NEXCOM International Co., Ltd.

Industrial Computing Solutions

Multi-media Panel PC

MPPC 2210/T

User Manual

NEXCOM International Co., Ltd.
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PREFACE

Copyright

Version 1.2

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Acknowledgements

The MPPC series is a trademark of NEXCOM international CO., LTD. All other product names mentioned herein are registered trademarks of their respective owners.

Regulatory Compliance Statements

This section provides the FCC compliance statement for Class A devices and describes how to keep the system CE compliant.

Federal Communications Commission (FCC) For Class A Device

This equipment has been tested and verified to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense.

CE Certification

The product(s) described in this manual complies with all applicable European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

Warnings

Read and adhere to all warnings, cautions, and notices in this guide and the documentation supplied with the chassis, power supply, and accessory modules. If the instructions for the chassis and power supply are inconsistent with these instructions or the instructions for accessory modules, contact the supplier to find out how you can ensure that your computer meets safety and regulatory requirements.

Cautions

Electrostatic discharge (ESD) can damage embedded computer components. Do the described procedures only at an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the computer chassis.

Safety Information

Before installing and using the MPPC series, note the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Follow all warnings and cautions in this manual.
- When replacing parts, ensure that your service technician uses parts specified by the manufacturer.
- Avoid using the system near water, in direct sunlight, or near a hearing device.

Chapter 1: General Information

Main Feature

Multimedia Panel PC

- 16:9 21.6" Fan-less panel Computer
- Intel® Atom™ N270, Low Consumption CPU
- VGA
- Dual GbE
- USB x 2/1 x Mini-PCIe/1 x CF/1 x RS232/422/485
- Optional Touch screen, WiFi Module, 2.5"HDD
- DDR2 1GB (onboard 1G for 5.25")
- 2.5" HDD bracket.
- Two speakers
- CF as default(DVI/COM2/TV-out as optional)
- +12V Power Adaptor
- Dimension: 508(W)x301(H)x53.9(D)mm 1.2 Specifications

Specifications

Panel

- LCD size: 21.6", 16:9
- Resolution: Full HD, 1920x1080
- Pixel pitch: 0.248mm(H) x 0.248mm(V)
- Luminance: 300 cd/m²
- Contrast ratio: 1000
- Viewing angle: 80(U), 80(D), 85(L), 85(R)
- Response time: 5 ms
- Backlight: CCFL
- Touch screen(optional): 5-line Resistive
- Touch Light Transmission: 80%
- Touch Interface: USB

System

- CPU: Onboard Intel® Atom™ N270 1.6GHz(2.5W)
- BIOS: Award 8Mbit Flash BIOS
- System Chipset: Intel® 945GSE / ICH7M
- I/O Chip: ITE8712F
- System Memory: Onboard 1GB DDR2 and One 200-pin DDR2 SODIMM supports up to 2GB DDR2 400/533 (1GB per bank)
- SSD: One CF socket by IDE secondary slave channel supports Type I / II Compact Flash Card
- Hard Driver Bay: Optional 2.5" SATA HDD
- Watchdog Timer: Reset: 1 sec.~255 min. and 1 sec. or 1 min./step
- H/W Status Monitor: Monitoring system temperature, voltage, and cooling fan status. Auto throttling control when CPU overheats
- Expansion: Mini-PCI, Mini-PCIe

Rear I/O

- Serial Port: 1 x RS232/422/485
- Ethernet: 2 x RJ45
- VGA: 1 x DB-15
- Audio port: Line out
- USB: 2 x USB 2.0

Audio

- AC97 Codec: Realtek ALC 655 supports 5.1CH Audio
- Audio Interface:
  Connector: Line out

Ethernet

- LAN Chip: Dual Realtek RTL8111C Gigabit LAN
- Ethernet Interface: 10/100/1000 Base-Tx Fast Ethernet compatible

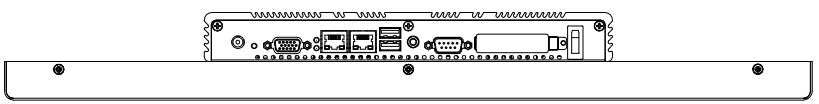
Mechanical & Environment

- Color: Front & Rear panel Black
- Mounting: Wall/Stand/VESA 75 mm x 75 mm or 100mm x100mm
- Vibration:
  Operating test: EC 60068-2-64
  Non-operating test: IEC60068-2-6
- Power Input: 100~250 Vdc/ 47~63 Hz
- Power Output: '+12 Vdc / 7A (80W)
- Operating Temperature: 32 to 104°F (0 to 40°C)
- Storage Temperature: -4 to 167°F (-20 to 75°C)
- Operating Humidity: 5%~90% relative humidity, non-condensing
- Dimensions: 508(W) x 301(H) x 53.9(D)mm
- Weight: 6 Kgs

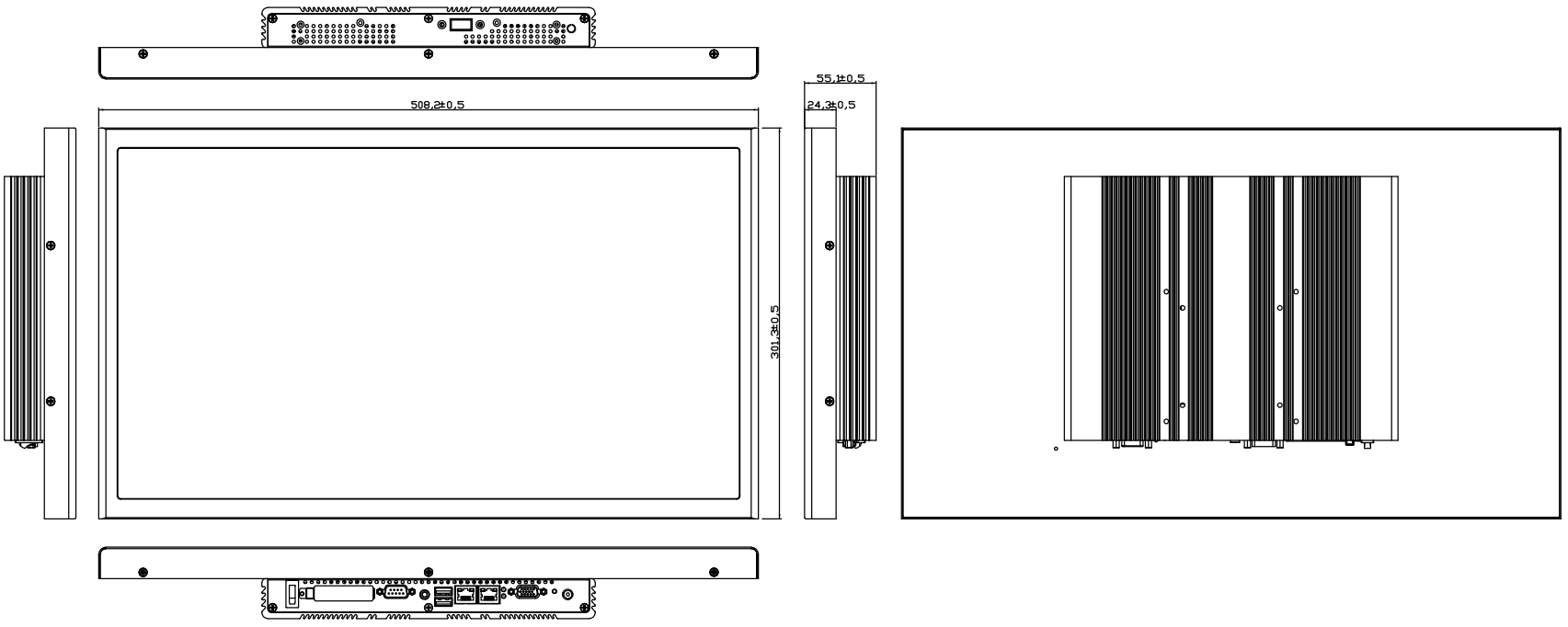
Order Information

- MPPC 2210: 21.6" TFT Panel PC with Intel® Atom™ N270 1.6 GHz
- MPPC 2210T: 21.6" TFT Panel PC with Intel® Atom™ N270 1.6 GHz with Touch screen

System Overview



System Dimension



Chapter 2: Jumper Setting

This chapter of the User's Manual describes how to set jumpers.
Note: The procedures that follow are generic for all MPPC series.

