

# Product Support Bulletin

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Subject: EL 4S/33+ and EL 486UC+ OS/2 2.0 and 2.1 Display Drivers

Date: 04/06/94  
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PSB No: S-0173  
Originator: JAM

This bulletin announces the availability of enhanced display drivers for the Epson EL 4S/33+ and EL 486UC+ computers running IBM's OS/2 2.0 or 2.1. The 32-bit Service Pack for version 2.0 from IBM must be installed before installing the new display drivers. Also, the current system configuration must be VGA or SVGA.

These drivers can be downloaded from the Epson Bulletin Board System (BBS) that can be reached at (310) 782-4531. They are located in one self-extracting file (OS2\_20.EXE for Version 2.0) or (**OS2\_21.EXE** for Version 2.1) in file library **DRIVERS**. Once downloaded, extract the files to a high-density diskette (1.44MB) by entering the command:

**OS2\_20 A:** or **OS2\_20 B:**  
**OS2\_21 A:** or **OS2\_21 B:**

depending on which disk drive is being used. The diskette must have the volume label OS2 **DRVS**.

To install a driver, place the Display Drivers diskette into drive A:. Open an OS/2 session, either full-screen or window, and enter the following command:

**A:INSTALL A: C:**

INSTALL.COM on the driver diskette copies files to the hard drive and starts the OS/2 Display Driver Install utility DSPINSTL, which prompts the user.

When the Display Driver Install main panel appears, the Primary Display should indicate Video Graphics Array. If so, click OK and proceed. If VGA is not selected, select Primary Display and click OK.

Highlight the Driver/Resolution desired and click OK.

When the Source Directory panel appears, choose the floppy drive ( A: ) which contains the Driver diskette and click on Install.

When the main panel appears again, click on Cancel.

The new driver has been installed. You must shutdown and then re-boot your system for the changes to take effect.

For any future driver changes, INSTALL.CMD on the driver diskette is not required.

To change to a new driver, or return to VGA driver, simply type DSPINSTL on the command line in an OS/2 full-screen or window session.

If you are selecting a different resolution, make sure that the Display Driver diskette is in the floppy drive.

Finally, only the beta version of OS/2 2.1 was tested. According to IBM the 32-bit graphics engine is the same as in the Service Pack, so these drivers should work correctly.

# Product Support Bulletin

Subject: Common Questions and Answers for the Epson EL 486UC Computer

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## GENERAL

### ***Q1. What is the Epson EL 486UC computer?***

A. The EL 486UC is Epson's new entry-level computer sold exclusively through Epson Direct (800-374-7300). Along with an affordable price, the new EL 486UC offers Intel™ i486SX/25™ processing power and upgrade solutions for a wide range of computing applications. In addition to the performance that this system offers, users will appreciate the convenience of a small footprint and complete system integration. Key features include:

- Intel i486SX/25 processor upgradable to i486SX/33, i486DX/33, i486DX2/50 or i486DX2/66
- Intel OverDrive™ CPU Support (i486DX2/50 or i486DX2/66)
- 8KB internal cache (built-in CPU)
- OK external cache; upgradeable to either 32KB or 128KB
- Small-footprint case incorporates
  - Five ISA option slots; three 16-bit full-length and two 8-bit half-length
  - two externally accessible drive bays and one internal drive bay
  - built-in Super VGA video adapter
  - built-in parallel, PS/2 keyboard, game and two serial ports
  - built-in floppy and IDE hard drive controller/interface
- 4MB of system RAM; upgradeable to 32MB via SIMMs
- 512KB video memory; upgradeable to 1 MB providing 1024 x 768 with 256 color support
- ROM based system "SETUP" program
- Password security

**Q1. What is the Epson EL 486UC computer?** (continued)

- A.
- System and video BIOS can be relocated in shadow RAM for increased system performance
  - Built-in rechargeable NiCad battery to maintain CMOS settings
  - 3.5" 1.44MB (High density) Floppy disk drive
  - 120MB IDE Hard disk drive
  - Bundled with MS-DOS® 6.0, Microsoft® Windows™ 3.1 pre-loaded on the hard disk drive and a serial mouse

**Q2. What is the target market for this computer?**

- A.
- The Epson Equity EL 486UC computer is targeted at the following markets.
- Home office and small-business users seeking maximum performance at today's low prices.
  - Work at home users who need an efficient and cost-effective system that's compatible with all their business software.
  - Businesses in search of a low-cost network node that can handle current and future applications.

**Q3. What interfaces and controllers are integrated on the motherboard?**

- A.
- The Epson EL 486UC computer comes standard with a built-in IDE hard disk drive interface, a floppy disk drive controller, a super VGA video adapter, two serial interfaces, a uni-directional parallel interface, a PS/2 style keyboard port and a game port all integrated on the main system board (motherboard).

**Q4. What type of password security does the Epson EL 486UC computer provide?**

- A.
- The EL 486UC computer provides system access security that may be enabled via the computer's SETUP program. This feature is helpful by essentially limiting unauthorized access to the computer.

