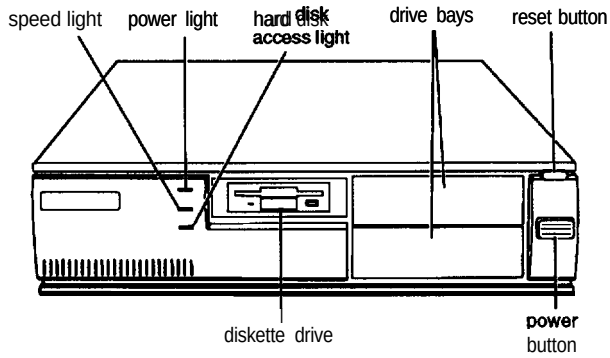
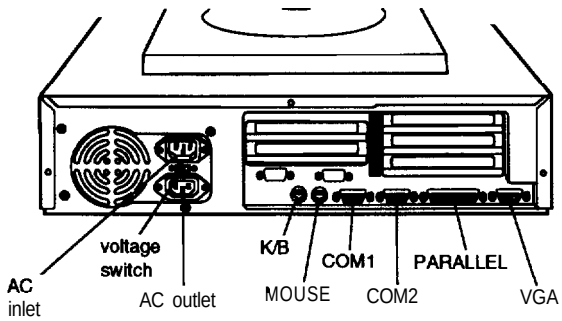
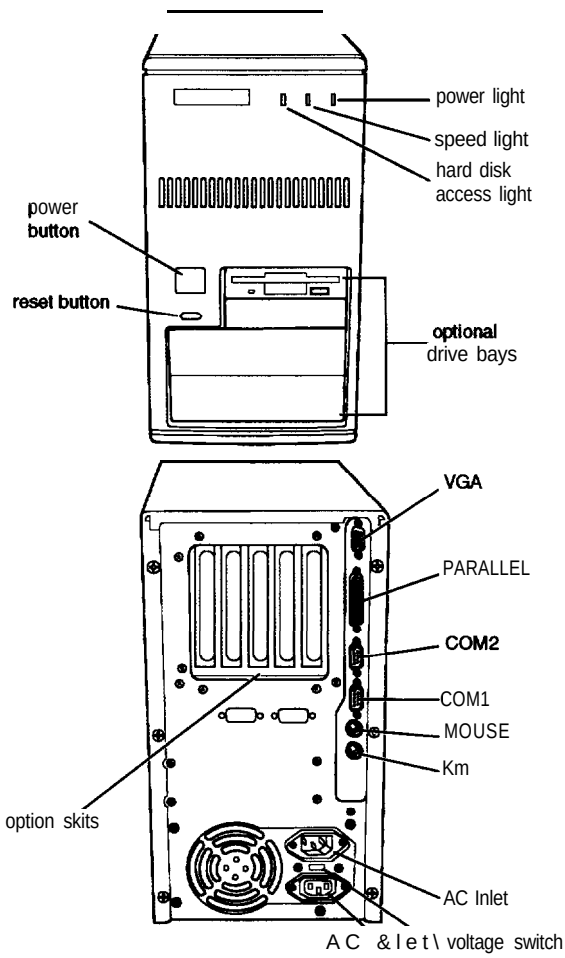






Computer Specifications

CPU and Memory

32-bit CPU	486SX/25 or /33; SX2/50 or /66; DX/33, /40, or /50; DX2/50 or /66; DX4/75 or /100; or Pentium™OverDrive™ processor
Green PC energy saver	Energy Star compliant, low-power, standby mode for the hard disk drive and video signals **sent** by the computer to the monitor; select timeout periods in SETUP; in a standard **configuration** of one hard disk drive and one diskette drive, **system** consumes less than 30 watts in standby mode
System speed	Fast and slow processor speeds available; fast is the speed of your processor and slow is 8 MHz; 0 wait state memory access at fast speed Press **Ctrl Alt** and - to select slow speed or **Ctrl Alt** and + to select fast speed

Processor type	Internal speed	External speed	ISA bus speed	Local bus speed
SX/25, DX/25	25 MHz	25 MHz	8.3 MHz	25 MHz
SX2/50, DX2/50	50 MHz	25 MHz	8.3 MHz	25 MHz
SX33, DX/33	33 MHz	33 MHz	8.3 MHz	33 MHz
SX2/66, DX2/66	66 MHz	33 MHz	8.3 MHz	33 MHz
DX4/75	75 MHz	25 MHz	8.3 MHz	25 MHz
DX4/100	100 MHz	33 MHz	8.3 MHz	33 MHz
DX40	40 MHz	40 MHz	8.3 MHz	40 MHz
DX50	50 MHz	50 MHz	8.3 MHz	50 MHz

Memory	4MB or 8MB RAM standard on a SIMM; expandable to 64MB using 1MB, 2MB, 4MB, 8MB, 16MB, and 32MB SIMMs; SIMMs must be tin-plated, 72-pin, 32-bit or 36-bit, fast-page mode type with an access speed of 70ns or faster
ROM	128KB Phoenix@ system BIOS, video BIOS, and SETUP program located in EPROM **on main system** board
Video RAM	1MB DRAM on main system board; expandable to 2MB using eight, 4 x 4 x 256, 20-pin DIP chips
Shadow RAM	Supports shadowing of system and video BIOS ROM into RAM
Memory relocation	Supports relocation of 256KB of memory from A0000h to BFFFFh and D0000h to EFFFFh to extended **memory**

Cache	8KB of internal cache; supports 64KB, 128KB, or 256KB of external cache using 28-pin, 8 x 8 or 32 x 8, 20ns DIP chips; in 486DX/50 or Pentium OverDrive systems, use a 15ns tag chip.
Math coprocessor	Math coprocessor built into the microprocessor for DX, DX2, DX4, and Pentium OverDrive systems
Clock/ calendar	Contained in the 82C491 system controller chip along with 64 bytes of CMOS RAM, backed up by a soldered NiCad rechargeable battery

