

# Product Support Bulletin

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Subject: Proper Method for Running Benchmark and Diagnostics Programs

Date: 06/04/93

Page(s): 1 of 1

PSB No: S-0158

Originator: MWT

This bulletin describes the proper method for running any benchmark or diagnostics programs. This applies to any computer system.

In most cases, the computer should be started using an MS-DOS boot diskette that's 'clean' - in other words, one with no CONFIG.SYS or AUTOEXEC.BAT files. The appropriate executable can then be run, either from diskette or hard drive.

There will be some exceptions to the above rule. In attempting to benchmark or troubleshoot any add-on that requires a device driver (CD-ROM, local area network, etc.), obviously the necessary device driver(s) must be loaded. Also, some programs will require a minimum number of FILES or BUFFERS to be defined in the CONFIG.SYS file. Such programs will usually display this requirement if they are run without the necessary CONFIG.SYS file.

For the most consistent results, use the absolute minimal boot configuration that's allowed by the hardware being tested.

# Product Support Bulletin

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**Subject: Equity Series SIMM Compatibility**

**Date: 12/4/91**  
**Page(s): 1 of 1**

**PSB No: S-0136**  
**Originator: JAD**

Due to the influx of third party SIMMs on the market, there are some that are not compatible with Epson products. This bulletin is intended to be an aid in ensuring that only compatible SIMMs are chosen for use in Epson's Equity Series of computers.

The SIMMs in question were SEIMENS, CUMULUS and KINGSTON. Installing these SIMMs in Epson products may cause the following errors:

Parity Check 1  
18FFFE 0000 202 Memory Address Error  
164 System Options Not Set  
1500 E000 201" DOS RAM Address Error

It was thought that the chips used in these SIMMs were of poor quality.

Epson Portland evaluated the SIMMs in question and found that this was not true. The problem is caused by the SIMM circuit boards (ITE and TECAP circuit boards) used to manufacture the SIMM modules. The dimensions of these boards are not compatible with industry standard SIMM sockets. This may result in incomplete contact between the SIMM assembly and it's socket. This is caused by insufficient size of the contact surfaces in these products. Also enlarged holes in the TECAP product allow the component pin to pass entirely through the hole without making contact.

It is recommended that only SIMMS meeting industry standard contact surface specifications be used in Epson Equity computer products.

Some recommended SIMMs that were tested and found Compatible are:

Toshiba  
Matsushita  
CDC Enterprises  
Samsung  
Aculogic

For more information contact Technical Support.

**EPSON**

EPSON AMERICA, INC.

# **INFORMATION**

## **Product Support Bulletin**

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**Subject: Maximum Number of Printers Supported by Current Equity Computers**

**Date: 02/06/91**

**PSB No: S-0128**

**Page(s): 1 of 1**

**Originator: KAS**

As computing environments increase in complexity, there has been an increasing number of instances that require the support of several printers by one computer. One common example is that of using Novell Netware's print server capabilities to provide printer access to a large group of users with differing printer requirements. Netware is capable of supporting three (3) parallel and two (2) serial printers on one server. Recent testing has shown that the Equity 386/25 Plus, Equity 386/25, Equity 386/20 and the Equity 386SX Plus will support three (3) parallel ports along with two (2) serial ports. The key factor in providing support for a third parallel port is the need for a parallel interface card that can be set to the IBM Monochrome Graphics/Parallel printer I/O address at 3BCh. The computer looks for this address first and, if present, will assign the parallel port on that card as LPT1. The built-in parallel port (I/O address 378h) will then be addressed as LPT2. We also had an AST I/O Mini serial/parallel card addressed at I/O address 278h, which was then reassigned to LPT3. Each of the three parallel ports was attached to a printer. There was also a printer attached to each of the two serial ports. All five printers were then set to print simultaneously under Netware Version 2.15 Rev. C using PCONSOLE. All five printers were able to print the documents assigned to them, simultaneously. The units were then tested using WordPerfect 5.1 on the network and again were successful in printing to the five (5) printers at the same time. The last tests were run with the units booting under DOS 4.01 and screen prints being directed to each of the printers. WordPerfect 5.1 was also used to direct documents to each of the printers. Again all five (5) printers were able to print the files that were sent to them.

Although not all Equity computer models were tested in this situation, the Equity models 386SX, IIe, III+ and II+ should work in a similar manner if the instructions above are used as a guide. There is one item of which to be aware when using the this setup and that is the system will complete the RAM count and lock up if using a monochrome monitor. If you need to use three parallel ports, USE A COLOR MONITOR.

