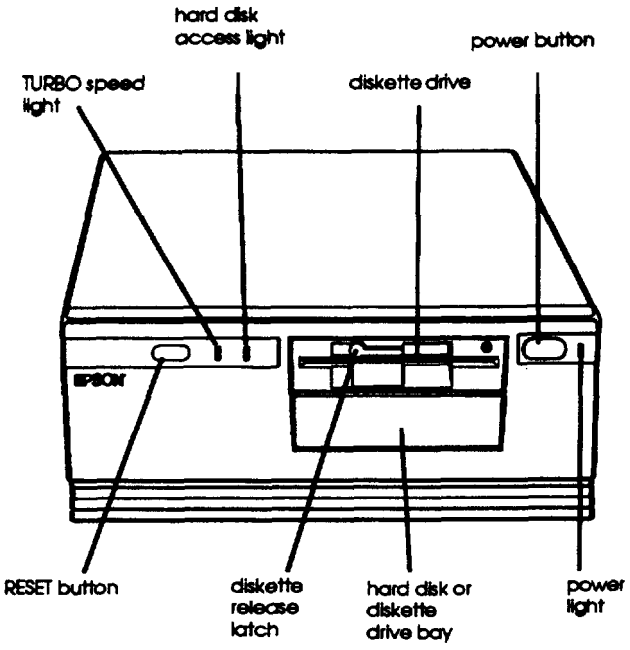
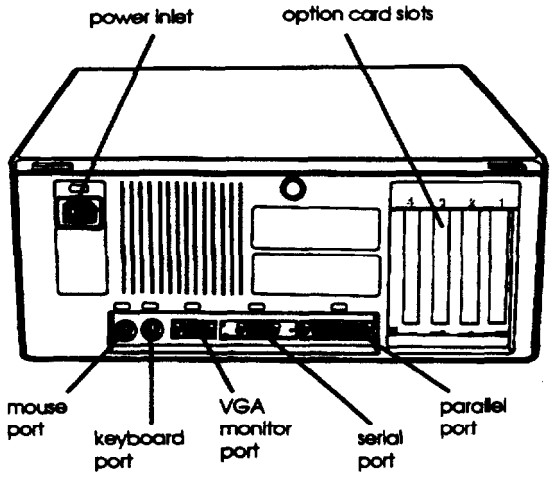




Computer Specifications

CPU and Memory

32-bit CPU	80386DX microprocessor, 33 MHZ system clock speed, 33 MHz or 11 MHz processor speed; user selectable
	0 wait state memory access speed at 33 MHz
system memory	4MB RAM standard; expandable using 4MB SIMMs up to 16MB; SIMM access speed must be 80ns or faster
Cache memory	64KB cache SRAM on cache module
ROM	64KB system BIOS, 32KBVGA BIOS
Shadow RAM	128 KB, 0 wait state access speed; System ROM BIOS and video ROM can be copied into RAM through SETUP
Math coprocessor (optional)	80387DX, 33 MHz support or 3167, 33 MHz support
Clock/calendar	Real-time clock, calendar, and CMOS RAM for configuration; battery backup
Battery	Replaceable, 3.6V lithium battery; 3-5 year life

Controllers

Diskette	Supports two drives in any of four formats: 5¼-inch, high-density, 1.2MB; 5¼-inch, double-density, 360KB; 3½-inch, high-density, 1.44MB; 3½-inch, double density, 720KB; controller on main board
Hard disk	Supports two drives; embedded (IDE) controllers; interface on main board

Interfaces

Monitor	VGA adapter with 512KB of video memory; supports up to 1024 x 768 pixels in 16 colors and up to 640 x 480 pixels in 256 colors; 15-m D-shell connector
Serial	RS-232C, programmable, asynchronous; 9-pin, D-shell connector
Parallel	Standard 8-bit parallel, mono-directional; 25-pin, D-shell connector
Mouse	Mini DIN, 6-pin connector for PS/2 compatible mouse or other device
Keyboard	Mini MN, 6-pin connector for PS/2 compatiblekeyboard
Option slots	Four standard input/output expansion slots (three 16-bit ISA compatible and one 8-bit ISA compatible); 8 MHz bus speed
Speaker	Internal, programmable
VGA feature connector	IBM compatible VGA pass-through connector, interface on main system board

Power Supply

Type	145W, fan-cooled, automatic input voltage sensing
Input ranges	100 VAC to 125 VAC and 200 to 240 VAC
Maximum	+5 VDC at 18 Amps, +12 VDC at 4.2 Amps –12 VDC at 0.3 Amps, –5 VDC at 0.3 Amps