Controllers

Video	Cirrus Logic GD5428 high-speed, super VGA local bus controller with True Color" support; provides resolutions up to 1280 x 1024 in 256 colors; True Color support in the 640 x 480 resolution
Diskette	Controller on main system board supports up to two diskette drives or one diskette drive and a tape drive
Hard disk	Energy Star compliant, high-speed, 32-bit local bus IDE interface on main system board supports up to two IDE hard disk drives with built-in controller; BIOS provides hard disk auto-sensing function

Interfaces

Monitor	Energy Star compliant VGA interface for fixed or multi-frequency monitor built into **system** board; 15-pin, D-shell connector
Parallel	One standard, 8-bit, parallel, unidirectional or bidirectional interface built into main system board; 25-pin, D-shell connector; operation controllable by SETUP option
Serial	Two RS-232C, programmable, asynchronous interfaces built into main system board; 9-pin, D-shell connectors
Keyboard	PS/2 compatible keyboard interface built into main system board; 6-pin, mini DIN connector
Mouse	PS/2 compatible mouse interface built into main system board; 6-pin mini DIN connector
Optional game port	Optional 10-pin game port interface on system board; can control joy-stick functions with the addition of a port connector
Option slots	*Action PC:* Connector card with five 16-bit, ISA compatible expansion slots; three full-length and two half-length; two of the full-length slots are also VESA local bus compatible *ActionTower:* Connector card with five full-length, 16-bit, I/O expansion slots; ISA compatible; two of the full-length slots are also VESA local bus compatible
Speaker	Internal
Mass Storage	*ActionPC:* **Internal mount:** **One** 3½-inch wide, one-inch high drive **Externally accessible mounts:** One 3½-inch wide, one-inch high drive and two 5¼-inch wide, half-height drives *ActionTower:* **Front internal mount:** One 3½-inch wide, half-height drive Rear **internal mounts:** Two 3½-inch wide, half-height drives or one 3½-inch wide, full-height drive **Externally accessible mounts:** Two 3½-inch wide, third-height drives and two 5¼-inch wide, half-height drives
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 combination 3.5-inch/5.25-inch diskette drive
Hard disk drive types	5¼-inch or 3½-inch form factor hard disk drive(s), up to half-height size; maximum of two drives
Other devices	Half-height tape drive, CD-ROM drive, optical drive, or other storage device; 5¼-inch, or 3½-inch with mounting frames
Keyboard	Detachable, two-position height; 101 or 102 sculpted keys; country-dependent main typewriter keyboard; numeric/ cursor control keypad; four-key cursor control keypad; 12 function keys
Mouse	Detachable, two-button, PS/2 compatible

SETUP Program Stored in ROM; accessible by pressing F2 during boot

System security User and Supervisor level passwords (8 characters) available for system boot or diskette access

Virus protection Write protection feature for the hard disk drive boot sector; periodic reminder message for running virus detection utility

Physical Characteristics

Dimension	ActionPC	ActionTower
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	17.4 pounds (7.9 kg)*	16.7 pounds (7.6 kg)*

* With one diskette drive, without keyboard

Power Supply

Type 200 Watt, UL/TUV/CSA listed, fan-cooled

Input ranges 90-130 VAC or 180-260 VAC; switch-selectable

Maximum outputs **+5** VDC at 20 Amps, -5 VDC at 0.5 Amps +12 VDC at 8 Amps, -12 VDC at 0.5 Amps

Frequency 47 to 63Hz

Cables Two to main 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 (MC)	+5 Volts	-5 volts	+12 volts	-12 votts
For all slots	12 Amps	0.4 Amp	4.0 Amps	0.4 Amp

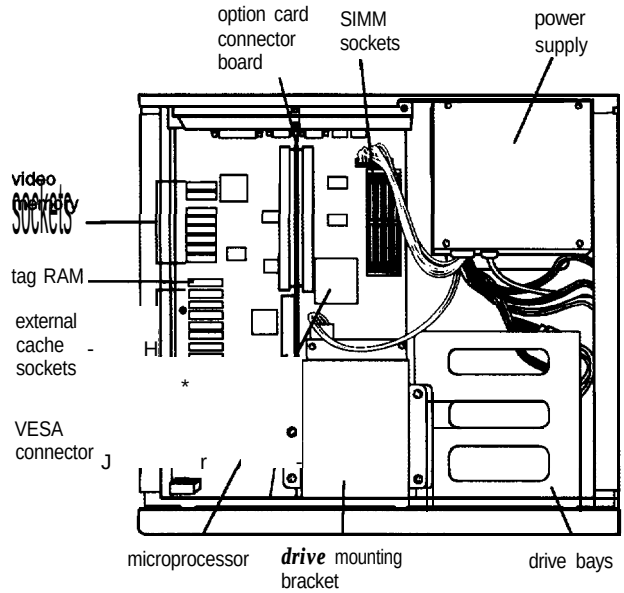
Environmental Requirements

Condition	Operating range	Non-operating range	Storage range
Temperature	41° to 90°F (5° to 32° C)	-4° to 140°F (-20° to 60° C)	-4° to 140°F (-20° to 60° C)
Humidity (non-condensing)	20% to 90%	10% to 90%	10% to 90%
Altitude	-330 to 9,900 ft (-100 to 3,000 m)	-330 to 39,600 ft (-100 to 12,000 m)	-330 to 39,600 ft (-100 to 12,000 m)
Maximum wet bulb	68° F (20° C)	104° F (40° C)	134° F (57° C)

