
Appendix A

Frequently Asked Question

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.

Q: What is the performance improvement of Pentium II (Klamath)?

A: Following is the comparison table of the new generation CPU.

DRAM : 64MB EDO or SDRAM

HDD : Quantum Fireball 1280AT

VGA : Matrox Millennium VGA, 4MB, 1024x768 24bit, 85Hz.

OS : Windows 95 4.00.950

CPU	MB	Chipset	Winstone97 Business	Winstone97 High-End
PP/MT-200	AP5T/AX5T	Intel 430TX	48.3	21.9
PP/MT-233	AP5T/AX5T	Intel 430TX	50.5	23.6
Pentium II 200	AX6F	Intel 440FX	45.3	24.1
Pentium II 233	AX6F	Intel 440FX	48.4	26.5
Pentium II 266	AX6F	Intel 440FX	50.8	28.2
Pentium II 266	AX6L	Intel 440LX	54.5	30.8

You can see that Klamath-233 is no better than PP/MT-233 on Business Winstone97, but it has large improvement on High-End Winstone97. It is probably because Klamath has very good floating point performance and is suitable for graphic operation.

Q: What is USB (Universal Serial Bus)?

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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). This motherboard is USB ready, you may get latest BIOS from our web site or your distributor. 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: What is Bus Master IDE (DMA mode)?

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.

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Mode	Clock per 33MHz PCI	Clock count	Cycle time	Data Transfer rate
PIO mode 0	30ns	20	600ns	$(1/600\text{ns}) \times 2\text{byte} = 3.3\text{MB/s}$
PIO mode 1	30ns	13	383ns	$(1/383\text{ns}) \times 2\text{byte} = 5.2\text{MB/s}$
PIO mode 2	30ns	8	240ns	$(1/240\text{ns}) \times 2\text{byte} = 8.3\text{MB/s}$
PIO mode 3	30ns	6	180ns	$(1/180\text{ns}) \times 2\text{byte} = 11.1\text{MB/s}$
PIO mode 4	30ns	4	120ns	$(1/120\text{ns}) \times 2\text{byte} = 16.6\text{MB/s}$
DMA mode 0	30ns	16	480ns	$(1/480\text{ns}) \times 2\text{byte} = 4.16\text{MB/s}$
DMA mode 1	30ns	5	150ns	$(1/150\text{ns}) \times 2\text{byte} = 13.3\text{MB/s}$
DMA mode 2	30ns	4	120ns	$(1/120\text{ns}) \times 2\text{byte} = 16.6\text{MB/s}$
DMA/33	30ns	4	120ns	$(1/120\text{ns}) \times 2\text{byte} \times 2 = 33\text{MB/s}$

Q: What is ACPI (Advanced Configuration & Power Interface) and OnNow?

A: The ACPI is new power management specification of 1997 (PC97). It intends to save more power by taking full control of power management to operating system and not through BIOS. Because of this, the chipset or super I/O chip needs to provide standard register interface to OS (such as Win97) and provides the ability for OS to shutdown and resume power of different part of chip. The idea is a bit similar to the PnP register interface.

ACPI defines momentary soft power switch to control the power state transition. Most likely, it uses the ATX form factor with momentary soft power switch. The most attractive part of ACPI for desktop user is probably the "OnNow" feature, an idea from notebook. This feature allows you to immediately resume to your original work without the long time waiting from bootup, entering Win95 and running Winword. Intel 430TX PCIsset, 440LX AGPset and 440BX AGPset can support ACPI.

Q: What is ATX Soft Power On/Off and Momentary Switch?

A: The Soft Power On of the ATX specification means to provide a standby current for special circuit to wait for wakeup event when main power is off. For example, Infrared wakeup, modem wakeup, or voice wakeup. Currently, the most simple usage is to provide standby current for power switch circuit so that power switch can turn on/off the main power through soft power control pin. The ATX power specification does not mention anything about the power switch type. You can use toggle or momentary switch, note that ACPI specification requires momentary switch for power state control.

Soft Power Off means to turn off system through software, Windows 95 Shutdown function can be used to verify if your mainboard supports soft power off.

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Q: What is RTC Wake Up Timer (Alarm)?

A: RTC (Real Time Clock) is a device like electronic watch, and keep the date/time of the computer system running. The Wake Up Timer is more like an alarm, which wakes up and powers on your system at a pre-defined time for specific application. It can be set to wake up everyday or on specific date within a month. The date/time accurate is second. To set the date/time, go into BIOS setup, Power Management RTC Wake Up Timer, select Enable.

Q: What is the AGP (Accelerated Graphic Port)?

A: AGP is a PCI-like bus interface targeted for high-performance 3D graphic. AGP supports only memory read/write operation and single-master single-slave one-to-one only. The AGP uses both rising and falling edge of the 66MHz clock and produces 66MHz x 4byte x 2 = 528MB/s data transfer rate.

Q: What is the AGP bus clock on Intel 440BX chipset?

A: AGP used to perform as the same bus clock as the Intel 440LX chipset were. If we provide 75Mhz of bus clock to 440LX chipset, AGP will also perform with 75Mhz of clock. The Intel 440BX chipset which supports 100Mhz of bus clock behaves to meet the specification so that AGP bus clock is always kept by 66Mhz of clock no matter how 440BX chipset bus clock may be set. In this manner, it will ensure the compatibility & stability of the AGP within defined specification.