Mass Storage

	Three half-height drives maximum (one vertical mount and two horizontal mounts) configurable using the following:
Diskette drives	5¼-inch diskette drive, 1.2MB (high-density) storage capacity
	3½-inch diskette drive, 1.44MB (high-density) storage capacity
	5¼-inch diskette drive, 360KB (double-density) storage capacity
	3½-inch diskette drive, 720KB (double-density) storage capacity

Hard disk drives	3½-inch form factor hard disk drive(s), up to half height size; the first mounted vertically, second mounted horizontally
Other devices	Half-height tape drive, CDROM, or other storage device; 5¼-inch or 3½-inch with 5¼-inch mounting frames

Keyboard

	Detachable, two position; 101 sculpted keys
Layout	58-key QWERTY main keyboard; 17-key numeric/cursor pad; 10 cursor keys; additional 4-key cursor pad; 16 function keys (user-definable)
Function	Four levels (normal, shift, control, alternate); user-definable

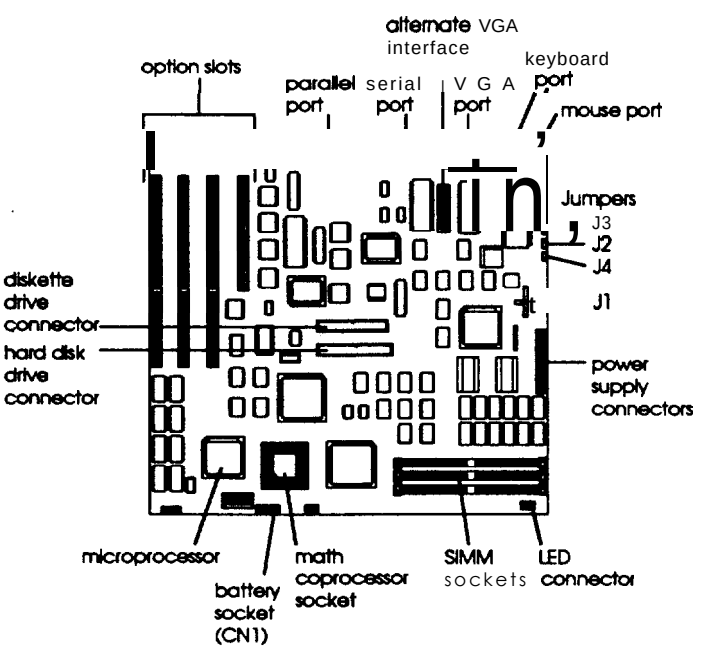
Environmental Requirements

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 9900 ft (–100 to 3000 m)	–330 to 11880 ft (–100 to 3600 m)	–330 to 39600 ft (–100 to 12000 m)
Maximum wet bulb	68° F (20° C)	104° F (40° C)	134° F (57° C)

Physical Characteristics

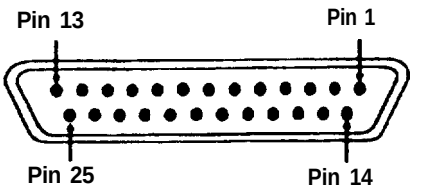
Width	14.96 inches (374 mm)
Depth	17.32 inches (433 mm)
Height	6.16 inches (154 mm)
weight	Single diskette drive model without keyboard: 21 lb (9.6 kg)

System Board Interface Connectors



Connector Pin Assignments

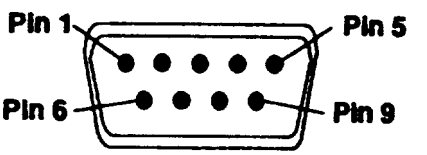
Parallel Port Connector, CN6



Parallel Port Connector Pin Assignments

Pin	Signal	Pin	Signal	Pin	Signal
1	Strobe	10	ACK	19	Signal GND
2	DATA0	11	BUSY	20	Signal GND
3	DATA1	12	PE	21	Signal GND
4	DATA2	13	SELECT	22	Signal GND
5	DATA3	14	AUTO	23	Signal GND
6	DATA4	15	ERROR	24	Signal GND
7	DATA5	16	INIT	25	Signal GND
8	DATA6	17	SELECTIN		
9	DATA7	18	Signal GND		

