EPIA-P710

Pico-ITXe Mainboard Manual

JANUARY 16, 2009 VERSION 1.0

Copyright and Trademarks

Disclaimer

No license is granted, implied or otherwise, under any patent or patent rights of VIA Technologies. VIA Technologies makes no warranties, implied or otherwise, in regard to this document and to the products described in this document. The information provided in this document is believed to be accurate and reliable as of the publication date of this document. However, VIA Technologies assumes no responsibility for the use or misuse of the information in this document and for any patent infringements that may arise from the use of this document. The information and product specifications within this document are subject to change at any time, without notice and without obligation to notify any person of such change.

Regulatory Compliance

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.

Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

Battery Recycling and Disposal

Only use the appropriate battery specified for this product.
Do not re-use, 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.

Safety Precautions

- ☐ 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 authorized service personnel:
    - o The power cord or plug is damaged.
    - o Liquid has penetrated into the equipment.
    - o The equipment has been exposed to moisture.
    - o The equipment has not worked well or you cannot get it work according to User's Manual.
    - o The equipment has dropped and damaged.
    - o 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.

Box Contents

- ☐ 1 x EPIA-P710 Pico-ITXe mainboard
- ☐ 1 x P710-A I/O board
- ☐ 1 x P710-B I/O board
- ☐ 1 x VGA cable
- ☐ 1 x SATA cable
- ☐ 1 x SATA power cable
- ☐ 1 x IDE cable
- ☐ 1 x PS/2 cable
- ☐ 1 x DC-in cable
- ☐ 1 x screw kit
- ☐ 1 x driver utility CD

TABLE OF CONTENTS

1: Specifications

The compact and highly integrated VIA EPIA-P710 Pico-ITXe mainboard comes with an integrated VIA C7 or Eden NanoBGA2 processor, boasting of ultra-low power consumption and cool operation.

Mainboard Specifications

CPU

- VIA C7 1 GHz NanoBGA2 processor with fansink

Chipset

- VIA VX800 All-in-One System Processor

Graphics

- VIA Chrome9™ HC3 IGP with MPEG-2/4 decoding acceleration

Memory

- One DDR2 667/533 SODIMM slot (up to 2 GB)

Storage

- One UltraDMA 133/100/66/33 connector
- One SATA 3 Gb/s connector and SATA power connector (5V)

LAN

- One VIA VT6122 Gigabit LAN controller[1]

Audio Codec

- VIA VT1708B High Definition audio codec

[1] The EPIA-P710-B LAN port accessory board is highly recommended to maintain the LAN performance.

Onboard I/O Connectors

- Two SUMIT QMS connectors[2]
- One Gigabit LAN pin header
- One Single-channel LVDS connector (5V/3V)
- One CPU fan connector
- One VGA pin header
- One audio pin header for Line-out, Line-in, and MIC-in
- One PS/2 KBMS connector
- One front panel pin header
- One +12V DC-in 2-pin connector

[2] SUMIT interface supports up to three USB 2.0, one LPC, two x1 PCIe, one x4 PCIe, SMBus, and SPI interfaces.

System Monitoring and Management

- System power management
- AC power failure recovery
- Wake-on LAN and keyboard

Supported OS

- Windows XP
- Windows CE
- Windows XPe
- Linux

BIOS

- Award BIOS
- SPI 4/8 Mbit flash memory

Operating Environment

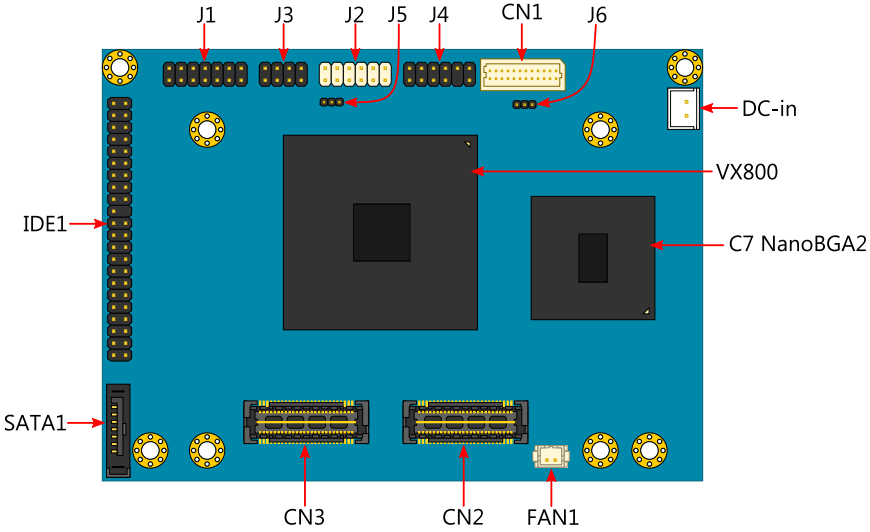
- Temperature range: 0°C - 50°C
- Humidity range: 0% - 95%[3]

Form Factor

- Pico-ITXe (10 cm x 7.2 cm)

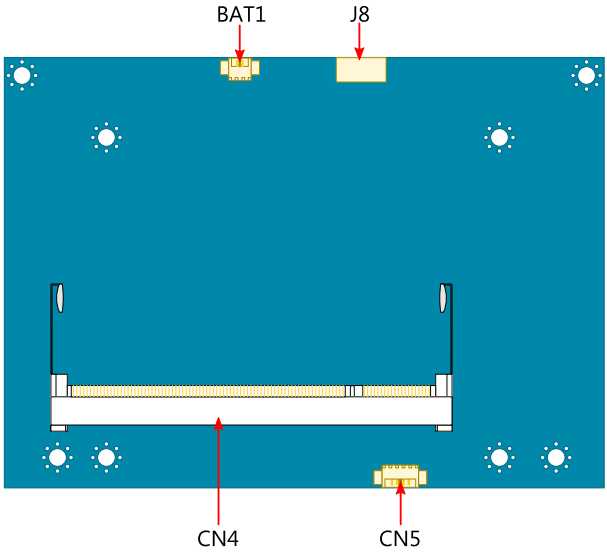
[3] Relative humidity and non-condensing.

EPIA-P710 Layout (top side)



Item	Function
J1	GigaLAN pin header connector
J2	Front panel pin header
J3	Front audio pin header
J4	VGA pin header
J5	Clear CMOS jumper
J6	LVDS power Selector
J7	DC-In power connector
CN1	LVDS connector
CN2	SUMIT QMS connector (Bank B)
CN3	SUMIT QMS connector (Bank A)
IDE1	IDE pin header
SATA1	Serial ATA connector
FAN1	CPU Fan connector

EPIA-P710 Layout (bottom side)



Item	Function
J8	PS/2 KBMS connector
CN4	Memory slot (DDR2 SODIMM)
CN5	SATA power connector
BAT1	CMOS Battery connector

P710-A I/O Module Specifications

Onboard I/O Connectors

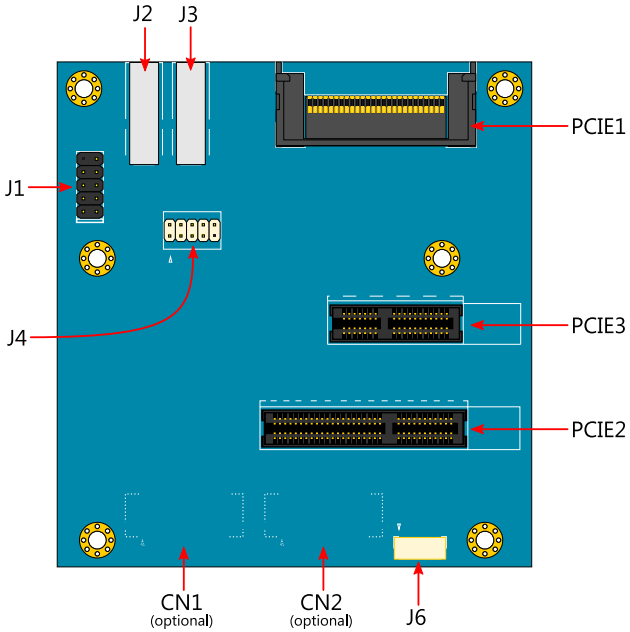
- Two SUMIT QFS connectors
- Two USB 2.0 ports
- One PCIe 1-Lane Express Card socket [4]
- One PCIe 4-Lane slot
- One PCIe 1-Lane slot
- One LPC pin header
- One SPI connector
- One COM port pin header

SuperIO

- VIA VT1212

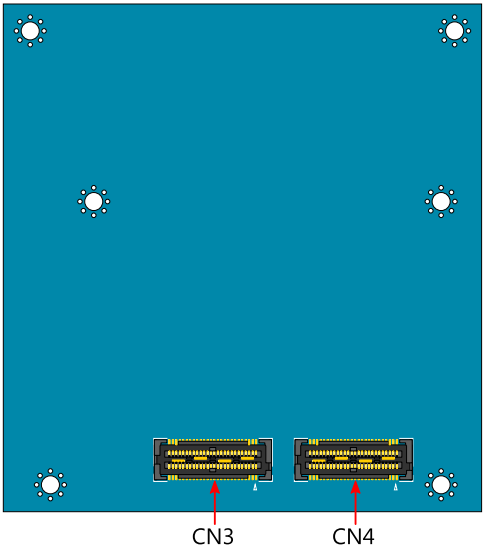
[4] PCIe 1-Lane Express Card socket can also support USB Express card.

P710-A Layout (top side)



Item	Function
J1	LPC pin header
J2	USB port
J3	USB port
J4	COM Port pin header
J6	SPI connector
PCIE1	PCIe 1-Lane socket
PCIE2	PCIe 4-Lane slot
PCIE3	PCIe 1-Lane slot

P710-A Layout (bottom side)



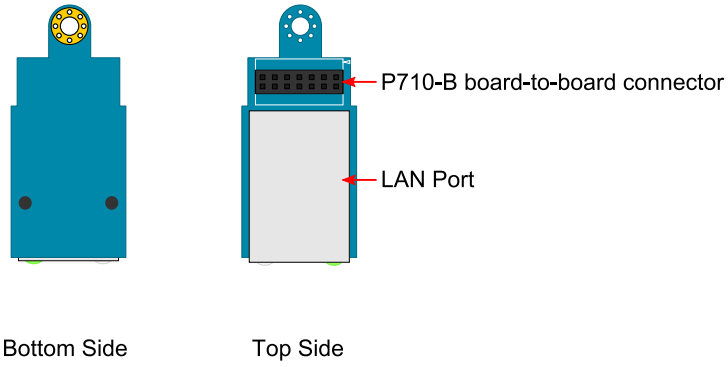
Item	Function
CN3	SUMIT QFS connector (Bank B)
CN4	SUMIT QFS connector (Bank A)

P710-B I/O Module Specifications

Onboard I/O Connectors

- P710-B board-to-board connector
- One Gigabit LAN port

P710-B Layout

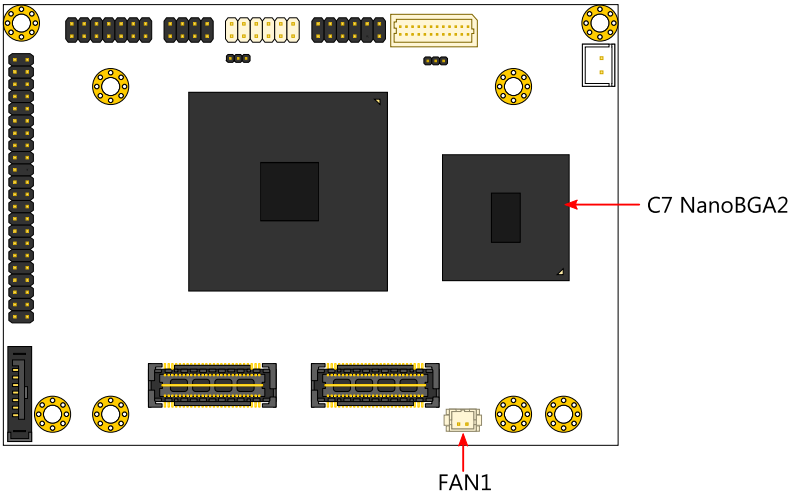


2: Installation

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-P710 Pico-ITXe mainboard is packaged with VIA C7 1 GHz NanoBGA2 processor. The VIA C7 processor requires a heatsink with fan to provide sufficient cooling.



