

Declaration of conformity



QUANTUM DESIGNS(HK) LTD.

**5/F Somerset House, TaiKoo Place 979 Kings Road,
Quarry Bay, Hong Kong**

declares that the product

**Pentium®II Motherboard
Advance 4**

is in conformity with

(reference to the specification under which conformity is declared in
accordance with 89/336 EEC-EMC Directive)

- ☒ EN 55022 Limits and methods of measurements of radio disturbance characteristics of information technology equipment
- ☒ EN 50081-1 Generic emission standard Part 1:
Residential, commercial and light industry
- ☒ EN 50082-1 Generic immunity standard Part 1:
Residential, commercial and light industry

European Representative:

QDI COMPUTER (UK) LTD

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Signature : 

Place / Date : HONG KONG/1998

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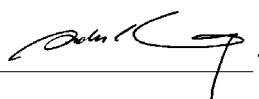
Declaration of conformity



Trade Name:	QDI Computer (U. S. A.) Inc.
Model Name:	Advance 4
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Type of Product:	AGP Pentium®II Motherboard
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Supplementary Information:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Signature :  . Date : 1998



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Chapter 1

Introduction

Overview

The Advance 4 green motherboard utilizes the Via Apollo Pro chipset and provides a highly integrated solution for fully compatible, high performance PC/AT platform. It provides 66/75/100/103/112MHz system bus support for all Intel Pentium®II and Celeron™ processors. Both 66MHz/100MHz SDRAM with SPD and 66MHz EDO DIMMs are supported. It also provides advanced features such as AGP, wake-up on LAN and wake-up on internal/external modem. The green function is in compliance with the ACPI specification.

Key Features

Form factor

- BabyAT form factor of 220mm x 220mm.

Microprocessor

- Supports all Intel Pentium®II processors at 233/266/300/333MHz with 66MHz bus speed and 350/400/450MHz with 100MHz bus speed.
- Supports all Intel®Celeron™ processors at 266/300/333 MHz with 66MHz bus speed.
- Supports 66/75/100/103/112MHz host bus speed.
- CPU core frequency = Bus speed x2.5, x3, x3.5, x4, x4.5, x5, x5.5
- CPU core supply voltage adjustable from 1.3V to 3.5V through on-board switching voltage regulator with VID(Voltage ID).

Chipset

- Apollo Pro chipset: VT82C691 system controller
VT82C596 PCI to ISA bridge

System memory

- Provides two 168 pin 3.3V unbuffered DIMM sockets.
- Supports both 66MHz/100MHz SDRAMs with SPD and 66MHz EDO DIMMs.
- Minimum memory size is 8MB, maximum memory size is 512MB.
- SDRAM 64 bit data interface with ECC support.

**On-board IDE**

- Supports two PCI PIO and Bus Master IDE ports.
- Two fast IDE interfaces supporting four IDE devices including IDE hard disks and CD - ROM drives.
- Supports up to PCI mode 4 timing.
- Supports "Ultra DMA/33" Synchronous DMA mode transferring up to 33 Mbytes/sec.
- Integrated 16x32bit buffer for IDE PCI Burst Transfers.

On-board I/O

- Use NS 87351 super I/O chip.
- One floppy port supporting up to two 3.5" or 5.25" floppy drives with 360K/720K/1.2M/1.44M/2.88M format.
- Two high speed 16550 fast compatible UARTs(COM1/COM2/COM3/COM4 selective) with 16-byte send/receive FIFOs.
- One enabled parallel port at the I/O address 378H/278H/3BCH with additional bi-direction I/O capability and multi-mode as SPP/EPP/ECP (IEEE 1284 compliant).
- Circuit protection provided, preventing damage to the parallel port when a connected printer is powered up or operates at a higher voltage.
- Supports LS-120 floppy disk drive.
- All I/O ports can be enabled/disabled in the BIOS setup.

Advanced features

- Provides Anti-Virus function.
- Provides on-board PS/2 mouse connector and its adapter.
- Two USB ports supported.
- Provides infrared interface.
- Supports Windows 95/98 software power-down when using an ATX power supply.
- Supports external modem ring power-on when using an ATX power supply.
- Supports wake-up on LAN and wake-up on internal modem when using an ATX power supply.
- On-board W83782D supports system monitoring (monitors the CPU and system temperature, voltages and fan speed) (manufacturing option).

