (see Figure F-2 in the *AST-5250/Emulation Program Base Manual*) for the PC/ASCII character that is to be used in place of the 5250 EBCDIC character and press **<Enter>**.

To continue the previous example, you would enter 9A (the hexadecimal code value for U umlaut).

4. Repeat steps 1 through 3 until you have made the necessary changes to the keyboard.
5. Press **<Esc>** and go to ST TASK 23.

## ST TASK 42

*Task Objective:* Select the cluster display type.

*Explanation of Task:* Specify the cluster display station type. The default display type is 5251/11.

*Procedure:*

1. Select the *CLUS\_DISPLAY* option. The following menu line displays on your screen:

5251/11 5291 5292-1 QUIT

2. Select the display station type being set up and the following message/prompt displays on your screen:

Enter new session name for station address 0 >

3. Enter the new session name (up to seven characters) and press <Enter>; or press <Esc> to retain the current cluster session name, exit the menu, and return to ST TASK 1.

The selected station (0 through 6), configuration, and new session name displays in the center of your screen.

#### NOTE

This task allows you to assign cluster displays and APS display names (See ST TASK 44 for printer session naming). A named session may be shared by multiple users. To understand shared sessions see the *AST-5250/Emulation Program Base Manual*.

#### ST TASK 43

*Task Objective:* Select the host cluster printer type.

*Explanation of Task:* Specify your printer station type.

*Procedure:*

1. Select the *CLUS\_PRINTER* option. The following menu line displays on your screen:

5224 5225 5256 5219 QUIT

2. Select the appropriate printer type and go to ST TASK 44.
3. Press <Esc> and go to ST TASK 1.

## ST TASK 44

*Task Objective:* Select the cluster host printer model.

*Explanation of Task:* Specify the host printer model for the host printer type selected.

*Procedure:*

1. The following menu line displays on your screen:

For 5224;

5224-1 5224-2 QUIT

For 5225;

5225-1 5225-2 5225-3 5225-4 QUIT

For 5256;

5256-1 5256-2 5256-3 QUIT

For 5219;

5219-1 5219-2 QUIT

2. Select the printer model being set up; the following message/prompt displays on your screen:

Enter new session name for station address 0 >

3. Enter the new session name (up to seven characters) and press <Enter>; or press <Esc> to retain the current cluster session name, exit the menu, and return to ST TASK 1.

The selected station (0 through 6), configuration, and new session name displays in the center of your screen.

**NOTE**

This task allows you to assign cluster printer names. A named session may be shared by multiple users. To understand shared sessions see the *AST-5250/Emulation Program Base Manual*.

**ST TASK 45**

*Task Objective:* Select a gateway display type.

*Explanation of Task:* Specify a gateway display station type. The default display type is 5251/11.

*Procedure:*

1. Select the *GATE\_DISPLAY* option. The following menu line displays on your screen:

5251/11 5291 5292-1 QUIT

2. Select the display station type being set up; the following message/prompt displays on your screen:

Enter new session name for station address 0 >

3. Enter the new session name (up to seven characters) and press <Enter>; or press <Esc> to retain the current gateway session name, exit the menu, and return to ST TASK 1.

The selected station (0 through 6), configuration, and new session name displays in the center of your screen.

## NOTE

This task allows you to assign gateway displays and APS display names (See ST TASK 46 for printer session naming). A named session may be shared by multiple users. To understand shared sessions see the *AST-5250/Emulation Program Base Manual*.

### ST TASK 46

*Task Objective:* Select the gateway host printer type.

*Explanation of Task:* Specify your printer station type.

*Procedure:*

1. Select the *GATE\_PRINTER* option. The following menu line displays on your screen:

5224 5225 5256 5219 QUIT

2. Select the appropriate printer type and go to ST TASK 47.
3. Press **<Esc>** and go to ST TASK 1.

**ST TASK 47**

*Task Objective:* Select the gateway host printer model.

*Explanation of Task:* Specify the host printer model for the host printer type selected.

*Procedure:*

1. The following menu line displays on your screen:

*For 5224;*

5224-1 5224-2 QUIT

*For 5251;*

5225-1 5225-2 5225-3 5225-4 QUIT

*For 5256;*

5256-1 5256-2 5256-3 QUIT

*For 5219;*

5219-1 5219-2 QUIT

2. Select the printer model being set up; the following message/prompt displays on your screen:

Enter new session name for station address 0 >

3. Enter the new session name (up to seven characters) and press <Enter>; or press <Esc> to retain the current gateway session name, exit the menu, and return to ST TASK 1.

The selected station (0 through 6), configuration, and new session name displays in the center of your screen.

### 4.3.5 Security (SE) TASKs

This section provides instructions for configuring your system security.

#### SE TASK 1

*Task Objective:* Modify the security selections.

*Explanation of Task:* Secure your system against access by unauthorized users. You specify passwords that can be used to prevent unauthorized access to the software configuration, the emulator, or the hot key.

*Procedure:*

1. Select the *SECURITY* option. The following menu line displays on your screen:  
  
**SECURE\_CONFIG SECURE\_EMULATOR SECURE\_HOTKEY QUIT**
2. Select the *SECURE\_CONFIG* option or the *SECURE\_EMULATOR* option. (You can secure either or both.) Proceed to SE TASK 2 as shown in Table 4-16.
3. If you wish to disable the hot-key to DOS function, Select *SECURE\_HOTKEY* option and go to SE TASK 3.
4. When you have finished securing your system, press **<Esc>** and go to Section 4.3.10.

Table 4-16. SE TASK 1 Options.

Option	SE TASK
SECURE_CONFIG	Go to SE TASK 2.
SECURE_EMULATOR	Go to SE TASK 2.
SECURE_HOTKEY	Go to SE TASK 3.
QUIT	Go to Section 4.3.10.

**NOTE**

The configuration program password (*SECURE\_CONFIG*) option is the highest level of security. It is recommended that only key personnel have access to it.

**SE TASK 2**

*Task Objective:* Secure the configuration or emulation.

*Explanation of Task:* Establish a password used to secure the software configuration or the emulator itself. The password(s) can be no more than eight characters in length. The password(s) used at configuration and emulation must be identical to the passwords established at this time -- that includes the use of upper and lowercase letters. If you secure the configuration or emulation and then happen to lose or forget the passwords, you must use DOS to delete the AST5251.CFG file and then use the configuration program to reconfigure the software.

*Procedure:*

1. The following message/prompt displays on your screen:

**NOTE:** If you use capital letters in your password be sure you use capital letters at emulation time. Passwords must be identical.

Select Security Password or <Enter> to delete password >

2. Respond to the prompt by keying in your password (1 to 8 characters).
3. Press **<Enter>** and go to SE TASK 1.

**NOTE**

If you choose to reconfigure, you can press **<Enter>** to turn either configuration or emulation security off.

**SE TASK 3**

*Task Objective:* Set the hot-key security on or off.

*Explanation of Task:* Limit access to the the file transfer capabilities of the work station.

**NOTE**

You cannot select this function until you have selected a configuration password.

*Procedure:*

1. The following prompt displays on your screen:

Hotkey security: [on/off]

Do you want to secure hotkey sequence ([y]/n)?

2. Select either the *on* or the *off* option and press **<Enter>**.
3. Press **<Esc>** and go to SE TASK 1.

### 4.3.6 Virtual Disk (VD) TASKS

This section provides instructions for configuring your virtual disk drive.

#### VD TASK 1

*Task Objective:* Specify the letter designating virtual disk drive for file transfers.

*Explanation of Task:* Assign a drive specifier to a virtual disk drive. You may assign the virtual disk any drive specifier letter from A to Z, as long as that letter does not already specify an existing drive.

The virtual disk enables you to use the file transfer utility provided by the host to download information. The virtual disk is not an actual disk drive, but a portion of the host system's direct access storage that is set up to emulate a disk drive. When using a System/34, the virtual disk emulates a floppy drive. On a System/36 or System/38 with PC Support, the virtual disk emulates a hard disk.

The virtual disk must be a DOS recognizable drive. Because the virtual disk emulates a floppy drive with a System/34, you must configure the computer to recognize an additional floppy drive. Refer to your computer's user manual for more information on configuring the number of drives. If you are using a System/36 or System/38 with PC Support, you do not have to change your computer's configuration.

The virtual disk is available only during emulation and does not operate in DOS.

*Procedure:*

1. The following prompt displays on your screen:

Current Virtual Disk drive:

Enter Virtual Disk drive letter or <Enter> for no Vdisk

2. In response to this prompt, key in the letter that is to be the drive specifier for the virtual disk and go to Section 4.3.10.

### 4.3.7 Customize (CZ) TASKs

This section provides instructions for configuring your keyboard for specialized functions.

#### CZ TASK 1

*Task Objective:* Customize the keyboard mapping function.

*Explanation of Task:* Create customized keyboard layouts.

*Procedure:*

1. Select the *CUSTOMIZE* option. The following menu line displays on your screen:

REMAP\_TBLS EDIT\_ERRS QUIT

2. Select the first task you want to perform and go to the task number specified for that option in Table 4-17.
3. When you have finished, press <Esc> and go to Section 4.3.10.

**Table 4-17. CZ TASK 1 Options.**

Option	CZ TASK
REMAP_TBLS	Go to CZ TASK 2.
EDIT_ERR	Go to CZ TASK 10.
QUIT	Go to Section 4.3.10.

## NOTE

The remap tasks will create or modify an AST5251.KBD file. The *EDIT\_ERR* option will create or modify AST5251.ERR.

The *AST5251.KBD* file sets up the keyboard layout. This file must be available when anything other than a default USA qwerty keyboard layout is desired. Customized keyboard maps must be renamed to *AST5251.KBD* to be used by the emulation software. The file transfer, ASCII-to-EBCDIC translation tables are also contained in this file.

The *AST5251.ERR* file contains the error messages used by the APS during emulation. When available, international error messages will override the default English messages.

## CZ TASK 2

*Task Objective:* Select a specific keyboard remapping function.

*Explanation of Task:* This task allows you to alter the default scan code tables, edit translate tables, or create macros. You may want to alter the scan code to accommodate an international keyboard, edit an EBCDIC table for application software development, or create a macro for frequently used key combinations (for example, to automatically sign-on or to run a particular host job).

You should have an understanding of scan codes, ASCII, and EBCDIC character tables before making modifications. For more information about the tables, see Section 2 of the *AST-5250/Emulation Program Base Manual*.

*Procedure:*

1. As soon as you select *REMAP\_TBL5*, the following menu line displays on your screen:

REMAP\_SC REMAP\_EBC REMAP\_ASC REMAP\_ASC\_SC MACROS DSP\_KS REMAP\_CTRL QUIT

2. Select the remap function you want to select and go to the appropriate task specified for keyboard remapping functions in Table 4-18.

**Table 4-18. CZ TASK 2 Options.**

Option	CZ TASK
REMAP_SC	Go to CZ TASK 3.
REMAP_EBC	Go to CZ TASK 4.
REMAP_ASC	Go to CZ TASK 5.
REMAP_ASC_SC	Go to CZ TASK 6.
MACROS	Go to CZ TASK 7.
DSP_KS	Go to CZ TASK 8.
REMAP_CTRL	Go to CZ TASK 9.
QUIT	Go to Section 4.3.8.

### **CZ TASK 3**

*Task Objective:* Change the scan codes.

*Explanation of Task:* When you press a key, a code is sent to the computer identifying which key was pressed. This code is called a scan code. For example, the scan code sent when you press the <Q> key in 5250 emulation mode is 21. You can alter which

keys send which scan codes, thus changing the layout of your keyboard. (You might want to do this to accommodate an international keyboard, for example, or to set up a DVORAK layout for your keyboard.) Some keys on the enhanced keyboard send more than one scan code. To remap these keys you must assign a sequence of scan codes to a particular key. These sequences are called key sequences (KS).

Before you begin, you should identify the specific keys whose scan codes you want to change. Refer to the *AST-5250/Emulation Program Base Manual* and find the key position of the keys to be changed (for example, the W key on the PC is key position number 17).

Key	Scan Code
ESC	01
F1	02
F2	03
F3	04
F4	05
F5	06
F6	07
F7	08
F8	09
F9	0A
F10	0B
F11	0C
F12	0D
DEL	0E

## Procedure:

1. The table shown in Figure 4-13 displays on your screen when you press <Enter>.

UPPER CASE PC Key Number to 5250 Scan Code Conversion Table

PC Key Positions	Scan Codes (Hexadecimal Format)										
( 01- 10)	BE	B1	B2	B3	B4	B5	B6	B7	B8	B9	
( 11- 20)	BA	BB	BC	BD	A0	A1	A2	A3	A4	A5	
( 21- 30)	A6	A7	A8	A9	AA	AB	AC	AD	D4	91	
( 31- 40)	92	93	94	95	96	97	98	99	9A	9B	
( 41- 50)	9C	D7	8E	81	82	83	84	85	86	87	
( 51- 60)	88	89	8A	D6	8C	FE	8F	E8	FC	EF	
( 61- 70)	EC	ED	EE	FD	F1	F0	F2	F3	CB	CC	
( 71- 80)	C7	C8	C9	CE	C4	C5	C6	CD	C1	C2	
( 81- 90)	C3	C0	CA	FC	00	AC	00	00	00	00	
( 91-100)	00	00	00	00	00	00	00	00	00	00	
(101-110)	00	00	00	00	00	00	00	00	00	00	
(111-120)	00	4C	0C	72	73	71	70	6D	F1	EC	
(121-128)	F0	ED	6E	68	7E	68	6C	00			

NOTE: High bit set indicates shifted key.

Enter the PC key position to change, <ESC> to exit, or  
 Enter the character ' + ' for auto incrementing of the key position →

Figure 4-13. CZ TASK 3 Screen Display (Uppercase).

## NOTE

The most significant bit in a scan code will indicate the scan code is to be sent to the host in the shifted state.

Figure 4-13 shows the standard (default) scan code screen for uppercase. If you are editing an altered scan code the display on your screen will be different from the one shown in Figure 4-14.

2. Enter the PC key position of the first key you want to change (refer to the *AST-5250/Emulation Program Base Manual*) and press **<Enter>**. The following prompt will appear on your screen:

Enter 'KS' or 5250 Scan Code for Key Position (#) = = >

3. You may assign either an individual scan code or a key sequence (KS) to a PC key position.

To enter an individual scan code, refer to the *AST-5250/Emulation Program Base Manual* for the hexadecimal value of the scan code. For example, to assign the J character to the position specified above, type **17** and then press **<Enter>**.

To enter a key sequence, type **KS** and press **<Enter>**. You will see this prompt on the screen:

Enter 5250 Hex Key Sequence (max 16 scan codes)

>

For example, you may assign the sequence **<Command> <1>** to the key. The hexadecimal value for **<Command>** is **6F** and hexadecimal value for **<1>** is **31**. At the prompt, enter the hexadecimal values a string without blank spaces, such as **6F31** and then press **<Enter>** to accept the key sequence.

4. Enter the position number of the next PC key you want to change.

**NOTE**

You can enter a new key position, or you can specify the plus sign (+) to increment the previously entered key position by a value of one. For example, if the previous position number you entered was 29, you could increment it to 30 by entering a plus sign (+). This automatic incrementation will continue until a pound sign (#) is entered or <Esc> is pressed. This will return you to individual key position entry mode.