Before You Begin

Ensure you have a stable, clean working environment. Dust and dirt can get into components and cause a malfunction. Use containers to keep small components separated.

Adequate lighting and proper tools can prevent you from accidentally damaging the internal components. Most of the procedures that follow require only a few simple tools, including the following:

- A Philips screwdriver
- A flat-tipped screwdriver
- A set of jewelers Screwdrivers
- A grounding strap
- An anti-static pad

Using your fingers can disconnect most of the connections. It is recommended that you do not use needle-nosed pliers to disconnect connections as these can damage the soft metal or plastic parts of the connectors.

Before working on internal components, make sure that the power is off. Ground yourself before touching any internal components, by touching a metal object. Static electricity can damage many of the electronic components. Humid environment tend to have less static electricity than dry environments. A grounding strap is warranted whenever danger of static electricity exists.

Precautions

Computer components and electronic circuit boards can be damaged by discharges of static electricity.

Working on the computers that are still connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to your computer or yourself:

- AAlways disconnect the unit from the power outlet whenever you are working inside the case.
- If possible, wear a grounded wrist strap when you are working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.
- Leave all components inside the static-proof packaging that they shipped with until they are ready for installation.
- Use correct screws and do not over tighten screws.

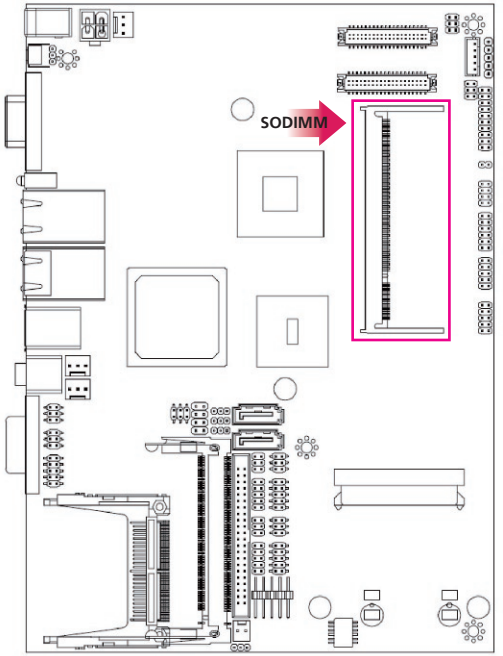
Installation Procedure

This chapter explains you the instructions of how to setup your system.

1. Turn off the power supply.
2. Insert the SODIMM module (be careful with the orientation).
3. Insert all external cables for hard disk, floppy, keyboard, mouse, USB etc. except for flat panel. A CRT monitor must be connected in order to change CMOS settings to support flat panel.
4. Connect power adaptor supply to MPPC
5. Turn on the power.
6. Enter the BIOS setup by pressing the delete key during boot up. Use the "LOAD BIOS DEFAULTS" feature. The Integrated Peripheral Setup and the Standard CMOS Setup Window must be entered and configured correctly to match the particular system configuration.
7. If TFT panel display is to be utilized, make sure the panel voltage is correctly set before connecting the display cable and turning on the power.

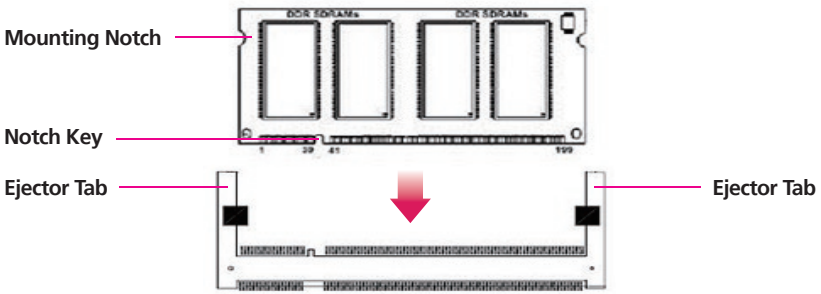
Main Memory

MPPC2210/T provides one 200-pin SODIMM sockets to support DDR2 SDRAM. The total maximum memory size is 2GB.



Make sure to unplug the power supply before adding or removing SODIMMs or other system components. Failure to do so may cause severe damage to both the board and the components.

- Locate the SODIMM socket on the board.
- Hold two edges of the SODIMM module carefully. Keep away of touching its connectors.
- Align the notch key on the module with the rib on the slot.
- Firmly press the modules into the socket automatically snaps into the mounting notch. Do not force the SODIMM module in with extra force as the SODIMM module only fit in one direction.



200-pin DDRSODIMM

- To remove the SODIMM modules, push the two ejector tabs on the slot outward simultaneously, and then pull out the SODIMM module.

Note:

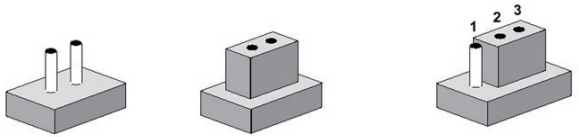
(1) Please do not change any DDR2 SDRAM parameter in BIOS setup to increase your system's performance without acquiring technical information in advance.

(2) Static electricity can damage the electronic components of the computer or optional boards. Before starting these procedures, ensure that you are discharged of static electricity by touching a grounded metal object briefly.

Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

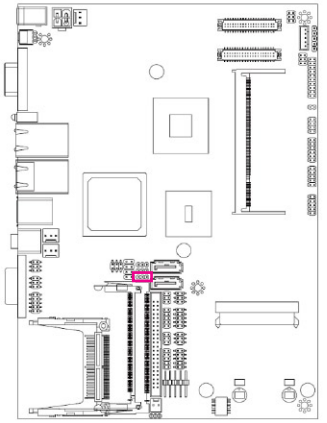
Jumpers

Label	Function	Note
JCMOS1	Clear CMOS	3 x 1 header, pitch 2.0mm
JIDEMS	CF Master/Slave Select	3 x 1 header, pitch 2.0mm

Connectors

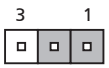
Label	Function	Note
JCF1	Compact Flash card connector	
JCOM1	Serial Port 1 connector	
JDIMM1	200-pin DDR2 SODIMM socket	
JDIO1	General purpose I/O connector	10 x 2 header, pitch 2.0mm
JIDE1	Primary IDE connector	22 x 2 header, pitch 2.0mm
JKBMS2	PS/2 keyboard & mouse connector	4 x 2 header, pitch 2.54mm
JLAN1	RJ-45 Ethernet 1	
JLAN2	RJ-45 Ethernet 2	
JMPCI1	Mini-PCI connector	
JPSATA1	SATA1 power input	2 x 1 wafer, pitch 2.54mm
JPWR1	Power connector	2 x 2 wafer, pitch 4.2mm
JPWR2	Power connector	
JSATA1&2	Serial ATA connector 1&2	Wafer 7P pitch 1.27mm
JUSB1	USB connector	
JUSB2	USB connector	5 x 2 header, pitch 2.0mm
JUSB3	USB connector	5 x 2 header, pitch 2.0mm
JVGA1	VGA connector	
JVR1	LCD backlight brightness adjustment	3 x 2 header, pitch 2.0mm
JTV1	TV-out connector	3 x 2 header, pitch 2.0mm
S1	Reset/Power bottom	

Clear CMOS (JCMOS1)

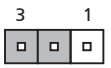


* Default

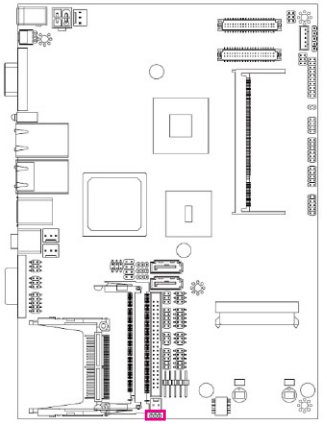
Protect*



Clear CMOS

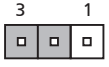


CF Master/Slave select (JIDEMS)

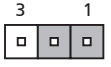


* Default

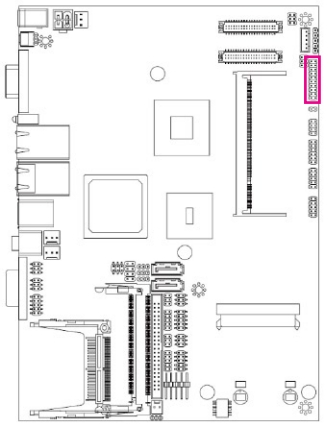
Master*

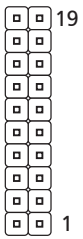


Slave



General purpose I/O connector (JDIO1)