## **CPU**

### ***Q5. What microprocessor comes standard with the Epson EL 486UC computer?***

- A. The EL 486UC comes standard with an Intel i486SX microprocessor (CPU) running at 25MHz. This microprocessor provides backward compatibility with the Intel 8088, 8086, 80286, and 80386 CPUs and includes a built-in 8KB cache. For system flexibility, the built-in CPU cache can be disabled via SETUP.

### ***Q6. What microprocessor upgrades are available for the Epson EL 486UC computer?***

- A. The Intel i486SX/25 microprocessor that comes standard with the EL 486UC computer may be upgraded to an Intel i486SX/33, i486DX/33, Overdrive i486DX2/50 or Overdrive i486DX2/66.

The DX and DX2 CPUs contain an on-chip numeric coprocessor to increase the speed of floating point operations. This coprocessor is backward compatible with the 387DX and 387SX math coprocessors and complies to ANSI/IEEE standard 754-1985.

The Intel Overdrive DX2 CPUs also increase system performance by doubling the microprocessor's internal speed.

Please note that the EL 486UC computer does not support the Weitek math co-processor.

## **BIOS**

### ***Q7. What BIOS comes with the Epson EL 486UC computer?***

- A. The EL 486UC computer incorporates a Phoenix/Seiko Epson BIOS that contains both the system and video BIOS. This BIOS is contained in a single EPROM device that is installed in a pluggable socket on the computer's main system board.

**Q8. How is the computer's SETUP program accessed and what information is contained in setup?**

- A. To access the computer's SETUP program, press CTRL, ALT and "S" while at a DOS prompt or during the computer's boot process. There are two pages of setup information.

**STANDARD SYSTEM PARAMETERS**

- System Time and Date
- Floppy Drive Type Selection A: B:  
(5.25" 360KB, 5.25" 1.2MB, 3.5" 720KB, 3.5" 1.44MB and Not Installed)
- HDD Drive Type Selection 1: 2: (Type Number or User-Defined)
- Base Memory
- Extended Memory
- Video Type (VGA/EGA, CGA40, CGA80, Mono and Not Installed)
- Keyboard (Installed/Not Installed)
- CPU Speed (Fast/Slow)
- NumLock on at Boot (Yes/No)

**CHIPSET FEATURE CONTROL**

- Password (Set/Not Set)
- Boot Sequence (A: > C: or C: > A:)
- External Cache (Enabled/Disabled)
- Shadow BIOS ROM (WP-Shadow, Cacheable or Disabled)
- Shadow Video ROM (WP-Shadow, Cacheable or Disabled)
- Memory Remapping (Enabled/Disabled)
- Shadow 16K at C000h: (Disabled/Enabled)
- Shadow 16K at C400h: (Disabled/Enabled)
- Shadow 16K at C800h: (Disabled/Enabled)
- Shadow 16K at CC00h: (Disabled/Enabled)
- Shadow 16K at D000h: (Disabled/Enabled)
- Shadow 16K at D400h: (Disabled/Enabled)
- Shadow 16K at D800h: (Disabled/Enabled)
- Shadow 16K at DC00h: (Disabled/Enabled)

## VIDEO

**Q9. What video adapter comes standard (built-in) with the Epson EL 486UC computer?**

- A. The EL 486UC computer utilizes a Trident TVGA8900C SVGA graphics controller as its built-in video adapter. This system includes 512KB of video memory which may be upgraded to a full 1 MB of memory by installing four (4) pluggable DRAM (Dynamic Random Access Memory) chips.

The Trident SVGA graphics controller is 100% hardware and BIOS-compatible with IBM® VGA display standards.

**Q10. What type of RAM chips are used to upgrade the video memory to a full 1MB on the EL 486UC computer?**

- A. To increase the EL 486 computer's video memory requires four pieces of a 256KB x 4 bit, 70 or 80ns, DRAM in a 20-pin DIP (Dual In-line Package) package. These chips install on the computer's main logic board in sockets U25, U31, U47 and U53.

**Q11. What video modes are supported by the Epson EL 486UC computer?**

List below is a table that shows the Epson EL 486UC computer's supported video modes and the memory requirements to obtain each mode:

Mode	Resolution	Colors	Memory Required
VGA	640 x 480	16	512KB
	640 x 480	256	512KB
	800 x 600	16	512KB
	800 x 600	256	512KB
	1024 x 768	16	512KB
	1024 x 768	256	1MB

**Q12. *What software video drivers are provided with the Epson EL 486UC computer?***

There are three diskettes included that feature video drivers for many popular software programs and also include video utilities. The key drivers included are:

AutoCAD/AutoShade Rel 9/Rel 10, P-CAD 4.01, Framework II, Framework III 1.x, CADKEY 3.0, VersaCAD/286 5.4, MS Word 5.0, AutoCAD/386 Rel 10/Rel 11, WordStar 3.3 and above, WordPerfect 4.0, WordPerfect 5.0, WordPerfect 5.1, Quattro Pro 2.x, MS Windows 3.x, GEM 3.xx, Lotus 1-2-3 2.xx, Symphony 2.xx, Ventura 2.x/3.x and PM 2.0.

