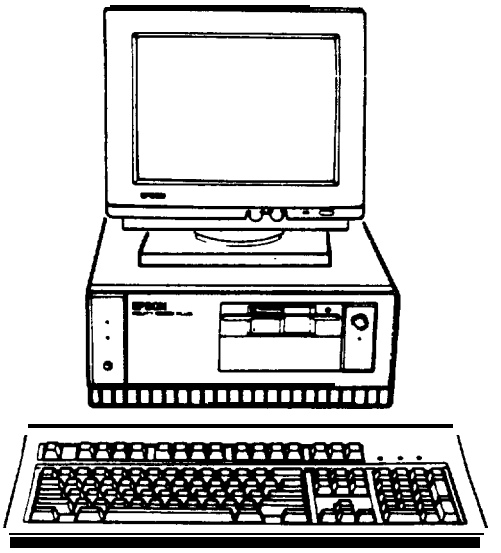


Computer Specifications

CPU and Memory

16-bit CPU	80386SX microprocessor, 16 MHz system clock speed, 16 MHz or simulated 8 MHz processor speed, selectable through software 0 wait state memory access speed
System memory	**Units with 1MB RAM on system board are expandable** up to **10MB using SIMMs.** **Units with 2MB RAM on system board are expandable up to 14MB using SIMMs.** **SIMMs must be 70ns access speed.**
ROM	128KB
Scratch memory	4KB capacity; 16-bit data bus; 16 MHz **access** with 0 **wait** state
Math coprocessor	80387SX (16 MHz) support (optional)
Clock/calendar	Real-time clock, calendar, and 50-byte **CMOS RAM for** configuration: battery backup

Controllers

Diskette	Supports up to two drives in any of four formats: 5 1/4-inch, high-density, 1.2MB; 5 1/4-inch, double-density, 36OKB; 3 '/z-inch. high-density, 1.44MB; 3 '/z-inch. doubledensity, 720KB; controller on main system board
Hard disk	Supports up to two drives; embedded controller; interface on main system board

Interfaces

Monitor	Standard VGA with 256KB of video memory; supports up to 800 x 600 pixels in 16-color or gray scale mode; 15-pin, female 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
Auxiliary	Mini DIN, 6-pin connector for PS/2 compatible mouse or other device
Keyboard	Mini DIN, 6-pin connector for PS/2 compatible keyboard
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; operation controllable by software

Power Supply

Type	140W, fan-cooled, automatic input voltage sensing
Input ranges	98 to 132 **VAC** and 195 to 264 VAC
Maximum	**+5 VDC at 18 Amps, +12 VDC at** 4.2 **Amps, outputs** **-12 VDC at 03 Amps, -5 VDC at** 03 Amps

Mass Storage

	Three half-height drives maximum (one 3 '/z-inch vertical mount and two 5 1/4-inch horizontal mounts)
Standard	5 '/cinch diskette drive, 1.2MB (high-density) storage capacity
Standard	3 1/2-inch diskette drive, 1.44MB (high-density) storage capacity
Optional	5 1/4-inch diskette drive, 1.2MB (highdensity) storage capacity
Optional	3 1/2-inch diskette drive, 1.44MB (high-density) storage capacity
Optional	5 1/4-inch diskette drive, 360KB (doubledensity) storage capacity
Optional	3 'h-inch diskette drive, 720KB (double-density) storage capacity
Optional	3 '/z-inch hard disk drive, 40MB storage capacity
Optional	3 '/z-inch hard disk drive, 100MB storage capacity

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

Temperature	Operating range:	41° to 95° F (5" to 35° C)
	Non-operating range:	-4" to 140" F (-20° to 50" C)
	Storage range:	-40" to 140" F (-40° to 60" C)
Humidity	operating range:	20% to 80% non-condensing
	Non-operating range:	10% to 90% non-condensing
	Storage range:	5% to 95% non-condensing
Altitude	Operating range:	-330 ft to 9900 ft f-100 m to 3000 m)
	Non-operating range:	-330 ft to 11880 ft (-100 m to 3300 m)
	Storage range:	-330 ft to 39600 ft (-100 m to 12000 m)

Physical Characteristics

Width	14.75 inches (375 mm)
Depth	17.5 inches (444 mm)
Height	5.9 inches (150 mm)
Weight (without keyboard)	Single diskette drive model: 20.75 lb (9.4 kg,
	Hard disk drive model: 22.25 lb (10.1 kg)