## Product Support Bulletin

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**Subject:** Equity 386/25 PLUS Questions and Answers

**Date:** 2/6/91  
**Page(s):** 1 of 7

**PSB No:** S-0125A  
**Originator:** JDB

### GENERAL:

- Q1.** What microprocessor does the Equity 386/25 PLUS use?
- A.** The Equity 886/25 PLUS utilizes the Intel 80386/25 DX microprocessor running at 8 or 25Mhz. Use of this CPU gives you 386 performance and compatibility in a 16-bit based computer architecture.
- Q2.** What speed does the Equity 386/25 PLUS operate at?
- A.** The Equity 386/25 PLUS operates at either a 8Mhz or 25Mhz processor speed. The speed can be set by using the CPU speed switch located on the front of the machine. At either processor speed, the system bus operates at a fixed speed of 8Mhz.
- Q3.** What is the Auto Speed function?
- A.** The Equity 386/25 PLUS is capable of operating at 8MHz or 25MHz. Some copy-protected applications require the computer to run at 8MHz while accessing the program diskette. By enabling the Auto speed function the computer automatically switches to 8MHz when accessing the diskette drive. It then switches back to 25MHz for optimal performance. Auto speed is accessed through the SETUP program under the Auto speed option.
- Q4.** Does the Equity 386/25 PLUS use the Phoenix or Award ROM BIOS?
- A.** No. All Equity desktop computers utilize a Seiko-Epson proprietary ROM BIOS.

- Q5. Can the Equity 386/25 PLUS support an 80367 co-processor?**
- A. The Equity 386/25 PLUS has a setup for an optional Intel 80387-25 or the Weitek math co-processor which Operates at 25MHz. This allows extra processing power for math intensive programs like Lotus 1-2-3 or AUTOCAD.**
- Q6. Can the Equity 386/25 PLUS use option cards that are available for the IBM PC/AT?**
- A. The Equity 386/25 PLUS uses an AT-compatible ISA (Industry Standard Architecture) bus structure that enables you to install any of the various add-on products designed for IBM PC, XT or AT computer, such as: expanded memory, EGA or VGA video, internal modems and many more. It also supports all of the option boards manufactured by Epson for the EQUITY series. There are 4 standard I/O expansion slots (one with 8-bit bus and 3 with 16-bit bus); The 16-bit slots will also accept 8-bit compatible cards. The Equity 386/25 PLUS offers flexibility in tailoring the system to your needs.**
- Q7. Are there my tested internal modems that can be used?**
- A. The Epson Link PC and the HayeS 2400 baud internal modems have been approved.**
- Q8. Does the Equity 386/25 PLUS have a built in PS/2 mouse port?**
- A. Yes, it has a PS/2 compatible mouse port on the rear panel of the computer. The connector is a 6 pin mini DIN for an IRQ12 mouse or other device.**
- Q9. Can the Equity “+” keyboard be used on this machine?**
- A. Th8 Equity “+” keyboards is not the same keyboards used on the Equity 386/25 PLUS and not interchangeable. The cable on the Equity 386/25 PLUS keyboard is a Mini Din, 6-pin connector.**

**Q10. What is the Password Security?**

- A. This system provides three levels of password protection against unauthorized access: password before boot, network-server mode password and password disable. The password is user definable and consists of a 7-byte (character) string. The password protection feature is not case sensitive. When the system is booted for the first time, or the password has been disabled and re-enabled by moving jumper J13 on the system board, the user defines and enables the password using the Setup utility on the Reference disk.**

**Q11. What terminal emulation boards are compatible with the Equity 386/25 PLUS?**

- A. The following products have been tested and approved:**

<b>3278/79 Emulation Adaptor</b>	<b>IBM</b>
<b>IBM 5250 Board</b>	<b>IBM</b>
<b>IRMA/2</b>	<b>DCA Inc.</b>
<b>SDLC</b>	<b>IBM</b>

**Q12. Does the Equity 386/25 PLUS have a battery for the Real Time Clock?**

- A. The Equity 386/25 PLUS is using a "Dallas" model DS1287 which incorporates an HD146818 Compatible real-time clock with an internal battery.**

