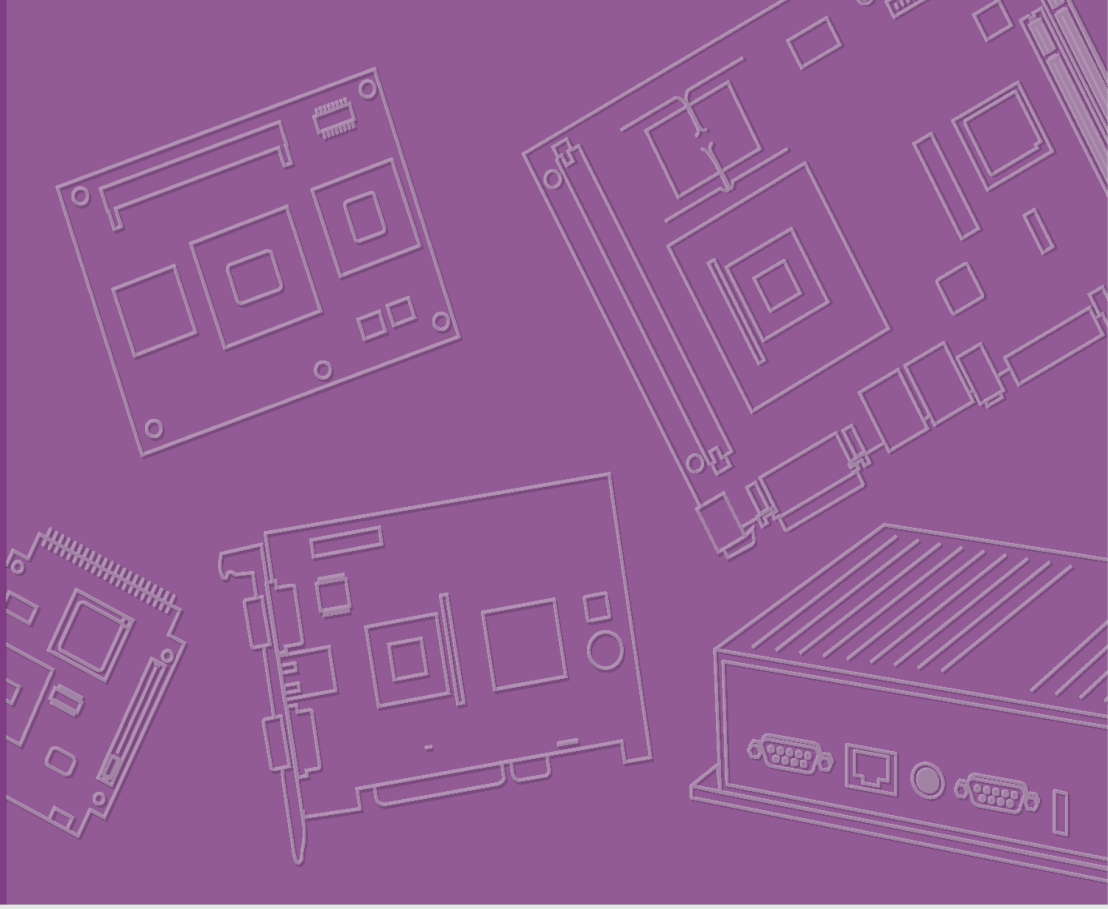

User Manual

PCM-9361

3.5" Biscuit with Intel® Atom N270/VGA, LVDS, TTL, Giga LAN, USB, SATA, SSD

Trusted ePlatform Services

ADVANTECH

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This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

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1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
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5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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1. Visit the Advantech web site at www.advantech.com/support where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Packing List

Before installation, please ensure the following items have been shipped:

Item Part Number

- 1 PCM-9361 SBC
- 1 Startup manual
- 1 Utility CD
- 1 mini jumper pack
- Cables

Part Number	Description
1700006291	SATA cable 30cm
1700060202	CABLE 6P-6P-6P PS/2 KB & MOUSE 20cm
1700000265	WIRE ATX-20P(M)/12P(F) 10CM
1703100152	Audio Cable 10P 2.0mm 15cm
1701140201	FLAT 14PIN 2.0mm Secondary Port 9PIN(M)20cm
1703100121	Wire 10P 12cm IDC 2.0mm For USB 2 PORT
1700260250	Cable 25cm 25P to 26P ASS'Y LPT Port 2.0mm

Ordering information

Model Number Description

PCM-9361FG-S6A1E Atom N270 SBC,Giga-LAN,LCD,SATA,PCI-104

Optional accessories

Model Number Description

1700001531 FLAT CABLE 34P-2.54 mm/26P-2. 0mm 30 cm(LPT to FDD)

Contents

Chapter 1

General Introduction

This chapter gives background information on the PCM-9361.

Sections include:

- Introduction
- Product Feature
- Specifications

1.1 Introduction

The PCM-9361 is a 3.5" SBC (Single Board Computer) with Embedded Intel® Atom N270 1.6 GHz Processor. PCM-9361 can support DDR2 memory up to 2GB, has five USB 2.0 compatible ports, Giga LAN (1000 Mbps) interface, LVDS/TTL interface, HD (High Definition) Audio, and one PCI-104 expansion connector. The PCM-9361 also supports two SATA and two COM ports.

1.2 Product Features

General

- **CPU:** Intel® Atom Processor N270 1.6 GHz
- **System Chipset** Intel® 945GSE +ICH7M
- **BIOS:** AWARD® 4 Mbit Flash BIOS
- **System Memory:** DDRII 400/533 MHz SDRAM up to 2GB
- **SSD:** Supports CompactFlash® Card TYPE I/II
- **Watchdog Timer:** Single chip Watchdog 255-level interval timer, setup by software
- **Expansion Interface:** Supports PCI-104 device
- **Battery:** Lithium 3 V/210 mAH

I/O

- **I/O Interface:** 2 x SATA(Supports 150MB/s), 1 x K/B, 1 x KB/mouse, 1 x RS232, 1 x RS232/422/485, 1 x LPT, 1 x FDD (share with LPT)
- **USB:** 5 x USB 2.0 compliant Ports
- **Audio:** High Definition Audio (HD),Line-in, Line out, Mic-in
- **GPIO:** 8-bit general purpose input/output

Ethernet

- **Chipset:** Realtek 8110SC
- **Speed:** 1000 Mbps
- **Interface:** 1 x RJ45
- **Standard:** Compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3x, IEEE 802.ab.

Display

- Chipset: Intel® 945GSE
- Memory Size: Up to 64 MB of dynamic video memory allocation
- Resolution:
  - CRT display Mode: Supports QXGA Up to 2048 x 1536
  - TTL display Mode: Up to 800 x 600
- **TTL LCD:** Supports 18-bit TTL LCD
- **LVDS LCD:** Supports 36-bit LVDS LCD
- **Dual Display:**
  - CRT + LVDS (36-bits)
  - CRT + TTL (18-bits)

1.3 Specifications

1.3.1 Functional Specification

Processor

Intel® Atom™ Processor N270

- Intel® Atom TM N270 at 1.6 GHz with 512 KB L2 cache
- 437-pin FCBGA8 package
- FSB: 533 MHz
- Bus Ratio: 12
- Manufacturing Technology: 45nm
- Thermal Design Power: 2.5 W
- Thermal Specification: 90°C
- VID Voltage Range: 90 V-1.100 V

Chipset (945GSE)

Memory	945GSE GMCH Supports 2 GB maximum memory One 64-bit wide DDR2 SDRAM single channel Supports DDR2 400, DDR2 533, 256 Mb, 512 Mb 1 Gb and 2Gb DDR2 technology Only x8, x16 DDR2 devices with 4 or 8 banks Support for DDR2 On-Die Termination(ODT) Socket: SODIMM Socket: 1. 200-pin SODIMM socket type *1
Graphic and Video Controllers	945GSE Intel 3.5 Gen Integrated Graphic Engine DVMT 3.0 (Dynamic Video Memory Technology) Display Dynamic Power Saving Technology 2.0 (Intel DPST 2.0) Intel Smart 2D Display Technology (S2DDT)

Chipset (ICH7M)

IDE Interface	ICH7M support Single, independent IDE signal channel Supports one CF device
H.D. Codec ALC888 I/F	ICH7M support Support for HD codec Supports up to 2.1 channel of PCM audio output Connectors:Line-out, Line-in, Mic-in: Pin header 2*5P (M) 2.0 mm
Concurrent PCI/PCIe Bus Controller	MIO 2.0 ICH7M chip support PCI 2.1 compliant 32-bit 3.3 V 33 MHz PCI interface with 5 V tolerant inputs Supports PC/PCI DMA PCI Express 1.0a compliant
SATA Connector	ICH7M support Supports independent DMA operation on two ports Supports data transfer rates of up to 1.5 Gb/s (150 MB/s) Operation of AHCI using memory space Supports several optional sections of the Serial ATA II SATA connectors: Connector: Serial ATA II 7 pins 1.27 mm x 2
USB Interface	ICH7M support Supports 5 USB 2.0 ports which are high-speed, full-speed, and low-speed capable Port-routing logic determines whether a USB port is controlled by UHCI or EHCI USB Connector:(USB1~4) 2 set 5 x 2-pin Hirose DF13 type
Power Management	ICH7M support Fully supports ACPI (Advanced Configuration and Power Interface) 2.0 Supports S1, S5 PCI CLKRUN# and PME# support SMI# (System Management Interrupt) generation
BIOS	ICH7M support Phoenix 4M bit Flash BIOS, supports Plug & Play, APM 1.2/ ACPI 1.1. FWH Type Socket: 32-pin PLCC socket

Other chipset

Graphic and Video Controllers	945GSE Intel 3.5 Gen Integrated Graphic Engine ■ CRT: Supports QXGA Up to 2048 x 1536, ■ TTL: Up to 640 x 480, 800 x 600 ■ LVDS: Support 2 channel 36-bit LVDS panel, LVDS connector : Hirose DF13 type 40 pin TTL connector : Hirose DF13 type 40 pin CRT connector : D-SUB15 at coastline
LAN	Realtek 8110SC. ■ Compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3x, IEEE 802.ab. ■ Support 1000Mbps. Connectors: Phone Jack RJ45 8P 90D(F)
Serial ports	SMSC3114 (LPC Super I/O) supports: ■ 2 full function serial ports. High Speed NS16C550A ■ Compatible UARTs with Data rates to 1.5Mbps ■ Support IRQ Sharing among serial ports. ■ RS-485 Auto Direction Control Mode ■ Connectors:COM1(RS-232), DB-9 COM2(RS-232/ 422/485 with auto-flow control), 14-pin 2.0 mm 2 x 7 Box Header
Parallel port	SMSC SCH 3114 supports (LPC Super I/O). LPT interface connector: 26-pin flat-cable connector
Keyboard/Mouse connectors	SMSC SCH 3114 supports (LPC Super I/O). PS/2 Keyboard and Mouse interface. Connector: Mini-Din 6P at coastline
GPIO	Intel ICH7M supports. ■ 8-Bit GPIO. ■ 5 V tolerance I/Os. Connectors: 10 pins 2.0mm pin header.
Battery backup	2 pin wafer box for external Battery on board

1.3.2 Mechanical Specification

1.3.2.1 Dimension (mm)

L146.00 mm * W102 mm

1.3.2.2 Height on Top (mm)

18.80 mm

1.3.2.3 Height on Bottom (mm)

6.65 mm (CF Socket)

1.3.2.4 Weight (g) with Heatsink

0.85 g

1.3.3 Electrical Specification

1.3.3.1 Power Supply Voltage

Voltage requirement with AT/ATX Power:

AT:

+5 V_{DC} ±5%

ATX:

+12 V_{DC} ±5%

+5 V_{DC} ±5%,

+5 V Standby for ATX mode

1.3.3.2 Power Supply Current

Supply Current (ATX)

CPU : Intel Atom N270 1.6 GHz

XP Mode	ATX	
	5 V	12 V
Typical	1.90 A	0.07 A
Suspend	1.36 A	0.06 A
Max Load	2.38 A	0.09 A

1.3.3.3 RTC Battery

Typical Voltage : 3.0 V

Nomal discharge capacity : 210 mAh

1.3.4 Environmental Specification

1.3.4.1 Operating Temperature

Operating temperature: 0 ~ 60°C (32~140°F)

* Tested under 60°C chamber temperature with 0.23 m/s air flow.

1.3.4.2 Operating Humidity

Operating Humidity:10% ~ 90% Relative Humidity, non-condensing

1.3.4.3 Storage Temperature

Standard products (0 ~ 60°C)

Storage temperature: -20~70°C

1.3.4.4 Storage Humidity

Standard products (0 ~ 60°C)

Relative Humidity: 95% @ 60°C

Chapter 2

H/W installation

This chapter explains the setup procedures of the PCM-9361 hardware, including instructions on setting jumpers and connecting peripherals, switches, indicators and mechanical drawings. Be sure to read all safety precautions before you begin the installation procedure.