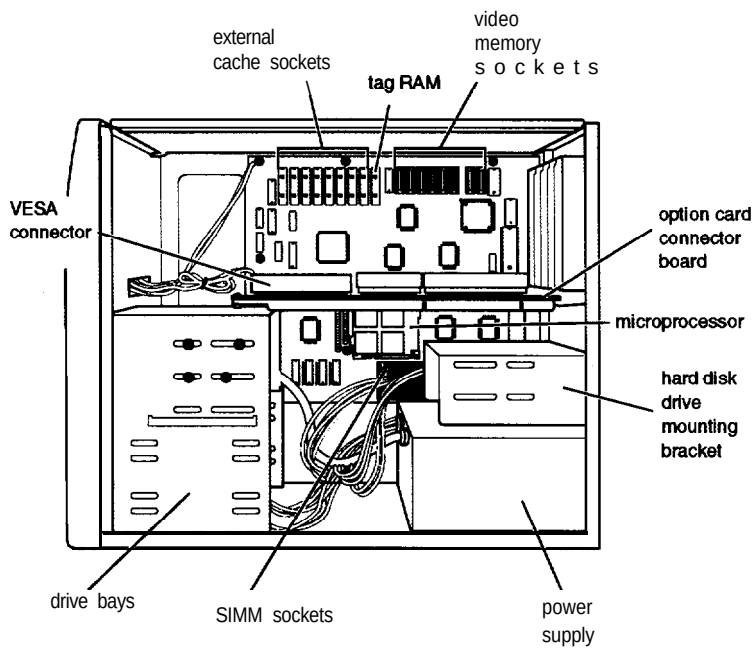
Major Subassemblies

The following diagrams illustrate the major subassemblies in the ActionPC 5000 and ActionTower 5000 systems.

ActionPC

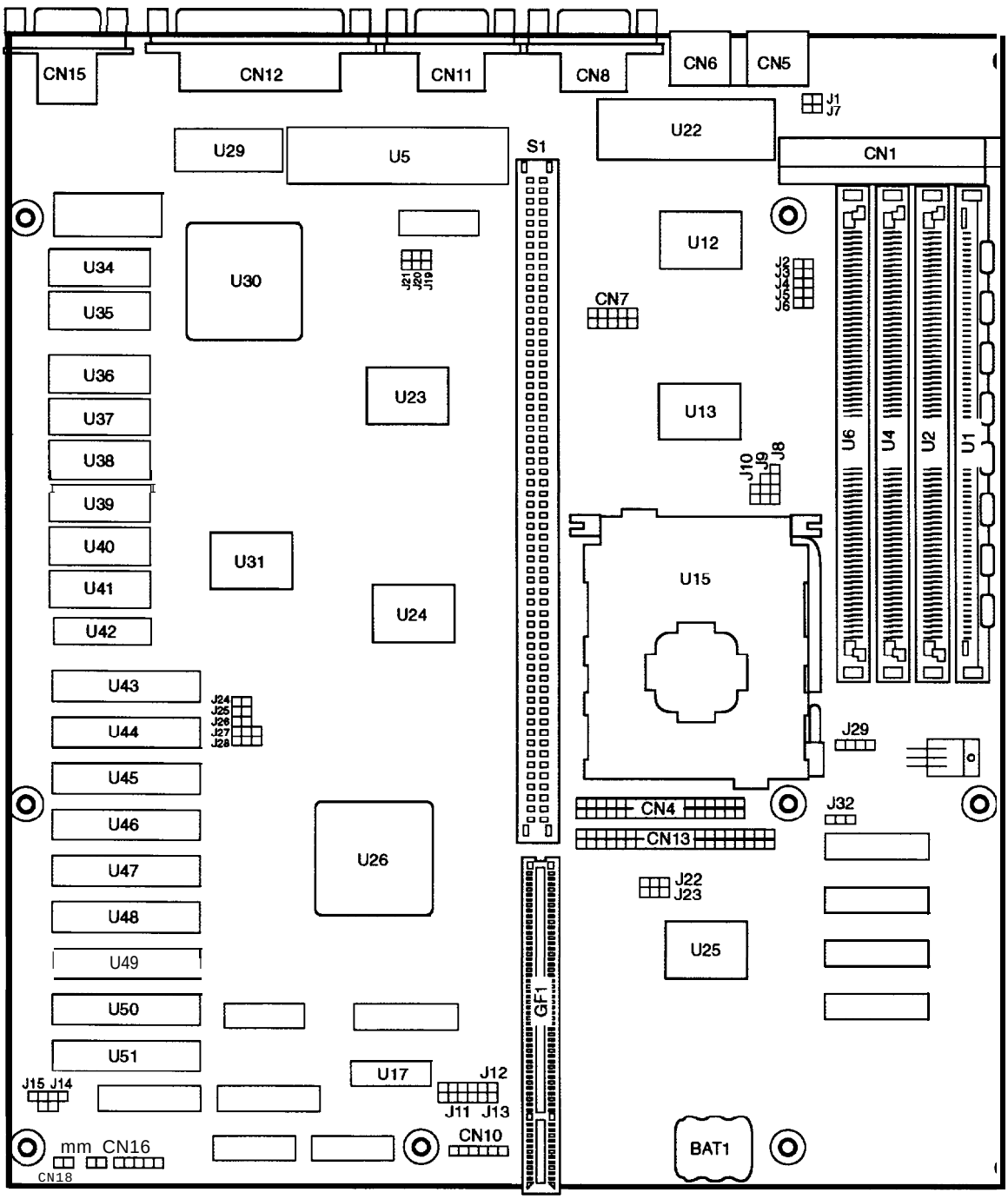


ActionTower



System Board Components

The diagram below illustrates the components on the ActionPC 5000/ActionTower 5000 system board. The table following it describes these components.



