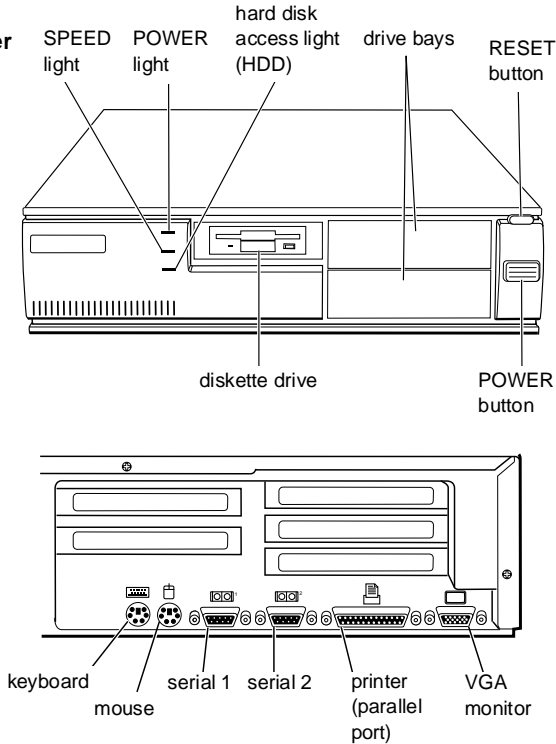
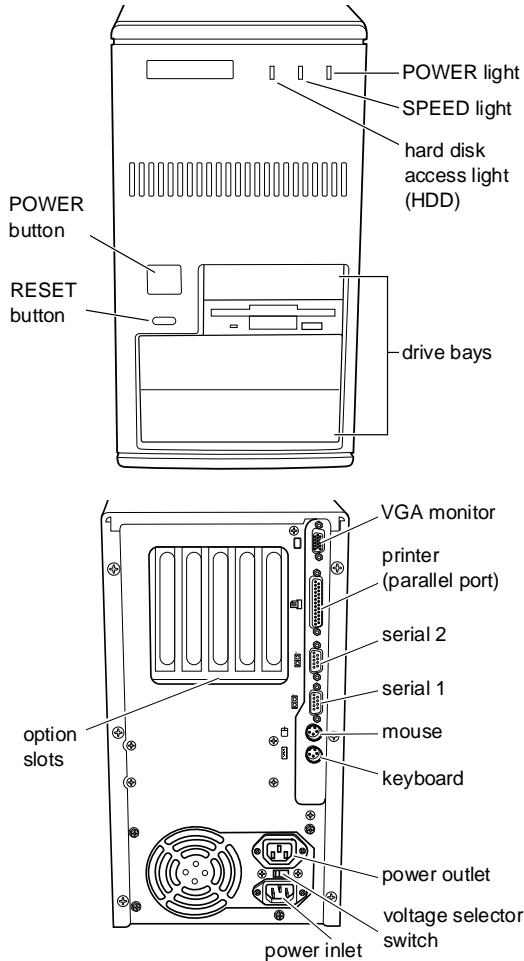


**Slimline computer**



**Tower computer**



**Computer Specifications**

**CPU and Memory**

64-bit CPU 586-class processor

Green PC energy saver Energy Star compliant, low-power, doze, standby, and suspend modes for the CPU, hard disk drive, and VGA display; select time-out periods, power-saving rates, and other options in SETUP

Memory 64-bit DRAM interface supporting 8MB RAM standard on two 4MB SIMMs; expandable to 128MB using 4MB, 8MB, 16MB, and 32MB SIMMs; SIMMs must be tin-plated, 72-pin, 32-bit or 36-bit, fast-page mode or EDO mode, parity or no-parity type with access speed of 70ns or faster

ROM 128KB Phoenix® system BIOS, video BIOS, and SETUP code in a flash memory device on system board

Video RAM 1MB video DRAM on system board; expandable to 2MB using two 512KB, 40-pin, SOJ flat pack video DRAM chips

Shadow RAM Supports shadowing of system and video BIOS ROM into RAM; video and option ROM shadowing selectable in SETUP

Cache 16KB of internal cache in the processor; 256KB of external cache installed on system board with two pipelined burst SRAM chips; internal and external cache controllable through SETUP

Math coprocessor Math coprocessor built into the 586-class processor

Clock/calendar Real-time clock, calendar, and CMOS RAM socketed on system board with integrated backup battery

**Controllers**

PCI chipset Provides PCI caching, memory, and control for the PCI bus and the two-channel, bus-mastered, PCI IDE interface (described under "Hard disk and other IDE devices" below); integrated PCI bridge translates CPU bus cycles to PCI bus cycles and CPU-to-PCI memory write cycles to PCI burst cycles