2.1 Jumpers

2.1.1 Jumper list

Table 2.1: Jumper list	
J1	Audio Power
J2	AT/ATX Power Setting
J3	PCI VIO Setting
J4	Clear CMOS
J5	LCD Power
J6	COM2 Setting

2.1.2 Jumper Settings

Table 2.2: J1: Audio Power	
Part Number	1653003101
Footprint	JH3X1V-2M
Description	PIN HEADER 3*1P 180D(M) 2.0mm DIP SQUARE W/O Pb
Setting	**Function**
(1-2)	+12 V to +5 V LDO
(2-3)	+5 V

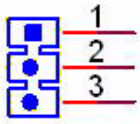


Table 2.3: J2: AT/ATX Power Setting	
Part Number	1653002101
Footprint	JH2X1V-2M
Description	PIN HEADER 2*1P 180D(M)SQUARE 2.0mm DIP W/O Pb
Setting	**Function**
NC	ATX Power
(1-2)	AT Power

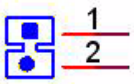


Table 2.4: J3: PCI VIO Setting	
Part Number	1653003101
Footprint	JH3X1V-2M
Description	PIN HEADER 3*1P 180D(M) 2.0mm DIP SQUARE W/O Pb
Setting	**Function**
(1-2)	+5 V
(2-3)	+3.3 V

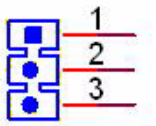


Table 2.5: J4: Clear CMOS	
Part Number	1653003101
Footprint	JH3X1V-2M
Description	PIN HEADER 3*1P 180D(M) 2.0mm DIP SQUARE W/O Pb
Setting	**Function**
(1-2)	Normal
(2-3)	Clear COMS

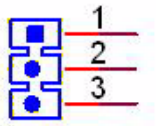


Table 2.6: J5: LCD Power	
Part Number	1653003101
Footprint	JH3X1V-2M
Description	PIN HEADER 3*1P 180D(M) 2.0mm DIP SQUARE W/O Pb
Setting	**Function**
(1-2)	+5 V
(2-3)	+3.3 V

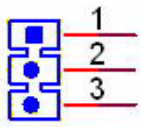
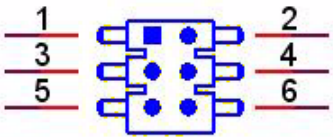


Table 2.7: J6: COM2 Setting	
Part Number	1653003260
Footprint	HD_3x2P_79
Description	PIN HEADER 3*2P 180D(M) 2.0mm SMD SOUARE PIN
Setting	**Function**
(1-2)	RS232
(3-4)	RS485
(5-6)	RS422



2.2 Connectors

2.2.1 Connector list

Table 2.8: Connector List	
CN1	Audio
CN2	Internal USB
CN3	Internal USB
CN4	SATA
CN5	SATA
CN6	Power Switch (Low Active)
CN7	PCI-104 -12V Input
CN8	AT/ATX Power Input
CN9	PCI-104
CN10	36 bits LVDS Panel
CN11	LPT
CN12	GPIO
CN13	18 bits TTL Panel
CN14	Inverter Power Output
CN15	HDD & PWR LED
CN16	SMBus
CN17	COM2
CN18	LAN
CN19	CPU FAN (+5V)
CN20	External USB
CN21	PS2
CN22	COM1
CN23	VGA
CN24	CF
CN25	DDR2 SO-DIMM H=6.5mm
CN26	Reset Button

2.2.2 Connector Settings

2.2.2.1 Audio Interface (CN1)

Audio Port Connectors

One 5 x 2 pin box header for Audio connector. These audio connectors are used for audio devices. The audio jacks are differentiated by color for different audio sound effects.

2.2.2.2 USB Connectors (CN2, CN3, CN20)

The board provides up to Five USB (Universal Serial Bus) ports. This gives complete Plug and Play, and hot attach/detach for up to 127 external devices. The USB interface comply with USB specification Rev. 2.0 which supports 480 Mbps transfer rate, and are fuse protected.

There are 5 x 2 pin 180D (M) connectors for internal use, 4 x USB ports CN2, CN3 and one external USB port CN20. You will need an adapter cable if you use a standard USB connector. On one end the adapter cable has a 5 x 2-pin connector with a foolproof connection to prevent it from being plugged in the wrong way and on the other end a USB connector.

* CN3 conflicts with PC/104 connector of PC/104+ module, please plug PCI-104 module only or remove PC/104 connector of PC/104+ module.

2.2.2.3 SATA Connector (CN4, CN5)

PCM-9361 supports Serial ATA via two connectors (CN4, CN5). Data transfer rates up to 150 MB/s are possible, enabling very fast data and file transfer, and independent DMA operation on two ports.

2.2.2.4 Power Switch Connector (CN6)

One 2 x 1 pin wafer box (CN6) for power switch.

2.2.2.5 Power Connectors (CN8)

Main power connector, +5 V, +12 V or 5 V only

PCM-9361 supports ATX and AT modes

Use ATX power cable (PN: 1700000265 ATX-20P (M)/12P (F) 10 CM) connect CN8, it's changed from 12pin to 20pin, provides 5 V and 12 V and other PS_ON signals.

2.2.2.6 LVDS LCD Panel Connector (CN10)

The board supports 2 channel 18-bit LVDS LCD panel display. Users can connect to a 36-bit LVDS LCD.

2.2.2.7 GPIO (General Purpose Input Output) (CN12)

The board supports 8-bit GPIO through GPIO connector. The 8 digital in and out-puts can be programmed to read or control devices, with input or output defined. The default setting is 4 bits input and 4 bits output.

2.2.2.8 TTL LCD Panel Connector (CN13)

The board supports 18-bit TTL LCD panel displays.

2.2.2.9 Power & HDD LED Indicator (CN15)

The HDD LED indicator for hard disk access is an active low signal (24 mA sink rate). Power supply activity LED indicator.

2.2.2.10 SMBus Connector (CN16)

One 4 x 1 pin wafer box (CN16) supports SMBus interface.

2.2.2.11 COM Port Connector (CN17, CN22)

The PCM-9361 provides 2 serial ports (COM1 and COM2).

One 7*2P PIN HEADER (CN17) for COM2 output; and one DB-9 connector for COM1(CN22)

COM RS-232/422/485 setting (J6)

COM2 can be configured to operate in RS-232, RS-422, or RS-485 mode.

This is done via J6.

J6	COM2 Setting
Setting	**Function**
(1-2)	RS232
(3-4)	RS485
(5-6)	RS422

It provides connections for serial devices (ex: a mouse, etc.) or a communication network. You can find the pin assignments for the COM port connector in Appendix A.

2.2.2.12 Ethernet configuration(CN18)

10/100/1000 Mbps connections are made via RJ-45 connectors.

The board is equipped with 1 high performance PCI Ethernet interface which is fully compliant with IEEE 802.3u 100Base-T & IEEE 802.3ab 1000Base-T. It is supported by all major network operating systems.

2.2.2.13 Fan Power Supply Connector (CN19)

Provides +5 V power supply to CPU cooling fan.

2.2.2.14 Keyboard and PS/2 mouse connector (CN21)

The board provides a keyboard connector that supports both a keyboard and a PS/2 style mouse. In most cases, especially in embedded applications, a keyboard is not used. If the keyboard is not present, the standard PC/AT BIOS will report an error or fail during power-on self-test (POST) after a reset. The product's BIOS standard setup menu allows you to select "All, But Keyboard" under the "Halt On" selection. This allows no-keyboard operation in embedded system applications, without the system halting under POST.

2.2.2.15 CRT display connector (CN23)

The CRT display connector is a DB15 connector used for conventional CRT displays.

2.2.2.16 CompactFlash (CN24)

The CompactFlash card shares a Primary IDE channel which can be enabled/disabled via the BIOS settings.

2.2.2.17 DDRII DIMM Socket (CN25)

One 200-pin/H6.5 mm DDRII DIMM socket (CN25) supports DDRII 400/533 MHz up to 2 GB.

2.2.2.18 Power Reset button (CN26)

Momentarily pressing the reset button will activate a reset. The switch should be rated for 10 mA, 5 V.

2.3 Mechanical

2.3.1 Jumper and Connector Locations

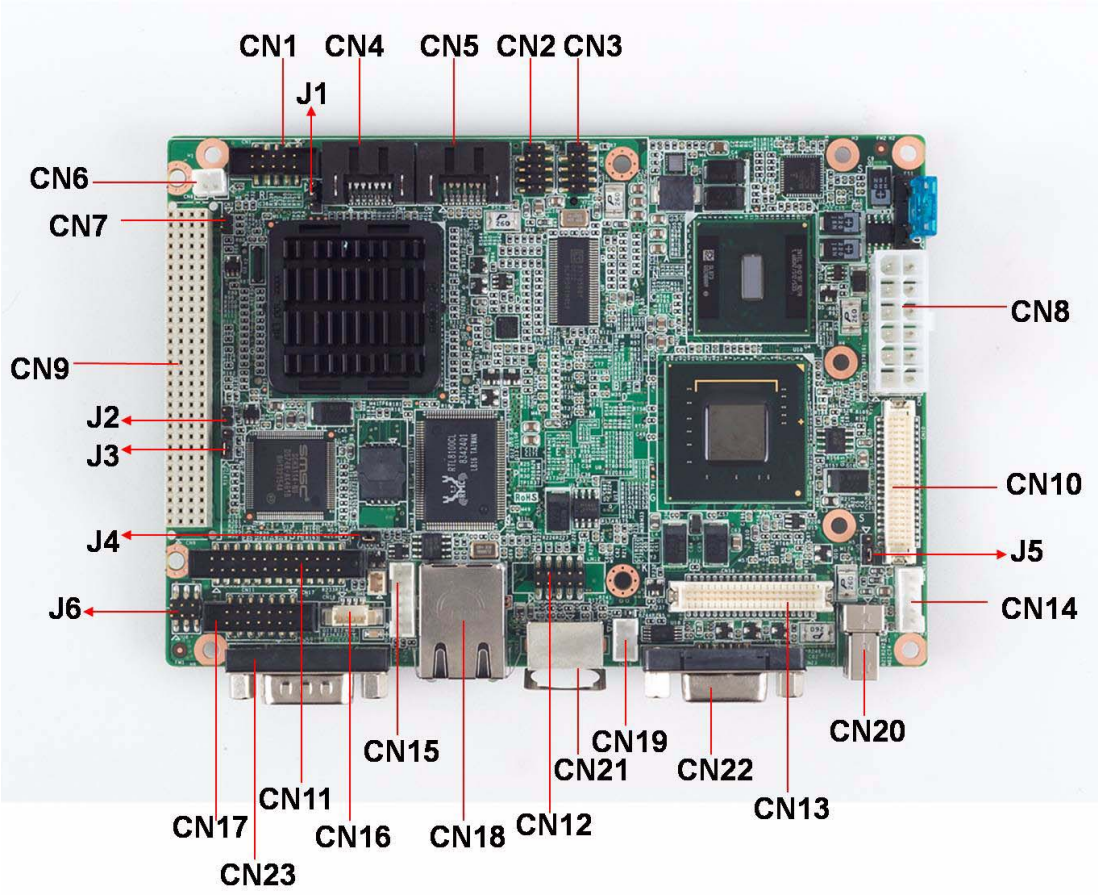


Figure 2.1 Jumper and Connector layout (Component side)

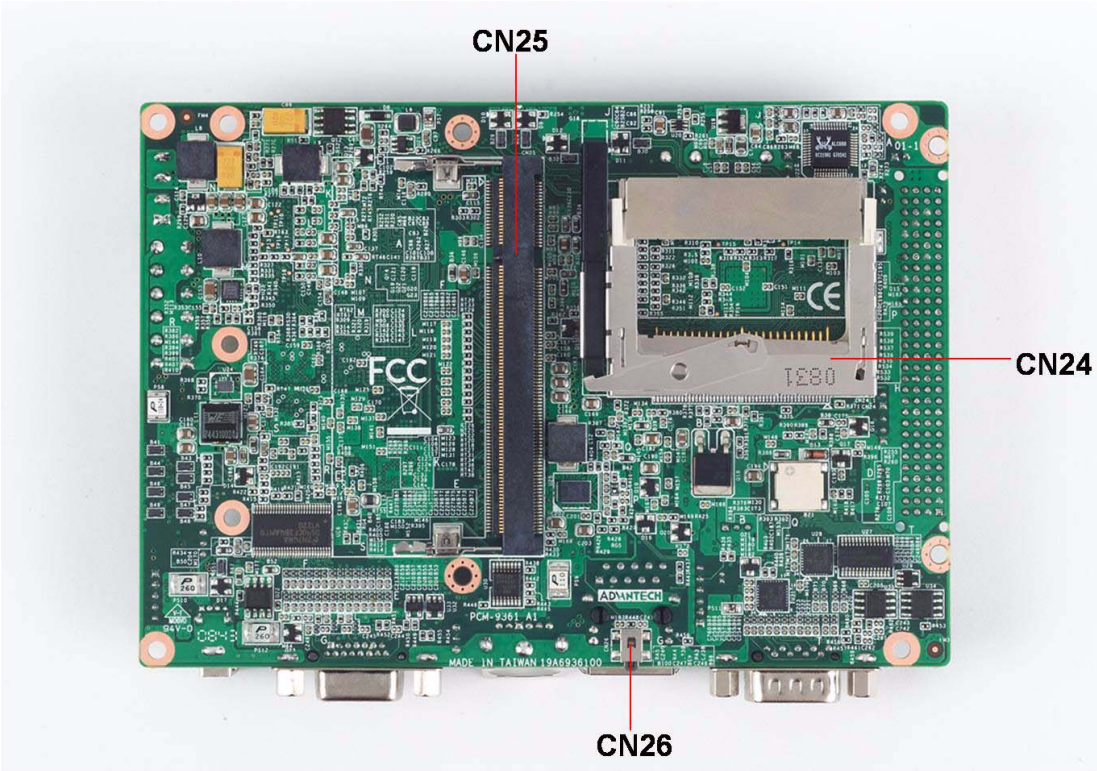


Figure 2.2 Jumper and Connector layout (Solder side)

2.3.2 Board Dimensions

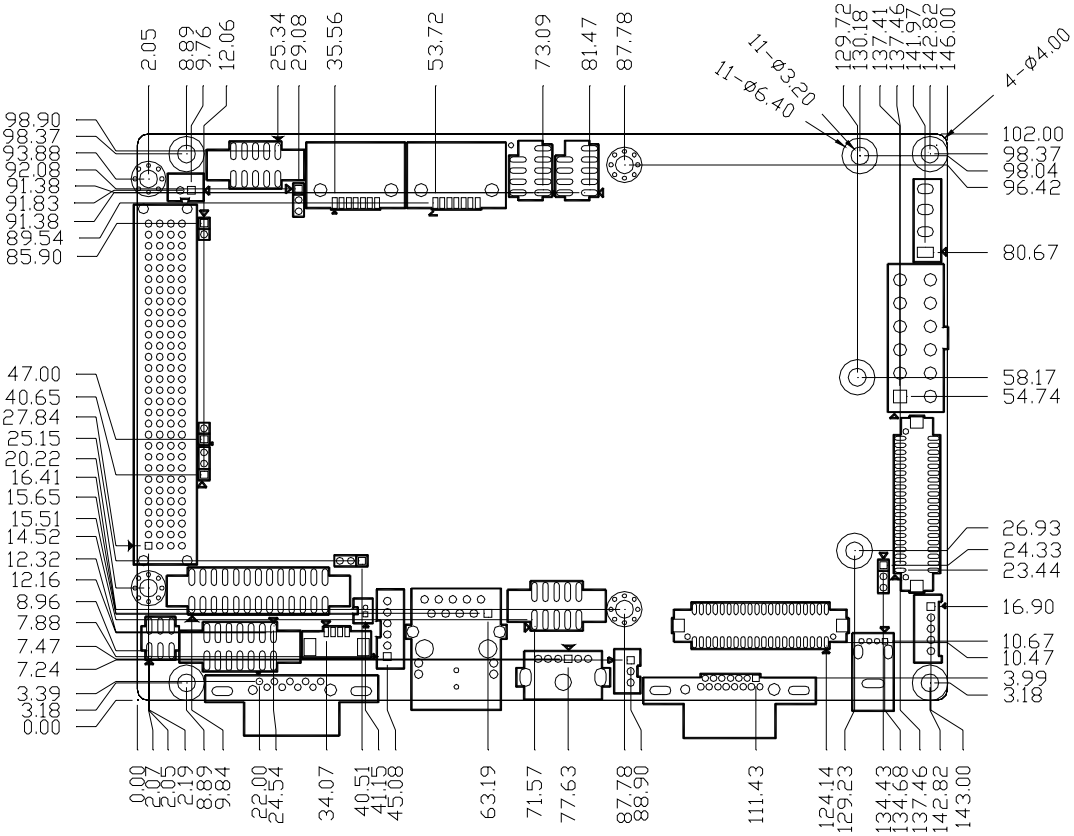


Figure 2.3 Board Dimension layout (Component side)

