# Appendix   A

# Frequently Asked Question

> **Note:** *FAQ may be updated without notice.   If you cannot find the information that you need in this appendix,   visit   our   WWW   home   page (**http://www.aopen.com.tw**) and check  the FAQ area and other new information.*

**Q: How can I identify the mainboard BIOS version?**

A: The AOpen mainboard BIOS version appears on the upper-left corner of the POST (Power-On Self Test) screen.  Normally, it starts with R and is found in between the model name and the date.  For example:

<div align="center">

**AP53/AX53 <u>R3.80</u> Oct.22.1996**

BIOS revision

</div>

**Q: Why the AOpen mainboards (MB) do not have cache module expansion slot?**

A: Faster CPU speed requires more difficult and complex MB timing design. Every trace and components delay must be taken into consideration.  The expansion cache slot design will cause 2 or 3ns delay in PBSRAM timing, and the extended trace length to the cache module through the golden finger will further delay the timing by 1 or 2ns.  This may result in unreliable system once the cache module and slot becomes worn.  All AOpen MBs support 512KB PBSRAM onboard.  For better performance (around 3% higher than 256KB), we strongly recommend you to use 512KB onboard. Otherwise, reliable 256KB is better than unreliable 512KB with cache module.  AOpen is the first company to promote this concept since the fourth quarter of 1995.

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**Q: What is MMX?**

A: MMX is the new single-line multiple-instruction technology of the new Intel Pentium PP/MT (P55C) and Pentium II (Klamath) CPU. The AMD K6 and Cyrix M2 will support MMX, too. The MMX instructions are specifically useful for multimedia applications (such as 3D video, 3D sound, video conference). The performance can be improved if applications use these instructions. All AOpen MBs have at least dual power onboard to support MMX. It is not necessary to have special chipset for MMX CPU.

**Q: Which version of the Windows '95 that I am using?**

A: You may determine the version of Windows '95 by following steps.

1. Double click "System" in "Control Panel".
2. Click "General".
3. Look for "System" heading & refer to following,

| | |
|---|---|
| 4.00.950 | Windows 95 |
| 4.00.950A | Windows 95 + Service Pack or OEM Service Release 1 |
| 4.00.950B | OEM Service Release 2 or OEM Service Release 2.1 |
| 4.00.950C | OEM Service Release 2.5 |

If you are running OSR 2.1, you may tell it from by checking "USB Supplement to OSR2" in the list of installed program of Add/Remove program tool under Control Panel, and checking for version 4.03.1212 of the Ntkern.vxd file in the Windows\System\Vmm32 folder.

**Q: What is USB (Universal Serial Bus)?**

A: USB is a new 4-pin serial peripheral bus that is capable of cascading low/medium speed peripherals (less than 10Mbit/s) such as keyboard, mouse, joystick, scanner, printer and modem/ISDN. With USB, the traditional complex cables from back panel of your PC can be eliminated.

You need the USB driver to support USB device(s). AOpen MBs are all USB ready, you may get latest BIOS from AOpen web site (http://www.aopen.com.tw). Our latest BIOS includes the keyboard driver (called Legacy mode), that simulates USB keyboard to act as AT or PS/2 keyboard and makes it possible to use USB keyboard if you don't have driver in your OS. For other USB devices, you may get the drivers from your device vendor or from OS (such as Win95). Be sure to turn off "USB Legacy Support" in BIOS "Chipset Setup" if you have another driver in your OS.

**Q: How to install Windows 95 USB driver?**

A: If you are Win'95 OSR 2.0 user (.950B, shows "PCI Universal Serial Devices"), you may obtain USBSUPP.EXE from Microsoft or your OEM system provider for installing Microsoft USB supplement which will create "USB Supplement to OSR2" in the list of Add/Remove program tool under Control Panel. After above installation, please run AOchip.exe provided by AOpen to create USB Controller under Device Manager.

If you are Win'95 OSR 2.1 or 2.5 user, only AOchip.exe installation is necessary.

If you are Win'95 retail user (.950 or .950A), there is no direct upgrade path available from Microsoft at this moment. It is expected to be implemented under Windows'98.