5. Repeat steps 2 through 4 until you have entered new scan codes for all keys you wish to change.
6. When you have finished entering the new uppercase scan codes, press <Esc> and enter lowercase scan code modifications.

**NOTE**

Figure 4-14 shows the standard (default) scan code screen. If you are editing an already-altered scan code table, the display on your screen will be different from the one shown.

LOWER CASE PC Key Number to 5250 Scan Code Conversion Table

PC Key Postions	Scan Codes (Hexadecimal Format)									
( 01- 10)	3E	31	32	33	34	35	36	37	38	39
( 11- 20)	3A	3B	3C	3D	20	21	22	23	24	25
( 21- 30)	26	27	28	29	2A	2B	2C	2D	54	11
( 31- 40)	12	13	14	15	16	17	18	19	1A	1B
( 41- 50)	1C	57	0E	01	02	03	04	05	06	07
( 51- 60)	08	09	0A	56	0C	7E	0F	68	7C	6F
( 61- 70)	6C	6D	6E	7D	71	70	72	73	4B	4C
( 71- 80)	47	48	49	4E	44	45	46	4D	41	42
( 81- 90)	43	40	4A	FC	00	00	00	00	00	00
( 91-100)	00	00	00	00	00	00	00	00	00	00
(101-110)	00	00	00	00	00	00	00	00	00	00
(111-120)	00	4C	0C	72	73	71	70	6D	F1	EC
(121-128)	F0	ED	6E	68	7E	68	6C	00		

NOTE:High bit set indicates shifted key

Enter the PC key position to change, <ESC> to exit, or  
Enter the character '+' for auto incrementing of the key position →

Figure 4-14. CZ TASK 3 Screen Display (Lowercase).

- When you have finished entering new scan codes, press <Esc> and go to CZ TASK 1.

#### CZ TASK 4

*Task Objective:* Change the EBCDIC character code.

**Explanation of Task:** Whenever the host sends data in EBCDIC format, the emulator translates these characters into ASCII characters for use by the PC. By performing this task, you remap the standard 5250 EBCDIC character set to the ASCII extended character set. Figure F-1 of the AST-5250/Emulation Program Base Manual shows the standard EBCDIC character set. This task enables you to use all or part of the extended ASCII character set even when you are in the emulation mode.

Before you begin, determine the hexadecimal value for each 5250 EBCDIC character you want to remap. Then determine the hexadecimal value for the ASCII character that is to be used for the host 5250 EBCDIC value. For example, EBCDIC hexadecimal code for the character U is E4. To remap this to the character U umlaut, you would remap the EBCDIC value with the ASCII hexadecimal value 9A (the hex code for U umlaut).

*Procedure:*

1. The table shown in Figure 4-15 displays on your screen:

PC/ASCII TO EBCDIC TRANSLATION TABLE																
First Hexadecimal Character of ASCII Character Set																
	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	40	40	40	F0	7C	D7	79	97	68	71	45	40	40	40	40	40
x1	40	40	5A	F1	C1	D8	81	98	DC	9E	55	40	40	40	59	8F
x2	40	40	40	F2	C2	D9	82	99	51	40	CE	40	40	40	40	DA
x3	40	40	7B	F3	C3	E2	83	A2	42	CB	DD	4F	40	40	40	6D
x4	40	B6	5B	F4	C4	E3	84	A3	43	CC	40	40	40	40	40	40
x5	40	B5	6C	F5	C5	E4	85	A4	46	CD	69	40	40	40	40	40
x6	40	40	50	F6	C6	E5	86	A5	47	DB	9A	40	40	40	A0	40
x7	40	40	7D	F7	C7	E6	87	A6	48	DD	9B	40	40	40	40	40
x8	40	AD	4D	F8	C8	E7	88	A7	52	DF	40	40	40	40	40	90
x9	40	40	5D	F9	C9	E8	89	A8	53	EC	AB	40	40	40	70	40
xA	40	40	5C	7A	D1	E9	91	A9	54	FC	5F	40	40	40	40	40
xB	40	40	4E	5E	D2	40	92	C0	57	4A	B8	40	40	B9	8C	40
xC	40	40	6B	4C	D3	E0	93	6A	56	B1	B7	40	40	40	40	8D
xD	40	40	60	7E	D4	40	94	D0	58	B2	AA	40	41	40	80	EA
xE	40	40	4B	6E	D5	40	95	A1	63	B3	8A	40	40	40	40	40
xF	40	40	61	6F	D6	6D	96	40	67	B4	8B	40	40	40	40	40

Second Hexadecimal Character of ASCII Character Set  
Enter 2 digit hex ASCII character code to change →

Figure 4-15. CZ TASK 4 Screen Display.

## NOTE

Figure 4-15 shows the standard (default) EBCDIC-to-ASCII screen. If you are editing an already-altered conversion table, the display on your screen will be different from the one shown.

2. The prompt at the bottom of your screen asks for the hexadecimal value of the EBCDIC character you want to remap. Enter this value (see Figure F-1). (For example, if you wanted to change the value of the U character, you would key in E4 (EBCDIC hexadecimal value) and then press <Enter>). The following prompt displays on your screen:

Enter PC/ASCII character code for the EBCDIC character (X#) in hex = =>

3. Enter the hexadecimal value (see Figure F-2) for the PC/ASCII character to be used in place of the 5250 EBCDIC character. To continue the above example, you would enter 9A (the hexadecimal code value for U umlaut) and press <Enter>.
4. Repeat steps 1 through 4 until you have made the necessary changes to the keyboard.
5. Press <Esc> and go to CZ TASK 5.

### CZ TASK 5

*Task.Objective:* Change the ASCII character code.

*Explanation of Task:* Whenever the file transfer software sends data to the host, the emulation translates the PC/ASCII data to EBCDIC characters. By performing this task, you remap the ASCII extended character set to the standard 5250 EBCDIC character set. Figure F-2 shows the ASCII extended character set. This task enables you to use all or part of the standard 5250 EBCDIC character set even when you are in the emulation mode.

Before you begin, determine the hexadecimal value for each ASCII character you want to remap. Then determine the hexadecimal value for the 5250 EBCDIC character that is to be used for the PC/ASCII value.

**Procedure:**

1. Select the option you want. The table shown in Figure 4-16 displays on your screen:

PC/ASCII TO EBCDIC TRANSLATION TABLE																
First Hexadecimal Character of ASCII Character Set																
	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	40	40	40	F0	7C	D7	79	97	68	71	45	40	40	40	40	40
x1	40	40	5A	F1	C1	D8	81	98	DC	9E	55	40	40	40	59	8F
x2	40	40	40	F2	C2	D9	82	99	51	40	CE	40	40	40	40	DA
x3	40	40	7B	F3	C3	E2	83	A2	42	CB	DD	4F	40	40	40	6D
x4	40	B6	5B	F4	C4	E3	84	A3	43	CC	40	40	40	40	40	40
x5	40	B5	6C	F5	C5	E4	85	A4	46	CD	69	40	40	40	40	40
x6	40	40	50	F6	C6	E5	86	A5	47	DB	9A	40	40	40	40	40
x7	40	40	7D	F7	C7	E6	87	A6	48	DD	9B	40	40	40	40	40
x8	40	AD	4D	F8	C8	E7	88	A7	52	DF	40	40	40	40	40	90
x9	40	40	5D	F9	C9	E8	89	A8	53	EC	AB	40	40	40	70	40
xA	40	40	5C	7A	D1	E9	91	A9	54	FC	5F	40	40	40	40	40
xB	40	40	4E	5E	D2	40	92	C0	57	4A	88	40	40	40	B9	8C
xC	40	40	6B	4C	D3	E0	93	6A	56	B1	87	40	40	40	40	8D
xD	40	40	60	7E	D4	40	94	D0	58	B2	AA	40	41	40	80	EA
xE	40	40	4B	6E	D5	40	95	A1	63	B3	8A	40	40	40	40	40
xF	40	40	61	6F	D6	6D	96	40	67	B4	8B	40	40	40	40	40

Second Hexadecimal Character of ASCII Character Set  
Enter 2 digit hex ASCII character code to change →

Figure 4-16. CZ TASK 5 Screen Display.

**NOTE**

Figure 4-16 shows the standard (default) ASCII-to-EBCDIC screen. If you are editing an already-altered conversion table, the display on your screen will be different from the one shown.

2. The prompt at the bottom of your screen asks you for the hex value of the ASCII character you want to remap. Enter this value and press <Enter>. The following prompt displays on your screen:

Enter EBCDIC character code for the ASCII character (xx) in hex == >

3. Key in the hexadecimal value for the EBCDIC character that is to be used in place of the PC/ASCII character and press <Enter>.
4. Repeat steps 1 through 3 until you have made the necessary changes to the keyboard.
5. Press <Esc> and go to CZ TASK 1.

**CZ TASK 6**

*Task Objective:* Remap the PC/ASCII to 5250 scan codes.

*Explanation of Task:* International file transfer may require that the standard PC/ASCII to 5250 scan codes be modified. This task maps the PC/ASCII keyboard characters to the corresponding 5250-scan codes. The PC/ASCII to 5250 scan code table is also used for automatic sign-on.

Procedure:

1. The table shown in Figure 4-17 displays on your screen:

PC/ASCII TO 5250 SCAN CODE TABLE																
First Hexadecimal Character of ASCII Character Set																
	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	00	00	0F	3A	B2	AA	3E	2A	00	00	00	00	00	00	00	00
x1	00	00	AB	31	91	A1	11	21	00	00	00	00	00	00	00	00
x2	00	00	9B	32	85	A4	05	24	00	00	00	00	00	00	00	00
x3	00	00	B3	33	83	92	03	12	00	00	00	B1	00	00	00	00
x4	00	00	B4	34	93	A5	13	25	00	00	00	00	00	00	00	00
x5	00	00	B5	35	A3	A7	23	27	00	00	00	00	00	00	00	00
x6	00	00	B7	36	94	84	14	04	00	00	00	00	00	00	00	00
x7	00	00	1B	37	95	A2	15	22	00	00	00	00	00	00	00	00
x8	00	00	B9	38	96	82	16	02	00	00	00	00	00	00	00	00
x9	00	00	BA	39	A8	A6	28	26	00	00	00	00	00	00	00	00
xA	00	00	B8	9A	97	81	17	01	00	00	B6	00	00	00	00	00
xB	00	00	BC	1A	98	00	18	1C	00	2B	00	00	00	00	00	00
xC	00	00	08	0E	99	2C	19	AC	00	00	00	00	00	00	00	00
xD	00	00	3B	3C	87	00	07	9C	00	00	00	00	00	00	00	00
xE	00	00	09	8E	86	B6	06	BE	00	00	00	00	00	00	00	00
xF	00	00	0A	8A	A9	BB	29	00	00	00	00	00	00	00	00	00

Second Hexadecimal Character of ASCII Character Set  
 Enter 5250 Scan code for the PC/ASCII character (41) in hex  
 NOTE: High bit set indicates shifted key

Figure 4-17. PC/ASCII-to-5250 Scan Code.

2. The prompt at the bottom of your screen asks for the hex value of the PC/ASCII character you want to remap. Enter this value. The following prompt displays on your screen:

Enter 5250 scan code for the PC/ASCII character (xx) in hex >

3. Now key in the hexadecimal value for the 5250 scan code that is to be used in place of the PC/ASCII character press <Enter>.

4. Repeat steps 1 through 3 until you have made the necessary changes to the keyboard.
5. Press <Esc> and go to CZ TASK 1.

### CZ TASK 7

*Task Objective:* To edit or create keyboard macros.

*Explanation of Task:* A macro is a specific set of keystrokes assigned to a control key combination. This task allows you to create macros for frequently used commands.

For example, to sign off a System/38 from the command entry screen, you would type SIGNOFF and press <Enter>. (Of course you can use macros with any System/3X.) The command can be a maximum of 250 scan codes in length. For keystrokes that cannot be entered directly, type in the appropriate mnemonic code. Macros are usually sent in 5250 emulation by pressing the <Alt> and a letter key. For example, we can assign the sign off macro to the key combination <Alt>-<S>.

#### *Procedure:*

1. Select the **MACROS** option. The following prompt displays.

Enter PC key position to be assigned macro (or <Esc> to exit):

2. Look up the PC key position you want to change in Appendix E of the *AST-5250/Emulation Program Base Manual*. For the S key, the scan code is 31.

Type in the PC key position number and press <Enter>. The following prompt displays:

Enter new macro sequence (or <Esc> to exit):

3. Type the command you want to assign to the macro. For keystrokes that cannot be typed directly, enter the appropriate mnemonic code. For example, to assign the character string "signoff" and the <Enter> key, type:

### SIGNOFF[ENT]

Make sure the mnemonic code is in all capital letters and enclosed in brackets. For more information about mnemonic codes, press <Tab> to display the following help screen:

Use the following mnemonics to refer to 5250 keystrokes.  
They must be enclosed in brackets and in caps

[SYS]	System Request	[ENT]	Enter	[FLX]	Field Exit
[FL+]	Field +	[FL-]	Field	[FLA]	Field Advance
[BKT]	Back Tab	[INS]	Insert	[DEL]	Delete
[RST]	Error Reset	[CRL]	Cursor Left	[CRR]	Cursor Right
[CRU]	Cursor Up	[CRD]	Cursor Down	[BSC]	Backspace Cursor
[C01]	Command 1 ...	[Con]	Command n ...	[C24]	Command 24
[HOM]	Home	[HLP]	Help	[PRT]	Print
[ERS]	Erase Screen	[RLU]	Roll Up	[RLD]	Roll Down
[ATN]	Attention	[DUP]	Duplicate	[NLN]	New Line
[NUL]	Null				

Example: [SYS] [ENT] USERID [ENT]

< Press TAB to display current sequence >  
Enter new macro sequence (or Esc to exit):

Figure 4-18. CZ TASK 7 Screen Display

4. Press <Enter> to accept the macro. You will see this prompt on the screen:

Macros exist for keys:

This prompt should be followed by the PC key position number you just defined (in this case, 31).

5. Enter the position number of the next key you want to change.
6. Repeat steps 2 through 5 until you have entered new scan codes for all keys you wish to change.
7. When you have finished creating macros, press <Esc> and go to CZ TASK 2.

### CZ TASK 8

*Task Objective:* To display uppercase, lowercase, and macro key sequences.

*Explanation of Task:* This option provides a description of the key sequences defined for uppercase, lowercase, and macro key combinations.

*Procedure:*

1. Select the *DSP\_KS* option. The following displays on your screen:

```
UPPER CASE KEY SEQUENCES
PC Key Positions  Key Sequence
```

If you modified any uppercase key sequences with CZ TASK 3, they will be listed as shown in the following example:

```

                                UPPER CASE KEY SEQUENCES
PC Key Positions  Key Sequence
111              29 14 14 68
  
```

If there are no uppercase key sequences, this will appear on the screen:

```
No key sequences defined
```

```
Press Return to continue...
```

2. Press <Enter> and the following displays:

```

                                LOWER CASE KEY SEQUENCES
PC Key Positions  Key Sequence
  
```

If you modified any lowercase key sequences with CZ TASK 3, they will be listed as shown in the following example:

```

                                LOWER CASE KEY SEQUENCES
PC Key Positions  Key Sequence
111              29 14 14 68
  
```

If there are no lowercase key sequences, this will appear on the screen:

No key sequences defined

Press Return to continue...