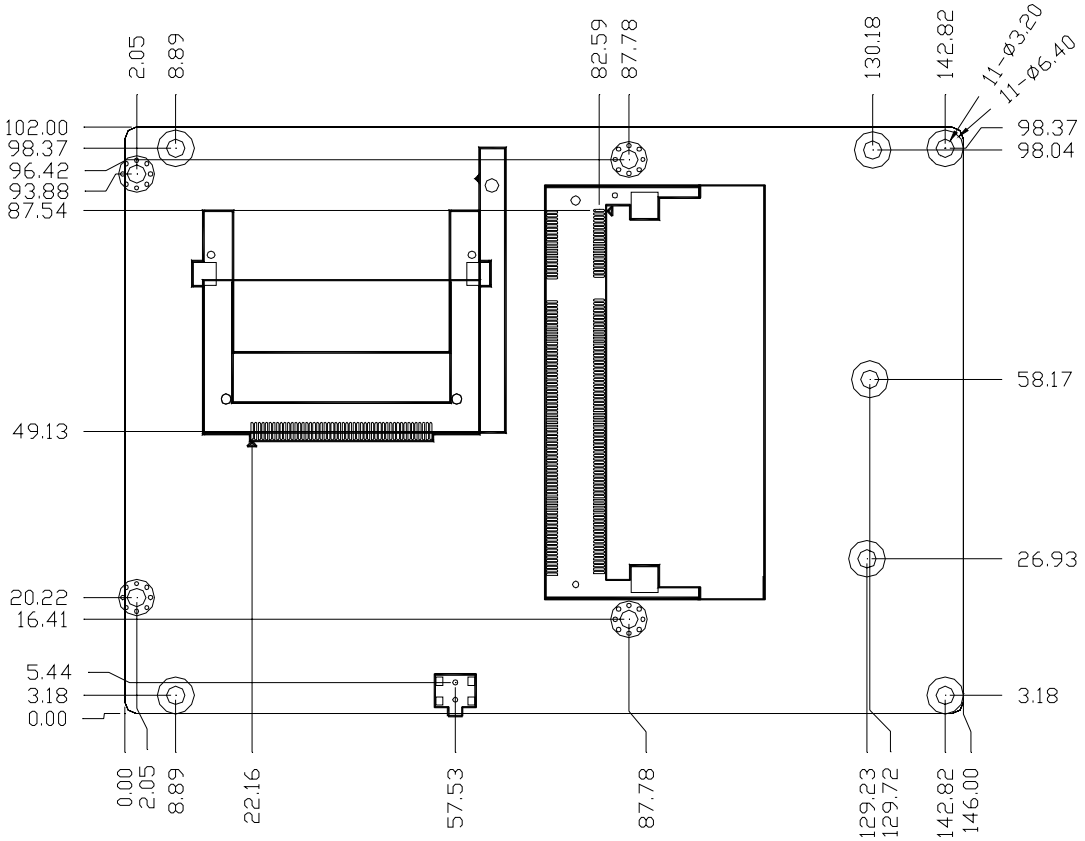


Figure 2.4 Board Dimension layout (Solder side)

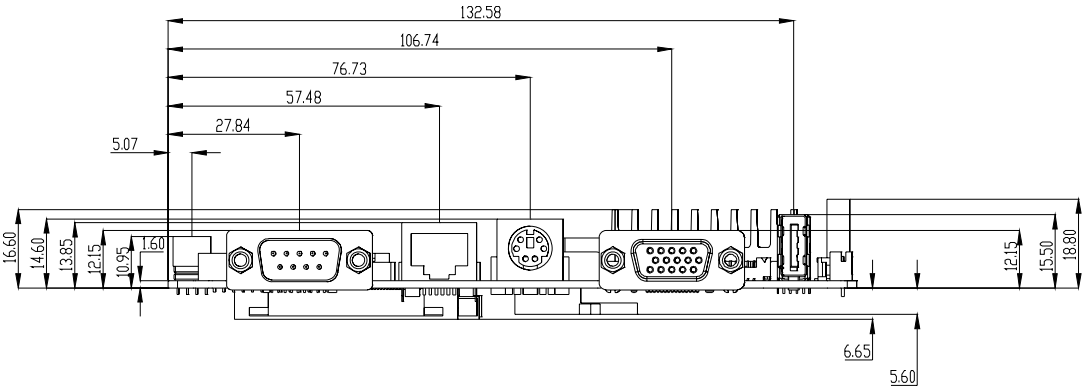


Figure 2.5 Board Dimension layout (Coastline)

Chapter 3

BIOS settings

3.1 BIOS Introduction

AwardBIOS 6.0 is a full-featured BIOS provided by Advantech to deliver superior performance, compatibility, and functionality to industrial PCs and embedded boards. Its many options and extensions let you customize your products to a wide range of designs and target markets.

The modular, adaptable AwardBIOS 6.0 supports the broadest range of third-party peripherals and all popular chipsets, plus Intel, AMD, nVidia, VIA, and compatible CPUs from 386 through Pentium, AMD Geode, K7 and K8 (including multiple processor platforms), and VIA Eden C3 and C7 CPUs.

You can use Advantech's utilities to select and install features that suit your needs and your customers' needs.

3.2 BIOS Setup

The PCM-9361 system has AwardBIOS 6.0 built-in, which includes a CMOS SETUP utility that allows users to configure settings as required or to activate certain system features.

The CMOS SETUP saves configuration settings in the CMOS RAM of the motherboard. When the system power is turned off, the onboard battery supplies the necessary power to the CMOS RAM so that settings are retained.

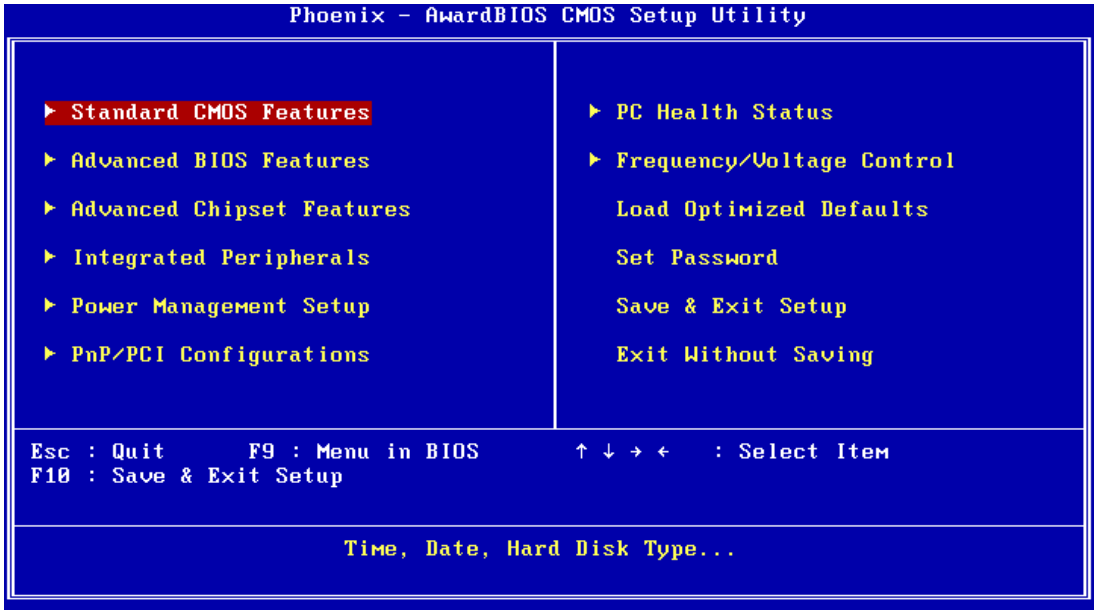
To access the CMOS SETUP screen, press the <Del> button during the power-on BIOS POST (Power-On Self Test).

CMOS SETUP Navigation and Control Keys:

< ↑ >< ↓ >< ← >< → >	Move to highlight item
<Enter>	Select Item
<Esc>	Main Menu - Start Quit sequence
	Sub Menu - Exit the current page and return to level above
<Page Up/+>	Increase the numeric value or make changes
<Page Down/->	Decrease the numeric value or make changes
<F1>	General help, for Setup Sub Menu
<F2>	Item Help
<F5>	Load Previous Values
<F7>	Load Optimized Default
<F10>	Save all CMOS changes

3.2.1 Main Menu

Press the <Del> key during startup to enter the BIOS CMOS Setup Utility; the Main Menu will appear on the screen. Use arrow keys to highlight the desired item, and press <Enter> to accept, or enter the sub-menu.



- **Standard CMOS Features**

This setup page includes all the features for standard CMOS configuration.

- **Advanced BIOS Features**

This setup page includes all the features for advanced BIOS configuration.

- **Advanced Chipset Features**

This setup page includes all the features for advanced chipset configuration.

- **Integrated Peripherals**

This setup page includes all onboard peripheral devices.

- **Power Management Setup**

This setup page includes all the power management items.

- **PnP/PCI Configurations**

This setup page includes PnP OS and PCI device configuration.

- **PC Health Status**

This setup page includes the system auto-detect CPU and system temperature, voltage, and fan speed.

- **Frequency/Voltage Control**

This setup page includes CPU host clock control, frequency ratio and voltage.

- **Load Optimized Defaults**

This selection loads optimized values for best system performance configuration.

- **Set Password**

Establish, change or disable passwords.

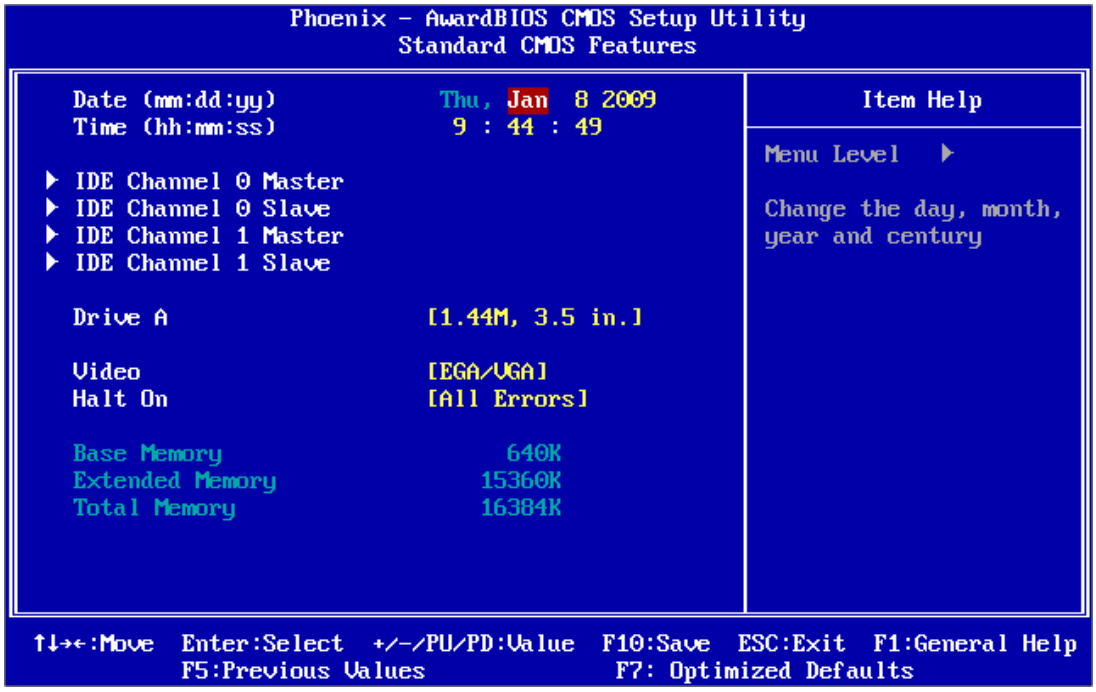
- **Save & Exit Setup**

Save CMOS value settings to CMOS and exit BIOS setup.

- **Exit Without Saving**

Abandon all CMOS value changes and exit BIOS setup.

3.2.2 Standard CMOS Features



- **Date**

  The date format is <weekday>, <month>, <day>, <year>.

Weekday	From Sun to Sat, determined and display by BIOS only
Month	From Jan to Dec.
Day	From 1 to 31
Year	From 1999 through 2098

- **Time**

  The times format in <hour> <minute> <second>, base on the 24-hour time.

- **IDE Channel 0/1 Master/Slave**

  IDE HDD Auto-Detection - Press "Enter" for automatic device detection.

- **Drive A**

  The Item identifies the types of floppy disk drive A or drive B

None	No floppy drive installed
360K, 5.25"	5.25 inch PC-type standard drive; 360K byte capacity
1.2M, 5.25"	5.25 inch AT-type high-density drive; 1.2M byte capacity
720K, 3.5"	3.5 inch double-sided drive; 720K byte capacity
1.44M, 3.5"	3.5 inch double-sided drive; 1.44M byte capacity
2.88M, 3.5"	3.5 inch double-sided drive; 2.88M byte capacity

- **Halt on**

  This item determines whether the computer will stop if an error is detected during power up.