**Q: What is P1394?**

A: P1394 (IEEE 1394) is another standard of high-speed serial peripheral bus. Unlike low or medium speed USB, P1394 supports 50 to 1000Mbit/s and can be used for video camera, disk and LAN. Since P1394 is still under development, , there is no P1394 device currently available in the PC market. Also, there is no chipset that can support P1394. Probably in the near future, a card will be developed to support P1394 device.
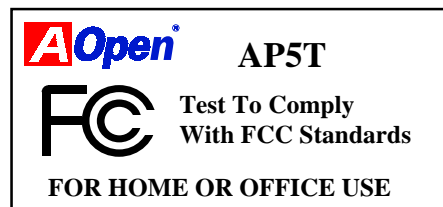
# Frequently Asked Questions

**Q: What is SMBus (System Management Bus, also called I2C bus)?**

A: SMBus is a two-wire bus developed for component communication (especially for semiconductor IC). It is most useful for notebook to detect component status and replace hardware configuration pin (pull-high or pull-low). For example, disabling clock of DIMM that does not exist, or detecting battery low condition. The data transfer rate of SMBus is only 100Kbit/s, it allows one host to communicate with CPU and many masters and slaves to send/receive message. The SMBus may be used for jumpless mainboard, the components which support SMbus are not ready yet, we will keep eyes on it.

**Q: What is FCC DoC (Declaration of Conformity)?**

A: The DoC is new certification standard of FCC regulations. This new standard allows DIY component (such as mainboard) to apply DoC label separately without a shielding of housing. The rule to test mainboard for DoC is to remove housing and test it with regulation 47 CFR 15.31. The DoC test of mainboard is more difficult than traditional FCC test. If the mainboard passes DoC test, that means it has very low EMI radiation and you can use any kind of housing (even paper housing). Following is an example of DoC label.

**Q: What is PBSRAM (Pipelined Burst SRAM)?**

A: For Pentium CPU, the Burst means reading four QWord (Quad-word, 4x16 = 64 bits) continuously with only the first address decoded by SRAM. The PBSRAM will automatically send the remaining three QWord to CPU according to predefined sequence. The normal address decoding time for SRAM is 2 to 3 clocks. This makes the CPU data read timing of four QWord to be at least 3-2-2-2 and a total of 9 clocks if traditional asynchronous SRAM is used. However, with PBSRAM, there is no need to decode address for rest three Qword. Therefore, data read timing can be 3-1-1-1, that is equivalent to 6 clocks and is faster than asynchronous SRAM.

**Q: What is EDO (Extended Data Output) memory?**

A: The EDO DRAM technology of EDO is actually very similar to FPM (Fast Page Mode). Unlike traditional FPM that tri-states the memory output data to start the pre-charge activity, EDO DRAM holds the memory data valid until the next memory access cycle, that is similar to pipeline effect and reduces one clock state.

**Q: What is SDRAM (Synchronous DRAM)?**

A: The SDRAM is a new generation DRAM technology that allows DRAM to use the same clock as the CPU host bus (EDO and FPM are asynchronous and do not have clock signal). The idea is the same as "Burst" (refer to the previous Q & A). It requires only one clock for the 2nd, 3rd, and 4th QWord (for example, 5-1-1-1 compares with EDO 5-2-2-2). The SDRAM comes in 64-bit 168-pin DIMM (Dual-in-line Memory Module) and operates at 3.3V. Note that some old DIMMs are made by FPM/EDO and only operate at 5V. Do not confuse them with SDRAM DIMM. AOpen is the first company to support dual-SDRAM DIMMs onboard (AP5V), from Q1 1996.

**Q: Can SDRAM DIMM work together with FPM/EDO SIMM?**

A: The FPM/EDO operate at 5V while SDRAM operates at 3.3V. The current Motherboard design provides different power to DIMM and SIMM but connects the data bus together. If you combine SIMM and DIMM, the system will still work fine; however, only temporarily. After a few months, the SDRAM 3.3V data input will be damaged by 5V FPM/EDO data output line. Therefore, we strongly NOT recommend DIMM and SIMM combined together. There is one exception, if your SDRAM supports 5V tolerance (such as TI or Samsung), which accepts 5V signal at 3.3V operating power, you can combine them.

**Q: What is Bus Master IDE (DMA mode)?**

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A: The traditional PIO (Programmable I/O) IDE requires the CPU to involve in all the activities of the IDE access including waiting for the mechanical events. To reduce the workload of the CPU, the bus master IDE device transfers data from/to memory without interrupting CPU, and releases CPU to operate concurrently while data is transferring between memory and IDE device. You need the bus master IDE driver and the bus master IDE HDD to support bus master IDE mode. Note that it is different with master/slave mode of the IDE device connection. For more details, refer to section 2.3 "Connectors".

**Q: What is the Ultra DMA/33?**

A: This is the new specification to improve IDE HDD data transfer rate. Unlike traditional PIO mode, which only uses the rising edge of IDE command signal to transfer data, the DMA/33 uses both rising edge and falling edge. Hence, the data transfer rate is double of the PIO mode 4 or DMA mode 2. (16.6MB/s x2 = 33MB/s).