|                                 |   |                       |   |
|---------------------------------|---|-----------------------|---|
| Video                           | S3™ Trio64V+™ PCI VGA controller with integrated 24-bit RAMDAC, 64-bit DRAM interface; includes power-saving and multimedia features; supports resolutions up to 1280×1024 in 16 colors with 1MB of video RAM, increasing to 256 colors with 2MB of video RAM; True Color™ support at 640×480 resolution and Hi-Color support at 800×600 resolution | Mass Storage          | <p><i>Slimline</i></p> <p>Internal bay:<br/>One 3.5-inch wide, one-inch high drive</p> <p>Externally accessible bays:<br/>One 3.5-inch wide, one-inch high drive and two 5.25-inch wide, half-height drives</p> <p><i>Tower</i></p> <p>Front internal bay:<br/>One 3.5-inch wide, one-inch high drive</p> <p>Rear internal bracket:<br/>Two 3.5-inch wide, one-inch high drives or one 3.5-inch wide, full-height drive</p> <p>Externally accessible bays:<br/>Two 3.5-inch wide, one-inch high drives and two 5.25-inch wide, half-height drives</p> |
| Diskette                        | Controller on system board supports up to two diskette drives, or one diskette/combo diskette and one tape drive  | Diskette drive types  | 3.5-inch diskette drive, 720KB or 1.44MB storage capacity; 5.25-inch diskette drive, 360KB or 1.2MB storage capacity; or a combination 3.5-inch/5.25-inch diskette drive  |
| Hard disk and other IDE devices | Two PCI, ATA-2 compatible, bus-mastered IDE interfaces on system board support up to four IDE devices (two on each interface); IDE CD-ROM drives cannot be connected to the primary IDE interface or to the same interface as IDE hard disk drives; BIOS provides hard disk auto-sensing and enhanced IDE functions                                 | Hard disk drive types | 5.25-inch or 3.5-inch form factor hard disk drive(s), up to half-height size; maximum of four drives  |
| Interfaces                      |   | Other devices         | Half-height tape drives, CD-ROM drives, optical drives, PCMCIA card readers, or other devices; 5.25-inch, or 3.5-inch with mounting frames  |
| Monitor                         | Energy Star compliant video interface for fixed or multifrequency monitor built into system board; 15-pin, D-shell connector  | Keyboard              | Detachable, two-position height; 104 or 105 sculpted keys; country-dependent main typewriter keyboard; numeric/cursor control keypad; four-key cursor control keypad; 12 function keys; 3 Windows 95 keys   |
| Parallel                        | One standard, multimode parallel interface built into system board; supports 8-bit unidirectional, 16-bit bidirectional EPP (Enhanced Parallel Port) and ECP (Extended Capability Port) modes; 25-pin, D-shell connector; operation controllable by SETUP program and jumpers   | Mouse                 | Detachable, two-button, PS/2 compatible   |
| Serial                          | Two high-speed RS-232C, programmable, asynchronous interfaces built into system board; 16C550 compatible; 9-pin, D-shell connectors; operation controllable through SETUP   | SETUP Program         | Stored in ROM; accessible by pressing Del during boot   |
| Keyboard                        | PS/2 compatible keyboard interface built into system board; 6-pin, mini DIN connector   | System security       | User and Supervisor level passwords available for system boot or diskette access  |
| Mouse                           | PS/2 compatible mouse interface built into system board; 6-pin, mini DIN connector  | Virus protection      | Write protection feature for the hard disk drive boot sector  |
| Option slots                    | Connector card with five I/O expansion slots; three ISA compatible (8.33 MHz bus speed) and two PCI bus-mastering slots (33 MHz bus speed)  |                       |   |
| Speaker                         | Internal  |                       |   |

**Power Supply**

|                |   |
|----------------|---|
| Type           | 200 Watt, UL/TUV/CSA listed, fan-cooled   |
| Input ranges   | 98–132 VAC or 196–264 VAC; switch-selectable  |
| Maximum output | +5 VDC at 20 Amps, –5 VDC at 0.5 Amp<br>+12 VDC at 8 Amps, –12 VDC at 0.5 Amp   |
| Frequency      | 48 to 63 Hz   |
| Cables         | Two to system board, five to mass storage devices; for more than five devices, Y cables can be installed on the existing cables |

**Option Slot Power Limits**

| Output voltage (VDC) | +5 Volts | –5 Volts | +12 Volts | –12 Volts |
|----------------------|----------|----------|-----------|-----------|
| For all slots        | 12 Amps  | 0.4 Amp  | 4.0 Amps  | 0.4 Amp   |

**Physical Characteristics**

| Dimension | Slimline   | Tower  |
|-----------|--|--|
| Width     | 16.8 inches (427 mm)   | 7.125 inches (181 mm)  |
| Depth     | 15.8 inches (401 mm)   | 16.25 inches (413 mm)  |
| Height    | 4.4 inches (112 mm)  | 13.25 inches (337 mm)  |
| Weight    | 18.2 lb (8.3 kg) with one diskette drive, but without keyboard | 20.6 lb (9.3 kg) with one diskette drive, but without keyboard |

**Environmental Requirements**

| Condition                 | Operating range                       | Storage range                           |
|---------------------------|---------------------------------------|---|
| Temperature               | 41° to 90° F<br>(5° to 32° C)         | –4° to 140° F<br>(–20° to 60° C)        |
| Humidity (non-condensing) | 20% to 90%                            | 10% to 90%                              |
| Altitude                  | –330 to 9,900 ft<br>(–100 to 3,000 m) | –330 to 39,600 ft<br>(–100 to 12,000 m) |

**Jumper Settings**

*CPU clock jumper settings*

| CPU type *                 | External clock speed | JP12     | JP17 | JP29 |
|----------------------------|----------------------|----------|------|------|
| Cyrix 6x86-P120+ (100 MHz) | 50 MHz               | Open     | 1-2  | Open |
| Cyrix 6x86-P150+ (120 MHz) | 60 MHz               | 3-4      | 1-2  | Open |
| Cyrix 6x86-P166+ (133 MHz) | 66 MHz               | 1-2, 3-4 | 1-2  | Open |
| Pentium 75 MHz             | 50 MHz               | Open     | Open | Open |
| Pentium 90 MHz             | 60 MHz               | 3-4      | Open | Open |
| Pentium 100 MHz            | 66 MHz               | 1-2, 3-4 | Open | Open |
| Pentium 120 MHz            | 60 MHz               | 3-4      | 1-2  | Open |
| Pentium 133 MHz            | 66 MHz               | 1-2, 3-4 | 1-2  | Open |
| Pentium 150 MHz            | 60 MHz               | 3-4      | 1-2  | 1-2  |
| Pentium 166 MHz            | 66 MHz               | 1-2, 3-4 | 1-2  | 1-2  |

\* Default setting depends on speed of CPU

*Parallel port ECP mode DMA channel (DRQ) settings*

| DMA channel | JP23  | JP24  |
|-------------|-------|-------|
| DRQ1        | 1-2 * | 1-2 * |
| DRQ3        | 2-3   | 2-3   |

