

PCM-9365

Intel® Celeron® N2930 & Atom™ E3825,
3.5" SBC, 2GB/4GB On-board
Memory, VGA, 48-bit LVDS, 2GbE,
Mini PCIe, PCI-104, SUSI 4

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This manual is for the PCM-9365.

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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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CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

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



Caution! *There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.*

Battery Information

Batteries, battery packs, and accumulators should not be disposed of as unsorted household waste.

Please use the public collection system to return, recycle, or treat them in compliance with the local regulations.



Technical Support and Assistance

1. Visit the Advantech website at <http://support.advantech.com> 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 you begin installing your card, please make sure that the following materials have been shipped:

- | | | |
|---|--------------------------------|-----------------------|
| ■ | 1 x PCM-9365 SBC | |
| ■ | 1 x SATA Cable 32cm | (p/n: 1700008941) |
| ■ | 1 x SATA Power Cable 35cm | (p/n: 1700018785) |
| ■ | 1 x Audio Cable 20cm | (p/n: 1700019584) |
| ■ | 1 x COM Cable 22cm | (p/n: 1701200220) |
| ■ | 2 x USB cable 25cm | (p/n:1700018730) |
| ■ | 1 x COM2 cable 30cm | (p/n:1700019414) |
| ■ | 1 x Heatsink (19.5mm) | (p/n: 1960067897T001) |
| ■ | 1 x Startup manual | (p/n: 2006936500) |
| ■ | 1 x Mini Jumper(10pcs package) | (p/n: 9689000002) |
| ■ | 1 x SUSIAccess Pro package | (p/n: 968EMLSAP1) |

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Optional Accessories

Part number	Description
1960070254T001	Heat spreader 15.0mm height
1653130421	PCI-104 connector 120-pin (Long pin)

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Chapter 1

General Information

This chapter gives background information on the PCM-9365.

Sections include:

- Introduction
- Specifications
- Block diagram
- Board layout and dimensions

1.1 Introduction

PCM-9365 is 3.5" form factor (146 x 102 mm) and powered by the latest generation of Intel® Celeron® N2930 and Atom™ E3825 processors which have low power features but also good performance computing, especially for multimedia capabilities compared to earlier generations. Meanwhile, PCM-9365 offers flexible expansion possibilities: two full-size mini PCIe, PCI-104, and the 2nd LVDS by request.

PCM-9365 supports various display interfaces including HDMI, VGA, and 48-bit LVDS, and rich I/O: 2 x GbE, SATA, mSATA, 4xSerial Ports, USB 3.0 and 5 x USB 2.0.

1.2 Specifications

1.2.1 Functional Specifications

■ Processor:

- Celeron® N2930 1.83GHz (burst frequency 2.16GHz), Quad Cores, Four Threads
- Atom™ E3825 1.33GHz, Dual Cores, Two Threads
- Cache Hierarchy
 - * 32 KB 8-way L1 instruction cache and 24 KB 6-way L1 data cache per core
 - * 1 MB, 16-way L2 cache, shared per two cores
- Supported C-states: C0, C1, C6, C7
- Advanced Technologies
 - * Intel® Virtualization Technology (VT-x)
 - * Intel® 64 Architecture
 - * Enhanced Intel SpeedStep Technology
 - * Intel® Trusted Execution Engine (TXE)
- Power Management
 - * ACPI 5.0
 - * System sleep states: S0, S3, S4, S5

■ System Memory Support

- Non-ECC, DDR3L 2G or 4G on-board memory
- 64-bit data bus
- DDR3L with 1066 MT/s data rates for E3825, total memory bandwidth 8.5GB/s
- DDR3L with 1333 MT/s data rates for N2930, total memory bandwidth can be scalable to 21.3GB/s
- Aggressive power management to reduce power consumption

