PCOM-B212 Series

COM Express Type II Module

User's Manual

Version 1.0

Table of Contents

How to Use This Manual

How to Use This Manual

The manual describes how to configure your PCOM-B212 series to meet various operating requirements. It is divided into five chapters, with each chapter addressing a basic concept and operation of this COM Express Module.

Chapter 1 : System Overview. Presents what you have in the box and give you an overview of the product specifications and basic system architecture for this model of single board computer.

Chapter 2 : Hardware Configuration. Shows the definition and location of Jumpers and Connectors that you can easily configure your system.

Chapter 3 : System Installation. Describes how to properly mount the CPU, main memory to get a safe installation and provides a programming guide of Watch Dog Timer function.

Chapter 4 : BIOS Setup Information. Specifies the meaning of each setup parameters, how to get advanced BIOS performance and update new BIOS. In addition, POST checkpoint list will give users some guidelines of trouble-shooting.

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Updates to this manual, technical clarification, and answers to frequently asked questions will be shown on the following web site : http://www.portwell.com.tw

Chapter 1
System Overview

1.1 Introduction

COM Express, a standard that holds by PICMG (PCI Industrial Computer Manufacturer Group) defines new industrial computer platform in "Module board" and "Carrier board" architecture. The "Module board" equipped processor or its socket, chipset, memory or memory socket and single Ethernet controller on it. The On-The-Shelf Module board allows users to create their own Carrier board easily and quickly since most critical parts are ready on Module board. COM Express Module board offers expansion interfaces such as PCI Express, PCI, SATA, IDE, LPC, LVDS, Audio etc. that could support variety functions depending on Carrier board design.

The Carrier board was customized design to fit in different mechanical requirements. In the meanwhile, its variety functions were also customized to meet the application. Compares to the platform that designed from nothing, COM Express architecture platform only needs to develop Carrier board. Users could keep their know-how which related to their core competence in the Carrier board.

PCOM-B212 series is Type II COM Express Module board equipped Intel GME965 chipset with mPGA 478M processor socket (or Core™2 Duo/ Core™ Duo/ Core™ Solo /Celeron M processor on-board), one DDR2 SO-DIMM socket, one Gigabit Ethernet (or Fast Ethernet) controller on it to provide expansion interfaces – PCI Express (x16 / x1), PCI (supports four devices), SATA and so on.

1.2 Check List

The PCOM-B212 series package should cover the following basic items

- ✓ One PCOM-B212 series module board
- ✓ Six Hex screws
- ✓ One Installation Resources CD (Driver and Manual)

If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

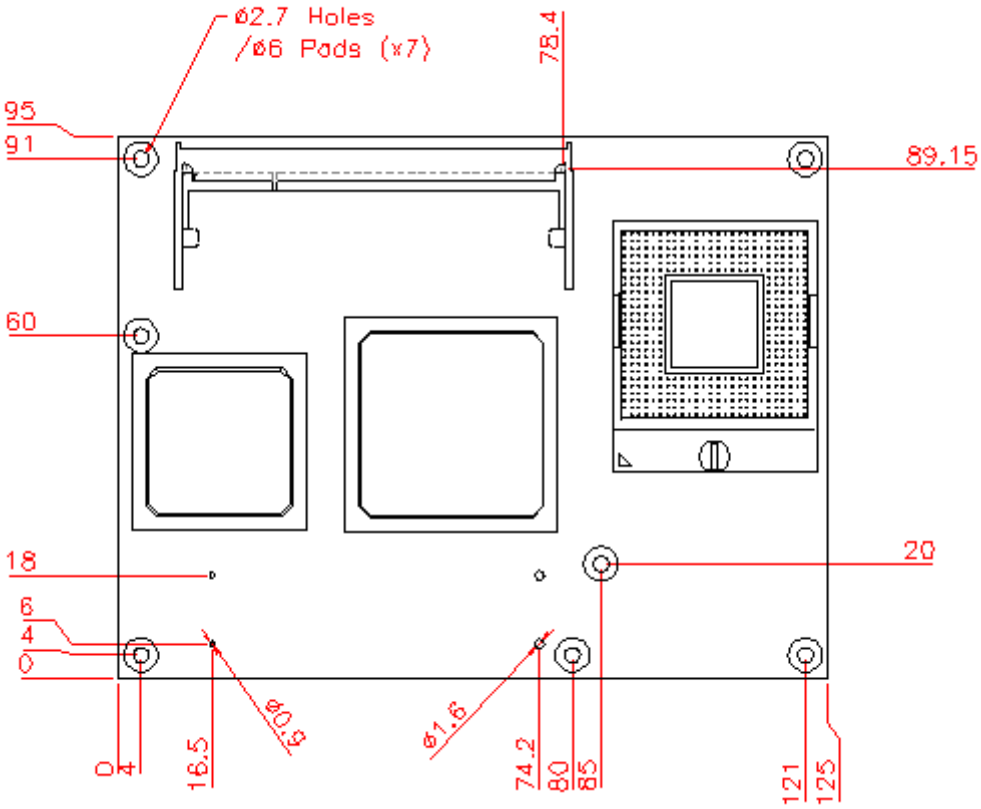
1.3 Product Specification

- **Main processor**
  - Intel® Core™2 Duo
    Core™ Duo/ Core™ Solo
    Celeron M Processor
  - FSB: 533/667/800MHz
- **BIOS**
  Phoenix (Award) system BIOS in SPI ROM with 512KB Flash ROM with easy upgrade function ACPI, DMI, Green function and Plug and Play Compatible
- **Main Memory**
  Two SO-DIMM sockets support dual channel DDR2 533/667 up to 4GB
- **L2 Cache Memory**
  Build-in processor
- **Chipset**
  Intel GME965 GMCH and ICH8M Family chipset
- **Expansion Interfaces**
  - PCI Express
    - One PCI Express x16 link
    - Total Five PCI Express x1 link
      - Four PCI Express x1 link or One PCI Express x4 link selectable on Row A-B (Port 0~3)
      - One PCI Express x1 link on Row A-B (Port 4)
  - LVDS
    - Supports 25 to 112MHz single/dual channel LVDS interface
    - Single channel LVDS interface support: 1 x 18 bpp OR 24 bpp (Type 1 only), compatible with VESA LVDS color mapping.
    - Dual channel LVDS interface support: 2 x 18 bpp OR 24 bpp (Type 1 only)
    - Maximum Panel size supported up to WUXGA and QXGA
    - Compatible with SPWG(Standard Panels Working Group) v.3.5 specification
  - TV-out
    - Three integrated 10-bit DACs
    - NTSC/PAL
    - SDTV 480i /EDTV 480p / HDTV 720p and 1080i support
  - SDVO (Serial Digital Video Output)
    - Two SDVO ports are supported (multiplex pins with PCI Express x16 lanes)

