

## Computer Specifications

### CPU and Memory

16-bit CPU 80286 microprocessor, 12 MHz system clock speed, 12 MHz or 6 MHz processor speed; user selectable

0 wait state memory access speed at 12 MHz

System memory 1MB RAM standard; expandable using 256KB or 1MB SIMMs up to 5MB (maximum); SIMMs must be 100ns or faster access speed

Memory expandable to 16MB if memory option card is used

ROM 128KB (includes system BIOS and VGA BIOS)

Shadow RAM 0 wait state **access speed**; system ROM BIOS and video ROM can be copied into RAM through SETUP

Math coprocessor (optional) **80287 (8 or 10 MHz)** support; speed selectable by jumper

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 up to two drives in any of four formats: **5 1/4-inch**, high-density, 1.2MB; 5 1/4-inch, double-density, 360KB; **3 1/2-inch**, high-density, **1.44MB**; 3 1/2-inch, double-density, 720KB; controller on main system board

Hard disk Supports up to two drives; embedded controllers; interface on main system board

### Interfaces

Monitor Standard VGA with 256KB of video memory; supports up to 640 x 480 pixels in 16-color or gray scale mode; 15-pin, D-shell connector

serial RS-232C, programmable, asynchronous; **9-pin**, D-shell connector

Parallel Standard 8-bit parallel, monodirectional; 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

### Power Supply

Type 145W, fan-cooled

Input ranges **98 VAC** to 132 VAC, **47 Hz** to **63 Hz**

Maximum outputs **+5 VDC** at 18 **Amps**, **+12 WC** 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 drive types:

**Diskette drives** 5 1/4-inch diskette drive, **1.2MB** (high-density) storage capacity

3 1/2-inch diskette drive, **1.44MB** (high-density) storage capacity

5 1/4-inch diskette drive, 360KB (double-density) storage capacity

3 h-inch diskette drive, **720KB** (double-density) storage capacity

Hard disk drives 3 h-inch form factor hard disk drive(s), up to **half** height size; the first mounted vertically, second mounted **horizontally**

### 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

# EQUITY 286 PLUS

## Environmental Requirements

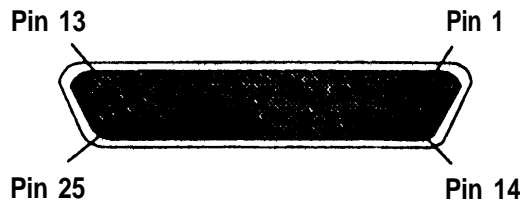
Condtkn	Operating range	Non-operating range	storage range
Temperature	41° to 95° F (5° to 35° C)	-4° to 140° F (-20° to 60° C)	-40° to 140° F (-40° to 60° C)
Humidity (non-condensing)	20% to 60%	10% to 90%	5% to 95%
Attitude	-330 to 9900 ft (-100 to 3000 m)	-330 to 11880 ft (-100 to 3600 m)	-330 to 39600 ft (-100 to 12000 m)
Maximum wet bulb	66° F (20° C)	104° F (40° C)	134° F (57° C)

## Physical Characteristics

Width	14.75 inches (375 mm)
Depth	17.5 inches (444 mm)
Height	6.0 inches (152 mm)
Weight	Single diskette drive model without keyboard: 20.6 lb (9.4 kg)