CPU Fan Connector: FAN1

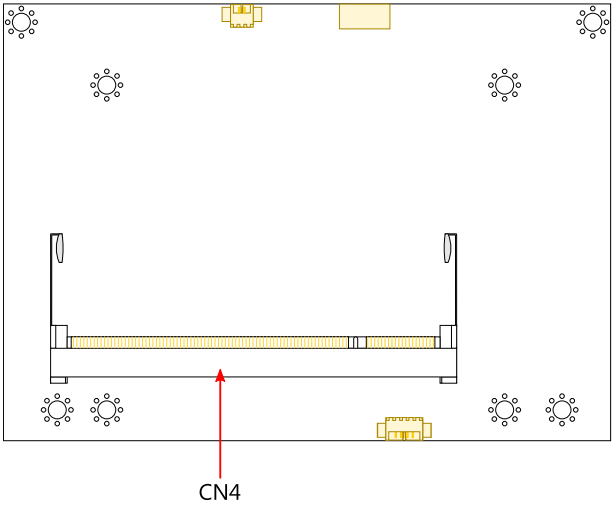
FAN1 runs on +5V and maintains system cooling. When connecting the wire to the connectors, always be aware that the red wire (positive wire) should be connected to the +5V. The black wire is Ground and should always be connected to GND.

Pin	Signal
1	+5V
2	GND

Memory Module Installation

Memory Slot: CN4

The VIA EPIA-P710 Pico-ITXe mainboard has one 200-SODIMM slot for DDR2 667/533 SDRAM memory modules and supports memory sizes up to 2 GB.



Available DDR2 SDRAM Configurations

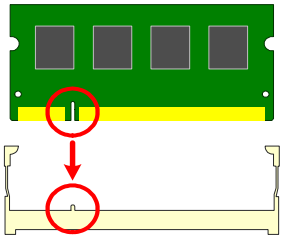
Refer to the table below for available DDR2 SDRAM configurations on the mainboard.

Slot	Module Size	Total
CN4	64 MB, 128 MB, 256 MB, 512 MB, 1 GB, 2 GB	64 MB - 2 GB
Maximum supported system memory		2 GB

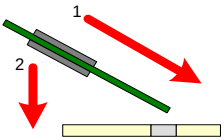
DDR2 SDRAM Module Installation Procedures

Step 1
Locate the SODIMM slot in the mainboard.

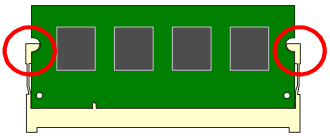
Step 2
Align the notch on the SODIMM with the memory slot.



Step 3
Inset the SODIMM module at a 45 degree angle.

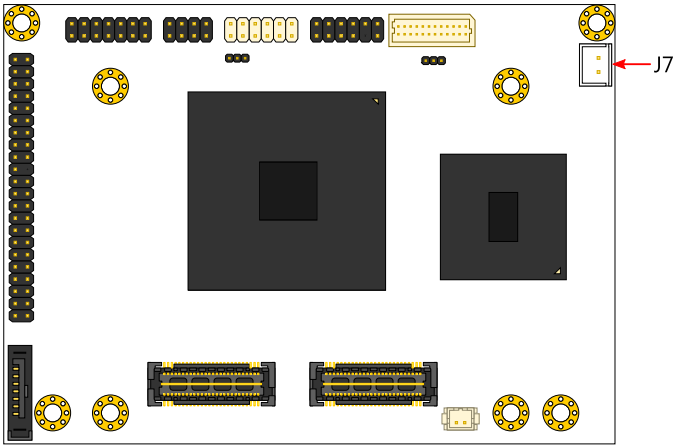


Step 4
Then push the SODIMM down until it snaps into the locking mechanism.



Connecting the Power Supply

The VIA EPIA-P710 Pico-ITXe has an onboard DC-in 2-pin power connector. Before inserting the power supply connector, always make sure that all components are installed correctly to ensure that no damage will be caused.



DC-in Power Connector: J7

The DC-in power connector used to connect the DC-in power cable.

Pin	Signal
1	+12V
2	GND

DC-in Power Cable

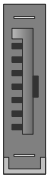
The DC-in power cable is supplied with the mainboard. Ensure the 2-pin connector head is firmly inserted in the proper orientation. The red cable should be furthest away from the heatsink.

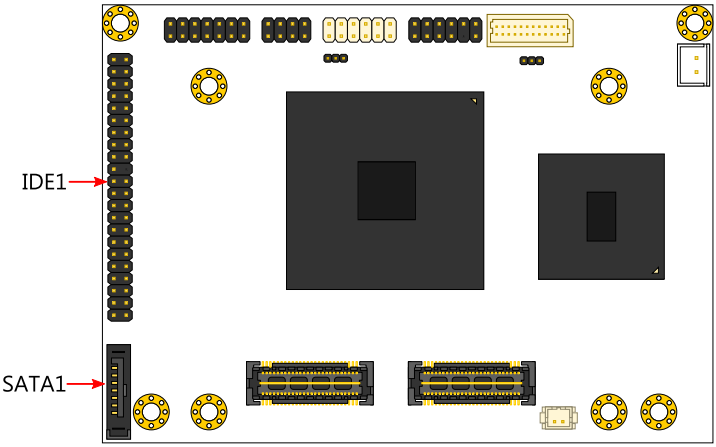
Top Side Connectors

Serial ATA Connector: SATA1

The current SATA interface allows up to 300 MB/s data transfer rate, faster than the standard parallel ATA with 133 MB/s (Ultra DMA).

SATA1

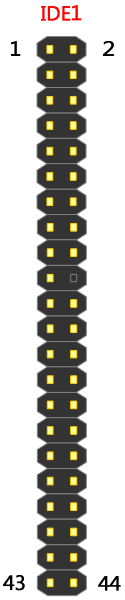




IDE Pin Header: IDE1

The mainboard has an Ultra DMA 133/100 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

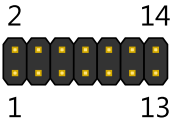


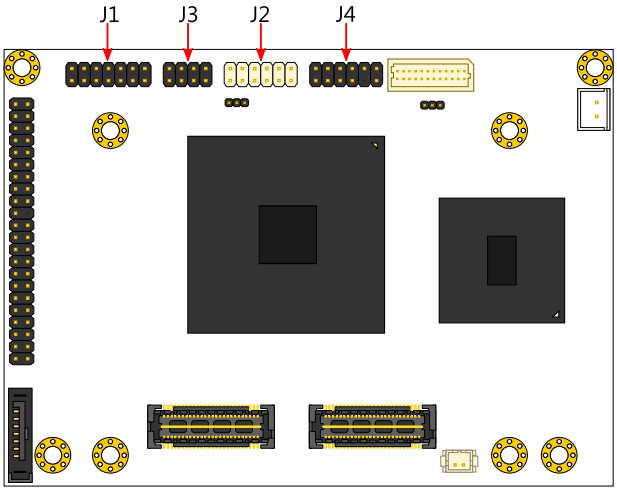
If two drives are connected to a single cable, the jumper on the second drive must be set to slave mode. Refer to the drive documentation supplied by the vendor for the jumper settings.

GigaLAN Pin Header: J1

The GigaLAN pin header is for connecting to the P710-B I/O module.

Pin	Signal	Pin	Signal
1	AV3VGL	2	+3.3VSUS
3	TXNC	4	TXND
5	TXPC	6	TXPD
7	TXNA	8	TXNB
9	TXPA	10	TXPB
11	GND	12	LED1
13	LED2	14	LNK_ACT

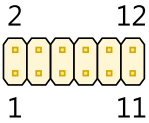




Front Panel Pin Header: J2

The Front 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	PW_LED	2	HD_LED(+)
3	PW_LED	4	HD_LED(-)
5	GND	6	PW_BN-
7	SPEAK_BZ	8	GND
9	GND	10	RST_SW
11	NC	12	GND



Front Audio Pin Header: J3

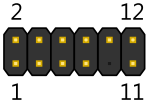
This connector allows you to connect a front audio panel to the mainboard.

Pin	Signal	Pin	Signal
1	LINER	2	GND_AUD
3	LINEL	4	MICIN
5	LINEOUTR	6	AD_5V
7	LINEOUTL	8	SENSE_A

VGA Pin Header: J4

This connector allows you to connect the VGA cable.

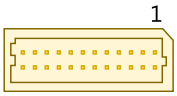
Pin	Signal	Pin	Signal
1	RED	2	+5VCRT
3	GREEN	4	GND
5	BLUE	6	DDCDATA
7	GND	8	DDCCLK
9	KEY	10	VSYNC
11	HSYNC	12	GND

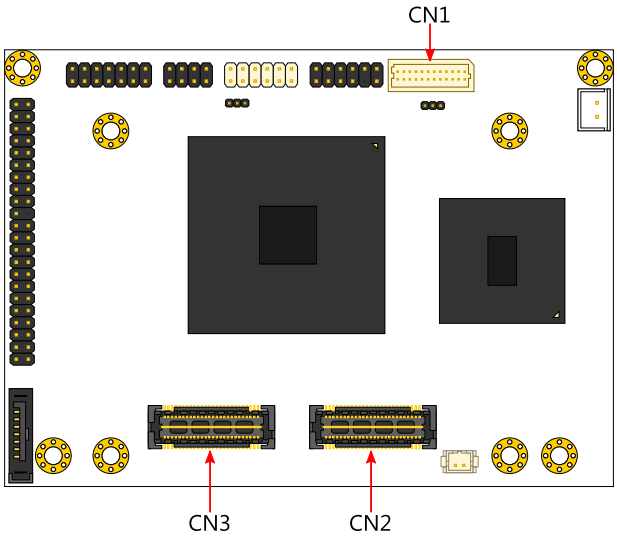


LVDS Connector: CN1

The single-channel LVDS connector allows you to connect the panel's LVDS cable directly to support LVDS panel.