\* Default setting

*VGA DRAM jumper settings*

| Timing mode    | JP3   | JP20  |
|----------------|-------|-------|
| Fast page mode | 1-2 * | 1-2 * |
| EDO mode       | 2-3   | 2-3   |

\* Default setting

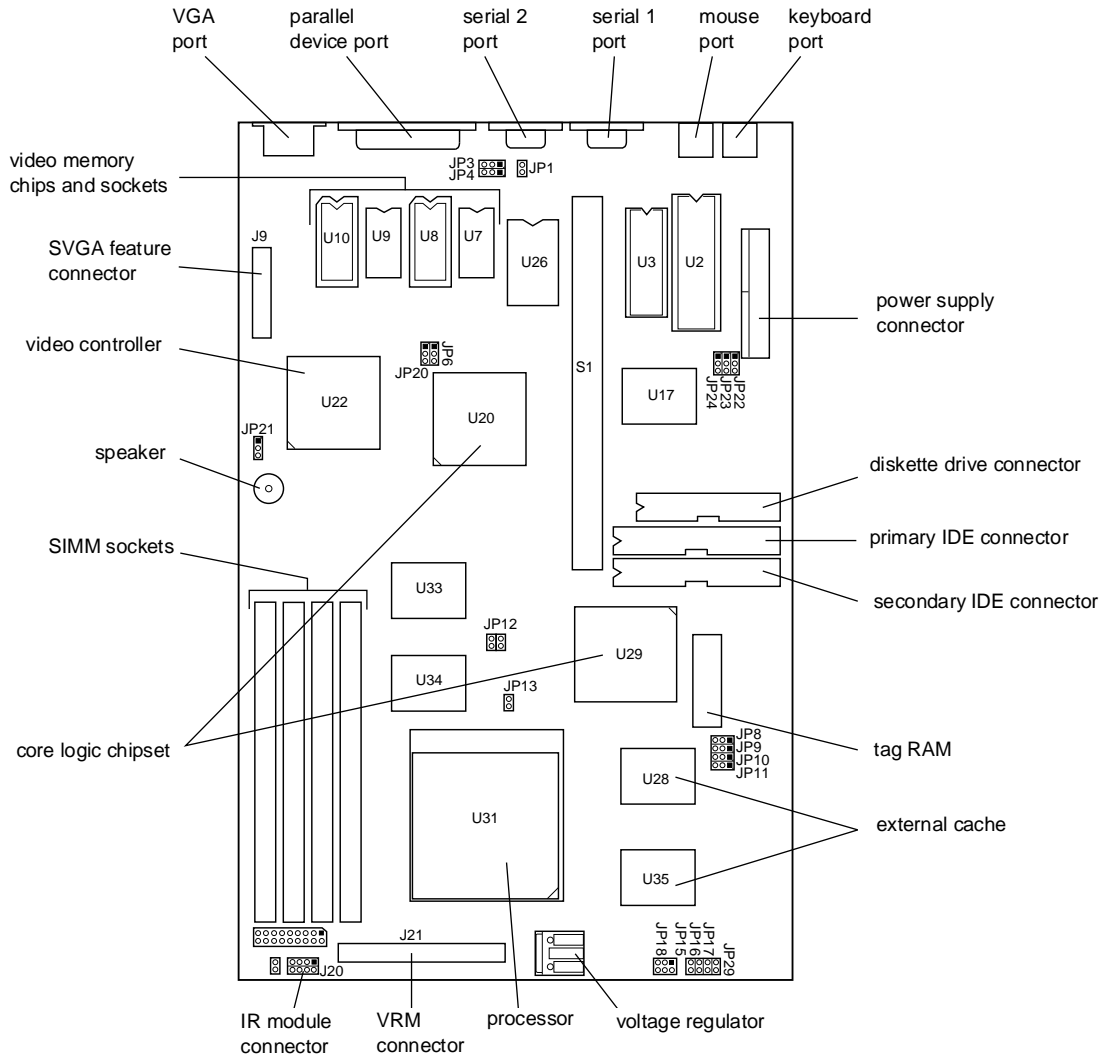
*Miscellaneous jumper settings*

| Jumper number | Jumper setting      | Function  |
|---------------|---------------------|---|
| JP1           | 1-2<br>Open *       | Clear the CMOS SETUP values<br>Normal CMOS operation  |
| JP4           | 2-3 *<br>1-2        | 1MB video DRAM<br>2MB video DRAM  |
| JP6           | 2-3 *<br>1-2        | System clock PCICLK/4<br>System clock PCICLK/3  |
| JP16          | 1-2<br>Open *       | Write-back cache<br>Write-through cache   |
| JP18          | 5-6 *<br>3-4<br>1-2 | +3.3 V CPU voltage<br>+3.358 V – 3.36 V (VR) CPU voltage<br>+3.525 V – 3.528 V (VRE) CPU voltage        |
| JP21          | 1-2 *<br>2-3        | Enable VGA controller<br>Disable VGA controller   |
| JP22          | 1-2 *<br>2-3        | Enable serial ports and diskette drive controller<br>Disable serial ports and diskette drive controller |
| J20           | 5-6, 7-8 *<br>Open  | Use serial port for infrared (IR) device<br>Use IR module connector for IR device                       |

\* Default setting

## System Board Components

The diagram below illustrates the components on the system board.