The following table lists the transfer rate of IDE PIO and DMA modes. The IDE bus is 16-bit, which means every transfer is two bytes.

| Mode | Clock per 33MHz PCI | Clock count | Cycle time | Data Transfer rate |
|------|------|------|------|------|
| PIO mode 0 | 30ns | 20 | 600ns | (1/600ns) x 2byte = 3.3MB/s |
| PIO mode 1 | 30ns | 13 | 383ns | (1/383ns) x 2byte = 5.2MB/s |
| PIO mode 2 | 30ns | 8 | 240ns | (1/240ns) x 2byte = 8.3MB/s |
| PIO mode 3 | 30ns | 6 | 180ns | (1/180ns) x 2byte = 11.1MB/s |
| PIO mode 4 | 30ns | 4 | 120ns | (1/120ns) x 2byte = 16.6MB/s |

| Mode | Clock per 33MHz PCI | Clock count | Cycle time | Data Transfer rate |
|------|------|------|------|------|
| DMA mode 0 | 30ns | 16 | 480ns | (1/480ns) x 2byte = 4.16MB/s |
| DMA mode 1 | 30ns | 5 | 150ns | (1/150ns) x 2byte = 13.3MB/s |
| DMA mode 2 | 30ns | 4 | 120ns | (1/120ns) x 2byte = 16.6MB/s |
| DMA/33 | 30ns | 4 | 120ns | (1/120ns) x 2byte x2 = 33MB/s |

**Q: What is PnP (Plug and Play)?**

A: In the past, the IRQ/DMA and memory or I/O space of add-on cards are normally set manually, i.e., by jumper or by proprietary utility. The user has to check the user's guide for the correct setting. Sometimes, resource conflict occurs and this leads to unstable system. The PnP specification suggests a standard register interface for both BIOS and OS (such as Win95). These registers are used by BIOS and OS to configure system resource and prevent any conflicts. The IRQ/DMA/Memory will be automatically allocated by PnP BIOS or OS.

Currently, almost all the PCI cards and most ISA cards are PnP compliant. If you are still using a Legacy ISA card that cannot support PnP, set the corresponding resource (IRQ/DMA/memory) to ISA in the BIOS "PCI/PnP Setup".

**Q: Power Management Icon does not appear in the Windows 95 Control Panel even though the APM under BIOS Setup is enabled.**

A: This problem occurs if you did not enable the APM function before you install Windows 95. If you have already installed Windows 95, re-install it after the BIOS APM function is enabled.

**Q: Why does the system fail to go into suspend mode under Win95?**

A: This problem may be caused by your CDROM settings. The CDROM Auto Insert Notification of Win95 is dafault enabled, the system will continue to monitor your CDROM, auto-execute application when a CD diskette is loaded, and prevents the system from entering into suspend mode. To resolve this, go into Control Panel è System è Device Manager è CDROM è Setting, and disable the "Auto Insert Notification" function.

**Q: What is Windows 95 Registry?**

A: The functions of Windows 95 Registry and the Windows 3.1 INI files are almost the same. Both store the hardware and software configurations. The only difference is that Registry is a database while INI is text file. You can run REGEDIT.EXE to further understand the Registry structure. Checking and studying the structure of this file will help you solve some configuration problems.

# Frequently Asked Questions

**Q: What is the benefit of using Resetable Fuse?**

A: The traditional pico-fuse needs to be replaced once it is burned due to any abnormal surge current. It has to be replaced by qualified repairing engineer which is cost & time consuming. With the updated technology, AOpen motherboard starts to introduce new **3**Resetable**3** fuse, which is **3**PolySwitch**3**, to protect your keyboard & USB circuit. When there is surge current, this PolySwitch will reach high impedance within few m/seconds so that the circuit becomes opened. PolySwitch will be recovered to its original stage after surge current disappeared & the system is being cooled down for a while.

It is highly recommended to adopt **3**Resetable**3** fuse in order to fully support **3**Hot-Plug**3** feature on USB.

**Q: How can I eliminate the "?" marks presented under Device Manager after installing Win'95 on TX/LX/BX/5582/5591 based system?**

A: Even though your system will work fine with this "?" marks, we received many requests about how to eliminate it. AOpen software team spends few weeks to develop an utility AOchip.exe for the convenience of Win95 users. It is very user friendly and can be used on any TX/LX/BX/5582/5591 chipset based motherboard, not limited to AOpen products. You are welcome to distribute it, if you like it, simply say thanks to our software team. Note that you need USB driver for USB devices to work properly which is expected to be implemented on Windows'98.