No Errors	The system boot process will not stop for any error
All Errors	Whenever the BIOS detects a non-fatal error the system boot process will be stopped.
All, But Keyboard	The system boot process will not stop for a keyboard error, but will stop for all other errors. (Default value)

All, But Diskette	The system boot process will not stop for a diskette error, but will stop for all other errors.
All, But Disk/Key	The system boot process will not stop for a keyboard or disk error, but will stop for all other errors.

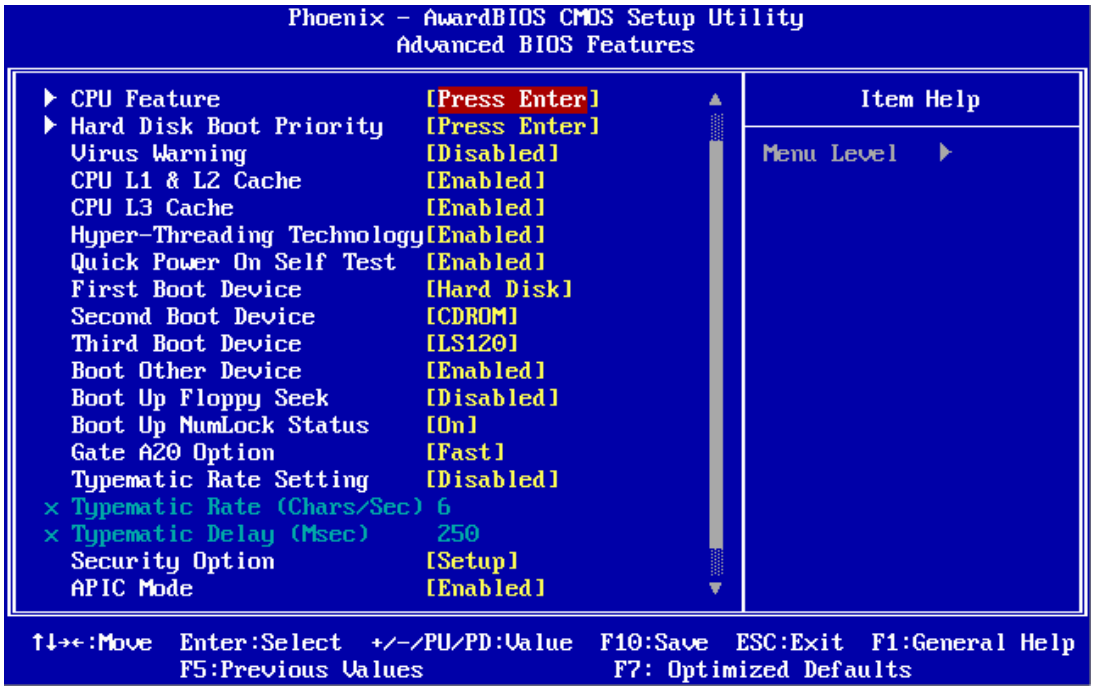
- **Base Memory**

  Displays the amount of base (or conventional) memory installed in the system.
- **Extended Memory**

  Displays the amount of extended memory (above 1 MB in CPU's memory address map) installed in the system.
- **Total Memory**

  Displays the total system memory size.

3.2.3 Advanced BIOS Features



- **CPU Feature**

  This item allows the user to adjust CPU settings such as CPU ratio, VID and Thermal, and special features like XD flag.
- **Hard Disk Boot Priority**

  This item allows the user to select the boot sequence for system devices such as HDD, SCSI, and RAID.
- **CPU L1 & L2 Cache [Enabled]**

  This item allows user to enable CPU L2 cache and ECC checking function.
- **CPU L3 Cache [Enabled]**

  This item allows the user to enable/disable CPU L3 cache.
- **Hyper-Threading Technology [Enabled]**

  This item allows the user to enable/disable Hyper-threading support for the Intel® Pentium® 4 processor with HT Technology.

- **Quick Power On Self Test [Enabled]**

  This field speeds up the Power-On Self Test (POST) routine by skipping re-testing a second, third and fourth time. The default setting is enabled.

- **First / Second / Third / Other Boot Drive**

Hard Disk	Sets boot priority for the hard disk.
CDROM	Sets boot priority for CDROM.
USB-FDD	Sets boot priority for USB-FDD.
USB-ZIP	Sets boot priority for USB-ZIP.
USB-CDROM	Sets boot priority for USB-CDROM.
LAN	Sets boot priority for LAN.
Disabled	Disables this boot function.

- **Boot Up NumLock Status [On]**

  This item allows the user to activate the Number Lock key at system boot.

- **Gate A20 Option [Fast]**

  This item allows the user to switch on or off A20 control by port 92.

- **Typematic Rate Setting**

  This item allows the user to set the two typematic control items.

  This field controls the speed of

  – Typematic Rate (Chars/Sec)

  This item controls the speed at which the system registers auto repeated keystrokes.

  The eight settings are: 6, 8, 10, 12, 15, 20, 24 and 30.

  – Typematic Delay (Msec)

  This item sets the key press delay time before auto repeat begins. The four delay rate options are: 250, 500, 750 and 1000.

- **Security Option [Setup]**

System	System requires correct password before booting, and also before permitting access to the Setup page.
Setup	System will boot, but requires correct password before permitting access to Setup. (Default value)

- **APIC Mode [Enabled]**

  This item allows the user to enable/disable the "Advanced Programmable Interrupt Controller". APIC is implemented in the motherboard and must be supported by the operating system; it extends the number of IRQs available.

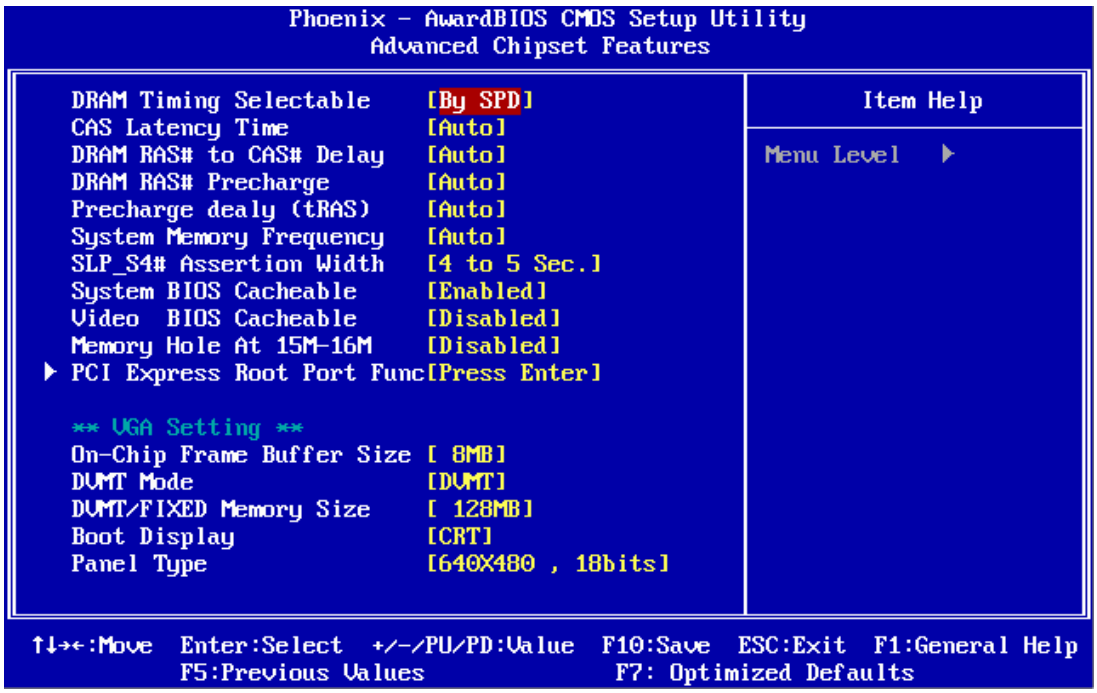
- **MPS Version Control for OS [1.4]**

  This item sets the operating system multiprocessor support version.

- **OS Select For DRAM > 64 MB [Non-OS2]**

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

3.2.4 Advanced Chipset Features

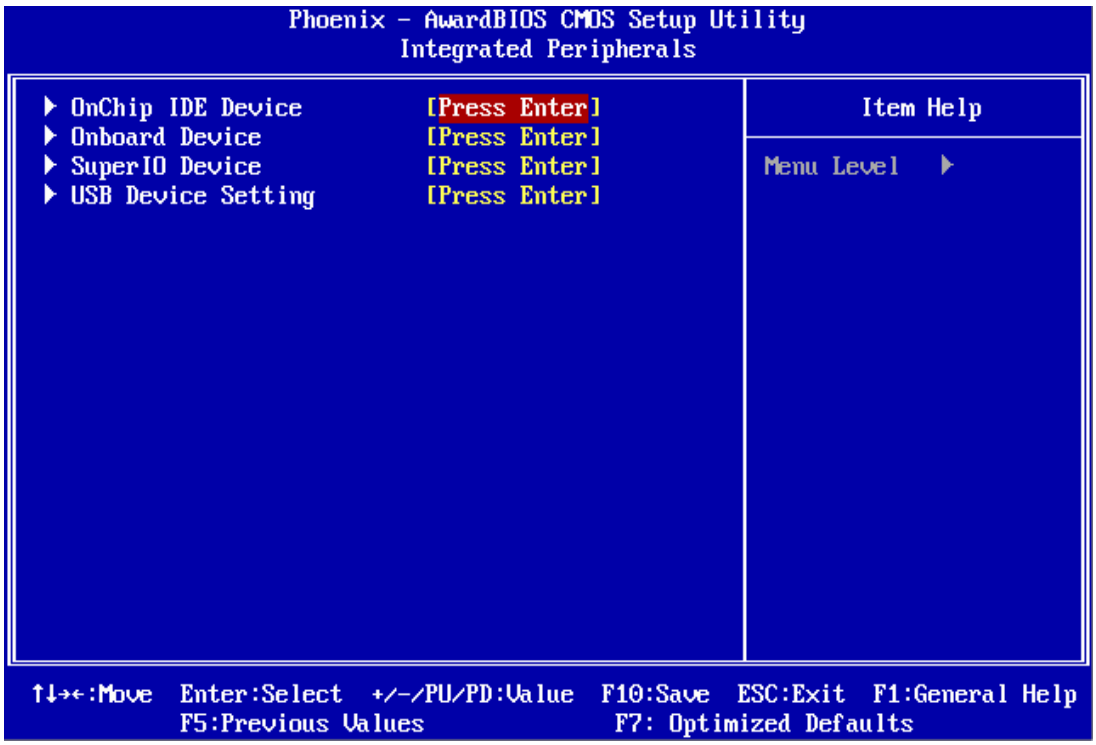


Note! *The "Advanced Chipset Features" screen controls the configuration of the board's chipset register settings and performance tuning - the options on this screen may vary depending on the chipset type. It is strongly recommended that only technical users make changes to the default settings.*

- **DRAM Timing Selectable [By SPD]**
  This item enables users to set the optimal timings for items 2 through 5, system default setting of "By SPD" to follow the SPD information and ensure the system running in stable and optimal performance.
- **CAS Latency Time [Auto]**
  This item enables users to set the timing delay in clock cycles before SDRAM start a read command after receiving it.
- **DRAM RAS# to CAS# Delay [Auto]**
  This item enables users to set the timing of the transition from RAS (row address strobe) to CAS (column address strobe) as both rows and column are separately addressed shortly after DRAM is refreshed.
- **DRAM RAS# Precharge [Auto]**
  This item enables users to set the DRAM RAS# precharge timing, system default is setting to "Auto" to reference the data from SPD ROM.
- **Precharge delay (tRAS) [Auto]**
  This item allows user to adjust memory precharge time
- **System Memory Frequency [Auto]**
  This item allows user to adjust memory frequency to improvement performance.
- **SLP_S4# Assertion Width [4 to 5 Sec]**
  This item allow user to set the SLP_S4# Assertion Width.
- **System BIOS Cacheable [Enabled]**
  This item allows the system BIOS to be cached to allow faster execution and better performance.

- **Video BIOS Cacheable [Disabled]**
  This item allows the video BIOS to be cached to allow faster execution and better performance.
- **Memory Hole At 15M-16M [Disabled]**
  This item reserves 15MB-16MB memory address space to ISA expansion cards that specifically require the setting. Memory from 15MB-16MB will be unavailable to the system because of the expansion cards can only access memory at this area.
- **PCI Express Root Port Func [Press Enter]**
  This item allows the user to adjust the PCIE port to on, off, or auto.
- **On-Chip Frame Buffer Size [8MB]**
  This item allows the user to adjust on-chip graphics of memory buffer.
- **DVMT Mode [DVMT]**
  This item allows the user to adjust Intel's Dynamic Video Memory Technology (DVMT).Bios provide three option to choose (DVMT,FIXED and Both).
- **DVMT/FIXED Memory Size [128MB]**
  This item allows the user to adjust DVMT/FIXED graphics memory size.
- **Boot Display [CRT]**
  This item allows the user to decide which display mode to use for the boot display.
- **Panel Type [640 x 480, 18bits]**
  This item allows the user to adjust panel resolution.

3.2.5 Integrated Peripherals



Note! *The "Integrated Peripherals" screen controls chipset configuration for IDE, ATA, SATA, USB, AC97, MC97 and Super IO and Sensor devices. The options on this screen vary depending on the chipset.*

- **OnChip IDE Device**

  This item enables users to set the OnChip IDE device status, including IDE devices and setting PIO and DMA access modes. Some chipsets support newer SATA devices (Serial-ATA).

