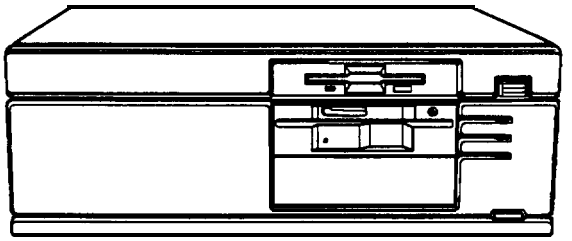
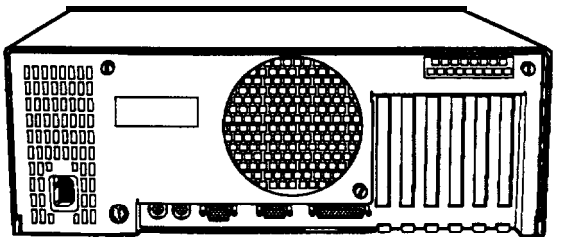
EQUITY® 486DX2/50 PLUS
EQUITY® 486SX/25 PLUS
Product Information Guide

Quick Reference

EPSON”





Computer Specifications

CPU and Memory

32-bit CPU	25 MHz system: 80486SX processor, 50 MHz system: 80486DX2/50 processor
System speed	25 MHz regardless of CPU; for 80486DX2/50, 50 MHz speed is internal only; 8 MHz speed is simulated by inserting wait states; high/low speed selection through software or keyboard command; 0 wait state memory access at high speed
System memory	4MB RAM standard soldered onto memory board; base memory of 256KB, 512KB or 640KB selectable through jumpers.
	Memory expandable using 256KB or 1MB SIMMS, up to 16MB (maximum); SIMMs must be fast-page mode, 80ns access speed (or faster)
ROM	128KB (includes system BIOS and VGA BIOS)
Shadow RAM	0 wait state access speed; automatically copies both ROM BIOS and video ROM into RAM
Math coprocessor	Standard for 50 MHz model; on 25 MHz model, 80486SX microprocessor can be replaced with optional 80487SX chip
Cache controller	82385 (25MHz) standard
Cache RAM	32KB high-speed (25ns) static RAM; two-way set associative.
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: 5¼-inch, highdensity, 1.2MB; 5¼-inch, double-density, 360KB; 3½-inch, highdensity, 1.44MB; or 3½-inch, double-density, 720KB; also supports optional Epson tape drive; controller on main system board
Hard disk	Supports up to two half-height drives; embedded IDE controller; interface on main system board

Interfaces

Monitor	VGA adapter with 1MB DRAM (video memory) built into main system board; supports up to 800 x 600 or 1024 x 768 pixels in 16-colors or up to 640 x 480 pixels in 256-colors; multi-frequency monitor required for resolutions over 640 × 480
	15-pin, D-shell connector
Serial	RS-232C, programmable, asynchronous; 9-pin, D-shell connector
Parallel	Standard &bit parallel, mono-directional; 25-pin, D-shell connector
Mouse port	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	Six standard input/output expansion slots (five 16-bit ISA compatible and one 8-bit ISA compatible); 8 MHz bus speed
Speaker	Internal; operation controllable by the Setup program

Power Supply

Type	200W, fan-cooled, automatic (worldwide) input voltage sensing
Input ranges	98 to 132 VAC and 195 to 264 VAC
Maximum outputs	+5 VDC at 22 Amps, +12 VDC at 6.8 Amps
	-12 VDC at .50 Amps, -5 VDC at .50 Amps

Mass Storage Bays

	Up to five drives maximum
Internal drive bay	Two half-height or one full-height drives
Externally-accessible drive bay	One third-height and two half-height drives or one third-height and one full-height drives

Keyboard

	Detachable, two position, 101/102 (country-dependent) 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

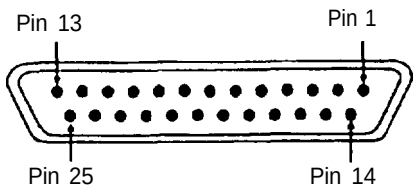
Condition	Operating range	Non-operating range	Storage range
Temperature	41° to 95° F (5° to 35° C)	–4° to 140° F (–20° to 60° C)	–40° to 140° F (–40° to 60° C)
Humidity (non-condensing)	20% to 80%	10% to 90%	5% to 95%
Altitude	-330 to 9900 ft (-100 to 3000 m)	–330 to 11880 ft (-100 to 3600 m)	-330 to 39600 ft (-100 to 12000 m)
Maximum wet bulb	68° F (20° C)	104° F (40° C)	134°F (57° C)

