

Figure 1-3. General Component Layout 2

- |          |   |
|----------|---|
| <b>1</b> | 10 BaseT/100BaseTX Ethernet port (optional) |
| <b>2</b> | Parallel port connector                     |
| <b>3</b> | Serial port B connector                     |
| <b>4</b> | Serial port A connector                     |
| <b>5</b> | Video connector                             |
| <b>6</b> | Keyboard connector                          |
| <b>7</b> | Mouse connector                             |
| <b>8</b> | 110/220 voltage selector switch             |
| <b>9</b> | Power input connector                       |

## Specifications

Nominal physical specifications are as follows. For more exact system unit dimensions, see Appendix C, “7587 Industrial Computer Physical Dimensions.”

- Width: 296 mm (11.6 inches)
- Depth: 461.2 mm (18.2 inches)
- Height: 185.3 mm (7.3 inches)
- Weight: 12.5 kg (27.5 pounds) minimum  
(Actual weight is dependent on options installed.)

## Power Supply

- 200 Watts Output — AC input only; voltage range manually switchable. Acceptable inputs are:
  - 100 to 125 (nominal) Volts AC; 50/60 Hz; 6 Amp (maximum)
  - 200 to 245 (nominal) Volts AC; 50/60 Hz; 3 Amp (maximum)

**Note:** The loading of the adapters and hard disk drives installed in the system unit must not exceed the following limits:

+5 VDC	–	11	Amps
+12 VDC	–	3.5	Amps
–5 VDC	–	0.5	Amps
–12 VDC	–	0.5	Amps

## Heat Output

Approximate maximum heat output in British Thermal Units (BTUs) per hour.

- 200 Watt power supply — 1417 BTU/hour

## Environment

- Ambient air temperature
  - Operating: 0° to 50°C (32° to 122°F)
  - Non-Operating: 0° to 60°C (32° to 140°F)
  - Shipping: –40° to 60°C (–40° to 140°F)
- Relative humidity
  - Operating: 5% to 95%
- Shock
  - Operating: 30 G, 1/2 sine wave for 3 milliseconds duration  
15 G, 1/2 sine wave for 10 milliseconds duration
- Vibration
  - 5 to 500 Hz random at 0.67 G RMS
- IEC standard compliance
  - Electromagnetic compatibility:
    - Power line harmonics, flicker EN 61000-3-2 and EN 61000-3-3
    - Electrostatic discharge IEC 801-2, 8 kV air, and 4 kV contact
    - Radiated emissions EN 55022- Class A
    - General susceptibility EN 50082-1
    - Low-voltage directive EN 60950
    - Fast transients/bursts on power cables (IEC 801-4) Level 3, 2 kV
    - Conducted immunity ENV 50141 Level 3
    - Radiated electromagnetic susceptibility (IEC 801-3) Level 3, 10 V/m.

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## Chapter 2. Installing Your System Unit

This chapter provides instructions to help you set up your 7587 Industrial Computer. For complete system unit dimensions, see Appendix C, “7587 Industrial Computer Physical Dimensions.”

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### Before You Begin

- Make sure you know the correct voltage setting for your country. If you are not sure of the voltage setting for your country, contact your place of purchase.
- Make sure you have an adequate number of properly grounded electrical outlets for your system unit, display, and printer.
- Plan to place your system unit in a location that is dry and as clean as possible. Contaminants could cause damage to the system unit.
- Plan to leave enough space around the system unit to allow the system unit's cooling system to work properly.
- Plan to leave enough space around the system unit to allow for proper service access. (This space will vary, depending on the type of mounting to be used.)
- Have this publication handy in case you need additional information.
- Have blank diskettes available to back up utility and startup programs.

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### Step 1. Unpack Your System Unit

#### **CAUTION:**

**To avoid possible injury while moving or lifting the system unit, ask another person to help you.**

Remove the 7587 Industrial Computer from its shipping carton, along with all other materials in that carton. Also unpack all devices to be externally attached to the system unit — for example: power cord, keyboard, monitor, printer, mouse, and cables. (To prevent possible damage, do not unpack delicate internal components yet. Unpack them when you are ready to install them.)

If any items are missing, contact your place of purchase.

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### Step 2. Check the Voltage Setting

**The power supply on the 7587 Industrial Computer has a switch on it that must be manually set before the system unit is powered up.** The switch is located in the area where the power cord plugs into the system unit. It is marked either “110/220” or “115/230.”

Use the following instructions to set the switch. You can use a ball-point pen to slide the switch to the correct position.