**Q13. What VGA adapters are compatible with the Equity 386/25 PLUS?**

- A. The following VGA adapters have been tested in the Equity 386/25 PLUS:**

**Paradise VGA Plus 16 Card  
Paradise VGA Professional Card  
Video Seven 1048i High Resolution Card**

**Q14. Can the Serial and parallel ports be disabled?**

- A. No. The parallel and serial ports auto configure at boot up from the BIOS ROM. They are set up as LPT1 and COM1 respectively and there are no hardware jumpers or DIP switches to set them to LPT2 and COM2.**

**Q15. How many internal device bays does the Equity 386/25 PLUS have and will it support a full-height device?**

**A. The Equity 386/25 PLUS has 2 half-height bays to support up to 2 half-height devices. There is no room for a full-height device.**

**Q16. How many wait states does the Equity 386/25 PLUS have?**

**A. At 25MHz the system utilizes a "0 wait state" architecture for memory access and 0 wait states for ROM BIOS access on the motherboard. At 8MHz, memory and ROM BIOS access require 0 wait states: on the expansion bus, all memory or device requests are 0 wait states. If additional wait states are required, devices on the I/O channel hold the READY signal low, thus wait states are generated until the device can respond to the CPU.**

**Q17. Are the wait states user selectable?**

**A. No, the Equity 386/25 PLUS automatically inserts them when needed after the command phase Of the processor clock cycle.**

**Q18. How many jumpers are on the system board?**

**A. There are fourteen (14) jumpers on the system board:**

**System Board:**

**Jumper 1: Enables input/output channel ready**

**Jumper 2: Base memory**

**Jumper 3: Base memory**

**Jumper 4: Extended memory**

**Jumper 5: Extended memory**

**Jumper 6: Extended memory**

**Jumper 7: Extended memory**

**Jumper 8: Extended memory**

**Jumper 9: Not used**

**Jumper 10: Enables/Disables build-in mouse**

**Jumper 11: Enables/Disables option card for mouse Jumper 12:**

**Enables/Disables color or mono option card**

**Jumper 13: Enables/Disables power-on password**

**Jumper 14: Enables/Disables build-in VGA**

**Q19.** What kind of hard disk drives are available for the Equity 386/25 Plus?

- A. The Equity 386/25 Plus is available in one hard disk configuration. A 100Mb 3.5" (Conner CP-3104, 25ms access time) hard disk is available. The hard disk drive offers a 1:1 interleave and uses an embedded controller with an IDE interface. When installing the 100Mb drive use type 60 in SETUP.

**Q20.** What hard drive controller is used in the Equity 386/25 PLUS?

- A. The Equity 386/25 PLUS uses a controller embedded on the hard drive. This controller connects to a Task File IDE interface that is integrated in the system board.

**Q21.** Can the Equity 386/25 PLUS use other hard disk drives and controllers?

- A. Yes, the IDE Interface on the system board can be disabled and other third party hard drive controllers and drives can be used. The interface can be disabled by installing a third party controller. The system automatically detects the controller and disables the embedded IDE interface. Other embedded controller AT-type drives can also be used with the IDE Interface.

**Q22.** What extended hard drive support is available in the ROM BIOS that comes with the Epson Equity 386/25 PLUS?

- A. The Seiko-Epson BIOS will directly support hard drives that range in size from 10Mb to 153Mb. There is direct support for the Seagate ST-251 and the ST-4096 hard disks, as well as, several ESDI drives. By providing this support for 3rd party hard disk drives, the Equity 386/25 PLUS has the capability to use most 3rd party 8-bit and 16-bit hard disk controllers. SCSI drives have their own controllers attached to the drive and should work correctly when attached to the bus with a host adapter.

The Equity 386/25 PLUS also has a User Definable setting that allows you to set up hard disk drives that are not supported by the Equity 386/25 PLUS Drive Type Table. In SETUP, a sub-menu lists the settings you can change for each drive: the number of cylinders (tracks), the number of read/write heads, the number of sectors, the precompensation cylinder, the landing zone (the cylinder on which you Want to park the heads when moving the computer), and the total storage capacity in megabytes.