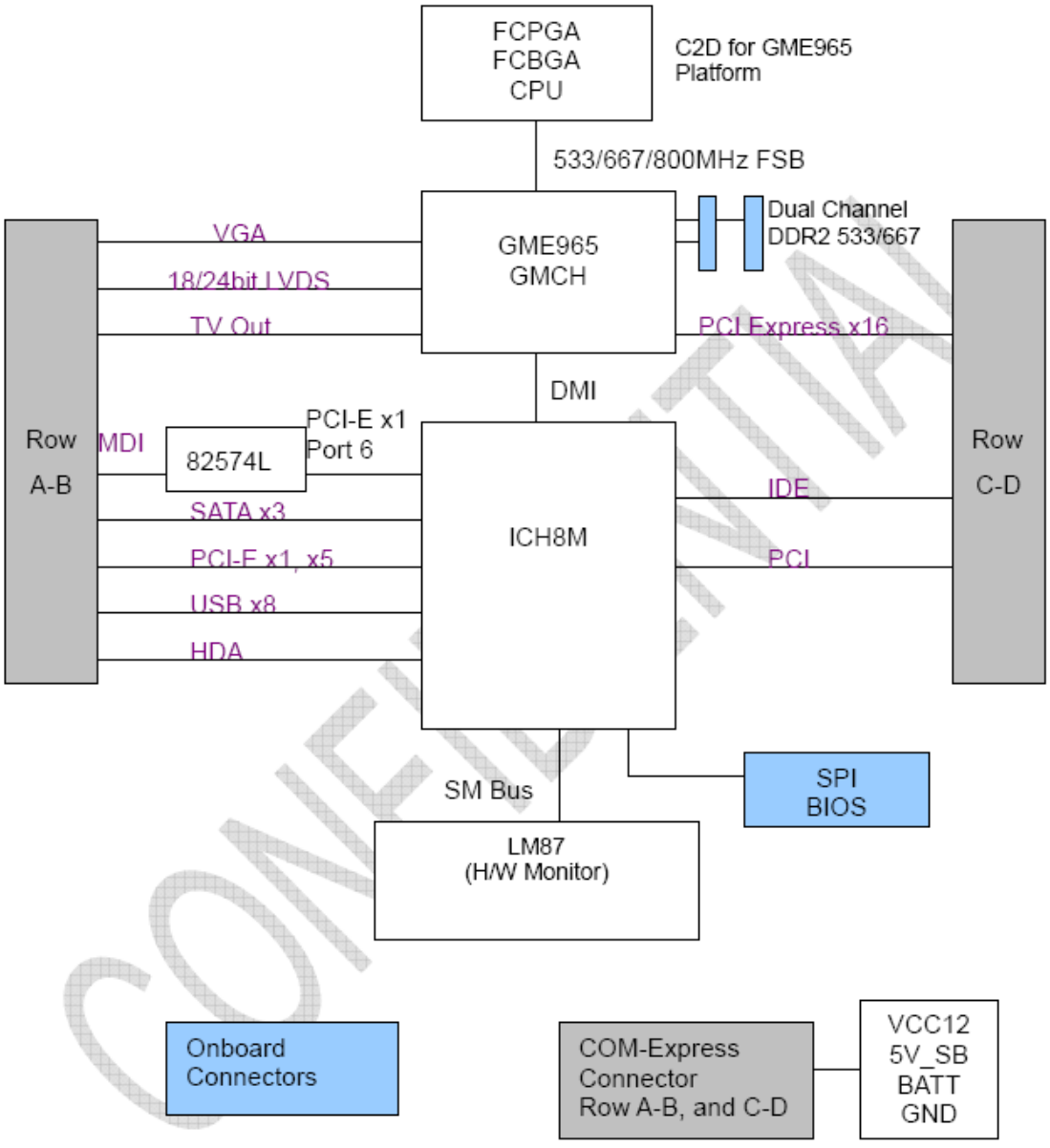
- VGA
  - Support max DAC frequency up to 400MHz
  - Up to 2048 x 1536 mode support
- Ethernet
  - Intel 82574L Gigabit Ethernet controller is equipped
- IDE Interface
  - Support one enhanced IDE channel with PIO mode 4 ultra DMA/33/66/100
- SATA Interface
  - Support Three SATA 300 ports
- USB Interface
  - Support eight USB 2.0 ports

- **Outline Dimension (L X W):**
  95mm (3.74″) X 125mm (4.92″)
- **Operating Temperature:**
  0°C ~ 60°C (32°F ~ 140°F)
- **Storage Temperature:**
  -20°C ~ 80°C
- **Relative Humidity:**
  5% ~ 90%, non-condensing

1.4 Mechanical Drawing



1.5 System Architecture



PCOM-B212 System Block Diagram

Chapter 2
Hardware Configuration

This chapter indicates jumpers', headers' and connectors' locations. Users may find useful information related to hardware settings in this chapter. The default settings are indicated with a star sign (★).

2.1 Jumper Setting

In order to customize PCOM-B212VG's features for users, in the following sections, **Short** means covering a jumper cap over jumper pins; **Open** or **N/C** (Not Connected) means removing a jumper cap from jumper pins. Users can refer to Figure 2-1 and Figure 2-2 for the Jumper locations.