components

Socket	I component
U1, U2, U4, U6	SIMM sockets
U5	Keyboard/mouse controller
U12, U13	Super I/O controller (UMC82C863,865); supports up to two diskette drives. two serial pods, and one parallel port
U15	Microprocessor (ZIF socket)
U17	Clock generator: 4V to 7V operating supply range, 1 ns skew. CMOS or TTL compatible outputs
U22	Phoenix system and VGA BIOS; 150ns, 8-bit operation
U23, U24, U26, U31	System controller (UMC82C491, 493, 495); integrated system, memory, and cache
U25	Local bus IDE controller (ADI2)
U30	Cirrus Logic video controller (GD5428); local bus VGA with integrated palette DAC, dual-frequency synthesizer, BltBLT for GUI acceleration
U34-42	Video DRAM; one chip soldered at U42; eight expansion sockets at U34-U41
U43	Cache tag socket
U44-51	Cache SRAM sockets
CN1	Power supply; 12-pin connector
CN4	Diskette drive connector; 34-pin header
CN6	Mouse; 6-pin, mini-DIN
CN7	Optional game port connector interface
CN8	Serial port labeled COM1; 9-pin, D-shell
CN10	Hard disk drive, TURBO, and power LED connector; 6-pin header
CN11	Serial port labeled COM2: 9-pin. D-shell
CN12	Parallel port; 25-pin, D-shell
CN13	Hard disk drive connector; 40-pin header
CN15	Video connector; 15-pin, D-shell
CN16	Speaker connector; 4-pin header
CN18	Reset; 2-pin header
S1	ISA 120-pin slot connector
BAT1	Rechargeable NiCd battery
GF1	VESA slot connector

Jumper Settings

Miscellaneous jumper settings

Jumper number	Jumper setting	Function
J2	1-2*	Assigns COM2 serial port as COM2
	2-3	Assigns COM2 serial port as COM4
J3	1-2*	Assigns COM1 serial port as COM1
	2-3	Assigns COM1 serial port as COM3
J4	1-2*	Assigns PARALLEL port as LPT1
	2-3	Assigns PARALLEL port as LPT2
J5	1-2*	Enables optional game port
	2-3	Disables optional game port
J6	1-2*	Enables diskette drive controller
	2-3	Disables diskette drive controller
J15	on*	Selects VESA slot running at 1 waft states
	Off	Selects VESA slot running at 0 wait state
J19	Off*	Disables IRQ9 for VGA
	On	Enables IRQ9 for VGA
J23	1-2*	Enables the IDE hard disk drive controller
	2-3	Disables the IDE hard disk drive controller
CN3	2-3*	Selects the system board battery
	3-4	Discharges CMOS memory (this resets the SETUP values to their factory defaults)
	1-4	Selects external battery

External cache jumper settings

Cache size*	J24	J25	J26	J27	J28
64KB	On	Off	Off	1-2	Off
128KB	On	On	Off	2-3	2-3
256KB	On	On	On	1-2	1-2

- *If you have no external cache installed, the position of these jumpers does not matter.

Processor clock jumper settings

Processor type*	Clock	J11	J12	J13	J14
486SX/25, SX2/50, DX2/50, DX4/75	25 MHz	5-6	1-2	1-2	Off
486SX/33, SX2/66, DX/33, DX2/66, DX4/100, or Pentium OverDrive	33 MHz	1-2	1-2	1-2	Off
486DX/40	40 MHz	1-2, 3-4	1-2	2-3	On
486DX/50	50 MHz	3-4	1-2	2-3	On

- Change these jumpers only if you upgrade your processor.

Processor type jumper settings

Processor*	J8	J9	J10
486SX/SX2	2-3	Open	Open
487SX/Pentium OverDrive	1-2,3-4	2-3	Open
486DX/DX2/DX4	1-2,34	1-2	Open

* Change these jumpers only If you upgrade your processor.

Processor voltage jumper settings

Processor voltage	J29	J32
5 volt	1-2 and 3-4	(not used for 5-Volt processor)
3.3 and 3.45 Volt	5-6 and 7-8	1-2
3.6 Volt	5-6 and 7-8	3-4

Note: To determine the voltage of your processor, see page 6.

SVGA jumper settings

VGA jumper function	J20	J21
Enable on-hoard VGA	On	On
Disable on-board VGA	Off	off

PS/2 mouse jumper settings

Jumper function	J1	J7
Enable PS/2 mouse support	2-3	2-3
Disable PS/2 mouse support	1-2	1-2

SIMM Installation

The computer comes with 4MB or 8MB of memory on a SIMM. You can increase the memory in this computer up to 64MB by installing additional SIMMs. There are four SIMM sockets on the main system board, and each can contain one SIMM. You can install 1MB, 2MB, 4MB, 8MB, 16MB, and 32MB SIMMs.

The following table shows the possible SIMM configurations. Do not install memory in any other configuration.

SIMM configurations

BANK 0	BANK 1	BANK 2	BANK 3	Total memory
4MB	x	x	x	4MB
4MB	1MB	x	x	5MB
4MB	2MB	x	x	6MB
4MB	4MB	x	x	8MB
8MB	x	x	x	8MB
8MB	1MB	x	x	9MB
8MB	2MB	x	x	10MB
4MB	4MB	4MB	x	12MB
4MB	8MB	x	x	12MB
8MB	4MB	x	x	12MB
4MB	4MB	4MB	4MB	16MB
8MB	8MB	x	x	16MB
16MB	x	x	x	16MB
16MB	1MB	x	x	17MB
16MB	2MB	x	x	18MB
16MB	4MB	x	x	20MB
16MB	8MB	x	x	24MB
16MB	16MB	x	x	32MB
32MB	x	x	x	32MB
32MB	1MB	x	x	33MB
32MB	2MB	x	x	34MB
32MB	4MB	x	x	36MB
32MB	8MB	x	x	40MB
16MB	32MB	x	x	48MB
32MB	16MB	x	x	48MB
16MB	16MB	16MB	16MB	64MB
32MB	32MB	x	x	64MB

Video Memory

The computer comes with 1MB of onboard video memory, expandable to 2MB using eight video DRAM, 256KB x 4 x 4, 20-pin, DIP chips. For the memory to work properly, you must install one chip in each of the empty video memory sockets (U34 through U41) on the system board.

