VIA embedded

EPIA-N700

User's Manual

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FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the 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 instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his personal expense.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

CE   FC   Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

SAFETY INSTRUCTIONS

- ☐ Always read the safety instructions carefully.
- ☐ Keep this User's Manual for future reference.
- ☐ Keep this equipment away from humidity.
- ☐ Lay this equipment on a reliable flat surface before setting it up.
- ☐ The openings on the enclosure are for air convection hence protects the equipment from overheating. Do not cover the openings.
- ☐ Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- ☐ Place the power cord in such a way that people cannot step on it. Do not place anything over the power cord.
- ☐ Always unplug the power cord before inserting any add-on card or module.
- ☐ All cautions and warnings on the equipment should be noted.
- ☐ Never pour any liquid into the opening. Liquid can cause damage or electrical shock.
- ☐ If any of the following situations arises, get the equipment checked by a service personnel:
    - ☐ The power cord or plug is damaged.
    - ☐ Liquid has penetrated into the equipment.
    - ☐ The equipment has been exposed to moisture.
    - ☐ The equipment has not worked well or you cannot get it work according to User's Manual.
    - ☐ The equipment has dropped and damaged.
    - ☐ If the equipment has obvious sign of breakage.
- ☐ Do not leave this equipment in an environment unconditioned or in a storage temperature above 60°C (140°F). The equipment may be damaged.

⚠	**Caution:** Only use the appropriate battery specified for this product. Do not reuse, recharge, or reheat an old battery. Do not attempt to force open the battery. Do not discard used batteries with regular trash. Discard used batteries according to local regulations.

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CHAPTER 1

SPECIFICATIONS

The ultra-compact and highly integrated VIA EPIA-N700 uses the Nano-ITX mainboard form-factor developed by VIA Technologies, Inc. as part of the company's open industry-wide total connectivity initiative. The mainboard enables the creation of an exciting new generation of small, ergonomic, innovative and affordable embedded systems. Through a high level of integration, the Nano-ITX occupy 50% of the size of a Mini-ATX mainboard form factor. The mainboard comes with a VIA C7 NanoBGA2 Processor, boasting of ultra-low power consumption, cool and quiet operation.

Mainboard Specifications

CPU
- VIA C7 1.5GHz NanoBGA2 processor

Chipset
- VIA VX800 advanced all-in-one system processor

Graphics
- Integrated VIA Chrome9™ HC Integrated Graphics 3D/2D and Unified Video Decoding Accelerator

Audio
- VIA VT1708B High Definition Audio Codec

Memory
- 1 x DDR2 667/533 SODIMM slot (up to 2 GB)

Expansion Slot
- 1 x MiniPCI slot

IDE
- 1 x UltraDMA 133/100/66/33 pin header

LAN
- 1 x VIA VT6130 PCIe Gigabit Ethernet Controller

Onboard I/O Connectors
- 1 x USB pin header for 2 additional USB 2.0 ports
- 1 x Dual-channel LVDS panel connector
- 1 x Backlight control connector for inverter power and brightness control
- 1 x CF (Compact Flash) type I connector (shared with IDE)
- 1 x KB/MS pin header
- 3 x Serial port header (RS-232) with one 5V/12V select jumper
- 1 x Digital I/O pin header
- 1 x SPI pin header
- 1 x Front Panel pin header
- 1 x Front-audio pin header
- 1 x SMBus pin header
- 2 x SATA port connectors
- 2 x Fan connectors for CPU and System fans
- 1 x System temperature reading pin header
- 2 x +5V Power header for 2.5" SATA HDD
- 1 x +12V Power connector
- 1 x Power mode select connector (AT, ATX)

Back Panel I/O Ports
- 1 x Serial port
- 1 x RJ45 LAN port
- 1 x VGA port
- 2 x USB 2.0 ports

BIOS
- Award BIOS with SPI 4/8Mbit flash memory capacity

Form Factor
- Nano-ITX
- 12cm X 12cm

Mainboard Layout
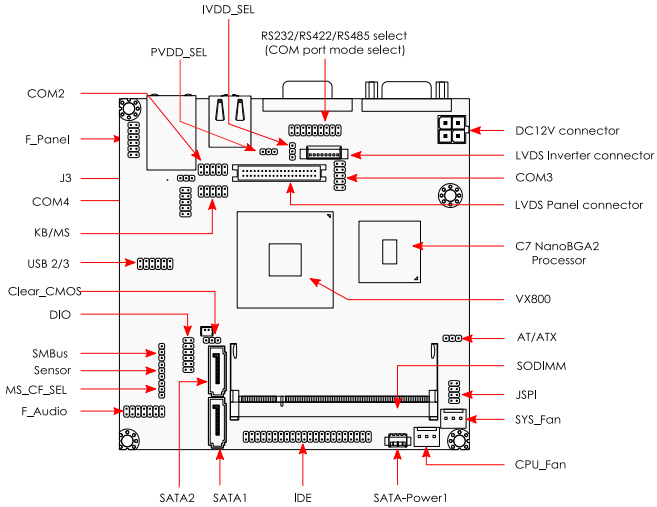
(Top View)
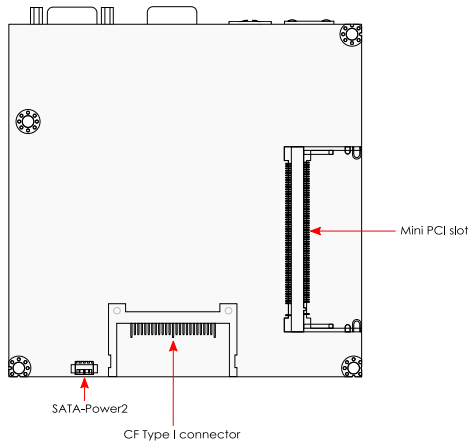
(Bottom View)

Back Panel Layout

VGA port   COM port   Gigabit Ethernet
(RS232/RS422/RS485)   RJ-45 port

USB ports
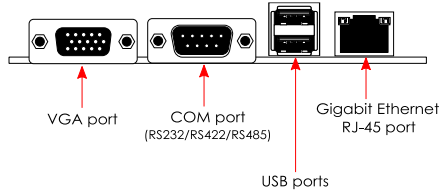
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CHAPTER 2
INSTALLATION

This chapter provides you with information about hardware installation procedures. It is recommended to use a grounded wrist strap before handling computer components. Electrostatic discharge (ESD) can damage some components.

CPU

The VIA EPIA-N700 mainboard is packaged with a standard VIA C7 1.5 GHz NanoBGA2 processor. The processor requires a heatsink with fan to provide sufficient cooling.
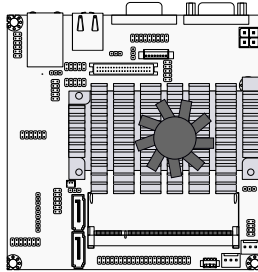
CPU Fan and System Fan: CPU_FAN and SYS_FAN

The CPU_FAN (CPU fan) and SYS_FAN (system fan) run on +12V and maintain system cooling. When connecting the wire to the connectors, always be aware that the red wire (positive wire) should be connected to the +12V. The black wire is Ground and should always be connected to GND.

Pin	Signal
1	F_IO2
2	+12V
3	GND

Pin	Signal
1	F_IO1
2	+12V
3	GND
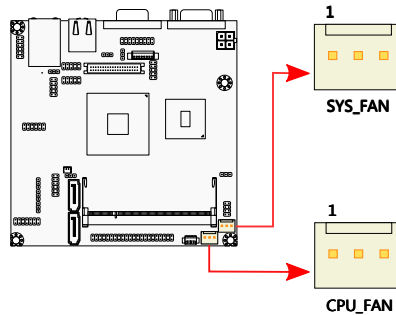
Memory Module Installation

Memory Slot: DDR2 SODIMM SDRAM

The VIA EPIA-N700 mainboard provide one 200-pin SODIMM slot for DDR2 667/533 SDRAM memory modules and supports memory sizes up to 2GB.

DDR2 SDRAM Module Installation Procedures

Step 1
Locate the SODIMM slot in the mainboard.

Step 2
Align the notch on the SODIMM with the memory slot.
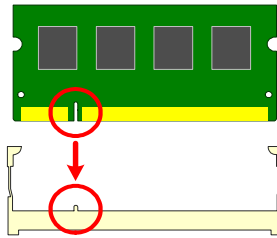
Step 3
Inset the SODIMM module at a 45 degree angle.
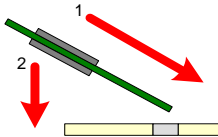
Step 4
Then push the SODIMM down until it snaps into the locking mechanism.
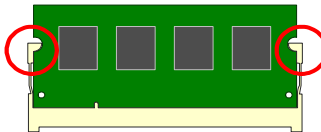
Available DDR2 SDRAM Configurations

Refer to the table below for available DDR2 SDRAM configurations on the mainboard.

Slot	Module Size	Total
SODIMM	64MB, 128MB, 256MB, 512MB, 1GB, 2GB	64MB - 2GB
Maximum supported system memory		2GB

Power Connectors

The VIA EPIA-N700 mainboard supports a 4-pin ATX power connector for the system power input. Before inserting the power supply connector, always make sure that all components are installed correctly to ensure that no damage will be caused.

ATX 4-Pin Power Connector: DC12V

To connect the power supply, make sure the power plug is inserted in the proper orientation and the pins are aligned. Then push down the plug firmly into the connector.

Pin	Signal
1	GND
2	GND
3	DC_12V
4	DC_12V
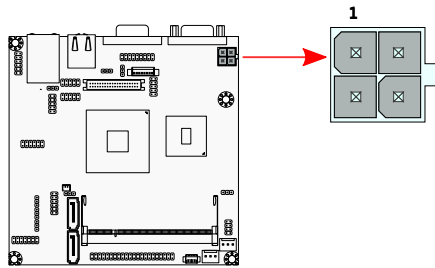
SATA Power: S-Power

The mainboard supports two 3-pin SATA power connectors for SATA power cable. Plug the SATA power cable into the SATA power connector. Make sure the power plug is inserted in the proper orientation.