Q: Why is there a resource conflict between my AGP VGA card & PCI-to-PCI bridge (or AGP bridge) within Device Manger under Windows '95?

A: It is normal for AGP cards to conflict with the PCI standard PCI-to-PCI bridge (or AGP bridge). Since Windows'95 does not inherently support AGP technology, it reports this conflict incorrectly. This conflict will not adversely affect the performance of your system. Attempting to resolve it will result in improper operation of the PC. This issue is expected to be fixed by Microsoft when Windows 98 released.

Q: Does Pentium, Pentium Pro or Pentium II support Deturbo mode?

A: The Deturbo mode was originally designed to slow down CPU speed for old applications (especially old games). It uses programming loop to wait or delay special event. This programming method is considered very bad since the delay of loop highly depends on the CPU speed and the application fails at high-speed CPU. Almost all new applications (including games) use RTC or interrupt to wait event. There is no need for Deturbo mode now. The Turbo switch is now used as Suspend switch. However, some MBs still support Turbo/Deturbo function via keyboard. You can set the system to Deturbo by pressing <Ctrl> <Alt> <->. To back to Turbo mode, press <Ctrl>

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<Alt> <+>. Note that the Deturbo mode has been removed in new MBs since these require more code space in Flash ROM.

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 default 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 → System → Device Manager → CDROM → Setting, and disable the "Auto Insert Notification" function.

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

A: Even though your system will work fine with this "?" marks, we received many requests about how to eliminate it. Our 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 or BX chipset based motherboard, not limited to this board. 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.

Q: What is LDCM (LAN Desktop Client Manager)?

A: This is a software of Intel. The major goal is to provide an easy way for corporate network administrator to monitor the status of all the clients (workstation). You need at least DMI BIOS for LDCM. Our BIOS is also DMI ready but unfortunately, Intel LDCM needs Intel network card and ATI VGA to work properly. It is obviously not suitable for home user to pay LDCM extra cost.

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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 from the Motherboard Installation CDROM.

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 jumper-less mainboard?

A: Pentium II VID signal and SMBus clock generator provide CPU voltage auto-detection and allows user to set CPU frequency through CMOS setup, no jumper or switch is needed. The correct CPU information is saved into EEPROM, with these technologies, the disadvantages of Pentium base jumper-less design are eliminated. There will be no worry of wrong CPU voltage detection and no need to re-open the housing if CMOS battery loss. The only jumper left is to clear CMOS, which is a safety hook if you forget the password.

Q: What is battery-less mainboard?

A: AX6L/AX6LC/AX6B implements EEPROM and special circuit (patent applied) that allows you to save your current CPU and CMOS Setup configurations without the need of battery. The RTC (real time clock) can also keep running as long as power cord is plugged. If you lose your CMOS data by accident, you can just reload the CMOS configurations from EEPROM and the system will recover as usual.

Q: What is Hardware Monitoring?

A: There are four high-valued "Hardware Monitoring" features being implemented on this mainboard.

1. **Over Current Protection:** Providing over current protection for CPU Vcore. In conjunction with the over current protection provided by ATX power supply on 3.3V/5V/12V, it gives the full line over current protection.
2. **System Voltage Monitoring:** As you turn your system on, this smart design will continue to monitor your system working voltage. If any of

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the system voltage is over the component's standard, there will be warning alarm from PC speaker when AOHW100 or ADM installed.

- 3. Thermal Protection:** The higher speed of CPU, the more heat dissipation ability is needed to be taken into consideration. If user does not use a correct fan for the CPU cooling, it is highly possible the CPU will be overheating and cause system unstable.
- 4. Fan Monitoring:** There are two three-pin fan connectors, one is for CPU and the other one can be connected to the housing fan. The system will report the rotational speed of the fan and alarm fan malfunction though utility software such as Aohw120 or ADM.

Q: What is Aohw120 (Hardware Monitoring Utility)?

A: This is the Hardware Monitoring Utility software (Aohw120.exe) which monitors the status of system voltage, thermal, & fan. Instead of using ADM or LDCM which supports network administration, Aohw120 is especially designed for personal user.

Q: What is PC 100 SDRAM?

A: Although 440BX chipset supports 100MHz bus clock, however, it's apparent that traditional FPM and EDO DRAMs won't be able to work properly under this system clock frequency. In order to fully support 100MHz or even above bus clock system, Intel provided PC SDRAM Specifications to facilitate the development of SDRAM products. This is also known as PC 100 SDRAM specification. For getting the best performance and stability under 100MHz or above external clock, we strongly recommend you use the Synchronous DRAMs which meet the PC 100 requirement. The PC 100 SDRAM that our QA Team had tested are listed below.

Size	Vendor	Model	Single/Double	Chip Count
16M	Micron	MT48LC2M8A1-08	x1	8
16M	TI	TMX626812BDGE-10A	x1	8
16M	Hyundai	HY57V168010CTC-10	x1	8
32M	Micron	MT48LC2M8A1-08	x2	16
32M	Hyndai	HY57V168010CTC-10	x1	16
32M	NEC	D4516821AG5-A10-7JF	x1	16
32M	SEC	KM48S2020CT-GH	x1	16
128M	Simens	HYS72V16220GU	x2	18