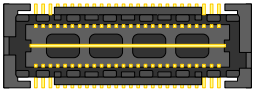
Pin	Signal	Pin	Signal
1	LCD1D0-	2	LCD1D1-
3	LCD1D0+	4	LCD1D1+
5	GND	6	GND
7	PVDD2	8	LCD1D2-
9	PVDD2	10	LCD1D2+
11	LCD1_DATA	12	GND
13	LCD1_CLK	14	LCD1CLK+
15	GND	16	LCD1CLK-
17	VDD_BL	18	GND
19	VDD_BL	20	DIMMING
21	VDD_BL	22	BLEN_1
23	GND	24	GND





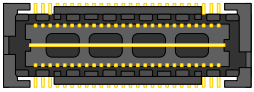
SUMIT QMS Connector (Bank A): CN3

Pin	Signal	Pin	Signal
1	+5VSUS	2	+12V
3	+3.3V	4	SMBDT
5	+3.3V	6	SMBCK
7	-CLKREQ	8	-SMBALT
9	-EXPCD_PRSNT	10	SPIDO
11	-OC0/1	12	SPIDI
13	NA	14	SPICLK
15	NA	16	-SPISS0
17	NA	18	-SPISS1
19	NA	20	SIOOSC
21	USBVCC	22	-LDRQ
23	USB_VD2+	24	LAD0
25	USB_VD2-	26	LAD1
27	USBVCC	28	LAD2
29	USB_VD1+	30	LAD3
31	USB_VD1-	32	-LFRAME
33	USBVCC	34	SERIRQ
35	USB_VD0+	36	-LPC_PRSNT
37	USB_VD0-	38	PCLKLPC
39	GND	40	GND
41	A_PETp0	42	A_PERp0
43	A_PETn0	44	A_PERn0
45	GND	46	-A_PRSNT
47	-PCIERST0	48	A_CLKp
49	-WAKE	50	A_CLKn
51	+5V	52	GND



SUMIT QMS Connector (Bank B): CN2

Pin	Signal	Pin	Signal
1	GND	2	GND
3	B_PETp0	4	B_PERp0
5	B_PETn0	6	B_PERn0
7	GND	8	-B_PRSNT
9	C_CLKp	10	B_CLKp
11	C_CLKn	12	B_CLKn
13	-C_PRSNT	14	GND
15	C_PETp0	16	C_PERp0
17	C_PETn0	18	C_PERn0
19	GND	20	GND
21	C_PETp1	22	C_PERp1
23	C_PETn1	24	C_PERn1
25	GND	26	GND
27	C_PETp2	28	C_PERp2
29	C_PETn2	30	C_PERn2
31	GND	32	GND
33	C_PETp3	34	C_PERp3
35	C_PETn3	36	C_PERn3
37	GND	38	GND
39	-PCIERST1	40	-WAKE
41	VCC_SPI	42	-PCIRST1
43	+5V	44	NA
45	+5V	46	+3.3V
47	+5V	48	+3.3V
49	+5V	50	+3.3V
51	+5V	52	+5VSUS

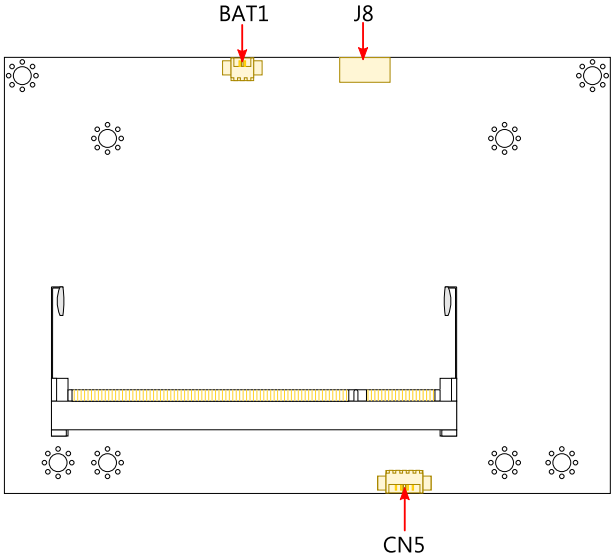


Bottom Side Connectors

PS/2 KBMS Connector: J8

The mainboard provides a PS/2 KBMS connector for PS/2 keyboard and mouse.

Pin	Signal
1	+5VSUS
2	GND
3	KB_CLK
4	KB_DATA
5	MS_CLK
6	MS_DATA



SATA Power Connector: CN5

The P710 mainboard supports a 4-pin SATA power connector 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 and pins are aligned. The power connector for SATA devices is located on the bottom side of the mainboard.

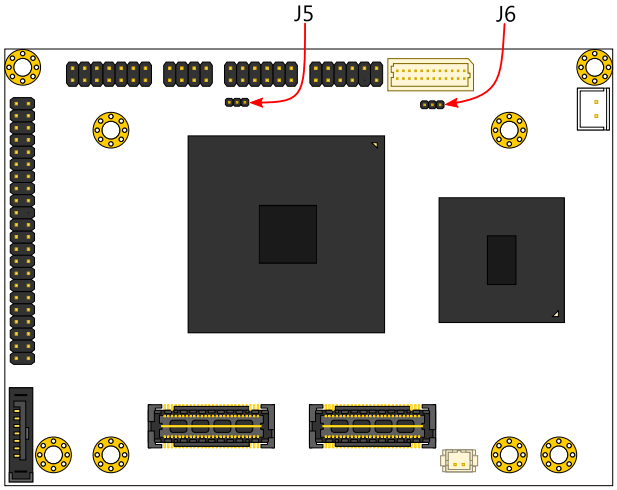
Pin	Signal
1	+5V
2	+5V
3	GND
4	GND

CMOS Battery Connector: BAT1

The P710 mainboard comes with external CMOS battery connector. This 2-pin connector used to connect the external cable battery for CMOS. The power connector for the CMOS battery is located on the bottom side of the board.

Pin	Signal
1	+3.3V
2	GND

Jumpers



Clear CMOS Connector: J5

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. The default setting is on pins 1 and 2.

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.

LVDS Power Selector: J6

This jumper enables the selection of +5V and +3.3V for the LVDS connector. The default setting is on pins 2 and 3.

Setting	1	2	3
+5V	ON	ON	OFF
+3.3V	OFF	ON	ON

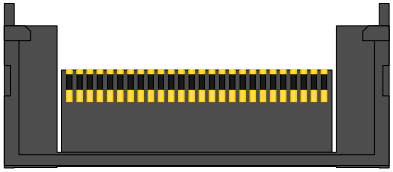
3: Add-on Modules

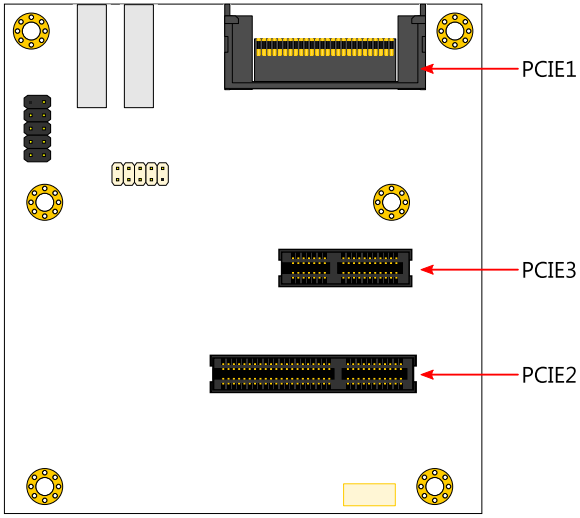
The EPIA-P710 Pico-ITXe mainboard comes with two add-on modules: P710-A and P710-B.

P710-A

PCIe 1-Lane Socket: PCIE1

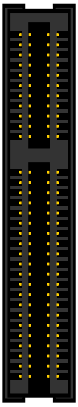
Pin	Signal
1	GND
2	USB-
3	USB+
4	CPUSB#
5	RSVD0
6	RSVD1
7	SMBCLK
8	SMBDATA
9	+1.5V
10	+1.5V
11	WAKE#
12	+3.3VAUX
13	PERST#
14	+3.3V
15	+3.3V
16	CLKREQ#
17	CPPE#
18	REFCLK-
19	REFCLK+
20	GND
21	PERN0
22	PERP0
23	GND
24	PETN0
25	PETP0
26	GND





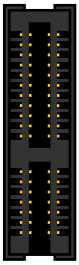
PCIe 4-Lane Slot: PCIE2

Pin	Signal	Pin	Signal
B1	+12V	A1	PRSNT1#
B2	+12V	A2	+12V
B3	RSVD1	A3	+12V
B4	GND	A4	GND
B5	SMCLK	A5	JTAG2
B6	SMDAT	A6	JTAG3
B7	GND	A7	JTAG4
B8	+3.3V	A8	JTAG5
B9	JTAG1	A9	+3.3V
B10	3.3VAUX	A10	+3.3V
B11	WAKE#	A11	PERST#
B12	RSVD2	A12	GND
B13	GND	A13	REFCLK+
B14	PETP0	A14	REFCLK-
B15	PETN0	A15	GND
B16	GND	A16	PERP0
B17	PRSNT2#1	A17	PERN0
B18	GND	A18	GND
B19	PETP1	A19	RSVD4
B20	PETN1	A20	GND
B21	GND	A21	PERP1
B22	GND	A22	PERN1
B23	PETP2	A23	GND
B24	PETN2	A24	GND
B25	GND	A25	PERP2
B26	GND	A26	PERN2
B27	PETP3	A27	GND
B28	PETN3	A28	GND
B29	GND	A29	PERP3
B30	RSVD3	A30	PERN3
B31	PRSNT2#2	A31	GND
B32	GND	A32	RSVD5



PCIe 1-Lane Slot: PCIE3

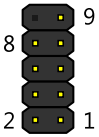
Pin	Signal	Pin	Signal
B1	+12V1	A1	PRSNT1#
B2	+12V2	A2	+12V3
B3	+12V5	A3	+12V4
B4	GND	A4	GND
B5	SMCLK	A5	JTAG2
B6	SMDAT	A6	JTAG3
B7	GND	A7	JTAG4
B8	+3.3V1	A8	JTAG5
B9	JTAG1	A9	+3.3V2
B10	3.3VAUX	A10	+3.3V
B11	WAKE#	A11	PERST#
B12	RSVD2	A12	GND
B13	GND	A13	REFCLK+
B14	PETP0	A14	REFCLK-
B15	PETN0	A15	GND
B16	GND	A16	PERP0
B17	PRSNT2#	A17	PERN0
B18	GND	A18	GND

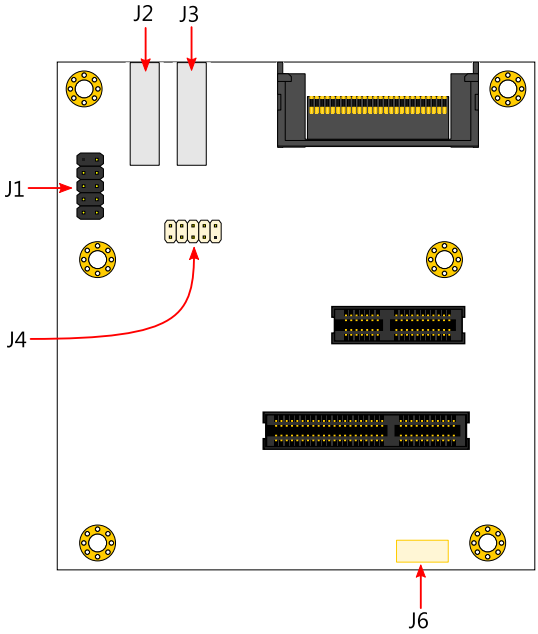


LPC Pin Header: J1

This pin connector is for LPC devices.