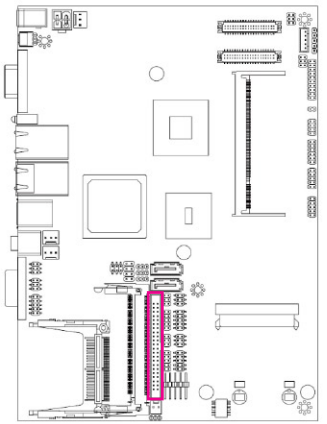


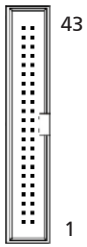


Signal	PIN	PIN	Signal
+5V	20	19	GND
SMB_DATA	18	17	SMB_CLK
GPIO37	16	15	GPIO27
GPIO36	14	13	GPIO26
GPIO35	12	11	GPIO25

Signal	PIN	PIN	Signal
GPIO34	10	9	GPIO24
GPIO33	8	7	GPIO23
GPIO32	6	5	GPIO22
GPIO31	4	3	GPIO21
GPIO30	2	1	GPIO20

IDE Connector (JIDE1)





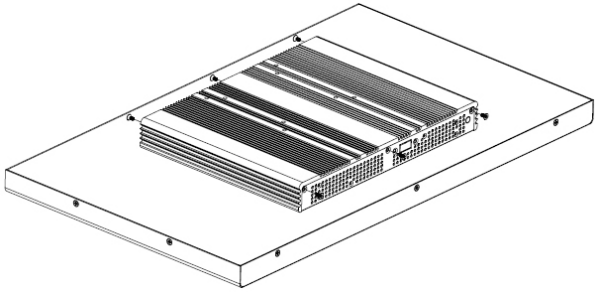
Signal	PIN	PIN	Signal
RESET#	1	2	GND
PDD7	3	4	PDD8
PDD6	5	6	PDD9
PDD5	7	8	PDD10
PDD4	9	10	PDD11
PDD3	11	12	PDD12
PDD2	13	14	PDD13
PDD1	15	16	PDD14
PDD0	17	18	PDD15
GND	19	20	NC
PDREQ	21	22	GND

Signal	PIN	PIN	Signal
PDIOW#	23	24	GND
PDIOR#	25	26	GND
PIORDY	27	28	CSEL
PDACK#	29	30	GND
IRQ15	31	32	NC
PDA1	33	34	LID
PDA0	35	36	PDA2
PDCS1#	37	38	PDCS3#
HD_LED1	39	40	GND
+5V	41	42	+5V
GND	43	44	NC

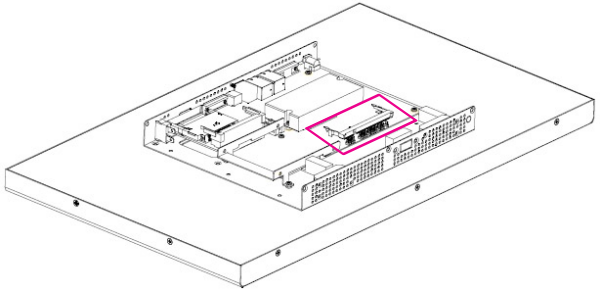
Chapter 3: Hardware Configuration

Installing Memory

Step 1. Unfasten 6 screws from the case. Then take off the top chassis.

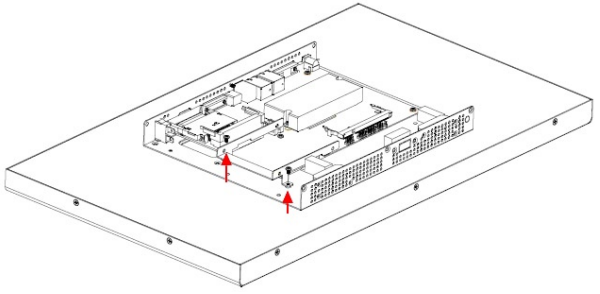


Step 2. Insert the SODIMM into the memory socket.

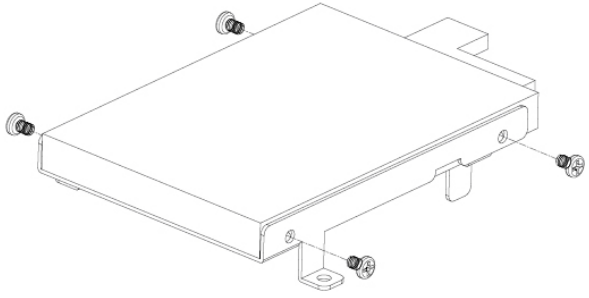


Installing HDD

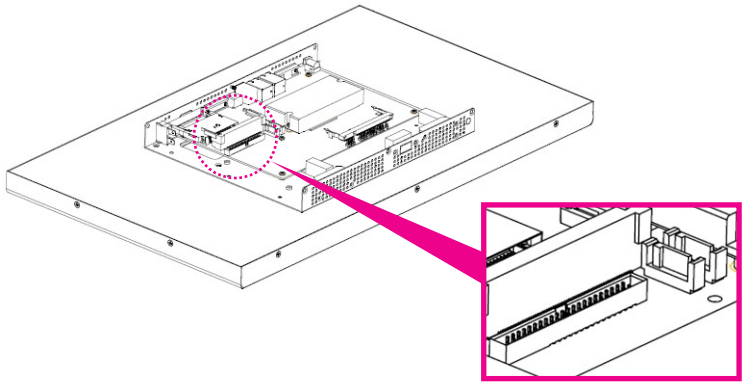
Step 1. Unfasten 2 screws of the bracket and take it off.



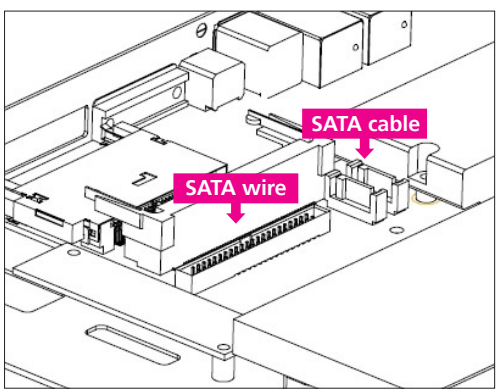
Step 2. Insert the HDD into the bracket and fasten 4 screws.



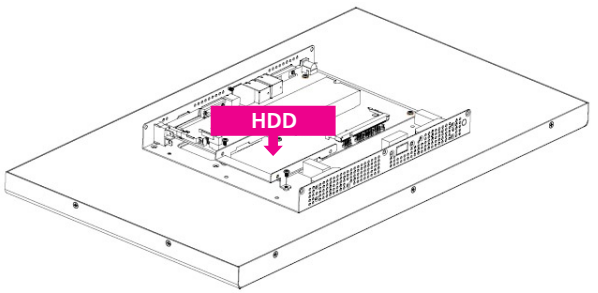
Step 3. Unlock 2 screws from the rear side of the panel PC as above.



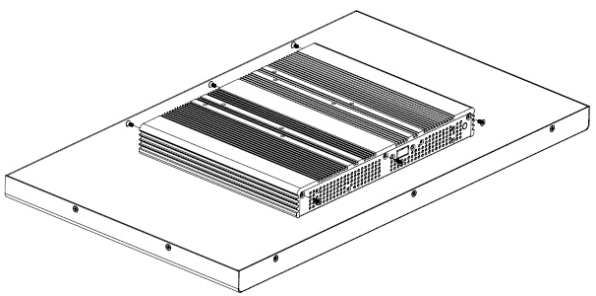
Step 4. By default, the SATA cables had been inserted to the according connectors. Just connect to SATA HDD with the two cables.



Step 5. Insert the HDD back and fasten 2 screws.



Step 6. Place back the chassis with 6 screws locked.



Chapter 4: BIOS Setup

This chapter explains how to use the BIOS Setup program for the MPPC2210/T. The current BIOS setup pictures in the chapter are for reference only, which may change by the BIOS modification in the future. User can download any major updated items or reversion from NEXCOM web site http://www.nexcom.com.tw. If any unclear message occurs, please contact NEXCOM customer service representative for help or log onto

http://www.nexcom.com.tw/contact/contact.htm.