Video resolutions, colors, and refresh rates

Resolution	Memory Requirements (MB)	Color	Refresh rates (Hz)	Remarks
640X480	1	256	60/72	8 bits/pixel
	1	32K/64K	60	16 bits/pixel
	1	16.8M (True Color)	60	24 bits/pixel
800 x 600	1	16	56/60/72	4 bit planes
	1	256	56/60/72	8 bits/pixel
	1	32K/64K	56	16 bits/pixel
1024 x 768	1	16	43.5/60/70/72	4 bit planes*
	1	256	43.5/60/70/72	8 bits/pixel*
	2	64K	43.5	16 bits/ pixel**
1280 x 1024	1	16	43.5	4 bit planes**
	2	256	43.5	8 bits/pixel**

. Non-interlaced and Interfaced

** Interfaced

External Cache

You can install 64KB, 128KB, or 256KB of external cache in these systems. Use 8 x 8, 20ns DIP chips or 32 x 8, 20ns DIP chips (15ns tag chip in 486DX/50 or Pentium OverDrive systems) in the following configurations:

Cache memory configurations

BANK 0 (U44-47)	BANK 1 (U48-51)	Tag SRAM (U43)	Total cache
8Kx8	8Kx8	8Kx8	64KB
32Kx8	(empty)	8Kx8	128KB
32Kx8	32Kx8	32Kx8	256KB

Microprocessor Upgrades

The computer's processor can be upgraded by replacing the existing microprocessor with a faster one. You can either purchase an upgrade kit from EPSON or buy the individual components separately.

Microprocessor upgrade components

Part	Manufacturer	Voltage
486SX/33 processor	Intel®	5 Volt
486SX2/50 processor	Intel	5 Volt
486SX2/66 processor	Intel	5 Volt
486DX/33 processor	Intel or Cyrix	5 Volt
486DX/40 processor	Cyrix	5 Volt
486DX/50 processor	Intel or Cyrix	5 Volt
486DX2/50 processor	Intel or Cyrix	5 Volt
486DX2/66 processor	Intel	5 Volt
	Cyrix	5 Volt, 3.6 Volt
DX4/75 processor	Intel	3.45 Volt
DX4/100 processor	Intel	3.3 Volt
Pentium OverDrive processor	Intel	5 Volt
Heat sink'	Tennmax Trading Corp.	-

* A heat sink is necessary for all DX, DX2, DX4. and Pentium OverDrive processors.

Hard Disk Drive Types

Your computer comes with a hard disk auto-sensing feature. When you select the Autotype Fixed Disk option, the system detects the type of hard disk drive you have installed and fills in the drive information using values in the following table.

Hard disk drive types

Type	Size* (MB)	Cylinders	Heads	Sectors/ Track	Landing Zone	Write Precomp	Drive Name
1	85	903	4	46	903	0	CP30084E
2	121	762	8	39	762	0	CP30104H
3	106	1024	12	17	1024	0	ST3123A
4	65	940	8	17	615	300	
5	49	940	6	17	940	512	
6	170	903	8	46	903	0	CP30174E
7	171	332	16	63	332	0	CP30174
8	213	1024	12	34	1024	0	ST3243A
9	117	900	15	17	901	0	
10	341	768	14	62	768	0	ST3390A
11	528	1024	16	63	1024	0	ST3655A
12	52	855	7	17	855	0	
13	170	1010	6	55	1010	0	AC1170
14	255	1010	9	55	1010	0	AC2250
16	341	1010	12	55	1010	0	AC2340
17	212	989	12	35	989	0	AC1210
18	213	685	16	38	685	0	CFS210A
19	62	1024	7	17	1023	512	
20	31	733	5	17	732	300	
21	127	919	16	17	919	0	ELS127A
22	31	733	5	17	733	300	
23	170	1011	15	22	1011	0	ELS170A
24	245	723	13	51	723	0	LPS240A
25	252	895	10	55	895	0	CP30254
26	343	665	16	63	665	0	CP30344
27	540	1048	16	63	1048	0	CFA540A, AC2540
28	426	826	16	63	826	0	CFS420A
29	131	1002	8	32	1002	0	7131A
30	245	967	16	31	967	0	7245A
31	345	790	15	57	790	0	7345A
32	42	809	6	17	809	128	
33	50	830	7	17	830	0	
34	72	830	10	17	830	0	
35	44	1024	5	17	1024	0	
36	71	1024	8	17	1024	0	
37	42	615	8	17	615	128	
38	109	1024	8	26	1024	0	
39	72	925	9	17	925	0	
40	80	1024	9	17	1023	0	
41	119	918	15	17	917	0	
42	130	1001	15	17	1001	0	ST3145A
43	143	823	10	34	822	0	
44	84	969	5	34	968	0	
45	118	969	7	34	968	0	

- Actual formatted size may be slightly different than size on drive label; you cannot change this value.