- **Onboard Device**

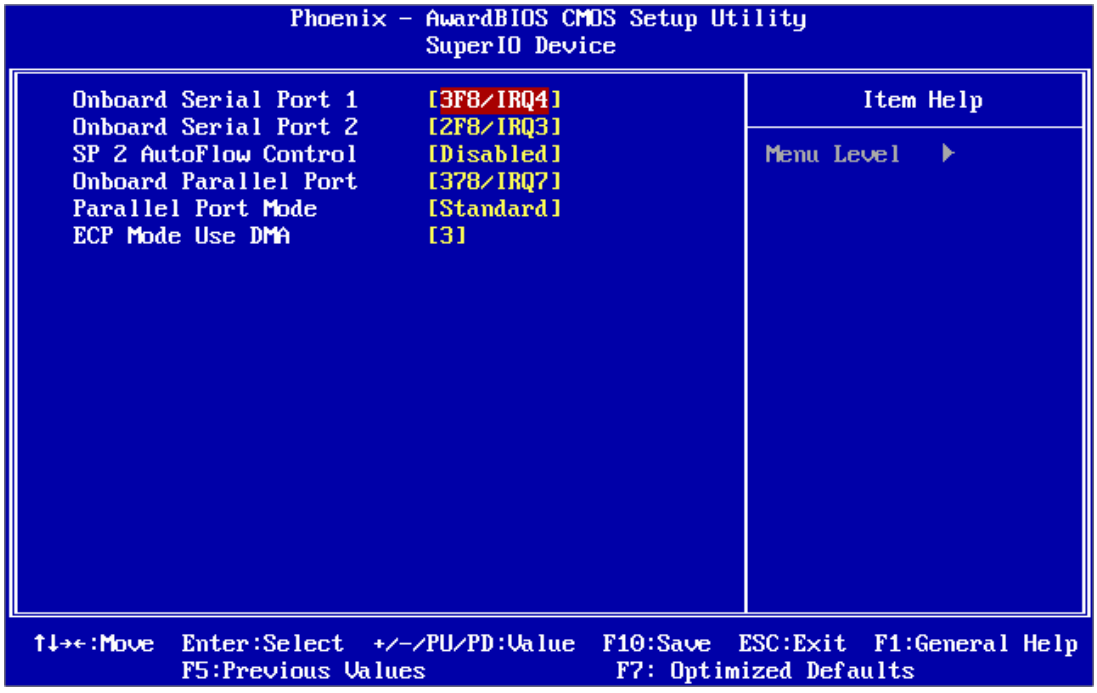
  This item enables users to set the Onboard device status, includes enable USB, AC97, MC97 and LAN devices.

- **Super IO Device**

  This item enables users to set the Super IO device status, includes enable Floppy, COM, LPT, IR and control GPIO and Power fail status.

- **USB Device Setting**

  This item enables users to set the USB device type.



- **Onboard Serial port 1 [3F8/IRQ4]**

  This item allows the user to adjust serial port 1 address.

- **Onboard Serial port 2 [2F8/IRQ3]**

  This item allows the user to adjust serial port 2 address.

- **SP 2 AutoFlow Control [Disabled]**

  This item allows the user to enable serial port 2 autoflow control function.

- **Onboard Parallel Port [378/IRQ7]**

  This item allows the user to adjust parallel port address and IRQ.

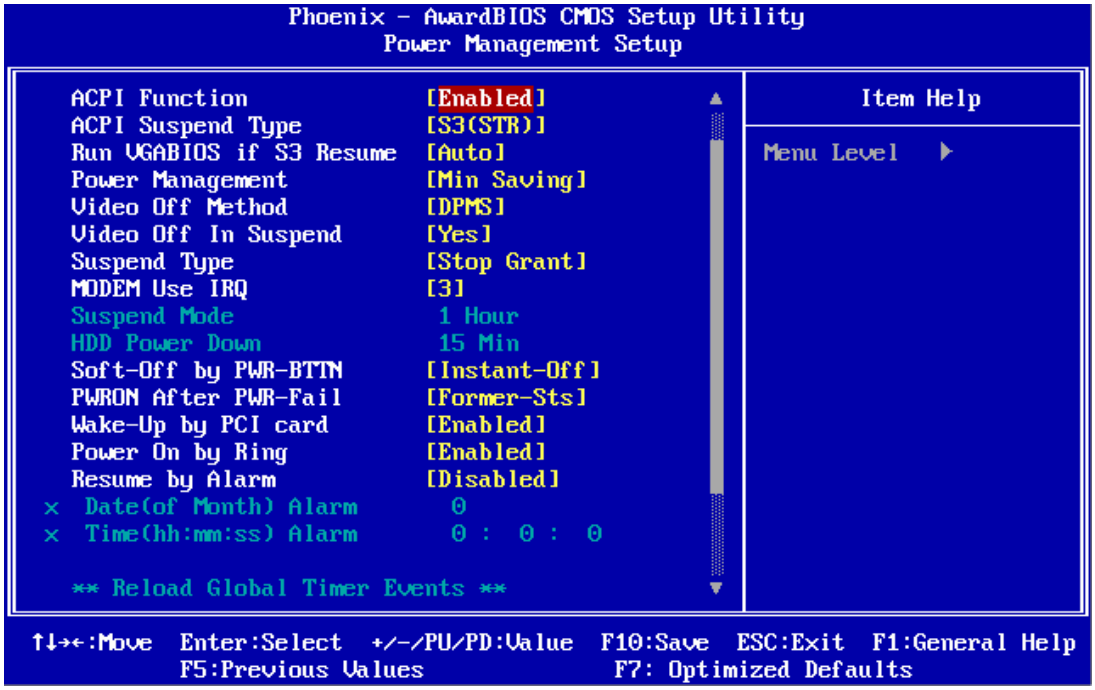
- **Parallel Port Mode [Standard]**

  This item allows the user to adjust parallel port mode.

- **ECP Mode Use DMA [3]**

  This item allows the user to adjust the ECP DMA resource.

3.2.6 Power Management Setup



Note! *The "Power Management Setup" screen allows configuration of the system for effective energy savings while still operating in a manner consistent with intended computer use.*

- **ACPI Function [Enabled]**

  This item defines the ACPI (Advanced Configuration and Power Management) feature that makes hardware status information available to the operating system, and communicate PC and system devices for improving the power management.

- **ACPI Suspend Type [S3 (STR)]**

  This item allows user to select sleep state state when the computer is in suspend mode.

S1 (POS)	The suspend mode is equivalent to a software power down.
S3 (STR)	The system shuts down with the exception of a refresh current to the system memory.

- **Run VGA BIOS if S3 Resume [Auto]**

  This item allows the user to enable run VGA bios if system resume from S3.

- **Power Management [Min Saving]**

  This item allows user to select system power saving mode.

Min Saving	Minimum power management. Suspend Mode=1 hr.
Max Saving	Maximum power management. Suspend Mode=1 min.
User Define	Allows user to set each mode individually. Suspend Mode= Disabled or 1 min ~1 hr.

- **Video Off Method [DPMS]**

  This item allows the user to determine the manner in which the monitor is blanked.

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

- **Video Off In Suspend [Yes]**

  This item allows user to turn off video during system enter suspend mode.

- **Suspend Type [Stop Grant]**

  This item allows user to determine the suspend type.

- **Modem use IRQ [3]**

  This item allows user to determine the IRQ which the MODEM can use.

- **Suspend Mode [1 Hour]**

  This item allows user to determine the time of system inactivity, all devices except the CPU will be shut off.

- **HDD Power Down Mode [15 Min]**

  This item allows user to determine the time of system inactivity, the hard disk drive will be powered down.

- **Soft-Off by PWR-BTTN [Instant-Off]**

  This item allows the user to define the power button functions.

Instant-Off	Press the power button to power off instantly.
Delay 4 Sec	Press and hold the power button for 4 sec to power off.

- **PWRON After PWR-Fail [Former-Sts]**

  This item allows the user to select recovery after power fail function; this function depends on the chipset.

- **Wake-Up by PCI card [Enabled]**

  This item allows user to defines PCI cards to wake up the system from the suspend mode.

- **Power On by Ring [Enabled]**

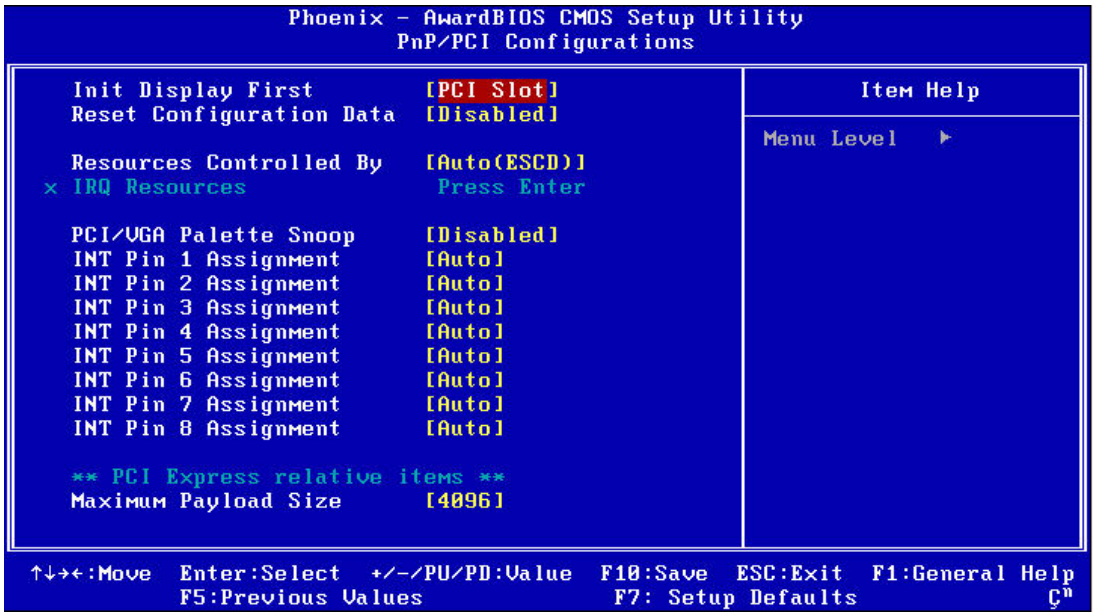
  This item allows user to define the system will resume by activating of modem ring.

- **Resume by Alarm [Disabled]**

  This item allows user to enable and key in Date/time to power on system

Disabled	Disable this function.
Enabled	Enable alarm function to power on system
Day (of month) Alarm	1-31
Time (HH:MM:SS) Alarm	(0-23) : (0-59) : 0-59)

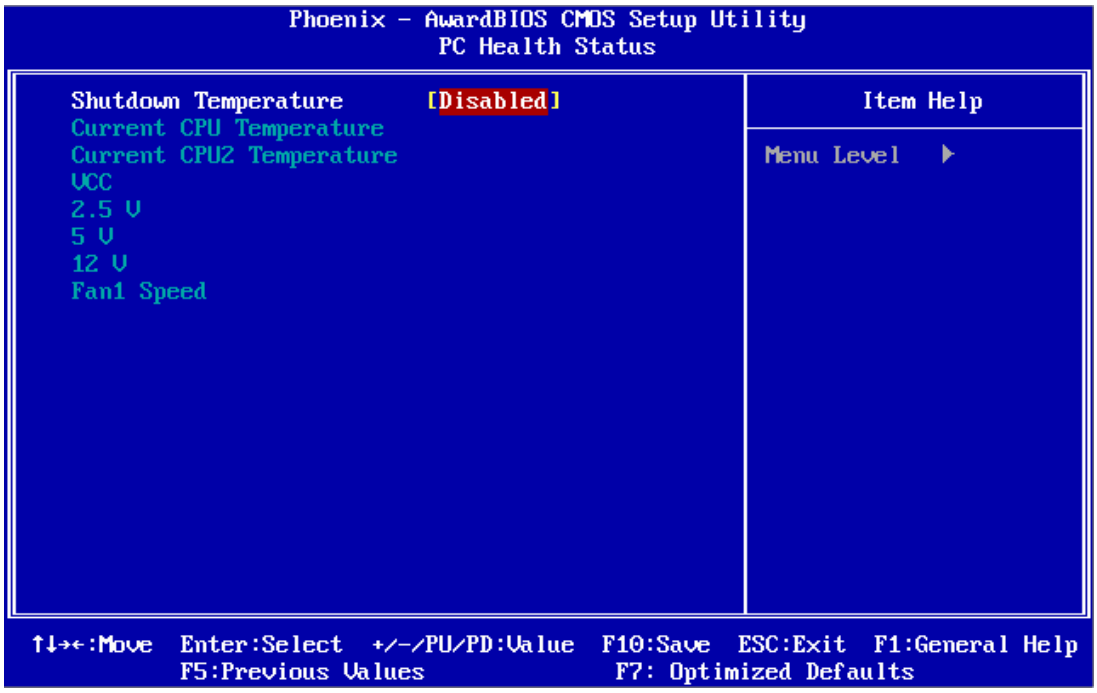
3.2.7 PnP/PCI Configurations



Note! *This "PnP/PCI Configurations" option sets up the IRQ and DMA (both PnP and PCI bus assignments).*

- **Init Display First [PCI Slot]**
  This item is setting for start up Video output from PCI or Onboard device.
- **Reset Configuration Data [Disabled]**
  This item allow user to clear any PnP configuration data stored in the BIOS.
- **Resources Controlled By [Auto (ESCD)]**
  - IRQ Resources
    This item allows you respectively assign an interruptive type for IRQ-3, 4, 5, 7, 9, 10, 11, 12, 14, and 15.
  - DMA Resources
    This item allows you respectively assign an interruptive type for DMA, 0, 1, 2, 3, 4, 5, 6, and 7.
- **PCI VGA Palette Snoop [Disabled]**
  The item is designed to solve problems caused by some non-standard VGA cards. A built-in VGA system does not need this function.
- **INT Pin 1~8 Assignment [Auto]**
  This item allows the user to select the interrupt request (IRQ) assigned to a device connected to the PCI interface on your system.
- **Maximum Payload Size [4096]**
  This item allows the user to adjust maximum TLP (Transaction Layer Packet) payload size.