Pin	Signal	Pin	Signal
1	+3.3V	2	-PCIRST1
3	PCLKLPC	4	LAD0
5	-LFRAME	6	LAD1
7	LAD3	8	LAD2
9	GND	10	KEY





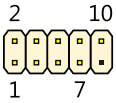
USB Ports: J2 and J3

The P710-A I/O module comes with two USB ports that can directly connect to USB devices.

COM Port Pin Header: J4

COM Port pin header can be used to attach additional ports for serial devices.

Pin	Signal	Pin	Signal
1	-DSRA	2	-DCDA
3	-RTSA	4	RXDA
5	-CTSA	6	TXDA
7	RIA	8	-DTRA
9	KEY	10	GND



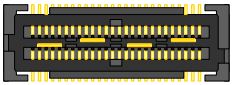
SPI Connector: J6

This connector is used to connect with SPI BIOS programming fixture.

Pin	Signal
1	-SPISS1
2	-PCIRST1
3	SPIDO
4	SPIDI
5	SPICLK
6	-SPISS0
7	GND
8	+3.3V/V_{cc}_spi

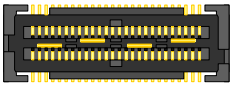
SUMIT QFS Connector (Bank A): CN4

Pin	Signal	Pin	Signal
1	+5VSUS	2	+12V
3	+3.3V	4	SMBDT
5	+3.3V	6	SMBCK
7	-CLKREQ	8	-SMBALT
9	-EXPCD_PRSNT	10	SPIDO
11	-OC0/1	12	SPIDI
13	NA	14	SPICLK
15	NA	16	-SPISS0
17	NA	18	-SPISS1
19	NA	20	SIOOSC
21	USBVCC	22	-LDRQ
23	USB_VD2+	24	LAD0
25	USB_VD2-	26	LAD1
27	USBVCC	28	LAD2
29	USB_VD1+	30	LAD3
31	USB_VD1-	32	-LFRAME
33	USBVCC	34	SERIRQ
35	USB_VD0+	36	-LPC_PRSNT
37	USB_VD0-	38	PCLKLPC
39	GND	40	GND
41	A_PETp0	42	A_PERp0
43	A_PETn0	44	A_PERn0
45	GND	46	-A_PRSNT
47	-PCIERST0	48	A_CLKp
49	-WAKE	50	A_CLKn
51	+5V	52	GND



SUMIT QFS Connector (Bank B): CN3

Pin	Signal	Pin	Signal
1	GND	2	GND
3	B_PETp0	4	B_PERp0
5	B_PETn0	6	B_PERn0
7	GND	8	-B_PRSNT
9	C_CLKp	10	B_CLKp
11	C_CLKn	12	B_CLKn
13	-C_PRSNT	14	GND
15	C_PETp0	16	C_PERp0
17	C_PETn0	18	C_PERn0
19	GND	20	GND
21	C_PETp1	22	C_PERp1
23	C_PETn1	24	C_PERn1
25	GND	26	GND
27	C_PETp2	28	C_PERp2
29	C_PETn2	30	C_PERn2
31	GND	32	GND
33	C_PETp3	34	C_PERp3
35	C_PETn3	36	C_PERn3
37	GND	38	GND
39	-PCIERST1	40	-WAKE
41	VCC_SPI	42	-PCIRST1
43	+5V	44	NA
45	+5V	46	+3.3V
47	+5V	48	+3.3V
49	+5V	50	+3.3V
51	+5V	52	+5VSUS

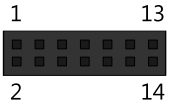


P710-B

P710-B board-to-board Connector: J1

This connector connects to J1 on the EPIA-P710.

Pin	Signal	Pin	Signal
1	AV3VGL	2	+3.3VSUS
3	TXNC	4	TXND
5	TXPC	6	TXPD
7	TXNA	8	TXNB
9	TXPA	10	TXPB
11	GND	12	LED1
13	LED2	14	LNK_ACT



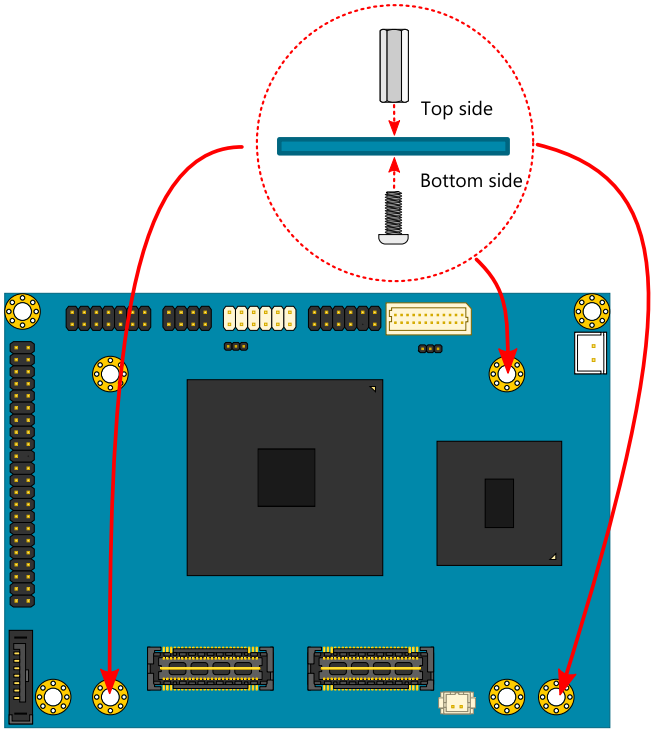
RJ45 Port: U1

The P710-B I/O module comes with a GigaLAN port that can directly connect to a cable with an RJ45 plug.

Mounting the Add-on Modules

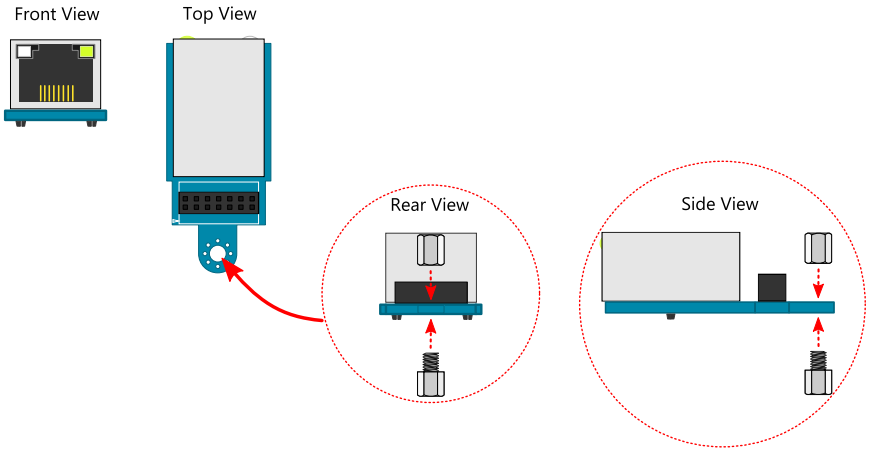
Step 1

Install the 15 mm standoffs on the EPIA-P710. Secure the standoffs with the M3 screws.



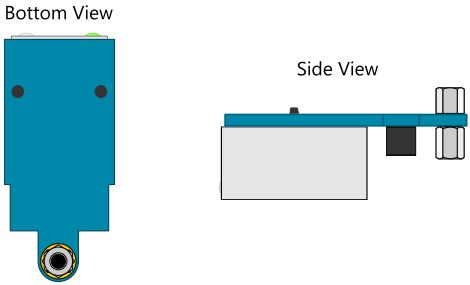
Step 2

Install the 6 mm standoff on the P710-B module. Secure it with the 6 mm standoff that has an M3 screw end.



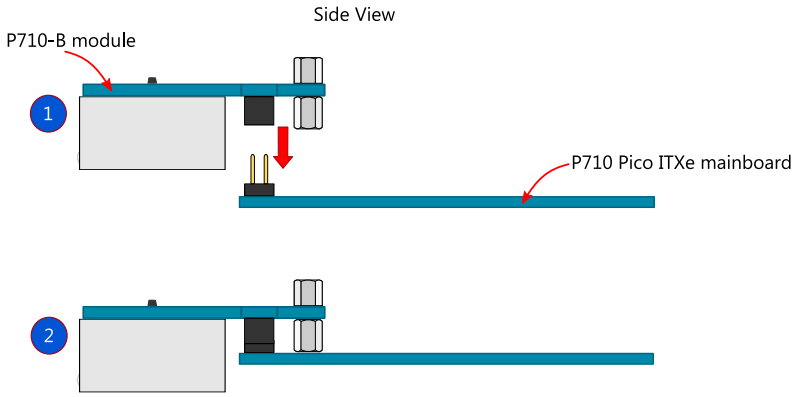
Step 3

Flip the P710-B module over so that the J1 connector is facing the bottom.



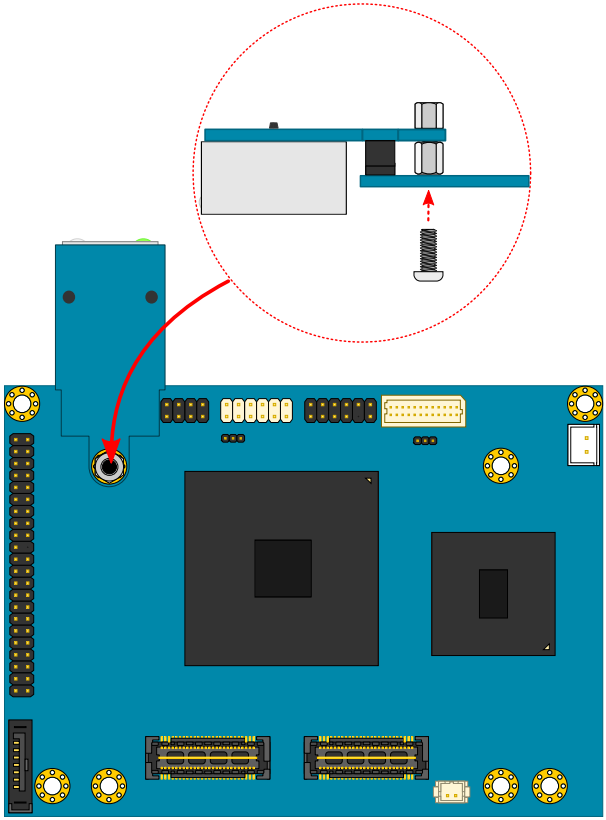
Step 4

Align the J1 connector on the P710-B module over the J1 pin header on the EPIA-P710. Press down until the J1 pin header is fully inserted into the J1 connector.