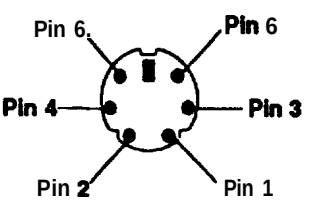
Serial Port Connector, CN11



serial Port Connector Pin Assignments

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	Not used		

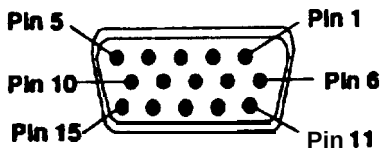
Key board and Mouse Connector, CN4 and CN3



Keyboard and Mouse Connector Pin Assignments

Keyboard		Mouse	
Pin	Signal	Pin	Signal
1	Keyboard data	1	Mouse data
2	Reserved	2	Reserved
3	Ground	3	Ground
4	+5 VDC	4	+5 VDC
5	Keyboard clock	5	Mouse clock
6	Reserved	6	Reserved

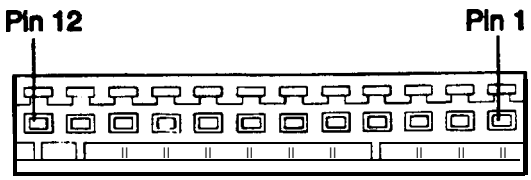
VGA Connector, CN5



VGA Connector Pin Assignments

Pin	Signal	Pin	Signal
1	Red video	9	Key
2	Green video	10	Sync return
3	Blue video	11	Reserved
4	Not used	12	Reserved
5	Ground	13	Horizontal sync
6	Red return	14	Vertical sync
7	Green return	15	Not used
8	Blue return		

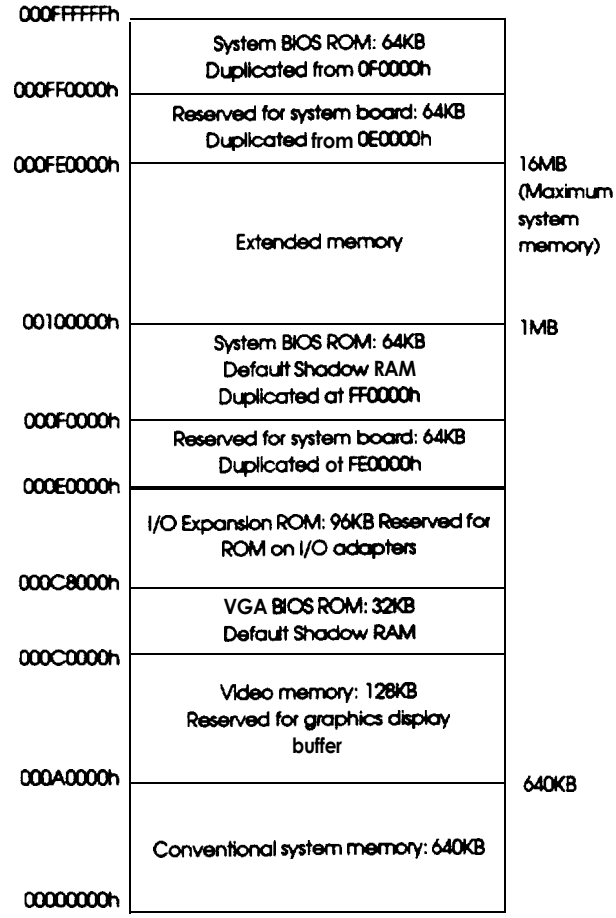
Power Supply Connector, CN8



Power Connector Pin Assignments

Pin	Signal	Power supply connection
1	POWER GOOD	P4, Pin 1
2	+5 VDC	P4, Pin 2
3	+12 VDC	P4, Pin 3
4	–12 VDC	P4, Pin 4
5	GND	P4, Pin 5
6	GND	P4, Pin 6
7	GND	P5, Pin 1
8	GND	P5, Pin 2
9	–5 VDC	P5, Pin 3
10	+5 VDC	P5, Pin 4
11	+5 VDC	P5, Pin 5
12	+5 VDC	P5, Pin 6

System Memory Map



System I/O Address Map

Hex address	Assigned device
000-01F	DMA controller 1, 8237A-5
020-03F	Interrupt controller 1, 8259A, master
022-024	Chip sets configuration register
040-05F	Timer, 8254-2
060-06F	8042 (Keyboard)
070-07F	Real-time clock NMI (non-maskable interrupt) mask
080-09F	DMA page register, 74LS612
0A0-0BF	Interrupt controller 2, 8259A
0C0-0DF	DMA controller 2, 8237A-5
0F0	Clear math coprocessor busy
0F1	Reset math coprocessor
0F8-0FF	Math coprocessor
1F0-1F8	Fixed 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)