Starting Setup

The AwardBIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

By pressing <Del> immediately after switching the system on, or

By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press  **to enter SETUP**

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to.

Press  **to Continue,**  **to enter SETUP**

Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
Page Up	Increase the numeric value or make changes
Page Down	Decrease the numeric value or make changes
+	Increase the numeric value or make changes
−	Decrease the numeric value or make changes
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
Shift F2	Change color from total 16 colors. F2 to select color forward, (Shift) F2 to select color backward
F3	Calendar, only for Status Page Setup Menu

Button	Description
F4	Reserved
F5	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6	Load the default CMOS value from BIOS default table, only for Option Page Setup Menu
F7	Load the default
F8	Reserved
F9	Reserved
F10	Save all the CMOS changes, only for Main Menu

- **Navigating Through The Menu Bar**

Use the left and right arrow keys to choose the menu you want to be in.

Note: Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**

Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A "➢" pointer marks all sub menus.

Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

In Case of Problems

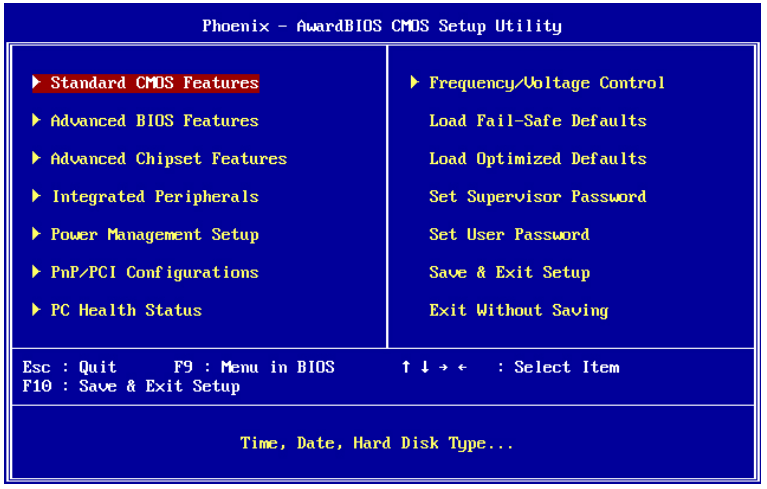
If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AwardBIOS™ supports an override to the CMOS settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

Main Menu

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Note that a brief description of each highlighted selection appears at the bottom of the screen.



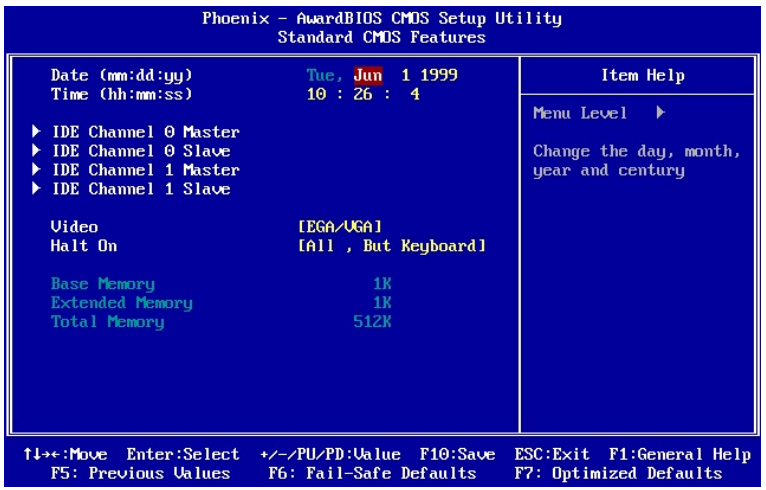
Note:

The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into few categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.



Main Menu Selection

This reference table shows the selections that you may make on the Main Menu.

Item	Options	Description
Time	HH : MM : SS	Set the system time
IDE Channel 0 Master IDE Channel 0 Slave IDE Channel 1 Master IDE Channel 1 Slave	Options are in 3.5.1.2	Press <Enter> to enter the sub menu of detailed options
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, but Keyboard	Select the situation in which you want the BIOS to stop the POST process and notify you

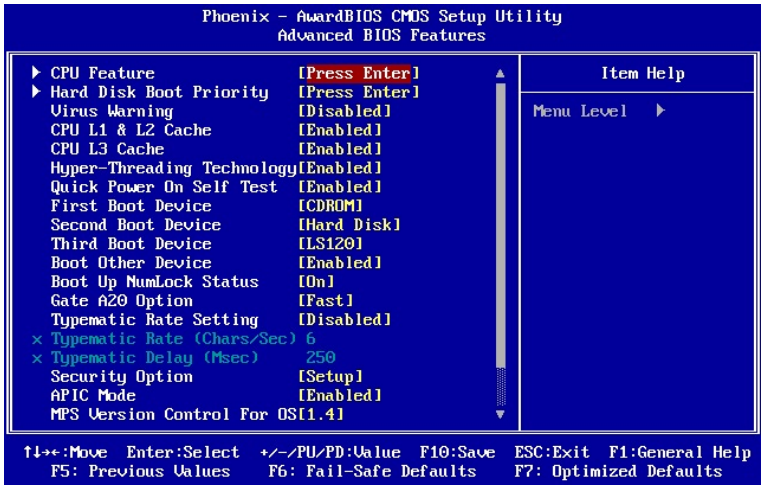
IDE Adapter Setup

The IDE adapters control the hard disk drive. Use a separate sub menu to configure each hard disk drive. The below table will shows the IDE primary master sub menu.

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Channel 0 Master IDE Channel 0 Slave IDE Channel 1 Master IDE Channel 1 Slave	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE !
Access Mode	CHS, LBA Large, Auto	Choose the access mode for this hard disk
The following options are selectable only if the 'IDE Channel …' item is set to 'Manual'		
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this hard disk.
Head	Min = 0 Max = 255	Set the number of read/write heads
Precomp	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no hard disk
Landing zone	Min = 0 Max = 65535	****
Sector	Min = 0 Max = 255	Number of sectors per track

Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

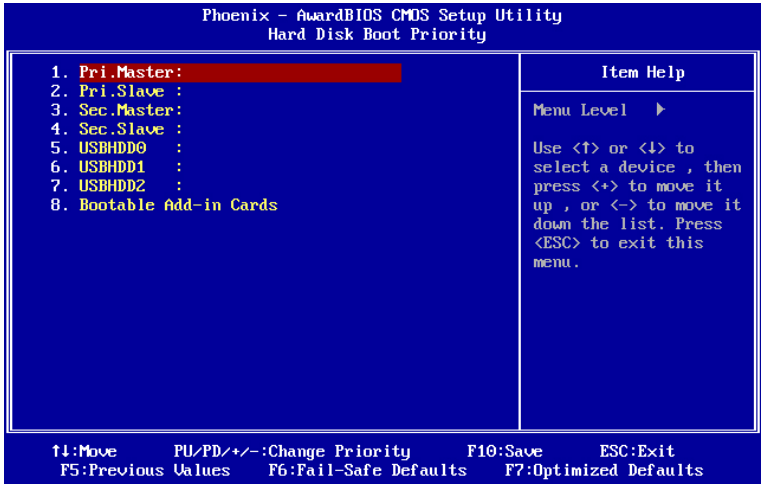


CPU Feature

This item allows you to setup the CPU thermal management function.

Item	Options	Description
Delay Prior to Thermal	4, 8, 16, 32 Min	Allow the Thermal Monitor to be activated of certain minutes in automatic mode after the system boots.
Thermal Management	Thermal Monitor 1 Thermal Monitor 2	Allow to choose the thermal management method of the monitor.
TM2 Bus Ratio	0~255	Represents the frequency. Bus ratio of the throttled performance state that will be initiated when the on-die sensor goes from not hot to hot.
TM2 Bus VID	0.700 ~ 1.708	Represents the voltage of the throttled performance state that will be initiated when the on-die sensor goes from not hot to hot.
Limit CPUID MaxVal	Disable Enable	In order to mask the physical CPUID for Proscott core when running WinNT, Award BIOS provides "Limit CPUID MaxVal" feature. Enabling this feature will make the main board BIOS respond "suitable", "virtual" CPUID to OS kernel. So WinNT or the legacy OS can use the masked CPUID to work well with the new CPU design.
C1E Function	Auto, Disabled	The C1E function enables the Core™ 2 Extreme to throttle back to its standard clock rate under light load
Execute Disable Bit	Enabled, Disabled	It can help prevent certain classes of malicious buffer overflow attacks when combined with a supporting operating system.
Virtualization Technology	Enabled, Disabled	This BIOS feature is used to enable or disable the Intel® Virtualization Technology (IVT) extensions that allow multiple operating systems to run simultaneously on the same system.