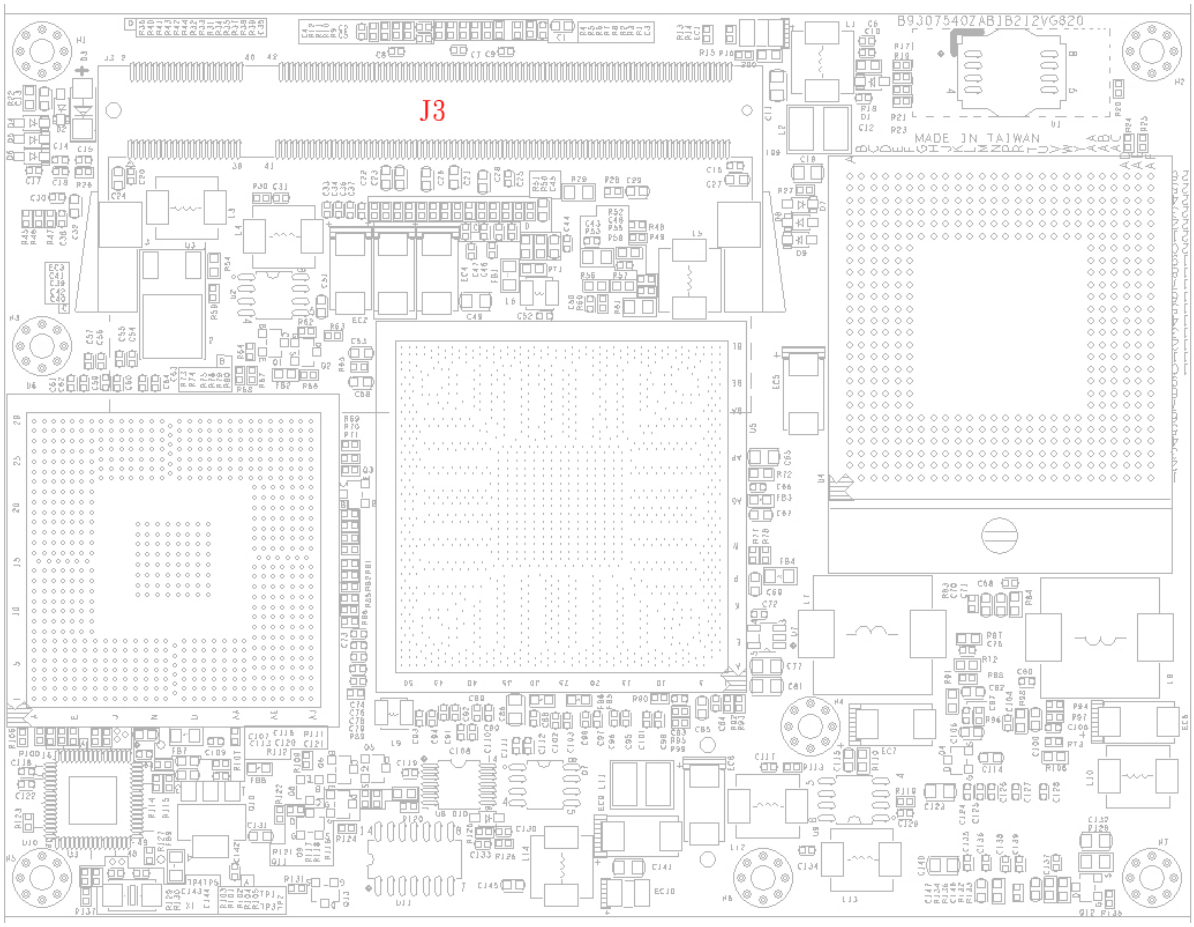


Figure 2-1 PCOM-B212 Top-side Jumper and Connector Locations

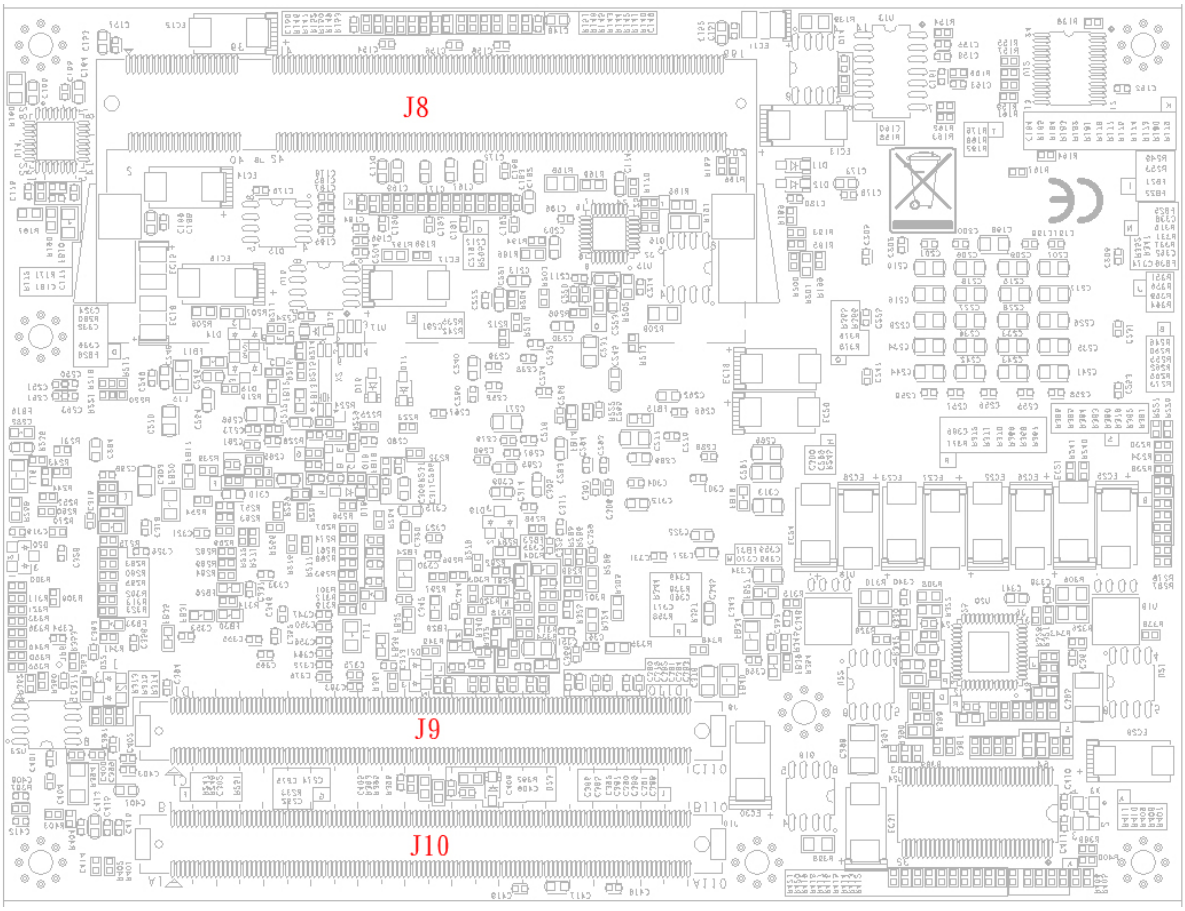


Figure 2-2 PCOM-B212 Connector Location

2.2 Connector Allocation

I/O peripheral devices are connected to the interface connectors.

Connector Function List

Connector	Function	Remark
J3	DDR2 SO-DIMM socket 1	
J8	DDR2 SO-DIMM socket 2	
J9	Connector Row C/D of COM Express for Pin-out Type 2	
J10	Connector Row A/B of COM Express for Pin-out Type 2	

Pin Assignment of Connectors

J10 :Board-to-Board Connector Row A, B

Row A		Row B	
Pin No.	Signal Description	Pin No.	Signal Description
A1	GND	B1	GND
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#
A4	GBE0_LNK100#	B4	LPC_AD0
A5	GBE0_LNK1000#	B5	LPC_AD1
A6	GBE0_MDI2-	B6	LPC_AD2
A7	GBE0_MDI2+	B7	LPC_AD3
A8	GBE0_LINK#	B8	LPC_DRQ0#
A9	GBE0_MDI1-	B9	LPC_DRQ1#
A10	GBE0_MDI1+	B10	LPC_CLK
A11	GND	B11	GND
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CK
A14	GBE0_CTREF	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND	B21	GND
A22	SATA2_TX+	B22	SATA3_TX+
A23	SATA2_TX-	B23	SATA3_TX-
A24	SUS_S5#	B24	PWR_OK
A25	SATA2_RX+	B25	SATA3_RX+
A26	SATA2_RX-	B26	SATA3_RX-
A27	BATLOW#	B27	WDT
A28	ATA_ACT#	B28	AC_SDIN2
A29	AC_SYNC	B29	AC_SDIN1
A30	AC_RST#	B30	AC_SDIN0
A31	GND	B31	GND
A32	AC_BITCLK	B32	SPKR
A33	AC_SDOUT	B33	I2C_CK
A34	BIOS_DISABLE#	B34	I2C_DAT
A35	THRMTRIP#	B35	THRM#
A36	USB6-	B36	USB7-
A37	USB6+	B37	USB7+

A38	USB_6_7_OC#	B38	USB_4_5_OC#
A39	USB4-	B39	USB5-
A40	USB4+	B40	USB5+
A41	GND	B41	GND
A42	USB2-	B42	USB3-
A43	USB2+	B43	USB3+
A44	USB_2_3_OC#	B44	USB_0_1_OC#
A45	USB0-	B45	USB1-
A46	USB0+	B46	USB1+
A47	VCC_RTC	B47	NC
A48	EXCD0_PERST#	B48	NC
A49	EXCD0_CPPE#	B49	SYS_RESET#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND	B51	GND
A52	NC	B52	PCIE_RX5+
A53	NC	B53	PCIE_RX5-
A54	GPI0 [ICH_GPIO2]	B54	GPO1 [ICH_GPIO20]
A55	PCIE_TX4+	B55	PCIE_RX4+
A56	PCIE_TX4-	B56	PCIE_RX4-
A57	GND	B57	GPO2 [ICH_GPIO27]
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-
A60	GND	B60	GND
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1 [ICH_GPIO3]	B63	GPO3 [ICH_GPIO28]
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0# [PCIE_WAKE#]
A67	GPI2 [ICH_GPIO4]	B67	WAKE1# [ICH_RI#]
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-
A70	GND	B70	GND
A71	LVDS_A0+	B71	LVDS_B0+
A72	LVDS_A0-	B72	LVDS_B0-
A73	LVDS_A1+	B73	LVDS_B1+
A74	LVDS_A1-	B74	LVDS_B1-
A75	LVDS_A2+	B75	LVDS_B2+
A76	LVDS_A2-	B76	LVDS_B2-
A77	LVDS_VDD_EN	B77	NC
A78	NC	B78	NC
A79	NC	B79	LVDS_BKLT_EN
A80	GND	B80	GND
A81	LVDS_A_CK+	B81	LVDS_B_CK+

A82	LVDS_A_CK-	B82	LVDS_B_CK-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL
A84	LVDS_I2C_DAT	B84	VCC_5V_SBY
A85	GPI3 [ICH_GPIO5]	B85	VCC_5V_SBY
A86	KBD_RST#	B86	VCC_5V_SBY
A87	KBD_A20GATE	B87	VCC_5V_SBY
A88	PCIE0_CK_REF+	B88	NC
A89	PCIE0_CK_REF-	B89	VGA_RED
A90	GND	B90	GND
A91	NC	B91	VGA_GRN
A92	NC	B92	VGA_BLU
A93	GPO0 [ICH_GPIO18]	B93	VGA_HSYNC
A94	NC	B94	VGA_VSYNC
A95	NC	B95	VGA_I2C_CK
A96	GND	B96	VGA_I2C_DAT
A97	VCC_12V	B97	TV_DAC_A
A98	VCC_12V	B98	TV_DAC_B
A99	VCC_12V	B99	TV_DAC_C
A100	GND	B100	GND
A101	VCC_12V	B101	VCC_12V
A102	VCC_12V	B102	VCC_12V
A103	VCC_12V	B103	VCC_12V
A104	VCC_12V	B104	VCC_12V
A105	VCC_12V	B105	VCC_12V
A106	VCC_12V	B106	VCC_12V
A107	VCC_12V	B107	VCC_12V
A108	VCC_12V	B108	VCC_12V
A109	VCC_12V	B109	VCC_12V
A110	GND	B110	GND

J9 :Board-to-Board Connector Row C, D

Row C		Row D	
Pin No.	**Signal Description**	**Pin No.**	**Signal Description**
C1	GND	D1	GND
C2	IDE_D7	D2	IDE_D5
C3	IDE_D6	D3	IDE_D10
C4	IDE_D3	D4	IDE_D11
C5	IDE_D15	D5	IDE_D12
C6	IDE_D8	D6	IDE_D4
C7	IDE_D9	D7	IDE_D0
C8	IDE_D2	D8	IDE_REQ
C9	IDE_D13	D9	IDE_IOW#
C10	IDE_D1	D10	IDE_ACK#