3. Press <Enter> and the following displays:

KEYBOARD MACROS KEY SEQUENCES

PC Key Positions Key Sequence

If you have defined macros with CZ TASK 7, they will be listed as shown in the following example:

Macros exists for keys: 31

Enter PC key position for macro to be displayed (or CR for all):

Enter the PC key position number of the macro you want to see, or press <Enter> to see all the macros. The macro sequence displays on the screen as shown in the following example:

Macro for key 31: SIGNOFF[ENT]

Press Return to continue...

If there are no macros, this prompt will appear on the screen:

No macros defined

Press Return to continue...

4. Press <Enter> and return to CZ TASK 3.

### CZ TASK 9

*Task Objective:* Remap predefined control keys.

*Explanation of Task:* Reassign a particular control function to another key. This task is especially useful for remapping international keyboards or control keys whose function interferes with normal operation (for example, DESQview's <Alt> key).

Each keyboard has a set of keys assigned control functions. That is, when pressed in conjunction with another key, they perform a special control function. (For example, <Left Shift> - <Right Shift> is the hot-key sequence.) This task allows you to change which PC keys perform the control functions.

## Procedure:

1. Select the *REMAP\_CTRL* option. The default control key functions shown in Figure 4-19 displays:

<u>Control Function</u>	<u>Scan Code</u>	<u>Control Function</u>	<u>Scan Code</u>
1. Esc	1	11. Num Pad 1	4F
2. Alt	38	12. Num Pad 2	50
3. Ctrl	1D	13. Num Pad 3	51
4. Left Shift	2A	14. Num Pad 4	4B
5. Right Shift	36	15. Num Pad 5	4C
6. Num Lock	45	16. Num Pad 6	4D
7. PrtSc	37	17. Num Pad 7	47
8. Del	53	18. Num Pad 8	48
9. Brk	46	19. Num Pad 9	49
10. Ctl-C	2E	20. Invoke Macro	38

Enter number (1 20) indicating which control function you want to change (or press <Esc> to exit):

Figure 4-19. CZ TASK 9 Screen Display.

2. Enter the number (1 through 20) indicating which control function you want to change and press <Enter>. For example, to change <Alt>-<Num Pad 2> (the direct access hot-key sequence for session 2) to <Alt>-<Q>, you would select the number 12. The following prompt displays:

Enter PC scan code for the key you want assigned to this control function (or <Esc> to exit):

3. Enter the PC scan code for the new key (see the *AST-5250/Emulation Program Base Manual*) and press **<Enter>**. For this example, enter the PC scan code for the letter "Q", 16. The new scan code displays on your screen.
4. Press **<Esc>** and go to CZ TASK 2.



## CZ TASK 10

*Task Objective:* Change error messages.

*Explanation of Task:* Translate or customize the standard AST-5251/11 error messages.

*Procedure:*

1. The display shown in Figure 4-20 displays on your screen.



1: illegal parameter:  
2: Internal error:  
3: Error opening file:  
4: Error closing file:  
5: Error reading file:  
6: Kernel: event queue full (putq)  
7: Kernel: station address not found (dmaend)  
8: Kernel: station address not found (dmaq)  
9: Kernel: station address not found (exception)  
10: Kernel: illegal code (drivcntrl)  
11: Controller: DMA process queue full (gdrvr)  
12: Controller: process queue full (gdrvr)  
13: Controller: general hardware failure (gdrvr)  
14: Controller: insufficient ram (cfail)  
15: Controller: transmitter underrun (cfail)  
16: Driver: illegal CP normal command (illcp)  
17: Driver: illegal CP DMA transfer (illcp)  
18: Driver: illegal CP configuration error (illcp)  
19: Driver: illegal CP checksum error on configuration block (illcp)  
20: Driver: illegal CP missing configuration block transfer (illcp)  
21: Driver: illegal CP from controller (illcp)  
22: Undefined error from Kernel or Driver (procevent)

Enter the message number you want to change or <ESC> to return

Figure 4-20. CZ TASK 10 Screen Display.

**NOTE**

Figure 4-20 shows the list of standard error messages. If you are editing an already-altered list, the display on your monitor screen will be different from the one shown.

The prompt at the bottom of the screen asks you to enter the number (1 through 22) of the message to be altered.

2. Enter the appropriate number and press **<Enter>**. (Press **<Esc>** if you do not want to change any messages.) The following prompt displays on your screen:

Enter new message == >

3. Key in the message that is to replace the specified error message and press **<Enter>**. Note that the revised message has replaced the original message in the displayed list of error messages.
4. Repeat steps 2 and 3 until you have edited all messages that need changing.
5. Press **<Esc>** and go to CZ TASK 1.

### 3.3.8 Master Cluster (MC) TASKs

This section provides instructions for configuring your master cluster options.

#### MC TASK 1

*Task Objective:* Configure AST-5250/Cluster software.

*Explanation of Task:*

AST-5250/Cluster: Set up parameters for the Async Cluster Adapters four ports by modifying the configuration ports and sessions, and specify interrupt and I/O selections.

AST-5250/Async Dialup: Set up parameter for your COM1 or COM2 serial port.

*Procedure:*

1. The following menu line displays on your screen:

PORTS INTERRUPT I/O\_ADR QUIT

2. Select the parameter you want to set up and go to the task specified for that parameter in Table 4-19.
3. When all Async Cluster Adapter parameters are appropriately set up press <Esc> and go to Section 4.3.10.

Table 4-19. MC TASK 1 Options.

Option	MC TASK
PORTS	Go to MC TASK 2, AST-5250/Cluster. Go to MC TASK 3, AST-5250/Async Dialup.

The following tasks are for AST-5250/Cluster only:

INTERRUPT	Go to MC TASK 21.
I/O_ADR	Go to MC TASK 22.
QUIT	Go to Section 4.3.10.

#### MC TASK 2 (FOR AST-5250/CLUSTER ONLY.)

*Task Objective:* Select the AST-5250/Cluster port to configure.

*Explanation of Task:* Specify and customize Async Cluster Adapter ports 1 through 4.

*Procedure:*

- Select the *PORTS* option. The following menu line displays on your screen:
 

```

1 2 3 4 QUIT
      
```
- Select the number for the port you want to configure and press <Enter>.

3. If the port has already been configured the following message displays:

This port is already configured. Would you like to delete it (y/[n])?

Enter **Y** to delete the current port configuration, or enter **N** to keep the current port configuration.

4. When you have selected the port you want to configure go to MC TASK 3.
5. When you have finished configuring the ports press **<Esc>** and go to MC TASK 1.

### MC TASK 3

*Task Objective:* Select cluster port configuration options.

*Explanation of TASK:* This task allows you to configure the selected communication port, modify the directory and modem initialization string; while providing access to EBCDIC/ASCII translation tables and control strings for terminal devices.

*Procedure:*

1. The following menu line displays on your screen:

COMPORT DIRECTORY INITIALIZE EBCDIC ASCII TERMINAL QUIT

#### NOTE

EBCDIC, ASCII, and TERMINAL are options for terminal devices only (see MC TASK 10).

2. Select the option you wish to select and go to the appropriate task specified in Table 4-20.
3. When you have finished configuring these port options press **<Esc>** and go to MC TASK 2.

Table 4-20. MC TASK 2 Options.

Option	MC TASK
COMPORT	Go to MC TASK 4.
DIRECTORY	Go to MC TASK 14.
INITIALIZE	Go to MC TASK 15.

*For terminal devices only:*

EBCDIC	Go to MC TASK 16.
ASCII	Go to MC TASK 17.
TERMINAL	Go to MC TASK 18.
QUIT	Go to Section 4.3.10

#### **MC TASK 4**

*Task Objective:* Configure the selected communication port.

*Explanation of Task:* Establish various parameters for asynchronous data communication and port control of specified connected devices (PC or terminal).

*Procedure:*

1. Select the *COMPORT* option. The following menu line displays on your screen:

BAUD DATA STOP PARITY COM\_PORT DEVICE COMLINE XON/XOFF SESSION QUIT

**NOTE**

Your AST-5250/Cluster screen will also display the current cluster communication port configuration. *COM\_PORT* is an AST-5250/Async Dialup option only.

2. Select the first parameter you wish to set up and then go to the task specified for that parameter in Table 4-21.

Table 4-21. MC TASK 4 Options.

Options	MC TASK
BAUD	Go to MC TASK 5.
DATA	Go to MC TASK 6.
STOP	Go to MC TASK 7.
PARITY	Go to MC TASK 8.
COM_PORT	Go to MC TASK 9, AST-5250/Async Dialup only.
DEVICE	Go to MC TASK 10.
COMLINE	Go to MC TASK 11.

*For terminal devices only:*

XON/XOFF	Go to MC TASK 12.
SESSION	Go to MC TASK 13.
QUIT	Go to Section 4.3.10.

- When all parameters are appropriately set, press < **Esc** > and go to MC TASK 1.

### MC TASK 5

*Task Objective:* Set the Baud rate.

*Explanation of Task:* Specify the Baud rate for the selected communication port.

*Procedure:*

1. Select the *BAUD* option. The following menu line displays on your screen:

1200 2400 4800 9600 19200 QUIT

2. Select the appropriate Baud rate and go to MC TASK 4.

### MC TASK 6

*Task Objective:* Set the data bits.

*Explanation of Task:* Specify the number of data bits for the current cluster communication port.

*Procedure:*

1. Select the *DATA* option. The following menu line displays on your screen:

7 8 QUIT

#### NOTE

The line connected to the slave PCs must use 8 data bits.

2. Select the appropriate number of data bits and go to MC TASK 4.

**MC TASK 7**

*Task Objective:* Select the stop bits.

*Explanation of Task:* Specify the number of stop bits for the current cluster communication port.

*Procedure:*

1. Select the *STOP* option. The following menu line displays on your screen:

1 2 QUIT

2. Select the appropriate number of stop bits and go to MC TASK 4.

**MC TASK 8**

*Task Objective:* Set the parity.

*Explanation of Task:* Set up parity for the current cluster communication port.

*Procedure:*

1. Select the *PARITY* option. The following menu line displays on your screen:

ODD EVEN NONE QUIT

2. Select the appropriate parity configuration and go to MC TASK 4.

### **MC TASK 9 (FOR AST5250/ASYNC DIALUP ONLY.)**

*Task Objective:* Assign the serial communications port number.

*Explanation of Task:* Assign a port number for asynchronous data communications.

*Procedure:*

1. Select the *COM\_PORT* option. The following menu line displays on your screen:

COM1 COM2 QUIT

2. Select the appropriate communications port number and go to MC TASK 4.

### **MC TASK 10**

*Task Objective:* Configure the cluster port slave device type.

*Explanation of Task:* Select the type of device to be connected to the current cluster communication port (PC or terminal). ASCII24 and ASCII25 indicate 24 and 25 line devices, respectively.

*Procedure:*

1. Select *DEVICE* and the following menu line displays on your screen:

PC ASCII24 ASCII25 QUIT

2. Select the device type you want and go to MC TASK 4.

**MC TASK 11**

*Task Objective:* Select the communication line type.

*Explanation of Task:* Configure the communication line type to be connected to the current cluster port.

*Procedure:*

1. The following menu line displays on your screen:

DIALUP DEDICATED QUIT

2. Select *DIALUP* or *DEDICATED* and return to MC TASK 4.

**MC TASK 12**

*Task Objective:* Set XON/XOFF. For terminal devices (ASCII24 or ASCII25) only.

*Explanation of Task:* Specify whether or not XON/XOFF control signals are used for serial communications.

*Procedure:*

1. Select the *XON/XOFF* option. The following menu line displays on your screen:

ON OFF QUIT

2. Select the appropriate transmit on/transmit off selection and go to MC TASK 4.

### MC TASK 13

*Task Objective:* Change the terminal session name. For terminal devices only.

*Explanation of Task:* Select or change the terminal session name for the current cluster communication port you are configuring.

*Procedure:*

1. Select the *SESSION* option. The following message and prompt displays on the lower part of your screen:

Enter new terminal session name >

2. Enter the new terminal session name (you may select a name up to seven characters long), and return to MC TASK 4.

### MC TASK 14

*Task Objective:* Modify the directory.

*Explanation of Task:* Change the names, phone numbers, password, and call back numbers of the directory.

*Procedure:*

1. Select the *DIRECTORY* option. The following menu line displays on your screen:

0 1 2 3 4 5 6 7 8 9 10-19 QUIT

- Select the entry you want to change 0 through 19. The display shown in Figure 4-21 displays on your monitor:

Select Directory Entry to Change

NAME	NUMBER	PASSWORD	QUIT
Change name			
Directory of cluster port 1			
Entry	Name	Phone number	Password
0	None	None	No
1	None	None	No
2	None	None	No
3	None	None	No
4	None	None	No
5	None	None	No
6	None	None	No
7	None	None	No

Changing directory entry: 0

Pressing < Enter > selects an option; < Esc > exits menu.  
Use the cursor keys to change the highlighted option.

Figure 4-21. MC TASK 14 Screen Display.

- Select the type of directory entry you want to change, *NAME*, *NUMBER*, or *PASSWORD*, and press < **Enter** >.

4. One of the following prompts will appear according to the option selected:

Enter new name >

Enter new number >

Enter new password >

5. Enter the appropriate information and press <Enter>. The new information displays on the screen.

You must supply any necessary modem commands for phone numbers listed in the directory. For example, tone dialing with a Hayes-compatible modem requires the following commands:

**ATDT5551212**

where:

*ATDT* is the command sequence that precedes the seven-digit phone number for tone dialing. *ATDP* is the command sequence that precedes the phone number for pulse dialing.

Phone numbers added to the directory are call back numbers. If a slave PC/terminal dials in using a listed name and phone number, the line will disconnect and the number indicated dialed. The session will continue as usual. If the slave PC/terminal uses a name without a phone number, the line stays connected.

#### NOTE

If you select *PASSWORD*, to change the password, the new entry will be indicated by a yes in the password column. You may change or delete the password at your discretion.

6. Press < **Esc** > to display the previous menu line (0 through 10-19); and repeat steps 2 through 5 until you have made all of your directory changes.
7. Press < **Esc** > and go to MC TASK 3.

### MC TASK 15

*Task Objective:* Modify the modem initialization strings.

*Explanation of Task:* Specify the control character sequence to change the default string.

*Procedure:*

1. Select the *INITIALIZE* option . The following message and prompt displays:

```
Current modem initialization string:  
ATe0a0v0s0 = 1 Enter new modem initialization  
string >
```

2. Key in the modem initialization string in response to the prompt and press < Enter > .
3. Press < **Esc** > and go to MC TASK 2.

### MC TASK 16

*Task Objective:* Modify the EBCDIC to ASCII translation table for VT100 terminals.