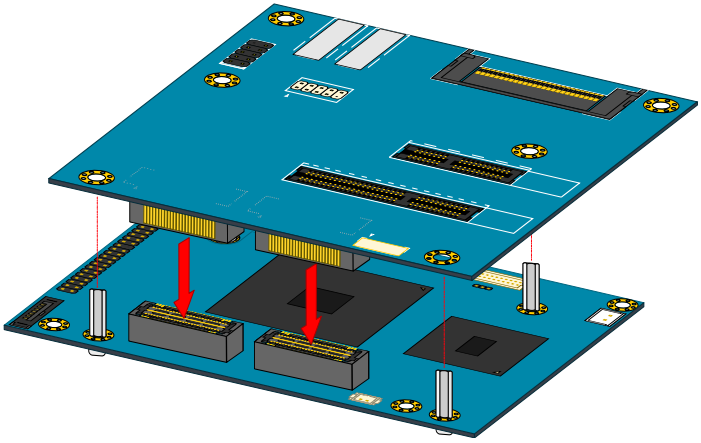
Step 5

Secure the lower half of the standoff on the P710-B module to the EPIA-P710 with an M3 screw.



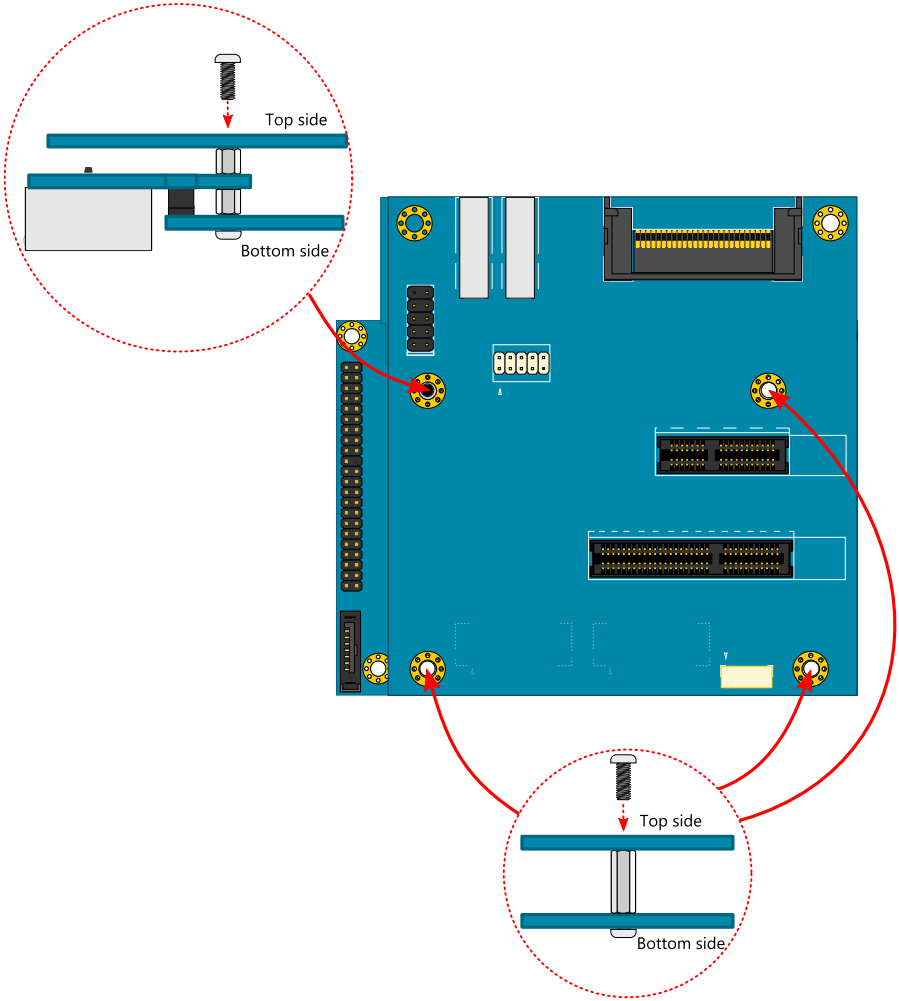
Step 6

Align the SUMIT QFS connectors on the P710-A module over the SUMIT QMS connectors on the EPIA-P710. Press down until the connectors are fully attached.



Step 7

Secure the P710-A module to the EPIA-P710 by inserting M3 screws into the standoffs below the P710-A module.



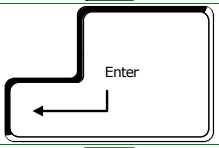
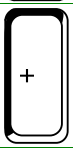
4: BIOS Setup

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

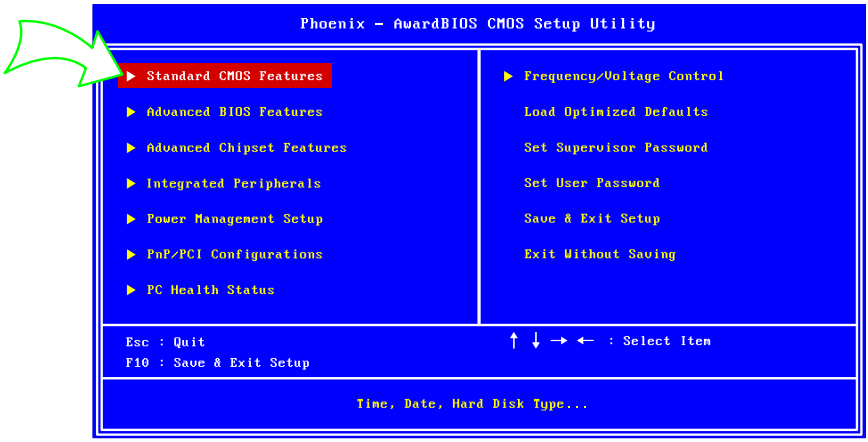
Keys	Description
	Move to the previous item
	Move to the next item
	Move to the item in the left side
	Move to the item in the right side
	Select the item
	Jumps to the Exit menu or returns to the main menu from a submenu
	Increase the numeric value or make changes
	Decrease the numeric value or make changes
	Increase the numeric value or make changes
	Decrease the numeric value or make changes

Keys	Description
	General help, only for Status Page Setup Menu and Option Page Setup Menu
	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
	Load Optimized defaults
	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.

The small triangular arrowhead 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**>.

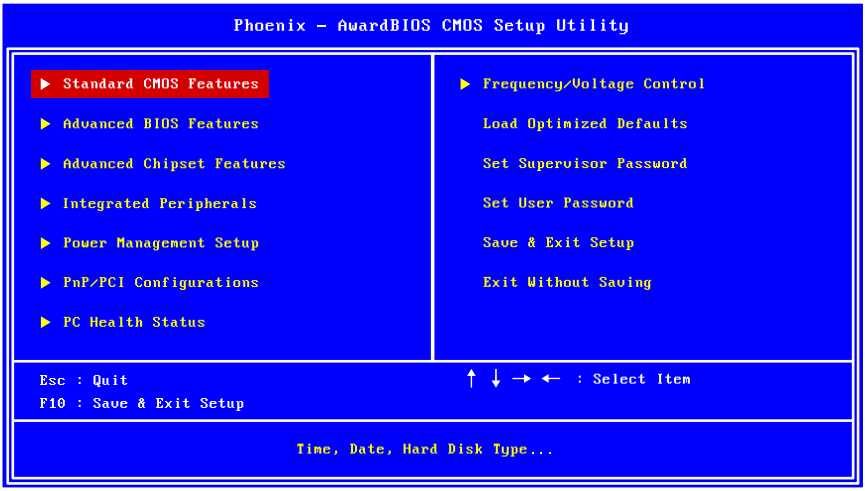


Getting Help

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



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.

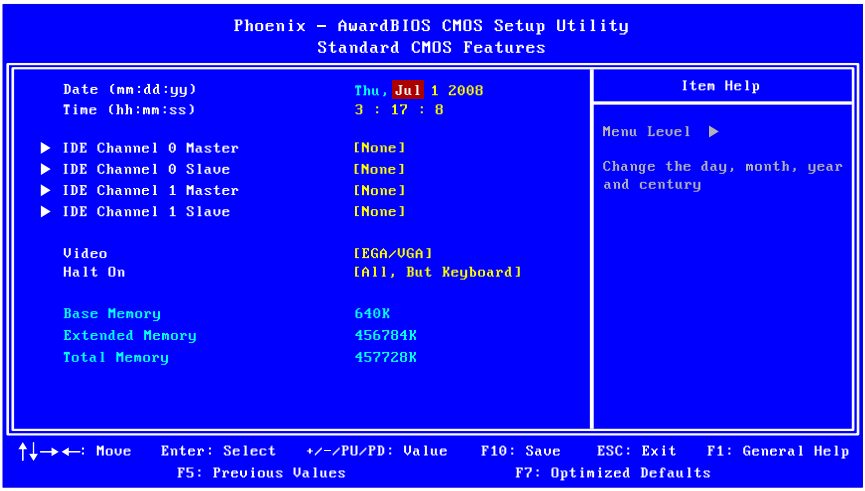
Set Supervisor Password
Use this menu option to set the BIOS supervisor password.

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



Date

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

Time

The time format is [Hour : Minute : Second]

Video

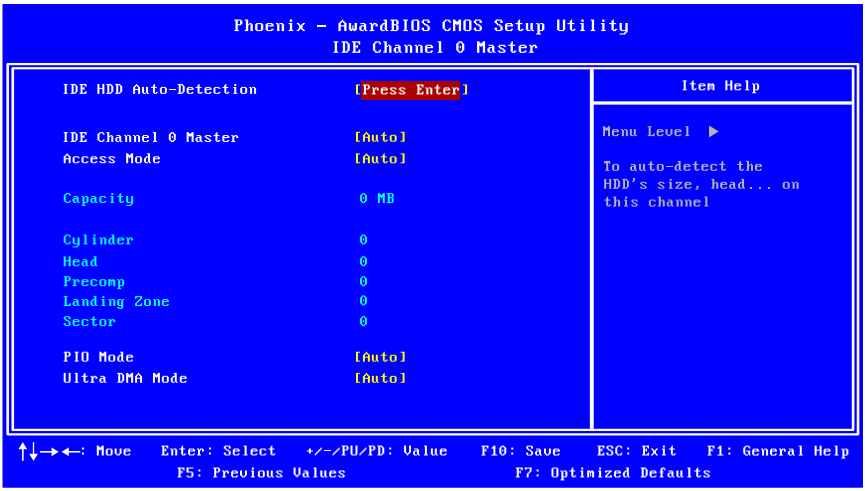
Settings: [EGA/VGA, CGA 40, CGA 80, MONO]

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 Channels

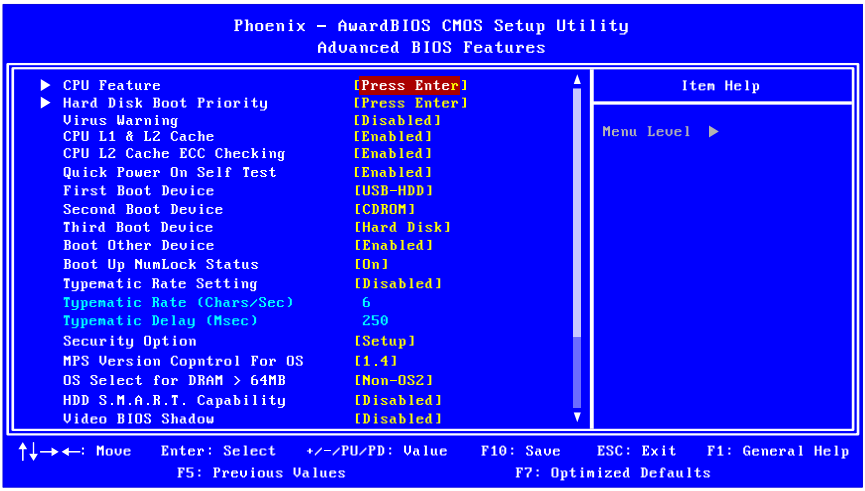


The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in this category. Select "**Auto**" whenever possible. If you select "**Manual**", make sure the information is from your hard disk vendor or system manufacturer.