■ Graphic and Media Engine

- Intel® 7th generation (Gen 7) graphics and media encode/decode engine
- GFX: Normal 688 MHz / Burst 854 MHz for N2930, Normal 533 MHz for E3825
- Graphic Features:
 - * 3D HW Acceleration: DirectX11, OpenGL3.2, OpenCL1.2
 - * HW Video Decode: H.264, MPEG2, MVC, VC-1, WMV9, MJPEG and VP8
 - * HW Video Encode: H.264, (MPEG2 and MVC only for N2930)
- Multi-display interfaces: VGA, HDMI/DisplayPort, 48-bit LVDS.
 - * Supports Extend/ Clone Mode with multi-display device
 - * Dual display: any two combination between VGA, HDMI, LVDS
- Specification and Resolution
 - * VGA: 2560 x 1600 at 60Hz
 - * HDMI/DisplayPort: HDMI 1.4a with audio, up to 1080P at 60Hz.

- * LVDS: 48-bit dual channel LVDS up to WUXGA 1920x1200 at 60Hz
- * Inverter power: 1A @ 5V/12V for each LVDS
- 3D HW Acceleration: OGL4.0, DirectX 11.1
- HW Video Decode: H.264, MPEG2, VC-1, VP8
- HW Video Encode: H.264, MPEG2 (max at 1080p)
- **Gigabit Ethernet**
 - Controller: Realtek RTL8111E-VL-CG
 - * 10/100/1000 BASE-T
 - * Fully compliant with IEEE802.3, IEEE802.3u, IEEE802.3ab
 - * 9 KB Jumbo frames supported (Full-duplex)
 - * Full duplex flow control supported
- **Peripheral interface**
 - 1 Serial-ATA port, up to 3.0Gb/s transfer rate (300 MB/s), supports independent DMA operation
 - * SATA Power: 1A @ 5V/12V
 - 1 x USB 3.0 & 5 x USB2.0
 - * One USB3.0 and one USB2.0 on rear I/O, four internal USB2.0
 - * USB3.0 SuperSpeed (SS), implements xHCI software host controller interface
 - * Multiplexed with EHCI controller that are High-Speed/Full-Speed (HS/FS)
 - * Supports wake-up from sleeping state S3
 - * Power supply: 0.5A @ 5V for USB2.0, 0.9A @ 5V for USB3.0
 - 1 RS-232/422/485 for COM1, 3 RS-232 for COM2/3/4 (ESD protection: air gap ± 15 kV, contact ± 8 kV)
 - 8-bit Programmable General Purpose Input/ Output from iManager (5V tolerance)
 - 1 SMBus / I²C channel from iManager
 - Watchdog timer: Output System Reset, Programmable counter from 1 ~ 255 minutes/ seconds
 - Mini PCIe / mSATA
 - * 1 Full-size Mini PCIe (with PCIe and USB interface)
 - * 1 Full-size mSATA (with SATA and USB interface)
 - * Power supply: 1.1 A @ 3.3 V or 0.375A @ 1.5V for miniPCIe, 0.2 A @ 3.3 V or 0.1 A @ 1.5 V for mSATA
- **High Definition Audio:**
 - Intel[®] High Definition Audio Interface
 - High Definition Audio Codec with Realtek proprietary loss-less content protection technology
 - Supports 1 Line-input, 1 Line output, 1 Mic-input
- **BIOS**
 - AMI UEFI 64 Mbit, BIOS for 64 or 32bit is different, default version is for 64bit
 - Default setting is Legacy boot, that can be manually changed to UEFI boot. If default setting to UEFI is needed, that can be done by T-P/N

1.2.2 OS support

PCM-9365 supports Win8, Win7, WES8, WES7, WEC7, Linux kernel 3.x, VxWorks 6.9.3.3, Android Kit Kat 4.4

Win7 only supports Legacy mode and Win8 for UEFI mode.

For further information about OS support of PCM-9365, please check Advantech website:

<http://support.advantech.com.tw/> or contact the technical support center.