*System board components*

| Connector          | Function   |
|--------------------|--|
| PS1                | Power connector  |
| J14                | Primary IDE connector  |
| J1                 | PS/2 keyboard connector  |
| J13                | Diskette drive connector   |
| J15                | Secondary IDE connector  |
| J22                | HDD LED connector  |
| J3                 | PS/2 mouse connector   |
| J5                 | Serial 1 port connector  |
| J6                 | Serial 2 port connector  |
| J21                | Pins 2-3: Turbo LED connector<br>Pins 9-10: Hardware reset connector<br>Pins 11-13: Power LED connector<br>Pins 17-20: Speaker connector |
| J7                 | Printer (parallel) port connector  |
| J9                 | SVGA feature connector   |
| J8                 | 15-pin DIN type VGA connector  |
| S1                 | Riser card slot; default settings of PCI AD Select are AD12 and AD13   |
| U28, U35           | External cache SRAM chips  |
| U2                 | AMIKEY-2 keyboard controller   |
| U27                | Cache tag RAM chip   |
| U3                 | Phoenix system and video BIOS chip   |
| U31                | Processor (CPU)  |
| U6                 | Dallas DS 12887 real-time clock chip   |
| U17                | SMC FDC 37C665 parallel port super I/O diskette controller   |
| U8, U10            | Soldered standard video RAM  |
| U20, U29, U33, U34 | PCI chipset  |
| U22                | S3 Trio64V+ VGA controller   |
| U7, U9             | Video DRAM expansion sockets   |

**SIMM Installation**

The computer comes with 16MB of RAM standard on two 8MB SIMMs. You can increase the memory up to 128MB using 4MB, 8MB, 16MB, or 32MB SIMMs. The SIMMs must be tin-plated, 72-pin, single- or double-sided, fast-page mode or EDO mode, parity or no-parity type with an access speed of 70ns or faster. Be sure all the SIMMs operate at the same speed.

The table below lists all the possible SIMM configurations; do not install SIMMs in any other configuration.

*SIMM configurations*

| Bank 0 |      | Bank 1 |      | Total memory |
|--------|------|--------|------|--------------|
| SIM1   | SIM2 | SIM3   | SIM4 |              |
| 4MB    | 4MB  | —      | —    | 8MB          |
| —      | —    | 4MB    | 4MB  | 8MB          |
| 4MB    | 4MB  | 4MB    | 4MB  | 16MB         |
| 4MB    | 4MB  | 8MB    | 8MB  | 24MB         |
| 4MB    | 4MB  | 16MB   | 16MB | 40MB         |
| 4MB    | 4MB  | 32MB   | 32MB | 72MB         |
| 8MB    | 8MB  | —      | —    | 16MB         |
| —      | —    | 8MB    | 8MB  | 16MB         |
| 8MB    | 8MB  | 4MB    | 4MB  | 24MB         |
| 8MB    | 8MB  | 8MB    | 8MB  | 32MB         |
| 8MB    | 8MB  | 16MB   | 16MB | 48MB         |
| 8MB    | 8MB  | 32MB   | 32MB | 80MB         |
| 16MB   | 16MB | —      | —    | 32MB         |
| —      | —    | 16MB   | 16MB | 32MB         |
| 16MB   | 16MB | 4MB    | 4MB  | 40MB         |
| 16MB   | 16MB | 8MB    | 8MB  | 48MB         |
| 16MB   | 16MB | 16MB   | 16MB | 64MB         |
| 32MB   | 32MB | —      | —    | 64MB         |
| —      | —    | 32MB   | 32MB | 64MB         |
| 32MB   | 32MB | 4MB    | 4MB  | 72MB         |
| 32MB   | 32MB | 8MB    | 8MB  | 80MB         |
| 32MB   | 32MB | 16MB   | 16MB | 96MB         |
| 32MB   | 32MB | 32MB   | 32MB | 128MB        |

## System Memory Map

| Address range    | Function   |
|------------------|--|
| FE0000h-FFFFFFh  | 128KB duplication of ROM BIOS stored at 0E0000h-0FFFFFFh |
| 100000h-FDFFFFh  | System extended memory (128MB maximum)                   |
| 0E0000h-0FFFFFFh | 128KB ROM BIOS   |
| 0C8000h-0DFFFFh  | Adapter ROM BIOS   |
| 0C0000h-0C7FFFh  | Video ROM BIOS   |
| 0A0000h-0BFFFFh  | 128KB video memory                                       |
| 000000h-09FFFFh  | 640KB base memory  |

## Video Memory

The computer comes with 1MB of video memory. You can increase the video memory to 2MB by installing two 512KB, 40-pin, SOJ flat pack video DRAM chips.

| Resolution  | Memory requirements | Color              | Refresh rates (Hz) | Remarks         |
|-------------|---------------------|--------------------|--------------------|-----------------|
| 640 × 480   | 1MB                 | 256                | 60/72/75           | 8 bits/pixel    |
|             | 1MB                 | 32K/64K            | 60/72/75           | 16 bits/pixel   |
|             | 2MB                 | 16.8M (True Color) | 60/72/75           | 24 bits/pixel   |
| 800 × 600   | 1MB                 | 256                | 56/60/72/75        | 8 bits/pixel    |
|             | 1MB                 | 32K/64K            | 60/72/75           | 16 bits/pixel   |
|             | 2MB                 | 16.8M (True Color) | 60/72/75           | 24 bits/pixel   |
| 1024 × 768  | 1MB                 | 256                | 43.5/60/70/75      | 8 bits/pixel*   |
|             | 2MB                 | 64K                | 43.5/60/70/75      | 16 bits/pixel** |
| 1280 × 1024 | 1MB                 | 16                 | 43.5/60/72/75      | 4 bit planes*   |
|             | 2MB                 | 256                | 43.5/60/72/75      | 8 bits/pixel**  |
| 1600 × 1200 | 2MB                 | 256                | 43.5               | 8 bits/pixel**  |

\* Non-interlaced and interlaced

\*\* Interlaced

## Processor Upgrades

You can upgrade your processor with a faster one to improve system performance. If you upgrade the processor, you may want to lay the computer on its side to make the process easier. If you are upgrading to a 100 MHz processor, make sure you use a standard 3.3 V processor.

## Hard Disk Drive Types

The computer comes with a hard disk auto-sensing feature. To use it, select one of the drives you have installed from the Fixed Disk Setup screen. On the screen that appears for that drive, press Enter to select the **Autotype Fixed Disk** option. The system detects the type of hard disk drive, fills in the drive's parameters, and sets the remaining options on the screen.

## Hard Disk Drive Information

The IDE hard disk drives listed in the tables below are qualified for use in your computer.