Hard Disk Boot Priority



This item allows you to set the boot priority of the hard drives installed in the system.

Item	Description
Pri./Sec. Master/Slave	Boot up from IDE Primary/Secondary Master/Slave Hard Disk
USBHDD 0/1/2	Boot up from 1st/2nd/3rd USB Hard Disk
Bootable Add-in Cards	Boot up from other Add-In Card Hard Disk Device.

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Item	Description
Enabled	Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Disabled	No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

CPU L1 & L2 & L3 Cache

The item allows you to speed up memory access. However, it depends on CPU design.

Item	Description
Enabled	Enable cache
Disabled	Disable cache

Hyper-Threading Technology

The item allows you to enable HT Technology. However, it depends on CPU design.

Item	Description
Enabled	Enable cache
Disabled	Disable cache

Quick Power On Self Test

This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.

Item	Description
Enabled	Enable quick POST
Disabled	Normal POST

First/Second/Third/Other Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

Item	Description
LS120	LS120 Device
Hard Disk	Hard Disk Device
CDROM	CDROM Device
ZIP100	ZIP-100 Device
USB-FDD	USB Floppy Device
USB-ZIP	USB ZIP Device
USB-CDROM	USB CDROM Device
LAN	Network Device
Disabled	Disabled any boot device

Boot Up NumLock Status

Select power on state for NumLock.

Item	Description
On	Enable NumLock
Off	Disable NumLock

Typematic Rate Setting

This feature enables you to control the keystroke repeat rate when you depress a key continuously. When enabled, you can manually adjust the settings using the two typematic controls (Typematic Rate and Typematic Delay). If disabled, the BIOS will use the default setting.

Item	Description
Enabled	Enable typematic rate/delay setting
Disabled	Disable typematic rate/delay setting

Security Option

Select whether the password is required every time the system boots or only when you enter setup.

Item	Description
System	The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note:

To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

APIC Mode

The BIOS supports versions 1.4 of the Intel® multiprocessor specification. When enabled, The MPS Version 1.4 Control for OS can be activated.

The choice: Enabled/Disabled.

MPS Version Control For OS

This feature is only applicable to multiprocessor board as it specifies the version of the Multi-Processor Specification (MPS) that the board will use.

The choice: 1.4, 1.1.

OS Select for DRAM > 64MB

Select the operating system that is running with greater than 64MB of RAM on the system.

Item	Description
Non-OS2	Disable OS for over 64 MB DRAM
OS2	Enable OS for over 64 MB DRAM

Report No FDD For WIN95

The original Windows95 requires the presence of a floppy. Unless the BIOS tells it to disregard the absence of the drive, it will generate an error message. For other operating systems as Win98 etc this field is without relevance.

Item	Description
No	Don't generate error message
Yes	Generate error message

Small Logo (EPA) Show

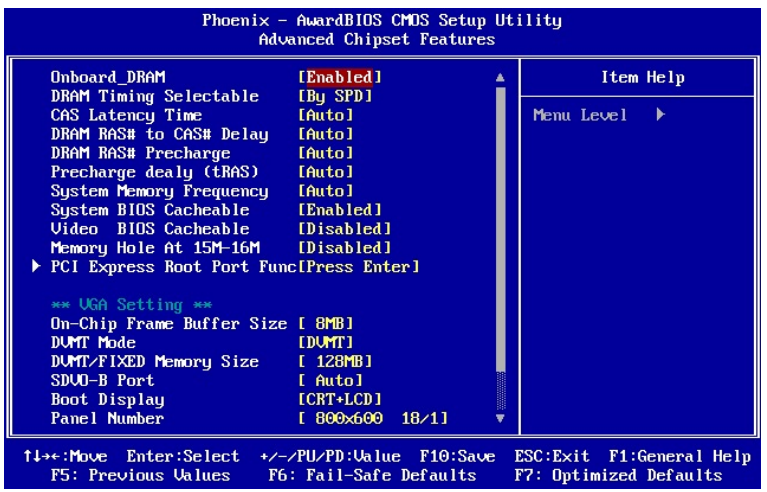
This item allows you enabled/disabled the small EPA logo show on screen at the POST step.

Item	Description
Enabled	EPA Logo show is enabled
Disabled	EPA Logo show is disabled

Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

The first chipset settings deal with CPU access to dynamic random access memory (DRAM). The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system had mixed speed DRAM chips installed so that greater delays may be required to preserve the integrity of the data held in the slower memory chips.



Onboard – DRAM

This item allows you to select the onboard – DRAM by yourself.

The choices: Enabled, Disabled.

DRAM Timing Selectable

This item allows you to select the DRAM timing value by SPD data or Manual by yourself.

The choices: Manual, By SPD.

CAS Latency Tim

This item controls the time delay (in clock cycles - CLKs) that passes before the SDRAM starts to carry out a read command after receiving it. This also determines the number of CLKs for the completion of the first part of a burst transfer. In other words, the lower the latency, the faster the transaction.

The choices: 5, 4, 3, 6, Auto.

DRAM RAS# to CAS# Delay

This option allows you to insert a delay between the RAS (Row Address Strobe) and CAS (Column Address Strobe) signals. This delay occurs when the SDRAM is written to, read from or refreshed. Naturally, reducing the delay improves the performance of the SDRAM while increasing it reduces performance.

The choices: 2, 3, 4, 5, 6, Auto.

DRAM RAS# Precharge

This option sets the number of cycles required for the RAS to accumulate its charge before the SDRAM refreshes. Reducing the precharge time to 2 improves SDRAM performance but if the precharge time of 2 is insufficient for the installed SDRAM, the SDRAM may not be refreshed properly and it may fail to retain data

So, for better SDRAM performance, set the SDRAM RAS Precharge Time to 2 but increase it to 3 if you face system stability issues after reducing the precharge time.

The choices: 2, 3, 4, 5, 6, Auto.

Precharge Delay (tRAS)

It allows controlling the memory bank's minimum row active time (tRAS). This constitutes the time when a row is activated until the time the same row can be deactivated. If the tRAS period is too long, it can reduce performance by unnecessarily delaying the deactivation of active rows. Reducing the tRAS period allows the active row to be deactivated earlier.

If the tRAS period is too short, there may not be enough time to complete a burst transfer. This reduces performance and data may be lost or corrupted.

The choices: Auto, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.

System Memory Frequency

It allows controlling the system memory frequency. The memory frequency will either be equal to or less than the processor system bus frequency.

The choices: Auto, 400MHz, 533MHz.

System BIOS Cacheable

This feature is only valid when the system BIOS is shadowed. It enables or disables the caching of the system BIOS ROM at F0000h-FFFFFh via the L2 cache. This greatly speeds up accesses to the system BIOS. However, this does not translate into better system performance because the OS does not need to access the system BIOS much.

The choices: Disabled, Enabled.

Video BIOS Cacheable

This feature is only valid when the video BIOS is shadowed. It enables or disables the caching of the video BIOS ROM at C0000h-C7FFFh via the L2 cache. This greatly speeds up accesses to the video BIOS. However, this does not translate into better system performance because the OS bypasses the BIOS using the graphics driver to access the video card's hardware directly.

The Choice: Enabled, Disabled.