Hex address	Assigned device
378-37F	Parallel printer port 1
380-38F	SDLC, bisynchronous 2
390-393	Cluster
3A0-3AF	Bisynchronous 1
3B0-3BF	Monochrome display and printer adapter
3C0-3CF	Enhanced graphics adapter
3D0-3DF	Color/graphics monitor adapter
3F0-3F7	Diskette controller (FDD controller on board)
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)
62E1	GPIB (adapter 3)
82E1	GPIB (adapter 4)
A2E1	GPIB (adapter 5)
C2E1	GPIB (adapter 6)
E2E1	GPIB (adapter 7)

Note: I/O addresses hex 000 to 0FF are reserved for the system board I/O. Hex 100 to 3FF are available on the I/O channel.

DMA Assignments

Level	Assigned device
DMA0	Spare
DMA1	SDLC
DMA2	Floppy controller
DMA3	Spare
DMA4	Cascade for DMA controller 1
DMA5	Spare
DMA6	Spare
DMA7	Spare

Hardware Interrupts

IRQ No.	Function
IRQ0	Parity or I/O channel check
IRQ1	Keyboard (output buffer full)
IRQ2	cascade from 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-compatible mouse
IRQ13	Math coprocessor
IRQ14	HDD controller
IRQ15	Reserved

Jumper Settings

Main system board jumper settings

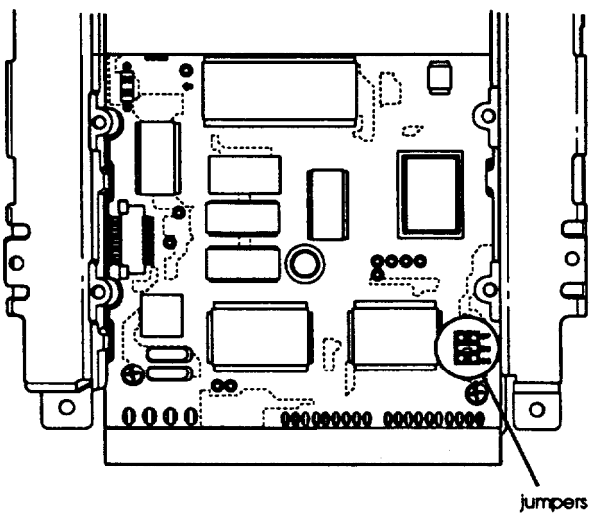
Jumper number	Jumper setting	Function
J1	A*	Enables the built-in VGA display adapter
	B	Disables the built-in VGA display adapter co you can use a display adapter on an option card in your computer as your primary adapter
J2	A'	Enables the built-in mouse connector
	B	Disables the builtl-In mouse connector so you can use a mouse or other pointing device connected to a port on an option card In your computer
J3	A	Disables the password function
	B*	Enables the password function
J4	A'	A color monitor Is installed
	B	A monochrome monitor is installed

* Factory settings

Hard disk drive jumper settings

Jumper positions	*One* hard disk drive	Two hard disk drives: master	Two hard disk drives: slave
SP	—	X	
DS	X	X	
CS	—	—	

X = Jumper installed
— = no jumper installed



SIMM Installation

There are three SIMM sockets on the main system board. You can install one 4MB SIMM in each of these sockets. The following table shows all the possible SIMM configurations for the computer. Do not install SIMMs in any configuration that is not listed below. Keep in mind that 4MB of memory is already soldered directly on the main system board.

SIMM configurations *for* the *Equity 386/33* PLUS

SIMM 1	SIMM 2	SIMM 3	Total memory*
4MB			8MB
4MB	4MB		12MB
4MB	4MB	4MB	16MB

* Includes 4MB soldered on main system board

Hard Disk Drive Types

The following table lists the types of hard disk drives supported by the computer. Check this table and the documentation supplied with the hard disk to find the correct number for the type of hard disk drive(s) installed. Enter this number when setting the hard disk drive configuration in the SETUP program