1.2.3 Mechanical Specifications

- **Dimensions:** 146 x 102 mm (5.7 x 4 inches)
- **Height:** top side 19.5mm, PCB 1.6mm, bottom side 7.8mm, total 28.9mm
- **Weight:** 0.5 kg (reference weight of total package)

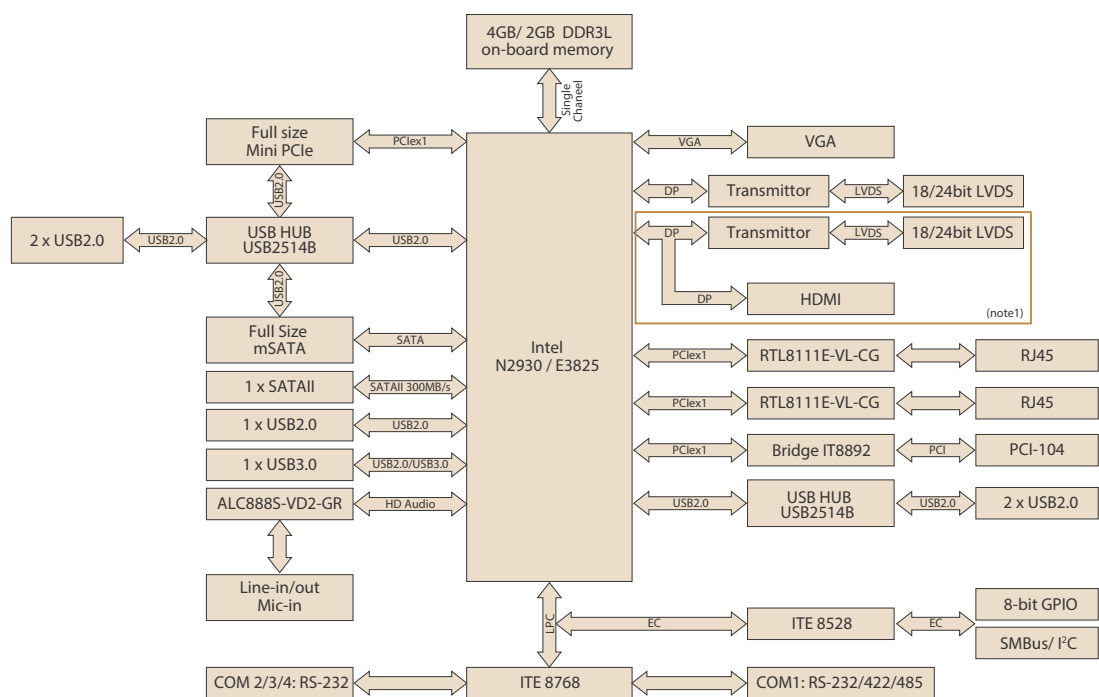
1.2.4 Electrical Specifications

- **Power Requirement:** Single +12V DC \pm 10% power input
- **Power Consumption:**
 - Max load
 - * PCM-9365E-2GS3A1E: 0.49A @ 12V (5.88W)
 - * PCM-9365EV-4GS3A1E: 0.554A @ 12V (6.648W)
 - * PCM-9365N-4GS8A1E: 0.745A @ 12V (8.94W)
 - Idle mode
 - * PCM-9365E-2GS3A1E: 0.39A @ 12V (4.68W)
 - * PCM-9365EV-4GS3A1E: 0.44A @ 12V (5.28W)
 - * PCM-9365N-4GS8A1E: 0.509A @ 12V (6.108W)
- **Power Consumption Conditions:**
 - Test software: Burn In Test V7.1Pro
 - Max. load: Measure the maximum current value which system under maximum load (CPU: Top speed, RAM & Graphic: Full loading)
 - Idle mode: Measure the current value when system in windows mode and without running any program
- **RTC Battery:**
 - Typical Voltage: 3.0 V
 - Normal discharge capacity: 210 mAh

1.2.5 Environmental

- **Operating Temperature:** 0 ~ 60°C (32 ~ 140°F)
- **Operating Humidity:** 40°C @ 85% RH Non-Condensing
- **Storage Temperature:** Storage temperature: -40~85°C
- **Storage Humidity:** Relative humidity: 95% @ 60°C