### IDE hard disk drive parameters

| Parameters                | Conner®  |          |          |          | NEC®  |       | Seagate® |          |          |
|---------------------------|----------|----------|----------|----------|-------|-------|----------|----------|----------|
|                           | CFS1275A | CFS850A  | CFS635A  | CFS541A  | D3747 | D3745 | ST31640A | ST51270A | ST3630A  |
| Formatted capacity (MB)   | 1275     | 850      | 635      | 540      | 1620  | 1080  | 1625     | 1282     | 631      |
| Size, width × height (in) | 4 × 1    | 4 × 1    | 4 × 1    | 4 × 1    | 4 × 1 | 4 × 1 | 4 × 1    | 4 × .75  | 4 × 1    |
| Weight (lb)               | 1.25     | 1.25     | 1.25     | 1.25     | 1.25  | 1.25  | 1.5      | .75      | 1.3      |
| Cylinders                 | 3640     | 3640     | 3640     | 3924     | 3678  | 3678  | 4708     | 5414     | 3164     |
| Disks                     | 3        | 2        | 2        | 1        | 3     | 2     | 3        | 2        | 2        |
| Heads                     | 6        | 4        | 3        | 2        | 6     | 4     | 6        | 4        | 4        |
| Sectors per track         | 77 - 143 | 78 - 143 | 78 - 144 | 90 - 170 |       |       | 76 - 142 |          | 66 - 115 |
| Rotational speed (RPM)    | 3600     | 3600     | 3600     | 3600     | 4500  | 4500  | 5400     | 5400     | 3811     |
| Buffer size (KB)          | 64       | 64       | 64       | 64       | 256   | 256   | 256      | 128      | 120      |
| Average seek time (ms)    | 14       | 14       | 14       | 14       | 11    | 11    | 10.5     | 10.5     | 14       |
| Encoding method           | RLL 1,7  | RLL 1,7  | RLL 1,7  | RLL 1,7  | PRML  | PRML  | RLL 1,7  | RLL 1,7  | RLL 1,7  |
| Power dissipation (seek)  | 3.5 W    | 3.5 W    | 3.5 W    | 3.9 W    | 4.0 W | 4.0 W | 8.41 W   | 6.4 W    | 5.2 W    |
| <b>Logical parameters</b> |          |          |          |          |       |       |          |          |          |
| Cylinders                 | 2477     | 1651     | 1238     | 1048     | 3144  | 2096  | 3150     | 2485     | 1223     |
| Heads                     | 16       | 16       | 16       | 16       | 16    | 16    | 16       | 16       | 16       |
| Precomp zone              | 0        | 0        | 0        | 0        | 0     | 0     | 0        | 0        | 0        |
| Landing zone              | 2477     | 1651     | 1238     | 1048     | 3144  | 2096  | 4726     | 5376     | 3164     |
| Sectors                   | 63       | 63       | 63       | 63       | 63    | 63    | 63       | 63       | 63       |

*IDE hard disk drive settings*

| Model number     | Single drive           | Master drive           | Slave drive  |
|------------------|------------------------|------------------------|--------------|
| Conner CFS1275A  | C/D jumpered           | C/D jumpered           | No jumpers   |
| Conner CFS850A   | C/D jumpered           | C/D jumpered           | No jumpers   |
| Conner CFS635A   | C/D jumpered           | C/D jumpered           | No jumpers   |
| Conner CFS541A   | C/D jumpered           | C/D jumpered           | No jumpers   |
| NEC D3747        | SW1 on,<br>SW2–SW4 off | SW1 on,<br>SW2–SW4 off | SW1–SW4 off  |
| NEC D3745        | SW1 on,<br>SW2–SW4 off | SW1 on,<br>SW2–SW4 off | SW1–SW4 off  |
| Seagate ST31640A | No jumpers             | 3-4 jumpered           | 1-2 jumpered |
| Seagate ST51270A | No jumpers             | 3-4 jumpered           | 1-2 jumpered |
| Seagate ST3630A  | No jumpers             | No jumpers             | 7-8 jumpered |

**DMA Assignments**

| Level | Assigned device           |
|-------|---------------------------|
| DMA0  | Reserved                  |
| DMA1  | Available                 |
| DMA2  | Diskette drive controller |
| DMA3  | Available                 |
| DMA4  | Cascade from DMA 1        |
| DMA5  | Spare                     |
| DMA6  | Spare                     |
| DMA7  | Spare                     |

**Hardware Interrupts**

| IRQ no. | Function                  |
|---------|---------------------------|
| IRQ0    | Internal timer            |
| IRQ1    | Keyboard                  |
| IRQ2    | Cascade to IRQ9           |
| IRQ3    | Serial port 2             |
| IRQ4    | Serial port 1             |
| IRQ5    | LPT2                      |
| IRQ6    | Diskette drive controller |
| IRQ7    | Parallel port 1           |
| IRQ8    | Real-time clock           |
| IRQ9    | Cascaded from IRQ2        |
| IRQ10   | Available                 |
| IRQ11   | Available                 |
| IRQ12   | PS/2 mouse                |
| IRQ13   | Math coprocessor          |
| IRQ14   | Primary IDE controller    |
| IRQ15   | Secondary IDE controller  |