Connector Pin Assignments

Parallel Port Connector

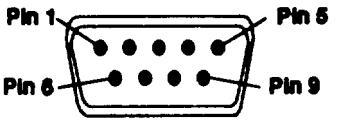
Pin	Signal
1	STROBE
2	DATA0
3	DATA1
4	DATA2
5	DATA3
6	DATA4
7	DATA5
8	DATA6
9	DATA7

* Active Low Logic

Parallel Port Connector

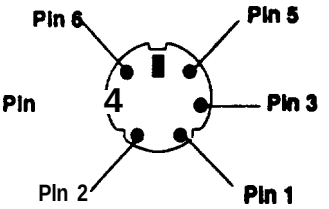
Pin	Signal	Pin	Signal
10	ACK*	19	SIGNAL GND
11	BUSY	120	SIGNAL GND
12	PE	21	SIGNAL GND
13	SELECT	22	SIGNAL GND
14	AUTO'	23	SIGNAL GND
15	ERROR*	24	SIGNAL GND
16	INIT*	25	SIGNAL GND
17	SELECTIN*		
18	SIGNAL GND		

Serial Port Connector



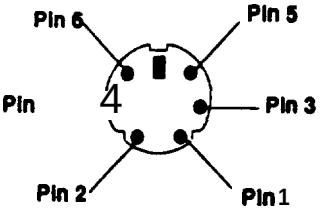
Pin	Signal	Pin	Signal
1	Data Carrier Detect	6	Data Set Readv
2	Receive Data	7	Request To Send
3	Transmit Data	8	Clear To Send
4	Data Terminal Ready	9	Ring Indicator
5	not used		

Keyboard Connector



Pin	Signal
1	Keyboard Data
2	Resewed
3	Ground
4	+5 VDC
5	Keyboard Clock
6	Reserved

Mouse Connector

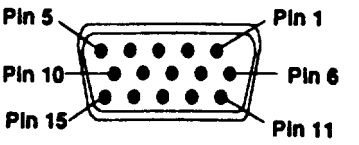


Pin	Signal
1	Mouse Data
2	Reserved
3	Ground
4	+5 VDC (fused)
5	MousiClock
6	Resewed

Note:

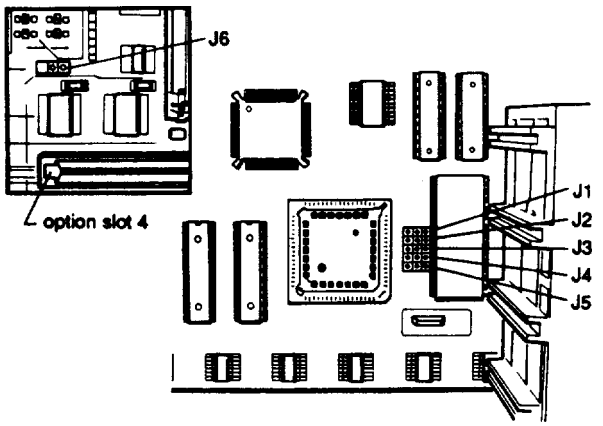
Although the keyboard and mouse connectors are physically identical, they cannot be used interchangeably.

VGA Connector



Pin	Signal	Pin	Signal
1	Red Video	9	Key
2	Green Video	10	sync Return
3	Blue Video	11	Reserved
4	Unused	12	Reserved
5	Ground	13	Horizontal Sync
6	Red Return	14	Vertical sync
7	Green Return 1	5	Unused
8	Blue Return		

Jumpers



Jumper 12	3	4	s	6	Function
A					• Enables the power-on password
B					Disables the power-on password
A					• Enables built-in HD interface
B					Disables built-h HD interface
	A				• Enables built-in mouse connector
	B				Disables built-in mouse connector
		A			• Color monitor is installed
		B			Monochrome monitor b installed
			A		• Normal I/O channel ready signal
			B		One wait state added to I/O channel ready signal
				A	• Enables built-in VGA adapter
				B	Disables built-in VGA adaptor

Factory Settings

Note: If the main system board does not contain a jumper labeled J6, installing an optional video card other than EGA or VGA requires software modifications.