Drive Option Information

IDE hard disk drive jumper settings

Model number	Single drive	Master drive	Slave drive
Conner® CP30084E	C/D jumpered	C/D jumpered	No jumpers
Conner CP30104H	C/D jumpered	C/D, DSP jumpered	No jumpers
Conner CP30174E	C/D jumpered	C/D jumpered	No jumpers
Conner CP30254	C/D jumpered	C/D jumpered	No jumpers
Conner CP30344	C/D jumpered	C/D jumpered	No jumpers
Conner 420A	C/D jumpered	C/D jumpered	No jumpers
Conner CFA540A	C/D jumpered	C/D jumpered	No jumpers
Quantum® ELS170AT	DS jumpered	DS, SP jumpered or DS jumpered	No jumpers
Quantum LPS240AT	DS jumpered *	SP and DS jumpered *	No jumpers *
Western Digital® AC1170	No jumpers	MA jumpered	SL jumpered
Western Digital AC2250	No jumpers	MA jumpered	SL jumpered
Western Digital AC2340	No jumpers	MA jumpered	SL jumpered

- CS (cable selection) can also be jumpered for any configuration. When CS is used, the drive is a master if pin 28 is grounded or a slave if pin 28 is not grounded.

Hard disk drive options for high-capacity, 1-inch IDE drives

	Conner							Quantum		Western Digital		
Parameters	CP-30084E	CP-30104H	CP-30174E	CP-30254	CP-30344	CFS420A	CFA540A	ELS170AT	LPS240AT	AC1170	AC2250	AC2340
Formatted capacity (MB)	85	120	170	250	340	420	540	170	245	170	240	340
Size, width × height (in)	4×1	4×1	4×1	4×1	4×1	4×1	4×1	4×1	4×1	3.5×1	3.5×1	3.5×1
Weight (lbs)	1.3	1.3	1.3	1.2	1.2	1.16	1.16	0.91	1.05	1.12	1.12	1.12
Cylinders	1806	1524	1806	1895	2116	2388	2805	1536	1818	2233	2233	2233
Disks	1	2	2	2	2	2	2	2	2	1	2	2
Heads	2	4	4	4	4	4	4	4	4	2	3	4
Sectors per track	46	39	46	62	63 - 95	63 - 100	72 - 114	54	44 - 87	56 - 96	56 - 96	56 - 96
Rotational speed (RPM)	3822	3399	3833	4542	4500	3600	4500	3663	4306	3322	3322	3322
Buffer size (KB)	32	32	32	64	64	32	256	32	256	64	64	128
Average seek time (ms)	17	<19	17	14	13	14	12	17	16	<13	<13	<13
Encoding method	RLL 1,7	RLL 1,7	RLL 1,7	RLL 1,7	RLL 1,7	RLL 1,7	RLL 1,7	RLL 1,7	RLL 1,7	RLL 1,7	RLL 1,7	RLL 1,7
Power dissipation (seek)	3.75 W	3.9 W	3.75 W	3.75 W	3.75 W	5-12 W	5.7 W	4.0 W	4.9 W	5.2 W	5.2 W	5.2 W
Logical parameters												
Cylinders	903	762	903	895	655	826	1048	1011	723	1010	1010	1010
Heads	4	8	8	10	16	16	16	15	13	6	9	12
Precomp zone	0	0	0	0	0	0	0	none*	none*	1011	1011	1011
Landing zone	903	762	903	895	655	1048	1048	1011	723	1011	1011	1011
Sectors	46	39	46	55	63	63	63	22	51	55	55	55

* Select 1 or none for the precomp value. If neither of these options are available, select the maximum available precomp value.

Diskette and magnet-optical drive specifications

Parameters	EPSON SMD-349 diskette drive	EPSON S0880-002 combination diskette drive	EPSON OMD-5010 magneto-optical drive
Storage capacity	1474KB (formatted)	1474KB/1229KB	128MB
Size, width x height (in)	3.5 x 1	5.8 x 1.65	4.0 x 1.6
Cylinders	80	80	10,000
Heads	2	2	R/W laser
Tracks	160	160	10,000
Track density	135 tpi	135 TPI/96 TPI	15,875 TPI
Power on ready time	< 0.5 sec	500 ms	3.5/5.0 ms
Setting time	15 ms	15ms	N/A
Average latency time	100 ms	100 ms/83 ms	8.3 ms

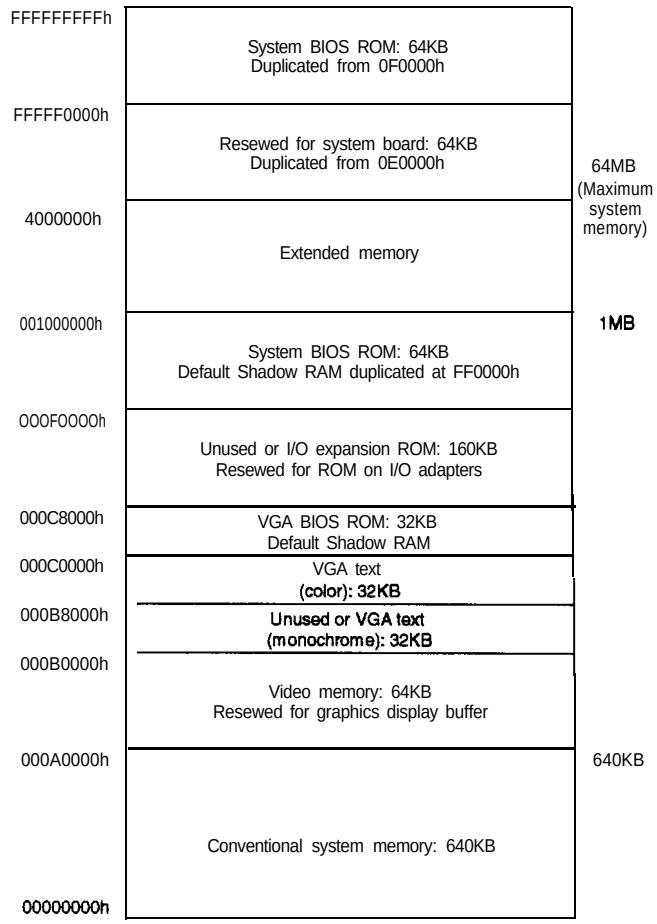
DMA Assignments

Level	Assigned device
DMA0	Reserved (8-bit)
DMA1	Reserved (8-bit)
DMA2	FDD controller (8-bit)
DMA3	Reserved (8-bit)
DMA4	Cascade for DMA controller 1
DMA5	Reserved (16-bit)
DMA6	Resewed (16-bit)
DMA7	Resewed (16-bit)