**System I/O Address Map**

| Hex address | Assigned device                              |
|-------------|--|
| 000 - 01F   | DMA controller 1, 8237                       |
| 020 - 03F   | Interrupt controller 1, 8259                 |
| 022 - 024   | Reserved                                     |
| 040 - 05F   | Timer, 8254                                  |
| 060 - 06F   | Keyboard controller, 8242PE                  |
| 070 - 07F   | Real-time clock NMI (non-maskable interrupt) |
| 080 - 09F   | DMA page register, 74LS612                   |
| 0A0 - 0BF   | Interrupt controller 2, 8259                 |
| 0C0 - 0DF   | DMA controller 2, 8237                       |
| 0F0         | Clear math coprocessor                       |
| 0F1         | Reset math coprocessor                       |
| 0F8 - 0FF   | Math coprocessor                             |
| 1F0 - 1F8   | Primary hard disk interface                  |
| 1E0 - 1E7   | Secondary hard disk interface                |
| 200 - 207   | Game I/O                                     |
| 278 - 27F   | Parallel printer port 2                      |
| 2B0 - 2DF   | Alternate enhanced graphics adapter          |
| 2E1         | GPIB (adapter 0)                             |
| 2E2, 2E3    | Data acquisition (adapter 0)                 |
| 2F8 - 2FF   | Serial port 2                                |
| 300 - 31F   | Prototype card                               |
| 360 - 363   | Available                                    |
| 368 - 36B   | Available                                    |
| 378 - 37A   | Parallel printer port 1                      |
| 380 - 38F   | Available                                    |
| 390 - 393   | Available                                    |
| 3A0 - 3AF   | Available                                    |
| 3B0 - 3BF   | Available                                    |
| 3C0 - 3CF   | VGA adapter                                  |
| 3D0 - 3DF   | VGA adapter                                  |
| 3F0 - 3F5   | Diskette drive controller                    |
| 3F8 - 3FF   | Serial port 1                                |
| 6E2, 6E3    | Available                                    |
| 790 - 793   | Available                                    |
| AE2, AE3    | Available                                    |
| B90, B93    | Available                                    |
| EE2, EE3    | Available                                    |
| 1390 - 1393 | Available                                    |
| 22E1        | Available                                    |
| 2390 - 2393 | Available                                    |
| 42E1        | Available                                    |
| 63E1        | Available                                    |
| 82E1        | Available                                    |
| A2E1        | Available                                    |
| C2E1        | Available                                    |
| E2E1        | Available                                    |

## Connector Pin Assignments

### Parallel port connector pin assignments (J7)

| Pin | Signal  | Pin | Signal        | Pin | Signal        |
|-----|---------|-----|---------------|-----|---------------|
| 1   | Strobe* | 10  | ACK *         | 19  | Signal ground |
| 2   | Data 0  | 11  | Busy          | 20  | Signal ground |
| 3   | Data 1  | 12  | PE            | 21  | Signal ground |
| 4   | Data 2  | 13  | Select        | 22  | Signal ground |
| 5   | Data 3  | 14  | AFD *         | 23  | Signal ground |
| 6   | Data 4  | 15  | Error *       | 24  | Signal ground |
| 7   | Data 5  | 16  | Init *        | 25  | Signal ground |
| 8   | Data 6  | 17  | Selectin *    | —   | —             |
| 9   | Data 7  | 18  | Signal ground | —   | —             |

\* Active LOW logic

### Serial port connector pin assignments (J5 and J6)

| Pin | Signal              | Pin | Signal          |
|-----|---------------------|-----|-----------------|
| 1   | Data carrier detect | 6   | Data set ready  |
| 2   | Receive data        | 7   | Request to send |
| 3   | Transmit data       | 8   | Clear to send   |
| 4   | Data terminal ready | 9   | Ring indicator  |
| 5   | Ground              | —   | —               |

### Mouse and keyboard connector pin assignments (J1 and J3)

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | Data   | 4   | VCC    |
| 2   | NC     | 5   | Clock  |
| 3   | Ground | 6   | NC     |

### VGA port connector pin assignments (J8)

| Pin | Signal | Pin | Signal       | Pin | Signal          |
|-----|--------|-----|--------------|-----|-----------------|
| 1   | Red    | 6   | Red ground   | 11  | NC              |
| 2   | Green  | 7   | Green ground | 12  | Monitor detect  |
| 3   | Blue   | 8   | Blue ground  | 13  | Horizontal sync |
| 4   | NC     | 9   | NC           | 14  | Vertical sync   |
| 5   | Ground | 10  | Ground       | 15  | NC              |

### LED connector pin assignments (J21)

| Pin | Signal                  | Pin | Signal             |
|-----|-------------------------|-----|--------------------|
| 1   | NC                      | 11  | Power LED (yellow) |
| 2   | Turbo LED (yellow)      | 12  | NC                 |
| 3   | Turbo LED (white)       | 13  | Power LED (white)  |
| 4   | NC                      | 14  | NC                 |
| 5   | NC                      | 15  | NC                 |
| 6   | NC                      | 16  | NC                 |
| 7   | NC                      | 17  | Speaker (red)      |
| 8   | NC                      | 18  | NC                 |
| 9   | Hardware reset (white)  | 19  | NC                 |
| 10  | Hardware reset (yellow) | 20  | Speaker (black)    |

### HDD LED connector pin assignments (J22)

| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1   | Red    | 2   | White  |

### Power supply connector pin assignments (PS1)

| Pin | Signal     | Pin | Signal |
|-----|------------|-----|--------|
| 1   | Power good | 7   | Ground |
| 2   | +5 VDC     | 8   | Ground |
| 3   | +12 VDC    | 9   | -5 VDC |
| 4   | -12 VDC    | 10  | +5 VDC |
| 5   | Ground     | 11  | +5 VDC |
| 6   | Ground     | 12  | +5 VDC |

### Diskette drive connector pin assignments (J13)

| Pin* | Signal    | Pin* | Signal          |
|------|-----------|------|-----------------|
| 2    | NC        | 20   | Step            |
| 4    | NC        | 22   | Write data      |
| 6    | NC        | 24   | Write enable    |
| 8    | Index     | 26   | Track 0         |
| 10   | Motor A   | 28   | Write protect   |
| 12   | Drive B   | 30   | Read data       |
| 14   | Drive A   | 32   | Select header 0 |
| 16   | Motor B   | 34   | Disk change     |
| 18   | Direction |      |                 |