1.3 Block Diagram



1.4 Board layout: dimensions

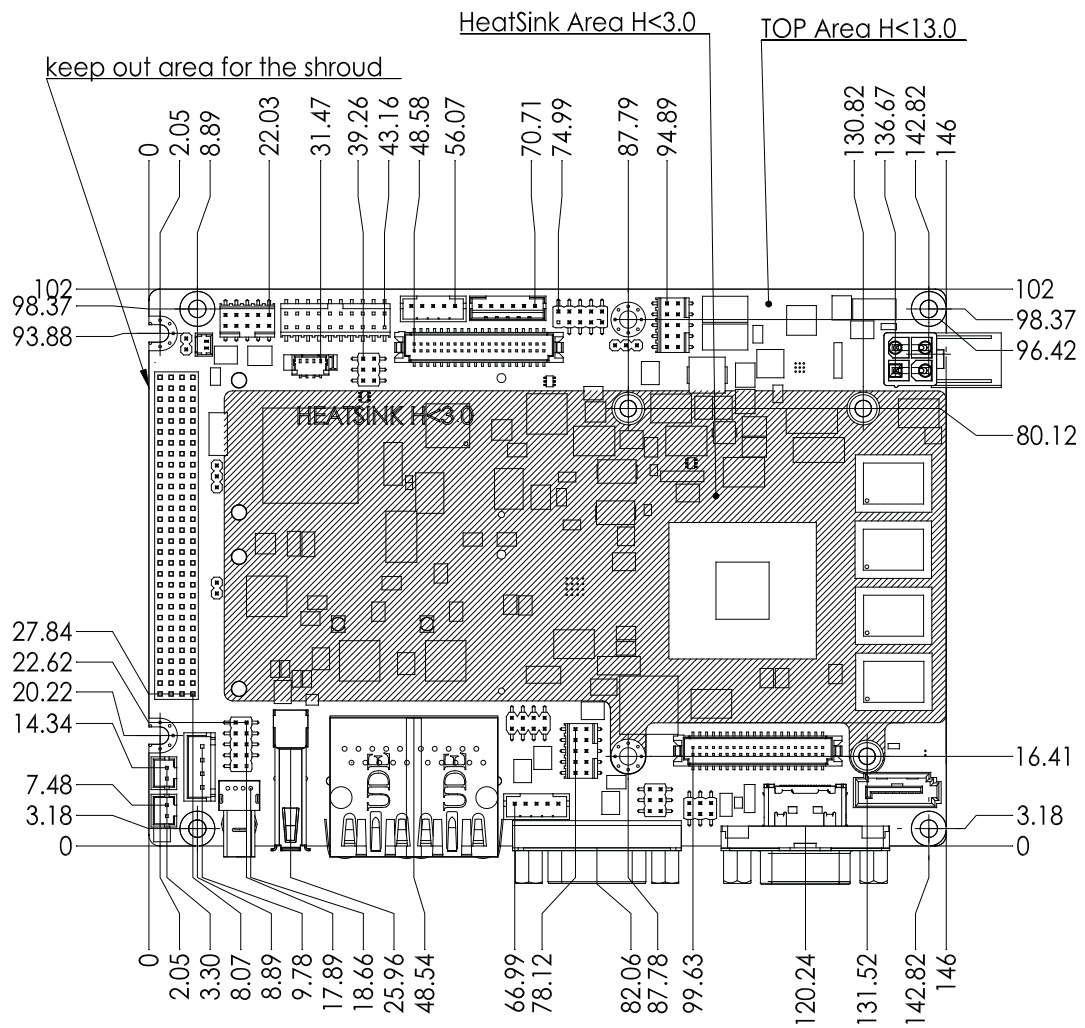


Figure 1.1 PCM-9365 Mechanical Drawing (Top Side)



Chapter 2

Installation

This chapter explains the setup procedures of the PCM-9365 hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all safety precautions before you begin the installation procedure.

2.1 Jumpers & Switches

The PCM-9365 has a number of jumpers that allow you to configure your system to suit your application. The table below lists the functions of the various jumpers.