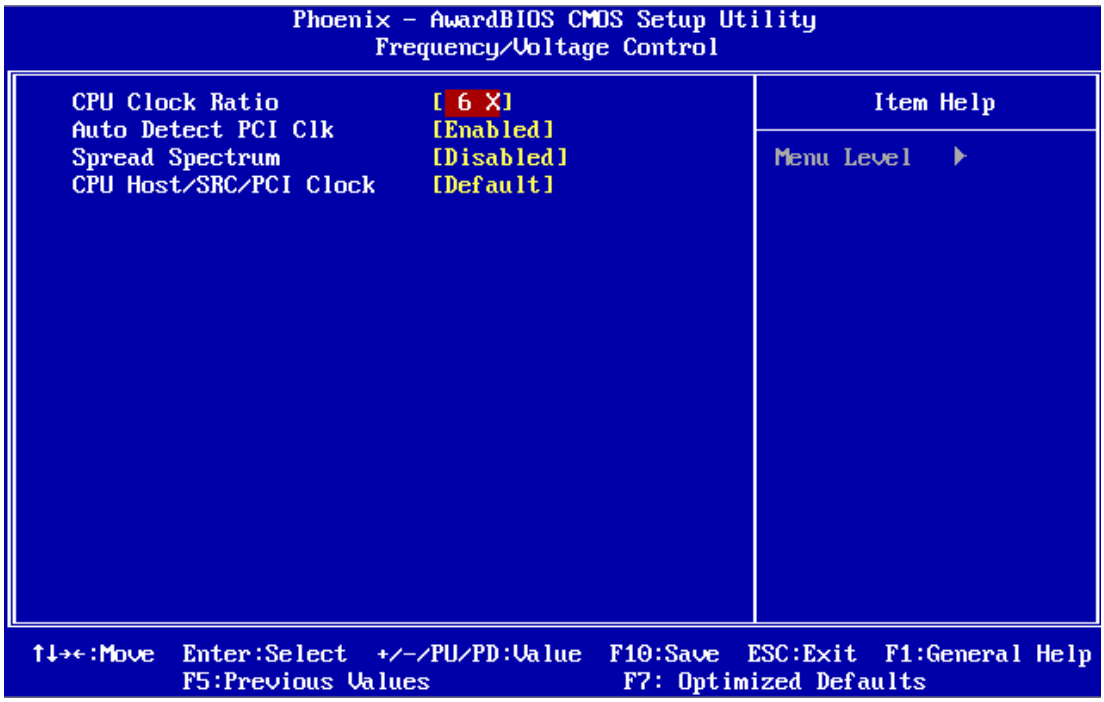
3.2.8 PC Health Status



Note! *This "PC Health Status" page reports the thermal, fan and voltage status of the board. This page may vary according to the chipset installed.*

- **Current CPU Temperature [Show Only]**
  This item displays current CPU temperature.
- **FAN 1 Speed [Show Only]**
  This item displays current system FAN(s) speed(s).
- **VCC/ 2.5 V/ 5V/ 12V [Show Only]**
  This item displays current CPU and system voltage.

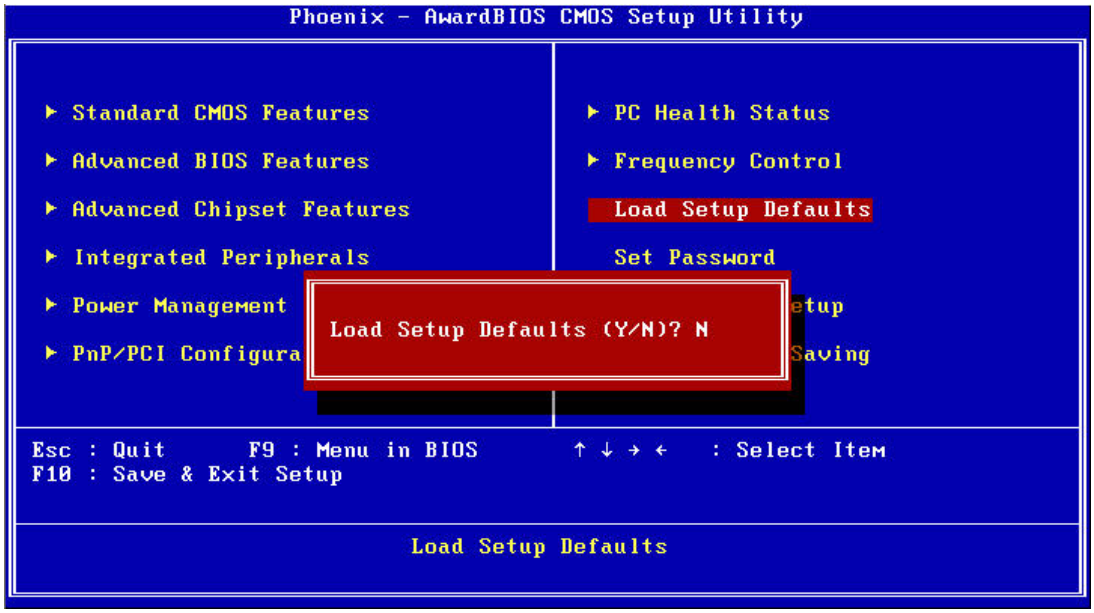
3.2.9 Frequency/Voltage Control



Note! *The "Frequency/Voltage Control" screen controls the CPU host and PCI frequency. The options on this page vary depending on the chipset; items show up according to installed CPU capacities.*

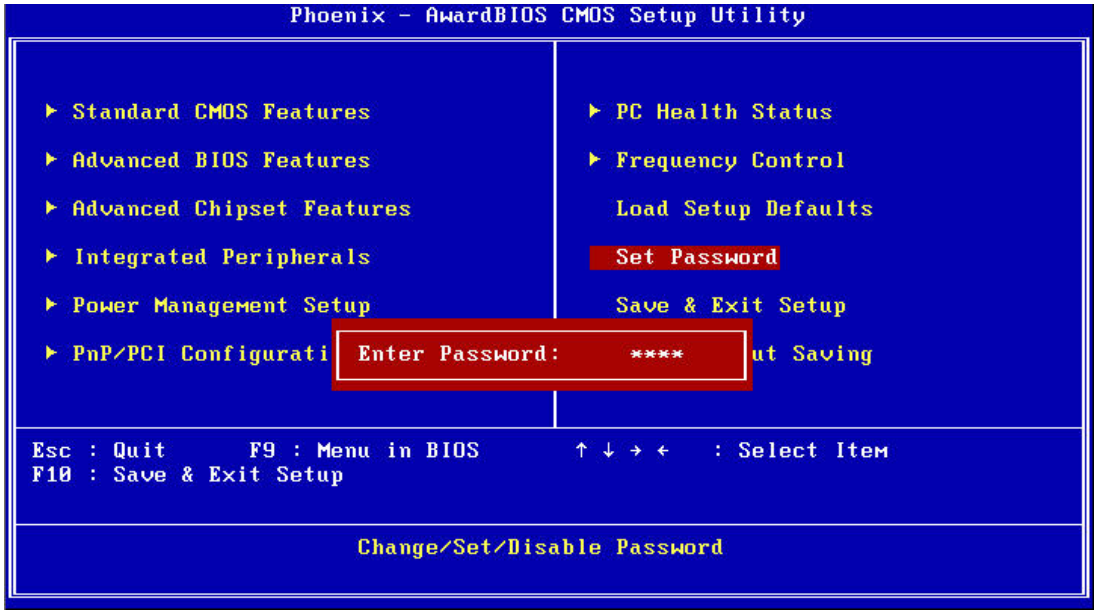
- **CPU Clock Ratio [6X]**
  This item enables users to set the CPU clock ratio by manually.
- **Auto Detect PCI Clk [Enabled]**
  This item enables users to set the PCI Clk either by automatic system detection or manually.
- **Spread Spectrum [Disabled]**
  This item enables users to set the spread spectrum modulation.
- **CPU Host/SRC/PCI Clock [Defautl]**
  This item enables users to set the CPUhost/SRC/PCI clock.

3.2.10 Load Optimized Defaults



Note! *"Load Optimized Defaults" loads the default system values directly from ROM. If the stored record created by the setup program should ever become corrupted (and therefore unusable), select Load Setup Defaults to have these default values load automatically for the next bootup.*

3.2.11 Set Password



Note! *To enable this feature, you should first go to the "Advanced BIOS Features" menu, choose the Security Option, and select either System or Setup, depending on which aspects you want password protected. System requires a password both to boot the system and to enter Setup. Setup requires a password only to enter Setup. A password may be at most 8 characters long.*

To Establish Password

1. Choose the Set Password option from the CMOS Setup Utility Main Menu and press <Enter>.
2. When you see Enter Password, enter the desired password and press <Enter>.
3. At the Confirm Password prompt, retype the desired password, then press <Enter>.
4. Select Save to CMOS and exit, type <Y>, then <Enter>.

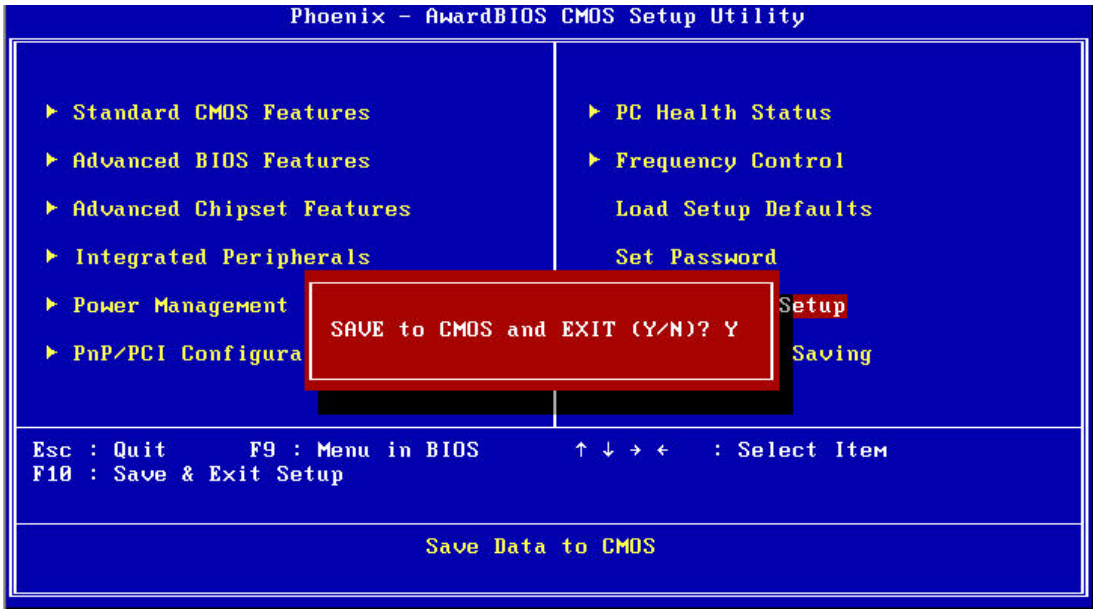
To Change Password

1. Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.
2. When you see Enter Password, enter the existing password and press <Enter>.
3. You will see the Confirm Password prompt, type it in again, and press <Enter>.
4. Select Set Password again, and at the Enter Password prompt, enter the new password and press <Enter>.
5. At the Confirm Password prompt, retype the new password, and press <Enter>.
6. Select Save to CMOS and exit, type <Y>, then <Enter>.

To Disable a Password

1. Choose the Set Password option from the CMOS Setup Utility main menu and press <Enter>.
2. When you see the Enter Password prompt, enter the existing password and press <Enter>.
3. You will see Confirm Password, type it in again, and press <Enter>.
4. Select Set Password again, and at the Enter Password prompt, DO NOT enter anything - just press <Enter>.
5. At the Confirm Password prompt, again, DO NOT type in anything - just press <Enter>.
6. Select Save to CMOS and exit, type <Y>, then <Enter>.

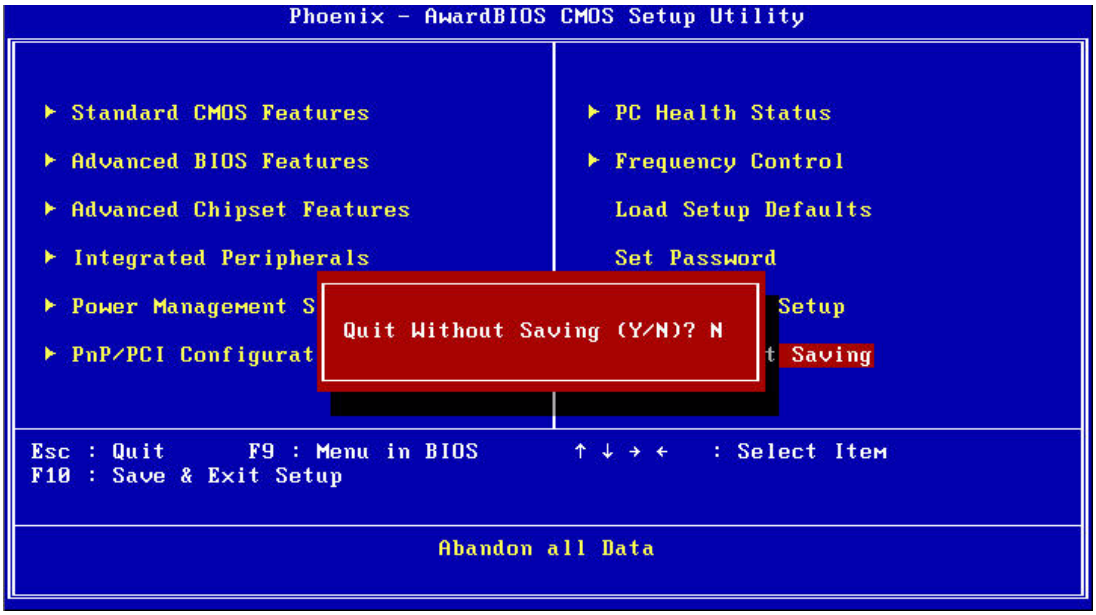
3.2.12 Save & Exit Setup



Note! *Typing "Y" will quit the BIOS Setup Utility and save user setup values to CMOS.*

Typing "N" will return to BIOS Setup Utility.

3.2.13 Quit Without Saving



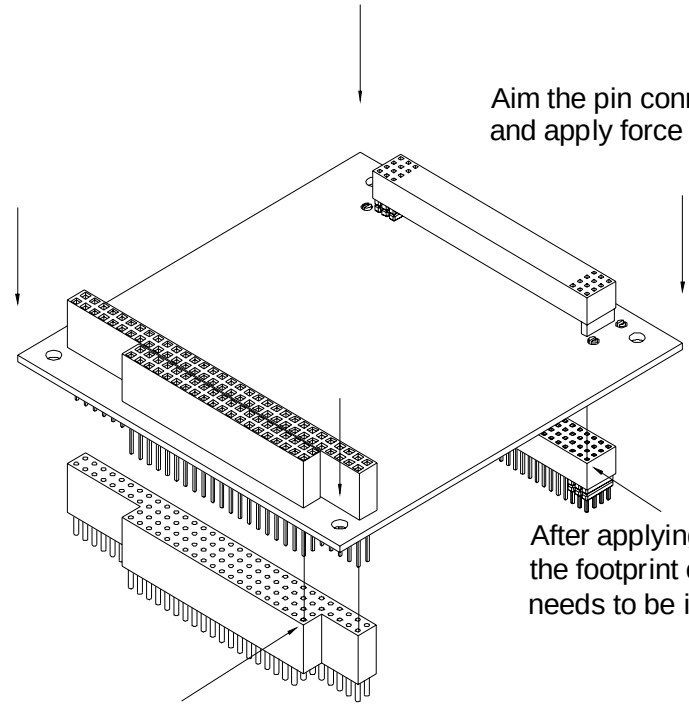
Note! *Typing "Y" will quit the BIOS Setup Utility without saving any changes to CMOS.*

Typing "N" will return to the BIOS Setup Utility.