C11	GND	D11	GND
C12	IDE_D14	D12	IDE_IRQ [IRQ14]
C13	IDE_IORBY	D13	IDE_A0
C14	IDE_IOR#	D14	IDE_A1
C15	PCI_PME#	D15	IDE_A2
C16	PCI_GNT2#	D16	IDE_CS1#
C17	PCI_REQ2#	D17	IDE_CS3#
C18	PCI_GNT1#	D18	IDE_RESET#
C19	PCI_REQ1#	D19	NC
C20	PCI_GNT0#	D20	NC
C21	GND	D21	GND
C22	PCI_REQ0#	D22	PCI_AD1
C23	PCI_RESET#	D23	PCI_AD3
C24	PCI_AD0	D24	PCI_AD5
C25	PCI_AD2	D25	PCI_AD7
C26	PCI_AD4	D26	PCI_C/BE0#
C27	PCI_AD6	D27	PCI_AD9
C28	PCI_AD8	D28	PCI_AD11
C29	PCI_AD10	D29	PCI_AD13
C30	PCI_AD12	D30	PCI_AD15
C31	GND	D31	GND
C32	PCI_AD14	D32	PCI_PAR
C33	PCI_C/BE1#	D33	PCI_SERR#
C34	PCI_PERR#	D34	PCI_STOP#
C35	PCI_LOCK#	D35	PCI_TRBY#
C36	PCI_DEVSEL#	D36	PCI_FRAME#
C37	PCI_IRBY#	D37	PCI_AD16
C38	PCI_C/BE2#	D38	PCI_AD18
C39	PCI_AD17	D39	PCI_AD20
C40	PCI_AD19	D40	PCI_AD22
C41	GND	D41	GND
C42	PCI_AD21	D42	PCI_AD24
C43	PCI_AD23	D43	PCI_AD26
C44	PCI_C/BE3#	D44	PCI_AD28
C45	PCI_AD25	D45	PCI_AD30
C46	PCI_AD27	D46	PCI_IRQC#
C47	PCI_AD29	D47	PCI_IRQD#
C48	PCI_AD31	D48	PCI_CLKRUN#
C49	PCI_IRQA#	D49	M66EN
C50	PCI_IRQB#	D50	PCI_CLK
C51	GND	D51	GND
C52	PEG_RX0+	D52	PEG_TX0+
C53	PEB_RX0-	D53	PEG_TX0-
C54	NC	D54	PEG_LANE_RV#

C55	**PEG_RX1+**	D55	**PEG_TX1+**
C56	**PEG_RX1-**	D56	**PEG_TX1-**
C57	NC	D57	TYPE2# [NC]
C58	**PEG_RX2+**	D58	**PEG_TX2+**
C59	**PEG_RX2-**	D59	**PEG_TX2-**
C60	GND	D60	GND
C61	**PEG_RX3+**	D61	**PEG_TX3+**
C62	**PEG_RX3-**	D62	**PEG_TX3-**
C63	NC	D63	NC
C64	NC	D64	NC
C65	**PEG_RX4+**	D65	**PEG_TX4+**
C66	**PEG_RX4-**	D66	**PEG_TX4-**
C67	NC	D67	GND
C68	**PEG_RX5+**	D68	**PEG_TX5+**
C69	**PEG_RX5-**	D69	**PEG_TX5-**
C70	GND	D70	GND
C71	**PEG_RX6+**	D71	**PEG_TX6+**
C72	**PEG_RX6-**	D72	**PEG_TX6-**
C73	SDVO_DATA	D73	SDVO_CLK
C74	**PEG_RX7+**	D74	**PEG_TX7+**
C75	**PEG_RX7-**	D75	**PEG_TX7-**
C76	GND	D76	GND
C77	NC	D77	**IDE_CBLID#**
C78	**PEG_RX8+**	D78	**PEG_TX8+**
C79	**PEG_RX8-**	D79	**PEG_TX8-**
C80	GND	D80	GND
C81	**PEG_RX9+**	D81	**PEG_TX9+**
C82	**PEG_RX9-**	D82	**PEG_TX9-**
C83	NC	D83	NC
C84	GND	D84	GND
C85	**PEG_RX10+**	D85	**PEG_TX10+**
C86	**PEG_RX10-**	D86	**PEG_TX10-**
C87	GND	D87	GND
C88	**PEG_RX11+**	D88	**PEG_TX11+**
C89	**PEG_RX11-**	D89	**PEG_TX11-**
C90	GND	D90	GND
C91	**PEG_RX12+**	D91	**PEG_TX12+**
C92	**PEG_RX12-**	D92	**PEG_TX12-**
C93	GND	D93	GND
C94	**PEG_RX13+**	D94	**PEG_TX13+**
C95	**PEG_RX13-**	D95	**PEG_TX13-**
C96	GND	D96	GND
C97	NC	D97	PEG_ENABLE#
C98	**PEG_RX14+**	D98	**PEG_TX14+**

C99	**PEG_RX14-**	D99	**PEG_TX14-**
C100	GND	D100	GND
C101	**PEG_RX15+**	D101	**PEG_TX15+**
C102	**PEG_RX15-**	D102	**PEG_TX15-**
C103	GND	D103	GND
C104	**VCC_12V**	D104	**VCC_12V**
C105	**VCC_12V**	D105	**VCC_12V**
C106	**VCC_12V**	D106	**VCC_12V**
C107	**VCC_12V**	D107	**VCC_12V**
C108	**VCC_12V**	D108	**VCC_12V**
C109	**VCC_12V**	D109	**VCC_12V**
C110	GND	D110	GND

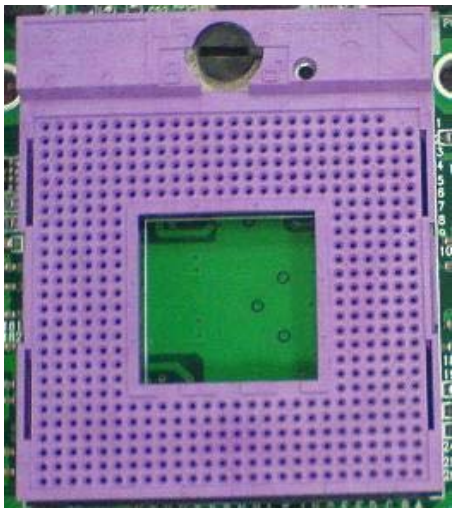
Chapter 3
System Installation

This chapter could provide you with instructions to set up your system. The additional information is enclosed to help you for setting up on-board device.

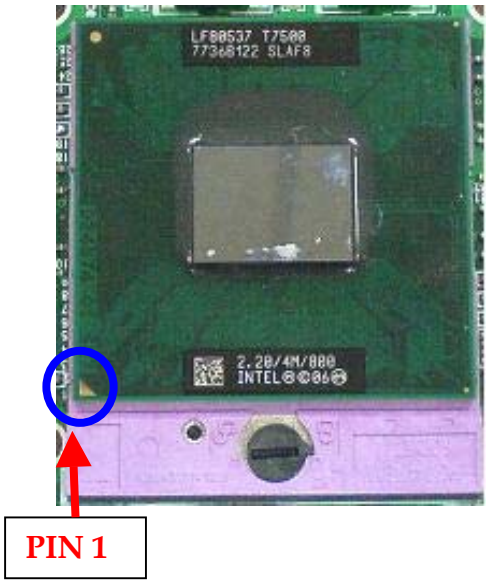
3.1 Intel® mPGA 478MN CPU

Installing Intel mPGA478MN CPU

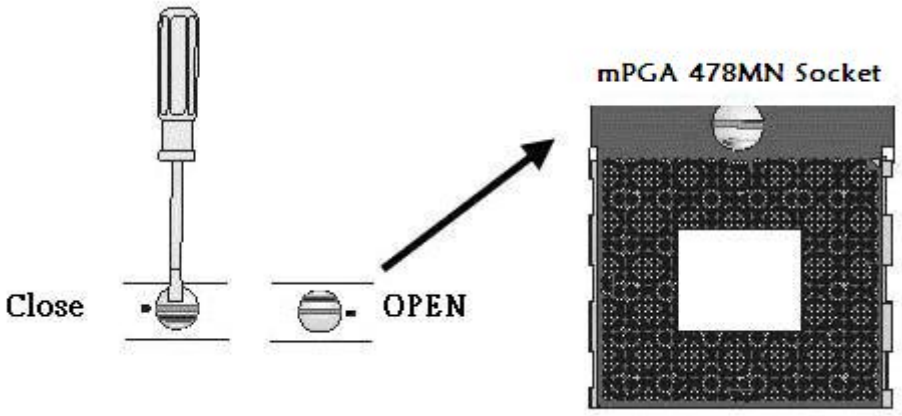
1) Lifting the handling lever of CPU socket outwards and upwards to the other end.



2) Aligning the processor pins with pinholes on the socket. Make sure that the notched corner or dot mark (pin 1) of the CPU corresponds to the socket's bevel end. Then press the CPU gently until it fits into place. If this operation is not easy or smooth, don't do it forcibly. You need to check and rebuild the CPU pin uniformly.



3) Screw the lock to secure processor in the socket once CPU fits.



Removing CPU

To un-install the current processor, use a screwdriver to disengage (open) the socket actuator. The socket actuator should open after only a half turn or so, and you should then be able to remove the processor with your fingers.

Configuring System Bus

PCOM-B212VG Series will automatically detect the CPU FSB 533/800MHz used. CPU speed of Intel Core 2 Duo Processor for Mobile and Celeron M can be detected automatically.