## Connector Pin Assignments

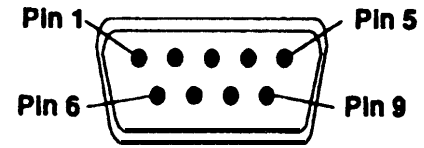
### Parallel Port Connector



### Parallel Port Connector Pin Assignments

Pin	Signal	Direction	Description
1	-STROBE	0	Strobe
2	DATA0	0	Printer Data Bit 0
3	DATA1	0	Printer Data Bit 1
4	DATA2	0	Printer Data Bit 2
5	DATA3	0	Printer Data Bit 3
6	DATA4	0	Printer Data Bit 4
7	DATA5	0	Printer Data Bit 5
8	DATA6	0	Printer Data Bit 6
9	DATA7	0	Printer Data Bit 7
10	-ACK	1	Acknowledge
11	+BUSY	1	Printer Busy
12	+PE	1	End of Paper
13	+SELECT	1	Printer Select
14	-AUTOFT	1	Auto Feed
15	-ERROR	1	Printer Error
16	-INIT	1	Printer Initialize
17	-SLCTIN	1	Printer Select In
18	GND	-	Ground
19	GND	-	Ground
20	GND	-	Ground
21	GND	-	Ground
22	GND	-	Ground
23	GND	-	Ground
24	GND	-	Ground
25	GND	-	Ground

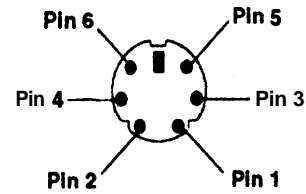
### Serial Port Connector



### Serial Port Connector Pin Assignments

Pin	Signal	Direction	Description
1	DCD	1	Data Carrier Detect
2	RXDT	1	Receive Data
3	TXDT	0	Transmit Data
4	DTR	0	Data Terminal Ready
5	SG	-	Signal Ground
6	DSR	1	Data Set Ready
7	RTS	0	Request To Send
8	CTS	1	Clear To Send
9	RI	1	Ring Indicator

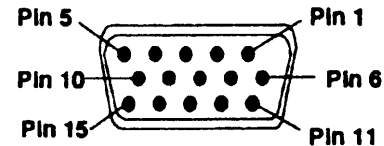
### Keyboard Connector



### Keyboard Connector Pin Assignments

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

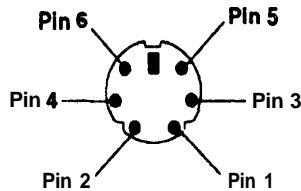
### VGA Connector



### VGA Connector Pin Assignments

Pin	Signal	Pin	Signal
1	Red Video	9	NC
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		

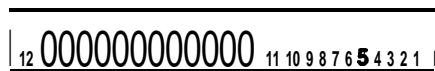
Mouse Connector



Mouse Connector Pin Assignments

Pin	Signal	Direction	Description
1	PCDATA	I/O	Mouse Data
2	NC		Reserved
3	GND		Ground
4	+5V		+5V DC
5	PDCLOCK	I/O	Mouse Clock
6	NC		Reserved
SHIELD	Frame Ground		Shield

Power Connector



Power Connector Pin Assignments (CN-6)

Pin	Name	Pin	Name
1	Power Good	7	GND
2	+5V	8	GND
3	+12V	9	-5v
4	-12V	10	+5V
5	GND	11	+5V
6	GND	12	+5V

I/O Port Addresses

Address	Function
000-01F	DMA Controller 1
020-03F	Interrupt Controller 1
040-05F	Timer/Counter
060-06F	Keyboard Controller and Port B
070-07F	CMOS RAM and Non-Maskable Interrupt Mask
080-09F	DMA Page Register
0A0-0BF	Interrupt Controller 2
0C0-0DF	DMA Controller 2
0E8-0EF	EMS Support
0F0-0FF	Numeric Coprocessor
1F0-1F8	Hard Disk Controller
278-27F	Parallel Port 1
2F8-2FF	Serial Port 1
378-37F	Parallel Printer Port 0
3B0-3BF	Parallel Port 2 (on some video boards)
3F0-3F7	Floppy Disk Controller
3F8-3FF	Serial Port 0

DMA Channel Assignments

Channel	Function
0	Spare
	Spare
2	Floppy disk transfers
3	Spare (Hard disk drive)
4	Cascade of data from channel 0-3
5	Spare
6	Spare
7	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 controller
	IRQ15	Reserved