- If the voltage range in your country is between 90 and 137 volts, set the switch so “110” or “115” is visible.
- If the voltage range in your country is between 180 and 265 volts, set the switch so “220” or “230” is visible.

#### **Attention:**

Be sure the voltage-selection switch is in the correct position. If you set this switch to the wrong position, you might damage your system unit when you turn it on.

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## Step 3. Install Internal Options

Internal options are devices that are installed inside your system unit. Some internal options are mounted directly to the IBM 586 or 586E Single-Board Computer (IBM SBC), such as memory modules (SIMMs), cache memory, and video memory. Other internal options are installed in the drive bays, such as diskette drives, hard disk drives, and so forth. Adapters, or feature cards, which are mounted on the IBM SBC backplane, are also internal options.

- **If you do not have any options to install inside your system unit**, proceed directly to “Step 4. Secure the System Unit.”
- **If you have options to install but you want to check out your system unit before installing the options**, you may do so now by proceeding to “Step 5. Connect the Cables.” You will have to connect the display, keyboard, and power cable, and then run the Configuration/Setup Utility. You will need to re-run the Configuration/Setup Utility after the options are installed.
- **If you have any options to install inside your system unit**, you should install them now, before the system unit is mounted or cables are attached. For option installation instructions, use the appropriate procedures in Chapter 3, “Installing Options.”

**Note:** As you install the options, be sure to record all pertinent information such as drive types and sizes, memory sizes, identification numbers, and so forth in Appendix B, “System Records.”

After you install all internal options, proceed to the next step.

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## Step 4. Secure the System Unit

Rubber feet are included with the system unit. Make sure the system unit is secured firmly on all four padded feet, then proceed to the next step.

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## Step 5. Connect the Cables

Connect all system unit cables in the following order.

1. Connect all cables between the system unit and the keyboard, the mouse, the display, and all other peripheral devices.
2. Connect the power cords (system-unit side only) to the system unit, the display, and all other peripheral devices.
3. Plug the power cords from the system unit, display, and other devices into properly grounded electrical outlets.

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## Step 6. Perform Power-Up and Check-Out Procedure

### **Attention:**

Before you continue, be sure to set the voltage switch on the power supply correctly for your power source, as explained in “Step 2. Check the Voltage Setting” on page 2-1. If you set it to the wrong position, you might damage your system unit when you turn it on.

You should perform the following power-up and check-out procedure one time just to familiarize yourself with the power-up sequence. In this way, you will become acquainted with what messages to expect. However, if your system unit has never been configured or you changed the configuration by adding or changing features, the screen will display an error message indicating that the Configuration/Setup Utility must be run. In that case, perform “Step 7. Run the Configuration/Setup Utility Program” on page 2-4 after performing this step once; and then perform this step again to complete the system unit check-out.

1. Switch on your display and adjust the Brightness and Contrast controls to the approximate midpoint. (You can readjust these controls for personal viewing comfort after you turn on your system unit.)
2. Switch on the system unit.

You should see the power-on light come on.

3. Continue to check your display screen and watch for a flashing light from the speaker LED. A series of coded messages should appear on the screen. These messages are part of the normal power-on process that occurs each time you switch on the system unit. The following should occur.

- a. A blinking cursor appears on the screen.
- b. After a short time, an icon showing a system unit screen appears in the upper-right corner,



and the RAM memory test message appears in the upper-left corner.

- c. The system unit starts the power-on self test (POST).
- d. If the POST completes successfully, the amount of available memory is displayed, and a single flash on the speaker LED occurs.
  - If the POST completes successfully, proceed to “Step 7. Run the Configuration/Setup Utility Program” on page 2-4.
  - If the POST does not complete successfully, an error code is displayed. Also, either no flash or multiple flashes on the speaker LED might occur. Check the screen for the error message, and see “Troubleshooting Charts” on page 5-3 to resolve the problem.

**Note:** As mentioned, it will probably be necessary to run the Configuration/Setup Utility, as described in “Step 7. Run the Configuration/Setup Utility Program” on page 2-4, and then return to this step.

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## Step 7. Run the Configuration/Setup Utility Program

If your system unit has never had its Configuration/Setup Utility program run, or if you have changed the configuration by adding or changing a feature, run the Configuration/Setup Utility program as described in "Using the Configuration/Setup Utility Program" on page 4-6, and then return to "Step 6. Perform Power-Up and Check-Out Procedure" on page 2-3.

### Notes:

1. This step assumes you have installed all options in your system unit, as instructed in "Step 3. Install Internal Options" on page 2-2. If you have not, install those options now. For option installation instructions, use the appropriate procedures in Chapter 3, "Installing Options."
2. To install a device driver (a program that supports a specific type of hardware device), see the instructions that came with the option you installed. Those instructions will tell you if a device driver is required and, if so, how to install it.