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
Primary PIO	Settings: [Auto, Mode 1, Mode 2, Mode 3, Mode 4]
Primary UDMA	Settings: [Disabled, Auto]

Advanced BIOS Features



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: [Disabled, Enabled]

CPU L2 Cache ECC Checking

This feature facilitates error detection/correction when data passes through Level 2 cache.
Settings: [Disabled, Enabled]

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
Removable	Boot from external drive
Hard Disk	Boot from the HDD
CDROM	Boot from CDROM
USB-CDROM	Boot from USB CDROM
Network	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

Enable "Typematic Rate" function.
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 > 64 MB

Settings: [Non-OS2, OS2]

HDD S.M.A.R.T. Capability

Settings: [Disabled, Enabled]

Video BIOS Shadow

Settings: [Disabled, Enabled]

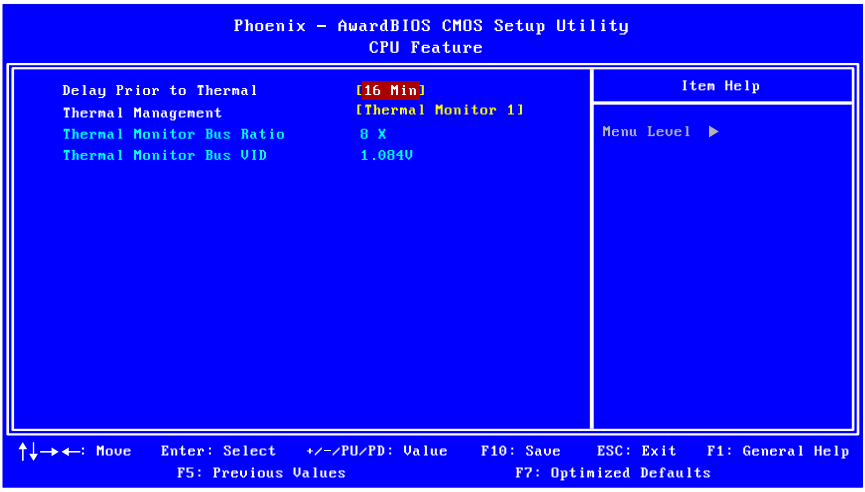
Full Screen Logo Show

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

Summary Screen Show

Show summary screen.
Settings: [Disabled, Enabled]

CPU Feature



Delay Prior to Thermal

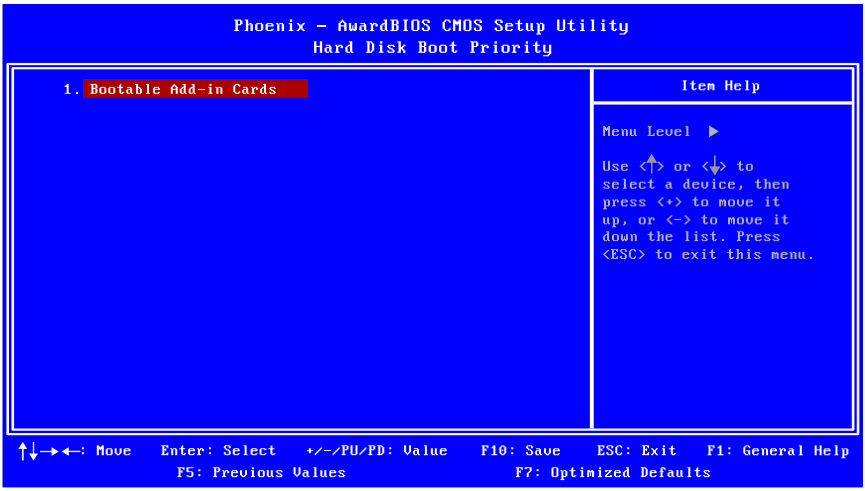
Settings: [4 Min, 8 Min, 16 Min, 32 Min]

Thermal Management

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

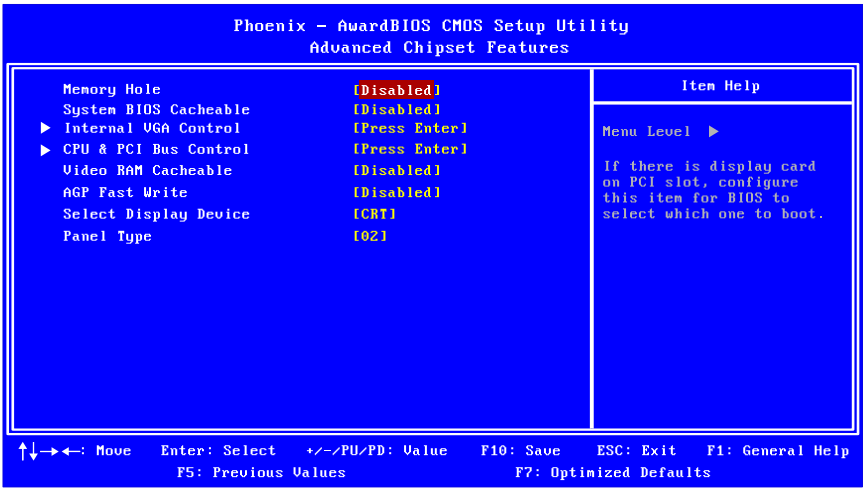
Settings	Description
Thermal Monitor 1	On-die throttling
Thermal Monitor 1	Ration & VID transition

Hard Disk Boot Priority



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



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]

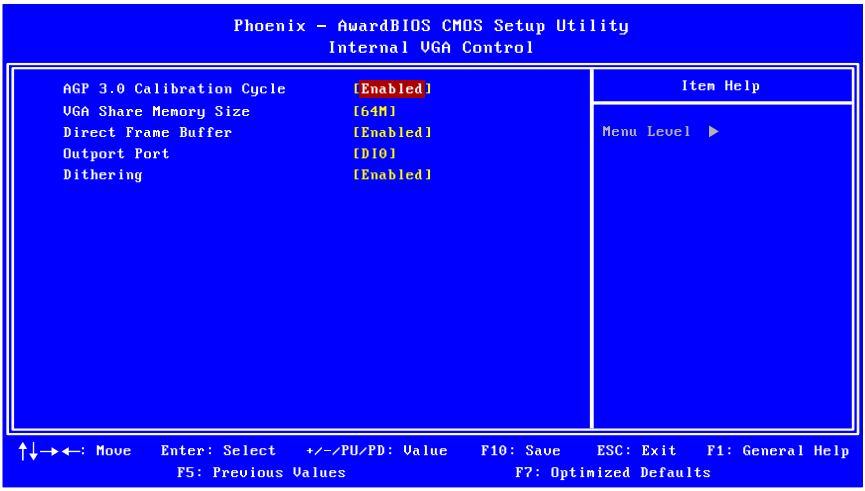
Select Display Device

Settings: [CRT, LCD, CRT&LCD]

Panel Type

Settings	Description
00	640 x 480
01	800 x 600
02	1024 x 768
03	1280 x 768
04	1280 x 1024

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, 16M, 32M, 64M]

Direct Frame Buffer

Settings: [Disabled, Enabled]

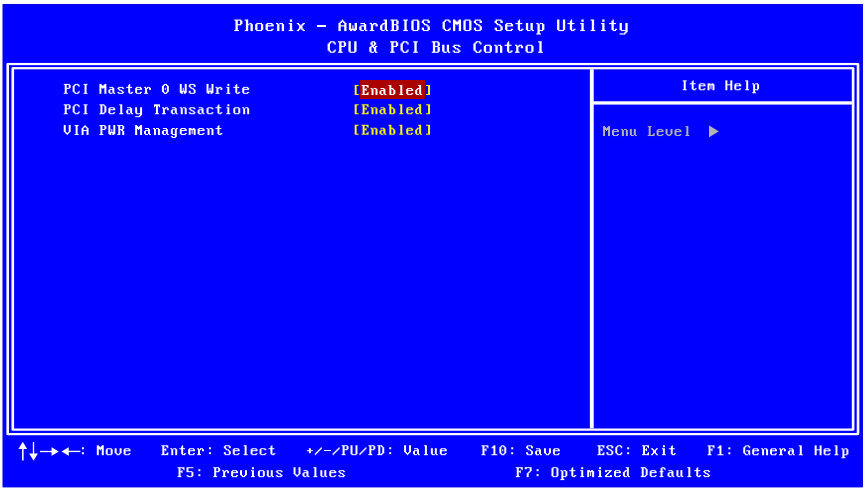
Outport Port

Settings: [DI0, DI1]

Dithering

Settings: [Disabled, Enabled]

CPU & PCI Bus Control



PCI Master 0 WS Write

Settings: [Disabled, Enabled]

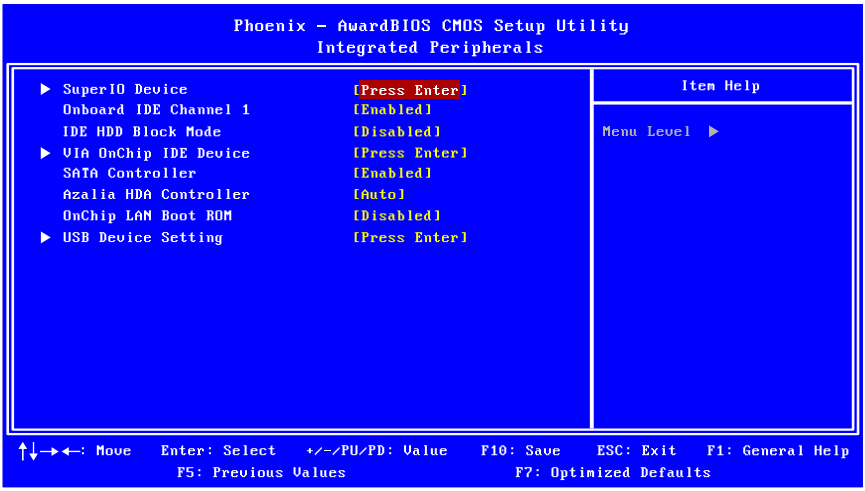
PCI Delay Transaction

Settings: [Disabled, Enabled]

VIA PWR Management

Settings: [Disabled, Enabled]

Integrated Peripherals



Onboard IDE Channel 1

The integrated peripheral controller contains an IDE interface
Settings: [Disabled, Enabled]

IDE HDD Block Mode

Automatic detection of the optimal number of block read/writes per sector the drive can support.
Settings: [Disabled, Enabled]

SATA Controller

Settings: [Disabled, Enabled]