*Explanation of Task:* Whenever the host sends data in EBCDIC format, the emulator translates these characters into ASCII characters for use by the terminal. By performing this task, you remap the standard 5250 EBCDIC character set to the ASCII extended character set. Figure F-1 (*AST-5250/Emulation Program Base Manual*) shows the standard EBCDIC character set. This task enables you to use all or part of the extended ASCII character set even when you are in the emulation mode.

Before you begin, you should refer to Figure F-1 and determine the hexadecimal value for each 5250 EBCDIC character you want to remap. Then refer to Figure F-2 and determine the hexadecimal value for the ASCII character that is to be used for the host 5250 EBCDIC value. For example, EBCDIC hexadecimal code for the character U is E4. To remap this to the character U umlaut, you would remap the EBCDIC value with the ASCII hexadecimal value 9A (the hexadecimal code for U umlaut).

- The table shown in Figure 4-22 displays on your screen:

EBCDIC TO PC/ASCII TRANSLATION TABLE																
First Hexadecimal Character of EBCDIC Character Set																
	0x	1x	2x	3x	4x	5x	6x	7x	8x	9x	Ax	Bx	Cx	Dx	Ex	Fx
x0	20	10	20	20	20	26	2D	20	20	20	20	20	7B	7D	5C	30
x1	01	11	20	20	20	20	20	20	61	6A	7E	20	41	4A	20	31
x2	02	12	20	20	20	20	20	20	62	6B	73	20	42	4B	53	32
x3	03	13	20	20	20	20	20	20	63	6C	74	20	43	4C	54	33
x4	04	14	20	20	20	20	20	20	64	6D	75	20	44	4D	55	34
x5	05	15	20	20	20	20	20	20	65	6E	76	15	45	4E	56	35
x6	06	16	20	20	20	20	20	20	66	6F	77	14	46	4F	57	36
x7	07	17	20	20	20	20	20	20	67	70	78	20	47	50	58	37
x8	08	18	20	20	20	20	20	20	68	71	79	20	48	51	59	38
x9	09	19	20	20	20	20	20	60	69	72	7A	20	49	52	5A	39
xA	0A	1A	20	20	20	21	7C	3A	20	A6	20	5E	2D	F2	20	20
xB	0B	1B	20	20	2E	24	2C	23	20	20	20	5D	20	5B	20	5B
xC	0C	1C	20	20	3C	2A	25	40	20	20	20	20	20	20	20	20
xD	0D	1D	20	20	28	29	20	27	20	20	18	20	20	20	20	20
xE	0E	1E	20	20	2B	3B	3E	3D	20	20	20	27	20	20	20	20
xF	0F	20	20	20	5D	5E	3F	22	20	0F	20	20	20	20	20	20

Second Hexadecimal Character of EBCDIC Character Set Enter 2 digit hex EBCDIC character code to change

Figure 4-22. MC TASK 16 Screen Display.

#### NOTE

Figure 4-22 shows the standard (default) EBCDIC-to-ASCII screen. If you are editing an already-altered conversion table, the display on your screen will be different from the one shown.

2. The prompt at the bottom of your screen asks for the hexadecimal value of the EBCDIC character you want to remap. Enter this value (see Figure F-1), (For example, if you wanted to change the value of the U character, you would key in **E4** (EBCDIC hexadecimal value) and then press **<Enter>**). The following prompt displays on your screen:

Enter PC/ASCII character code for the EBCDIC character (X#) in hex == >

3. Enter the hexadecimal value (see Figure F-2) for the PC/ASCII character that is to be used in place of the 5250 EBCDIC character. To continue the above example, you would enter **9A** (the hexadecimal code value for U umlaut) and press **<Enter>**.
4. Repeat steps 1 through 4 until you have made the necessary changes to the keyboard.
5. Press **<Esc>** and go to MC TASK 3.

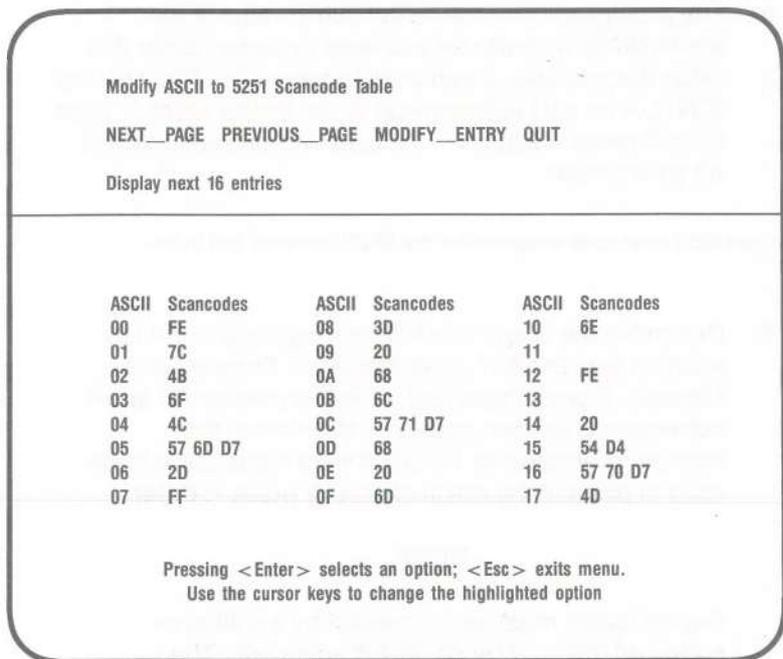
### MC TASK 17

*Task Objective:* Modify ASCII to 5251 scan code table.

*Explanation of Task:* International terminals may require that the standard terminal/ASCII to 5250 scan codes tables be modified. This task maps the terminal/ASCII keyboard characters to the corresponding 5250 scan codes. You may also use this task to assign multiple scan codes to terminal/ASCII keys. The maximum number of multiple scan codes per key is three (See the *AST-5250/Emulation Program Base Manual* for the default mapping).

*Procedure:*

1. Select the *ASCII* option press **<Enter>**. The screen shown in Figure 4-23 displays on your screen.



**Figure 4-23. MC TASK 17 Screen Display.**

2. Use the cursor keys to toggle between *NEXT\_PAGE* and *PREVIOUS\_PAGE* for scan code entry selection.

3. Select *MODIFY\_ENTRY* and press <Enter>. The following prompt displays at the bottom of your screen:

Enter 2 digit hex ASCII character code to change >

4. The prompt asks for the hexadecimal value of the terminal/ASCII character you want to remap. Enter this value (for example, if you want to remap the ASCII 01 key (CNTL-A on a VT100 terminal) to the capital letter A. Type 01 and press <Enter>. The following prompt displays on your screen:

Enter new 5250 scan code sequence for the ASCII character (xx) in hex >

5. Determine the scan code that corresponds to the key position (see the *AST-5250/Emulation Program Base Manual*). (For example, the "A" key is position 46 and it corresponds to scan code 11.) Now key in the hexadecimal value for the 5250 scan code that is to be used in place of the ASCII character press <Enter>.

#### NOTE

Capital letters must be preceded by a shift scan code and followed by an unshift scancode. The proper key sequence for a capital "A" would be: 57 11 D7. Where, 57 is the scan code for shift and D7 is the scan code for unshift.

6. Repeat steps 2 through 5 until you have made the necessary changes to the keyboard.
7. Press <Esc> and go to MC TASK 3.

**MC TASK 18**

*Task Objective:* Modify the terminal control strings.

*Explanation of Task:* Translate or modify the default character strings sent to and from the cluster master and ASCII terminal. (Additional information concerning terminals is provided in Appendix D of this manual.)

*Procedure:*

1. The following menu line displays on your screen:

TO FROM QUIT

2. Select the option you want and go to the appropriate task specified for that parameter in Table 4-22.
3. When you have finished modifying the control strings press <Esc> and go to MC TASK 3.

**Table 4-22. MC TASK 18 Options.**

Options	MC TASK
TO	Go to MC TASK 19.
FROM	Go to MC TASK 20.
QUIT	Go to Section 4.3.10.

## MC TASK 19

*Task Objective:* Modify the strings sent by cluster master to ASCII terminal.

*Explanation of Task:* Customize the standard control strings sent by the cluster master to the ASCII terminal.

### *Procedure:*

1. The following screen (Figure 4-24) displays:

Pressing <Enter> selects an option; <Esc> exits menu.  
Use the cursor keys to change the highlighted option.

Current Terminal Control Strings

1. Cursor positioning (begin):	1B 5B
2. Cursor positioning (middle):	3B
3. Cursor positioning (end):	4B
4. Erase to end of line:	1B 5B 30 4B
5. Erase to end of page:	1B 5B 30 4A
6. Erase line to cursor:	1B 5B 31 4B
7. Erase entire screen:	1B 5B 32 4A
8. Turn cursor off:	1B 5B 31 76
9. Turn cursor on:	1B 5B 30 76
10. Start high intensity field:	1B 5B 31 6D
11. End high intensity field:	1B 5B 30 6D
12. Start blinking field:	1B 5B 35 6D
13. Start reverse video field:	1B 5B 37 6D
14. Start underlined field:	1B 5B 34 6D
15. Start normal field:	1B 5B 30 6D
16. Cursor positioning width:	2
17. Cursor positioning (row/col):	0102030405060708091011121314151617181920
18. Cursor positioning (row/col):	2122232425262728293031323334353637383940
19. Cursor positioning (row/col):	4142434445464748495051525354555657585960
20. Cursor positioning (row/col):	6162636465666768697071727374757677787980

Enter the number you want to change or <ESC> to exit

Figure 4-24. MC TASK 19 Screen Display.

**NOTE**

Figure 4-24 shows the list of standard control strings. If you are editing an already-altered list, the display on your monitor screen will be different from the one shown.

The prompt at the bottom of the screen asks you to enter the number (1 through 20) of the control string that is to be altered.

2. Enter the appropriate number and press **<Enter>**. (Press **<Esc>** if you do not want to change any messages.) The following prompt displays on your screen:

Enter new "name of control string" terminal string (hex format) == >

3. Key in the control string that is to replace the specified string and press **<Enter>**. Note that the revised string has replaced the original string in the displayed list of control strings.
4. Repeat steps 2 and 3 until you have edited all control strings that need changing.
5. Press **<Esc>** and go to MC TASK 18.

**MC TASK 20**

*Task Objective:* Modify the strings recognized by the cluster master as cursor movements from ASCII terminals.

*Explanation of Task:* Customize the control strings governing the cursor movements. This task allows you to customize your particular ASCII terminal.

Procedure:

1. Select the *FROM* option. The screen shown in Figure 4-25 displays on your screen.

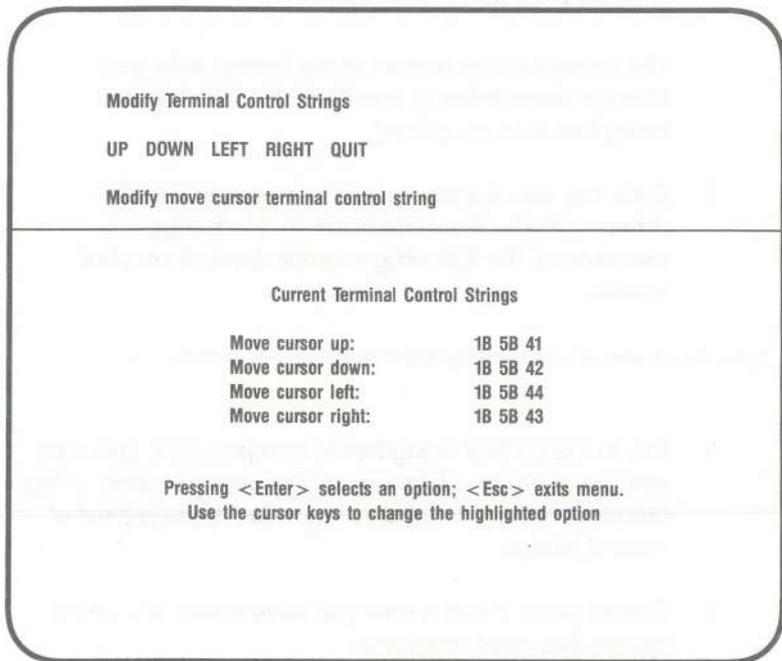


Figure 4-25. MC TASK 20 Screen Display.

2. Select the cursor terminal control string you want to modify, and press **<Enter>**. The following message and prompt displays at the bottom of your screen:

Enter new cursor direction terminal control string = = >

3. In response to this prompt, key in the hexadecimal character sequence your terminal uses to specify cursor movement (UP, DOWN, LEFT, or RIGHT) you want to set up and press **<Enter>**.
4. Press **<Esc>** and go to MC TASK 18.

**NOTE**

*AST-5250/Async Dialup users:* If you have completed MC TASK 3 through 20 your configuration is complete. Return to the master menu and SAVE your configuration.

**MC TASK 21**

*Task Objective:* Modify the four-port board interrupt selection.

*Explanation of Task:* Specify the interrupt channel (2 through 7) to be used by the Async Cluster Adapter board. The selected channel must be the same as the one established by the IRQ switch settings on the Async Cluster Adapter Board.

**NOTE**

The default (factory configuration) IRQ switch setting on the Async Cluster Adapter is 2 "ON".

*Procedure:*

1. Select the *INTERRUPT* option. The following menu line displays on your screen:

2 3 4 5 6 7 QUIT

2. Select the interrupt channel number you want to set up for your four-port board and return to MC TASK 1.

**MC TASK 22**

*Task Objective:* Modify the four-port board I/O address selection.

*Explanation of Task:* Specify the I/O address (2BF or 1BF) to be used by your Async Cluster Adapter Board. The selected address must be the same as the one established by the I/O address switch setting on the Async Cluster Adapter Board. The default I/O address setting is SW4-1 ON and SW3-2 ON; the compatible mode.

The default setting of the Async Cluster Adapter board is not appropriate for AST-5250/Cluster usage. You *must* change the switch setting on the Async Cluster Adapter and your I/O address selection must correspond with that change. Refer to Section 4 of the *Async Cluster Adapter User's Manual* to determine the proper I/O address for AST Premium/286, PC, PC XT, and PC AT.

*Procedure:*

1. Select the I/O option. The following menu line will be displayed on your screen:

2BF 1BF QUIT

2. Select the I/O address you want to set up for your Async Cluster Adapter board. The current I/O address displays near the center-left portion of your screen.
3. Return to MC TASK 2; or press <Esc> to retain the current value and exit the menu.

#### 4.3.9 Master Gateway (MG) TASKS

This section provides instructions for configuring your master gateway options.

##### MG TASK 1

*Task Objective:* Modify gateway selections.

*Explanation of Task:* Specify the network name for your gateway PC and select specific timeout values (if necessary).

*Procedure:*

1. Select the GATEWAY option. The following menu line displays on your screen:

Network Name Timeout Values QUIT

2. Select the parameter you want to set up and go to the task specified for that option in Table 4-22.

Table 4-22. MG TASK 1 Options

Option	MG TASK
Network Name	Go to MG TASK 2.
Timeout Values	Go to MG TASK 3.
QUIT	Go to Section 4.3.10.

### MG TASK 2

*Task Objective:* Specify a network name for your master gateway.

*Explanation of Task:* A network name provides a unique identity and a user-friendly way to identify your master gateway PC. It must be different from any other name used on the network.