If you have no device drivers to install, proceed to the next step.

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## Step 8. Finish the Installation

Your system unit hardware is now set up, and you are ready to finish the installation by installing the required software and completing the paperwork. The final steps are different for various configurations and applications, but you can use the following checklist as a guide.

- ☐ **Install your operating system.**  
Refer to the documentation and instructions supplied with your operating system.
- ☐ **Install your application programs.**  
Refer to the documentation and instructions supplied with your application programs.
- ☐ **Make any backup copies necessary.**  
It is very important that you keep a backup copy of the system partition, reference diskette, hard files, and so forth, in case of possible future use.
- ☐ **Record your identification numbers.**  
Your system unit might have important identification information that you might need if you have it serviced or if you need to order duplicate keys (for keylock-equipped systems). You should record all such information in Appendix B, "System Records" or in another safe place.
- ☐ **Complete your registration or warranty forms.**  
Complete and return the registration cards that came with your system unit.

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## Chapter 3. Installing Options

This chapter provides instructions to help you add options to your system unit — either at the time of initial installation or at some later time. **If you have several internal options to install, you should install them all at one time, while the system unit is still open. You should install all IBM 586 or 586E Single-Board Computer (IBM SBC) options first, because it might be necessary to remove feature cards and drives to access the IBM SBC.**

Use the figures in “General Layout of Components” on page 1-2 to locate components. Before performing any installation procedures, be sure to read and understand the information in “Safety Information” on page A-10 and in “Handling Electrostatic-Discharge-Sensitive Devices” on page A-15. That information will help you work more safely with your system unit and options.

### CAUTION:

- **Power must always be switched off before performing any removal/replacement procedures; electrical power and any backup power source also should be unplugged or otherwise disconnected. To ensure that power is switched off and disconnected in the correct order, start every removal and replacement procedure with “Switching Off Power and Disconnecting Cables.”**
- **Depending on the options installed, this system unit could weigh more than one person can comfortably lift. Do not attempt to lift it by yourself if you think it is too heavy for you.**

### ATTENTION:

Whenever handling electronic components, use precautions to prevent component damage due to electrostatic discharge. See “Handling Electrostatic-Discharge-Sensitive Devices” on page A-15 for a list of those precautions.

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## Switching Off Power and Disconnecting Cables

Use the following procedure to power-down the system unit and disconnect all cables **before** beginning any removal/replacement procedure. If it is necessary to remove the system unit from its mounting place, use this procedure **before** removing the system unit.

1. Remove any data media (diskettes, optical discs, tapes, and so forth) from the system unit.
2. Switch off all power to the system unit and any attached devices.
3. Tag all cables connected to the system unit, or somehow note their respective connectors to prevent confusing them when they are unplugged.
4. If you have a modem or fax machine attached, disconnect the telephone line from the wall outlet and then from the system unit.
5. Unplug or otherwise disconnect all electrical power and any backup power source.
6. Unplug all other cables connected to the system unit. Where applicable, unplug all cables at the receptacle end first, and then at the device end. (For D-shell connectors, remove the two screws that secure each cable to its D-shell connector, and then unplug the cable.)

When reassembling the system unit, reverse these steps.

Now you are ready to proceed.

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## Opening the System Unit

In most cases, it should not be necessary to remove the system unit from its mounting. If you do need to remove the unit, do so before continuing.

### CAUTION:

**The unit weighs 12.5 kg/27.5 lbs; you should not try to hold the unit while you are removing the screws. Have a second person hold the unit as you remove the screws.**

To open the system unit, loosen the four cover screws and lift off the cover, as shown in Figure 1-2 on page 1-2.

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## Installing Adapters

To install an adapter, do the following.

1. Loosen the four cover screws and lift off the system unit cover.
2. Read the instructions that came with the adapter to determine if the adapter must be installed in a certain slot. If not, you can use any empty slot. Determine which empty slot you will use.
3. Note the locations of any installed adapters or drives that are in the way, and then remove them.
4. Read the instructions that came with the adapter to determine if you must set any switches, jumpers, and so forth on the adapter.
5. Touch the static-protective bag in which the adapter was packaged to any unpainted metal surface on the system unit. Then remove the adapter from the package.
6. Set any required switches, jumpers, and so forth on the adapter. Also, install any required memory modules on it.
7. Install the adapter as follows.
  - a. Grasp the adapter at the front and rear.
  - b. Align the adapter with the front and rear adapter guides and slide it into the guides. (Some adapters are shorter and do not extend to the front adapter guide.)
  - c. Press the adapter **firmly** into the expansion slot. Full-length adapters slide into the latch on the front adapter guide.
  - d. Install and tighten the expansion slot screw.
  - e. Record the type of adapter you just installed in Appendix B, "System Records."
8. Reinstall any removed adapters into their original slots.
9. Proceed to "Installing the Card Hold-Down Spacers" on page 3-3.