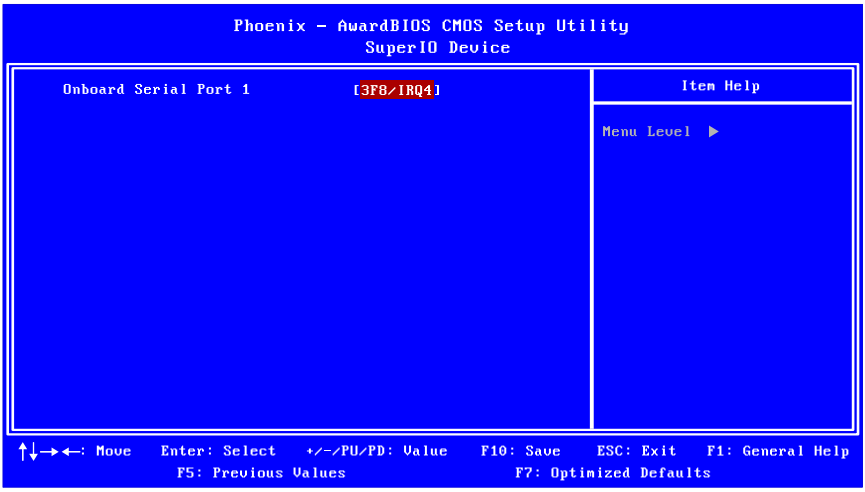
Azalia HDA Controller

Settings: [Auto, Disabled]

OnChip LAN Boot ROM

Decide whether to invoke the boot ROM of the onboard LAN chip.
Settings: [Enabled, Disabled]

SuperIO Device

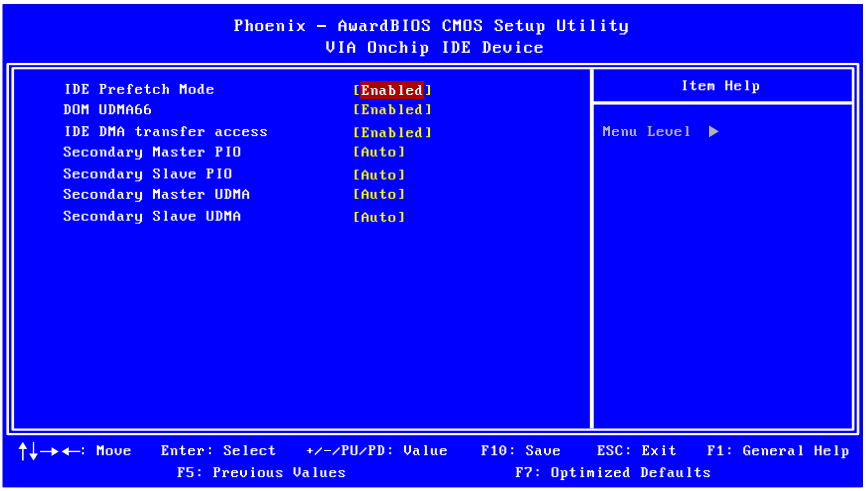


Onboard Serial Port 1

Set the base I/O port address and IRQ for the onboard serial port A / serial port B. Selecting *Auto* allows BIOS to automatically determine the correct base I/O port address. Settings:

Port	Settings					
1	Disabled	3F8/IRQ4	2F8/IRQ3	3E8/IRQ4	2E8/IRQ3	Auto

VIA OnChip IDE Device



IDE Prefetch Mode

This allows your hard disk controller to use the fast block mode to transfer data to and from the hard disk drive. Block mode is also called block transfer, multiple commands or multiple sector read/write.
Settings: [Disabled, Enabled]

DOM UDMA66

Settings: [Disabled, Enabled]

IDE DMA Transfer Access

Settings: [Disabled, Enabled]

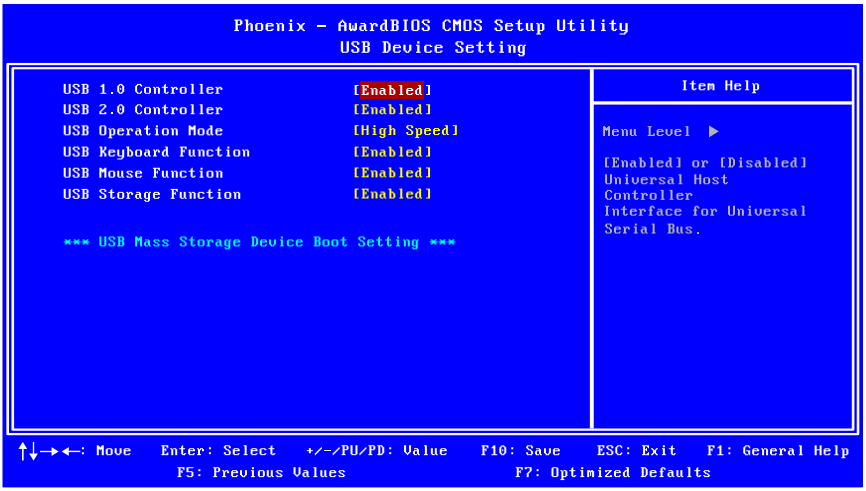
Secondary Master/Slave PIO

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

Secondary Master/Slave UDMA

Settings: [Disabled, Auto]

USB Device Setting



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]

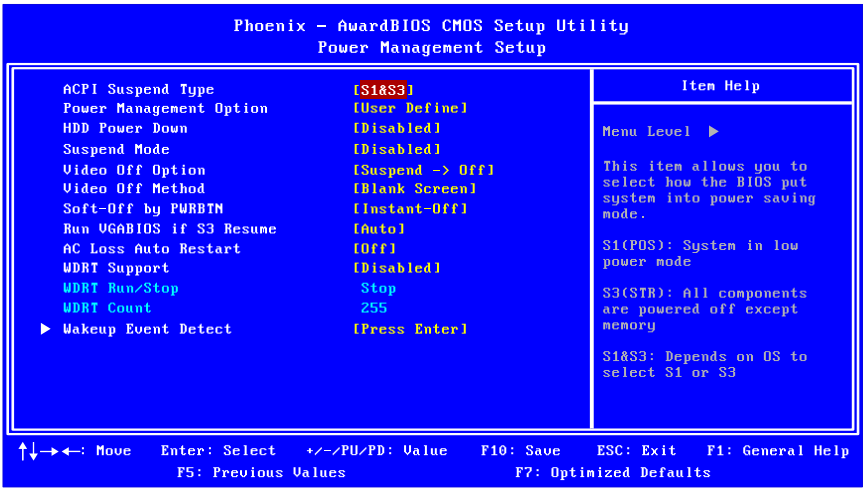
USB Mouse Function

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

USB Storage Function

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

Power Management Setup



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

Settings: [Disabled, 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

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

WDRT Support

Settings: [Disabled, Enabled]

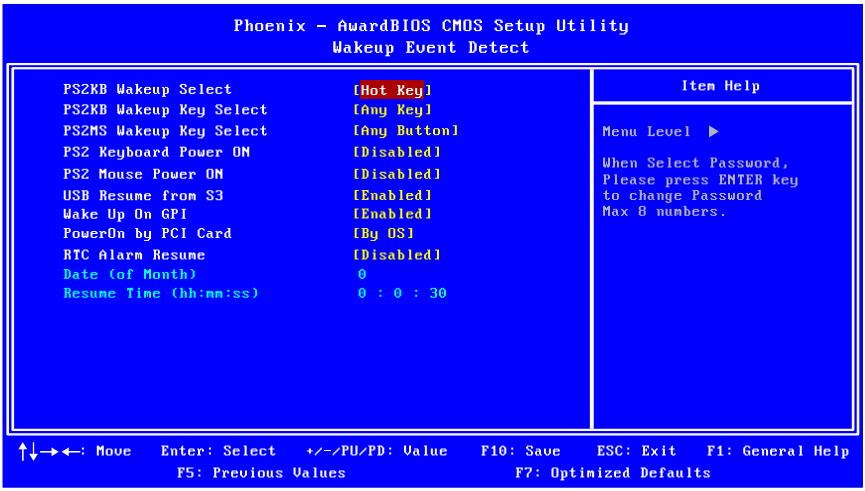
WDRT Run/Stop

This option is only available if "WDRT Support" is enabled.
Settings: [Stop, Run]

WDRT Count

This option is only available if "WDRT Support" is enabled.
Settings: [Decimal number from 0 to 1023]

Wakeup Event Detect



PS2KB Wakeup Select

This feature has two settings: Hot Key and Password. To select the Password option, press <**Page Up**> or <**Page Down**>. To set the password, enter up to eight digits and press <**Enter**>.
Settings: [Hot Key, Password]

PS2KB Wakeup Key Select

This feature is only available when "Hot Key" is chosen in "PS2KB Wakeup Select".
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

Settings: [Any Button, Left Button, Right Button]

PS2 Keyboard Power ON

Settings: [Disabled, Enabled]

PS2 Mouse Power ON

Settings: [Disabled, Enabled]

Wake Up on GPI

Settings: [Disabled, Enabled]

USB Resume from S3

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]

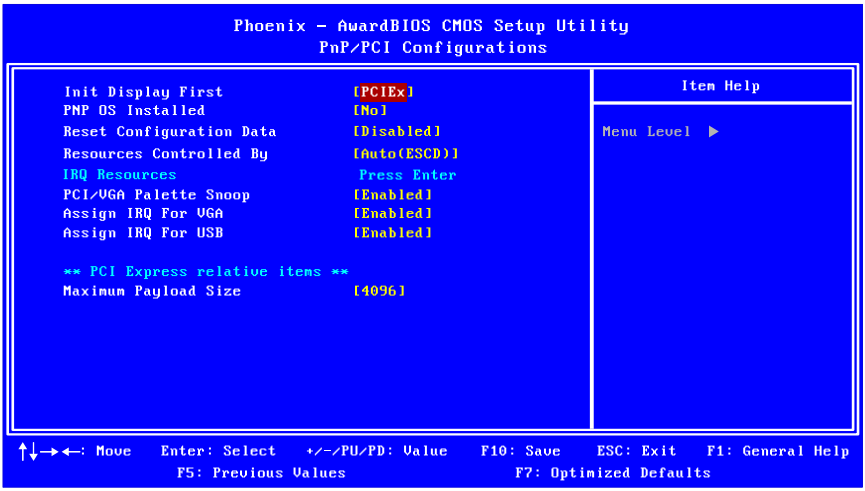
Date (of Month)

This field can only be set if "RTC Alarm Resume" is enabled. The field specifies the date for "RTC Alarm Resume".

Resume Time (hh:mm:ss)

This field can only be set if "RTC Alarm Resume" is enabled. The field specifies the time for "RTC Alarm Resume".

PnP/PCI Configurations



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

Enables 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

Settings: [Disabled, Enabled]

Assign IRQ for VGA

Assign IRQ for VGA devices.

Settings: [Disabled, Enabled]

Assign IRQ for USB

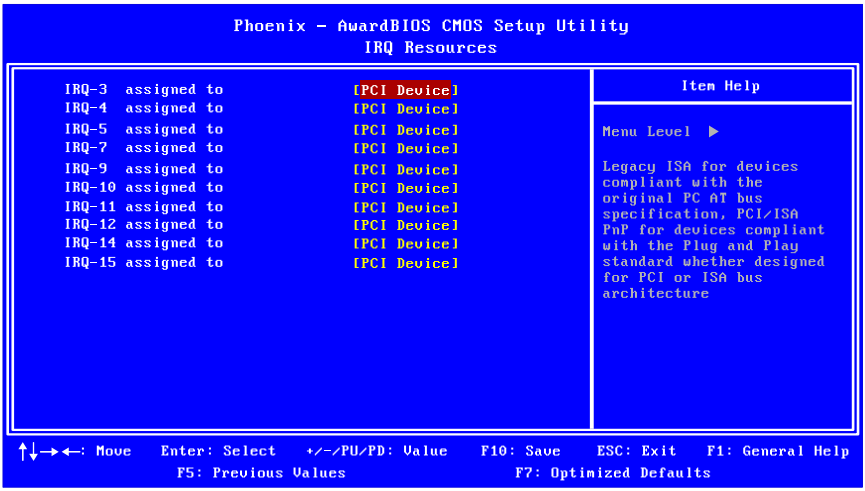
Assign IRQ for USB devices.