#### *Procedure:*

1. Select the *Network Name* option. The following message/prompt displays in the center of your screen:

Current network name is: NONE  
Enter network name for this gateway PC:

2. Respond to the prompt by keying in your network name (1 to 15 characters).
3. Return to MG TASK 1.

### MG TASK 3

*Task Objective:* Specify the timeout values for your master gateway.

*Explanation of Task:* The timeout value is the time allotted messages to travel between two physical devices (for example, a System/3X and a gateway PC) before an error message occurs.

*Procedure:*

1. Select the *Timeout Values* option. The following message/prompt displays in the center of your screen:

Current send timeout value is : 0

Current receive timeout value is: 0

Enter network send timeout value (in msec):

Enter network receive timeout value (in msec):

2. Specify the send and receive values and return to MG TASK 1.

#### 4.3.10 SAVE and QUIT TASKs

This section provides instructions for saving your configuration file and exiting the configuration program.

##### SAVE

*Task Objective:* Save the customized configuration file.

*Explanation of Task:* Save your newly established parameters in a disk file. First, you must assign a file name to this configuration file. It is possible to have several different configuration files that you can use at any given emulation session. Keep this in mind when you assign names to your configuration files.

Also remember, that the software has a default configuration (see Appendix A). If you want to leave this default file intact, you should select a file name other than AST5251.CFG. If you select

AST5251.CFG your customized configuration will replace the default configuration file.

If you specified a file name other than AST5251.CFG, this file name will be the default for the newly created or edited file you are saving. That is, if you want your new configuration file to replace the file you specified, use the same file name. However, if you want to keep the original file and want the new file as an alternate configuration, you should specify a different file name for this file.

*Procedure:*

1. Position the reverse-video over the option you want to select. The following message/prompt will appear on your screen:

Window size is set at: *x KB*  
Save configuration file ([y]/n)?

where:

*x KB* is the window size computed by the configuration program.

2. If you want to use AST5251.CFG as the file name (*y* is default), and go directly to the QUIT task.

If you want to assign a new file name, press *< n >* *< Enter >*. The following prompt will appear on your screen:

Enter filename

3. In response to this prompt, key in the new file name and go to the QUIT task (use the standard DOS syntax for file names).

## QUIT

*Task Objective:* Exit the configuration program.

*Explanation of Task:* You will be asked if you want to Quit. A no response will keep you in the configuration mode. A yes response will determine if any modifications have been made to the configuration. If modifications have been made, you will be asked if you want to save them. A yes response will save the present configuration and return you to DOS. A no response will return you to DOS and no changes will be made.

*Procedure:*

1. Select the QUIT option, press <Enter>.

## **PART III. APPENDICES**

---

- A. Configuration Reference
- B. Troubleshooting
- C. Error Messages
- D. Technical Support Checklist

# NOTES

INSTRUCTIONS FOR THE STUDENT

---

1. Read the instructions carefully.

2. Write your name and date.

3. Answer the questions.

4. Check your answers before submitting.



This section provides a default software configuration overview, hardware specifications, and twinaxial cable information.

## A.1 Software Configuration Default Values

Tables A-1 through A-16 show the default configuration of the AST-5251/11 software. If the default configuration suits the requirements of your system, there is no need for you to change it. However, if you want to set up a customized set of parameters, you will need to configure your software by running the software configuration program (Section 4).

**Table A-1. Default Adapter Board Configuration.**

Parameter	Default	TASK #
IRQ	2	/11 3
MEMORY_ADR	0D000h	/11 4
I/O Address	250	/11 5

**Table A-2. Default Display Configuration.**

Parameter	Default	TASK #
AST-5251-PAK	not installed	/11 6
Station address	0	ST 1
Display type	5251/11	ST 3
Adapter card	monochrome	/11 8
Attributes	normal video	/11 11
IBM API	off	/ST 4
Startup mode	emulation	/11 14
Snapshot screens	1	/11 15

**Table A-3. Default Keyboard Configuration.**

Parameter	Default	TASK #
Click	on	KB 2
Keyboard type	USA	KB 3

**NOTE**

The default help screen configuration help-screen file (AST5251.HLP) is the graphic keyboard template display of standard keyboard configuration.

Table A-4. Default Printer Configuration.

Parameter	Default	TASK #
Printer model type	5256	ST 8
Printer signal type	parallel	ST 11
Optimization	Epson™	ST 10 and ST 24 thru ST 34

Table A-5. Default Security Configuration.

Parameter	Default	TASK #
Configuration security	off	SE 2
Emulation security	off	SE 2
Hot-key security	off	SE 3

Table A-6. Default Master Cluster Comport Configuration.

Parameter	Default	TASK #
Baud	9600	MC 5
Data	8	MC 6
Stop	1	MC 7
Parity	no	MC 8
Com__port	COM1	MC 9

Configuration Reference

Table A-7. Default Master Gateway Configuration

Parameter	Default	TASK #
Network Name	5250Gateway (port #)	MG 2
Send Timeout	0	MG 3
Receive Timeout	0	MG 3

Table A-8. Default Epson Printer String Functions/Character Sequences.

Function	Character Sequence
Characters per inch:	
5	12 1B 57 01 1B 50
6	12 1B 57 01 1B 4D
9	1B 50 0F 1B 57 01
10	12 1B 57 00 1B 50
12	12 1B 57 00 1B 4D
15	1B 57 00 1B 50 0F
17	1B 57 00 1B 50 0F
20	1B 57 00 0F 1B 4D
Lines per inch:	
2	1B 41 24
4	1B 41 12
6	1B 41 0C
8	1B 41 09
9	1B 41 08
12	1B 41 06
18	1B 41 04
24	1B 41 03
36	1B 41 02
72	1B 41 01
RESET	1B 40
UNDERLINE	
START_UNDERLINE	1B 2D 01
END_UNDERLINE	1B 2D 00
SUPERSCRIP	
START_SUPER	1B 53 00
END_SUPER	1B 54
SUBSCRIPT	
START_SUB	1B 53 01
END_SUB	1B 54
BIN	
SHEETFEED_BIN1	none
SHEETFEED_BIN2	none
VMI	
BEGIN_VMI	1B 41
END_VMI	none
VMI_UNITS	n/72

Configuration Reference

Table A-9. Default IBM 4201 Proprinter Printer String Functions/Character Sequences.

Function	Character Sequence
Characters per inch:	
5	12 1B 57 01
6	12 1B 57 01 1B 3A
9	0F 1B 57 01
10	12 1B 57 00
12	12 1B 57 00 1B 3A
15	1B 57 00 0F
17	1B 57 00 0F
20	1B 57 00 0F
Lines per inch:	
2	1B 41 24 1B 32
4	1B 41 12 1B 32
6	1B 41 0C 1B 32
8	1B 41 09 1B 32
9	1B 41 08 1B 32
12	1B 41 06 1B 32
18	1B 41 04 1B 32
24	1B 41 03 1B 32
36	1B 41 02 1B 32
72	1B 41 01 1B 32
RESET	none
UNDERLINE	
START__UNDERLINE	1B 2D 01
END__UNDERLINE	1B 2D 00
SUPERSCRIP <sup>T</sup>	
START__SUPER	1B 53 00
END__SUPER	1B 54
SUBSCRIPT	
START__SUB	1B 53 01
END__SUB	1B 54
BIN	
SHEETFEED__BIN1	none
SHEETFEED__BIN2	none
VMI	
BEGIN__VMI	1B 41
END__VMI	1B 32
VMI__UNITS	n/72

**Table A-10. Default IBM 5152-1 Matrix Printer String Functions/Character Sequences.**

Function	Character Sequence
Characters per inch:	
5	12 1B 57 01
8	0F 1B 57 01
10	12 1B 57 00
17	1B 57 00 0F
Lines per inch:	
2	1B 41 24 1B 32
4	1B 41 12 1B 32
6	1B 41 0C 1B 32
8	1B 41 09 1B 32
9	1B 41 08 1B 32
12	1B 41 06 1B 32
18	1B 41 04 1B 32
24	1B 41 03 1B 32
36	1B 41 02 1B 32
72	1B 41 01 1B 32
RESET	none
UNDERLINE	
START_UNDERLINE	none
END_UNDERLINE	none
SUPERSCRIP	
START_SUPER	none
END_SUPER	none
SUBSCRIPT	
START_SUB	none
END_SUB	none
BIN	
SHEETFEED_BIN1	none
SHEETFEED_BIN2	none
VMI	
BEGIN_VMI	1B 41
END_VMI	1B 32
VMI_UNITS	n/72

**Table A-11. Default IBM 5152-2 Graphics Printer String Functions/Character Sequences.**

Function	Character Sequence
Characters per inch:	
5	12 1B 57 01
8	0F 1B 57 01
10	12 1B 57 00
17	0F 1B 57 00
Lines per inch:	
2	1B 41 24 1B 32
4	1B 41 12 1B 32
6	1B 41 0C 1B 32
8	1B 41 09 1B 32
9	1B 41 08 1B 32
12	1B 41 06 1B 32
18	1B 41 04 1B 32
24	1B 41 03 1B 32
36	1B 41 02 1B 32
72	1B 41 01 1B 32
RESET	none
UNDERLINE	
START_UNDERLINE	1B 2D 01
END_UNDERLINE	1B 2D 00
SUPERSCRIP	
START_SUPER	1B 53 00
END_SUPER	1B 54
SUBSCRIPT	
START_SUB	1B 53 01
END_SUB	1B 54
BIN	
SHEETFEED_BIN1	none
SHEETFEED_BIN2	none
VMI	
BEGIN_VMI	1B 41
END_VMI	1B 32
VMI_UNITS	n/72

**Table A-12. Default IBM 5201-1 Quietwriter Printer String Functions/Character Sequences.**

Function	Character Sequence
Characters per inch:	none
Lines per inch:	
2	1B 41 24 1B 32
4	1B 41 12 1B 32
6	1B 41 0C 1B 32
8	1B 41 09 1B 32
9	1B 41 08 1B 32
12	1B 41 06 1B 32
18	1B 41 04 1B 32
24	1B 41 03 1B 32
36	1B 41 02 1B 32
72	1B 41 01 1B 32
RESET	none
UNDERLINE	
START__UNDERLINE	1B 2D 01
END__UNDERLINE	1B 2D 00
SUPERSCRIPIT	
START__SUPER	1B 53 00
END__SUPER	1B 54
SUBSCRIPIT	
START__SUB	1B 53 01
END__SUB	1B 54
BIN	
SHEETFEED__BIN1	none
SHEETFEED__BIN2	none
VMI	
BEGIN__VMI	1B 41
END__VMI	1B 32
MI_UNITS	n/72

Configuration Reference

**Table A-13. Default IBM 5216-1 Wheelprinter Printer String Functions/Character Sequences.**

Function	Character Sequence
Characters per inch:	
8	1B 3E 4F
9	1B 3E 4D
10	1B 3E 4C
11	1B 3E 4B
12	1B 3E 4A
13	1B 3E 49
15	1B 3E 48
17	1B 3E 47
20	1B 3E 46
24	1B 3E 45
Lines per inch:	
2	1B 41 18 1B 32
4	1B 41 0C 1B 32
6	1B 41 08 1B 32
8	1B 41 06 1B 32
9	1B 41 05 1B 32
12	1B 41 04 1B 32
16	1B 41 03 1B 32
24	1B 41 02 1B 32
48	1B 41 01 1B 32
RESET	1B 5B 4B 01 00 03
UNDERLINE	
START_UNDERLINE	1B 2D 01
END_UNDERLINE	1B 2D 00
SUPERSCRIP	
START_SUPER	1B 69
END_SUPER	1B 68
SUBSCRIPT	
START_SUB	1B 68
END_SUB	1B 69
BIN	
SHEETFEED_BIN1	none
SHEETFEED_BIN2	none
VMI	
BEGIN_VMI	1B 41
END_VMI	1B 32
VMI_UNITS	n/72

**Table A-14. Default MEC 3550 Spinwriter Printer String Functions/Character Sequences.**

Function	Character Sequence
Characters per inch:	
8	1B 5D 4F
9	1B 5D 4D
10	1B 5D 4C
11	1B 5D 4B
12	1B 5D 4A
13	1B 5D 49
15	1B 5D 48
17	1B 5D 47
20	1B 5D 46
24	1B 5D 45
Lines per inch:	
2	1B 41 18 1B 32
4	1B 41 0C 1B 32
6	1B 41 08 1B 32
8	1B 41 06 1B 32
9	1B 41 05 1B 32
12	1B 41 04 1B 32
16	1B 41 03 1B 32
24	1B 41 02 1B 32
48	1B 41 01 1B 32
RESET	1B 26
UNDERLINE	
START_UNDERLINE	1B 2D
END_UNDERLINE	1B 27
SUPERSCRIP	
START_SUPER	1B 3B
END_SUPER	1B 3A
SUBSCRIPT	
START_SUB	1B 3A
END_SUB	1B 3B
BIN	
SHEETFEED_BIN1	1B 5C 41
SHEETFEED_BIN2	1B 5C 42
VMI	
BEGIN_VMI	1B 41
END_VMI	1B 32
VMI_UNITS	n/48

Configuration Reference

**Table A-15. Default Diablo 630 Printer String Functions/Character Sequences.**

Function	Character Sequence
Characters per inch:	
8	1B 1F 0E
9	1B 1F 0C
10	1B 1F 0B
11	1B 1F 0A
12	1B 1F 09
13	1B 1F 08
15	1B 1F 07
17	1B 1F 06
20	1B 1F 05
24	1B 1F 04
Lines per inch:	
2	1B 1E 17
4	1B 1E 0B
6	1B 1E 07
8	1B 1E 05
9	1B 1E 04
12	1B 1E 03
16	1B 1E 02
24	1B 1E 01
48	1B 1E 00
RESET	1B 0D 50
UNDERLINE	
START__UNDERLINE	none
END__UNDERLINE	none
SUPERSCRIPIT	
START__SUPER	1B 55
END__SUPER	1B 44
SUBSCRIPT	
START__SUB	1B 44
END__SUB	1B 55
BIN	
SHEETFEED__BIN1	none
SHEETFEED__BIN2	none
VMI	
BEGIN__VMI	1B 1E
END__VMI	none
VMI__UNITS	(n-1)/48

**Table A-16. Default IBM 5182 Color Printer String Functions/Character Sequences.**

Function	Character Sequence
Characters per inch:	
5	12 1B 57 01
6	1B 3A 1B 57 01
9	0F 1B 57 01 01
10	12 1B 57 00
12	1B 3A 1B 57 00
17	0F 1B 57 00
Lines per inch:	
2	1B 41 24 1B 32
4	1B 41 12 1B 32
6	1B 41 0C 1B 32
8	1B 41 09 1B 32
9	1B 41 08 1B 32
12	1B 41 06 1B 32
18	1B 41 04 1B 32
24	1B 41 03 1B 32
36	1B 41 02 1B 32
72	1B 41 01 1B 32
RESET	none
UNDERLINE	
START_UNDERLINE	1B 2D 01
END_UNDERLINE	1B 2D 00
SUPERSCRIP	
START_SUPER	1B 53 00
END_SUPER	1B 54
SUBSCRIPT	
START_SUB	1B 53 01
END_SUB	1B 54
BIN	
SHEETFEED_BIN1	none
SHEETFEED_BIN2	none
VMI	
BEGIN_VMI	1B 41
END_VMI	1B 32
VMI_UNITS	n/72

## A.2 Hardware Specifications

The following information describes the technical specifications of the AST-5251/11 twinax adapter board. All specifications are subject to change.