3.2 Main Memory

PCOM-B212VG Series provide 2 x 200-pin SO-DIMM sockets which support 533/667 1.8V DDR2-SDRAM as main memory, Non-ECC(Error Checking and Correcting), non-register function. The maximum memory size can be up to 4GB. It would be able to Auto detecting memory clock according to BIOS CMOS settings.
For system compatibility and stability, do not use memory module without brand. Memory configuration can be either one double-sided DIMM in either one DIMM socket or two single-sided SO-DIMM in both sockets.

Watch out the contact and lock integrity of memory module with socket, it will impact on the system reliability. Follow normal procedures to install memory module into memory socket. Before locking, make sure that all modules have been fully inserted into the card slots.

Dual Channel DDR2 SO-DIMM

Dual Channel DDR2 memory technology doubles the bandwidth of memory bus. Adequate or higher bandwidth of memory than processor would increase system performance. To enable Dual Channel DDR2 memory technology, you have to install dual identical memory modules in both memory sockets. Following tables show bandwidth information of different processor and memory configurations.

CPU FSB	Bandwidth
800MHz	6.4GB/s
533MHz	4.2GB/s

Memory Frequency	Dual Channel DDR Bandwidth	Single Channel DDR Bandwidth
667MHz	10.2 GB/s	5.3GB/s
533 MHz	8.5 GB/s	4.2GB/s

Note:
To maintain system stability, don't change any of DRAM parameters in BIOS setup to upgrade system performance without acquiring technical information.

Memory frequency / CPU FSB synchronization

WADE-8066 supports different memory frequencies depending on the CPU front side bus and the type of DDR2 SO-DIMM.

CPU FSB	Memory Frequency
800MHz	667/533MHz
533 MHz	533MHz

3.3 Installing System

To build up your PCOM-B212VG Series system, you need to perform following steps:

Step 1: Install and configure CPU and memory module at right position

Step 2: Assembly cooler or heat sink on PCOM-B212VG series

Step 3: Attach module & heat dissipation unit on top of carrier board

Step 4: Place PCOM-B212VG Series into the dedicated position in the system

Step 5: Hook cables to existing peripheral devices and secure it

Step 6: Install operating system and driver

Note:
Drivers can be found in the enclosed disc, otherwise, please contact your vender for drivers that you need.

3.4 Clear CMOS Operation

There is no backup battery design on module, therefore, all settings will be lost if disconnect PCOM-B212VG Series with its carrier board.

3.5 GPIO

GPIOs on PCOM-B212VG follow the Type 2 of COM Express Module Base Specification. They locate on pins of connector J10 described as follows.

PCOM-B212VG J10_Pin A93=GPO0: from ICH8M_GPIO18
J10_Pin B54=GPO1: from ICH8M_GPIO20
J10_Pin B57=GPO2: from ICH8M_GPIO27
J10_Pin B63=GPO3: from ICH8M_GPIO28
J10_Pin A54=GPI0: from ICH8M_GPIO2
J10_Pin A63=GPI1: from ICH8M_GPIO3
J10_Pin A67=GPI2: from ICH8M_GPIO4
J10_Pin B85=GPI3: from ICH8M_GPIO5

GPIO: Can be GPI or GPO.

Programming Guide :
PG_Step: Enable GPIO IO function and get GPIOBASE, then save to
ECX_Bit[31..16]

How to program GPIO[18,20,27,28]

Get GPIOBASE =: B0:D31:F0:Offset[48..4Bh] ;(and let bit0 = 0)
GPIO_CNTL =: B0:D31:F0:Offset_4Ch_bit4P1 ;Enable ICH8M GPIO

GPIO18 as output :
GP_IO_SEL(=:(GPIOBASE + 04h))_bit18P0; Dir.=output
GP_LVL (=:(GPIOBASE + 0Ch))_bit18P[0/1]; Write value 0/1

How to program GPIO[2,3,4,5]

Get GPIOBASE =: B0:D31:F0:Offset[48..4Bh] ;(and let bit0 = 0)
GPIO_CNTL =: B0:D31:F0:Offset_4Ch_bit4P1 ;Enable ICH8M GPIO

GPIO2 as input :
GP_IO_SEL(=:(GPIOBASE + 04h))_bit2P1 ; Dir.=input
GP_LVL (=:(GPIOBASE + 0Ch))_bit2 ; Read returned status

Chapter 4
BIOS Setup Information

PCOM-B212VG series is equipped with the Phoenix (AWARD) BIOS stored in Flash ROM. These BIOS has a built-in Setup program that allows users to modify the basic system configuration easily. If any error is detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the SETUP program. Some errors are significant enough to abort the start-up.

4.1 Entering Setup

Turn on or reboot the computer. When the message "Hit <DEL> if you want to run SETUP" appears, press <Del> key immediately to enter BIOS setup program.

If the message disappears before you respond, but you still wish to enter Setup, please restart the system to try "COLD START" again By turning it OFF and then ON, or touch the "RESET" button. You may also restart from "WARM START" By pressing <Ctrl>, <Alt>, and <Delete> keys simultaneously. If you do not press the keys at the right time and the system will not boot, an error message will De displayed and you will again be asked to,

Press <F1> to Run SETUP or Resume

In BIOS setup, you can use the keyboard to choose among options or modify the system parameters to match the options with your system. The table below will show you all of keystroke functions in BIOS setup.

General Help	
↑ ↓ → ←	: Move
Enter	: Select
+ / - /PU /PD	: Value
ESC	: Exit
F1	: General Help
F2	: Item Help
F5	: Previous Values
F6	: Fail-Safe Defaults
F7	: Optimized Defaults
F9	: Menu in BIOS
F10	: Save

4.2 Main Menu

Once you enter PCOM-B212VG series AWARD BIOS CMOS Setup Utility, you should start with the Main Menu. The Main Menu allows you to select from eleven setup functions and two exit choices. Use arrow keys to switch among items and press <Enter> key to accept or bring up the sub-menu.

Phoenix- AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configurations ▶ PC Health Status	▶ Frequency/Voltage Control Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password Set User Password Save & Exit Setup Exit Without Saving
ESC : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item
Time, Date, Hard Disk Type …	

Note:
It is strongly recommended to reload Optimal Setting if CMOS is lost or BIOS is updated.

4.3 Standard CMOS Setup Menu

This setup page includes all the items in standard compatible BIOS. Use the arrow keys to highlight the item and then use the <PgUp>/<PgDn> or <+>/<-> keys to select the value or number you want in each item and press <Enter> key to certify it.

Follow command keys in CMOS Setup table to change **Date**, **Time** and **Drive type**.

Phoenix- AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Tue, Jun 3 2008	Item Help
Time (hh:mm:ss)	10 : 20 : 30	
▶ IDE Channel 0 Master	[ST380817AS]	Menu Level ▶
▶ IDE Channel 0 Slave	[None]	Change the day, month, year and century
▶ IDE Channel 1 Master	[None]	
▶ IDE Channel 1 Slave	[None]	
▶ IDE Channel 2 Master	[None]	
▶ IDE Channel 2 Slave	[None]	
▶ IDE Channel 3 Master	[None]	
Drive A	[1.44, 3.5 in.]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	*514048K*	
Total Memory	*515072K*	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Note:
BIOS Default Setting On-Chip Serial ATA is “Disabled”.

■ **Menu Selections**

Item	Options	Description
Date	mm:dd:yy	Change the month, day, year
Time	hh:mm:ss	Change the internal clock
IDE Channel 0 /1/2/3 Master	Options are in its sub menu	Press <Enter> to enter the sub menu of detailed options
IDE Channel 0 /1/2 Slave	Options are in its sub menu	Press <Enter> to enter the next page for detail hard drive settings
Drive A	Options are in its sub menu	Press <Enter> to enter the next page for detail hard drive settings
Drive B	Options are in its sub menu	Press <Enter> to enter the next page for detail hard drive settings
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device
Halt On	All Errors No Errors All, But Keyboard All, But Diskette All, But Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you
Base Memory	640K	Displays the amount of conventional memory detected during boot up
Extended Memory	N/A	Displays the amount of extended memory detected during boot up
Total Memory	N/A	Displays the total memory available in the system

4.4 IDE Setup Menu

The IDE setup menu sets IDE devices, such as Hard disk drive or CDROM drive. It uses a separate sub menu to configure each hard disk drive.