Jumper Settings

Jumper Settings for Main Board

Jumper number	Jumper setting	Function
J1	A B*	Enables IRQ9 signal for built-in VGA adapter Enables IRQ9 signal for a display adapter on an adapter card
J2	A B*	Sets the computer to use an 8MHz math coprocessor Sets the computer to use a 10MHz math coprocessor
J3	A B*	Disables the built-in VGA adapter Enables the built-in VGA adapter
J4	A* B	Enables the built-in mouse port Disables the built-in mouse port
J5	A' B	A color monitor is installed A mono monitor is installed
J6	A B	Disables the password function Enables the password function

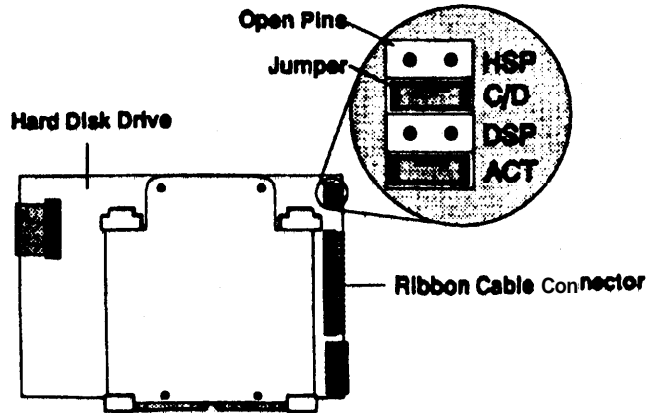
\* Factory settings

# EQUITY 286 PLUS

HDD jumper Settings (Single and Master/Slave)

Jumper Positions				Drive Configuration
HSP	C/D	DSP	ACT	
b	#	b	#	One-Drive System
b	#	#	#	Master Drive
b	b	b	#	Slave Drive

# = Jumper in this position  
b = No jumper in this position

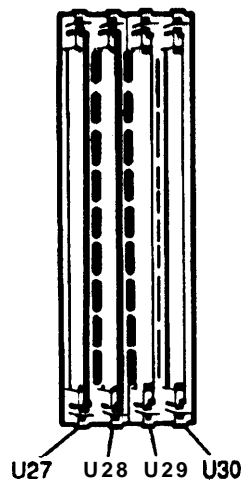


## SIMM Installation

Memory Upgrade Matrix

Bank 1 Sockets		Bank 2 Sockets		Total Memory
U27	U28	U29	U30	
-	-	-	-	1MB
K	K	-	-	1.5MB
K	K	K	K	2MB
M	M	-	-	3MB
M	M	M	M	5MB

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



## Hard Disk Drive Types

The following table lists the types of hard disk drives you can use in your 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.

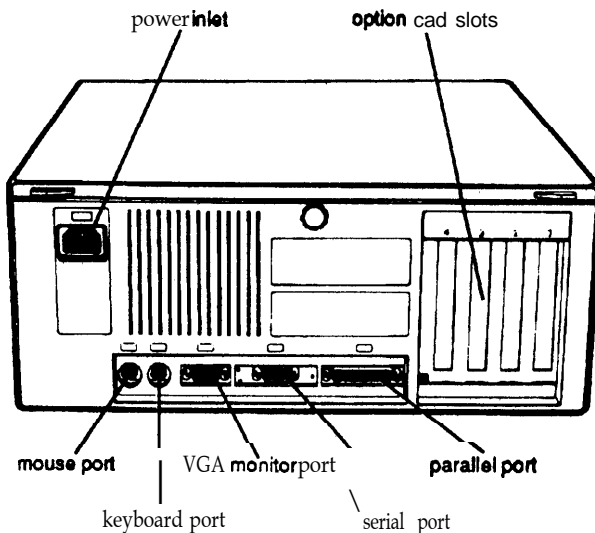
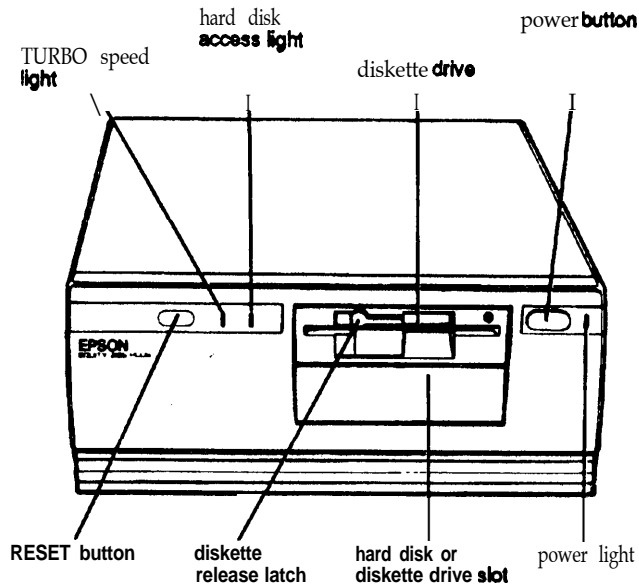
Hard disk drive types