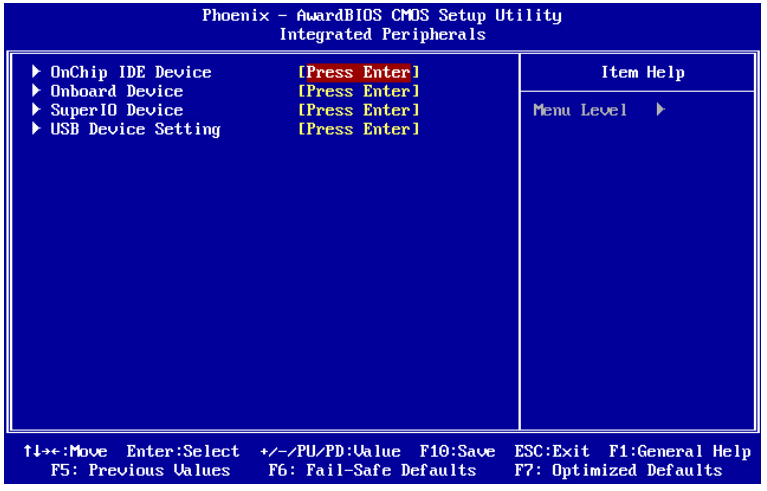
Memory Hole At 15M-16M

Enabling this feature reserves 15MB to 16MB memory address space to ISA expansion cards that specifically require this setting. This makes the memory from 15MB and up unavailable to the system. Expansion cards can only access memory up to 16MB.

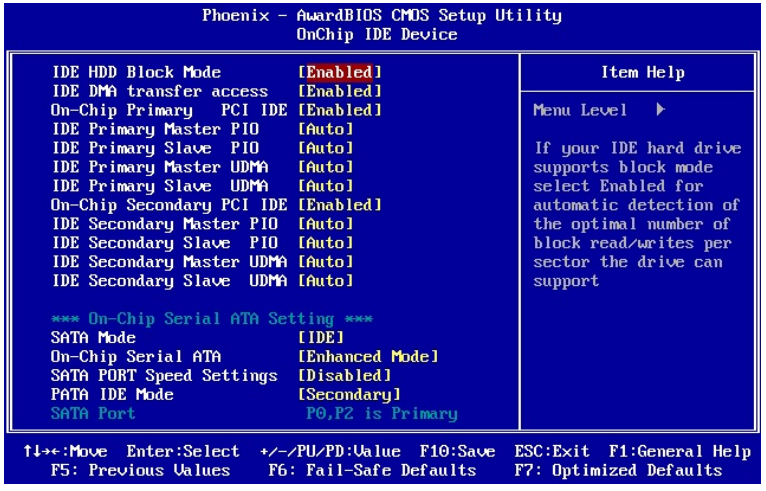
The choice: Enable, Disable.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.



OnChip IDE Device



The chipset contains a PCI IDE interface with support for one IDE channel and two SATA channels. Select Enabled to activate the primary IDE interface. Select Disabled to deactivate this interface.

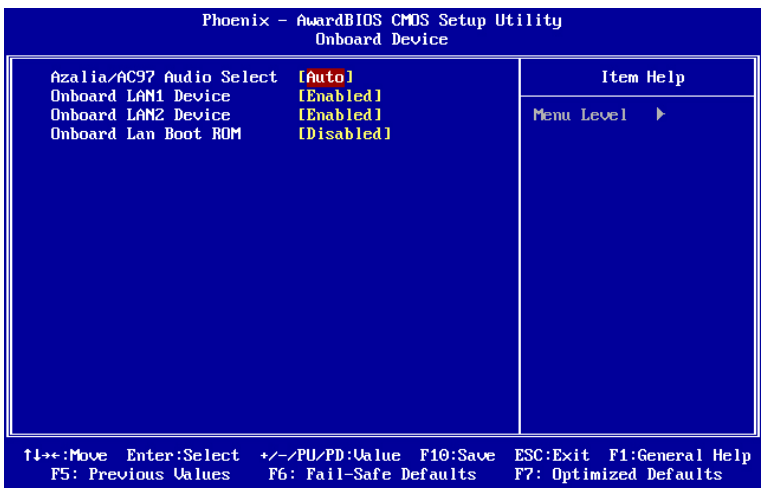
Item	Options	Description
IDE HDD Block Mode	Enabled Disabled	Speeds up HDD access by transferring data from multiple sectors at once instead of using the old single sector transfer mode if the HDD supports block transfers and configure the proper block transfer settings for it. Up to 64KB of data can be transferred per interrupt with IDE HDD Block Mode enabled. (Virtually all HDDs now support block transfers.)
IDE DMA transfer access	Enabled Disabled	It allows you to enable or disable DMA (Direct Memory Access) support for all IDE devices. If you disable this BIOS feature, the BIOS will disable DMA transfers for all IDE drives. They will revert to PIO mode transfers. If you enable this BIOS feature, the BIOS will enable DMA transfers for all IDE drives. The proper DMA mode will be detected at boot-up. If the drive does not support DMA transfers, then it will use PIO mode instead.
On-Chip Primary/ Secondary PCI IDE	Enabled Disabled	The integrated peripheral controller contains an IDE interface with support for two IDE channels. It allows you to activate each channel separately.
IDE Primary Master PIO IDE Primary Slave PIO IDE Secondary Master PIO IDE Secondary Slave PIO	Auto Mode 0 Mode 1 Mode 2 Mode 3 Mode 4	The IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.
IDE Primary Master UDMA IDE Primary Slave UDMA IDE Secondary Master UDMA IDE Secondary Slave UDMA	Auto Disabled	Ultra DMA implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If the hard drive and the system software both support Ultra DMA, select Auto to enable BIOS support.

On-Chip Serial ATA Setting

The field under the SATA setting includes SATA Mode (IDE), On-Chip Serial ATA (Auto), PATA IDE Mode (Secondary) and SATA Port (P0, P2 is Primary).

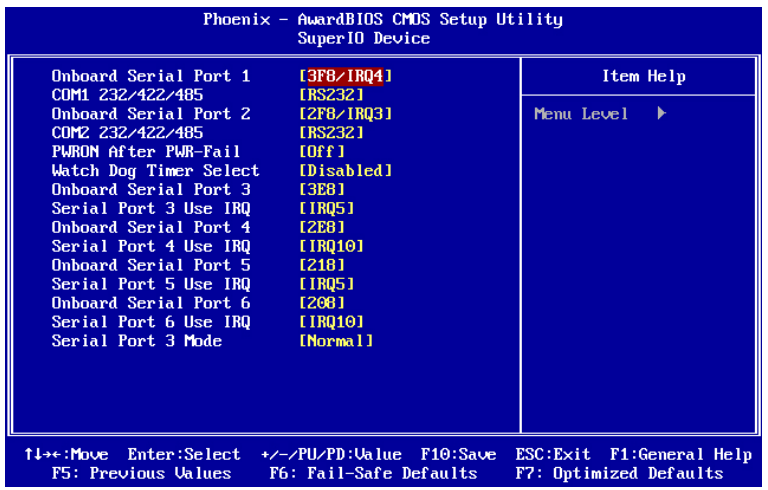
Item	Options	Description
SATA Mode	IDE AHCI	It allows you to select the operation mode for SATA controller.
On-Chip Serial ATA	Disabled, Auto, Combined Mode, Enhanced Mode, SATA Only	It provides access to set the mode of the On-Chip SATA devices.
SATA PORT Speed Settings	Disabled Force GEN I Force GEN II	This item allows you to select the speed of SATA ports.
PATA IDE Mode	Secondary	This item shows the PATA IDE mode.

Onboard Device



Item	Options	Description
Azalia/AC97 Audio Select	Auto Azalia AC97 Audio All Disabled	This item allows you to select the Audio codec.
Onboard LAN1 Device	Enabled Disabled	This item allows you to enabled the PCIe Lan1 Device.
Onboard LAN2 Device	Enabled Disabled	This item allows you to enabled the PCIe Lan2 Device
Onboard Lan Boot ROM	Enabled Disabled	This item allows you to enabled the LAN Boot ROM.

Super IO Device



Item	Options	Description
Onboard Serial Port 1 Onboard Serial Port 2	Disabled, 3F8/IRQ4 2F8/IRQ3, 3E8/IRQ4 2E8/IRQ3, Auto	Select an address and corresponding interrupt for the first and second serial ports.
COM1 232/422/485 COM2 232/422/485	RS232 RS422 RS485	It allows you to select the COM Port mode
Onboard Parallel Port	Disabled, 378/IRQ7 278/IRQ5, 3BC/IRQ7	Select a matching address and interrupt for the physical parallel (printer) port.

PWRON After PWR-Fail

This option will determine PWRON after PWR-Fail.