Chapter 4

Extension I/O Installation

4.1 PCI-104

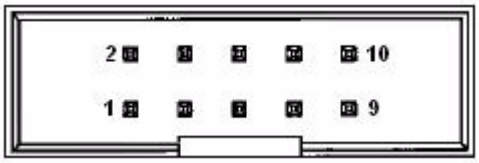

Aim the pin connector to the footprint and apply force evenly.
After applying force to the IPC connector, the footprint of the module / CPU board needs to be inserted correctly.
After applying force to the connector, the footprint of the module / CPU board needs to be inserted correctly.

Appendix A

PIN Assignments

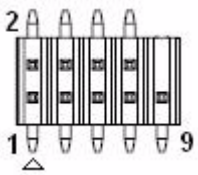
A.1 PIN Assignments

Table A.1: CN1: Audio	
Part Number	1653205260
Footprint	BH5X2SV
Description	BOX HEADER SMD 5*2 180D (M) 2.0mm
Pin	**Pin Name**
1	LOUTR
2	LINR
3	GND
4	GND
5	LOUTL
6	LINL
7	GND
8	GND
9	MIC1R
10	MIC1L



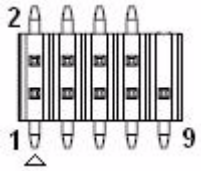
Matching Cable : 1703100152

Table A.2: CN2: Internal USB	
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2*5P 180D(M) 2.0mm SMD IDIOT-PROOF
Pin	**Pin Name**
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND



Matching Cable : 1703100121

Table A.3: CN3: Internal USB	
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2*5P 180D(M) 2.0mm SMD IDIOT-PROOF
Pin	**Pin Name**
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND



Matching Cable : 1703100121

Table A.4: CN4: SATA	
Part Number	1654002320
Footprint	FOX_LD1107V-S33T5
Description	Serial ATA 7P 1.27 90D(M) SMD LD1107V-S33T5
Pin	**Pin Name**
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

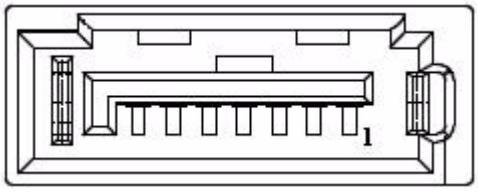


Table A.5: CN5: SATA	
Part Number	1654002320
Footprint	FOX_LD1107V-S33T5
Description	Serial ATA 7P 1.27 90D(M) SMD LD1107V-S33T5
Pin	**Pin Name**
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

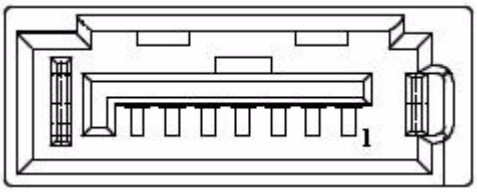


Table A.6: CN6: Power Switch (Low Active)	
Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 180D(M) 2.0mm W/Lock
Pin	**Pin Name**
1	PSIN
2	GND

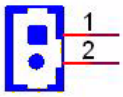


Table A.7: CN7: PCI-104 -12 V Input	
Part Number	1653002101
Footprint	JH2X1V-2M
Description	PIN HEADER 2*1P 180D(M)SQUARE 2.0mm DIP W/O Pb
Pin	**Pin Name**
1	-12 V
2	GND

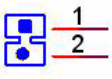
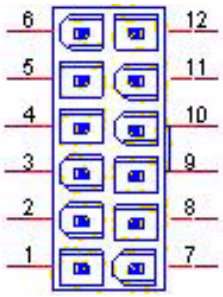


Table A.8: CN8: AT/ATX Power Input	
Part Number	1655412090
Footprint	ATXCON-2X6V-42
Description	Power CONN.6*2P 180D(M) DIP W/Fixed Lock
Pin	**Pin Name**
1	GND
2	+5V
3	+5V
4	GND
5	+5V
6	+5V
7	GND
8	GND
9	+5VSB
10	PSON#
11	GND
12	+12V



Matching Cable : 1700000265

Table A.9: CN9: PCI-104	
Part Number	00A0000020 1653130428
Footprint	PC104-PCI-PLUS
Description	PCI-104
Pin	**Pin Name**
PA1	GND
PA2	VI/O (+5V or +3.3V)
PA3	AD05
PA4	C/BE0#
PA5	GND
PA6	AD11
PA7	AD14
PA8	+3.3V
PA9	SERR#
PA10	GND
PA11	STOP#

Table A.9: CN9: PCI-104	
PA12	+3.3V
PA13	FRAME#
PA14	GND
PA15	AD18
PA16	AD21
PA17	+3.3V
PA18	IDSEL0
PA19	AD24
PA20	GND
PA21	AD29
PA22	+5V
PA23	REQ0#
PA24	GND
PA25	GNT1#
PA26	+5V
PA27	CLK2
PA28	GND
PA29	+12V
PA30	-12V
PB1	NC
PB2	AD02
PB3	GND
PB4	AD07
PB5	AD09
PB6	VI/O (+5V or +3.3V)
PB7	AD13
PB8	C/BE1#
PB9	GND
PB10	PERR#
PB11	+3.3V
PB12	TRDY#
PB13	GND
PB14	AD16
PB15	+3.3V
PB16	AD20
PB17	AD23
PB18	GND
PB19	C/BE3#
PB20	AD26
PB21	+5V
PB22	AD30
PB23	GND
PB24	REQ2#
PB25	VI/O (+5V or +3.3V)
PB26	CLK0
PB27	+5V
PB28	INTD#

Table A.9: CN9: PCI-104	
PB29	INTA#
PB30	REQ3#
PC1	+5V
PC2	AD01
PC3	AD04
PC4	GND
PC5	AD08
PC6	AD10
PC7	GND
PC8	AD15
PC9	NC
PC10	+3.3V
PC11	LOCK#
PC12	GND
PC13	IRDY#
PC14	+3.3V
PC15	AD17
PC16	GND
PC17	AD22
PC18	IDSEL1
PC19	VI/O (+5V or +3.3V)
PC20	AD25
PC21	AD28
PC22	GND
PC23	REQ1#
PC24	+5V
PC25	GNT2#
PC26	GND
PC27	CLK3
PC28	+5V
PC29	INTB#
PC30	GNT3#
PD1	AD00
PD2	+5V
PD3	AD03
PD4	AD06
PD5	GND
PD6	M66EN
PD7	AD12
PD8	+3.3V
PD9	PAR
PD10	NC
PD11	GND
PD12	DEVSEL#
PD13	+3.3V
PD14	C/BE2#
PD15	GND

Table A.9: CN9: PCI-104	
PD16	AD19
PD17	+3.3V
PD18	IDSEL2
PD19	IDSEL3
PD20	GND
PD21	AD27
PD22	AD31
PD23	VI/O (+5V or +3.3V)
PD24	GNT0#
PD25	GND
PD26	CLK1
PD27	GND
PD28	RST#
PD29	INTC#
PD30	GND

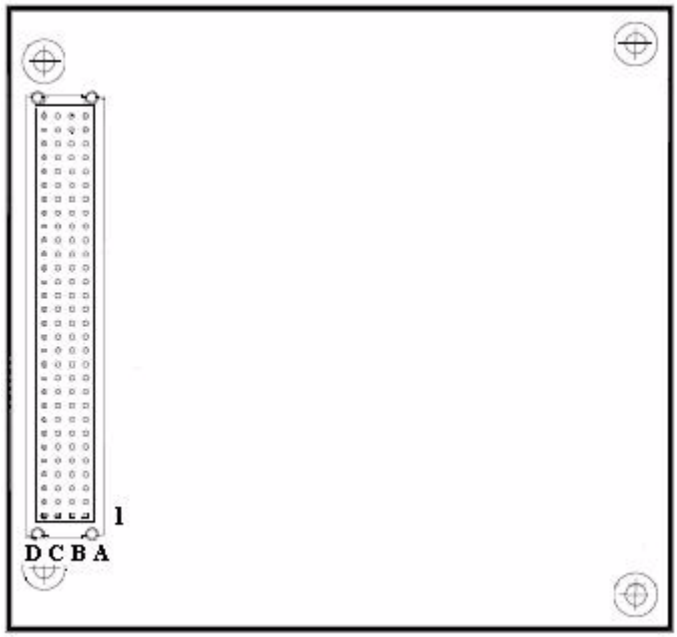


Table A.10: CN10: 36 bits LVDS Panel	
Part Number	1653920200
Footprint	SPH20X2
Description	*CONN. 40P 90D 1.25mm SMD WO/Pb DF13-40DP-1.25V
Pin	**Pin Name**
1	+5V or +3.3V
2	+5V or +3.3V
3	GND
4	GND
5	+5V or +3.3V
6	+5V or +3.3V
7	LVDS0_D0-
8	LVDS1_D0-
9	LVDS0_D0+
10	LVDS1_D0+
11	GND
12	GND
13	LVDS0_D1-
14	LVDS1_D1-
15	LVDS0_D1+
16	LVDS1_D1+
17	GND
18	GND
19	LVDS0_D2-
20	LVDS1_D2-
21	LVDS0_D2+
22	LVDS1_D2+
23	GND
24	GND
25	LVDS0_CLK-
26	LVDS1_CLK-
27	LVDS0_CLK+
28	LVDS1_CLK+
29	GND
30	GND
31	DDC_CLK
32	DDC_DAT
33	GND
34	GND
35	NC
36	NC
37	NC
38	NC
39	NC
40	NC

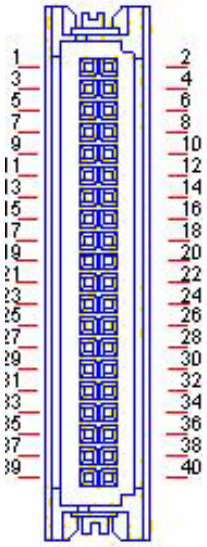
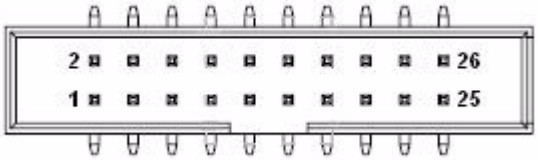


Table A.11: CN11: LPT	
Part Number	1653213260
Footprint	BH13X2SV
Description	BOX HEADER 13*2P 180D(M) 2.0mm SMD
Pin	**Pin Name**
1	STROBE#
2	AUTOFEED#
3	D0
4	ERROR#
5	D1
6	INIT#
7	D2
8	SLCT IN#
9	D3
10	GND
11	D4
12	GND
13	D5
14	GND
15	D6
16	GND
17	D7
18	GND
19	ACK#
20	GND
21	BUSY
22	GND
23	PE
24	GND
25	SLCT
26	NC



Matching Cable : 1700260250

Table A.12: CN12: GPIO	
Part Number	1653005261
Footprint	HD_5x2P_79_BOX
Description	PIN HEADER SMD 5*2P 180D(M) 2.0mm
Pin	**Pin Name**
1	+5V
2	GPIO4
3	GPIO0
4	GPIO5
5	GPIO1
6	GPIO6
7	GPIO2
8	GPIO7
9	GPIO3
10	GND

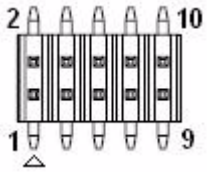


Table A.13: CN13: 18 bits TTL Panel	
Part Number	1653920200
Footprint	SPH20X2
Description	*CONN. 40P 90D 1.25mm SMD WO/Pb DF13-40DP-1.25V
Pin	**Pin Name**
1	+5V
2	+5V
3	GND
4	GND
5	+3.3V
6	+3.3V
7	NC
8	GND
9	NC
10	NC
11	PD2

Table A.13: CN13: 18 bits TTL Panel	
12	PD3
13	PD4
14	PD5
15	PD6
16	PD7
17	NC
18	NC
19	PD10
20	PD11
21	PD12
22	PD13
23	PD14
24	PD15
25	NC
26	NC
27	PD18
28	PD19
29	PD20
30	PD21
31	PD22
32	PD23
33	GND
34	GND
35	SHFCLK
36	FLM (V-SYNC)
37	M/DE
38	LP (H-SYNC)
39	NC
40	ENVEE

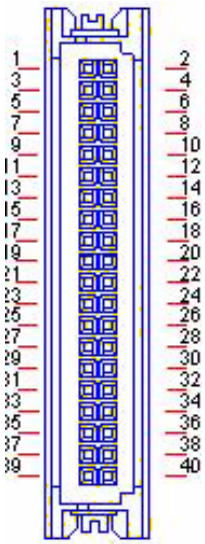


Table A.14: CN14: Inverter Power Output	
Part Number	1655305020
Footprint	WHL5V-2M
Description	WAFER BOX 2.0mm 5P 180D(M) W/LOCK
Pin	**Pin Name**
1	+12V
2	GND
3	ENABKL
4	VBR
5	+5V

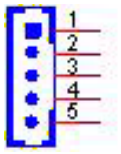


Table A.15: CN15: HDD & PWR LED	
Part Number	1655306020
Footprint	WHL6V-2M
Description	WAFER BOX 2.0mm 6P 180D(M) W/LOCK
Pin	**Pin Name**
1	+5V
2	GND
3	Power LED+
4	Power LED-
5	HDD LED+
6	HDD LED-

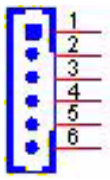


Table A.16: CN16: SMBus	
Part Number	1655904020
Footprint	FPC4V-125M
Description	Wafer SMT 1.25mmS/T type 4P 180D(M) 85205-04001
Pin	**Pin Name**
1	GND
2	SMB_DAT
3	SMB_CLK
4	+5V

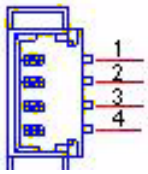
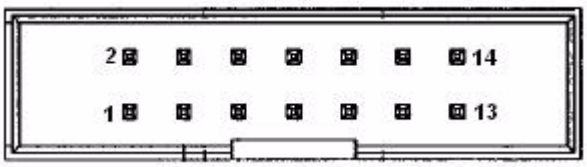