\* All odd-numbered pins are grounds

### IDE drive connector pin assignments (J14 and J15)

| Pin | Signal | Pin | Signal   | Pin | Signal  |
|-----|--------|-----|----------|-----|---------|
| 1   | RESET* | 15  | D1       | 29  | NC      |
| 2   | Ground | 16  | D14      | 30  | Ground  |
| 3   | D7     | 17  | D0       | 31  | IRQ14   |
| 4   | D8     | 18  | D15      | 32  | IOCS16* |
| 5   | D6     | 19  | Ground   | 33  | A1      |
| 6   | D9     | 20  | NC       | 34  | NC      |
| 7   | D5     | 21  | NC       | 35  | A0      |
| 8   | D10    | 22  | Ground   | 36  | A2      |
| 9   | D4     | 23  | IOW*     | 37  | CS0*    |
| 10  | D11    | 24  | Ground   | 38  | CS1*    |
| 11  | D3     | 25  | IOR*     | 39  | Active* |
| 12  | D12    | 26  | Ground   | 40  | Ground  |
| 13  | D2     | 27  | IOCHRDY* |     |         |
| 14  | D13    | 28  | BALE     |     |         |

\*Active low logic



*Option card riser board connector pin assignments*

| Pin | Signal  | Pin | Signal | Pin | Signal   | Pin | Signal   |
|-----|---------|-----|--------|-----|----------|-----|----------|
| A1  | +12 VDC | A31 | SA3    | B1  | +12 VDC  | B31 | BALE     |
| A2  | Ground  | A32 | SA2    | B2  | +5 VDC   | B32 | +5 VDC   |
| A3  | Ground  | A33 | SA1    | B3  | Ground   | B33 | OSC      |
| A4  | IOCHCK* | A34 | SA0    | B4  | Ground   | B34 | Ground   |
| A5  | SD7     | A35 | Ground | B5  | RESETDRV | B35 | Ground   |
| A6  | SD6     | A36 | Ground | B6  | +5 VDC   | B36 | +5 VDC   |
| A7  | SD5     | A37 | +5 VDC | B7  | IRQ9     | B37 | +5 VDC   |
| A8  | SD4     | A38 | SBHE*  | B8  | 5 VDC    | B38 | MEMCS16* |
| A9  | SD3     | A39 | LA23   | B9  | DRQ2     | B39 | IOCS16*  |
| A10 | SD2     | A40 | LA22   | B10 | 12 VDC   | B40 | IRQ10    |
| A11 | SD1     | A41 | LA21   | B11 | OWS*     | B41 | IRQ11    |
| A12 | SD0     | A42 | LA20   | B12 | +12 VDC  | B42 | IRQ12    |
| A13 | IOCHRDY | A43 | LA19   | B13 | Ground   | B43 | IRQ15    |
| A14 | AEN     | A44 | LA18   | B14 | SMEMW*   | B44 | IRQ14    |
| A15 | SA19    | A45 | LA17   | B15 | SMEMR*   | B45 | DACK0*   |
| A16 | SA18    | A46 | MEMR*  | B16 | IOW*     | B46 | DRQ0     |
| A17 | SA17    | A47 | MEMW*  | B17 | IOR*     | B47 | DACK5*   |
| A18 | SA16    | A48 | SD8    | B18 | DACK3*   | B48 | DRQ5     |
| A19 | SA15    | A49 | SD9    | B19 | DRQ3     | B49 | DACK6*   |
| A20 | SA14    | A50 | SD10   | B20 | DACK1*   | B50 | DRQ6     |
| A21 | SA13    | A51 | SD11   | B21 | DRQ1     | B51 | DACK7*   |
| A22 | SA12    | A52 | SD12   | B22 | REFRESH* | B52 | DRQ7     |
| A23 | SA11    | A53 | SD13   | B23 | SYSCLK   | B53 | +5 VDC   |
| A24 | SA10    | A54 | SD14   | B24 | IRQ7     | B54 | MASTER*  |
| A25 | SA9     | A55 | SD15   | B25 | IRQ6     | B55 | Ground   |
| A26 | SA8     | A56 | Ground | B26 | IRQ5     | B56 | Ground   |
| A27 | SA7     | A57 | Ground | B27 | IRQ4     | B57 | Ground   |
| A28 | SA6     | A58 | Ground | B28 | IRQ3     | B58 | +5 VDC   |
| A29 | SA5     | A59 | +5 VDC | B29 | DACK2*   | B59 | +5 VDC   |
| A30 | SA4     | A60 | +5 VDC | B30 | TC       | B60 | +5 VDC   |

\* Active low logic

*ISA option slot connector pin assignments*

| Pin | Signal  | Pin | Signal   | Pin | Signal | Pin | Signal   |
|-----|---------|-----|----------|-----|--------|-----|----------|
| A1  | IOCHCK* | A26 | SA5      | B20 | SYSCLK | C14 | SD11     |
| A2  | SD7     | A27 | SA4      | B21 | IRQ7   | C15 | SD12     |
| A3  | SD6     | A28 | SA3      | B22 | IRQ6   | C16 | SD13     |
| A4  | SD5     | A29 | SA2      | B23 | IRQ5   | C17 | SD14     |
| A5  | SD4     | A30 | SA1      | B24 | IRQ4   | C18 | SD15     |
| A6  | SD3     | A31 | SA0      | B25 | IRQ3   | D1  | Memcs16* |
| A7  | SD2     | B1  | Ground   | B26 | DACK2* | D2  | IOCS16*  |
| A8  | SD1     | B2  | RESETDRV | B27 | T/C    | D3  | IRQ10    |
| A9  | SD0     | B3  | +5 VDC   | B28 | BALE   | D4  | IRQ11    |
| A10 | IORDY   | B4  | IRQ9     | B29 | +5 VDC | D5  | IRQ12    |
| A11 | AEN     | B5  | 5 VDC    | B30 | OSC    | D6  | IRQ15    |
| A12 | SA19    | B6  | DRQ2     | B31 | Ground | D7  | IRQ14    |
| A13 | SA18    | B7  | 12 VDC   | C1  | SBHE*  | D8  | DACK0*   |
| A14 | SA17    | B8  | OWS*     | C2  | SA23   | D9  | DREQ0    |
| A15 | SA16    | B9  | +12 VDC  | C3  | SA22   | D10 | DACK5*   |
| A16 | SA15    | B10 | Ground   | C4  | SA21   | D11 | DREQ5    |
| A17 | SA14    | B11 | SMEMW*   | C5  | SA20   | D12 | DACK6*   |
| A18 | SA13    | B12 | SMEMR*   | C6  | SA19   | D13 | DRQ6     |
| A19 | SA12    | B13 | IOW*     | C7  | SA18   | D14 | DACK7*   |
| A20 | SA11    | B14 | IOR*     | C8  | SA17   | D15 | DREQ7    |
| A21 | SA10    | B15 | DACK3*   | C9  | MEMR*  | D16 | +5 VDC   |
| A22 | SA9     | B16 | DREQ3    | C10 | MEMW*  | D17 | MASTER*  |
| A23 | SA8     | B17 | DACK1*   | C11 | SD8    | D18 | Ground   |
| A24 | SA7     | B18 | DREQ1    | C12 | SD9    |     |          |
| A25 | SA6     | B19 | REF*     | C13 | SD10   |     |          |