The VGA video utilities included are: TVGABIO, TANSI, VESA, SVM, MODETEST, SMONITOR, RIXFIX, PMFIX and TVGACRTC. These utilities are useful when customizing system settings such as video modes or to correct problems with application programs. (See the "README" file on driver diskette #1 for more detailed information)

## **MEMORY**

**Q13. *What is the standard memory configuration and maximum amount of system memory that can be used in the Epson EL 486UC computer?***

- A. The Epson EL 486UC computer comes standard with 4MB of system memory. This memory is provided by a 4MB (1 MB x 32-bit) SIMM installed in SIMM socket U46 on the main system board.

There is a total of two SIMM sockets on the main system board. These sockets accept 1 MB (256KB x 32 or 36-bit), 4MB (1 MB x 32 or 36-bit), 8MB (2MB x 32 or 36-bit) or 16MB (4MB x 32 or 36-bit) SIMMs. Optional SIMMs may be purchased to increase the computer's memory up to a maximum of 32MB.

NOTE: The SIMMs used must be tin-plated, 70ns or faster, 32 or 36-bit, 72-pin, fast page mode type.

**Q14. What are the valid system memory configurations for the Epson EL 486UC computer?**

- A. Listed in the table below shows all valid system memory configurations for the Epson EL 486UC computer:

<b>SOCKET U46</b>	<b>SOCKET U45</b>	<b>Total Memory</b>
4MB		4MB *
1MB	4MB	5MB
4MB	4MB	8MB
8MB	4MB	12MB
8MB	8MB	16MB
16MB	16MB	32MB

Note " \* " = Factory default memory configuration

**Q15. Does the Epson EL 486UC computer provide parity checking for the main system memory?**

- A. To keep the system cost as low as possible, the EL 486UC computer was designed not to perform parity checking on the main system memory.

This decision was also made due to the fact that the SIMMs available today are much more reliable than they were in the past and that the lack of parity checking on this system should not be a major concern to the majority of users.

## **CACHE MEMORY**

**Q16. Can the Epson EL 486UC computer be upgraded to support an optional external secondary cache?**

- A. Yes, the Epson EL 486UC computer can be upgraded to support an optional external secondary cache of either 32KB or 128KB. This cache is provided by installing optional Static RAM (SRAM) memory chips on the computer's main system board. An external secondary cache is a good method to increase system performance.

**Q17. What type of SRAM chips and how many do I need to upgrade the Epson EL 486UC computer's optional external secondary cache?**

A. To upgrade the Epson EL 486UC computer's external secondary cache to 32KB requires five pieces of a 8KB x 8 Bit, 20ns SRAM in a 28 Pin DIP package.

or

To upgrade the Epson EL 486UC computer's external secondary cache to 128KB requires five pieces of a 32KB x 8 Bit, 20ns SRAM in a 28 Pin DIP package.

These SRAM chips are installed in locations U34, U44, U51, U59 and U63 on the computer's main system board. In addition to adding the SRAM chips, jumpers J7, J10, J11, J13 and J14 on the computer's main system board must be set as shown below\*.

Cache size	J7	J10	J11	J13	J14
32KB	Off	1-2	1-2	1-2	1-2
128KB	On	<b>2-3</b>	<b>2-3</b>	<b>2-3</b>	<b>2-3</b>

\* If you have not installed optional SRAM memory chips, the position of these jumpers does not matter.

**MASS STORAGE**

**Q18. What factory floppy and hard disk drive configurations are offered with the EL 486UC computer?**

A. The Epson EL 486UC computer is shipped in a single configuration that includes a 3.5" 1.44MB (high density) floppy disk drive and a 120MB IDE hard disk drive.

## PROBLEM SOLVING

**Q19. *When using my joystick with the computer's built-in game port, some of my games do not allow movement to the right or in a downward motion?***

- A. Some joysticks may not calibrate (function) properly with certain game software applications that accept joystick input. If you connect a joystick to the computer's built-in game port and you find that it does not work with the game software you are using, try the following:
1. Reposition the trim knobs on the joystick. (See the manual that came with it for instructions.) Then try it again.
  2. If adjusting the joystick's trim knobs does not solve the problem, you may want to purchase a joystick option card. Install the card as described in Chapter 3 of the EL 486UC's User's Guide; then set jumper J5 on the computer's main logic board to the 2-3 position to disable the built-in game port. (See page 3-9 of the EL 486UC's User's manual for instructions.)

**Q20. *When the computer is powered-on, it completes the power-on self-test, starts to boot off the hard disk drive but then locks-up. What may be causing this problem?***

- A. This problem may be due to an improper setting in the computer's SETUP program. To insure proper system operation, always set the Shadow BIOS ROM and Shadow Video ROM setup options to WP-Shadow.

The computer's SETUP program may be accessed by pressing CTRL, ALT and "S" while at a DOS prompt or during the computer's boot process.