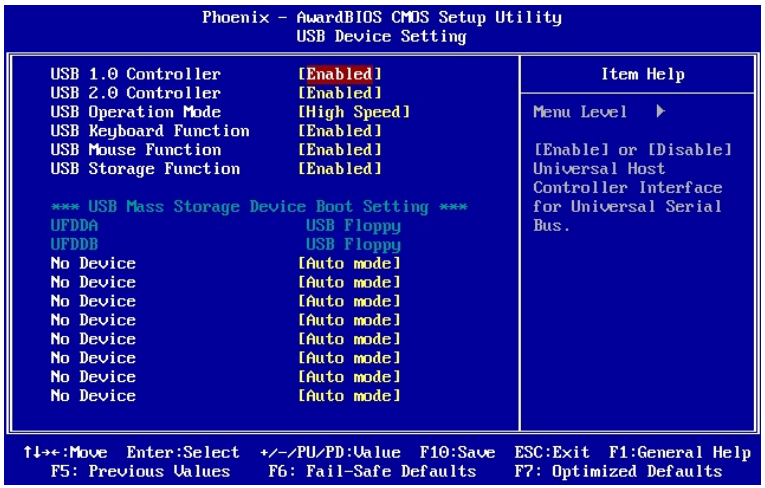
The choices: Off, On, Former-Sts

Watch Dog Timer

This option will determine watch dog timer.

The choices: Disabled, 30,40,50,60 Sec, 2, 10, 30 Min.

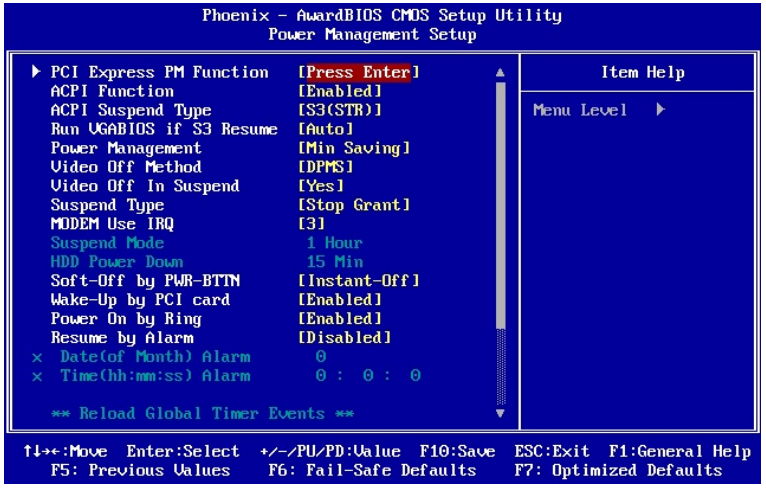
USB Device Setting



Item	Options	Description
USB 1.0 Controller	Disabled Enabled	This item enables you to use the onboard USB 1.0 controller to communicate with your USB devices
USB 2.0 Controller	Enabled Disabled	This item enables you to use the onboard USB 2.0 controller to communicate with your USB devices
USB Operation Mode	Full/Low Speed High Speed	This item allows you to select the USB mode.
USB Keyboard Function	Disabled Enabled	This BIOS feature determines if support for the USB keyboard should be provided by the operating system or the BIOS.
USB Mouse Function	Enabled Disabled	This BIOS feature determines if support for the USB mouse should be provided by the operating system or the BIOS.
USB Storage Function	Enabled Disabled	This BIOS feature determines if support for the USB Storage should be provided by the operating system or the BIOS.

Power Management Setup

The Power Management Setup allows you to configure you system to most effectively save energy while operating in a manner consistent with your own style of computer use.



PCI Express PM Function

This item allows you to enable/disable the PCI Express PME Function.

The choices: Enabled, Disabled.

ACPI Function

This item allows you to enable/disable the ACPI function.

The choices: Enabled, Disabled.

ACPI Suspend Type

This item will set which ACPI suspend type will be used.

The choices: S1(POS), S3(STR).S1&S3.

Run VGABIOS if S3 Resume

There are 3 modes for you to decide to operate VGABIOS or not when the ACPI suspend type is S3.

The choices: Auto, Yes, No

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to the following modes:

Item	Description
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr. except for HDD Power Down which ranges from 1 min. to 15 min. and disable.
Min. Saving	Minimum power management, HDD Power Down = 15 Min,
Max. Saving	Maximum power management, HDD Power Down =1 Min,
Disabled	Power management is disabled.

Video Off Method

This determines the manner in which the monitor is blanked.
The choices: Blank Screen, V/H SYNC+Blank, DPMS.

Video Off In Suspend

This determines the manner in which the monitor is blanked.

The choice: No, Yes.

Suspend Type

This function allows to select Suspend type.

The choices: Stop Grant, PwrOn Suspend.

Suspended Mode

It specifies the length of time of system inactivity while in full power on state before the computer enters suspend mode and motivates the enable 'Wake Up Events In Doze & Standby' / 'PM Events'.

The choices: Disabled, 1, 2, 4, 8, 12, 20, 30, 40 mins, 1 hr.

HDD Power Down

When enable and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

The choices: Disabled, 1 ~ 15 mins.

Soft-Off by PWR-BTTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung".(Only could working on ATX Power supply)

The choices: Delay 4 Sec, Instant-Off.

Wake Up by PCI Card

This will enable the system to wake up through PCI Card peripheral.

The choices: Enable, Disabled.

Power On By Ring

This determines whether the system boot up if there's an incoming call from the Modem.

The choices: Enable, Disabled.

Resume By Alarm

This function is for setting date and time for your computer to boot up.

The choices: Enabled, Disabled.

Date<of Month>/Time<hh:mm:ss> Alarm

After enabled "Resume By Alarm", set the specific date/hour/minute/second specified in these fields.

The choices: Alarm Date: 01-31, Every Day / Alarm Hour: 00-23 /

Alarm Minute: 00-59/ Alarm Second: 00-59

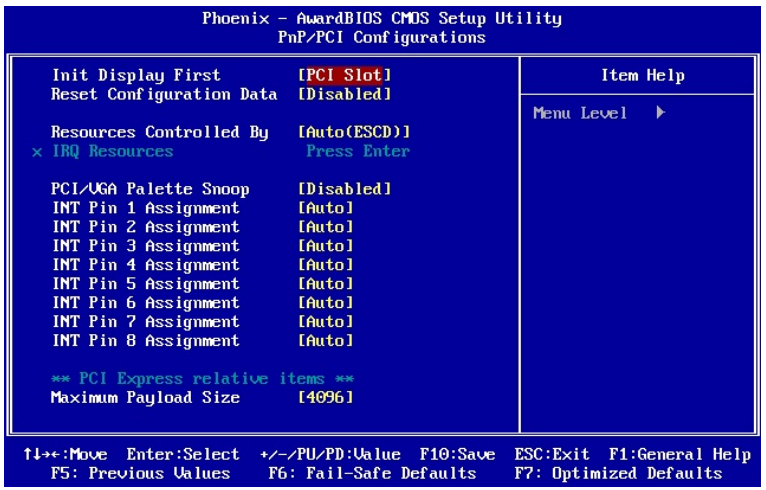
Primary/Secondary IDE 0/1, FDD,COM,LPT PORT, PCI PIRQ[A-D]#

Reload Global Timer events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awake the system from such a mode. In effect ,the system remain alert for anything which occurs to a device which is configured as Enabled ,even when the system is in a power down mode.

The choices: Enabled, Disabled.

PnP/PCI Configuration

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



Init Display First

It allows you to select whether to boot the system using the AGP graphics card or the PCI graphics card. This is particularly important if you have AGP and PCI graphics cards but only one monitor.

The choices: PCI Slot, Onboard, PCIex.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

The choices: Enabled, Disabled.

Resources Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows® 95. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a "➢").

The choices: Auto(ESCD), Manual.

PCI / VGA Palette Snoop

Leave this field at Disabled.

The choices: Enabled, Disabled.

INT Pin 1/2/3/4/5/6/7/8 Assignment

This feature allows you to assign the PCI IRQ numbers for PCI slots. Selecting the default, Auto, allows the PCI controller to automatically allocate the IRQ numbers.

The choices: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15.