Pin	Signal
1	GND
2	+5V
3	+5V
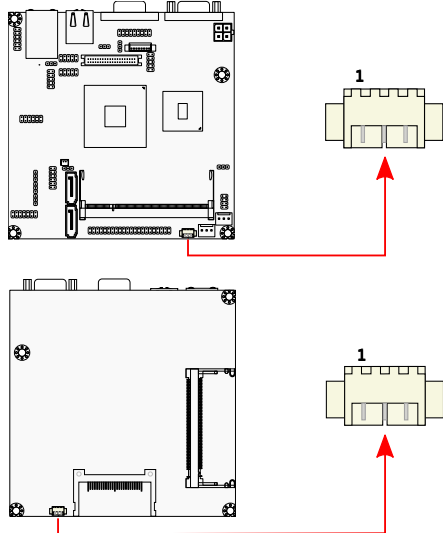
External CMOS Battery Connector: BAT1

The mainboard comes with external CMOS battery connector. This 2-pin connector used to connect the external cable battery.

Pin	Signal
1	A3V (+3.0V)
2	GND
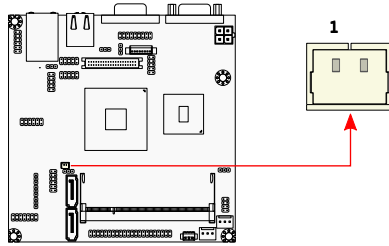
Back Panel Ports

The back panel has the following ports:

VGA port   COM port   Gigabit Ethernet
(RS232/RS422/RS485)   RJ-45 port
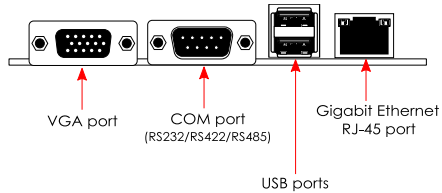
USB ports

VGA Port
The VGA port allows you to connect any analog VGA monitor.

COM (Serial) Port
The 9-pin COM port is for pointing devices or other serial devices.

USB Ports
Two standard USB 2.0 ports are provided on the back panel. These ports are used to connect the USB2.0 devices.

RJ-45 LAN Port
The board provides a standard RJ-45 (Gigabit Ethernet). This port allows the connection to a Local Area Network (LAN) through a network hub.

Connectors

IDE Connector: IDE

The mainboard has an Ultra DMA 133/100/66/33 controller. You can connect up to two IDE devices in any combination.

Pin	Signal	Pin	Signal
1	#IDERST	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	KEY
21	PDDREQ	22	GND
23	#PDIOW	24	GND
25	#PDIOR	26	GND
27	PIORDY	28	GND
29	#PDDACK	30	GND
31	IRQ15	32	NC
33	PDA1	34	GPI0
35	PDA0	36	PDA2
37	#PDCS1	38	#PDCS3
39	#HD_LED1	40	GND
41	+5V	42	+5V
43	GND	44	NC
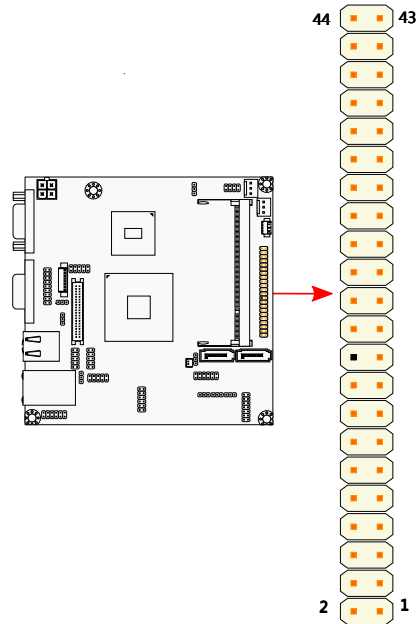
If two drives are connected to a single cable, the jumper on the second drive must be set to slave mode. Refer to the drive documentation supplied by the vendor for the jumper settings.

SATA Ports

These next generation connectors support the thin SATA cables for primary internal storage devices. The current SATA interface allows up to 300MB/s data transfer rate, faster than the standard parallel ATA with 133 MB/s (UltraDMA).

Port 2

Port 1
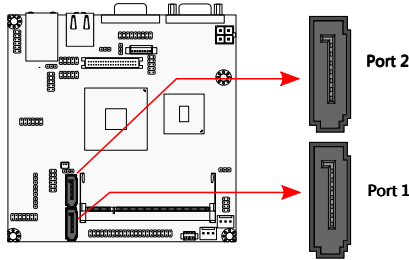
USB Pin Connector: USB 2/3

The mainboard provides 2 USB ports and one USB pin header (allowing up to two additional USB 2.0 ports). Therefore mainboard can support up to four USB 2.0 ports. These ports can be used to connect high-speed USB interface peripherals such as USB HDD, digital cameras, MP3 players, printers, modem and the like.

Pin	Signal	Pin	Signal
1	VUSB	2	VUSB
3	USBD_T0-	4	USBD_T1-
5	USBD_T0+	6	USBD_T1+
7	GND	8	GND
9	Key	10	NC
11	GND	12	GPO9
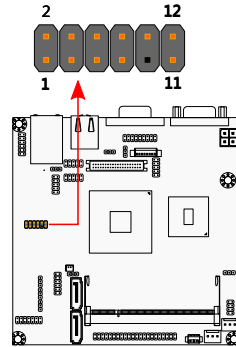
Front Panel: F_Panel

The F_Panel pin header allows you to connect the power switch, reset switch, power LED, HDD LED and the case speaker.

Pin	Signal	Pin	Signal
1	+PWR_LED	2	+HD_LED
3	+PWR_LED	4	-HD_LED
5	-PWR_LED	6	PW_BN
7	SPEAK+	8	GND
9	Key	10	RST_SW
11	SPEAK-	12	GND

15
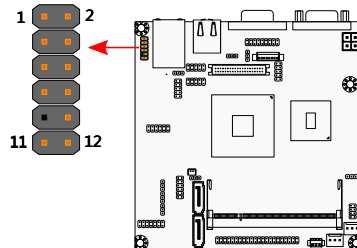
KB/MS Connector

The mainboard provides a PS2 pin header to attach a PS2 keyboard and mouse.

Pin	Signal	Pin	Signal
1	+5VDUAL	2	GND
3	KB_CLK	4	KB_DATA
5	EKBCLK	6	EKBDATA
7	MS_CLK	8	MS_DATA
9	EMSCLK	10	EMSDATA
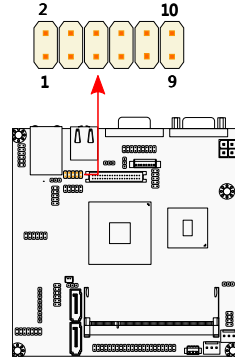
Note:
When the pin header is not in use. Please short pin 3&5, pin 4&6, pin 7&9 and pin 8&10.

Digital I/O: DIO

General purpose digital input and output.

Pin	Signal	Pin	Signal
1	+5V_DIO	2	+12V_DIO
3	GPO_21	4	GPI_44
5	GPO_22	6	GPI_45
7	GPO_32	8	GPI_46
9	GPO_33	10	GPI_47
11	GND	12	GND
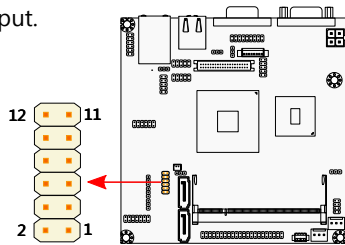
SPI (Serial Peripheral Interface): JSPI

This pin header is used to connect with SPI BIOS programming fixture.

Pin	Signal	Pin	Signal
1	SPI_VCC	2	GND
3	SPI_SS0	4	SPI_CLK
5	SPI_DI	6	SPI_DO
7	Key	8	RST_SW
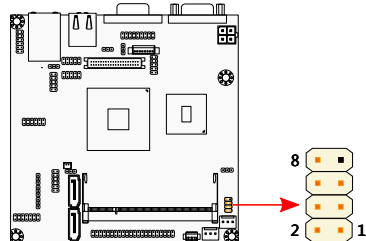
Front Panel Audio: F_Audio

This pin header is an interface for the VIA front panel audio cable that allow convenient connection and control of audio devices.

Pin	Signal	Pin	Signal
1	SPDIF_OUT	2	+5V
3	AGND	4	Key
5	LINE_OUT_R	6	LINEOUT_R
7	LINEIN_R	8	LINEOUT_L
9	MIC1_RE_R	10	MIC1_RE_L
11	Key	12	NC
13	AGND	14	AGND
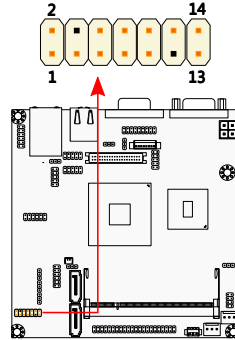
Note:
If you don't want to connect to the front audio header, pins 5 & 6, 9 & 10 have to be jumpered in order to have signal output directed to the rear audio ports. Otherwise, the Line-Out connector on the back panel will not function.

Serial Port: COM2/COM3/COM4

COM pin headers can be used to attach an additional port for serial devices.

Pin	Signal	Pin	Signal
1	DCD	2	SIN
3	SOUT	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	Key
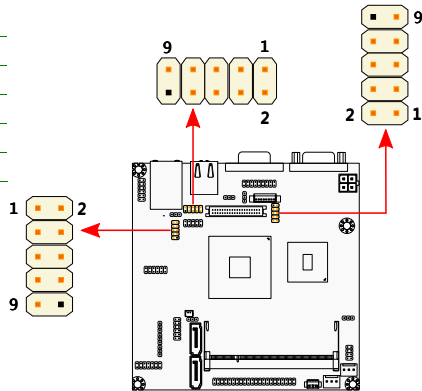
LVDS Panel Connector

The LVDS Panel connector allows you to connect the panel's LVDS cable directly to support LVDS panel.