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]	
Capacity	120GD	To auto-detect the HDD's size, head … on this channel
Cylinder	57461	
Head	16	
Precomp	0	
Landing Zone	57460	
Sector	255	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

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]	
Capacity	10246MD	To auto-detect the HDD's size, head … on this channel
Cylinder	19852	
Head	16	
Precomp	0	
Landing Zone	19851	
Sector	63	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

■ **Menu Selections**

Item	Options	Description
IDE HDD Auto-detection	Press Enter	Press Enter to auto-detect the HDD on this channel. If detection is successful, it fills the remaining fields on this menu.
IDE Channel 0 /1/2/3 Master	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE!
IDE Channel 0 /1/2 Slave	None Auto Manual	Selecting 'manual' lets you set the remaining fields on this screen. Selects the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc. Note: PRECOMP=65535 means NONE
Access Mode	CHS, LDA Large , Auto	Choose the access mode for this hard disk
Capacity	Auto Display your disk drive size	Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.
Cylinder	Min = 0 Max = 65535	Set the number of cylinders for this hard disk.
Head	Min = 0 Max = 255	Set the number of read/write heads
Precomp	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no hard disk
Landing zone	Min = 0 Max = 65535	**** Warning: Setting a value of 65535 means no hard disk
Sector	Min = 0 Max = 255	Number of sectors per track

4.5 Advanced BIOS Features

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

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Features

▶ CPU Feature	[Press Enter]	Item Help
▶ Hard Disk Boot Priority	[Press Enter]	
Virus Warning	[Disabled]	
CPU L1 & L2 Cache	[Enabled]	Menu Level ▶
Quick Power On Self Test	[Enabled]	
First Boot Device	[Hard Disk]	
Second Boot Device	[CDROM]	
Third Boot Device	[LS120]	
Boot Other Device	[Enabled]	
Boot Up Floppy Seek	[Enabled]	
Boot up NumLock Status	[On]	
Gate A20 Option	[Fast]	
Typematic Rate Setting	[Disabled]	
X Typematic Rate (Chars/Sec)	6	
X Typematic Delay (Msec)	250	
Security Option	[Setup]	
APIC Mode	[Enabled]	
MPS Version Control For OS	[1.4]	
OS Select For DRAM > 64MB	[Non-OS2]	
Report for No FDD for WIN95	[No]	
Small Logo(EPA) Show	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Phoenix- AwardBIOS CMOS Setup Utility
CPU Feature

C1E Function	[Auto]	Item Help
Execute Disabled Bit	[Enabled]	
Virtualization Technology	[Disabled]	Menu Level ▶
Core Multi-Processing	[Enabled]	CPU C1E Function Select

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

C1E Function

CPU C1E Function Select.

The choice: Auto, Disabled.

Execute Disabled Bit

When disabled, forces the XD feature flag to always return 0.

The choice: Enabled, Disabled.

Virtualization Technology

When enable, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology

The choice: Enabled, Disabled.

Core Multi-Processing

The choice: Enabled, Disabled.

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 Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

Hard Disk Boot Priority

Select Hard Disk Boot Device Priority. 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.

Bootable add-in Cards	Could be bootable by add-on storage card

Virus Warning

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

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

CPU L1 & L2 Cache

These two categories speed up memory access. However, it depends on CPU/chipset design.

Enabled	Enable Cache
Disabled	Disable Cache

Quick Power On Self Test

Allows the system to skip certain tests while booting. This will decrease the time needed to boot the system.

Enabled	Enable quick POST
Disabled	Normal POST

First/Second/Third Boot Device

Select your boot device priority.

The choice: Floppy, LS120, Hard Disk, CDROM, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, LAN, and Disabled.

Boot Other Device

Select your boot device priority.

The choice: Enabled, Disabled.

Boot Up Floppy Seek

Select power on state for Floppy Seek.

The choice: Enabled, Disabled.

Boot Up NumLock Status

Select power on state for NumLock.

The choice: Off, On.

Gate A20 Option

Fast-lets chipsets control Gate A20 and Normal – a pin in the keyboard controller controls Gate A20.

The choice: Normal, Fast.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller – When enabled, the typematic rate and typematic delay can be selected.

The choice: Enabled, Disabled.

Typematic Rate (Chars/sec)

The rate at which character repeats when you hold down a key.

The choice: 6, 8, 10, 12, 15, 20, 24, and 30.

Typematic delay (Msec)

The delay before keystrokes begins to repeat.

The choice: 250, 500, 750, and 1000.

Security Option

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

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

APIC Mode

Setting to Enabled can cause instabilities. Once the operating system is installed, such as Windows XP in my case, this setting cannot be changed without reinstalling the operating system, regardless of whether the initial setting is Disabled or Enabled. The purpose of setting it to Enabled is to extend the number of IRQs.

The choice: Enabled, Disabled.

MPS Version Control For OS

Not changeable with APIC Mode set to disabled.

The choice: 1.1, 1.4.

OS Select For DRAM > 64MB

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

The choice: Non-OS2, OS2.

Report No FDD for WIN 95

The choice: No, Yes.

Small Logo (EPA) Show

The choice: Enabled, Disabled.

4.6 Advanced Chipset Features

This section allows you to configure the system based on the specific features of the Intel GME965 chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM (DDR II SO-DIMM) and the external cache. It also coordinates communications between the conventional PCI buses. It must be stated that these items should never need to be altered. The default settings have been chosen because they provide the best operating conditions for your system. The only time you might consider making any changes would be if you discovered that data was being lost while using your system.

Phoenix- AwardBIOS CMOS Setup Utility
Advanced Chipset Features

System BIOS Cacheable	[Enabled]	Item Help
Memory Hole At 15M-16M	[Disabled]	
▶ PCI Express Root Port Func.	[Press Enter]	Menu Level ▶
*** VGA Setting ***		
PEG/Onchip VGA Control	[Auto]	
PEG Force X1	[Disabled]	
On-Chip Frame Buffer Size	[8MB]	
DVMT Mode	[DVMT]	
DVMT/FIXED Memory Size	[128MB]	
Boot Display	[CRT]	
Panel Scaling	[Auto]	
Panel Number	[1024x768 18bit 1ch]	
TV Standard	[Off]	
Video Connector	[Automatic]	
TV Format	[Auto]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

The choice: Enabled, Disabled.

Memory Hole At 15-16M

In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16MB.

The choice: Enabled, Disabled.

PCI Express Root Port Func

Phoenix- AwardBIOS CMOS Setup Utility
PCI Express Root Port Func

PCI Express Port 1	[Auto]	Item Help
PCI Express Port 2	[Auto]	
PCI Express Port 3	[Auto]	Menu Level ▶
PCI Express Port 4	[Auto]	
PCI Express Port 5	[Auto]	
PCI Express Port 6	[Auto]	
PCI-E Compliancy Mode	[v1.0a]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

PEG/Onchip VGA Control

The choice: Onchip VGA, PEG Port and Auto.

PEG Force X1

The choice: Enabled, Disabled.

On-Chip Frame Buffer Size

The choice: 1MB, 8MB.

DVMT Mode

The choice: DVMT, FIXED.

DVMT /FIXED Memory Size

The choice: 128MB

Boot Display

The choice: CRT, LVDS, CRT+LVDS, TV.

Panel Scaling

The choice: Auto, On, Off

Panel Number

The choice: 640x480 18bit 1ch, 800x600 18bit 1ch, 1024x768 18bit 1ch, 1024x768 24bit 1ch, 1280x768 24bit 1ch, 1280x1024 24bit 2ch, 1400x1050 18bit 2ch.

TV Standard

The choice: Off, NTSC, PAL, SECAM.

Video Connector

The choice: Automatic, Composite, Component, Both.

TV Format

The choice: Auto, NTSC_M, NTSC_M_J, NTSC_433, NT, , PAL_B, PAL_G, PAL_D, PAL_H, PAL_I, PAL_K, PAL_M, PAL_N, PAL_Nc, SECAM_L, SECAM_B, SECAM_D, SECAM_G, SECAM_H, SECAM_K.

4.7 Integrated Peripherals

Phoenix- AwardBIOS CMOS Setup Utility
Integrated Peripherals

▶ OnChip IDE Device	[Press Enter]	Item Help
▶ Onboard Device	[Press Enter]	
Watch Dog Timer Select	[Disabled]	Menu Level ▶
▶ Super IO Device	[Press Enter]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Phoenix- AwardBIOS CMOS Setup Utility
OnChip IDE Device

IDE HDD Block Mode	[Enabled]	Item Help
IDE DMA transfer access	[Enabled]	
*** On-Chip Serial ATA Setting ***		Menu Level ▶
On-Chip Serial ATA	[Enhanced Mode]	
*** On-Chip PATA Setting ***		If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support
On-Chip Primary PCI IDE	[Enabled]	
IDE Primary Master PIO	[Auto]	
IDE Primary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
On-Chip Secondary PCI IDE	[Enabled]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

IDE HDD Block Mode

If you're IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

The choice: Enabled, Disabled.

IDE DMA transfer access

The choice: Enabled, Disabled.

On-Chip Serial ATA

Disabled	Disabled SATA Controller
Combined Mode	PATA and SATA are combined-max. 2 IDE drivers in each channel
Enhanced Mode	Both SATA and PATA-max are enabled. 6 IDE drivers are supported
SATA Only	SATA is operating in legacy mode

On-Chip Primary/Secondary PCI IDE

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

The choice: Enabled, Disabled.

IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields allow set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

IDE Primary/Secondary Master/Slave UDMA

Ultra DMA/33/66/100 implementation is possible only if IDE hard drive supports and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and system software both support Ultra DMA/33/66/100, select Auto to enable BIOS support.

The choice: Auto, Disabled.

Phoenix- AwardBIOS CMOS Setup Utility
Super IO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Parallel Port	[278/IRQ3]	Menu Level ▶
Parallel Port Mode	[SPP]	
x EPP Mode Select	EPP1.7	
x ECP Mode Use DMA	3	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Onboard FDC controller

The choice: Disabled, Enabled

Onboard Serial Port 1

Select an address and corresponding interrupt for the first serial port.

The choice: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, Auto.

Onboard Parallel Port

Select an address and corresponding interrupt for the parallel port.

The choice: Disabled, 378/IRQ7, 278/IRQ5, 3BC/IRQ7.

Parallel Port Mode

Select a parallel port Mode for the parallel port.

The choice: SPP, EPP, ECP, ECP+EPP, Normal.

Watch Dog Timer Select

This BIOS testing option is able to reset the system according to the selected table.

The choice: Disabled, 10 Sec, 20 Sec, 30 Sec, 40 Sec, 1 Min, 2 Min, and 4 Min.

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]	[Enabled] or [Disabled] universal host controller interface for universal serial bus.
USB Mouse Function	[Enabled]	
USB Storage Function	[Enabled]	
*** USB Mass Storage Device Boot Setting ***		

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

USB 1.0 Controller

[Enabled] or [Disabled] Universal host controller interface for universal serial bus.

The choice: Enabled, Disabled.

USB 2.0 Controller

[Enabled] or [Disabled] Enhanced host controller interface for universal serial bus.

The choice: Enabled, Disabled.

USB Operation Mode

Auto decides USB device operation mode. [High speed]: If USB device was high speed device, then it operated on high speed mode. If USB device was full/low speed device, then it operated on full/low speed mode; [Full/Low speed]: All of USB device operated on Full/Low speed mode.

The choice: High Speed, Full/Low Speed.

USB Keyboard/Mouse Function

[Enabled] or [Disabled] Legacy support of USB keyboard or mouse.

The choice: Disabled, Enabled.

USB Storage Function

[Enabled] or [Disabled] Legacy support of USB Mass Storage.

4.8 Power Management Setup

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

Phoenix- AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	[Enabled]	Item Help
ACPI Suspend Type	[S3(STR)]	
Run VGABIOS if S3 Resume	[Auto]	Menu Level ▶
Power Management	[User Define]	
Video Off Method	[DPMS]	
Video Off In Suspend	[Yes]	
Suspend Type	[Stop Grant]	
MODEM Use IRQ	[3]	
Suspend Mode	[Disabled]	
HDD Power Down	[Disabled]	
Soft-Off by PWR-BTTN	[Instant-Off]	
Wake-up by PCI card	[Enabled]	
Power On by Ring	[Enabled]	
USB KB Wake-up From S3	[Disabled]	
Resume by Alarm	[Disabled]	
x Date(of Month) Alarm	0	
x Time(hh:mm:ss) Alarm	0 : 0 :0	
** Reload Global Timer Events **		
Primary IDE 0	[Disabled]	
Primary IDE 1	[Disabled]	
Secondary IDE 0	[Disabled]	
Secondary IDE 1	[Disabled]	
FDD,COM,LPT Port	[Disabled]	
PCI PIRQ[A-D]#	[Disabled]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

ACPI Function

This item allows you to enable/disable the Advanced Configuration and Power Management (ACPI).

The choice: Enabled, Disabled.

ACPI Suspend Type

To decide which ACPI suspend mode to use.

The choice: S3(STR).

Run VGA BIOS if S3 Resume

The choice: Auto, Yes, No.

Power Management

This category allows you to select the type (or degree) of power saving and is directly related to "HDD Power Down", "Suspend Mode".

There are three selections for Power Management, three of which have fixed mode settings.

Min. Power Saving	Minimum power management. Suspend Mode = 1 Hour, and HDD Power Down = 15 Min.
Max. Power Saving	Maximum power management. Suspend Mode = 1 Min., and HDD Power Down = 1 Min.
User Defined	Allow you to set each mode individually. When not Disabled, Suspend Mode ranges from 1 min. to 1 Hour and HDD Power Down ranges from 1 Min. to 15 Min.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video Duffer.
Blank Screen	This option only writes blanks to the video Duffer.
DPMS	Initial display power management signaling.

Video Off In Suspend

This allows user to enable/disable video off in Suspend Mode.

The choice: Yes, No.

Suspend Type

Two options are available: Stop Grant and PwrOn Suspend.

The choice: Stop Grant, PwrOn Suspend.

MODEM Use IRQ

The choice: NA, 3, 4, 5, 7, 9, 10,11.

Suspend Mode

When Enabled and after the set time of system inactivity, all devices except the CPU will be shut off.

The choice: Disabled, 1 Min, 2 Min, 4 Min, 8 Min, 12 Min, 20 Min, 30 Min, 40 Min, and 1 Hour.

HDD Power Down

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

The choice: Disabled, 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, and 15 Min.

Soft-Off By PWR-DTTN

This item allows users to set the time to remove the power after the power Dutton is pressed.

The choice: Instant-Off, Delay 4 Sec.

Wake-Up By PCI card

This option can be Enabled to support Wake-Up by PCI card.

The choice: Disabled, Enabled.

Power On By Ring

When select "Enabled", a system that is at soft-off mode will be alert to Wake-On-Ring signal.

The choice: Enabled, Disabled.

USB KD Wake-up From S3

The choice: Enabled, Disabled.

Resume By Alarm

This item allows users to enable/disable the resume by alarm function. When "Enabled" is selected, system using ATX power supply could be powered on if a customized time and day is approached.

The choice: Enabled, Disabled.

Date(of Month) Alarm

When "Resume by Alarm" is Enabled, this item could allow users to configure the date parameter of the timing dateline on which to power on the system.

The choice: 0 ~ 31.

Time(hh:mm:ss) Alarm

When "Resume by Alarm" is Enabled, this item could allow users to configure the time parameter of the timing dateline on which to power on the system.

The choice: hh (0~23), mm (0~59), ss (0 ~59).

Primary/Secondary IDE 0/1

This item is to configure IDE devices being monitored By system so as to keep system out of suspend mode if the associated device is busy.

The choice: Enabled, Disabled.

FDD, COM, LPT Port

This item is to configure floppy device, COM ports, and parallel port being monitored by system so as to keep system out of suspend mode if the associated device is busy.

The choice: Enabled, Disabled.

PCI PIRQ[A-D]#

This option can De used to detect PCI device activities. If they are activities, the system will go into sleep mode.

The choice: Enabled, Disabled.

4.9 PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system, which allows I/O devices to operate at speeds nearing the speed the CPU itself, uses when communicating with its own special components.

This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix- AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

Init Display First	[PCI Slot]	Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled By	[Auto(ESCD)]	Menu Level ►
x IRQ Resources	Press Enter	Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot Doot
PCI/VGA Palette Snoop	[Disabled]	
INT Pin 1 Assignment	[Auto]	
INT Pin 2 Assignment	[Auto]	
INT Pin 3 Assignment	[Auto]	
INT Pin 4 Assignment	[Auto]	
INT Pin 5 Assignment	[Auto]	
INT Pin 6 Assignment	[Auto]	
INT Pin 7 Assignment	[Auto]	
INT Pin 8 Assignment	[Auto]	
** PCI Express relative items **		
Maximum Payload Size	[128]	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Init Display First

The choice: PCI Slot, Onboard.

Reset Configuration Data

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

The choice: Enabled, Disabled.

Resource Controlled By

BIOS can automatically configure the entire boot and plug and play compatible devices. If you choose Auto, you cannot select IRQ DMA and memory base address fields, since BIOS automatically assigns them.

The choice: Auto (ESCD), Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

Enter for more options
IRQ-3/IRQ-4/IRQ-5/IRQ-7/IRQ-9/IRQ-10/IRQ-11/IRQ-12/IRQ-14/IRQ-15 assigned to.

Legacy ISA for devices compliant with the original PC AT bus specification, PCI/ISA PnP for devices compliant with the plug and play standard whether designed for PCI or ISA bus architecture.

The choice: PCI Device / Reserved.

PCI/VGA Palette Snoop

The choice: Enabled, Disabled.