\* Active low logic

*SIMM socket connector pin assignments*

| Pin | Signal | Pin | Signal | Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|-----|--------|-----|--------|
| 1   | Ground | 19  | NC     | 37  | DP1    | 55  | DQ11   |
| 2   | DQ0    | 20  | DQ4    | 38  | DP3    | 56  | DQ27   |
| 3   | DQ16   | 21  | DQ20   | 39  | Ground | 57  | DQ12   |
| 4   | DQ1    | 22  | DQ5    | 40  | CAS0*  | 58  | DQ28   |
| 5   | DQ17   | 23  | DQ21   | 41  | CAS2*  | 59  | VCC    |
| 6   | DQ2    | 24  | DQ6    | 42  | CAS3*  | 60  | DQ29   |
| 7   | DQ18   | 25  | DQ22   | 43  | CAS1*  | 61  | DQ13   |
| 8   | DQ3    | 26  | DQ7    | 44  | RAS0*  | 62  | DQ30   |
| 9   | DQ19   | 27  | DQ23   | 45  | RAS1*  | 63  | DQ14   |
| 10  | VCC    | 28  | A7     | 46  | A10A   | 64  | DQ31   |
| 11  | NC     | 29  | NC     | 47  | WE*    | 65  | DQ15   |
| 12  | A0     | 30  | VCC    | 48  | A10B   | 66  | NC     |
| 13  | A1     | 31  | A8     | 49  | DQ8    | 67  | PD1    |
| 14  | A2     | 32  | A9     | 50  | DQ24   | 68  | PD2    |
| 15  | A3     | 33  | RAS3*  | 51  | DQ9    | 69  | PD3    |
| 16  | A4     | 34  | RAS2*  | 52  | DQ25   | 70  | PD4    |
| 17  | A5     | 35  | DP2    | 53  | DQ10   | 71  | NC     |
| 18  | A6     | 36  | DP0    | 54  | DQ26   | 72  | Ground |

\* Active low logic

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## Tested Operating Environments

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Although your system will run most software applications, the following operating environments have been tested for compatibility with your system.

Microsoft® MS-DOS 3.3 and later  
 Novell NetWare\* 3.12 and 4.1  
 Novell Personal NetWare  
 IBM® OS/2; including version 3.0 (Warp)  
 SCO®UNIX  
 SCO Open Desktop  
 Microsoft Windows 3.1 and later  
 Microsoft Windows 95  
 Microsoft Windows for WorkGroups  
 Microsoft Windows NT™; including version 3.5

\* Certified as workstation and file server in certain configurations

As new environments become available, these also will be tested.

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## Installation/Support Tips

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### Installing Diskette Drives

- Make sure that the drive type has been correctly selected in the SETUP program.
- Make sure jumper JP22 is set to position 1-2 to enable the diskette drive controller. Also make sure that the Diskette Controller option is enabled in the BIOS SETUP program.

### Installing Hard Disk Drives

- If you are installing a drive that cannot use the embedded IDE interface (such as an ESDI drive), it is recommended that you use a 16-bit, AT-type hard disk controller and a PCI hard disk controller for higher performance. If you install a non-IDE hard disk drive and controller card, you must disable the built-in IDE hard disk drive interface (use the Local Bus IDE Adapter option in the BIOS SETUP program). Also, remove the hard disk drive ribbon connector from the system board.
- When installing an IDE hard disk drive, use the auto-sensing feature in SETUP to select the correct type for the drive. If the auto-sensing feature does not produce a match for the drive, you can define your own drive type by selecting User as the type and entering the drive's parameters.

### Installing Option Cards

If you are installing a video adapter card, make sure you disable the built-in VGA controller by setting jumper JP21 to 2-3.

### Bootling Sequence

If you cannot boot the computer from the hard disk, make sure the bootling sequence in SETUP is set to **A: then C:**. Then boot the computer from a system diskette in drive A.

### Password

If you forget your password, you must discharge your CMOS memory as follows:

1. Turn off the computer and remove the cover.
2. Disable the password by setting jumper JP1 on the system board to position 1-2.
3. Turn the computer on, leave it on for a few seconds, then turn it off again.
4. Set jumper JP1 back to the Open position (remove jumper) to enable the password function.
5. Run SETUP to enter a new password, if desired.

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## Information Reference List

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### Engineering Change Notices

None.

### Technical Information Bulletins

None.

### Product Support Bulletins

None.

### Related Documentation

|           |  |
|-----------|--|
| TM-       | EPSON ActionPC 8600, ActionTower 8600 Service Manual   |
| PL-       | EPSON ActionPC 8600, ActionTower 8600 Parts Price List |
| 400537700 | EPSON ActionPC 8600, ActionTower 8600 User's Guide     |