Pin	Signal	Pin	Signal
1	-A4_L	2	PVDD
3	A4_L	4	PVDD
5	GND	6	GND
7	-A5_L	8	GND
9	A5_L	10	-A0_L
11	GND	12	A0_L
13	-A6_	14	GND
15	A6_L	16	-A1_L
17	GND	18	A1_L
19	-CLK2_L	20	GND
21	CLK2_L	22	-A2_L
23	GND	24	A2_L
25	-A7_L	26	GND
27	A7_L	28	-CLK1_L
29	NC	30	CLK1_L
31	NC	32	GND
33	NC	34	-A3_L
35	NC	36	A3_L
37	NC	38	SPCLK
39	NC	40	SPD
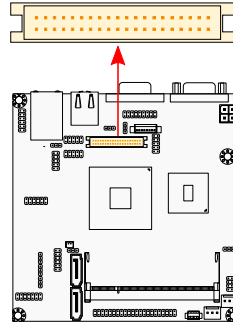
LVDS Inverter Connector: INVERTER

The mainboard provides an inverter for supplying power to the backlight of the LCD panel.

Pin	Signal
1	VCC
2	VCC
3	BAKLITE
4	NC
5	BAKLITE
6	SMBUS OUT
7	GND
8	GND
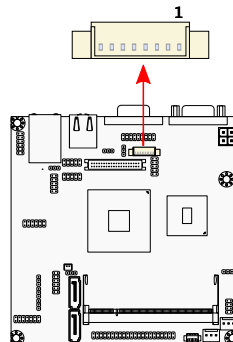
System Management Bus: SMBus

This pin header allows you to connect SMBus (System Management Bus) devices. Devices communicate with a SMBus host and/or other SMBus devices using the SMBus interface.

Pin	Signal
1	SMBCK
2	SMBDT
3	GND
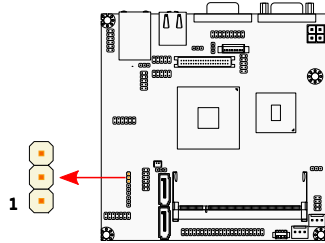
System Temperature Sensor: SEN

This pin header allows you to connect the system temperature reading device.

Pin	Signal
1	REMOTE1+
2	REMOTE1+
3	REMOTE1-
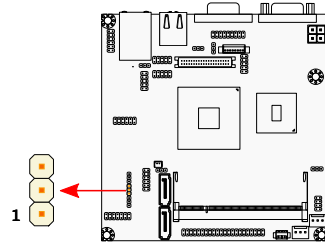
Jumpers

The mainboard provides jumpers for setting some mainboard functions. This section will explain how to change the settings of the mainboard functions using the jumpers.

Clear CMOS

The onboard CMOS RAM stores system configuration data and has an onboard battery power supply. To reset the CMOS settings, set the jumper on pins 1 and 2 while the system is off. Return the jumper to pins 2 and 3 afterwards. Setting the jumper while the system is on will damage the mainboard.

Setting	1	2	3
Normal Operation	ON	ON	OFF
Clear CMOS setting	OFF	ON	ON
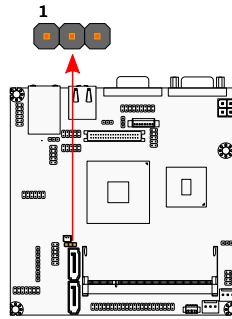
Caution:
Except when clearing the RTC RAM, never remove the cap on CLEAR_CMOS jumper default position. Removing the cap will cause system boot failure. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

CF Master Select: MS_CF_SEL

This jumper determines the working state of the CF connector. The default value is Master.

Setting	1	2	3
Master	OFF	ON	ON
Slave	ON	ON	OFF
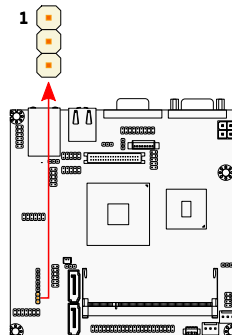
AT/ATX Power

This pin header is use for AT/ATX power mode select.

Setting	1	2	3
ATX	ON	ON	OFF
AT	OFF	ON	ON
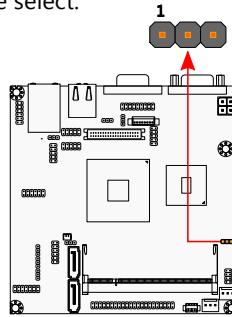
Panel Power Selector: PVDD_SEL

PVDD is the VCC selector jumper to determine the LVDS panel's signal voltage.
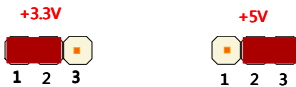
Setting	1	2	3
+3.3V	ON	ON	OFF
+5V	OFF	ON	ON
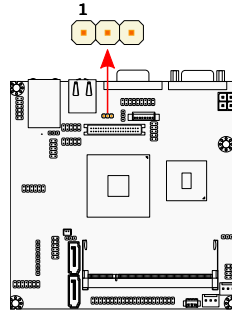
Inverter Selector: IVDD_SEL

IVDD is the VCC selector jumper to determine the input voltage of the panel inverter for panel's back-light.

Setting	1	2	3
+5V	ON	ON	OFF
+12V	OFF	ON	ON
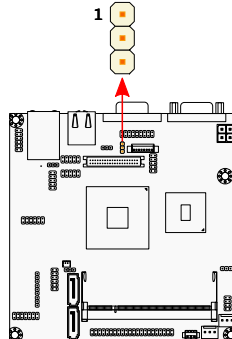
COM2 Power Select: J3

J3 is a VCC selector jumper to determine the input voltage for COM2 connector.

+5V

+12V

Setting	1	2	3
+5V	ON	ON	OFF
+12V	OFF	ON	ON
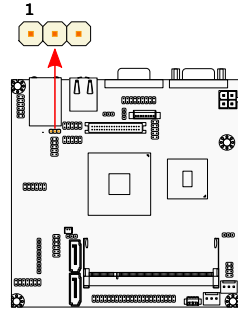
RS232/RS422/RS485 Select

This pin header allows you to select between RS232, RS422 or RS485 mode for COM1 port.

Pin	Signal	Pin	Signal
1	RXD_1	2	RXD_232-1
3	RXD_1	4	RXD_422-1
5	RXD_1	6	RXD_485-1
7	IC_DCD1	8	IC_RXD1
9	COM_DCD1	10	COM_RXD1
11	1-RS485-RS422_-TX	12	1-RS485-RS422_TX
13	IC_TXD1	14	IC_DTR1
15	COM_TXD1	16	COM_DTR1
17	1-RS422_RX	18	1-RS422_-RX
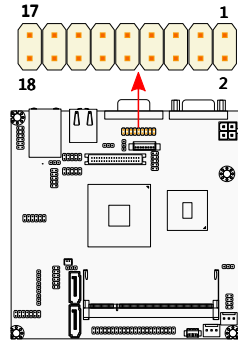
Jumper Settings

RS232	
RS422	
RS485	

Slots

Mini Peripheral Component Interconnect: MiniPCI

The miniPCI slot allows you to insert a miniPCI expansion card. When adding or removing expansion card, unplug first the power supply. Read the documentation for the expansion card to see if any changes to the system are necessary.
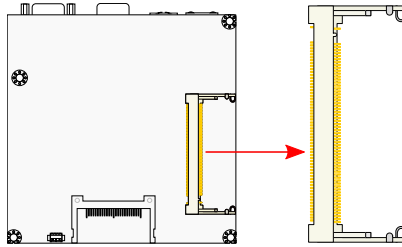
PCI Interrupt Request Routing

The IRQ (interrupt request line) are hardware lines over which devices can send interrupt signals to the microprocessor. The "PCI & LAN" IRQ pins are typically connected to the PCI bus INT A# ~ INT D# pins as follows:

	Order 1	Order 2	Order 3	Order 4
MiniPCI Slot	INT B#	INT C#	INT D#	INT A#

Compact Flash Type I Connector: CF

This CF connector allows you to connect to a passive 50-pin Type I adapter.
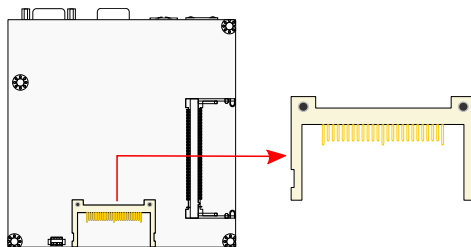
This page is intentionally left blank.
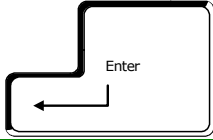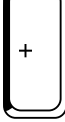
CHAPTER 3
BIOS SETUP

This chapter gives a detailed explanation of the BIOS setup functions.

Entering the BIOS Setup Menu

Power on the computer and press <**Delete**> during the beginning of the boot sequence to enter the BIOS setup menu. If you missed the BIOS setup entry point, restart the system and try again.

Control Keys

Keys	Description
↑	Move to the previous item
↓	Move to the next item
←	Move to the item in the left side
→	Move to the item in the right side
Enter	Select the item
Esc	Jumps to the Exit menu or returns to the main menu from a submenu
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
F5	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
F7	Load Optimized defaults
F10	Save all the CMOS changes and exit

Navigating the BIOS Menus

The main menu displays all the BIOS setup categories. Use the <**Left**>/<**Right**> and <**Up**>/<**Down**> arrow keys to select any item or sub-menu. Descriptions of the selected/highlighted category are displayed at the bottom of the screen.

An arrow symbol next to a field indicates that a sub-menu is available (see figure below). Press <**Enter**> to display the sub-menu. To exit the sub-menu, press <**Esc**>.