**BIOS**

- Licensed advanced AWARD BIOS, supports DIP flash ROM, plug and play ready.
- Supports IDE CD-ROM or SCSI boot up.

Green function

- Supports ACPI (Advanced Configuration and Power Interface) and ODPM (OS Directed Power Management).
- Supports three green modes: Doze, Standby and Suspend.

Expansion slots

- 2 ISA slots and 3 PCI slots.
- 1 AGP Slot.



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
Chapter 2

Installation Instructions

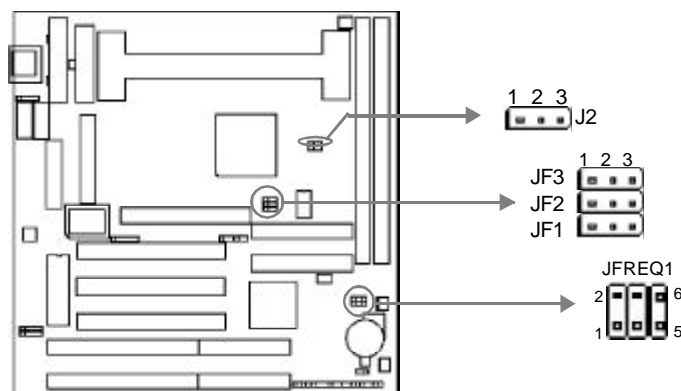
This section covers Jumper Settings, External Connectors and Memory Configuration. Refer to the motherboard layout chart for locations of all jumpers, external connectors, slots and I/O ports. Furthermore, this section lists all necessary connector pin assignments for your reference. The particular state of the jumpers, connectors and ports are illustrated in the following figures. Before setting the jumpers or inserting these connectors, please pay attention to the directions.

Be sure to unplug the AC power supply before adding or removing expansion cards or other system peripherals, otherwise your motherboard and expansion cards might be seriously damaged.

Jumper Settings

Hardware jumper settings are integrated on the motherboard. Pin1 of all jumpers are located on side with a thick white line (Pin1fi ) , referring to the motherboard silkscreen. Jumpers with three pins will be shown as  which depicts pin1 & pin2 connected and  depicting pin2 & pin3 connected. Numerically, “1-2” means connecting pin1 & pin2. “3-4” means connecting pin3 & pin4. “5-6” means connecting pin5 & pin6. “---” means open.

Please refer to the chart below for the location of all jumpers related to CPU frequency setting.





System Clock Selection (JF1, JF2, JF3)

These jumpers set the external frequency of the CPU, namely the Bus Clock. The AGP bus clock and PCI bus clock are also listed for your reference.

JF1	JF2	JF3	CPU (MHz)	AGP (MHz)	PCI (MHz)
2-3	1-2	1-2	66.6	66.6	33.3
2-3	2-3	1-2	75	75	37.5
1-2	1-2	1-2	100	66.6	33.3
1-2	1-2	2-3	103	66.67	34.33
1-2	2-3	1-2	112	74.6	37.3
1-2	2-3	2-3	133.3	88.87	44.43

Clock Multiple Selection (JFREQ1)

The motherboard provides eight selections of Clock Multiple. See the following jumper settings for details.

Multiple	JFREQ1		
	pin1 & pin2	pin3 & pin4	pin5 & pin6
2.0	1-2	3-4	5-6
2.5	1-2	3-4	---
3.0	1-2	---	5-6
3.5	1-2	---	---
4.0	---	3-4	5-6
4.5	---	3-4	---
5.0	---	---	5-6
5.5	---	---	---

The Bus Clock multiplied by the Clock Multiple equals the CPU internal frequency. Carefully set the Bus Clock and Clock Multiple by referring to the CPU list below.