Physical Characteristics

Width	17 inches (432 mm)
Depth	*16* inches (406 mm)
Height	*6* inches (153 mm)
Weight (without keyboard)	Single diskette drive model: *26* lb (11.8 kg)

Connector Pin Assignments

Parallel Port Connector (CN5)

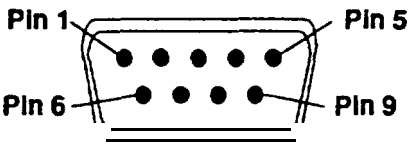


Parallel Port Connector **Pin** *Assignments*

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
6	DATA6	17	SELECTIN*		
9	DATA7	16	SIGNAL GND		

*Active Low Logic

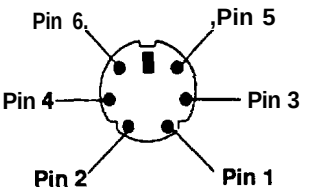
Serial Port Connector (CN4)



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		

Keyboard and Mouse Connector (CN2 and CN1)



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

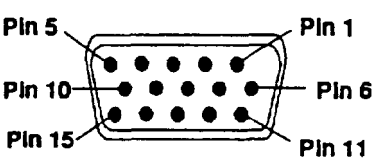
Keyboard Connector** Pin **Assignments

Pin	signal
1	**Keyboard** Data
2	**Reserved**
3	Ground
4	**+5** VDC
5	Keyboard Clock
6	Reserved

Mouse Connector Pin Assignments

Pin	signal
1	Mouse Data
12	Reserved
3	Ground
4	**+5VDC** (fused)
5	Mouse Clock
16	**Reserved**

VGA Connector (CN3)



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	Unused	12	Reserved
5	Ground	13	Horizontal sync
6	Red Return	14	Vertical Sync
7	Green Return	15	unused
8	Blue Return		

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
6 (CTRL 2)	Spare
7 (CTRL 2)	Spare

Hardware Interrupts

CTRL1	CTRL2	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 wntroller
	IRQ15	Reserved

I/O Port Addresses

Address	Assigned device
000 - 01F	DMA controller 1
020 - 021	Interrupt controller 1
40 - 05F	Timer/counter
060 - 06F	Keyboard controller (8042)
070 - 07F	RTC. NMI mask register
080 - 09F	DMA page registers, MFG port
OAO - OBF	Interrupt controller 2 (8259A compatible)
OCO - ODF	DMA controller 2 (8237A-5 compatible)
0F0	Clear math coprocessor busy

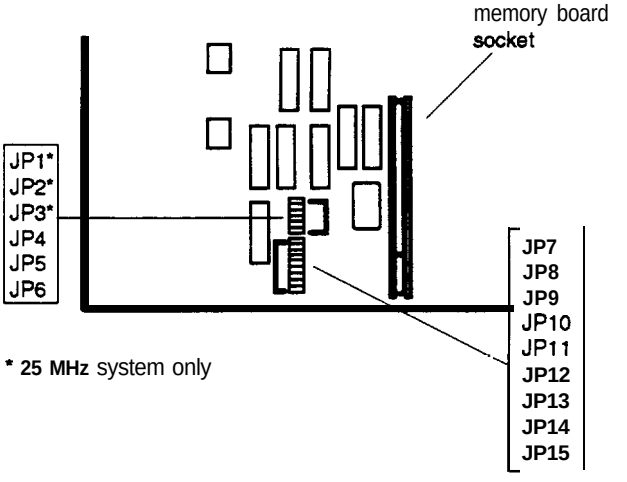
I/O Port *Addresses (continued)*

Address	Assigned device
OF1	Reset math coprocessor
0F8 - OFF	Math coprocessor
170 - 176	Hard disk controller secondary
1B0 - 1B5	Configuration registers
1BF*	Configuration register unlock port 1
1F0 - 1F7	Hard disk controller pnmary
200 - 207	Game I/O
278 - 27F	Printer port 2 (27B and 27F are unused)
27B	Configuration register unlock port
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)
370	Configuration register unlock port 2
380 - 38F	SDLC. bisynchronous communication 2
3A0 - 3AF	Bisynchronous communication 1
3B0 - 3BF	Monochrome display and pnnter adapter
3D0 - 3DF	Color/graphics monitor adapter
3F0 - 3F7	Floppy disk drive wntroller pnmary
3F8 - 3FF	Serial port 1

* These I/O address ports are configuration registers.