Sub-menu indicator
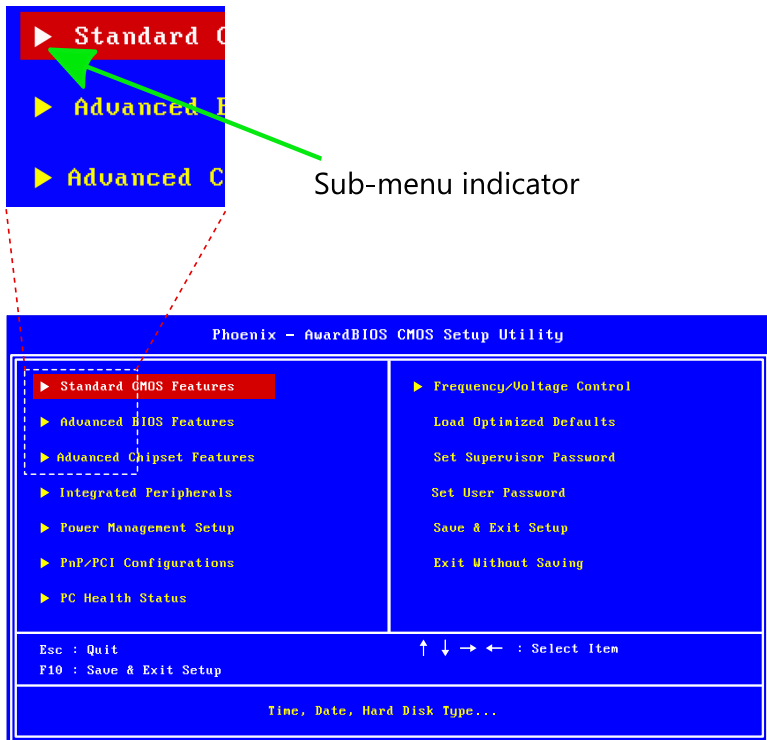
Getting Help

The BIOS setup program provides a "**General Help**" screen. You can display this screen from any menu/sub-menu by pressing <**F1**>. The help screen displays the keys for using and navigating the BIOS setup. Press <**Esc**> to exit the help screen.

Main Menu

The Main Menu contains twelve setup functions and two exit choices. Use arrow keys to select the items and press <**Enter**> to accept or enter Sub-menu.

```
                Phoenix - AwardBIOS CMOS Setup Utility

  ▶ Standard CMOS Features          ▶ Frequency/Voltage Control
  ▶ Advanced BIOS Features             Load Optimized Defaults
  ▶ Advanced Chipset Features          Set Supervisor Password
  ▶ Integrated Peripherals             Set User Password
  ▶ Power Management Setup             Save & Exit Setup
  ▶ PnP/PCI Configurations             Exit Without Saving
  ▶ PC Health Status

  Esc : Quit                        ↑ ↓ → ← : Select Item
  F10 : Save & Exit Setup

                    Time, Date, Hard Disk Type...
```

Standard CMOS Features
Use this menu to set basic system configurations.

Advanced BIOS Features
Use this menu to set the advanced features available on your system.

Advanced Chipset Features
Use this menu to set chipset specific features and optimize system performance.

Integrated Peripherals
Use this menu to set onboard peripherals features.

Power Management Setup
Use this menu to set onboard power management functions.

PnP/PCI Configurations
Use this menu to set the PnP and PCI configurations.

PC Health Status

This menu shows the PC health status.

Frequency/Voltage Control

Use this menu to set the system frequency and voltage control.

Load Optimized Defaults

Use this menu option to load BIOS default settings for optimal and high performance system operations.

Set Supervisor Password

Use this menu option to set the BIOS supervisor password.

Set User Password

Use this menu option to set the BIOS user password.

Save & Exit Setup

Save BIOS setting changes and exit setup.

Exit Without Saving

Discard all BIOS setting changes and exit setup.

Standard CMOS Features

```
              Phoenix - AwardBIOS CMOS Setup Utility
                      Standard CMOS Features

   Date (mm:dd:yy)            Thu, Jul 1 2008          Item Help
   Time (hh:mm:ss)            3 : 17 : 8
                                              Menu Level  ▶
 ▶ IDE Channel 0 Master       [None]
 ▶ IDE Channel 0 Slave        [None]          Change the day, month, year
 ▶ IDE Channel 1 Master       [None]          and century
 ▶ IDE Channel 1 Slave        [None]

   Video                      [EGA/VGA]
   Halt On                    [All, But Keyboard]

   Base Memory                640K
   Extended Memory            456704K
   Total Memory               457728K


↑↓→←:Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help
     F5:Previous Values                                   F7:Optimized Defaults
```

Date
The date format is [Day, Month Date, Year]

Time
The time format is [Hour : Minute : Second]

Video
Settings: [EGA/VGA, CGA 40, CGA 80, MONO]

Halt On
Set the system's response to specific boot errors. Below is a table that details the possible settings.

Settings	Description
All Errors	System halts when any error is detected
No Errors	System does not halt for any error
All, But Keyboard	System halts for all non-key errors

IDE Drives

IDE Channel 0 Master

```
               Phoenix - AwardBIOS CMOS Setup Utility
                         IDE Channel 0 Master

    IDE HDD Auto-Detection        [Press Enter]          Item Help

    IDE Channel 0 Master          [Auto]           Menu Level  ▶
    Access Mode                   [Auto]
                                                   To auto-detect the
    Capacity                      0 MB             HDD's size, head... on
                                                   this channel
    Cylinder                      0
    Head                          0
    Precomp                       0
    Landing Zone                  0
    Sector                        0




↑↓→←:Move   Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
      F5:Previous Values                              F7:Optimized Defaults
```

IDE Channel 0 Slave

```
               Phoenix - AwardBIOS CMOS Setup Utility
                         IDE Channel 0 Slave

    IDE HDD Auto-Detection        [Press Enter]          Item Help

    IDE Channel 0 Slave           [Auto]           Menu Level  ▶
    Access Mode                   [Auto]
                                                   To auto-detect the
    Capacity                      0 MB             HDD's size, head... on
                                                   this channel
    Cylinder                      0
    Head                          0
    Precomp                       0
    Landing Zone                  0
    Sector                        0




↑↓→←:Move   Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
      F5:Previous Values                              F7:Optimized Defaults
```

IDE Channel 1 Master

```
                Phoenix - AwardBIOS CMOS Setup Utility
                         IDE Channel 1 Master

      IDE HDD Auto-Detection        [Press Enter]              Item Help

      IDE Channel 1 Master          [Auto]           Menu Level  ▶
      Access Mode                   [Auto]
                                                     To auto-detect the
      Capacity                      0 MB             HDD's size, head... on
                                                     this channel
      Cylinder                      0
      Head                          0
      Precomp                       0
      Landing Zone                  0
      Sector                        0



  ↑↓→←:Move   Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
       F5:Previous Values                               F7:Optimized Defaults
```

IDE Channel 1 Slave

```
                Phoenix - AwardBIOS CMOS Setup Utility
                         IDE Channel 1 Slave

      IDE HDD Auto-Detection        [Press Enter]              Item Help

      IDE Channel 1 Slave           [Auto]           Menu Level  ▶
      Access Mode                   [Auto]
                                                     To auto-detect the
      Capacity                      0 MB             HDD's size, head... on
                                                     this channel
      Cylinder                      0
      Head                          0
      Precomp                       0
      Landing Zone                  0
      Sector                        0



  ↑↓→←:Move   Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
       F5:Previous Values                               F7:Optimized Defaults
```

The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in this category. Select "**Auto**" whenever possible. If you select "**Manual**", make sure the information is from your hard disk vendor or system manufacturer. Below is a table that details required hard drive information when using the "**Manual**" mode.

Settings	Description
IDE Channel	The name of this match the name of the menu. Settings: [None, Auto, Manual]
Access Mode	Settings: [CHS, LBA, Large, Auto]
Capacity	Formatted size of the storage device
Cylinder	Number of cylinders
Head	Number of heads
Precomp	Write precompensation
Landing Zone	Cylinder location of the landing zone
Sector	Number of sectors

Advanced BIOS Features

```
                   Phoenix - AwardBIOS CMOS Setup Utility
                          Advanced BIOS Features
   ┌──────────────────────────────────────────┬─────────────────────┐
   │ ▶ CPU Feature              [Press Enter]  │     Item Help       │
   │   Hard Disk Boot Priority  [Press Enter]  │                     │
   │   Virus Warning            [Disabled]     │  Menu Level  ▶      │
   │   CPU L1 & L2 Cache        [Enabled]      │                     │
   │   CPU L2 Cache ECC Checking [Enabled]     │                     │
   │   Quick Power On Self Test [Enabled]      │                     │
   │   First Boot Device        [USB-FDD]      │                     │
   │   Second Boot Device       [CDROM]        │                     │
   │   Third Boot Device        [LS120]        │                     │
   │   Boot Other Device        [Enabled]      │                     │
   │   Boot Up Numlock Status   [On]           │                     │
   │   Typematic Rate Setting   [Enabled]      │                     │
   │   Typematic Rate (Chars/Sec) [30]         │                     │
   │   Typematic Delay (Msec)   [250]          │                     │
   │   Security Option          [Setup]        │                     │
   │   MPS Version Control for OS [1.4]         │                     │
   │   OS Select for DRAM > 64MB [Non-OS2]     │                     │
   │   HDD S.M.A.R.T Capability [Disabled]     │                     │
   │   Video BIOS Shadow        [Enabled]      │                     │
   │   Full Screen LOGO Show    [Enabled]      │                     │
   │   Summary Screen Show      [Disabled]     │                     │
   └──────────────────────────────────────────┴─────────────────────┘
 ↑↓→←:Move   Enter:Select  +/-/PU/PD:Value   F10:Save    ESC:Exit   F1:General Help
       F5:Previous Values                       F7:Optimized Defaults
```

Virus Warning

Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection.

Settings	Description
Enabled	Turns on hard disk boot sector virus protection
Disabled	Turns off hard disk boot sector virus protection

Note:
If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on the screen and alarm beep.

CPU L1 & L2 Cache

Settings	Description
Disabled	Turns off CPU L1 & L2 cache
Enabled	Turns on CPU L1 & L2 cache

CPU L2 Cache ECC Checking

Settings: [Enabled, Disabled]

Quick Power On Self-Test

Shortens Power On Self-Test (POST) cycle to enable shorter boot up time.

