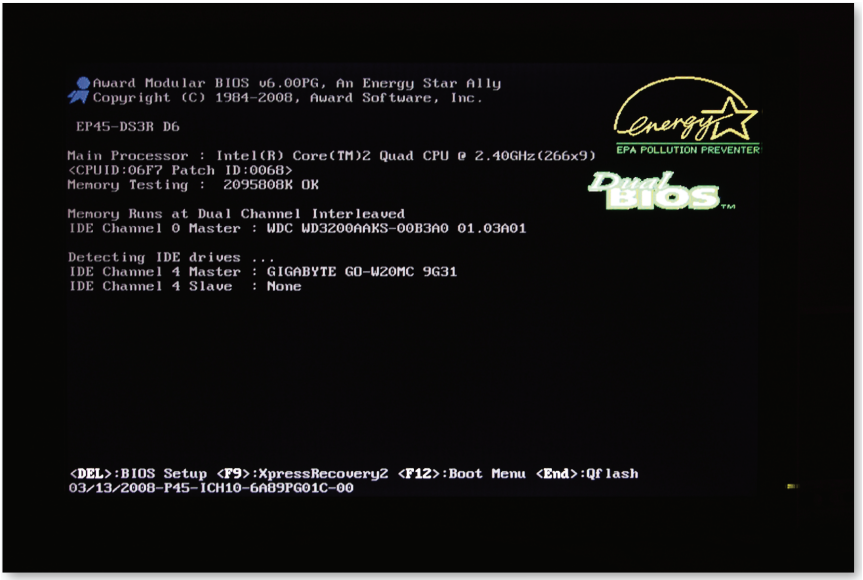
Chapter 4 Startup and BIOS Settings

4.1 Startup Screen

Most motherboards will make a beep sound once the computer powers on, although some motherboards don't have an onboard speaker and require you to connect them to a case speaker. Some motherboards might also produce this beep via the onboard sound through your desktop speakers. The first thing you should see once your PC has powered on is a screen similar to the one below, there might be a logo displayed in its stead, but there should be instructions at the bottom of the screen that tells you how to access the post screen.



1. Chipset, Motherboard Model Number and BIOS Version

If you run into a problem here, such as incorrectly detected or undetected hardware, refer to the model number of the motherboard and check for a new BIOS version on the manufacturer's website. Different BIOS revision will have different model numbers and all motherboard manufacturers have slightly different ways of naming their BIOS revisions.

2. CPU Specifications

CPU Specifications including the CPU manufacturer, model, type, clock speed (the actual clock speed and multiplier may be displayed within brackets) and ID, etc will be displayed towards the top of the screen, usually below the motherboard model name. As CPU manufacturers regularly update their CPU ID's at times, the CPU information won't be detected or it will be the wrong CPU that's detected. If this happens you either need to update the BIOS or manually check and set the CPU settings in the BIOS.

3. Memory Information

Normally the memory will count up from zero to the amount of memory installed in the system. If the memory modules are installed in dual-channel mode the word "Dual Channel" will be displayed to indicate that it's working properly.

4. Storage Device Information

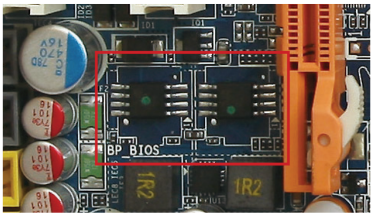
The model number and IDE channel (this applies to SATA as well) will be displayed for your storage devices. Although SATA is the predominant technology these days the BIOS still sees SATA devices as IDE devices, but on additional channels.

5. Function Prompt

Also displayed are instructions on how to enter the BIOS (by pressing the Delete key in most cases). GIGABYTE motherboards that support Dual BIOS, Q-Flash and Xpress Recovery will display information at the bottom of the screen with regards to which keys to press to launch these features.