### Power Requirements

+5 V at 2.0 A (provided by the PC)  
-5 V at 180 mA (provided by the PC)

### Physical

Board Size: 4" X 13" (10.2 x 34.3 cm)

### Environmental

Temperature:

Operating 32<sup>o</sup> to 110<sup>o</sup> F (0<sup>o</sup> to 45<sup>o</sup> C)

Storage -20<sup>o</sup> to 160<sup>o</sup> F (-30<sup>o</sup> to 70<sup>o</sup> C)

Relative Humidity:

0 to 95% noncondensing

Heat Generation:

10.5 W

### Functional

Microprocessor:

Intel 80186 (8 megaHertz)  
Communications Processor -- proprietary 16 bit (8 MHz)

Interface:

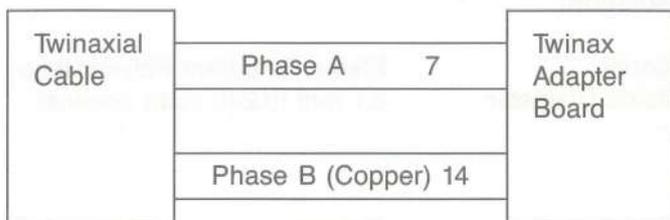
15-in D-shell connector with twinaxial cable assembly for connection to IBM System 34/36/38

## A.3 Twinaxial Cable Information

This information presents the pinouts for the 15-pin D-shell connectors that attach the twinax stub cable and the twinax adapter board (TAB). It also lists the recommended technical specifications for twinaxial cable.

### A.3.1 Connector Pinouts

The pinouts for the 15-pin D-shell connector are shown in Figure A-1.



Pins 1- 6 Not Used.

Pins 8-13 Not Used.

Pin 15 Not Used.

**Figure A-1. DA15P-731 and DA15S Connector Pinouts.**

## Configuration Reference

### A.3.2 Twinaxial Cable Specification

The following specifications define the recommended twinaxial cable.

#### Conductors:

AWG Wire Size	20
Stranding	7 x 28
Material	Copper
Coating	Tin (one conductor only)

#### Core Insulation:

Material	Flame Retardant Polyethylene
Outside Diameter	6.1 mm (0.240 inch) nominal

#### Shield:

Material	Copper
Type	168 x AWG 34
Coverage	85% minimum

#### Jacket:

Material	Vinyl
Color	Black
Average Single-Wall Thickness	0.76 mm (0.029 inch)
Outside Diameter	8.25 mm (0.325 inch) nominal

#### Ratings:

Dielectric Strength 4,500 VDC for 3 secs at 28° C (82° F)

#### Capacitance:

16.2 pF/foot maximum

**Impedance Characteristic:**

111 + 5% ohms at 0.5 MHz  
107 + 5% ohms at 1.0 MHz  
105 + 5% ohms at 2.0 MHz  
105 + 5% ohms at 10.0 MHz

**Attenuation at 100 MHz:**

4.5 db/100 feet maximum at 25° C (77° F)  
4.7 db/100 feet maximum at 80° C (176° F)

**Velocity of Propagation:**

61 to 71%

**Operating Environment:**

Temperature -40° C to 80° C (-40° F to 176° F)

Relative Humidity 10 to 90%

**Cable Type:**

Belden 8227 or equivalent

**A.3.3 Building a Stub Cable**

This subsection explains how to put together a twinax stub cable that can be used to connect the PC to the host cable. Table A-1 lists the stub cable components. Figure A-2 shows the parts of the twinax connector and cable that are referenced in the following steps.

Configuration Reference

Table A-17. Stub Cable Components.

Description	AST Part No.	Vendor Part No.
Stub cable assembly	220006-001	n/a
Connector twinax	165200-001	Amphenol 82-5529
15-Socket D-shell connector	65100-016	Amphenol 17-80150-16
15-Pin D-shell connector	167000-008	AMP 745172-1
T-connector	165200-002	Amphenol 82-5677
Cable	194200-005	Belden 8227

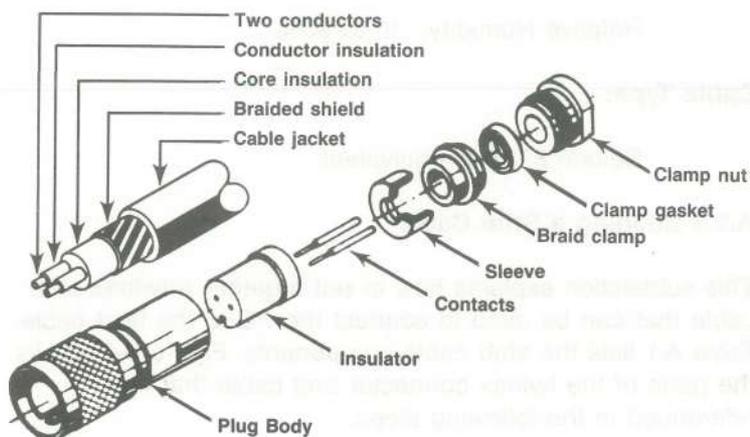


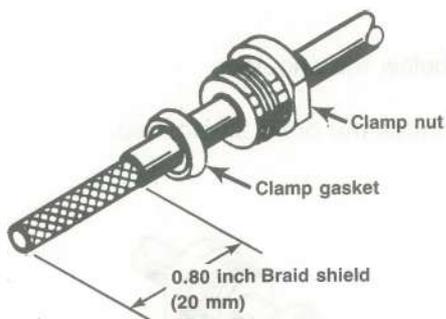
Figure A-2. Connector and Cable Parts.

**STEP 1**

Cut a length of twinax cable that measures 8 to 12 inches (0.2 to 0.3 meter), making a sharp, square cut on both ends.

**STEP 2**

Slide a clamp nut and clamp gasket over one square-cut end of the cable as shown in Figure A-3.



**Figure A-3. Placing Clamp Nut and Gasket.**

Move the nut and gasket onto the cable so you can trim away the cable jacket to a length of 0.80 inch (20 millimeter) as shown in Figure A-3.

**Configuration Reference**

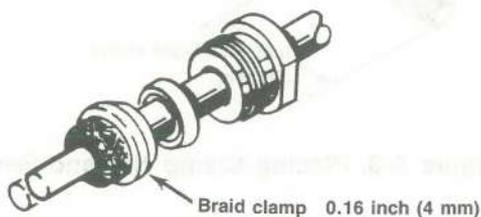
**STEP 3**

Slide a braid clamp over the braided shield so the inner shoulder fits snugly against the cable jacket.

Fold the braid wires back over the clamp maintaining a uniform placement of the braid wires. Try to fold the braid so that it is evenly spread back over the clamp. A consistent thickness ensures a good connection and helps prevent breaking of the shield wires.

Trim the braid below the shoulder.

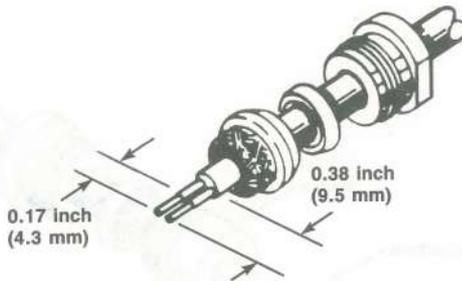
Figure A-4 illustrates the braid shield step.



**Figure A-4. Braid Shield Step.**

**STEP 4**

Trim the cable core insulation and the conductor insulation as shown in Figure A-5. Take care not to “nick” or damage the conductors or conductor insulation. If the braid becomes frayed, trim it again.



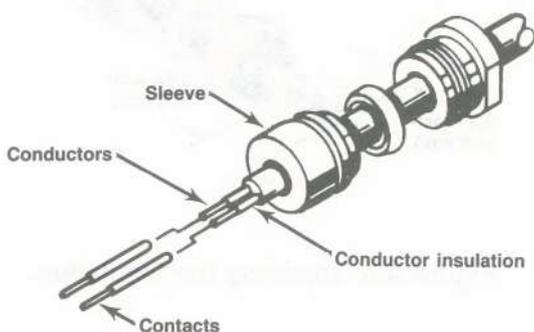
**Figure A-5. Trimming the Insulation.**

**Configuration Reference**

**STEP 5**

Slide the sleeve over the cable core insulation, firmly pushing the sleeve against the braid wires. See Figure A-6.

Press the contacts against the conductor insulation and solder the contacts to the conductors. Use minimum heat. Remove any excess solder.

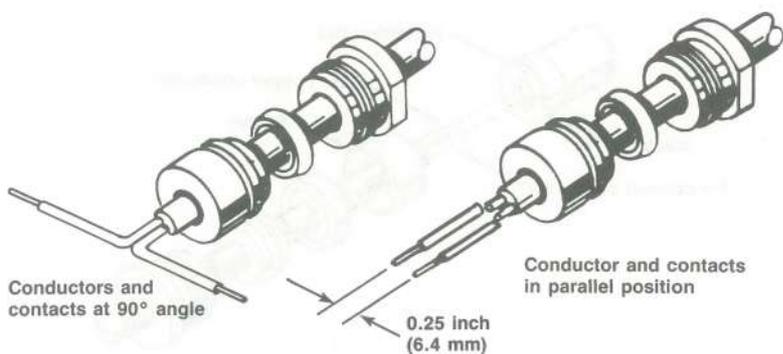


**Figure A-6. Solder Contacts.**

**STEP 6**

Bend the conductors and contacts out at right angles to the cable as shown in Figure A-7.

Then move the conductors back to a parallel position with approximately 0.25 inch (6.4 millimeter) of space between them.



**Figure A-7. Bending the Conductors into Position.**

Configuration Reference

**STEP 7**

Place the insulator over the contacts and cable, pressing the insulator against the sleeve.

Press all parts of on the cable together firmly.

Place the bare copper conductor of the cable into the insulator hole that has a dot next to it, as shown in Figure A-8.

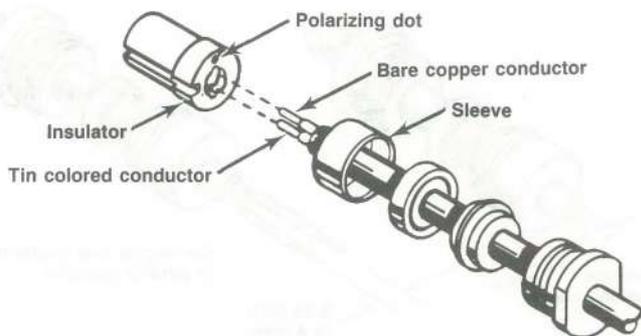


Figure A-8. Placing the Insulator.

**STEP 8**

Place the plug body onto the cable by inserting the assembly into the plug body. Align the polarizing slot in the insulator with the polarizing pin inside the plug body, as shown in Figure A-9. Tighten the clamp nut by turning it.

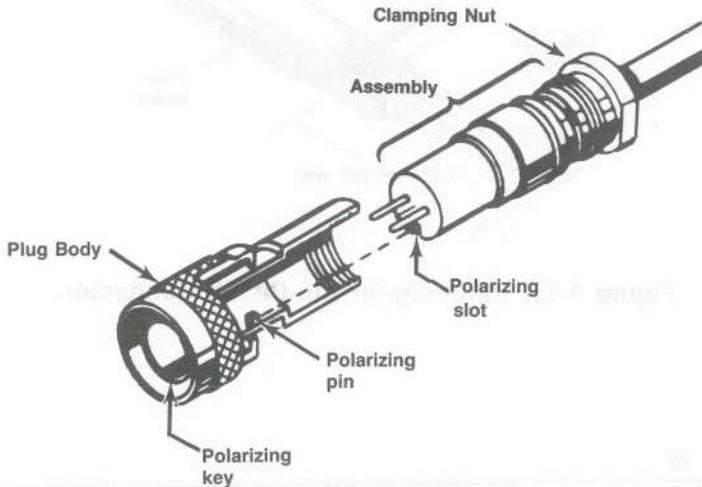
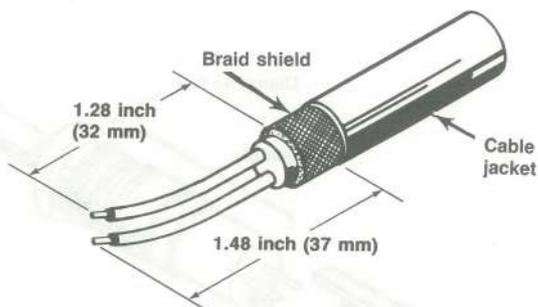


Figure A-9. Placing the Plug Body.

Configuration Reference

**STEP 9**

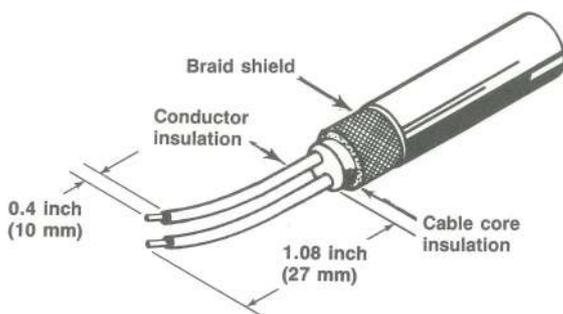
On the other square-cut end of the cable, trim the cable jacket and braid as shown in Figure A-10.



**Figure A-10. Trimming for the DA15S Connector.**

**STEP 10**

Trim the cable core insulation and the conductor insulation as shown in Figure A-11. Take care not to nick or damage the conductors or conductor insulation. If the braid becomes frayed, trim it again.



**Figure A-11. Trimming the Jacket.**

**STEP 11**

Solder the contacts to the conductors. Use minimum heat.  
Remove excess solder. See Figure A-12.

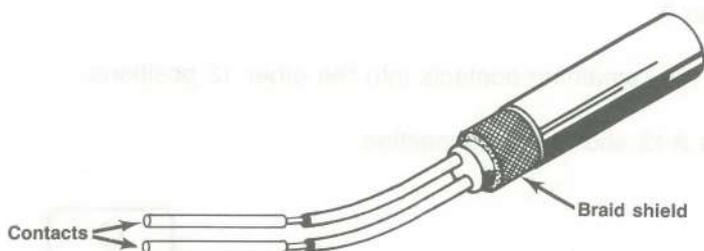


Figure A-12. Soldering the Concats to the Conductors.