Type m.	Cylinders	Heads	Sectors (Sec)	Precomp (W/Precomp)	Landing Zone	Size (in MB)	Drive name/manufacturer
1	386	4	17	128	305	10	
2	615	4	17	300	615	20	ST225, ST4026, WD-93024
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	
7	462	8	17	256	511	33	
8	733	5	17	none	733	30	ST-4038
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
18	977	7	17	none	977	57	
19	1024	7	17	512	1023	60	
20	733	5	17	300	732	30	
21	733	7	17	300	732	43	
22	733	5	17	300	733	30	
23	306	4	17	0	336	10	Compatible IBM
24	977	5	17	flow	976	41	ST-4051
25	1024	9	17	none	1023	77	ST-4096, CDC-94155
26	980	5	17	none	980	41	CP-3044, translate mode
27	969	10	17	none	969	80	CP-3184 translate mode
28	1224	15	17	none	1223	152	Maxtor 2190
29	683	16	38	none	683	203	CP-3204 default mode
30	832	6	33	none	832	80	CP-3184 default mode
31	482	25	17	none	482	100	CP-3104 UNDX mode
32	925	9	17	none	926	69	CDC-9415
33	981	5	17	none	981	41	Miniscrbe 8051A Tran
34	678	36	17	none	678	203	CP-3204 UNDX mode
35	1024	12	17	none	1024	102	
36	1024	14	17	none	1024	119	
37	1024	16	17	none	1024	136	
38	1024	7	35	none	1024	123	HH-2120 (ESDI)
39	1024	5	17	none	1023	43	HH-1050
40	820	6	17	none	820	41	ST-251
41	615	6	17	none	615	31	OPC 30MB
42	754	11	17	128	754	69	Fujitsu 80M (M2243AS)
43	1314	7	17	1314	1314	76	Miniscrbe
44	615	6	26	none	615	47	Seagate 40MB
45	820	6	26	544	819	62	
46	642	8	17	128	664	43	NEC D-3142
47	-	-	-	-	-	-	User defined type
60	776	8	33	none	776	100	CP-3104

## Installation / Support Tips

### Power

The Equity 2% PLUS has a 145W, 115VAC power supply.



### 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 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 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 286 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 Format option in diagnostics.

### Setup

- When installing a hard disk drive, be sure to consult the drive type table 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 1MB, 1.5MB, 2MB, 3MB, 5MB.
- 256KB and 1MB SIMMs can be used. They must be 100ns SIMMs or faster.

### Software Problems

- When installing a copy-protected software package on the Equity 286 PLUS, first try the installation at 12MHz. If this does not work properly, try switching to 6MHz for the installation. If you are still unable to load the program at 12MHz, try loading at 6MHz and then switching to 12MHz.
- When using a software package that uses a keydisk as its copy-protection method, try loading it at 12MHz. If this does not work, enable the Auto Speed 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 J6 on the main circuit board to the A position.

## **Information Reference List**

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### **Engineering Change Notices**

None.

### **Technical Information Bulletins**

None.

### **Product Support Bulletins**

None.

### **Related Documentation**

TM-EQ286+	Equity 286 PLUS Service Manual
PL-EQ286+	Equity 286 PLUS Parts Price List
Y727991002	Equity 286 PLUS User s Guide