Table 2.1: Jumpers & Switches

J1	Auto Power On
J2	PCI-104 VIO
J4	LVDS1 Power
J5	LVDS2 Power
J6	Clear CMOS
J7	LVDS JEIDA/VESA Selection

2.2 Connectors

Onboard connectors link the PCM-9365 to external devices such as hard disk drives, a keyboard, or floppy drives. The table below lists the function of each of the connectors.

Table 2.2: Connectors

Label	Function
CN1	12V Power Input
CN2	Battery
CN3	EC Debug Port
CN4	Power Switch
CN5	Reset
CN6	GPIO
CN7	VGA
CN8	HDMI
CN9	SATA
CN10	HDD & PWR LED
CN11	SATA Power
CN12	Mini PCIE
CN13	mSATA
CN14	Internal USB
CN15	Internal USB
CN16	External USB3.0
CN17	External USB
CN18	COM1
CN19	COM2
CN22	LAN1
CN23*	LAN1 & LAN2 (Dual LAN connector)
CN24	Internal LAN LED
CN25	LAN2
CN26	Audio
CN27	PCI-104
CN28	Inverter Power (LVDS1)
CN29	48 bits LVDS1
CN30	Inverter Power (LVDS2)
CN31	48 bits LVDS2

Table 2.2: Connectors

CN33	SMBus
CN37	COM3/COM4
J3	PCI-104 -12V Input

* represents default configuration

2.3 Locating Connectors

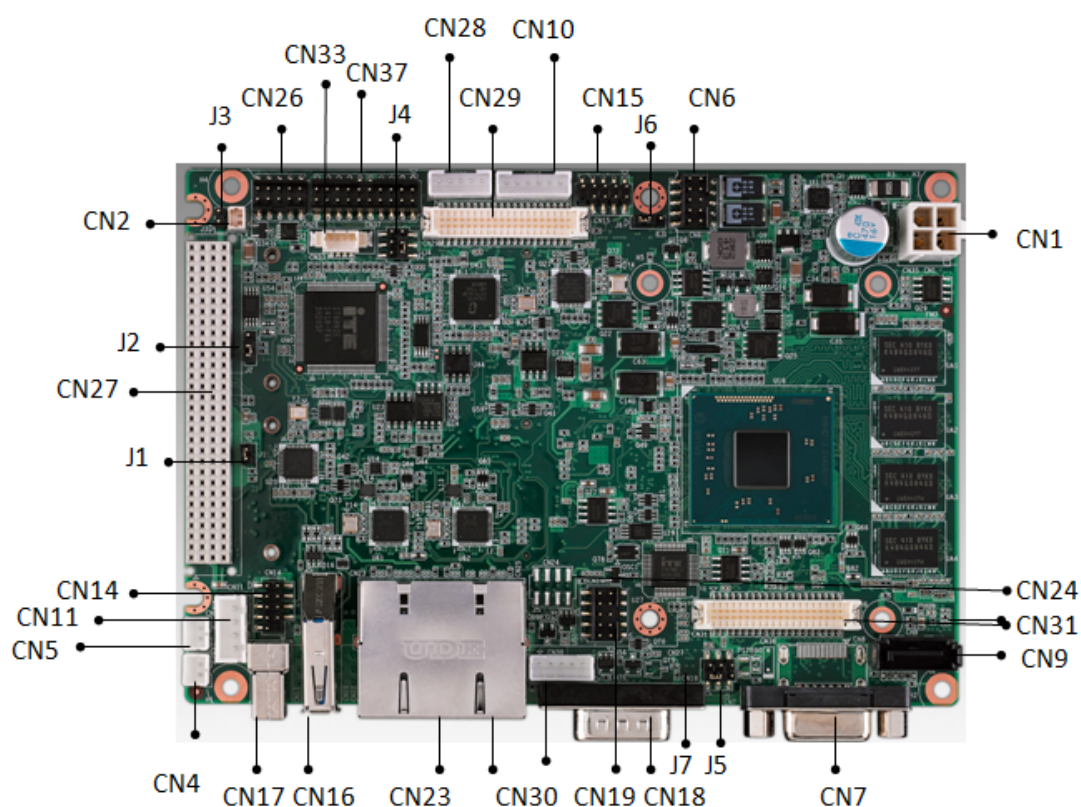


Figure 2.1 PCM-9365 Connector Locations (Top Side)