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## Installing the Card Hold-Down Spacers

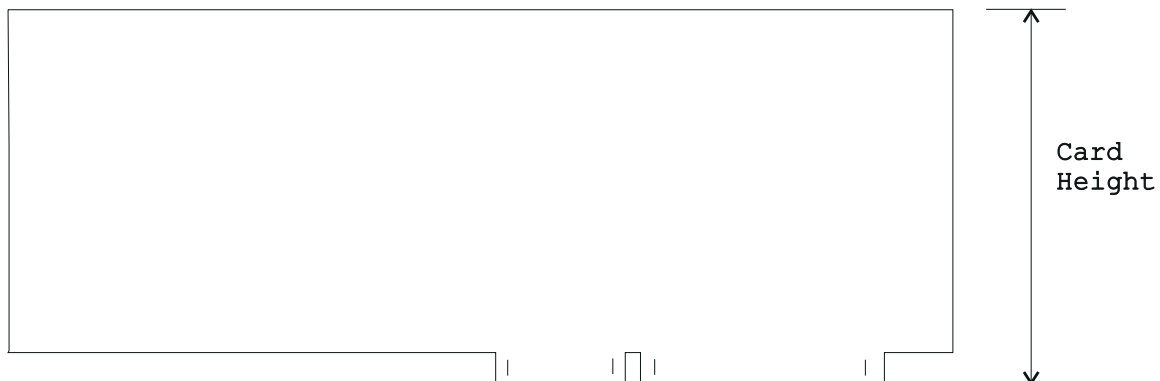
The 7587 Industrial Computer includes card hold-down brackets to retain cards in their slots during shock and vibration. These brackets are designed to secure the standard sizes of cards.

Plastic spacers and rubber pads are supplied in the ship group and should be installed (see the illustration in “Top Cover” on page 9-4). There are holes in the top cover shield that correspond to the slots. The holes are numbered to match the card slots. The holes for the PCI slots are indicated with an “A.”

Cards are manufactured in many different sizes. The following table gives the combinations of cards and spacers for the various card sizes. Cards that are shorter than those shown in the table cannot be retained. This is not a problem, because these cards are small and have low mass. The low mass means vibration and shock do not have a significant effect on these cards.

Using the illustration, set the spacers as follows:

Card Height (inches/millimeters)	Spacer Installed	Additional Number of Pads Needed	
4.8/121.8	No	0	standard <i>tall</i> card
4.7/119.3	No	1	
4.6/116.8	No	2	
4.5/114.2	No	3	
4.4/111.7	No	4	
4.3/109.1	No	5	standard <i>short</i> card
4.2/106.6	Yes	0	
4.1/104.1	Yes	1	
4.0/101.5	Yes	2	
3.9/98.9	Yes	3	
3.8/96.4	Yes	4	
3.7/93.9	Yes	5	



Reinstall the system unit cover you removed in “Installing Adapters” on page 3-2.

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## Installing an Internal Hard Drive

### Important:

Some drives do not meet the industrially rated environmental specifications of the 7587 Industrial Computer. Before installing any drive that is not purchased from IBM or an IBM distributor specifically for use in a 7587 Industrial Computer, be sure the drive's specifications meet all environmental conditions to which it might be subjected. See "Hard Disk Drive Jumper Settings" on page D-2 for more information.

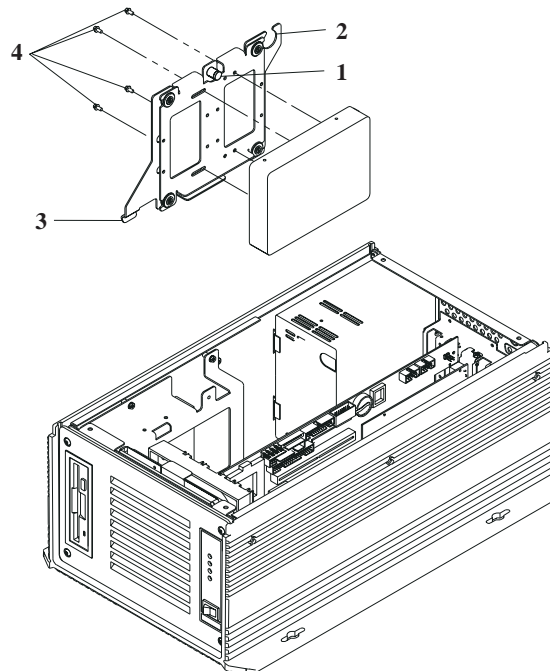
To install an internal hard drive, do the following.