Hardware Interrupts

IRQ no.	Function
IRQ0	Timer output 0
IRQ1	Keyboard
IRQ2	Cascade IRQ controller 2
IRQ3	Serial port 2
IRQ4	Serial port 1
IRQ5	Parallel port 2
IRQ6	FDD controller
IRQ7	Parallel port 1
IRQ8	Real-time clock
IRQ9	Reserved
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 mouse
IRQ13	Math coprocessor
IRQ14	HDD controller
IRQ15	Reserved

System Memory Map



System I/O Address Map

Hex address	Assigned device
000-01F	DMA controller 1,8237
020 - 03F	interrupt controller 1,8259
022 - 024	UMC 82C481 chip set configuration register
034,03B,03C	AD12 chip set configuration registers
040 - 05F	Timer, 8254
060-06F	Keyboard controller, 8042
070 - 07F (CMOS)	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	Hard disk
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	PC network (low address)
368 - 36B	PC network (high address)
378 - 37F	Parallel printer port 1
380 - 38F	SDLC, bisynchronous 1
390 - 393	Cluster
3A0 - 3AF	SDLC, bisynchronous 2
3B0 - 3BF	Monochrome display and printer port
3C0 - 3CF	Enhanced graphics adapter
3D0 - 3DF	Color graphics monitor adapter
3F0 - 3F7	Diskette drive controller
3F8 - 3FF	Serial port 1
6E2, 6E3	Data acquisition (adapter 1)
790 - 793	Cluster (adapter 1)
AE2, AE3	Data acquisition (adapter 2)
B90, B93	Cluster (adapter 2)
EE2, EE3	Data acquisition (adapter 3)
1390 - 1393	Cluster (adapter 3)
22E1	GPIB (adapter 1)
2390 - 2393	Cluster (adapter 4)
42E1	GPIB (adapter 2)
63E1	GPIB (adapter 3)
82E1	GPIB (adapter 4)
A2E1	GPIB (adapter 5)
C2E1	GPIB (adapter 6)
E2E1	GPIB (adapter 7)

Connector Pin Assignments

Parallel *port connector pin assignments (CN12)*

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	Signalground		

*** Active low logic**

Serial port connector pin assignments (CN8 and CN11)

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		

Keyboard and mouse connector pin assignments (CN5 and CN6)

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

*VGA port **connector pin assignments** (CN15)*

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

Game port connector pin assignments (CN7)

Pin	Signal	Pin	Signal
1	VCC	6	Position 1
2	Button 0	7	Button 1
3	Position 0	8	VCC
4	Ground	9	VCC
5	Ground	10	NC

Power supply connector pin assignments (CN1)

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 (CN4)

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		

* Ail odd-numbered pins are grounds

Hard disk drive connector pin assignments (CN13)

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		

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Speaker connector pin assignments (CN16)

Pin	Signal	Pin	Signal
1	+5VDC	3	NC
2	NC	4	Speaker data

LED *connector pin assignments (CN10)*

Pin	Signal	Pin	Signal
1	HDD LED (+)	4	Turbo LED (-)
2	HDD LED (-)	5	Power LED (+)
3	Turbo LED (+)	6	Power LED (-)

Option card riser board connector pin assignments (S1)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
A1	+12 VDC	A31	SA3	B1	+12 VDC	B31	BALE
A2	Ground	A32	SA2	B2	+5VDC	B32	+5VDC
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

Option card riser board connector pin assignment: (S1) (continued)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
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

VESA 112-pin expansion slot

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
A1	VD1	A29	A16	B12	VD16	B40	VLRESET*
A2	VD3	A30	A14	B13	VD18	B41	D/C
A3	VD5	A31	A12	B14	VD20	B42	M/IO
A4	VD7	A32	A10	B15	VD22	B43	W/R
A5	VD9	A33	A8	B16	VD24	B44	CPURDY
A6	VD11	A34	A6	B17	VD26	B45	EADS*
A7	VD13	A35	A4	B18	VD28	C1	VLRDY
A8	VD15	A36	A2	B19	VD30	C2	VLDEV1
A9	Ground	A37	Ground	B20	+5V	C3	VLDEV2
A10	Ground	A38	Ground	B21	+5V	C4	LGNT2
A11	Ground	A39	NC	B22	A31	C5	LREG2
A12	VD17	A40	VLKEN*	B23	A29	C6	LREG3
A13	VD19	A41	BE0	B24	A27	C7	+5 V
A14	VD21	A42	BE1	B25	A25	C8	+5 V
A15	VD23	A43	BE2	B26	A23	C9	VLCLK2
A16	VD25	A44	BE3	B27	A21	C10	Ground
A17	VD27	A45	ADS*	B28	A19	C11	Ground
A18	VD29	B1	VD0	B29	A17	D1	BRDY
A19	VD31	B2	VD2	B30	A15	D2	BLAST
A20	+5V	B3	VD4	B31	A13	D3	LDEV3
A21	+5V	B4	VD6	B32	A11	D4	LGNT1
A22	A30	B5	VD8	B33	A9	D5	LREQ1
A23	A28	B6	VD10	B34	A7	D6	LGNT3
A24	A26	B7	VD12	B35	A5	D7	+5 V
A25	A24	B8	VD14	B36	A3	D8	+5 V
A26	A22	B9	Ground	B37	Ground	D9	VLCLK1
A27	A20	B10	Ground	B38	Ground	D10	Ground
A28	A18	B11	Ground	B39	BS16*	D11	Ground