**Configuration Reference**

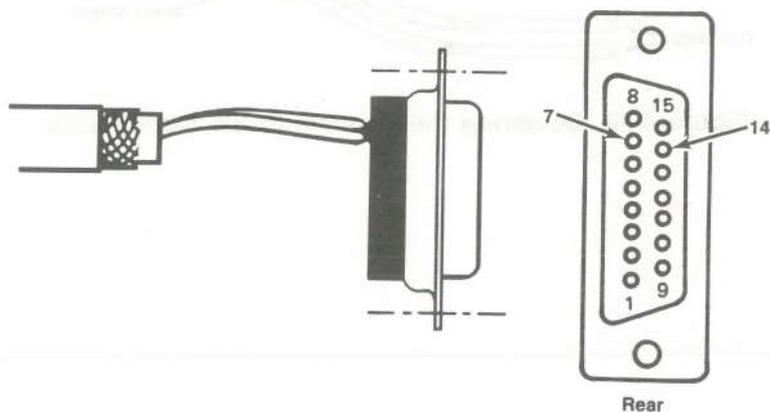
**STEP 12**

Insert the contact on the copper conductor into connector position 14.

Insert the contact on the tin conductor into the connector position 7.

Insert the remaining contacts into the other 13 positions.

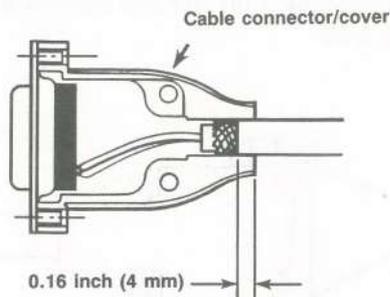
Figure A-13 shows the connection.



**Figure A-13. Inserting the Contacts.**

**STEP 13**

Lay the cable connector/cover on a flat surface and place the connector assembly as shown in Figure A-14. The cable jacket should extend approximately 0.16 inch (4 millimeter) into the cable cover.



**Figure A-14. Adding the Connector Cover.**

### Configuration Reference

#### STEP 14

Place the other half of the cable connector/cover on the connector assembly and press it firmly together.

Hold the assembly in one hand and install the two mounting screws through the cover and connector.

Fasten the assembly together with the the two screws and nuts provided. See Figure A-15.

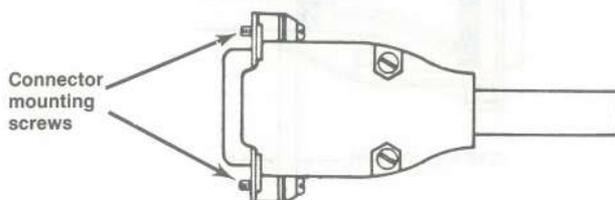


Figure A-15. Fastening the Cover.

Once the assembly is completed, check for shorts between the contacts and between each contact and the plug body. Also, check the fit of the two connectors on the cable.

Although your AST-5251/11 product is designed to be easy to install and to operate reliably and efficiently, occasionally, problems may occur. The AST-5251/11 product is a sophisticated product that, of necessity, interfaces with your host system. In a situation where a host computer is involved, problems resulting from the host connection are always a possibility.

This section explains some possible causes and solutions for problems that may occur. Often problems occur immediately after installation; usually this type of problem results from a minor oversight in the installation process.

The information in this section is only a brief guide for troubleshooting and is not intended to be all-inclusive or highly technical. One of your first recourses should be to check with the host systems person who technically troubleshoots your System/3X. Also, be sure you have the name and telephone number of that person available in the event you must call your dealer or AST for technical support.

If a problem occurs, try the following:

1. If you changed any of the factory-default settings, verify the changes have been entered in the software configuration program.
2. See if the same problem occurs in another PC.
3. Move the PC with the problem to a different location.
4. Make the PC with the problem the first terminal on the line. Make the PC the terminator.
5. If you encounter an error when the KERNEL program is run, remove the twinax stub cable from the board and rerun KERNEL.

6. Remove extra cards from the PC. This includes any other emulation cards and network cards. Reseat AST board with factory configuration. Invoke emulation. If emulation begins, then add other boards one at a time.

You should carefully track the situation - that is, (1) write down all of the possible solutions that you need to try or have tried; (2) list any error messages displayed or system operational symptoms observed; and (3) gather all pertinent information about the hardware and software configurations. Appendix D provides a checklist of information that needs to be available in the event you must call your dealer or AST for technical support. Also, have the host information checklist (Section 1.4) on hand for reference.

## **B.1 Power-On Sequence and Self-Testing Problems**

If your PC does not respond during the power-on sequence after you have installed the twinax adapter board (TAB), you need to check the hardware connections.

When you initially invoke the AST-5251/11 emulation software, the TAB goes through a series of self-testing diagnostics that may fail because of an installation problem.

This subsection considers those types of failures.

### **B.1.1 Power-On Failure**

The first, most obvious failure is that the system does not power-on or some part of the system (screen or keyboard) does not respond.

Check that the following hardware is properly connected:

- The monitor.
- The keyboard.

- The TAB with the host system.
- Any other hardware.

Make sure the PC system unit chassis power cord is plugged correctly into an outlet.

Was your PC operating properly before the TAB was installed? If so, try removing the board to determine whether or not the problem still exists.

### B.1.2 Self-Testing Fails

Once you have invoked the kernel to begin emulation, the following messages appear on your screen:

```
PC Selftest ..... Passed
Monitor Initialization ..... Passed
80186 Selftest ..... Passed
Load Microcode/Start CMC ..... Passed
Operational Status..... Passed
Processor Interrupt Test..... Passed
Loading Line Driver ..... Passed
Loading Emulator ..... Passed
```

The following startup error messages indicate a hardware failure -- you should contact AST Technical Support.

No Response from Twinax Adapter Card

PC/Twinax Adapter Memory Test Error

PC/Twinax Adapter Bank Test Error

80186 Monitor Initialization Error

80186 Memory Test Error

80186 WCS Test Error

No Response from 80186

No response from Microcontroller

CMC Instruction Set Error

CMC SRAM Error

CMC DRAM Error

CMC/BiPhase Interface Error

PC/Twinax Adapter Interrupt Chain Error

CMC/80186 Checksum Error

## **B.2 Problems When the APS Module Is Invoked**

Once you have successfully executed the kernel module (self-test sequence), the next step for emulation is to invoke the applications presentation services (APS) module of the AST5251/11 emulation software.

After the APS command executes, the emulation software is operational and a Status Line appears on line 25 of the PC (see the *AST-5250/Emulation Program Base Manual*). The Status Line contains several indicators that help you determine when a problem occurs.

When you first invoke the APS module, the Status Line should be displayed; the System Available indicator should display shortly thereafter.

Also, the host log-on screen or banner is usually displayed awaiting input. However, for the System/34, you must enter a SYS REQ sequence to cause the sign-on menu to be displayed. The following points list several situations can indicate a problem.

1. If the Status Line indicators are blinking, you will hear a beep approximately every two seconds. Check the station address to be sure that it is set correctly.
2. If the SA indicator is not visible:
  - Check with your host installation to be sure the host is operational.
  - If your PC is attached to an IBM 5251/12 or an IBM 5294, check to be sure it is initialized and operating correctly.
  - Check to be sure the station address and terminator options are correctly set to match your host.
  - Check to be sure the twinax cabling between the PC and the host (or IBM 5251/12 or IBM 5294) is correct.

3. If the Input Inhibited indicator is ON, press the **< Error Reset >** key.

If the indicator remains ON after a few minutes, try the **< Error Reset >** key again. Also, check with the host installation to be sure the host is operating correctly.

4. If the SA indicator is *not* in reverse video and no sign-on screen is displayed:
  - Make sure the last terminal on the line is the only terminal terminated.
  - Make sure the terminal model that the AST board is emulating is one that AST supports and the software is configured to reflect the terminal model on both the PC and System/3x side.

- Check the system console for any messages that need to be responded to.
  - Check the cabling. Both the twinax stub cable connected to the board and the twinax cable connected to the System/3x should be secure.
5. If the SA indicator is in reverse video but no sign-on screen is displayed:
- Verify the station address number, in the lower, right corner of the screen, is the same number in the host configuration.
6. If the SA indication is blinking but no sign-on screen is displayed:
- Verify the station address number, located in the lower, right corner of the screen, is not the same number as another terminal.

### B.3 Problems During Operation

Several types of errors or problems may occur during normal operation. This subsection describes these possibilities in the categories shown below:

- Problems between the host (or 5251/12 or 5294) and the PC.
- Errors reported by the host system.
- Keyboard/screen problems.
- Errors reported by the AST-5251/11 kernel.
- Errors reported by the AST-5251/11 APS module.

### B.3.1 Problems Between the Host and PC

Many problems between the host (or IBM 5251/12 or IBM 5294) and the PC are shown by the Status Line indicators as described in Section B.2. Follow those guidelines and if, after you try the suggested solutions, you still experience the problem, check with your host installation troubleshooter and/or call your dealer or AST for technical support.

Additionally, some host error messages report problems with communication between the host and the display station. These four-digit error messages are listed in Appendix C.1; the specific messages that refer to the communication area are message codes 0040 through 0054.

### B.3.2 Errors Reported by the Host

Errors reported by the host system are displayed on the PC screen during emulation as a four-digit error code (usually displayed on line 24).

Appendix C.1 gives the meaning of these error codes and, in some cases, possible recovery measures.

Some IBM host systems provide a "help" facility for error recovery. If that is the case, your screen may display a help option. When an error occurs, you can press the help key as instructed and a message describing the error appears.

Once you have read the message, press the **<Error Reset >** key and proceed with the recovery procedure recommended (if any).

### B.3.3 Keyboard/Screen Problems

Some problems may be experienced with the keyboard or character representation on the screen.

- If no characters appear on the screen when you press the keys, check to be sure the keyboard and display cable are securely plugged in. (Be sure the power is turned off.) Also, check to see if the II indicator is ON.
- If the characters and screen arrangement are distorted, adjust the brightness and contrast controls of the monitor.
- If the keystrokes do not cause the proper characters to be displayed or the cursor to move, try the following:
  - Check the Input Inhibited indicator. The host may be processing your data.
  - Press the < **Error Reset** > key (PC < Alt > key).
  - If keyboard shift behaves abnormally, check keyboard scan code map.

#### **B.3.4 Errors Reported by the Kernel Module**

During emulation, the AST-5251/11 kernel may report errors that are displayed on the screen as a text message with an error code. Appendix C.2 lists the possible error messages of this type.

#### **B.3.5 Errors Reported by the APS Module**

During emulation, the AST-5251/11 APS module may report either informative or internal error messages. The informative messages are text messages that may be corrected by an action and retrying the execution. The internal errors usually indicate a software or hardware failure. The errors reported by the APS are described in Appendix C.3.

## B.4 Product Repair Procedure

If your AST Research product ever requires repair, contact your dealer first. The dealer from whom you originally purchased the product can usually service the product. If you must return a hardware product to the factory for service, follow these guidelines to ensure rapid, accurate turnaround:

1. *Call AST Research Technical Support for a Return Authorization Number (RAN):* A technician will discuss the problem with you. If factory service is required, the technician will give you a Return Authorization Number (RAN). Always refer to the RAN when you return anything for service. AST Research will return anything without a RAN to the sender.
2. *If the product is covered under an AST Research warranty:* There is no charge for parts or labor involved in the repair. Please include a copy of your original purchase receipt as proof of purchase date for all warranty repairs.

*If the product is not covered under an AST Research warranty:* Contact your dealer or AST Research Technical Support for further information.

3. *Parts not covered under the warranty:* Dealer- or user-installed parts (such as RAM chips) are not covered under the terms of the warranty. Dealer installed parts are warranted by the dealer; parts you install are covered only by the parts suppliers' warranties. If we find your dealer- or user-installed parts are defective, we will identify which parts are defective, but we will not replace parts unless you specifically authorize us to do so in writing when you send the board to us. The parts charges and any applicable labor charges will be billed COD.
4. *Describe the problem and return any related accessories:* Please include a brief but explicit written description of the problem when you return your AST

product to the factory for repair. Also return any accessories that might relate to the problem. For example, if the the stub cable does not function correctly, be sure to return any related T-connectors as well.

5. *Be sure to provide a return shipping address that UPS can deliver to and include your RAN:* UPS cannot normally deliver to post office boxes. Reference the RAN issued to you by AST Technical Support on all correspondence. Securely package all materials to prevent shipping damage. Shipping charges must be prepaid; CODs will not be accepted. Ship the materials to the following address:

AST Research, Inc.  
Customer Service--RAN xxxx  
2722 Michelson Avenue  
Irvine, CA 92715

where xxxx is your assigned Return Authorization Number.

6. Once your product is repaired, we will return it to you by either UPS or UPS Blue Label service, whichever is appropriate for your geographical location. We will return items covered by warranty at our expense. Shipping costs and repair expenses for items not covered by warranty will be billed COD. If you prefer overnight service (UPS Red Label), the shipping charges will be billed COD. If you want us to ship Federal Express, please give us your Federal Express account number for billing purposes.

This appendix describes three types of error codes or messages: host system error codes, AST-5251/11 kernel error messages, and AST-5251/11 application presentation services (APS) error messages.

### C.1 Host System Error Codes

The following four-digit system error codes may be displayed on the PC screen during emulation in the event of an error that originates on the host side.

#### NOTE

Error codes 0000 - 0029 are keyboard entry errors. Error codes 0040 - 0054 are related to communication between the an IBM 5251/12 and the host. Those errors may appear on your PC screen if you are connected to a 5251/12, but the problem must be resolved at the 5251/12.

0000

**Explanation:** You pressed the help key; either no error code was displayed or the error was issued by a program that does not support the key.

**Action:** Press < **Error Reset** > ; then continue keying data.

0001

**Explanation:** The last characters you entered were not accepted because host or 5251/12 could not keep up with rate of data entry.

**Action:** Press < **Error Reset** > key; then continue keying data.

Appendices

**0002**            **Explanation:** An invalid key code was received by the host or 5251/12 and the key you pressed was not recognized.

**Action:** Press < **Error Reset** > key; then try to continue keying data.

**0003**            **Explanation:** You pressed the < **Cmd** > key, but did not follow it with one of the command function keys.

**Action:** Press < **Error Reset** >; continue using correct keys.

**0004**            **Explanation:** The field that you tried to type data into is one that does not allow keyboard input.

**Action:** Press < **Error Reset** > key.

**0005**            **Explanation:** The cursor was not in an input field when you tried to enter data.

**Action:** Press < **Error Reset** > key; move cursor to valid input field.

**0006**            **Explanation:** After pressing the < **Sys req/Attn** > key but before pressing < **Enter/Rec Adv** > key or < **Error Reset** > key, you pressed an invalid key.

**Action:** Press < **Error Reset** > key and use valid key sequence.

- 0007** **Explanation:** One "must-enter" field exists on the display that requires you to type data into it before you can change or move the display. (The cursor goes to the first character position of the first "must-enter" field that needs data.)
- Action:** Press < **Error Reset** > and enter the required data.
- 0008** **Explanation:** The current field is an "alphabetic-only" field and you pressed a non-alphabetic key. Valid characters are A-Z, blank, comma, period, and hyphen.
- Action:** Press < **Error Reset** > key; then continue by typing valid characters.
- 0009** **Explanation:** The current field is an "numeric-only" field and you pressed a non-numeric key. Valid characters are 0-9, blank, comma, period, and hyphen.
- Action:** Press < **Error Reset** > key; then continue by typing valid characters.
- 0010** **Explanation:** The current field takes only signed numeric data and you pressed some other key. Valid characters are 0 through 9.
- Action:** Press < **Error Reset** > key; then continue by typing valid characters.
- 0011** **Explanation:** You tried to enter data into the last position of a signed numeric field.
- Action:** Press < **Error Reset** > key; make sure that data are correct and exit using Field-, Field +, or Field Exit key.