DMA Channels

CHANNEL	FUNCTION
0 (CTRL 1)	Spare
1 (CTRL 1)	SDLC
2 (CTRL 1)	Floppy disk drive controller
3 (CTRL 1)	Spare
4 (CTRL 2)	Cascade for CTRL 1
5 (CTRL 2)	Spare
8 (CTRL 2)	Spare
7 (CTRL 2)	Spare

Hardware Interrupts

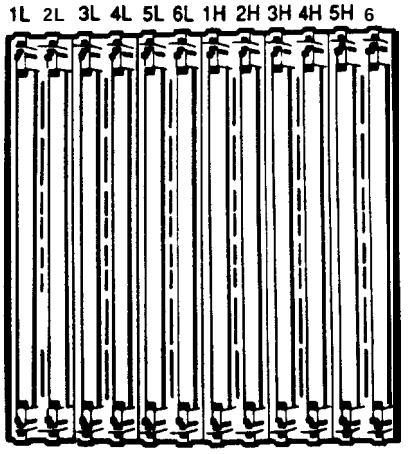
CTLR1	CTLR2	FUNCTION
IRQ0		Timer Output 0
IRQ1		Keyboard
IRQ2		Interrupt from Controller 2
IRQ3		Serial port 2
IRQ4		Serial port 1
IRQ5		Parallel port 2
IRQ6		Floppy disk interrupt
IRQ7		Parallel port 1
	IRQ8	RTC interrupt
	IRQ9	Software redirected to IRQ2
	IRQ10	Reserved
	IRQ11	Reserved
	IRQ12	Mouse, pointing device
	IRQ13	Coprocessor
	IRQ14	Hard disk controller
	IRQ15	Reserved

I/O Port Addresses

Address	Function
000-01F	DMA Controller 1
020-021	Interrupt Controller 1
040-05F	Timer/Counter
060-06F	Keyboard Controller (8042)
070-07F	RTC, NMI Mask Register
080-09F	DMA Page Register, MFG Port
0A0-0BF	Interrupt Controller 2 (8259A compat)
0C0-0DF	DMA Controller 2 (8237A-5 compat)
0F0	Clear NPX Busy (80387SX)
0F1	Reset NPX (80387SX)
0F8-0FF	NPX (80387SX)
170-178	Hard Disk Controller - Secondary
1B0-1B5	Configuration Registers
1BF	Configuration Register Unlock Port 1
1F0-1F7	Hard Disk Controller Primary
200-207	Game I/O
278-27F	Printer Port 2 (27B and 27F are unused)
27B	Configuration Register Unlock Port 1
2F8-2FF	Serial Port 2
300-31F	Prototype Card
370-377	floppy Disk Drive Controller Secondary
378-37F	Parallel Printer Port 1 (37B and 37F are unused)
37B	Configuration Register Unlock Port 2
380-38F	SDLC, Bisynchronous Communication 2
3A0-3AF	Bisynchronous Communication 1
3B0-3BF	Monochrome Display and Printer Adapter
3D0-3DF	Color/Graphics Monitor Adapter
3F0-3F7	Floppy Disk Controller Primary
3F8-3FF	Serial Port 1

SIMM Installation

Looking at the sockets vertically, they are numbered as shown below.



The following table shows all the possible SIMM configurations for the Equity 386SX PLUS. Do not install SIMMs in any configuration other than one of the types shown in this table.

SIMM configurations for a 1MB system

Sank number 1	2	3	4	5	6	Bank number 1	2	3	4	5	6	Total memory
Socket number 1L	2L	3L	4L	5L	6L	Socket number 1H	2H	3H	4H	5H	6H	
K	K	-	-	-	-	K	K	-	-	-	-	2MB
K	K	M	-	-	-	K	K	M	-	-	-	4MB
K	K	M	M	-	-	K	K	M	M	-	-	6MB
K	K	M	M	M	-	K	K	M	M	M	-	8MB
K	K	M	M	M	M	K	K	M	M	M	M	10MB