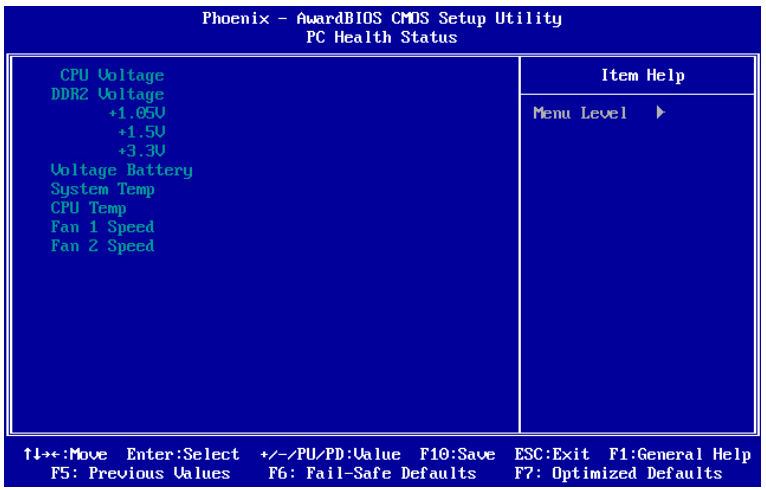
Maximum Payload Size

This setting defines the maximum payload size.

The choices: 128, 256, 512, 1024, 2048, 4096.

PC Health Status

This section shows the status of your CPU, Fan & System.



Frequency/ Voltage Control

Use this menu to specify your settings for frequency/voltage control.

CPU Clock Ratio

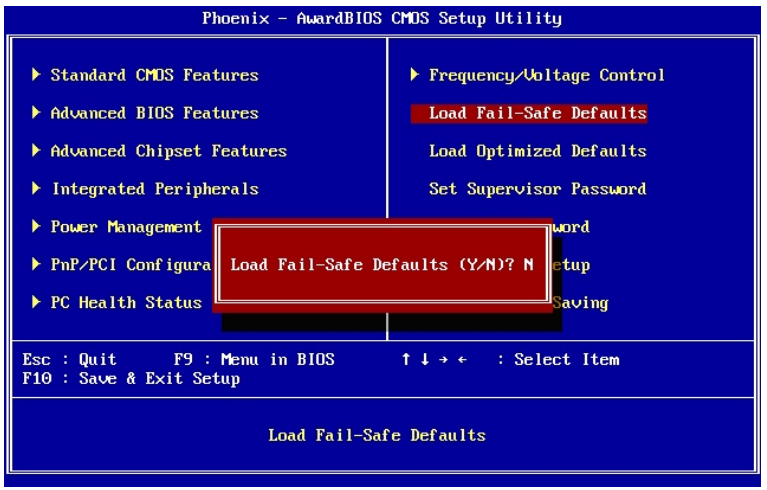
This feature allows owners to change the CPU Clock Ratio.

The choices: 6~50

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

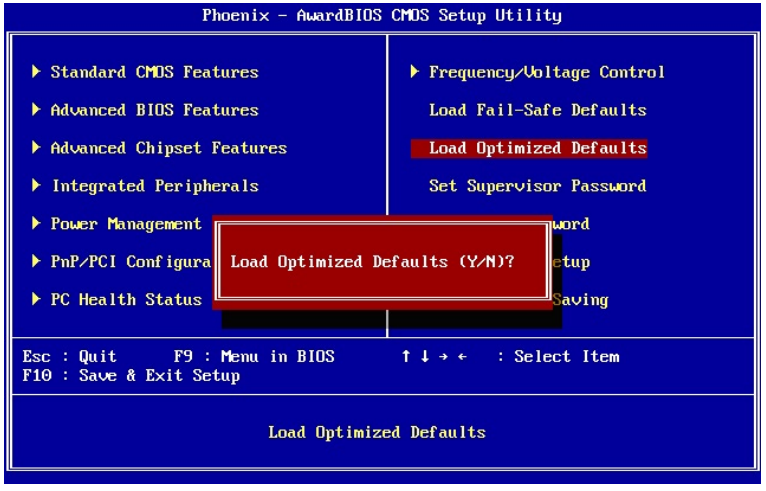
Press <Y> to load the BIOS default values for the most stable, minimal-performance system operations.



Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

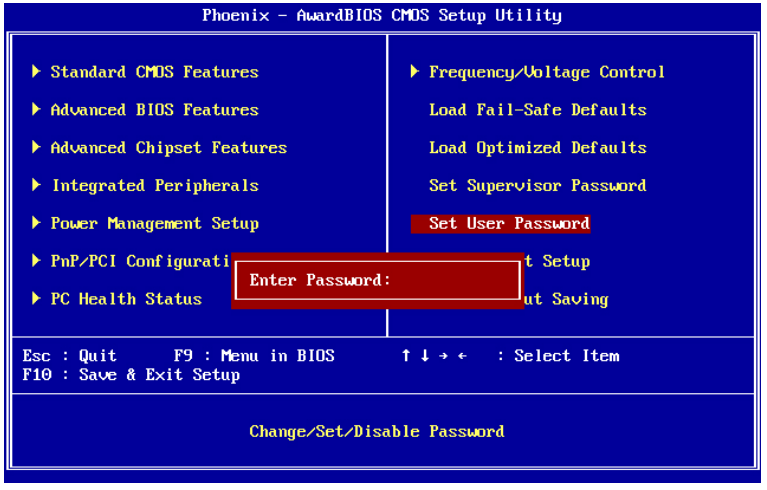
Press <Y> to load the default values setting for optimal performance system operations.



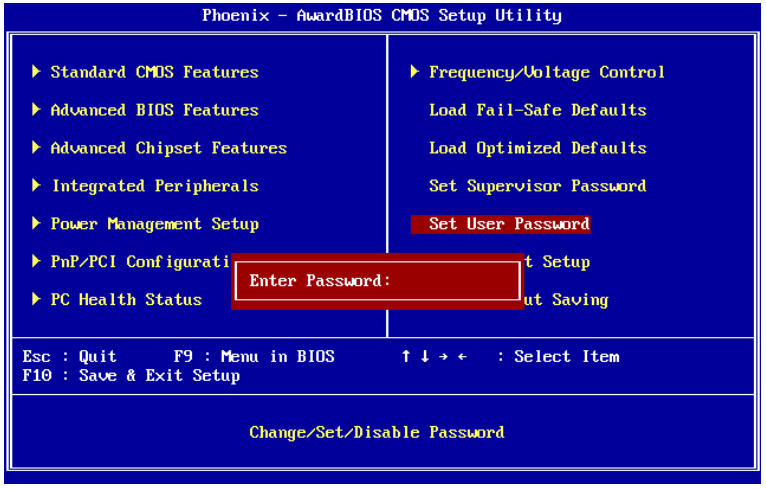
Set Supervisor / User Password

You can set either supervisor or user password, or both of them.

Supervisor Password: able to enter/change the options of setup menus.



User Password: able to enter but no right to change the options of setup menus.



Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password. To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

Password Disabled

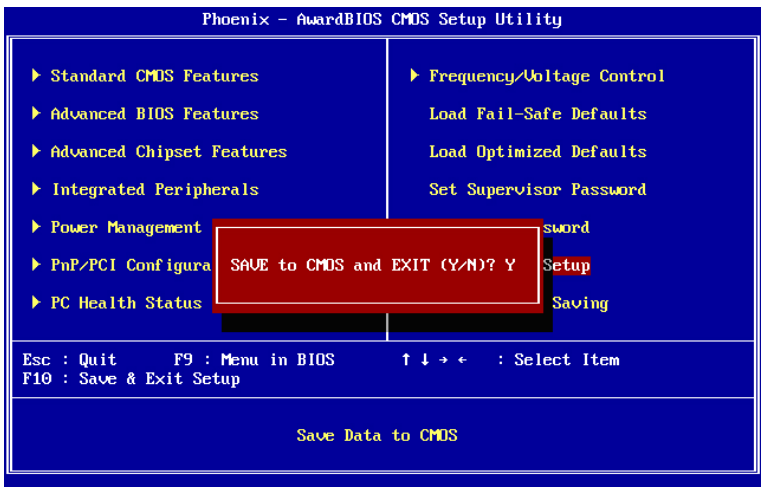
When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration. Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer. You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup

Save& Exit Setup

Save CMOS value changes to CMOS and exit setup.

Enter <Y> to store the selection made in the menus in CMOS, a special section in memory that stays on after turning the system off. The BIOS configures the system according to the Setup selection stored in CMOS when boot the computer next time.

The system is restarted after saving the values.



Exit Without Save

Abandon all CMOS value changes and exit setup, and the system is restarted after exiting.