CPU Model	Freq. (MHz)	SC (MHz)	Ratio	JF1	JF2	JF3	JFREQ1
Intel Pentium II (or Celeron)	233	66	3.5	2-3	1-2	1-2	1-2
	266	66	4.0	2-3	1-2	1-2	3-4, 5-6
	300	66	4.5	2-3	1-2	1-2	3-4
	333	66	5.0	2-3	1-2	1-2	5-6
	350	100	3.5	1-2	1-2	1-2	1-2
	400	100	4.0	1-2	1-2	1-2	3-4, 5-6
	450	100	4.5	1-2	1-2	1-2	3-4
	500	100	5.0	1-2	1-2	1-2	5-6



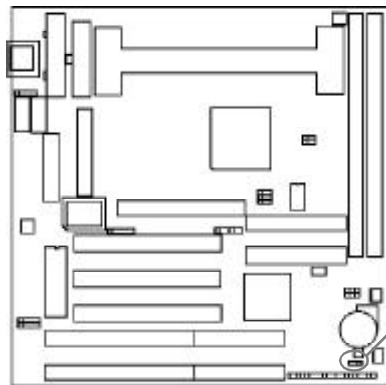
Memory Frequency Setting (J2)

Memory clocks can be programmed synchronous with either CPU external clocks or AGP clocks. Choose your appropriate setting by setting J2 differently, referring to the list below. Syn. with CPU clock is more stable than Asyn., therefore if PC-100 spec. SDRAMs are used on your system, synchronous with CPU clock. If PC-66 spec. SDRAMs or EDO DIMMs are used on your system, and the System Bus Clock is lower than or equals to 75MHz, synchronous with CPU clock. However, if the System Bus Clock is higher than 75MHz, synchronous with AGP clock.

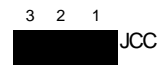
J2	Memory Frequency
2-3	Same as CPU external frequency
1-2	Same as AGP frequency

Clear CMOS (JCC)

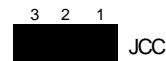
If you want to clear CMOS, unplug the AC power supply first, close JCC(pin2&pin3) once, set JCC back to the normal status with pin1&pin2 connected, then power on the system.



Normal status:



Clear CMOS:



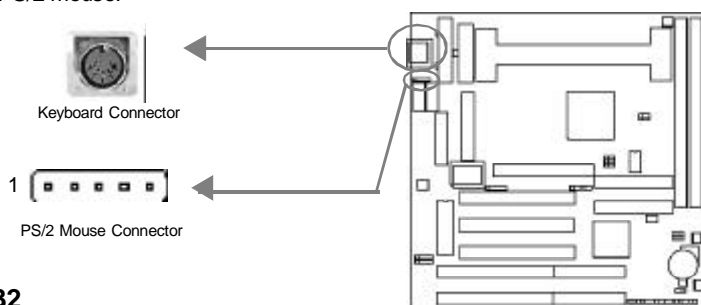
(Unplug the AC power supply)



External Connectors

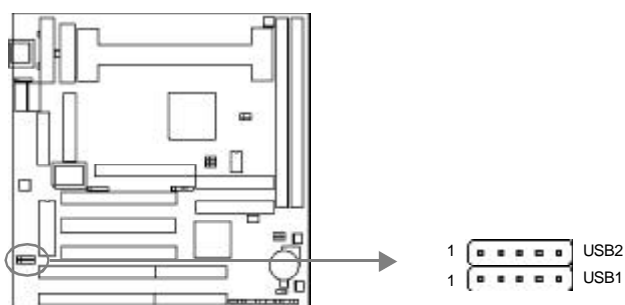
Keyboard Connector, PS/2 Mouse Connector

A standard AT size keyboard utilizes the keyboard connector. If using a PS/2 keyboard, an adapter should be used to fit this connector. A PS/2 mouse adapter with bracket is provided for utilizing a PS/2 mouse.



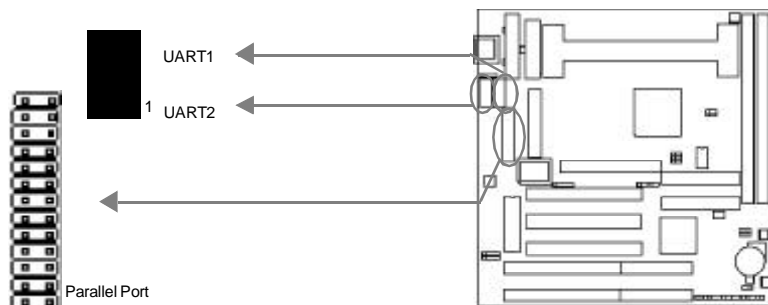
USB1, USB2

Two USB ports are available for connecting USB devices.