1. Loosen the four cover screws and lift off the system unit cover.
2. Read the instructions that came with the drive to determine any special instructions for:
  - Installing or changing drive installation hardware
  - Setting jumpers or switches
  - Removing or installing a terminator
  - Setting a unique drive ID, for SCSI (small computer system interface) drives only.

**Note:** When you update your configuration information, as explained in "Using the Configuration/Setup Utility Program" on page 4-6, ensure that the hard disk drive you installed is included as a startup device under **Start Options** in the Configuration/Setup Utility screen; otherwise, you will not be able to boot your system unit from your hard disk.

In addition, if you find your hard disk drive is not capable of running in High Performance mode (the default selection for Primary and Secondary IDE Mode), use the same screen to switch to Compatible mode.

3. Using the illustration, loosen the captive screw **1**.



4. Rotate the plate **2** to the side.
5. Lift the hard drive shock mount assembly out of the unit.
6. If a hard drive is already installed, disconnect the signal and power cables.

7. Four screws **4** hold the hard drive to the shock mount assembly. These screws are accessible without disassembling the shock mount assembly. Use the screws supplied with the drive to mount the hard drive to the shock mount assembly, with the cables facing the rear of the unit.
8. Connect the power and signal cables to the new drive. (Cable connectors are keyed and connect only one way.)
9. Connect the 4-wire power supply cable, if required, to the drive.
10. Insert the tabs **3** at the bottom of the shock mount assembly into the holes in the diskette bracket, and rotate the shock mount assembly into place.
11. Tighten the captive screw **1**.
12. Reinstall the cover.
13. Record the type of drive you just installed in Appendix B, "System Records."

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## Installing the Analog Video PMC Form Factor Card

See Chapter 7, "Analog Video PCI Mezzanine Card (PMC) Form Factor Card Information" for information.

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## Removing the IBM SBC

The 7587 Industrial Computer uses a single-board computer (SBC) for its processor. The IBM SBC is described in Chapter 6, "IBM 586 or 586E Single-Board Computer Information." To remove the IBM SBC, do the following.

1. Using Figure 1-2 on page 1-2, remove the top cover from the unit and locate the IBM SBC.
2. Note the position of any cards that interfere with your being able to disconnect the cables from the IBM SBC, and remove those cards (see "Removing and Replacing Feature Cards" on page 8-29).
3. Remove the screw that secures the IBM SBC card bracket to the chassis.
4. Disconnect all the cables from the IBM SBC.
5. Pull the cables away from the IBM SBC and carefully lift it out of the unit. (You might have to rock the IBM SBC slightly from front to rear to remove it.)
6. Place the IBM SBC card on a flat surface, with the components facing up and the backplane connector toward you. Then continue with adding memory or cache as needed.

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## System Memory (SIMMs)

You can add system memory to your system unit and increase system performance by providing more dynamic random-access memory (DRAM) storage. Your system unit has four single in-line memory module (SIMM) connectors in two banks. See Figure 6-1 on page 6-2 for their location. Be sure to install SIMMs in matched (identical) pairs. After they are installed, the system will detect the additional memory automatically.

You can increase system memory in one of the following ways:

- You can install matched-pair SIMMs into the vacant SIMM connectors on the IBM SBC.
- You can replace smaller matched-pair SIMMs with larger ones.

### Notes:

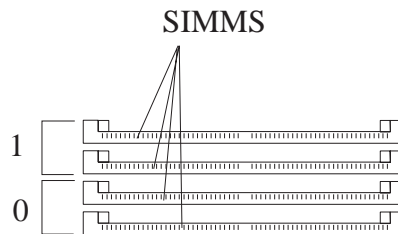
1. SIMMs can have a maximum height of 1.0 inches (25.4 mm).
2. Install only parity SIMMs to enable parity.

### Before You Begin

1. Read "Safety Information" on page A-10 and "Handling Electrostatic-Discharge-Sensitive Devices" on page A-15.
2. Turn off the system unit.
3. Disconnect all external cables and power cords.
4. Loosen the four cover screws and lift off the system unit cover.
5. Remove the IBM SBC as described in "Removing the IBM SBC" on page 3-5.
6. Locate the SIMM sockets.
7. If any installed adapters or drives are in the way, note their locations and any cables connected to them. Then remove the adapters or drives.
8. Touch the static-protective bag in which the SIMM was packaged to any unpainted metal surface on the system unit. Then remove the SIMM from the package.