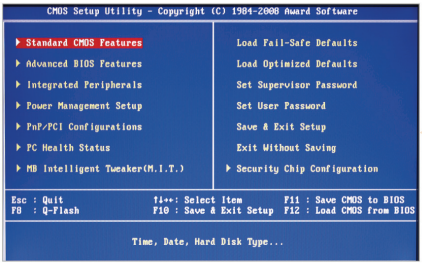
BIOS Definition

The BIOS or Basic Input/Output System is a small piece of software that controls the basic hardware functionallity of a computer and it's saved in an EPROM chip on the motherboard. Various hardware settings such as the processor, memory, graphics accelerator and hard disk drives are stored in the BIOS. The BIOS also contains various other settings and you need to have a basic understanding of how the BIOS works to get the most out of your PC.

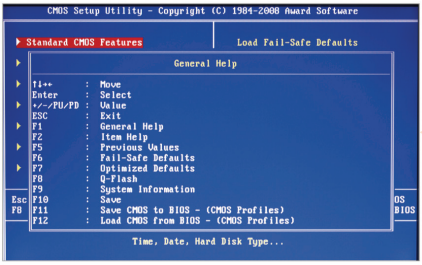


4.2 BIOS Settings

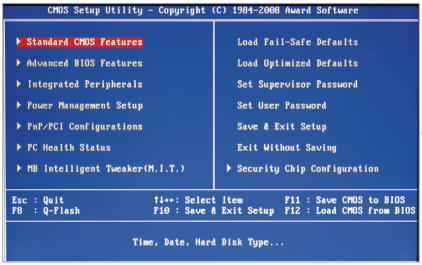
By pressing the “Delete” key during boot, you can enter the main menu of BIOS. It might look scary and difficult at first, but most of the time you only have to do some minor adjustments. We will go over some of the basic settings and show you how to adjust the necessary items to get the most out of your system. Additional information will be provided in your motherboard manual, although some of it might be very technical, so don’t get too carried away.



This is the main BIOS menu. As there are several companies that make BIOS:es, they might looks a bit different and this one is from Award.

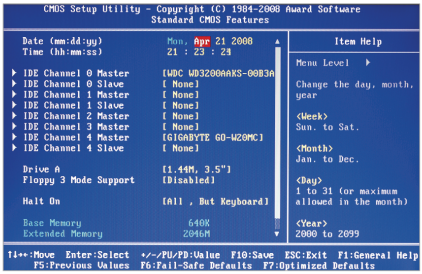


By pressing “F1” you should get a help screen which shows you what keys you can use.



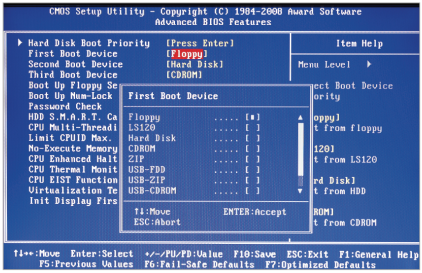
Pressing “CTRL+F1” in the main menu in the BIOS on some GIGABYTE motherboard allow you to load more advanced settings, but this is only recommended for advanced users that know their way around the BIOS settings.
In addition, 8 different BIOS profiles are able to be saved. In the BIOS main menu, you can save and load the profiles via F11 and F12.

Date and Time Adjustment



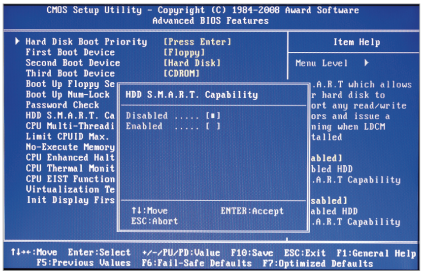
After selecting the “Standard CMOS Features”, adjust the date and time on the screen first and then set the IDE device on the computer. In most cases, the computer will detect automatically and no changes are required. The floppy disk and Halt On mode of the error status are “All, But Keyboard” by default, indicating that the system, except for the keyboard, will halt if any error is detected upon startup.