* Active low logic

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	S415	B10	Ground	C4	SA21	D11	DREQ5
A17	S414	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**

VL-bus slot connectors pin assignments

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
A1	D0	A30	A17	B1	D1	B30	A16
A2	D2	A31	A15	B2	D3	B31	A14
A3	D4	A32	VCC	B3	Ground	B32	A12
A4	D6	A33	A13	B4	D5	B33	A10
A5	D8	A34	A11	B5	D7	B34	A8
A6	Ground	A35	A9	B6	D9	B35	Ground
A7	D10	A36	A7	B7	D11	B36	A6
A8	D12	A37	A5	B8	D13	B37	A4
A9	VCC	A38	Ground	B9	D15	B38	WBACK*
A10	D14	A39	A3	B10	Ground	B39	BE0*
A11	D16	A40	A2	B11	D17	B40	VCC
A12	D18	A41	NC	B12	VCC	B41	BE1*
A13	D20	A42	RESET*	B13	D19	B42	BE2*
A14	Ground	A43	D/C*	B14	D21	B43	Ground
A15	D22	A44	M/10*	B15	D23	B44	BE3*
A16	D24	A45	W/R*	B16	D25	B45	ADS*
A17	D26	A48	ROTRTN*	B17	Ground	B48	LRDY*
A18	D28	A49	Ground	B18	D27	B49	LDEV*
A19	D30	A50	IRQ9	B19	D29	B50	LREQ*
A20	VCC	A51	BRDY*	B20	D31	B51	Ground
A21	A31	A52	BLAST*	B21	A30	B52	LGNT*
A22	Ground	A53	ID0	B22	A28	B53	VCC
A23	A29	A54	ID1	B23	A26	B54	ID2
A24	A27	A55	GNMD	B24	Ground	B55	ID3
A25	A25	A56	LCLK	B25	A24	B56	ID4
A26	A23	A57	VCC	B26	A22	B57	LKEN*
A27	A21	A58	LBS18*	B27	VCC	B58	LEADS*
A28	A19			B28	A20		
A29	Ground			B29	A18		

• **Active low** logic

SIMM sockets (RAM1, 2, 3, 4)

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

Tested Operating Environments

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 DR DOS
Novell NetWare* 2.2, 3.12, and 4.01
Novell NetWare Lite
IBM OS/2
SCO UNIX
SCO Open Desktop
Microsoft Windows 3.0 and later
Microsoft Windows for WorkGroups
Microsoft Windows NT

* The ActionTower is certified as workstation and file server; the ActionPC is certified as a workstation.

The system has also been Novell tested and approved. As new environments become available, these also will be tested.

Installation/Support Tips

Installing Diskette Drives

- ❑ Make sure that the drive type has been correctly selected in the SETUP program.
- ❑ Make sure jumper J6 is set to position 1-2 to enable the diskette drive controller.

Installing Hard Disk Drives

- ❑ If you are installing a drive that cannot use the embedded IDE interface, such as an ESDI hard disk drive, it is recommended that you use a 16-bit, AT-type hard disk controller. If you install a non-IDE hard disk drive and controller card, you must set jumper J23 to position 2-3 to disable the built-in IDE hard disk drive interface. Also be sure to remove the hard disk drive ribbon connector from the system board.
- ❑ When installing a hard disk drive, see the hard disk drive type table on page 7 and use the auto-sensing feature in SETUP to select the correct type number 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 exact parameters.

Software Problems

- ❑ When installing a copy-protected software package, first try the installation at high speed. If this does not work properly, select low speed by pressing Ctrl Alt - (using the numeric keypad). Try loading the program at low speed and then switching to high speed, if possible.
- ❑ When running a software package that uses a key disk as its copy-protection method, try loading it at high speed. If this does not work, load it at low speed.

Booting Sequence

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

Password

Make sure that you do not forget the password you set up. If you do:

1. Disable the password by setting jumper CN3 on the main system board to position 3-4.
2. Then turn the computer on and off again
3. Set jumper CN3 back to position 2-3 to enable the password function.
4. Run SETUP to enter a new password, if desired.

Installing Option Cards

If you are installing a video adapter card that doesn't support VGA, make sure you disable the built-in VGA by removing jumpers J20 and J21.

Installing External Cache

When installing cache on a 486DX/50 or Pentium OverDrive system, make sure you use a 15ns tag chip.

COM Port Assignment

If you want to assign COM1 as COM3, you must set jumper J3 to position 2-3. If you want to assign COM2 as COM4, you must set jumper J2 to position 2-3.

Parallel Port Operation

If you connect a scanner to the parallel port, set Auto Configuration to Disabled so you can change the Printer Port Control option to PS2 mode (for bidirectional operation). The default setting for the parallel port is AT mode (for unidirectional operation).

Information Reference List

Engineering Change Notices

None.

Technical Information Bulletins

None.

Product Support Bulletins

None.

Related Documentation

TM-ACTPCT50	EPSON ActionPC 5000 ActionTower 5000 Service Manual
PL-ACTPCT50	EPSON ActionPC 5000, ActionTower 5000 Parts Price List
400363300	EPSON ActionPC 5000 User's Guide (English)
400363500	EPSON ActionTower 5000 User's Guide (English)
400363200	EPSON ActionPC 5000 Manual del usuario (Spanish)
400363400	EPSON ActionTower 5000 Manual del usuario (Spanish)