K = 256KB SIMM installed
M = 1MB SIMM installed
- = no SIMM installed

SIMM configurations for a 2MB system

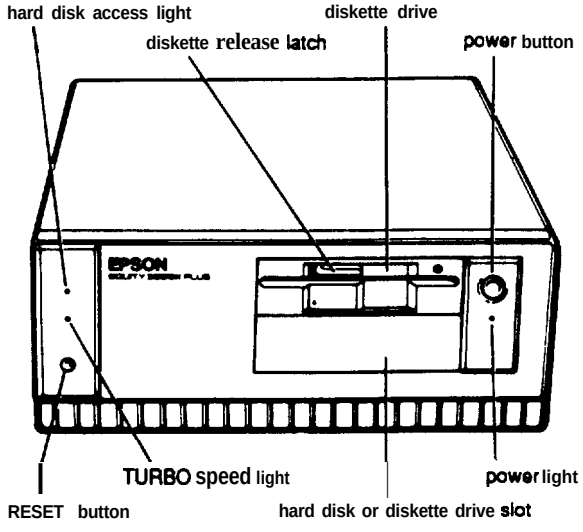
Bank number 1	2	3	4	5	6	Bank number 1	2	3	4	5	6	Total memory
Socket number 1L	2L	3L	4L	5L	6L	Socket number 1H	2H	3H	4H	5H	6H	
—	—	M	—	—	—	—	—	M	—	—	—	4MB
-	-	M	M	-	-	-	-	M	M	-	-	6MB
—	—	M	M	M	—	—	—	M	M	M	—	8MB
—	—	M	M	M	M	—	—	M	M	M	M	10MB
M	-	M	M	M	M	M	-	M	M	M	M	12MB
M	M	M	M	M	M	M	M	M	M	M	M	14MB

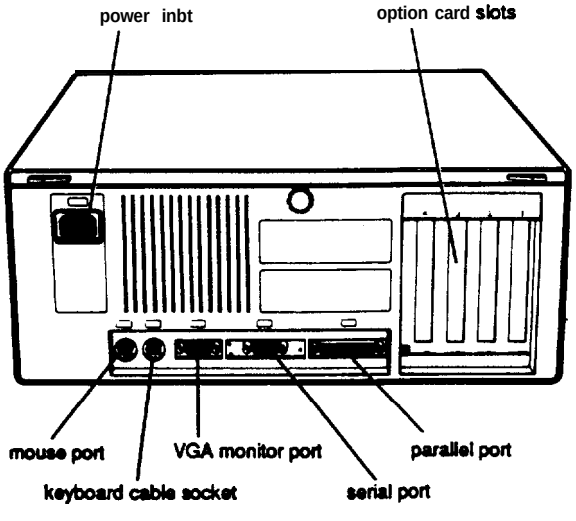
— = No SIMM installed
M = 1MB SIMM installed

Installation / Support Tips

Power

The Equity 386SX PLUS has a power supply that is switchable between 115 V, for U.S. and Canadian use, and 230 V, for use in other countries.
There is no manual switch, as the power supply is autosensing.





Mouse and Keyboard

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

Installing Floppy Disk Drives

When installing a floppy disk drive as drive B, remember to set the drive select jumper to the second position and attach the pass-through connector on the floppy drive controller cable to the drive, not 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 386SX PLUS, if you are installing a drive that cannot make use of the internal hard disk controller. Also remember to disable the onboard hard disk controller when installing such a drive.

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

Setup

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

Adding Memory Modules

- The total amount of memory must be one of the following: 2MB, 4MB, 6MB, 8MB, 10MB (maximum for a 1MB system), 12MB (2MB system only), or 14MB (2MB system only).

- SIMMs must be 70ns.

Software Problems

When installing a copy-protected software package on the Equity 386SX Plus, first try the installation at 16MHz. If this does not work properly, try switching to 8MHz for the installation. If you are still unable to load the program at 16MHz, try loading at 8MHz and then switching to 16MHz.

- When using a software package that uses a keydisk as it's copy-protection method, try loading it at 16MHz. If this does not work, e nablethe AutoSpeed option in SETUP.

Power-on Password

Make sure that you do not forget the Power-on Password should you set one up. If you do, it will be necessary to disable it by moving jumper J1 on the main circuit board to the B position.