Boot Priority Settings



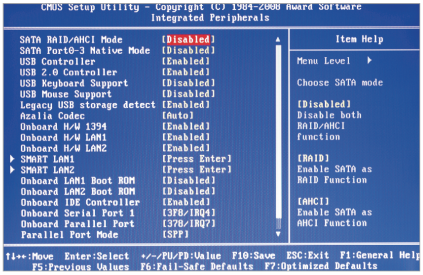
In the “Advanced BIOS Features” menu you have the option of selecting the boot order of your storage devices. Selecting an optical drive as the first boot device is recommended to start with, as this way the OS installation disc will boot and start the setup straight away. We would also suggest turning off the “Boot Up Floppy Seek” function as this decreases the boot-up time.

Enabling HDD S.M.A.R.T. Functionality

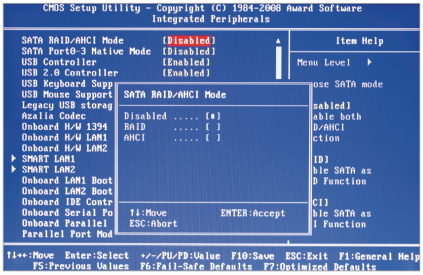


Seagate's S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) is a monitoring system for hard drives that detects and reports on various indicators of reliability. In case any malfunction occurs, it will send a warning message, allowing users to back up their data before the hard drive fails.

Integrated Peripherals Setting

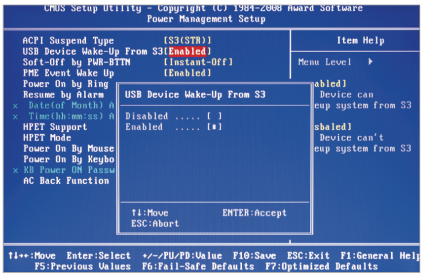


The “Integrated Peripherals” menu is used for controlling onboard peripherals, including Serial ATA, IDE, USB, network controllers and FireWire devices. You can enable or disable features that you need or don’t need here. Additionally you can also control things like RAID controllers here and we’d refer you to the motherboard manual for more information on this subject.



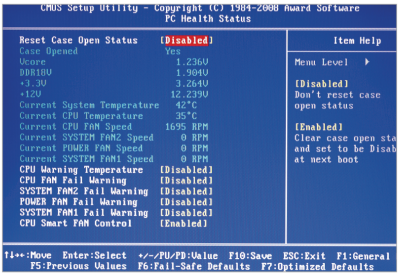
If you use a USB keyboard or mouse, make sure that you enable the USB Keyboard and USB Mouse support settings or you might run into some problems during the OS installation. This is also where GIGABYTE’s Smart LAN feature is located, allowing you to check your LAN cable and connection for potential problems.

Wakeup Source Control



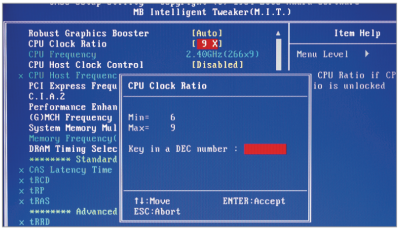
Pressing the power button is not the only way to power on a computer as you can also use the mouse or keyboard. Enter the “Power Management Setup” menu and locate the “Power On by Mouse” and “Power On By Keyboard” settings or use the timer (Resume By Alarm) to wake up the computer. If you don’t want to use these functions, then they can be turned off here.

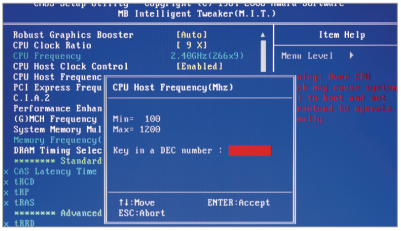
Hardware Monitoring Options



The “PC Health Status” menu provides information about things like the processor temperature as well as the speed of various sytem fans. Make sure that you enable the processor temperature warning to protect against processor damage. It’s also recommended to turn on the “CPU Smart FAN Control” as this allows the BIOS to control the fan speed of the CPU cooler based on the CPU temperature. This allows for a quieter running system in general, but it also allows the fan to kick in in case the CPU gets too hot.