Parallel Port Connector and Serial Port Connector (UART1, UART2)

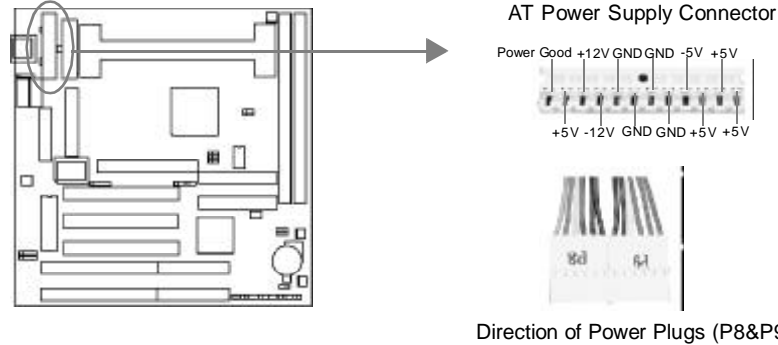
The parallel port connector can be connected to a parallel device such as a printer, while the serial port connectors can be connected to serial port devices such as a serial port mouse. You can enable/disable them and choose the IRQ or I/O address in "Integrated Peripherals" from AWARD BIOS SETUP. 1 Parallel ribbon cable and 2 serial ribbon cables (9-pin connector, 25-pin connector) with brackets are provided for your convenience.





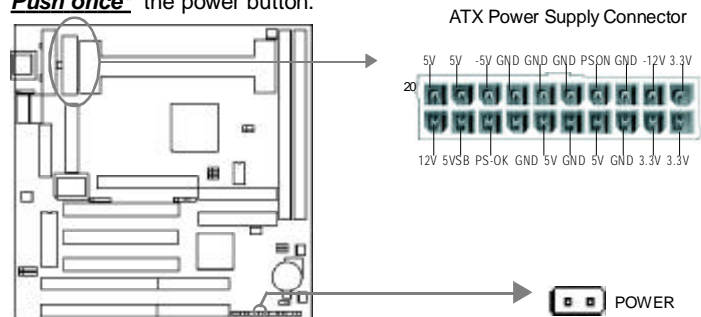
AT Power Supply Connector(ATPS)

Insert the AT power supply plugs (P8 and P9) to this connector. Make sure the direction is right by referring to the picture below.



ATX Power Supply Connector(ATXPS)

When using an ATX power supply, be sure to connect the ATX power supply plug to the power connector in its proper orientation, and the power switch(power) should be connected to a momentary switch. when powering up your system, first turn on the mechanical switch of the power supply (if one is provided), then push once the power button. When powering off the system, you needn't turn off the mechanical switch, just **Push once*** the power button.



Note: * If you change “soft-off by PWR-BTTN” from default “Instant-off” to “Delay 4 Secs” in the “POWER MANAGEMENT SETUP” section of the BIOS, the power button should be pressed for more than 4 seconds before the system powers down.

Hard Disk LED Connector (HD_LED)

The connector connects to the case's IDE indicator LED indicating the activity status of IDE hard disk.

Reset Switch (RESET)

The connector connects to the case's reset switch. Press the switch once, the system resets.



Speaker Connector (SPEAKER)

The connector can be connected to the speaker on the case.

Power LED Connector (PWR_LED)

The power LED has three status. When no AC power supply is present, the LED is off. When the system is in soft power-down status, the LED glows dimly. When the system is powered up, the LED is on.

Key-Lock Connector (KEY_L)

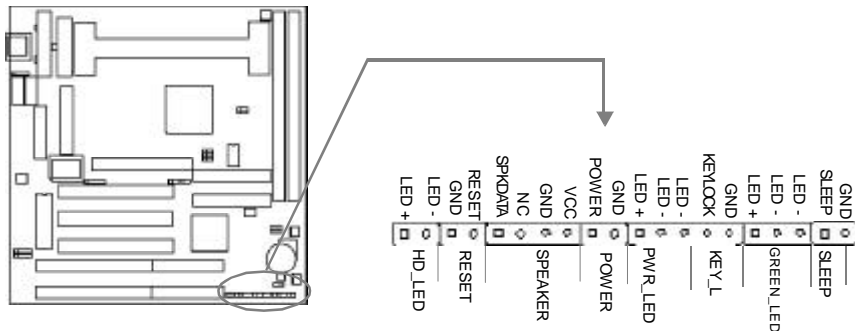
The connector can be connected to the keyboard lock switch on the case for locking the keyboard.