**0012**            **Explanation:** Current field has no room to insert data into field. Either no room exists or cursor is in last position of the field. Do not use insert mode to change data or enter last character in this field.

**Action:** Press < **Error Reset** > key; then correct the field and continue.

**0013**            **Explanation:** You tried to leave a field while insert mode was still ON.

**Action:** Press < **Error Reset** > key; exit field normally.

**0014**            **Explanation:** You pressed a function key to move cursor out of field; field is "must-fill" field that must be completely filled or left blank.

**Action:** Press < **Error Reset** > key. Fill entire field or move cursor to start of field and use Field-, Field +, or Field Exit key to blank field.

**0015**            **Explanation:** You enter data into a self-check field and the number check digit typed do not compare.

**Action:** Press < **Error Reset** > key. Check that you typed number and check digit correctly. Is the number valid for self-check field?

**0016**            **Explanation:** You pressed < **Field-** > key but current field is not a signed numeric field (or on some systems numeric only field).

**Action:** Press < **Error Reset** > key. Continue to enter data or use < **Field Exit** > key to leave field.

- 0017**      **Explanation:** Current field is a "must-fill" field that has not been filled, yet you pressed <Field->, <Field + >, or <Field Exit> key.
- Action:** Press <Error Reset> key. Type data to end of field and use or move cursor to start of field and use <Field->, <Field + >, or <Field Exit> key to blank all of field.
- 0018**      **Explanation:** To leave the current field, you must use a nondata key such as <Field Exit> key.
- 0019**      **Explanation:** You pressed the <Dup> key; <Dup> key not allowed in this field.
- Action:** Press <Error Reset> and continue without using the <Dup> key in this field.
- 0020**      **Explanation:** The key you pressed is not allowed in this field. The current field is either right-adjust or signed-numeric. Exit field before pressing: command function keys, <Char Backspace> key, <Enter/Rec Adv> key, <Help> key, <Print> key, <Roll> keys, or <Home> key (when cursor is in home position.)
- Action:** Press <Error Reset> key. Cursor will go to same position as before invalid key. Continue by pressing <Field->, <Field + >, or <Field Exit> key.
- 0021**      **Explanation:** Cursor is positioned in a "must-enter" field. Field must have data typed into it before you can exit the field. (Use <Field->, <Field + >, or <Field Exit> keys.)
- Action:** Press <Error Reset> key and type the required data.

**0022**      **Explanation:** System error occurred and status of current field is unknown. This error can occur on an insert or delete operation.

**Action:** Press < **Error Reset** > key. Check screen to determine whether or not the insert/delete completed. If not, correct the data.

**0023**      **Explanation:** First key pressed was not A-F or 4-9 character and display is in hexadecimal mode. Or second key pressed was not A-F or 4-9 character.

Also, error occurs when hex code is used in numeric only, signed numeric, alpha-only, or I/O field.

**Action:** Press < **Error Reset** > key. Press correct key.

**0026**      **Explanation:** Current field is a numeric only field; you pressed < **FIELD-** > key to exit but last position of field is a character 0-9.

**Action:** Press < **Error Reset** > key. Correct last position and exit using < **Field +** > or < **Field Exit** > key.

**0027**      **Explanation:** Key pressed is not used by this display station.

**Action:** Press < **Error Reset** > key. Continue using valid key.

**0028**      **Explanation:** Key pressed is not used by this display station.

**Action:** Press < **Error Reset** > key. Continue using valid key.

- 0029**      **Explanation:** Second key pressed during diacritic key function did not make a valid combination.
- Action:** Press < **Error Reset** > key; enter valid key combination.
- 0040**      **Explanation:** Data-Set-Ready line should be active but is inactive.
- Action:** Correct problem at 5251/12.
- 0042**      **Explanation:** Receive clock signal failed during receive.
- Action:** Correct problem at 5251/12.
- 0043**      **Explanation:** Data-Set-Ready line should be inactive but is active.
- Action:** Correct problem at 5251/12.
- 0044**      **Explanation:** 30-second communications time-out occurred with no valid data received.
- Action:** Correct problem at 5251/12.
- 0050**      **Explanation:** One of two situations: Clear-To-Send line was inactive and Request-To-Send line was active; or Clear-To-Send line was active and Request-To-Send line was inactive.
- Action:** Correct problem at 5251/12.
- 0051**      **Explanation:** Transmit clock signal failed during a transmit.
- Action:** Correct problem at 5251/12.

## Appendices

**0052**      **Explanation:** Internal error detected by 5251/12.

**Action:** Correct problem at 5251/12.

**0054**      **Explanation:** 5251/12 received an invalid command from host during communication. Correct problem command at 5251/12.

**0097**      **Explanation:** Host system does not support on-line verification tests.

**Action:** Press < **Error Reset** > key; do not try tests.

**0099**      Depends on whether error occurred before, during or after sign-on as described below:

### *Before Sign-on*

Function key pressed is not valid at this time.

**Explanation:** Press < **Error Reset** > key and use correct sign-on procedure.

### *During Sign-on*

Host is not operating or 5251/12 not communicating with host.

**Explanation:** Press < **Error Reset** > key and use correct sign-on procedure. Check to be sure host system is available and/or that 5251/12 is communicating with host.

### *After Sign-on*

Program did not recognize key you pressed.

**Explanation:** Press < **Error Reset** > key and try different type of job. If error does not happen, problem is in system programming or keying error.

Error can be caused because host is not available and/or 5251/12 is not communicating with host. Check to be sure all communications are operating correctly.

## C.2 Errors Reported by AST-5251/11 Kernel

Errors reported by the kernel module are listed in the following sections as they appear on the screen.

### C.2.1 Startup Error Messages

The following messages may occur during startup. A specific action is indicated with each message.

#### Passed

**Explanation:** No problems or errors detected in commands issued to the twinax adapter board (TAB).

**Action:** No action necessary -- your TAB is functioning properly.

#### CONFIGURED INTERRUPT MAY BE IN USE

**Explanation:** The configured interrupt vector is not pointing to BIOS code. The configured interrupt is probably in use by another interface card.

**Action:** Check that you have not configured the TAB to use the same IRQ as another interface card. If the chosen IRQ is already in use, change the TAB's IRQ and your configuration file.

### ROM in configured PC Window Space

**Explanation:** The kernel found a valid ROM signature in the configured PC window space. Another adapter card is occupying the same PC window space.

**Action:** Select another shared memory address with the configuration program.

### RAM in configured PC Window Space

**Explanation:** The startup module of the kernel found random access memory (RAM) in the configured PC window space; another adapter card in the system is occupying the same PC window space.

**Action:** Select another shared memory address with the configuration program.

### AST-5251/11 Kernel already resident

**Explanation:** The startup module found the kernel already present.

**Action:** You should be able to run the APS.

### Configuration file not found

**Explanation:** Either the default configuration file AST5251.CFG or a user-specified configuration file cannot be found on your disk or diskette.

**Action:** Create or copy the configuration file to your working disk or diskette.

### Error reading configuration file

**Explanation:** An error occurred while reading the configuration file.

**Action:** Recreate your configuration file.

**Incorrect configuration file** -- reconfigure using the latest  
AST-5251/11 Configurator

**Explanation:** All required configuration parameters have not been found.

**Action:** Reconfigure using the latest configurator program.

#### Undefined Error

**Explanation:** Unspecified error.

**Action:** Contact AST Technical Support.

### C.2.2 Emulation Error Messages

These errors are "internal" and should be reported to the AST Technical Support group.

- 1: Kernel : Internal error.
- 2: Kernel : Station address not found.
- 3: Controller : General hardware failure.
- 4: Undefined error from the kernel.
- 5: Kernel : Illegal CP normal command.

### C.3 Errors Reported by AST-5251/11 APS Module

The applications presentation services (APS) module reports both internal and informative types of error messages. The informative messages can be corrected by a specific action and then repeating execution.

Internal errors, on the other hand, indicate either a software or hardware failure and cannot be corrected. If any internal error is received, report it to AST Technical Support.

## INFORMATIVE ERRORS

### Illegal parameter

This error means that an illegal command option has been processed by the APS. Either the parameter itself is misspelled or the parameter value is not correct.

### Error opening file

This error message occurs when the APS program cannot open the a file on the specified disk device and optional path name.

### Error closing file

This error occurs when the APS program cannot close a Code file on the specified disk device and optional path name.

### Error reading file

This error means a read error occurred during the reading of a file.

## INTERNAL ERRORS

### Internal Error

This error message means that an internal processing error occurred in the emulator program. Supplementary information is listed in the message that identifies the current mode, function and its parameters. All of this information should be given to AST Technical Support if this message occurs during emulation.

## SHARED MEMORY

D

The twinax adapter board (TAB) to PC interface is maintained by shared memory, dual-ported memory arbitration logic, and the 128 kilobytes (KB) of dynamic random access memory (DRAM). You must select a 16 KB window of the DRAM from which the TAB will operate.

A valid segment address or window location consist of four hexadecimal digits. Locations must be entered in increments of 400 hexadecimal, on 16 or 32 KB boundaries starting at 08000h up to 0FC00h (for example, 8000, 8400, and 8800) . The default address is 0D000h. If your system has features installed using this location, you need to assign another location not used.

The following is a memory map of typical memory assignments in the area above 08000h.

## Appendices

	BIOS and Basic PROMS	0F6000h
		0F0000h
	Not used	
PC Network Adapter (Alt)	Token ring MMIO (Alt)	0DC000h
	Token ring shared RAM (Alt)	0D8000h
PC cluster		
PC cluster	Token ring shared RAM (Alt)	0D4000h
PC cluster	Not used	
PC cluster	Not used	0D0000h
3270 PC ROM	3278 IBM adapter	
PC network adapter (PRI)	Token ring MMIO (PRI)	0CC000h
	3270 PC adapter	
	XT HD BIOS	0C8000h
	Token ring shared RAM in EMS environment	0C4000h
	Not used	0C2000h
	EGA ROM	0C0000h
		EGA RAM
640K		0A000h

Figure D-1. Memory Map Listing (AT).

## D.1 Rampage Considerations

Rampage executes a read-only memory (ROM) and random access memory (RAM) scan at boot time. Because AST-5251/11 shared memory is not enabled until the kernel is invoked (during emulation), Rampage does not acknowledge the configured shared memory address. You must append the /X (exclude) parameter to the Rampage DEVICE = REMM.SYS statement to exclude the range of memory used by AST-5251/11. See your *RAMPAGE! User's Manual* for more information.

## NOTES

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## TECHNICAL SUPPORT CHECKLIST **E**

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The following checklist provides a means of assembling pertinent information about your AST-5251/11 product in case you need to call your dealer or AST for technical support. Fill out the checklist before calling so that you will have the information necessary to describe the problem.

You may want to make copies of the checklist so that you can fill one out each time you require technical support.

### CHECKLIST

1. Person to contact at your site with whom to communicate regarding the host system.

Name: \_\_\_\_\_

Phone: (    ) \_\_\_\_\_

2. Person contacted at AST for technical support

Name: \_\_\_\_\_

Date Contacted: \_\_\_\_\_

3. Date Acquired AST-5251/11: \_\_\_\_\_

4. Type of PC: AST Premium/286

IBM PC \_\_\_\_\_

PC XT \_\_\_\_\_

PC AT \_\_\_\_\_

Other: \_\_\_\_\_

DOS Version: \_\_\_\_\_

5. Serial Numbers: Board \_\_\_\_\_

Software \_\_\_\_\_

6. Total amount of memory in PC: \_\_\_\_\_

7. Version of DOS: \_\_\_\_\_

8. Version of AST-5251/11 software: \_\_\_\_\_

9. What host system are you connected to: \_\_\_\_\_

10. Version of host software: \_\_\_\_\_

11. What type of host connection do you have: \_\_\_\_\_

\_\_\_\_\_ Direct \_\_\_\_\_ 5251/12 \_\_\_\_\_ 5294 \_\_\_\_\_ AST Cluster

12. What boards, such as other emulation and network, are installed in your PC?

\_\_\_\_\_

13. How is the twinax adapter board (TAB) configured:

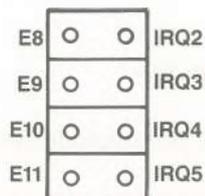
I/O Address: \_\_\_\_\_

Interrupt Level: \_\_\_\_\_

Shared Memory Address: \_\_\_\_\_

Terminator Option: \_\_\_\_\_

Draw in the jumper settings as they appear on your TAB.



I/O Address

IRQ

Is the terminator toggle switch set to TERM or THRU?

\_\_\_\_\_

14. How is the shared memory address configured?

Are there other boards installed using shared memory?

Addresses: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Appendices

15. How is the AST-5251/11 Plus option configured?

Number of Terminals

Number and types of printers

IBM API

Did you override the shared memory window size?

16. What is the configuration of the entire line? (Include other terminals and their station addresses)

17. Explain the problem - when and how it occurred.

18. Can the problem be repeated/duplicated by a certain sequence of actions? If so, how?

19. List any error messages displayed that are related to the problem occurrence.

20. If you tried various solutions, explain what you did and give the results.

21. If it is an intermittent problem, track the dates and/or circumstances of occurrences, if possible.

22. List or explain any other pertinent information.

**NOTES**

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## LIMITED WARRANTY

AST Research, Inc. warrants to the original purchaser of this AST Research, Inc. product that it is to be in good working order for a period of 2 years from the date of purchase from AST Research, Inc. or an authorized AST Research, Inc. dealer. Should this product, in AST Research, Inc.'s opinion, malfunction during the warranty period, AST will, at its option, repair or replace it at no charge, provided that the product has not been subjected to misuse, abuse, or non-AST authorized alterations, modifications, and/or repairs.

Products requiring Limited Warranty service during the warranty period should be delivered to AST with proof of purchase. If the delivery is by mail, you agree to insure the product or assume risk of loss or damage in transit. You also agree to prepay shipping charges to AST.

ALL EXPRESS AND IMPLIED WARRANTIES FOR THIS PRODUCT INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO THE ABOVE 2 YEAR PERIOD. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

UNDER NO CIRCUMSTANCES WILL AST RESEARCH, INC. BE LIABLE IN ANY WAY TO THE USER FOR DAMAGES, INCLUDING ANY LOST PROFITS, LOST SAVINGS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF, OR INABILITY TO USE, SUCH PRODUCT. Some states do not allow the exclusion or limitation of incidental or consequential damages for consumer products, so the above limitations or exclusion may not apply to you.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

The limited warranty applies to hardware products only.



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**Product Comment Form**

**AST-5251/11™  
User's Manual  
000492-001 A**

We appreciate your comments regarding any problems or suggestions related to AST Research products. Please use this form to communicate any observations that you have concerning the improvement of either the product itself or the product documentation provided in this manual.

**Submitter Information**

Submitter's name:

Address:

**Product/Manual Comments and Suggestions**

Please mail this form to:

AST Research, Inc.  
Attn: Product Marketing  
2121 Alton Ave.  
Irvine, CA 92714-4992





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