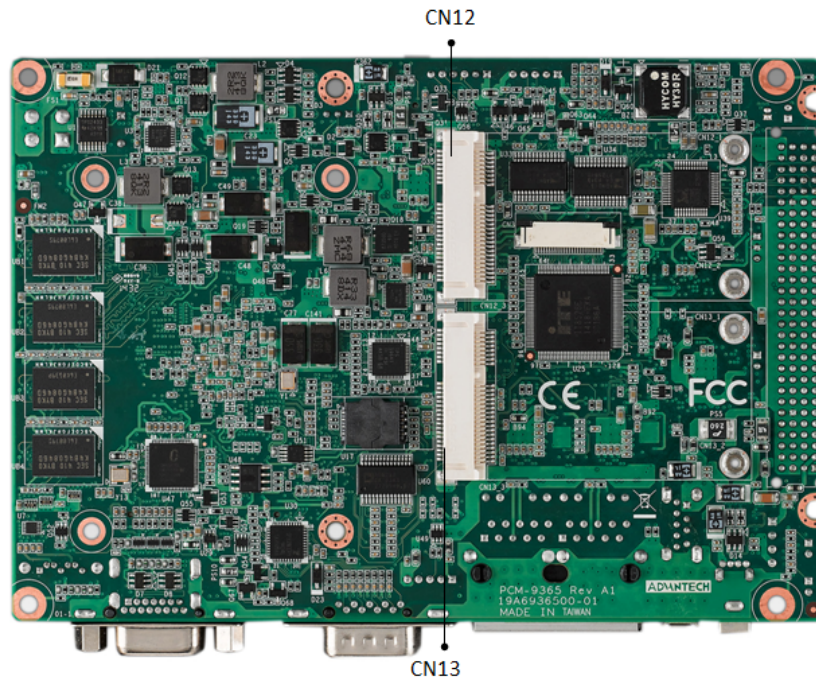
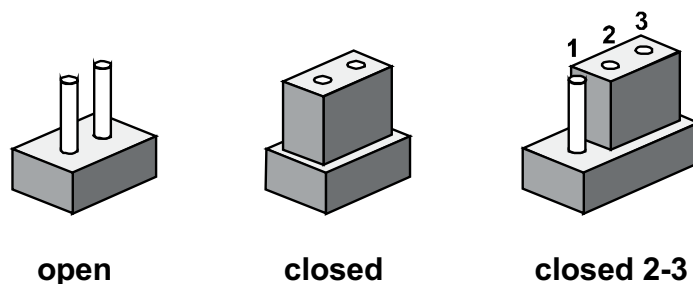


Figure 2.2 PCM-9365 Connector Locations (Bottom Side)

2.4 Setting Jumpers

You may configure your card to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper, you connect the pins with the clip. To “open” a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.

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



A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes. Generally, you simply need a standard cable to make most connections.

2.4.1 Auto Power On Setting (J1)



Table 2.3: Auto Power On Setting (J2)