Green LED Connector (GREEN_LED)

The green LED has four status. When no AC power supply is present, the LED is off. When the system is in soft power-down status, the LED glows dimly. When the system enters suspend mode, the LED will flash. If an AT power supply is used, the soft power-down status would not be available.

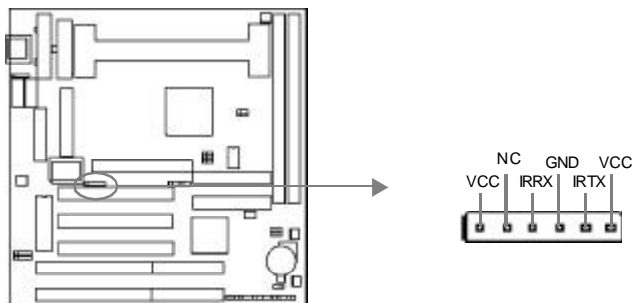
Hardware Green Connector (SLEEP)

Push once the switch connected to this header and the system enters suspend mode.



Infrared Header (IrDA)

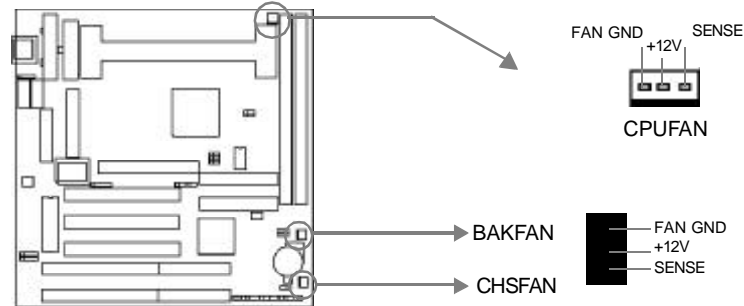
This connector supports wireless transmitting and receiving. If using this function, configure the settings of 'Serial Port 2 Mode' from the INTEGRATED PERIPHERALS section of the BIOS.





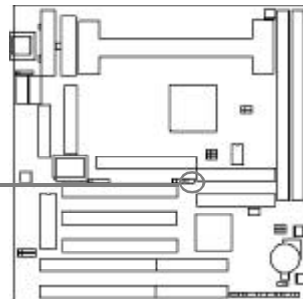
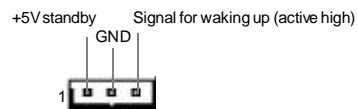
Fan Connector (CPUFAN, CHSFAN, BAKFAN)

If the system monitor hardware is integrated on the motherboard, the system detects the fan speed, which can be viewed in "System Monitor" of CMOS setup.



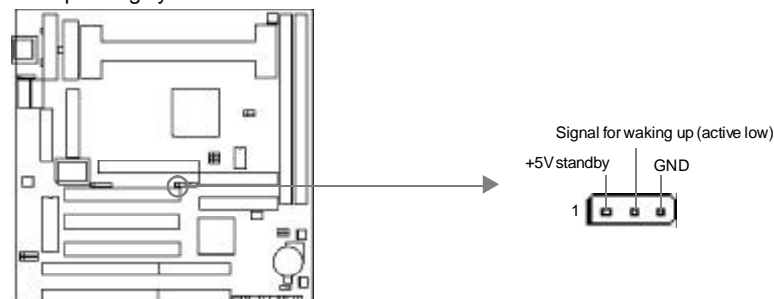
Wake-Up On LAN (WOL)

Through the Wake-Up On LAN function, a wake event occurring from the network can wake up the system. If this function is to be used, please be sure an ATX 2.01 power supply of which 5VSB line is capable of delivering 720mA, and a LAN adapter which supports this function, are used. Then connect this header to the relevant connector on the LAN adapter, set "Wake Up On LAN/Ring" as Enabled in the "POWER MANAGEMENT SETUP" section of the BIOS. Save & exit, then boot the operating system once to make sure this function takes effect.