Settings	Description
Disabled	Standard Power On Self Test (POST)
Enabled	Shorten Power On Self Test (POST) cycle and boot up time

First/Second/Third Boot Device

Set the boot device sequence as BIOS attempts to load the disk operating system.

Settings	Description
LS120	Boot from LS-120 drive
Hard Disk	Boot from the HDD
CDROM	Boot from CDROM
ZIP100	Boot from ATAPI ZIP drive
USB-FDD	Boot from USB Floppy drive
USB-ZIP	Boot from USB ZIP drive
USB-CDROM	Boot from USB CDROM
Legacy LAN	Boot from network drive
Disabled	Disable the boot device sequence

Boot Other Device

Enables the system to boot from alternate devices if the system fails to boot from the "First/Second/Third Boot Device" lists.

Settings	Description
Disabled	No alternate boot device allowed
Enabled	Enable alternate boot device

Boot Up NumLock Status

Set the NumLock status when the system is powered on.

Settings	Description
Off	Forces keypad to behave as arrow keys
On	Forces keypad to behave as 10-key

Typematic Rate Setting

Enables "Typematic Rate" and "Typematic Delay" functions.

Settings: [Disabled, Enabled]

Typematic Rate (Chars/Sec)

This item sets the rate (characters/second) at which the system retrieves a signal from a depressed key.

Settings: [6, 8, 10, 12, 15, 20, 24, 30]

Typematic Delay (Msec)

This item sets the delay between, when the key was first pressed and when the system begins to repeat the signal from the depressed key.

Settings: [250, 500, 750, 1000]

Security Option

Selects whether the password is required every time the System boots, or only when you enter Setup.

Settings	Description
Setup	Password prompt appears only when end users try to run BIOS Setup
System	Password prompt appears every time when the computer is powered on and when end users try to run BIOS Setup

MPS Version Control for OS

Settings: [1.1, 1.4]

OS Select for DRAM > 64MB

Select OS2 only if you are running OS/2 operating system with greater than 64MB of RAM on the system.

Settings: [Non-OS2, OS2]

HDD S.M.A.R.T Capability

Settings: [Disabled, Enabled]

Video BIOS Shadow

Enabled copies Video BIOS to shadow RAM Improves performance.

Settings: [Disabled, Enabled]

Full Screen Logo Show

Show full screen logo during BIOS boot up process.
Settings: [Disabled, Enabled]

Summary Screen Show

Show summary screen.
Settings: [Disabled, Enabled]

CPU Features

```
            Phoenix - AwardBIOS CMOS Setup Utility
                         CPU Features

    Delay Prior to Thermal       [16 Min]              Item Help
    Thermal Management           [Thermal Monitor 1]
    Thermal Monitor Bus Ratio    8x              Menu Level  ▶
    Thermal Monitor Bus VID      0.700V




↑↓→←:Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help
     F5:Previous Values                          F7:Optimized Defaults
```
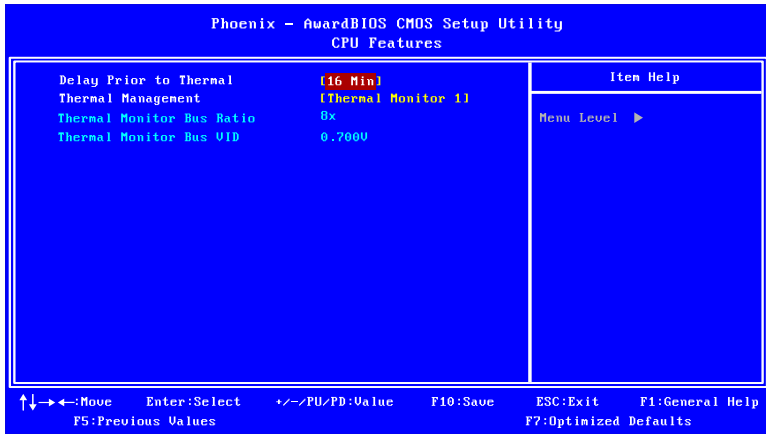
Delay Prior to Thermal

Settings: [4 Min, 8 Min, 16 Min, 32 Min]

Thermal Management

This item sets CPU's thermal control rule to protect CPU from overheat.

Settings	Description
Thermal Monitor 1	On-die throtting
Thermal Monitor 2	Ratio & VID transition

Hard Disk Boot Priority

```
         Phoenix - AwardBIOS CMOS Setup Utility
                 Hard Disk Boot Priority

   1. Bootable Add-in Cards                         Item Help

                                            Menu Level  ▶

                                            Use <↑> or <↓> to
                                            select a device, then
                                            press <+> to move it
                                            up, or <-> to move it
                                            down the list. Press
                                            <ESC> to exit this menu.



  ↑↓ :Move      +/-/PU/PD:Change Priority      F10:Save      ESC:Exit
    F5:Previous Values      F6: Fail-Safe Defaults   F7:Optimized Defaults
```
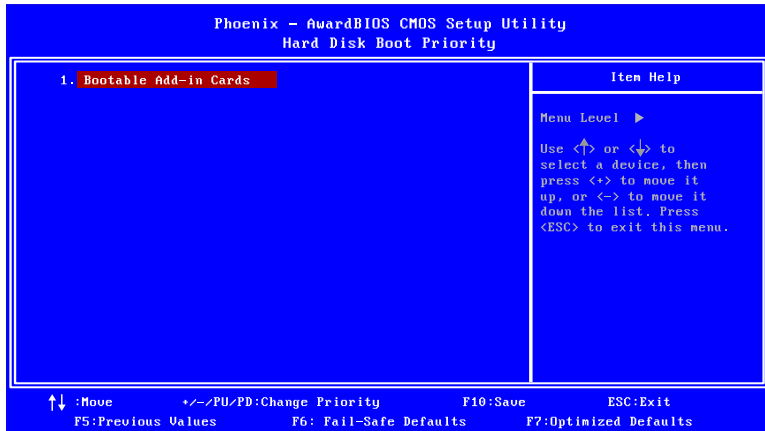
This is for setting the priority of the hard disk boot order when the
"Hard Disk" option is selected in the "[First/Second/Third] Boot Device"
menu item.

Advanced Chipset Features

```
           Phoenix - AwardBIOS CMOS Setup Utility
                  Advanced Chipset Features
  ┌─────────────────────────────────────────┬──────────────────────┐
  │ ▶ Internal VGA Control      [Press Enter]│       Item Help      │
  │ ▶ CPU & PCI Bus Control     [Press Enter]│                      │
  │   Memory Hole               [Disabled]   │  Menu Level   ▶      │
  │   System BIOS Cacheable     [Enabled]    │                      │
  │   Video RAM Cacheable       [Disabled]   │                      │
  │   AGP Fast Write            [Disabled]   │                      │
  │   Select Display Device     [CRT]        │                      │
  │   Panel Type                [02]         │                      │
  │                                          │                      │
  │                                          │                      │
  │                                          │                      │
  │                                          │                      │
  │                                          │                      │
  │                                          │                      │
  └──────────────────────────────────────────┴─────────────────────┘
  ↑↓→←:Move   Enter:Select   +/-/PU/PD:Value  F10:Save   ESC:Exit   F1:General Help
       F5:Previous Values                     F7:Optimized Defaults
```

> ⚠ **Caution:**
> The Advanced Chipset Features menu is used for optimizing the chipset functions. Do not change these settings unless you are familiar with the chipset.

Memory Hole
Settings: [Disabled, 15M – 16M]

System BIOS Cacheable
Settings: [Disabled, Enabled]

Video RAM Cacheable
Settings: [Disabled, Enabled]

AGP Fast Write
Settings: [Disabled, Enabled]

Select Display Device
Settings: [CRT, LCD, CRT+LCD]

Panel Type
Key in a HEX number.
Settings: [Min = 0000, Max = 000F]

Internal VGA Control
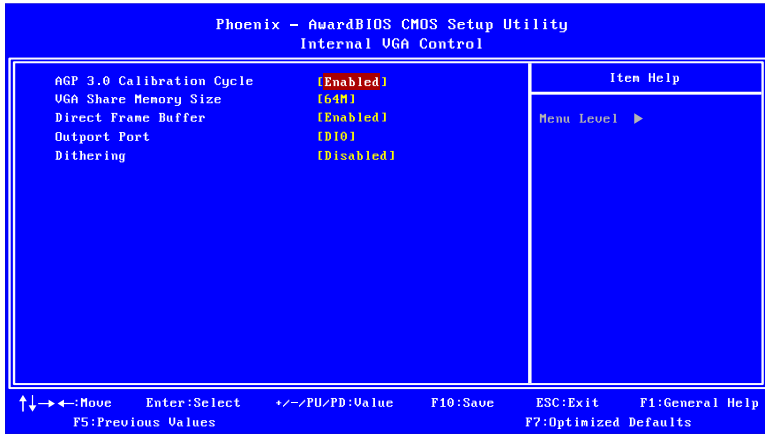
AGP 3.0 Calibration Cycle
Settings: [Disabled, Enabled]

VGA Share Memory Size
This setting allows you to select the amount of system memory that is allocated to the integrated graphics processor.
Settings: [Disabled, 64M, 128M, 256M]

Direct Frame Buffer
Settings: [Disabled, Enabled]

Outport Port
Settings: [DI0, DI1]

Dithering
Settings: [Disabled, Enabled]