Settings: [Disabled, Enabled]

Maximum Payload Size

This options sets the maximum TLP payload size in bytes for PCI Express devices.
Settings: [128, 256, 512, 1024, 2048, 4096]

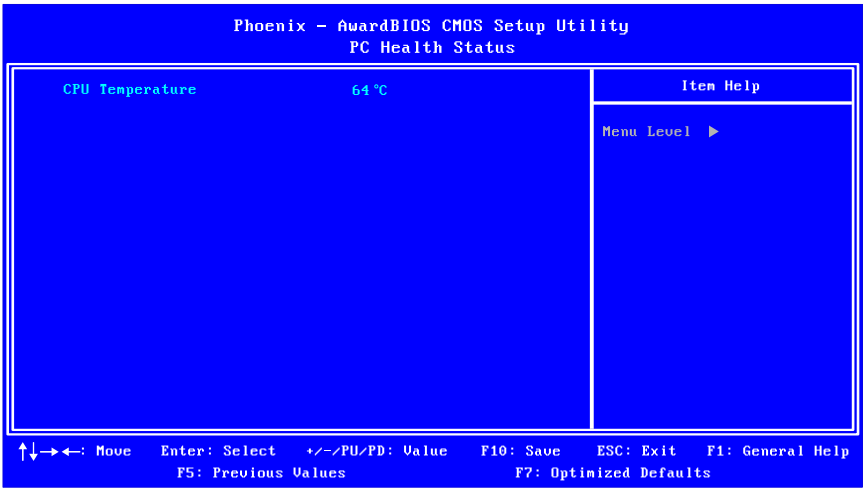
IRQ Resources



IRQ Resources list IRQ 3/4/5/7/9/10/11/12/14/15 for users to set each IRQ a type depending on the type of device using the IRQ. Settings:

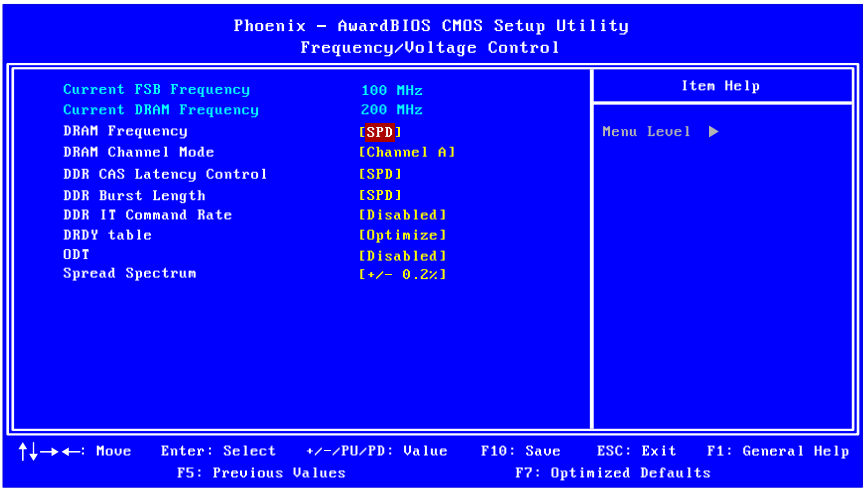
PCI Device	For Plug-and-Play compatible devices designed for PCI bus architecture
Reserved	The IRQ will be reserved for further requests

PC Health Status



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

The chipset supports synchronous and asynchronous mode between host clock and DRAM clock frequency.
Settings: [DDR2-400, DDR2-533, DDR2-667, SPD]

DRAM Channel Mode

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

DDR CAS Latency Control

This item adjusts the speed it takes for the memory module to complete a command. Generally, a lower setting will improve the performance of your system. However, if your system becomes less stable, you should change it to a higher setting.
Settings: [2T, 3T, 4T, 5T, 6T, SPD]

DDR Burst Length

This field controls the length of time a row stays active before precharging. Longer values are safer but may not offer the best performance.
Settings: [4, 8, SPD]

DDR IT Command Rate

Settings: [Disabled, Enabled]

DRDY table

Settings: [Slowest, Optimize]

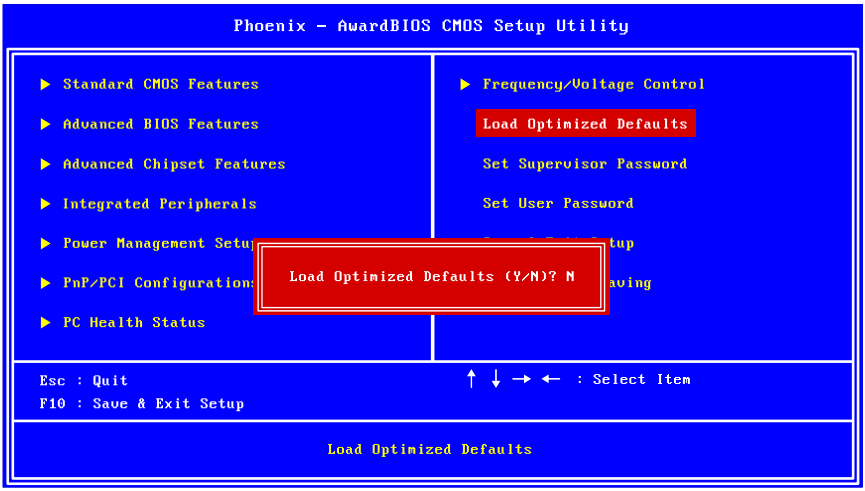
ODT

Settings: [Disabled, Enabled]

Spread Spectrum

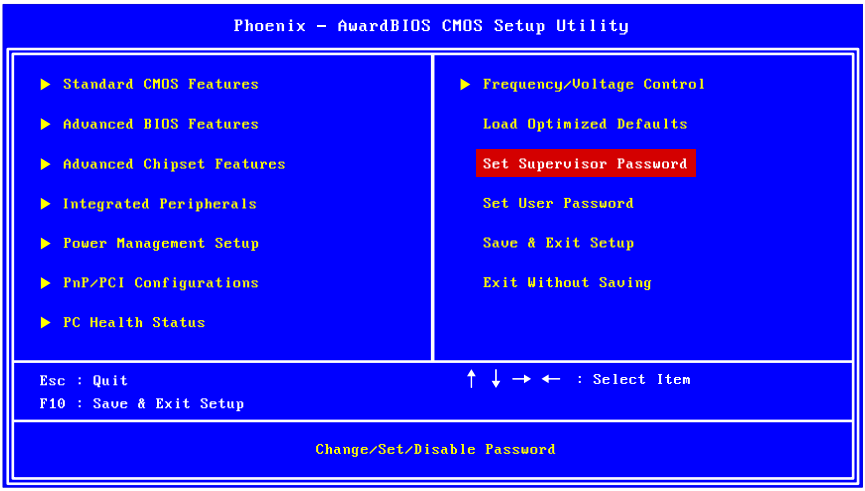
When the mainboard's clock generator pulses, the extreme values (spikes) of the pulses create EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves.
Settings: [Disabled, +/- 0.1%, +/- 0.2%, +/- 0.3%, +/- 0.4%, +/- 0.5%, +/- 0.6%, +/- 0.7%, +/- 0.8%, +/- 0.9%]

Load Optimized Defaults



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



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.

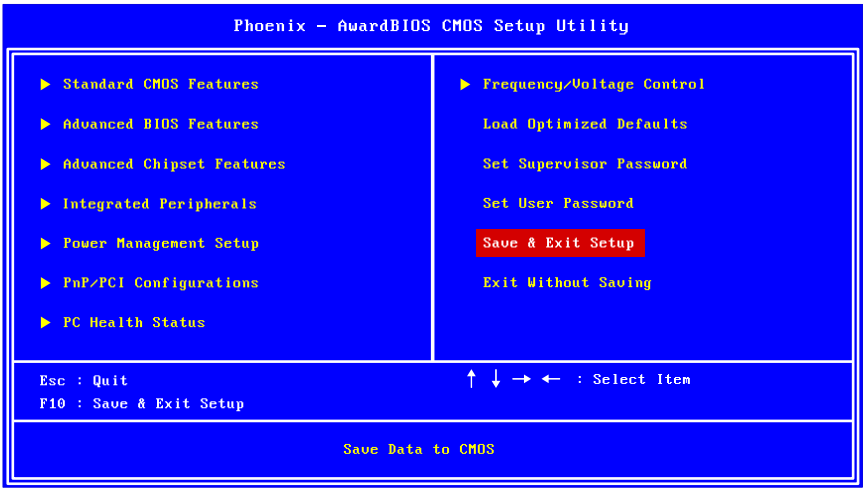
To set the password, type the password (up to eight characters in length) and press <**Enter**>. The password typed now will clear any previously set password from CMOS memory. The new password will need to be reentered to be confirmed. To cancel the process press <**Esc**>.

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.

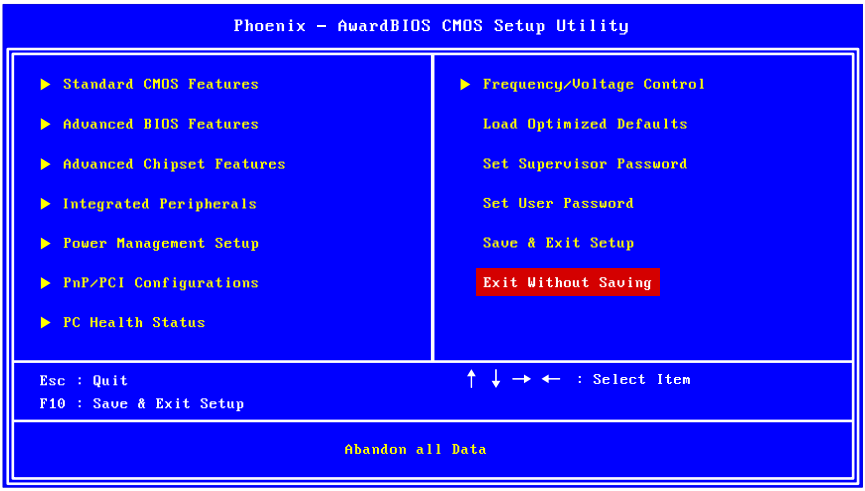
Save & Exit Setup



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.

5:

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

VIA EPIA-P710 Developer kits include a driver CD that contains the drivers and software for enhancing the performance of the mainboard. Regular kits do not include a driver CD. However, the latest drivers can be downloaded from http://www.via.com.tw.

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

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.
- WinXP and Linux Fedora Core 4 drivers are provided.

☐ **VIA USB 2.0 Driver:**

- Enhances VIA USB 2.0 ports.

☐ **VIA Linux RAID Driver:**

- Support for RAID devices.
- For Linux Fedora Core 4 and patch guide to enable PATA/IDE DMA mode for VIA South Bridges.