Wake-Up On Internal Modem (WOM)

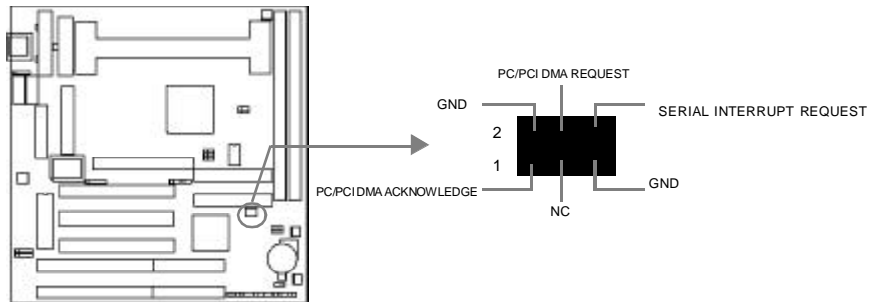
Through the Wake-Up On Internal Modem function, the system which is in the power-off status can be powered on by a ring signal received from the internal modem. If this function is to be used, be sure an internal modem card which supports the function is used. Then connect this header to the relevant connector on the modem card, set "Wake Up On LAN/Ring" as Enabled in the "POWER MANAGEMENT SETUP" section of the BIOS. Save & exit, then boot the operating system once to make sure this function takes effect.





Sound Connector (PC-PCI)

The PCI sound card utilizes this connector.



Expansion Slots & I/O Ports description

Slot / Port	Description
ISA 1	First ISA slot.
ISA 2	Second ISA slot.
PCI1	First PCI slot.
PCI2	Second PCI slot.
PCI3	Third PCI slot.
IDE 1	Primary IDE port.
IDE 2	Secondary IDE port.
FLOPPY	Floppy Drive Port.
AGP	Accelerated Graphics Port.



Memory Configuration

This motherboard provides two 168 pin 3.3V un-buffered DIMM sockets which supports a flexible memory size ranging from 8MB/256MB for SDRAM or from 8MB/512MB for EDO memory. Both 66MHz/100MHz SDRAM with SPD and 66MHz EDO DIMMs are supported. The following set of rules allow optimum configurations.

General DIMM notes:

- EDO/SDRAM DIMMs can not be used on the same system, it is advised you use only one kind of DIMM.
- Using the serial presence detect (SPD) data structure, programmed into an E²PROM on the DIMM, the BIOS can determine the SDRAM's size and speed.
- The DRAM Timing register, which provides the DRAM speed grade control for the entire memory array, must be programmed to use the timing of the slowest DRAMs installed.
- Possible SDRAM DIMM memory sizes are 8MB, 16MB, 32MB, 64MB, 128MB in each DIMM socket.
- Possible EDO DIMM memory sizes are 8MB, 16MB, 32MB, 64MB, 128MB, 256MB in each DIMM socket.
- Memory clocks can be programmed synchronous with either CPU clocks or AGP clocks. Choose your appropriate settings by setting J2 differently. Syn. is more stable than Asyn., so if PC-100 spec. SDRAMs are used on your system, synchronous with CPU clock. If PC-66 spec. SDRAMs or EDO DIMMs are used on your system, and the System Bus Clock is lower than or equals to 75MHz, synchronous with CPU clock. However, if the System Bus Clock is higher than 75MHz, synchronous with AGP clock. Refer to 'Jumper Settings' for information on how to set jumper J2.



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Chapter 3

BIOS Description

Utility Support:

FLASH.EXE

This is a flash memory write/read utility used for the purpose of updating your BIOS when necessary. Before doing so, please note:

- **We strongly recommend you only upgrade BIOS when encountering problems.**
- **Before upgrading your BIOS, review the description below to avoid making mistakes, resulting in a destroyed BIOS and a non-working system.**

When you are encountering problems, for example, you find your system doesn't support the new CPU which is released after our current motherboard, you may therefore update the BIOS.

Follow the steps exactly for a successful upgrade.

1. Create a bootable system floppy diskette, by typing `FORMAT A:/s` from the DOS prompt under DOS6.xx or Windows 9x environment.
2. Copy FLASH.EXE from the directory \Utility located on the QDI Motherboard Utility CD onto your new bootable diskette.
3. Obtain the updated BIOS file from your retailer. Please be sure to get the suitable BIOS file for the motherboard.
4. Uncompress the file received, copy the BIOS file (xx.bin) onto the bootable diskette, and note the checksum of this BIOS which is included in readme file.
5. Reboot the system from the bootable diskette created.
6. Then run the FLASH utility at the `A:\` prompt. During this process, the system will prompt : 'Do you want to save the BIOS(Y/N)' . If you type 'Y' , the system will prompt for the BIOS name. The system will also display the checksum which should be exactly the same as the checksum you copied from the readme file. Don't turn off power or reset the system until the BIOS upgrade has been completed.