Jumper Settings

The illustration below shows the locations of the jumpers on the main system board.



Miscellaneous jumper settings

Jumper number	Jumper setting	Function
JP4	A B	Enables the built-in VGA display adapter Disables the built-in VGA display adapter so you can use a display adapter on an option card as your primary adapter
JP5	A B	Enables the power-on password Disables the power-on password
JP6	A' B	Color monitor is installed Monochrome monitor is installed
JP7	A* B	Enables the built-in mouse connector Disables the built-m mouse connector so you can use a mouse or other pointing device connected to a port on an option card
JP15	A B	Enables the early input/output ready signal Sets a normal input/output ready signal

* Factory setting

Jumper settings for base memory

Base memory	Jumper JP13	Jumper JP14
640KB	A	A'
512KB	B	A
256KB	B	B

* Factory setting

Jumper settings for extended memory

Total memory	Jumper JP8	Jumper JP9	Jumper JP10	Jumper JP11	Jumper JP12
4MB	B	B	B	B	A
8MB	B	B	B	A	A
QMB	A	B	B	A	A
10MB	A	A	B	A	A
12MB	A	B	A	A	A
16MB	A	A	A	A	A

* Factory setting

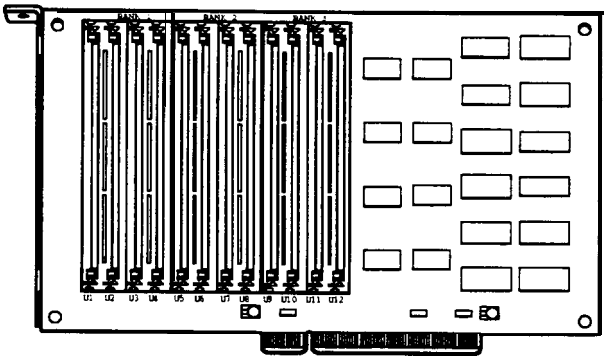
Jumper settings for alternate microprocessor

Jumper number	Jumper setting	Function
JP1	A	80487SX installed
	B	80486SX installed
JP2	A	80487SX installed; NMI signal
	B*	80486SX installed NMI signal
JP3	A	80487SX installed; FERR signal
	B*	80486SX installed; FERR signal

* Factory setting; these lumpers are not used for 60 MHz microprocessor

SIMM Installation

The SIMM sockets are labelled as shown below.



There are 12 SIMM sockets on the memory card organized in three banks consisting of four sockets each. Each socket can contain one memory module. You must fill all of the sockets in any bank you use. Since each bank has four sockets, you must install four SIMMs to fill up the bank

The following table shows all the possible SIMM configurations for your computer. Do not install SIMMs in any other configuration Remember that the memory card already contains 4MB (soldered).

SIMM configurations

Bank1	Bank2	Bank 3	Total memory
M M M M			8MB
M M M M	K K K K		9MB
M M M M	K K K K	K K K K	10MB
M M M M	M M M M		12MB
M M M M	M M M M	M M M M	16MB

K=256KB SIMM installed
M=1 MB SIMM installed

Hard Disk Drive Types

The following table lists the types of hard disk drives you can use in the computer. Check this table and the documentation supplied with your hard disk to find the correct number for the type of hard disk drive(s) installed in your computer. You need to enter this number when you set 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/ manufacturer
1	306	4	17	128	305	10	
2	615	4	17	300	615	20	Seagate ST225 and ST4026, Western Digital WD-93042
3	615	6	17	300	615	30	Seagate ST138A*
4	940	8	17	1512	940	62	
5	940	6	17	512	940	46	
6	615	4	17	none	615	20	Conner CP3024, Seagate ST125, ST125A, and ST325A
7	462	8	17	256	511	30	
8	733	5	17	none	733	30	Seagate ST4038
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	49	
13	306	8	17	128	319	20	
14	733	7	17	none	733	42	
15							-reserved-
16	612	4	17	0	663	20	
17	977	5	17	300	977	40	CDC 94205-51, Conner CP3044 * and CP2044,* Maxtor 7040,* Miniscribe 8051A *
18	977	7	17	none	977	56	
19	1024	7	17	512	1023	59	Conner CP2064
20	733	5	17	300	732	30	Toshiba MK-133FA
21	733	7	17	300	732	42	Toshiba MK-134FA, Seagate ST-157A *
22	733	5	17	300	733	30	
23	306	4	17	0	336	10	
24	903	4	46	none	902	80	Conner CP3084
25	776	8	33	none	775	100	Conner CP3104
26							-reserved-
27	698	7	17	300	732	40	
28	976	5	17	488	877	40	
29							-reserved-
30							-reserved-
31	732	7	17	300	732	42	
32	1023	5	17	none	1023	42	
33	901	5	53	none	900	116	Quantum LPS120AT
34	723	13	51	none	722	234	Quantum LPS240AT
35	934	16	17	none	933	124	Toshiba MK-2124FC