CPU & PCI Bus Control

```
          Phoenix - AwardBIOS CMOS Setup Utility
                CPU & PCI Bus Control
┌─────────────────────────────────────────┬──────────────────┐
│   PCI Master 0 WS Write      [Enabled]   │     Item Help    │
│   PCI Delay Transaction      [Enabled]   ├──────────────────┤
│   VIA PWR Management         [Enabled]   │ Menu Level  ▶    │
│                                          │                  │
│                                          │                  │
│                                          │                  │
│                                          │                  │
│                                          │                  │
│                                          │                  │
│                                          │                  │
│                                          │                  │
│                                          │                  │
│                                          │                  │
└─────────────────────────────────────────┴──────────────────┘
 ↑↓→←:Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help
      F5:Previous Values                              F7:Optimized Defaults
```
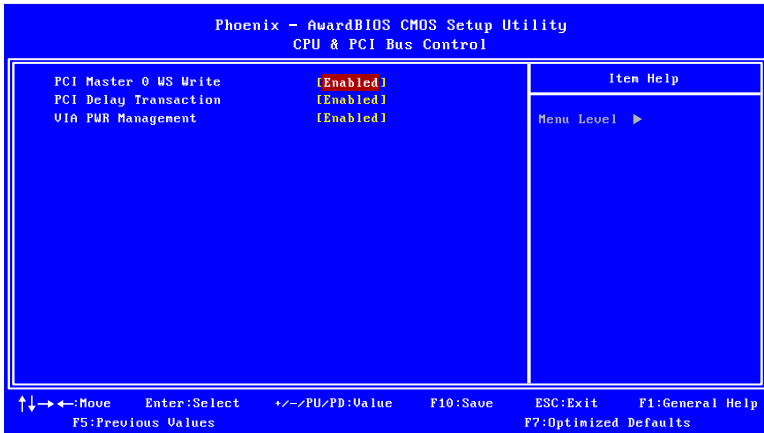
PCI Master 0 WS Write

Settings: [Enabled, Disabled]

PCI Delay Transaction

Settings: [Disabled, Enabled]

VIA PWR Management

Settings: [Disabled, Enabled]

Integrated Peripherals

```
          Phoenix - AwardBIOS CMOS Setup Utility
                   Integrated Peripherals
 ┌──────────────────────────────────────────────┬─────────────────────┐
 │ ▶ Super IO Device            [Press Enter]    │      Item Help      │
 │   OnChip IDE Channel 1       [Enabled]        │                     │
 │   IDE HDD Block Mode         [Enabled]        │  Menu Level  ▶      │
 │ ▶ VIA OnChip IDE Device      [Press Enter]    │                     │
 │   SATA Controller            [Enabled]        │                     │
 │   Azalia HDA Controller      [Auto]           │                     │
 │   Onboard LAN Boot ROM       [Disabled]       │                     │
 │   VIA Wireless LAN Support   [Disabled]       │                     │
 │ ▶ USB Device Setting         [Press Enter]    │                     │
 │                                               │                     │
 │                                               │                     │
 │                                               │                     │
 │                                               │                     │
 └──────────────────────────────────────────────┴─────────────────────┘
 ↑↓→←:Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help
        F5:Previous Values                       F7:Optimized Defaults
```

OnChip IDE Channel 1
Settings: [Disabled, Enabled]

IDE HDD Block Mode
Settings: [Disabled, Enabled]

SATA Controller
Settings: [Disabled, Enabled]

Azalia HDA Controller
Settings: [Auto, Disabled]

Onboard LAN Boot ROM
Settings: [Enabled, Disabled]

VIA Wireless LAN Support
Settings: [Enabled, Disabled]

Super IO Device
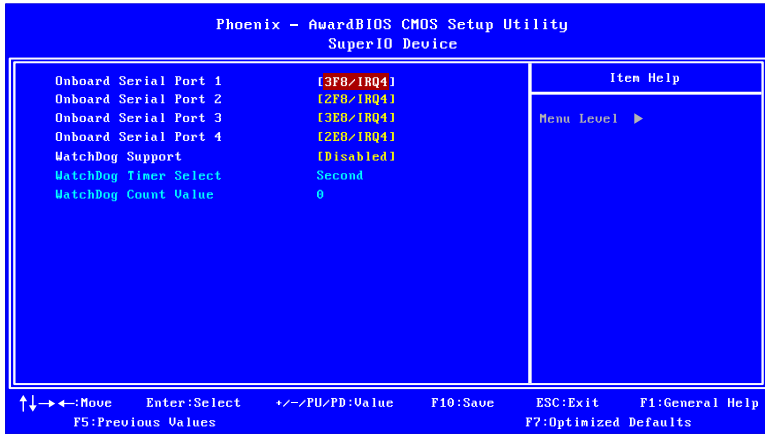
Onboard Serial Port 1
Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

Onboard Serial Port 2
Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

Onboard Serial Port 3
Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

Onboard Serial Port 4
Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

WatchDog Support
Settings: [Enabled, Disabled]

VIA OnChip IDE Device

```
              Phoenix - AwardBIOS CMOS Setup Utility
                       VIA Onchip IDE Device

   IDE Prefetch Mode           [Enabled]           Item Help
   CF Card UDMA66              [Disabled]
   IDE DMA Transfer Access      [Enabled]       Menu Level  ▶
   Secondary Master PIO        [Auto]
   Secondary Slave PIO         [Auto]
   Secondary Master UDMA       [Auto]
   Secondary Slave UDMA        [Auto]




 ↑↓→←:Move    Enter:Select   +/-/PU/PD:Value   F10:Save    ESC:Exit    F1:General Help
     F5:Previous Values                                 F7:Optimized Defaults
```

IDE Prefetch Mode
Settings: [Disabled, Enabled]

CF Card UDMA66
Settings: [Disabled, Enabled]

IDE DMA Transfer Access
Settings: [Disabled, Enabled]

Secondary Master PIO
Settings: [Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4]

Secondary Slave PIO
Settings: [Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4]

Secondary Master UDMA
Settings: [Disabled, Auto]

Secondary Slave UDMA
Settings: [Disabled, Auto]

USB Device Setting

```
          Phoenix - AwardBIOS CMOS Setup Utility
                    USB Device Setting

   USB 1.0 Controller        [Enabled]              Item Help
   USB 2.0 Controller        [Enabled]
   USB Operation Mode        [High Speed]      Menu Level  ▶
   USB Keyboard Function     [Enabled]
   USB Mouse Function        [Enabled]         [Enabled] or [Disabled]
   USB Storage Function      [Enabled]         Universal Host
                                               Controller
                                               Interface for Universal
   *** USB Mass Storage Device Boot Setting *** Serial Bus.




 ↑↓→←:Move    Enter:Select   +/-/PU/PD:Value   F10:Save    ESC:Exit    F1:General Help
     F5:Previous Values                        F7:Optimized Defaults
```

USB 1.0 Controller

Enable or disable Universal Host Controller Interface for Universal Serial Bus.

Settings: [Disabled, Enabled]

USB 2.0 Controller

Enable or disable Enhanced Host Controller Interface for Universal Serial Bus.

Settings: [Disabled, Enabled]

USB Operation Mode

Auto decide USB device operation mode.

Settings	Description
Full/Low Speed	All of USB Device operated on full/low speed mode
High Speed	If USB device was high speed device, then it operated on high speed mode.

USB Keyboard Function

Enable or disable Legacy support of USB Keyboard.

Settings: [Disabled, Enabled]

USB Mouse Function

Settings: [Disabled, Enabled]

USB Storage Function

Enable or disable Legacy support of USB Mass Storage.
Settings: [Disabled, Enabled]

Power Management Setup

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                             Power Management Setup

     ACPI Suspend Type            [S1&S3]                    Item Help
     Power Management Option      [User Define]
     HDD Power Down               [Disabled]          Menu Level  ▶
     Suspend Mode                 [Disabled]
     Video Off Option             [Suspend -> Off]
     Video Off Method             [V/H SYNC+Blank]

     Soft-Off by PWRBTN           [Instant-Off]
     Run VGA BIOS if S3 Resume    [Auto]
     AC Loss Auto Restart         [Off]
   ▶ Wakeup Event Detect          [Press Enter]




 ↑↓→←:Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:General Help
     F5:Previous Values                              F7:Optimized Defaults
```

ACPI Suspend Type

Settings	Description
S1(POS)	S1/Power On Suspend (POS) is a low power state. In this state, no system context (CPU or chipset) is lost and hardware maintains all system contexts.
S3(STR)	S3/Suspend To RAM (STR) is a power-down state. In this state, power is supplied only to essential components such as main memory and wakeup-capable devices. The system context is saved to main memory, and context is restored from the memory when a "wakeup" event occurs.
S1 & S3	Depends on the OS to select S1 or S3.

Power Management Option

Settings: [User Define, Min Saving, Max Saving]

HDD Power Down

Set the length of time for a period of inactivity before powering down the hard disk.

Settings: [Disable, 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 6 Min, 7 Min, 8 Min, 9 Min, 10 Min, 11 Min, 12 Min, 13 Min, 14 Min, 15 Min]

Suspend Mode

Sets the length of time for a period of inactivity before entering suspend mode.

Settings: [Disable, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min, 1 Hour]

Video Off Option

Select whether or not to turn off the screen when system enters power saving mode, ACPI OS such as Windows XP will override this option.

Settings	Description
Always On	Screen is always on even when system enters power saving mode
Suspend -> Off	Screen is turned off when system enters power saving mode

Video Off Method

Settings: [Blank Screen, V/H SYNC+Blank, DPMS Support]

Soft-Off by PWRBTN

This field configures the power button on the chassis.

Settings	Description
Delay 4 Sec	System is turned off if power button is pressed for more than four seconds.
Instant-Off	Power button functions as a normal power-on/-off button.

Run VGABIOS if S3 Resume

Select whether to run VGA BIOS if resuming from S3 state. This is only necessary for older VGA drivers.

Settings: [Auto, Yes, No]

AC Loss Auto Restart

The field defines how the system will respond after an AC power loss during system operation.

Settings	Description
Off	Keeps the system in an off state until the power button is pressed
On	Restarts the system when the power is back
Former-Sts	Former-Sts

Wakeup Event Detect