## Installing SIMMs

The following illustration shows the SIMM banks on the IBM SBC. Bank 1 and bank 0 hold matched-pair SIMMs. When installing a SIMM, a matched-pair is first loaded into bank 0, and then into bank 1 as required.

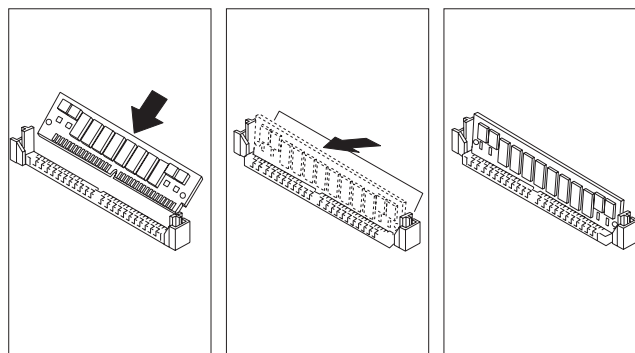


### What to Do Next

- If there are empty SIMM connectors on the IBM SBC, use the following procedure to install memory.
- If no empty SIMM connectors remain on the IBM SBC, go to “Removing SIMMs” on page 3-8 first, and then return here.

Use the following procedure to install SIMMs.

1. Locate the SIMM connectors at the left-front corner of your SBC. See **1** and **2** in Figure 6-1 on page 6-2 for the location of the SIMM banks on the IBM SBC.
2. With the notch in the SIMM to the right of the system unit, and the backplane connector nearest you, align the center key slot and insert a SIMM into the left-most empty SIMM connector. The SIMM will seat at an angle.
3. Pivot the top of the SIMM toward the connector until it snaps into the retaining clips.
4. Repeat this procedure for each SIMM you want to install. (Remember to install them in matched pairs.)

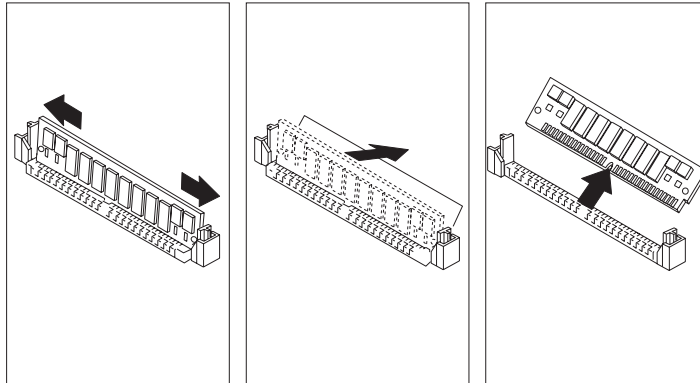


5. Install any previously removed adapters into the same slots from which they were removed. For information about installing adapters, see “Installing Adapters” on page 3-2.
6. Update the current configuration of the memory modules in Appendix B, “System Records.”

## Removing SIMMs

Use the following procedure to remove SIMMs.

1. Starting with the top-most populated SIMM connector, push outward against the retaining clips at both ends of the SIMM connector.
2. Pivot the SIMM away from the connector until it is released from the clips.
3. Lift the SIMM out of the connector.
4. Repeat this procedure for each SIMM you want to remove. (Remember to remove them in matched pairs.)



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## Cache Memory Modules

The cache memory modules are located on the IBM SBC. Adding cache memory might increase the performance of your system unit.

Two cache memory sizes are available: 256KB and 512KB.

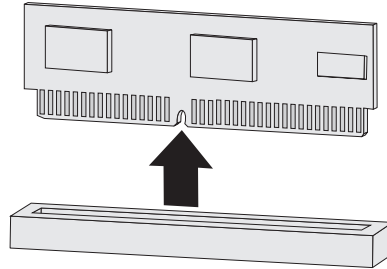
### Before You Begin

1. Read "Safety Information" on page A-10 and "Handling Electrostatic-Discharge-Sensitive Devices" on page A-15.
2. Turn off the system unit.
3. Disconnect all external cables and power cords, and then remove the system unit cover.
4. Remove the IBM SBC as described in "Removing the IBM SBC" on page 3-5.
5. Locate the cache memory module socket (item **3** in Figure 6-1 on page 6-2).
6. Touch the static-protective bag in which the modules were packaged to any unpainted metal surface on the system unit. Then remove the memory modules from the package.