Hard Disk Drive Types

Type no.	Type	Cylinders	Heads	Sectors	Precomp	Landing zone	MB	Drive name
00								No fixed disk
01	ST-506	306	4	17	128	305	10.2	(Used by ESDI)
02	ST-506	615	4	17	300	615	20.4	(1)
03	ST-506	615	6	17	300	615	30.6	
04	ST-506	940	8	17	512	940	62.4	
05	ST-506	940	6	17	512	940	46.8	
06	ST-506	615	4	17	—	615	20.4	
07	ST-506	462	8	17	256	511	30.7	
08	ST-506	733	5	17	—	733	30.4	
09	ST-506	900	15	17	—	901	112.1	
10	ST-506	820	3	17	—	820	20.4	
11	ST-506	855	5	17	—	855	35.5	
12	ST-506	855	7	17	—	855	49.7	
13	ST-506	306	8	17	128	319	20.3	
14	ST-506	733	7	17	—	733	42.6	
15								-reserved-
16	ST-506	612	4	17	0	663	20.3	
17	ST-506	977	5	17	300	977	40.5	CDC 94205-51 (2)
18	ST-506	977	1	17	—	977	56.8	
19	ST-506	1024	7	17	512	1023	59.5	
20	ST-506	733	5	17	300	732	30.4	Toshiba MK-133FA
21	ST-506	733	7	17	300	732	42.6	Toshiba MK-134FA
22	ST-506	733	5	17	300	733	30.4	
23	ST-506	306	4	17	0	336	10.2	
24	ST-506	612	4	17	305	663	20.4	
25	ST-506	306	4	17	—	340	10.2	
26	ST-506	612	4	17	—	670	20.4	
27	ST-506	698	7	17	300	732	40.6	
28	ST-506	976	5	17	488	977	40.5	
29	ST-506	306	4	17	0	340	10.2	
30	ST-506	611	4	17	306	663	20.4	
31	ST-506	732	7	17	300	732	12.6	
32	ST-506	1023	5	17	—	1023	42.5	
33								none
34								none
35								none
36								none
37								none
38								none
39								none
40								none
41	ESDI	1022	5	34	—	1022	84.8	CDC 94216-108 (3)
42	ESDI	1022	5	36	—	1022	88.8	CDC 94216-108
43	ST-506	1024	8	17	512	1023	68.0	(4)
44	ESDI	u	10	34	—	828	137.5	Toshiba MK-156F
45	ST-506	1024	5	17	512	1023	42.5	(5)
46	ST-506	615	8	17	128	618	40.8	NEC D5147H
47								none
48	ST-506	820	6	[illegible]		820	40.8	Seagate ST251
49	ST-506	830	10			830	68.9	Toshiba MK56FB
50	ST-506	1024	9			1023	76.5	Seagate ST4096
51	ESDI	828	7			u	96.2	Toshiba MK-154F
52	ESDI	w	5			w	85.0	CDC 94166-101
53	ESDI	w	7			W	119.0	CDC 94166-141
54	ESDI	w	9			W	153.0	CDC 94166-182
55	ESDI	1022	7			1022	118.8	Micropolis 1354A
56	ESDI	w	5			W	80.3	CDC 94166-101 (3)
57	ESDI	w	7			W	112.4	CDC 94166-141 (3)
58	ESDI	w	9			W	144.5	CDC 94166-182 (3)
59	AT	980	5			979	40.7	CONNER CP-344
60	AT	776	8			775	100	CONNER CP-3104
61	AT	745	4			744	40.5	Mini 8051A native mod
62	AT	985	5			Auto	40	Quantum 40AT (6)
63	AT	985	10			Auto	80	Quantum pro 80AT (6)
64-255								none

Notes:

1. Miniscribe 8425F, Seagate ST125
2. Conner CP-344 or Miniscribe 8051A can be used as type 17
3. For Western Digital ESDI HDC or Drive Maker default setting
4. Micropolis 1325, Altai 3085, Lansor Lan64, Maxtor XT1085, Newbury NDR1085
5. Micropolis 1323A, Miniscribe 3035, Microscience HH1050, Seagate ST4053
6. The landing zone value is 984

The factory-installed hard disk drive types for the Equity 386SX PLUS are number 17 (40.5MB) and number 60 (100MB).

Information Reference List

Engineering Change Notices

None.

Technical Information Bulletins

Non..

Product Support Bulletins

None.

Related Documentation

TM-EQ386SX PLUS		Equity 386SX Plus Service Manual
M-PL-EQ386SX PLUS		Equity 386SX Plus Parts List
Y705991001		Equity 386SX Plus User's Guide