Hard disk drive types

Type no.	Cylinders	Heads	Sectors (Sec)	Precomp (WPcom)	Landing zone	Size (in MB)	Drive name
1	306	4	17	128	305	10	
2	615	4	17	300	615	20	ST-225, ST-4026
3	615	6	17	300	615	31	
4	940	8	17	512	940	62	
5	940	6	17	512	940	47	
6	615	4	17	none	615	20	CP-3024, ST-125
7	462	8	17	256	511	31	
8	733	5	17	none	733	26	6-r-4036
9	900	15	17	none	901	112	
10	820	3	17	none	820	20	
11	855	5	17	none	855	35	
12	855	7	17	none	855	50	
13	306	8	17	128	319	20	
14	733	7	17	none	733	43	
15							--reserved-
16	612	4	17	0	663	20	
17	977	5	17	300	977	41	CP-3044, 7040, 8051A
18	977	7	17	none	977	57	
19	1024	7	17	512	1023	60	CP-2064
20	733	5	17	300	732	30	MK-133FA
21	733	7	17	300	732	43	MK-134FA, ST-157A
22	733	5	17	300	733	30	
23	306	4	17	0	336	10	
24	903	4	46	none	902	81	CP-30084
25	776	8	33	none	775	100	CP-3104
26							-reserved-
27	698	7	17	300	732	41	
28	976	5	17	488	977	41	
29							-reserved-
30							-reserved-
31	732	7	17	300	732	43	
32	1023	5	17	none	1023	42	
33	901	5	53	none	900	117	LPS120AT
34	723	13	51	none	722	234	LPS240AT
35	934	16	17	none	933	124	MK2124FC
36							-reserved-
37	683	16	38	none	682	203	CP-3204F
38	548	8	38	none	547	81	CP-2048
39	761	8	39	none	760	116	CP-30104
40	980	10	17	none	979	81	7080A, MK2024FC
41	1622	5	34	none	1622	65	CDC-94216-106
42	1622	5	36	m m	1622	80	CDC-94216-106
43	1024	8	17	612	1623	63	1325, 3085
44	.P]	10	34	none	828	137	UK-156F
45	1624	6	17	512	1622	43	
4	615	6	17	126	618	41	
47	—	-	-	-	-	-	User defined type

Installation/Support Tips

Mouse and Keyboard

— When attaching the mouse and keyboard connectors, be **careful** to attach them to the proper connectors. Although they are physically identical, they are not interchangeable.

Installing Floppy Disk Drives

— When installing a floppy disk drive as drive B, remember to set the drive select lumper **to** the second position and attach the pass-through connector on the floppy drive controller cable to the drive, not to the end connector.

— **If the drive does** not function normally, make sure that the drive type has been correctly selected in SETUP. Also check that any special drivers that may be necessary have been installed correctly.

Installing Hard Disk Drives

— **It** is **recommended** that a **16-bit,** AT-type hard disk controller be used in the Equity **386/33** Plus if you are installing a drive that cannot use the internal IDE interface Also **remember** to disable the **onboard** hard disk controller in SETUP when installing such a drive.

— If you are **having difficulty** in formatting the hard disk drive, try starting over with the Format option in diagnostics.

Setup

— When installing a hard disk drive, be sure to consult the drive type tables for the type which fits the drive you are installing. If there is no match for your drive, use the User Defined **option** and enter the correct geometry for your drive.

Adding Memory Modules

— The total amount of memory must be one of the following **4MB, 8MB, 12MB, or 16MB.**

— Use only **4MB SIMMs.** They must be fast-page mode and have an access speed of **80ns** or faster.

Software Problems

— When installing a copy-protected software package on the Equity **386/33** PLUS, first **try** the installation at 33 **MHz.** If this does not work properly, try switching to 11 **MHz** for the **installation.** If you are **still** unable to load the program at 33 **MHz,** try **loading** at 11 MHz and then **switching** to **33 MHz.**

— When using a software package that uses a **keydisk** as its copy-protection method, try loading it at 33 **MHz.** If this does not work, enable the Auto Speed option in SETUP.

Power-on Password

— **If you set a power-on** password, make sure you do not forget it. If you do, it will be necessary to disable it by **moving jumper J3 on the main circuit board to the** A position

Information Reference List

Engineering Change Notices

None.

Technical Information Bulletins

None.

Product Support Bulletins

None.

Related Documentation

TM-386/33+	Equity 386/33 PLUS Service Manual
PL-386/33+	Equity 386/33 PLUS Parts Price List
SPK386/33+	Equity 386/33 PLUS Self Paced Kit
Y74499100200	Equity 386/33 PLUS User's Guide
Y74499100100	Equity 386/33 PLUS VGA Utilities