```
              Phoenix - AwardBIOS CMOS Setup Utility
                        Wakeup Event Detect
┌──────────────────────────────────────────┬──────────────────────┐
│  PS2KB Wakeup Select          [Hot Key]   │      Item Help       │
│  PS2KB Wakeup Key Select      [Any Key]   ├──────────────────────┤
│  PS2MS Wakeup Key Select      [Any Button]│  Menu Level  ▶       │
│  PS2 Keyboard Power On        [Disabled]  │                      │
│  PS2 Mouse Power On           [Disabled]  │                      │
│  USB Resume from S3           [Enabled]   │                      │
│  Wakeup on GPI                [Disabled]  │                      │
│  PowerOn by PCI Card          [By OS]     │                      │
│  RTC Alarm Resume             [Disabled]  │                      │
│  Date (of Month)              0           │                      │
│  Resume Time (hh:mm:ss)       0 : 0 : 30  │                      │
│                                           │                      │
│                                           │                      │
│                                           │                      │
│                                           │                      │
└──────────────────────────────────────────┴──────────────────────┘
↑↓→←:Move    Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
     F5:Previous Values                        F7:Optimized Defaults
```

PS2KB Wakeup Select

When selecting "Password", press <Page Up> or <Page Down> to change password. The maximum number of characters is eight. "PS2MS Wakeup from S3/S4/S5" and "PS2KB Wakeup from S3/S4/S5" will be disabled while changing the password.
Settings: [Hot Key, Password]

PS2KB Wakeup Key Select

Sets a Hot Key to restore the system from the power saving mode to an active state.
Settings: [Ctrl+F1, Ctrl+F2, Ctrl+F3, Ctrl+F4, Ctrl+F5, Ctrl+F6, Ctrl+F7, Ctrl+F8, Ctrl+F9, Ctrl+F10, Ctrl+F11, Ctrl+F12, Power, Wake, Any Key]

PS2MS Wakeup Key Select

Enables any mouse activity to restore the system from the power saving mode to an active state.
Settings: [Any Button, Left Button, Right Button]

PS2 Keyboard Power On

Settings: [Disabled, Enabled]

PS2 Mouse Power On

Settings: [Disabled, Enabled]

USB Resume from S3

Settings: [Disabled, Enabled]

Wakeup On GPI

Settings: [Disabled, Enabled]

PowerOn by PCI Card

Enables activity detected from any PCI card to power up the system or resume from a suspended state. Such PCI cards include LAN, onboard USB ports, etc.

Settings: [By OS, Enabled]

RTC Alarm Resume

Set a scheduled time and/or date to automatically power on the system.

Settings: [Disabled, Enabled]

Date (of Month)

The field specifies the date for "RTC Alarm Resume".

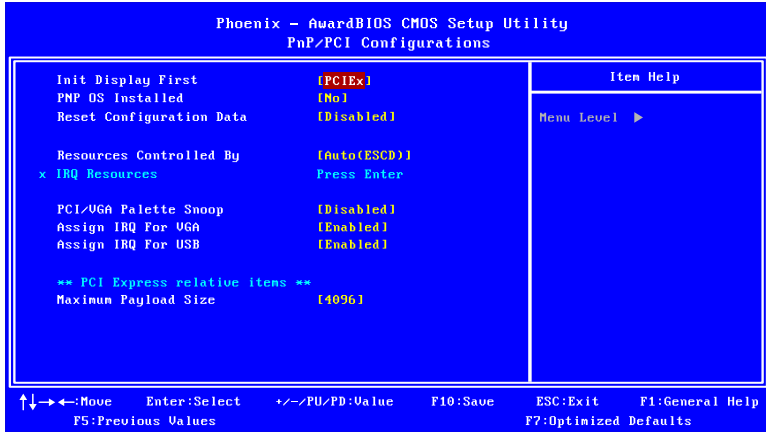Key in a DEC number.

Settings: [Min = 0, Max = 31]

Resume Time (hh : mm : ss)

The field specifies the time for "RTC Alarm Resume".

Key in a DEC number.

Settings: [Min = 0, Max = 23]

PnP/PCI Configurations

```
              Phoenix - AwardBIOS CMOS Setup Utility
                       PnP/PCI Configurations
    Init Display First           [PCIEx]              Item Help
    PNP OS Installed             [No]
    Reset Configuration Data     [Disabled]        Menu Level  ▶

    Resources Controlled By      [Auto(ESCD)]
  x IRQ Resources                Press Enter

    PCI/VGA Palette Snoop        [Disabled]
    Assign IRQ For VGA           [Enabled]
    Assign IRQ For USB           [Enabled]

    ** PCI Express relative items **
    Maximum Payload Size         [4096]


  ↑↓→←:Move    Enter:Select  +/-/PU/PD:Value  F10:Save    ESC:Exit    F1:General Help
       F5:Previous Values                               F7:Optimized Defaults
```

> **Note:**
> This section covers some very technical items and it is strongly recommended to leave the default settings as is unless you are an experienced user.

Init Display First
Settings: [PCI Slot, Onboard, AGP, PCIEx]

PNP OS Installed

Settings	Description
No	BIOS will initialize all the PnP cards
Yes	BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system

Reset Configuration Data

Settings	Description
Disabled	Default setting
Enabled	Resets the ESCD (Extended System Configuration Data) after exiting BIOS Setup if a newly installed PCI card or the system configuration prevents the operating system from loading

Resources Controlled By

Enable the BIOS to automatically configure all the Plug-and-Play compatible devices.

Settings	Description
Auto(ESCD)	BIOS will automatically assign IRQ, DMA and memory base address fields
Manual	Unlocks "IRQ Resources" for manual configuration

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. When enabled, a PCI/VGA can work with a MPEG ISA/VESA VGA card. When disabled, a PCI/VGA cannot work with a MPEG ISA/VESA Card.
Settings: [Disabled, Enabled]

Assign IRQ for VGA

Assign IRQ for VGA devices.
Settings: [Disabled, Enabled]

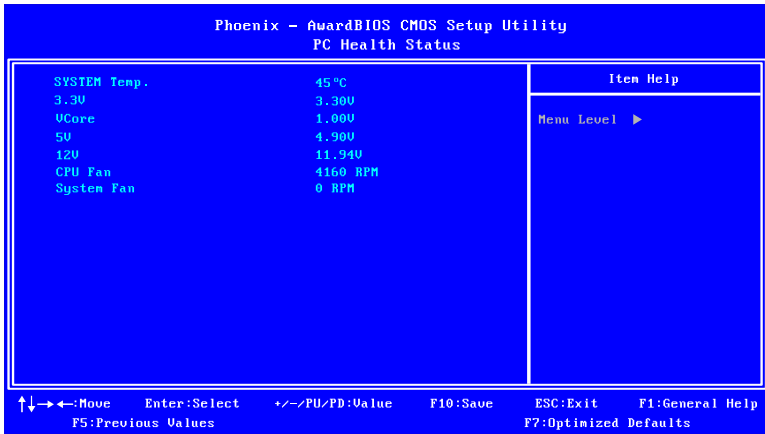## Assign IRQ for USB

Assign IRQ for USB devices.
Settings: [Disabled, Enabled]

Maximum Payload Size

Set maximum TLP payload size for the PCI Express devices. The unit is byte.
Settings: [128, 256, 512, 1024, 2048, 4096]

PC Health Status

```
                Phoenix - AwardBIOS CMOS Setup Utility
                          PC Health Status
┌─────────────────────────────────────────────┬──────────────────────┐
│  SYSTEM Temp.              45ºC               │      Item Help       │
│  3.3U                      3.30U              │                      │
│  VCore                     1.00U              │  Menu Level  ▶       │
│  5U                        4.90U              │                      │
│  12U                       11.94U             │                      │
│  CPU Fan                   4160 RPM           │                      │
│  System Fan                0 RPM              │                      │
│                                               │                      │
│                                               │                      │
│                                               │                      │
│                                               │                      │
│                                               │                      │
│                                               │                      │
└─────────────────────────────────────────────┴──────────────────────┘
 ↑↓→←:Move    Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:General Help
     F5:Previous Values                         F7:Optimized Defaults
```

The PC Health Status displays the current status of all of the monitored
hardware devices/components such as CPU voltages, temperatures and
fan speeds.

Frequency/Voltage Control
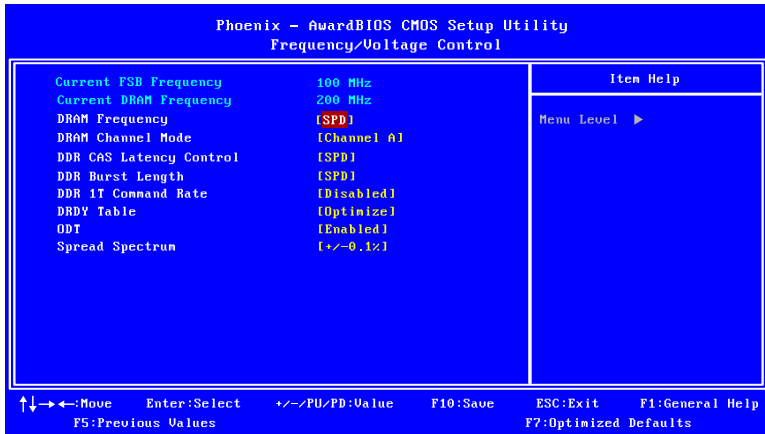
DRAM Frequency
Settings: [DDR2-400, DDR2-533, DDR-667, SPD]

DRAM Channel Mode
Settings: [Channel A, Channel A&B, Channel A&C]

DDR CAS Latency Control
Settings: [2T, 3T, 4T, 5T, 6T, SPD]

DDR Burst Length
Settings: [4, 8, SPD]

DDR 1T Command Rate
Settings: [Disabled, Enabled]

DRDY Table
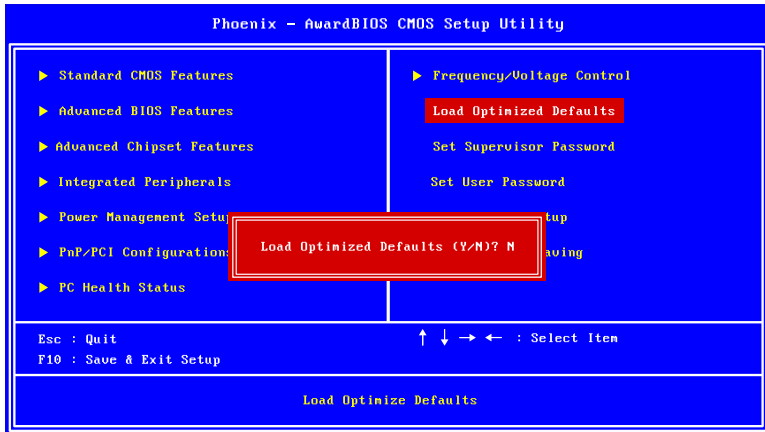Settings: [Slowest, Optimize]

ODT
Settings: [Disabled, Enabled]

Spread Spectrum

When the mainboard's clock generator pulses, the extreme values (spikes) of the pulses create EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves.

Settings: [Disabled, +/- 0.1%, +/- 0.2%, +/- 0.3%, +/- 0.4%, +/- 0.5%, +/- 0.6%, +/- 0.7%, +/- 0.8%, +/- 0.9%]

Load Optimized Defaults