Hard disk drive types (continued)

Type no	Cylinders	Heads	Sectors (Sec)	Precomp (WPcom)	Landing zone	Size (in MB)	Drive name/ manufacturer
36							-reserved-
37	683	116	38	none	682	2 Ø 2	Conner CP3204F
38	548	8	38	none	547	81	Conner CP2048
39	761	8	3 9	none	760	I 115	Conner CP30104
40	980	I0	17	none	979	81	Maxtor 7080A, Toshiba MK-2024FC
41	1Ø22	5	34	none	1Ø22	84	CDC-94216-106 **
42	1Ø22	5	36	none	1Ø22	, 89	CDC-94216-106
43	1Ø24	8	17	512	1Ø23	68	Micropolis 1325, Ataal 3085, Lanstor LAN64, Maxtor XT1085, Newbury NDR1085
44	828	I0	34	none	828	137	Toshiba MK-156F
45	1Ø24	5	17	512	1Ø23	42	
46	615	8	17	128	618	40	
47	—	—	—	—	—	—	User defined type

*Supported in translate mode
** With Western Digital ESDI controller

Installation / Support Tips

Power

This computer has an automatic input voltage sensing power supply (between 115V, for USA and Canadian use, and 230V, for use in other countries). There is no manual switch

Mouse and Keyboard

- When connecting the mouse and keyboard, be careful to plug them into the proper ports. Although they are physically identical, they are not interchangeable, and damage may occur to the ports or the main board.

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 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 necessary drivers have been installed correctly.
- If you have installed two floppy disk drives, remember that the computer will boot from drive B when a disk is inserted in drive B and no disk is inserted in drive A.

Installing Hard Disk Drives

- It is recommended that a 16-bit, AT-type hard disk controller be used if you are installing a drive that cannot use the embedded IDE interface. lnstalling a 16-bit interface will override the embedded IDE port and disable it, freeing the standard base I/O address(es) and IRQ(s).

Setup

- When installing a hard disk drive, be sure to consult the drive type table for the drive type parameters (geometry) which fit the drive you are installing. You can also select a type with parameters having lesser values, as long as they do not exceed the maximum capacity (in MB) of your drive. If there is no match for your drive, enter the exact parameters using the User Defined option.

Software Problems

- When installing a copy-protected software package, first try the installation at high speed. If this does not work properly, try switching to low speed for the installation If you are still unable to load the program at high speed, try loading at low speed and then switching to high speed.

  For the Equity 486DX2/50 PLUS, high speed is 50 MHz.
  For the Equity 486SX/25 PLUS, high speed is 25 MHz.
  Both systems simulate 8 MHz at low speed.
- When using a software package that uses a key disk as its copy-protection method, try loading it at high speed. If this does not work, enable Auto Speed in Setup on the Reference diskette.

Power-on Password

- Make sure that you do not forget the Power-on password you set up. If you do, it will be necessary to disable it by moving jumper JP5 on the main circuit board to position B.

Information Reference List

Engineering Change Notices

None.

Technical Information Bulletins

None.

Product Support Bulletins

None.

Related Documentation

TM-48625/50	Equity 486DX2/50 PLUS & Equity 486SX/25 PLUS Service Manual
PL-486DX2/50	Equity 486DX2/50 PLUS Parts Price List
PL-486SX25+	Equity 486SX/25 PLUS Parts Price List
SPK486DX2/50	Equity 486DX2/50 Self Paced Kit
Y73899110100	Equity 486DX2/50 PLUS 486SX/25 PLUS User s Guide