Table A.17: CN17: COM2	
Part Number	1653207260
Footprint	HD_7x2_79_BOX
Description	BOX HEADER SMD 7*2P 180D(M) 2.0mm
Pin	**Pin Name**
1	DCD#
2	DSR#
3	RXD
4	RTS#
5	TXD
6	CTS#
7	DTR#
8	RI#
9	GND
10	GND
11	422/485TX+
12	422/485TX-
13	422RX+
14	422RX-



Matching Cable : 1701140201

Table A.18: CN18: LAN	
Part Number	1652000174
Footprint	RJ45-P62P071AX9
Description	PhoneJack RJ45 14P 90D(F) W/Xfam P26@P07-1AX9
Pin	**Pin Name**
1	TX+(10/100)
2	TX-(10/100)
3	RX+(10/100)
4	NC
5	NC
6	RX-(10/100)
7	NC
8	NC

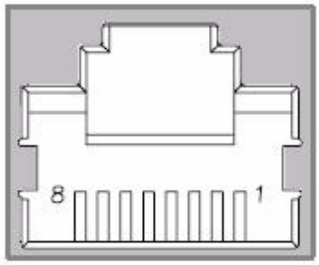


Table A.19: CN19: CPU FAN (+5V)	
Part Number	1655303020
Footprint	WHL3V-2M
Description	WAFER BOX 2.0mm 3P 180D w/LOCK
Pin	**Pin Name**
1	Speed
2	+5V
3	GND

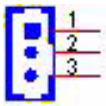


Table A.20: CN20: External USB	
Part Number	1654904105
Footprint	USB-V-4A
Description	USB CON. 4P 90D(F) DIP A TYPE RoHS
Pin	**Pin Name**
1	+5V
2	D-
3	D+
4	GND

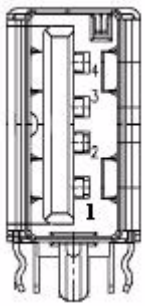
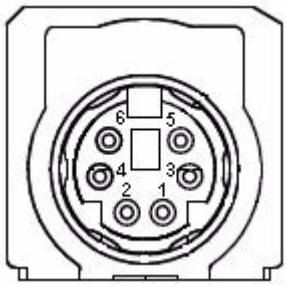


Table A.21: CN21: PS2	
Part Number	1654003199
Footprint	CONTEK_MQN3261F1G400
Description	MINIDIN 6P Short body W/Shielding90D(F) DIP
Pin	**Pin Name**
1	KBDAT
2	MSDAT
3	GND
4	+5V
5	KBCLK
6	MSCLK



Matching Cable : 1700060202

Table A.22: CN22: COM1	
Part Number	1654000056
Footprint	DBCOM-VM5MS
Description	D-SUB CON. 9P 90D(M)DIP 070241MR009S200ZU SUYIN
Pin	**Pin Name**
1	DCD#
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#

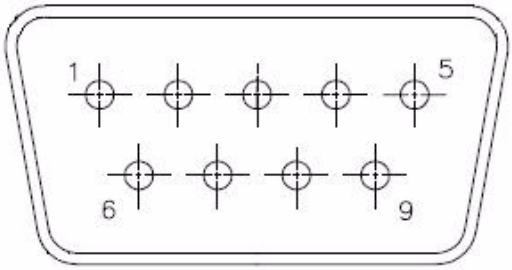


Table A.23: CN23: VGA	
Part Number	1654000055
Footprint	DBVGA-VF5MS
Description	D-SUB Conn. 15P 90D(F) DIP 070242FR015S200ZU
Pin	**Pin Name**
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	NC
10	GND
11	NC
12	DDAT
13	HSYNC
14	VSYNC
15	DCLK

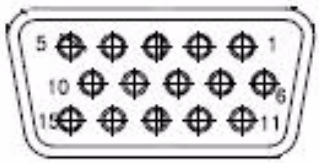


Table A.24: CN24: CF	
Part Number	1653000106
Footprint	CF_50P_N7E50-H516RA-50
Description	CF HEADER 50P 90D(M)SMD typeII N7E50-H516RA-50
Pin	**Pin Name**
1	GND
2	D03
3	D04
4	D05
5	D06
6	D07
7	CS0#
8	GND
9	GND
10	GND
11	GND
12	GND
13	+5V
14	GND
15	GND
16	GND
17	GND
18	A02
19	A01
20	A00
21	D00
22	D01
23	D02
24	NC
25	CD2#
26	CD1#
27	D11
28	D12
29	D13
30	D14
31	D15
32	CS1#
33	VS1#
34	IORD#
35	IOWR#

Table A.24: CN24: CF	
36	WE#
37	IREQ
38	+5V
39	CSEL#
40	VS2#
41	RESET
42	IORDY
43	INPACK#
44	REG#
45	DASP#
46	PDIAG#
47	D08
48	D09
49	D10
50	GND

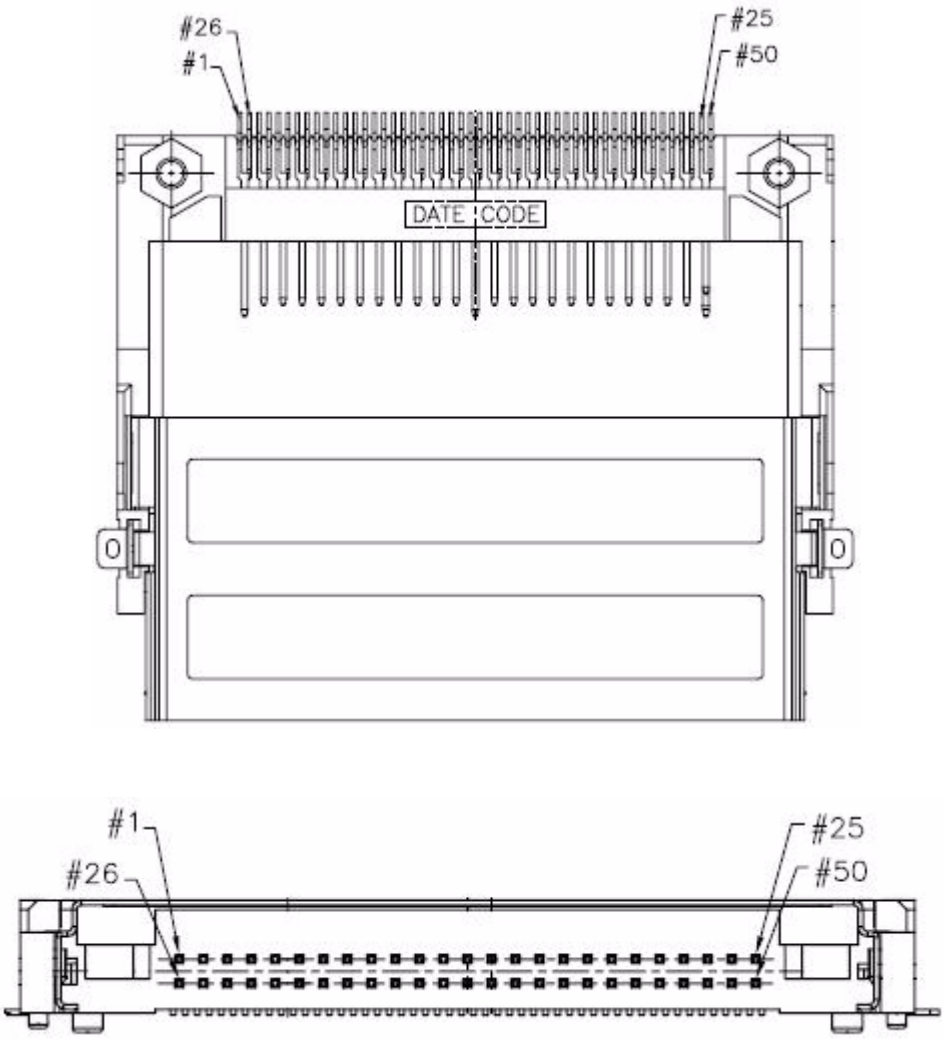


Table A.25: CN25: DDR2 SO-DIMM H=6.5mm	
Part Number	1651000068
Footprint	DDR-SODIMM-RVS65
Description	SKT DIMM 200P DDR2 H=6.5mm RVS SMD 1612773-4
Pin	**Pin Name**
1	VREF
2	GND
3	GND
4	DQ59
5	DQ63
6	DQ58
7	DQ62
8	GND
9	GND
10	DM7
11	DQS#7
12	GND
13	DQS7
14	DQ57
15	GND
16	DQ56
17	DQ61
18	GND
19	DQ60
20	DQ51
21	GND
22	DQ50
23	DQ55
24	GND
25	DQ54
26	DM6
27	GND
28	GND
29	DQS#6
30	CK1
31	DQS6
32	CK1#
33	GND
34	GND
35	DQ53
36	DQ49
37	DQ52
38	DQ48
39	GND
40	GND
41	GND
42	GND

Table A.25: CN25: DDR2 SO-DIMM H=6.5mm	
43	DQ47
44	DQ43
45	DQ46
46	DQ42
47	GND
48	GND
49	DQS#5
50	NC
51	DQS5
52	DM5
53	GND
54	GND
55	DQ45
56	DQ41
57	DQ44
58	DQ40
59	GND
60	GND
61	DQ39
62	DQ35
63	DQ38
64	DQ34
65	GND
66	GND
67	DM4
68	DQS#4
69	NC
70	DQS4
71	GND
72	GND
73	DQ37
74	DQ33
75	DQ36
76	DQ32
77	GND
78	GND
79	CKE0
80	CKE1
81	+1.8V
82	+1.8V
83	NC
84	NC
85	BA2
86	NC
87	+1.8V
88	+1.8V
89	A12

Table A.25: CN25: DDR2 SO-DIMM H=6.5mm	
90	A11
91	A9
92	A7
93	A8
94	A6
95	+1.8V
96	+1.8V
97	A5
98	A4
99	A3
100	A2
101	A1
102	A0
103	+1.8V
104	+1.8V
105	A10
106	BA1
107	BA0
108	RAS#
109	WE#
110	SCS#0
111	+1.8V
112	+1.8V
113	CAS#
114	ODT0
115	SCS#1
116	A13
117	+1.8V
118	+1.8V
119	ODT1
120	NC
121	GND
122	GND
123	DQ31
124	DQ27
125	DQ30
126	DQ26
127	GND
128	GND
129	DQS#3
130	DM3
131	DQS3
132	GND
133	GND
134	DQ25
135	DQ29
136	DQ24

Table A.25: CN25: DDR2 SO-DIMM H=6.5mm	
137	DQ28
138	GND
139	GND
140	DQ19
141	DQ23
142	DQ18
143	DQ22
144	GND
145	GND
146	DQS#2
147	DM2
148	DQS2
149	GND
150	GND
151	DQ21
152	DQ17
153	DQ20
154	DQ16
155	GND
156	GND
157	DQ15
158	DQ11
159	DQ14
160	DQ10
161	GND
162	GND
163	NC
164	CK0
165	GND
166	CK0#
167	DQS#1
168	GND
169	DQS1
170	DM1
171	GND
172	GND
173	DQ13
174	DQ9
175	DQ12
176	DQ8
177	GND
178	GND
179	DQ7
180	DQ3
181	DQ6
182	DQ2
183	GND

Table A.25: CN25: DDR2 SO-DIMM H=6.5mm	
184	GND
185	DM0
186	DQS#0
187	GND
188	DQS0
189	DQ5
190	GND
191	DQ4
192	DQ1
193	GND
194	DQ0
195	SDA
196	GND
197	SCL
198	SA0
199	+3.3V
200	SA1

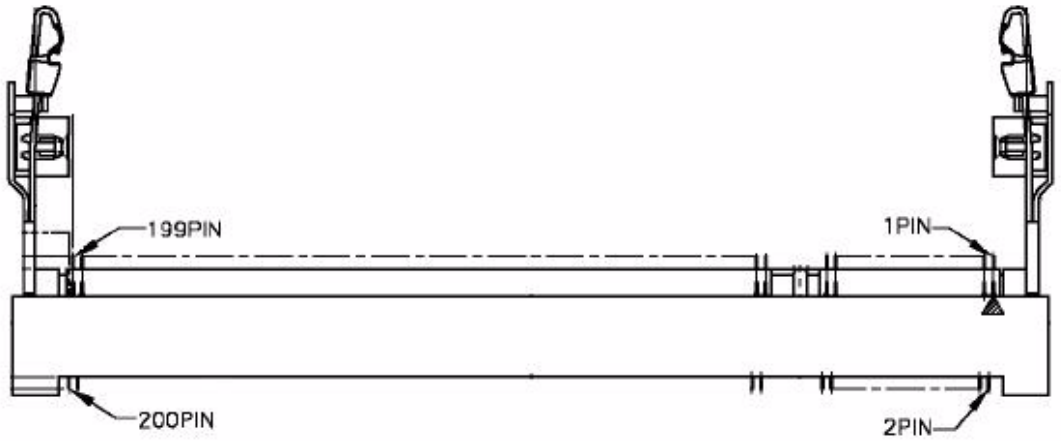
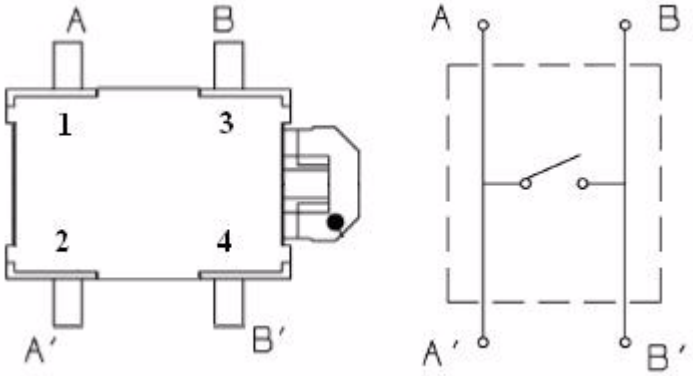


Table A.26: CN26: Reset Button	
Part Number	1601003501
Footprint	SW-PT-035-C
Description	PUSH SW SMD 4P 12V 50mA WO/Pb EVQPSR02K
Pin	**Pin Name**
1	RESET#
2	RESET#
3	GND
4	GND



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