```
                Phoenix - AwardBIOS CMOS Setup Utility

   ▶ Standard CMOS Features        ▶ Frequency/Voltage Control

   ▶ Advanced BIOS Features          Load Optimized Defaults

   ▶ Advanced Chipset Features       Set Supervisor Password

   ▶ Integrated Peripherals          Set User Password

   ▶ Power Management Setup                              tup

   ▶ PnP/PCI Configuration    Load Optimized Defaults (Y/N)? N    aving

   ▶ PC Health Status


   Esc : Quit                        ↑ ↓ → ←  : Select Item
   F10 : Save & Exit Setup

                         Load Optimize Defaults
```

This option is for restoring all the default optimized BIOS settings. The default optimized values are set by the mainboard manufacturer to provide a stable system with optimized performance.
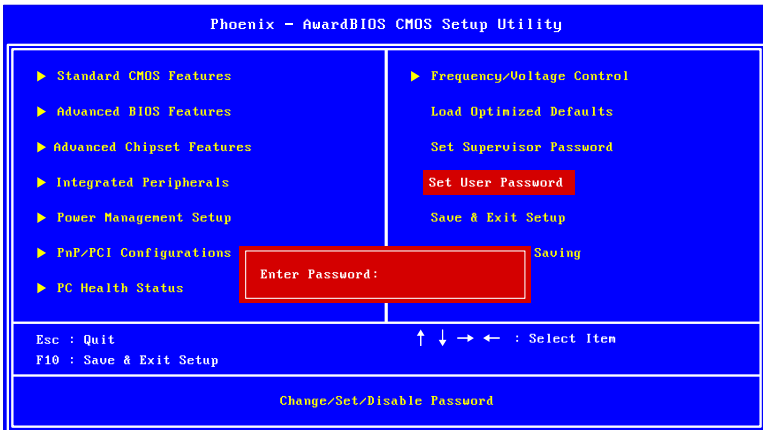
Entering "**Y**" and press <**Enter**> to load the default optimized BIOS values. Entering "**N**" will cancel the load optimized defaults request.

Set Supervisor/User Password

Set Supervisor
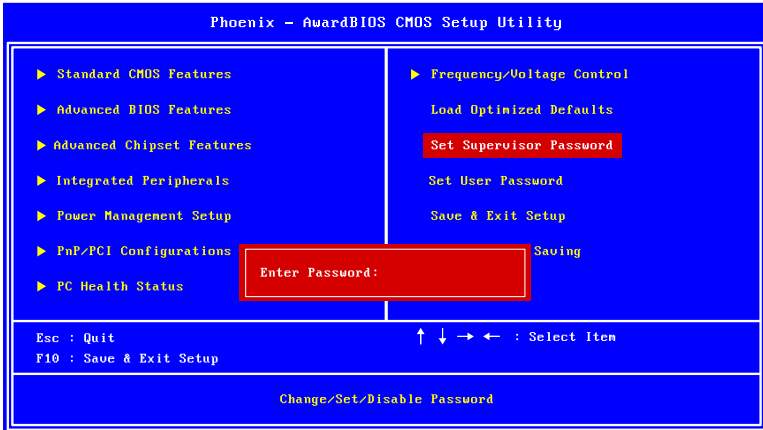
User Password

This option is for setting a password for entering BIOS Setup. When a password has been set, a password prompt will be displayed whenever BIOS Setup is run. This prevents an unauthorized person from changing any part of your system configuration.
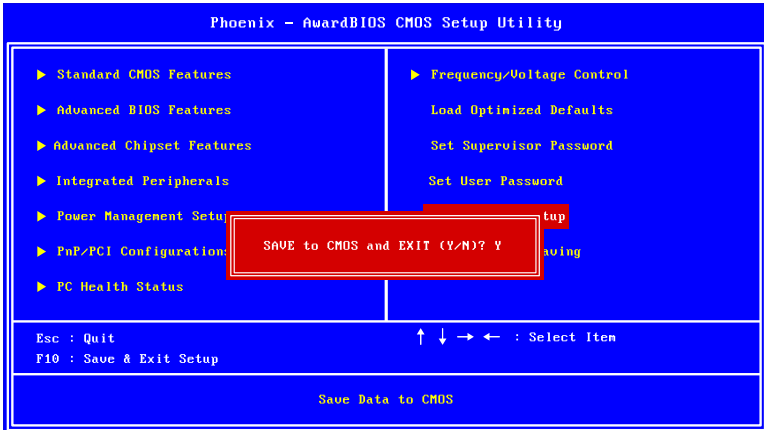
There are two types of passwords you can set. A supervisor password and a user password. When a supervisor password is used, the BIOS Setup program can be accessed and the BIOS settings can be changed. When a user password is used, the BIOS Setup program can be accessed but the BIOS settings cannot be changed.

To set the password, type the password (up to eight characters in length) and press <Enter>. The password typed now will clear any previously set password from CMOS memory. The new password will need to be reentered to be confirmed. To cancel the process press <Esc>.

To disable the password, press <**Enter**> when prompted to enter a new password. A message will show up to confirm disabling the password. To cancel the process press <**Esc**>.

Additionally, when a password is enabled, the BIOS can be set to request the password each time the system is booted. This would prevent unauthorized use of the system. See "Security Option" in the "Advanced BIOS Features" section for more details.

Save & Exit Setup

```
              Phoenix - AwardBIOS CMOS Setup Utility

  ▶ Standard CMOS Features        ▶ Frequency/Voltage Control

  ▶ Advanced BIOS Features           Load Optimized Defaults

  ▶ Advanced Chipset Features        Set Supervisor Password

  ▶ Integrated Peripherals           Set User Password

  ▶ Power Management Setup                              tup
                          SAVE to CMOS and EXIT (Y/N)? Y
  ▶ PnP/PCI Configuration:                             aving

  ▶ PC Health Status


  Esc : Quit                    ↑ ↓ → ← : Select Item
  F10 : Save & Exit Setup

                    Save Data to CMOS
```

Entering "**Y**" saves any changes made, and exits the program.

Entering "**N**" will cancel the exit request.

Exit Without Saving
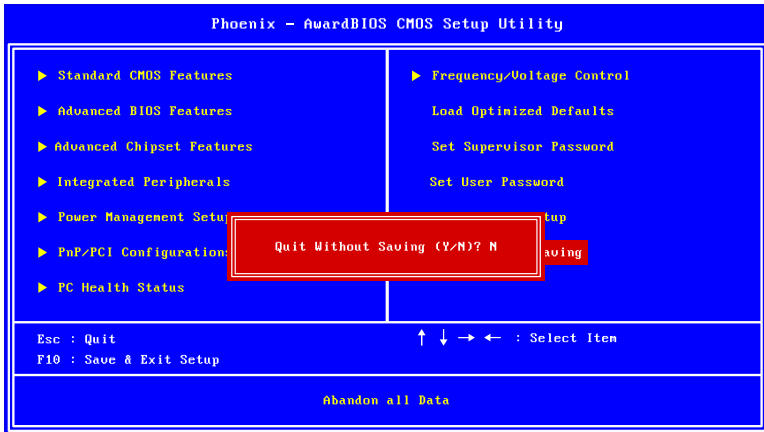
Entering "**Y**" discards any changes made and exits the program.

Entering "**N**" will cancel the exit request.

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CHAPTER 4
DRIVER INSTALLATION

This chapter gives you brief descriptions of each mainboard driver and application. You must install the VIA chipset drivers first before installing other drivers such as VGA drivers. The applications will only function correctly if the necessary drivers are already installed.

Driver Utilities

Getting Started

The mainboard includes a Driver Utilities CD that contains the drivers and software for enhancing the performance of the mainboard. If the CD is missing from the retail box, please contact the local dealer for the CD.

> **Note:**
> The driver utilities and software are updated from time to time. The latest updated versions are available at http://www.viaembedded.com/

Running the Driver Utilities CD

To start using the CD, insert the CD into the CD-ROM or DVD-ROM drive. The CD should run automatically after closing the CD-ROM or DVD-ROM drive. The driver utilities and software menu screen should then appear on the screen. If the CD does not run automatically, click on the "Start" button and select "Run…" Then type: "D:\Setup.exe".

For Linux drivers, click the right button on mouse and click open. Linux drivers are located in the "Driver" folder.

> **Note:**
> D: might not be the drive letter of the CD-ROM/DVD-ROM in your system.

CD Content

☐ **VIA 4in1 Drivers:**

- Contains VIA ATAPI Vendor Support Driver (enables the performance enhancing bus mastering functions on ATA-capable Hard Disk Drives and ensures IDE device compatibility), AGP VxD Driver (provides service routines to your VGA driver and interface directly to hardware, providing fast graphical access), IRQ Routing Miniport Driver (sets the system's PCI IRQ routing sequence) and VIA INF Driver (enables the VIA Power Management function).

- Includes V-RAID and RAID tools.

☐ **VIA Graphics Driver:**

- Enhances the onboard VIA graphic chip.

☐ **VIA Audio Driver:**

- Enhances the onboard VIA audio chip.

☐ **VIA USB 2.0 Driver:**

- Enhances VIA USB 2.0 ports.

☐ **VIA LAN Driver:**

- Enhances the onboard VIA VT6130 PCIe Gigabit Ethernet chip.

☐ **VIA RAID Driver:**

- Support for RAID devices.