INT Pin 1 Assignment

Device(s) using this INT : Display Cntrlr
- Bus 0 Dev 2 Func 0 USB 1.0/1.1 UHCI Cntrlr
- Bus 0 Dev26 Func 0

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

INT Pin 2 Assignment

Device(s) using this INT : Network Cntrlr
- Bus 2 Dev 2 Func 0

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

INT Pin 3 Assignment

Device(s) using this INT : USB 1.0/1.1 UHCI Cntrlr
- Bus 0 Dev29 Func 2 USB 2.0 EHCI Cntrlr
- Bus 0 Dev26 Func 7

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

INT Pin 4 Assignment

Device(s) using this INT : IDE Cntrlr
- Bus 0 Dev31 Func 2 USB 1.0/1.1 UHCI Cntrlr
- Bus 0 Dev29 Func 1 SMBus Cntrlr
- Bus0 Dev31 Func 3

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

INT Pin 5 Assignment

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

INT Pin 6 Assignment

Device(s) using this INT : Multimedia Device
- Bus 0 Dev27 Func 0

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

INT Pin 6 Assignment

Device(s) using this INT : Multimedia Device
- Bus 0 Dev27 Func 0

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

INT Pin 7 Assignment

Device(s) using this INT : USB 1.0/1.1 UHCI Cntrlr
- Bus 0 Dev26 Func 1

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

INT Pin 8 Assignment

Device(s) using this INT : USB 2.0 EHCI Cntrlr
- Bus 0 Dev29 Func 7 USB 1.0/1.1 UHCI Cntrlr
- Bus 0 Dev29 Func 0

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

Maximum Payload Size

Set maximum TLP payload size for the PCI Express devices. The unit is Byte.

The choice: 128.

4.10 PC Health Status

Phoenix- AwardBIOS CMOS Setup Utility
PC Health Status

CPU Warning Temperature	[Disable]	Item Help
Current Onboard Sys Temp	37℃/98°F	
Current Onboard Sys Temp	37℃/98°F	Menu Level ▶
Current System Temp	31℃/ 87°F	
FAN1 Speed	0RPM	
FAN2 Speed	6683RPM	
Onboard Vcore	1.00V	
Onboard V3.3(RTC)	3.32V	
Onboard +5SBY	5.18V	
Onboard +V12S	11.30V	
+2.5 V	3.58 V	
+3.3 V	3.58 V	
+12 V	12.03 V	
VCC (V)	11.49 V	
VBAT (V)	11.49 V	
+5VSB (V)	5.1 V	

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults s

CPU Warning Temperature

The choices : Disabled, 50℃/122°F, 53℃/127°F, 56℃/133°F, 60℃/140°F,
63℃/145°F, 66℃/151°F, 70℃/158°F,

4.11 Frequency/Voltage Control

Phoenix- AwardBIOS CMOS Setup Utility
Frequency / Voltage Control

Auto Detect PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Disabled]	
CPU Host/SRC/PCI Clock	[Default]	Menu Level ▶

↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Auto Detect PCI Clk

The choice: Enabled, Disabled.

Spread Spectrum

This item allows user to enable/disable the spread spectrum modulate.

The choice: Enabled, Disabled.

CPU Host/ SRC/ PCI Clock

The choice: Default, 200/100/33MHz.

4.12 Default Menu

Selecting "Defaults" from the main menu shows you two options, which are described below

Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

4.13 Supervisor/User Password Setting

You can set either supervisor or user password, or Doth of then. The differences between are:

Set Supervisor Password : can enter and change the options of the setup menus.

Set User Password : just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will De asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will De Disabled. Once the password is Disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED

When a password has been Enabled, you will De prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is Enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If set to “Setup”, prompting only occurs when trying to enter Setup.

4.14 Exiting Selection

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing <Enter> on this item asks for confirmation:

Quit Without Saving (Y/N)? N

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Chapter 5
Troubleshooting

This chapter provides a few useful tips to quickly get PCOM-B212VG running with success. As basic hardware installation has been addressed in Chapter 2, this chapter will primarily focus on system integration issues, in terms of BIOS setting.

5.1 BIOS Setting

It is assumed that users have correctly adopted modules and connected all the devices cables required before turning on ATX power. CPU, CPU Fan, 200-pin DDR2 SDRAM, keyboard, mouse, floppy drive, SATA hard disk, DVI-I connector, device power cables, ATX accessories are good examples that deserve attention. With no assurance of properly and correctly accommodating these modules and devices, it is very possible to encounter system failures that result in malfunction of any device.

To make sure that you have a successful start with PCOM-B212VG, it is recommended, when going with the boot-up sequence, to hit "DEL" key and enter the BIOS setup menu to tune up a stable BIOS configuration so that you can wake up your system far well.

Loading the default optimal setting

When prompted with the main setup menu, please scroll down to "**Load Optimal Defaults**", press "Enter" and "Y" to load in default optimal BIOS setup. This will force your BIOS setting back to the initial factory configuration. It is recommended to do this so you can be sure the system is running with the BIOS setting that Portwell has highly endorsed. As a matter of fact, users can load the default BIOS setting any time when system appears to be unstable in boot up sequence.

Auto Detect Hard Disks

In the BIOS => Standard CMOS setup menu, pick up any one from Primary/Secondary Master/Slave IDE ports, and press "Enter". Setup the selected IDE port and its access mode to "Auto". This will force system to automatically pick up the IDE devices that are being connected each time system boots up.

Improper disable operation

There are too many occasions where users disable a certain device/feature in one application through BIOS setting. These variables may not be set back to the original values when needed. These devices/features will certainly fail to be detected.

When the above conditions happen, it is strongly recommended to check the BIOS settings. Make sure certain items are set as they should be. These include the COM1 port, USB ports, external cache, on-board VGA and Ethernet.

It is also very common that users would like to disable a certain device/port to release IRQ resource. A few good examples are

Disable COM1 serial port to release IRQ #3
Etc…

A quick review of the basic IRQ mapping is given below for your reference.

IRQ#	Description
IRQ #0	System Timer
IRQ #1	Keyboard Event
IRQ #2	Usable IRQ
IRQ #3	COM1
IRQ #4	Usable IRQ
IRQ #5	Usable IRQ
IRQ #6	Diskette Event
IRQ #7	Usable IRQ
IRQ #8	Real-Time Clock
IRQ #9	Usable IRQ
IRQ #10	Usable IRQ
IRQ #11	Usable IRQ
IRQ #12	IBM Mouse Event
IRQ #13	Coprocessor Error
IRQ #14	Hard Disk Event
IRQ #15	Usable IRQ

It is then very easy to find out which IRQ resource is ready for additional peripherals. If IRQ resource is not enough, please disable some devices listed above to release further IRQ numbers.

5.2 FAQ

Information & Support

Question: Intel GME965 series Chipset supports Dual Channel Mode, but how can I enable this function?

Answer: you don't have to change any setting. You can simply plug in two DDR2 SO-DIMM Modules, and then system will automatically enable Dual Channel Mode.

Question: What kind of CPU supports?

Answer: Intel Core 2 Duo Processor for Mobile and Celeron M, FSB 533/800 MHz series CPU

System Memory Address Map

Each On-board device in the system is assigned a set of memory addresses, which also can be identical of the device. The following table lists the system memory address used for your reference.

Memory Area	Size	Device Description
0000-003F	1K	Interrupt Area
0040-004F	0.3K	BIOS Data Area
0050-006F	0.5K	System Date
0070-1328	74K	DOS
1329-1E90	45K	Program Area
0F6C-9FFF	574K	Available
First Meg	**-- Conventional memory end at 636K --**	
9F00-9FBF	3K	Extended BIOS Area
9FC0-9FFF	1K	Unused
A000-AFFF	64K	VGA Graphics
B000-B7FF	32K	Unused
B800-BFFF	32K	VGA Text
C000-CE9F	59K	Video ROM
CEA0-EFFF	132K	Unused
F000-FFFF	64K	System ROM

Interrupt Request Lines (IRQ)

Peripheral devices can use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

IRQ#	Current Use	Default Use
IRQ 0	System ROM	System Timer
IRQ 1	System ROM	Keyboard Event
IRQ 2	[Unassigned]	Usable IRQ
IRQ 3	System ROM	COM1
IRQ 4	[Unassigned]	Usable IRQ
IRQ 5	[Unassigned]	Usable IRQ
IRQ 6	System ROM	Diskette Event
IRQ 7	[Unassigned]	Usable IRQ
IRQ 8	System ROM	Real-Time Clock
IRQ 9	[Unassigned]	Usable IRQ
IRQ 10	[Unassigned]	Usable IRQ
IRQ 11	[Unassigned]	Usable IRQ
IRQ 12	NEWMOUSE	IBM Mouse Event
IRQ 13	System ROM	Coprocessor Error
IRQ 14	System ROM	Hard Disk Event
IRQ 15	[Unassigned]	Usable IRQ