Concerning how to run the FLASH utility, please refer to the following descriptions:

Usage: FLASH [BIOSfile] [/c[<command...>]][/n]

FLASH [BIOSfile] [/g]

/c: Flashing memory will clear previous settings. Default allows settings to remain.

<command> function definition:

c: clear CMOS;

p: clear PnP;

d: clear DMI.



/n: programs BIOS without prompting. If this option is chosen:

Be sure your new BIOS is compatible with your MB. If not, the system will be damaged.

/g: Retrieves BIOS file from BIOS ROM.

Examples:

A:\FLASH.EXE BIOSfile.bin

A:\FLASH.EXE BIOSfile.bin /cdpc/n

A:\FLASH.EXE BIOSfile.bin /g

Note: FLASH utility runs incorrectly at Windows DOS prompt.



AWARD BIOS Description

Entering Setup

Power on the computer, when the following message briefly appears at the bottom of the screen during the POST (Power On Self Test), press key or simultaneously press the <Ctrl> + <Alt> + <Esc> keys, to enter the AWARD BIOS CMOS Setup Utility.

Press to enter SETUP

Once you have entered, the Main Menu (Figure 1) appears on the screen. The main menu allows you to select from eleven setup functions and two exit choices. Use the arrow keys to select among the items and press the <Enter> key to accept or enter the sub-menu.

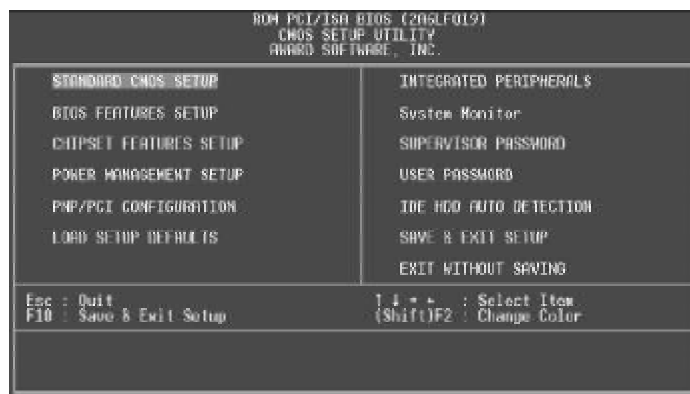


Figure-1 Main Menu

Note:The 'System Monitor' item will not be displayed if there is no system monitor hardware on the motherboard.

Load Setup Defaults

The Setup Defaults are common and efficient. It is recommended that users load the setup defaults first, then modify the needed configuration settings.

Standard CMOS Setup

The basic CMOS settings included in 'Standard CMOS Setup' are Date, Time, Hard Disk Drive Types, Floppy Disk Drive Types, and VGA etc. Use the arrow keys to highlight the item, then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Figure-2 Standard CMOS Setup Menu

Hard Disk

Primary Master/Primary Slave/Secondary Master/Secondary Slave

These categories identify the HDD types of 2 IDE channels installed in the computer system. There are three choices provided for the Enhanced IDE BIOS: None, Auto, and User. 'None' means no HDD is installed or set; 'Auto' means the system can auto-detect the hard disk when booting up; by choosing 'user', the related information should be entered regarding the following items. Enter the information directly from the keyboard and press <Enter>:

CYLS	number of cylinders	HEAD	number of heads
PRECOMP	write pre-compensation	LANDZ	landing zone
SECTOR	number of sectors	MODE	HDD access mode

Video

Set this field to the type of video display card installed in your system.

EGA/VGA	Enhanced Graphics Adapter / Video Graphic Array. For EGA, VGA, SEGA, SVGA, or PGA monitor adapters.
CGA 40	Color Graphic Adapter, powering up in 40 column mode.
CGA 80	Color Graphic Adapter, powering up in 80 column mode.
MONO	Monochrome adapter, including high resolution monochrome adapters.