**FLOPPY DRIVES:**

**Q23. What types of floppy disk drives will work on the Equity 386/25 PLUS?**

**A. The Equity 386/25 PLUS comes standard with a 5.25", 1.2Mb floppy disk drive. There is built-in BIOS support for industry standard 360Kb and 1.44Mb, 3.5" half-height floppy disk drives as well as the 720Kb, 3.5" floppy drive. All four drive sizes are available from Epson.**

**Q24. Will the Equity 386/25 PLUS support 3 floppy disk drives?**

**A. No, not directly. The Epson controller and ROM BIOS supports a maximum of two floppy drives.**

**Q25. Can the floppy disk controller be disabled?**

**A. No. The floppy disk controller is integrated in the system board and there are no jumpers to enable or disable it. If an additional or 3rd party board is present the BIOS ROM auto-configure at bootup.**

**MEMORY:**

**Q26. What type of RAM chips are used in the Equity 386/25 PLUS?**

**A. The Equity 386/25 PLUS utilizes eight (8) D424256C-70 (256x4), 70 nSec RAM chips plus parity on the system board.**

**Q27. How do I increase the memory of the Equity 386/25 PLUS?**

**A. The standard Equity 386/25 PLUS system includes 2Mb of on-board memory. You can add SIMMs (single in-line memory modules) to increase on-board memory. With added SIMMs the total amount of on-board memory in the computer must be one of the following: 1 Mb, 2Mb, 3Mb, 4Mb, 6Mb, 8Mb, 9Mb, 10Mb, 12Mb or 16Mb.**

**SIMM configuration can be found on page 5-17 in the Users' Guide.**

**Memory can also be expanded through the use of third party memory boards using an I/O slot Epson does not recommend a third-party memory board.**

**Q28. What SIMM chips should be used when adding memory to the Equity 386/25 PLUS?**

- A. Use the Epson 70 nS8c - 9 bit SIMM module kits, either 1-MB kit (4-256Kb SIMM's, Part # A808231) or the 2MB kit (2-1 Mb SIMM's, Part # A808101), to extend the system memory. Should you need to use third party SIMM modules we recommend the following:**

Toshiba	1 MBit x 9 70 nSec
Matshushita	1 MBit x 9 70 nSec
CDC Enterprises	1 MBit x 9 70 nSec
Samsung (#KMM591000-7)	1 MBit x 9 70 nSec
Aculogic	1 MBit x 9 70 nSec

**\*\*NOTE\*\***

The following SIMM chips do not work in the Equity 386/25:

IBM	Panasonic
Compaq	NMBS
Seimens	Cumulus

**SOFTWARE:**

**Q29. What version of DOS is provided with the Equity 386/25 PLUS?**

- A. The Equity 386/25 PLUS is not bundled with an operating system. When the system is purchased, the customer can choose between MS-DOS 3.3 and 4.01 or a third party operating system like OS/2 Xenix or Unix.**

**Q30. Is the Equity 386/25 PLUS compatible with OS/2?**

- A. Yes, since OS/2 is much more hardware-specific than MS-DOS, the Epson version of MS OS/2 is required.**

**Q31. Will it support Unix and/or Xenix? Which versions?**

- A. The Equity 386/25 PLUS has been tested w/ Santa Cruz Operations Xenix Rel. 21 and IBM PC Xenix Vers. 1.**

EQUITY 386/25 PLUS					
VER	PART #	DESC	TYPE	LOC	REASON
1.00.02 1.00.02		CWAE-A01 CWAE-B01	27C256 27C256	U81 U82	INITIAL RELEASE
1.03.07 1.03.07	Y707801001 Y707802001	CWAE-A02 CWAE-B02	27C256 27C256	U81 U82	To allow the use of dual monitors with Microsoft Quick C. To allow the use of Seagate SCSI controller and/or a NIC remote boot ROM with the password function. To allow the use of ARCNET NICs at base address 2E0H. See ECN EQ386/25+-001 (2/6/91).
1.05.03 1.05.03		CWAE-A03 CWAE-B03	27C256 27C256	U81 U82	
1.06.3B 1.06.3B	Y707801003 Y707802003	CWAE-A04 CWAE-B04	27C256 27C256	U81 U82	Fixes problem with rapid keystrokes using the enhanced 10-key area of the keyboard. This problem may cause shift key lock and/or keyboard lockup. See ECN No: EQ386/25+-002 (2/7/92).
1.06.4B 1.06.4B	Y707801004 Y707802004	CWAE-AS4 CWAE-BS4	27C256 27C256	U81 U82	Fixes problem with rapid keystrokes using enhanced 10-key area of the keyboard. This problem may cause shift key lock and/or keyboard lockup. Fixes problem with Conner HDDs that causes failure with INT 13h function 0bh, write sector long. To allow CMOS to indicate daylight saving time mode. To resolve incompatibility with E1181A, T1183A, Seiko, Nec, Capetronic and other monitors for modes 60, 61, 62 and 64. Upgraded to be compatible with VESA monitor timing guideline. See ECN No: EQ386/25+-003 (4/3/92).