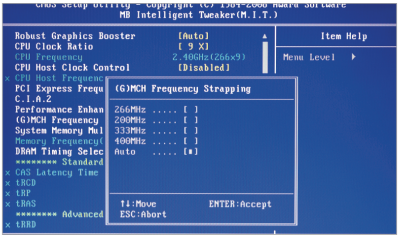
Adjusting the CPU Clock Speed

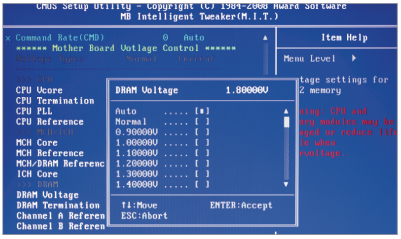




The “MB Intelligent Tweaker (M.I.T.)” menu gives you the option to change the CPU settings in the “CPU Clock Ratio” and “CPU Host Frequency (MHz)” sub menus. These settings in general should not be changed unless you know what you’re doing. However, if you want to overclock your system, these are the settings you need to get familiar with to start with.

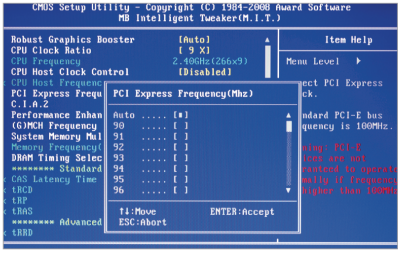
Memory Clock and Voltage

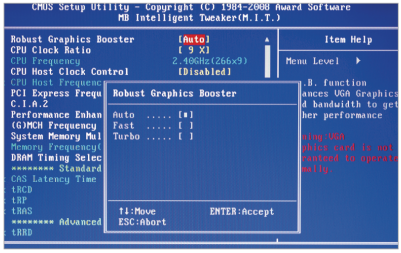




The “(G)MCH Frequency Strapping” and “DRAM Voltage” menus allows you to set the clock speed and Voltage of the memory modules. Normally the default settings should be used, but some high-performance modules requires manual adjustment.

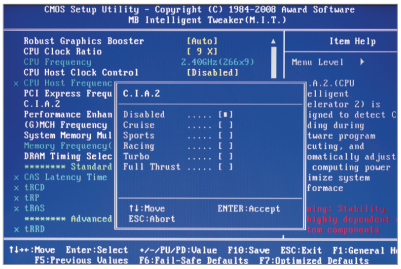
PCI-E Clock and Robust Graphics Booster





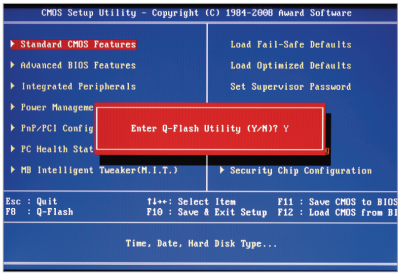
The "PCI Express Frequency (MHz)" and "Robust Graphics Booster" allow you to increase the speed of the PCI Express slots and boost the peformance of your graphics cards. Again, this is only for overlockers as changing these settings might cause your system to malfunction.

C.I.A.2



If you're unfamiliar with overlocking your system, then you can try using the GIGABYTE C.I.A.2 or CPU Intelligent Accelerator 2 function. This is a dynamic overclocking option in the BIOS and it provides five different modes of overclocking, starting out with a 5-7% performance increase at Cruise level all the way to 17-19% performance increase at Full Thrust. You will have to try to find the optimal setting depending on the components you've selected for your system. C.I.A.2 will only kick in when the CPU is fully loaded, so unless you're running processor intensive tasks, you won't be overlclocking the system when you're using C.I.A.2.

Saving Settings



Make sure you save the settings you have made; otherwise, the changes will be lost. Select "SAVE to CMOS and EXIT (Y/N)" or press "F10" on the keyboard and then press the "Y" button. If you don't want to save the changes, you can select "Exit Without Saving" or press the "ESC" button on the keyboard and then press the "Y" button.