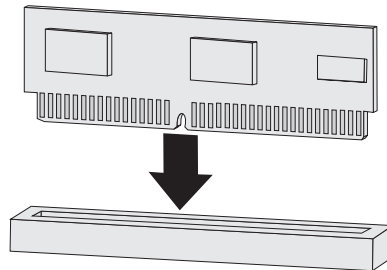
## Installing the Cache Memory Module

To install the cache memory module, do the following.

1. Gently pull the top edge of the cache memory module up and out of the connector.



2. Position the module so the notch on the bottom edge aligns with the notch in the connector.
3. Insert the bottom edge of the memory module into the connector and push down evenly. Make sure the module is fully inserted into the connector.



4. Reinstall the IBM SBC into its slot and reconnect the cables that were removed.
5. Reinstall any removed adapters or drives into their original positions.
6. Slide the chassis forward and fasten the four knurled thumbscrews that secure it.
7. Reinstall the system unit cover.
8. Record the size of the cache memory module you just installed in Appendix B, "System Records."





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## Chapter 4. Operating and Configuring Your System

The operation of your IBM 7587 Industrial Computer depends primarily on the IBM 586 or 586E Single-Board Computer (IBM SBC), system configuration, operating system, and application programs in your particular system unit. The first part of this chapter gives very general operator information concerning the features of the 7587 Industrial Computer. The remainder of the chapter explains how to use the different screens of the Configuration/Setup Utility.

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### Operator Information

Your system unit contains the following features:

#### **On/Off power switch**

The On/Off power switch is located on the front panel.

#### **Light-emitting diodes (LEDs)**

The 7587 Industrial Computer has 4 light-emitting diodes (LEDs) located on the front panel.

- The bottom (green) LED indicates power is on.
- The next (yellow) LED indicates a hard drive is reading or writing data.
- The next (yellow) LED is the speaker LED. It blinks when the speaker would be sounding (there is no system unit speaker).
- The top (yellow) LED is not used for any prescribed purpose; it can be connected for user applications where signals are required. Its connector is behind the LED.

#### **Power supply**

The power supply on the 7587 Industrial Computer has a switch on it that must be set manually before the system unit is powered up. The switch is located in the area where the power cord plugs into the system unit. It is marked either "115" or "230."

Use the following instructions to set the switch. You can use a ball-point pen to slide the switch to the correct position.

- If the voltage range in your country is between 90 and 137 volts, set the switch so "110" or "115" is visible.
- If the voltage range in your country is between 180 and 265 volts, set the switch so "220" or "230" is visible.

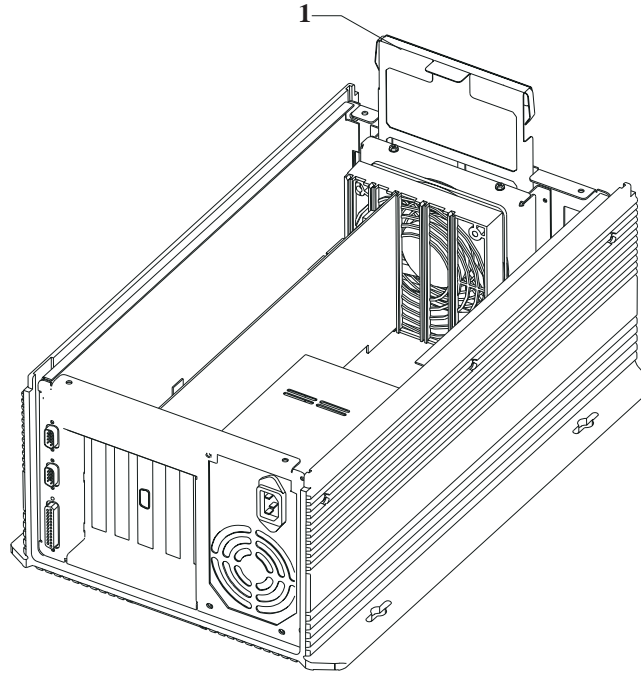
#### **Attention:**

Be sure the voltage-selection switch is in the correct position. If you set this switch to the wrong position, you might damage your system unit when you turn it on.

## Cleaning Air Filters

The 7587 Industrial Computer contains a single foam-type air filter that must be cleaned or replaced periodically. To remove the filter, do the following.

1. Loosen the 4 top-cover screws and remove the top cover.
2. Locate the filter assembly **1** and lift it out of the unit.



3. Remove the element from the frame and replace it with a new element.
4. Reinstall the filter assembly and the top cover.

## Starting Up Your System

### Before You Begin

Before you start up your system unit, ensure all of the following conditions are met:

- All internal and external options are installed properly.
- All power supply switches are set correctly for your power source.
- All signal cables are properly connected.
- All power cables are plugged into grounded electrical outlets.
- All covers are properly installed.

Start up your system unit using “Step 6. Perform Power-Up and Check-Out Procedure” on page 2-3.

## Installing an Operating System

For information about installing and using your operating system, refer to the manuals that came with the operating system.

## Installing Application Programs

For your system unit to be able to perform the tasks that meet your needs, you must install application programs. For information about installing and using your application programs, refer to the manuals that came with the application programs.

**Note:** Before installing any application program, you must ensure that your system unit contains all of the storage requirements for that program.

## Security Features

Security involves protecting your system unit components and preserving the data stored in your system unit. There are several security features available to help protect your system unit, the hardware inside, and the information stored on your hard disk.

### Diskette Drive and Hard Drive Access

To prevent unauthorized reading or writing to the IDE hard drives or diskette drives, drive access can be disabled by selecting that option in the Configuration/Setup Utility program. (All IDE hard disks either are enabled or all are disabled.) Select the **Secure Hard Disk Drives and Diskette Drives** option from the System Security option pop-up to access the fields for enabling access to diskette drives and hard disk drives. See “System Security Option” on page 4-13.

### Serial and Parallel Port I/O Control

This feature can disable input and output functions of the serial and parallel ports and their attached devices. The control of this feature is set by accessing the **Devices and I/O Ports** option in the Configuration/Setup Utility program.

## Passwords

Password security is implemented by a power-on password, a System Administrator password, and a keyboard password. The Configuration/Setup Utility program gives directions for setting, changing, and disabling the passwords. The **System Security** option on the Configuration/Setup Utility main screen (see Figure 4-11 on page 4-13) contains the fields for setting, changing, or disabling power-on or administrator passwords.

If it should become necessary to remove either a power-on password or System Administrator password because it is forgotten or for servicing, follow the procedure given in “Removing a Power-on or System Administrator Password” on page 4-4.

**Power-on Password:** A power-on password denies access to the system unit by an unauthorized user when the system unit is powered on. When a power-on password is active, the password prompt appears on the screen each time the system unit is powered on. The system unit starts only after the correct password is entered.

**System Administrator Password:** The System Administrator password restricts access to the Configuration/Setup Utility, which controls the security features. Once the Administrator Password is set, the password prompt appears each time an attempt is made to access the Configuration/Setup Utility program.

**Removing a Power-on or System Administrator Password:** If it should become necessary to remove either a power-on password or System Administrator password because it is forgotten or for servicing, power off the system unit and do the following.

1. Unplug the power cord and remove the top cover.
2. Using Figure 6-1 on page 6-2, locate the password clear pad.
3. Use a screwdriver or other conductive device to connect the two pads on the password clear pad for 10 seconds. An alternative method is to remove the battery ( **19** in Figure 6-1 on page 6-2) for 10 minutes.
4. Power-on the system unit and run the Configuration/Setup Utility program.
5. If a new password is required, you must reset it.

**Keyboard Password:** A keyboard password allows locking the keyboard while the system unit is turned on. Setting the keyboard password depends on the operating system. The OS/2 operating system provides keyboard-password protection as a standard feature; other operating systems might or might not offer this feature. Refer to your operating system documentation for more information.

## Startup-Sequence Control

The system unit has a default startup sequence that checks diskette drives first, then any available hard drive, then any other startup device that may be installed. You can change the startup sequence by arranging the startup devices in any order that meets your needs. For example, you can make your hard drive your primary startup device, thereby preventing a person from starting the system unit from a diskette drive. You can *customize* the startup sequence by changing the order in which the system unit checks the devices by accessing the Configuration/Setup Utility program.

## Keyboardless Operation Mode

The **Start Options** option on the Configuration/Setup Utility program main screen lets you select to start the system unit without a keyboard attached. This mode of operation commonly is used when the system unit has been set up as a network server.

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## Configuration Information

Your system unit has a special type of memory that maintains an inventory of its features and their associated settings. This inventory is the *configuration information*. A memory-retention battery on the IBM SBC keeps the memory active so it does not lose the configuration information when you turn off the system unit. The battery-backed memory maintains information about the:

- Cache memory
- Date and time settings
- Diskette drives and hard disk drives
- Keyboard and mouse information (if attached)
- Memory map
- Power management
- Processor information
- Security features and passwords
- Selectable features
- Serial and parallel ports
- Video information.