Setting	Function
(Open)	Power Button for Power On
(Close)*	Auto Power On

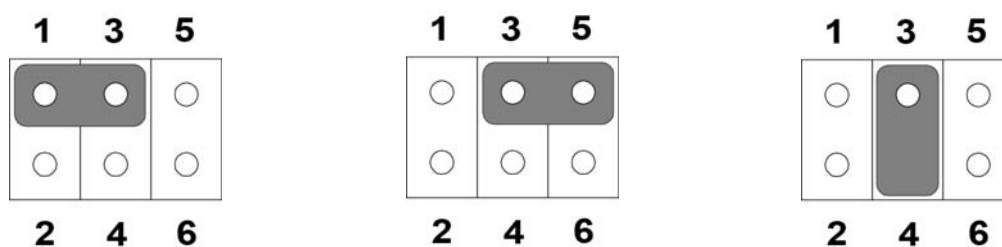
* Default

2.4.2 PCI-104 VIO (J2)

**Table 2.4: PCI-104 VIO (J2)**

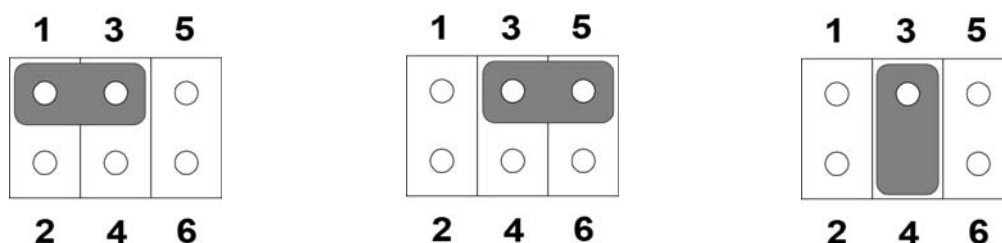
Setting	Function
(1-2)	+5V
(2-3)*	+3.3V (default)

2.4.3 LVDS1 Power (J4)

**Table 2.5: LVDS1 Power (J4)**

Setting	Function
(1-3)*	+3.3V (default)
(3-5)	+5V
(3-4)	+12V

2.4.4 LVDS2 Power (J5)

**Table 2.6: LVDS2 Power (J5)**

Setting	Function
(1-3)*	+3.3V (default)
(3-5)	+5V

Table 2.6: LVDS2 Power (J5)

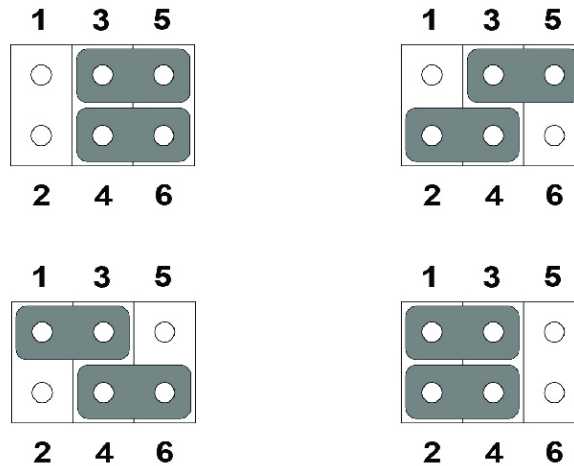
(3-4)	+12V
-------	------

2.4.5 Clear CMOS (J6)

**Table 2.7: Clear CMOS (J6)**

Setting	Function
(1-2)*	Normal (default)
(2-3)	Clear CMOS

2.4.6 LVDS JEIDA/VESA Selection (J7)

**Table 2.8: LVDS JEIDA/VESA Selection (J7)**

Setting	Function
(1-3)	LVDS1 Pull-high to +3.3V (JEIDA or VESA based on panel definition)
(3-5)*	LVDS1 Pull-low to GND (default, JEIDA or VESA based on panel definition)
(2-4)	LVDS2 Pull-high to +3.3V (JEIDA or VESA based on panel definition)
(4-6)*	LVDS2 Pull-low to GND (default, JEIDA or VESA based on panel definition)

Chapter 3

AMI BIOS Setup

With the AMIBIOS Setup program, you can modify BIOS settings and control the various system features. This chapter describes the basic navigation of the PCM-9365 BIOS setup screens.



AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed CMOS so it retains the Setup information when the power is turned off.

3.1 Entering Setup

Turn on the computer and check for the patch code. If there is a number assigned to the patch code, it means that the BIOS supports your CPU. If there is no number assigned to the patch code, please contact an Advantech application engineer to obtain an up-to-date patch code file. This will ensure that your CPU's system status is valid. After ensuring that you have a number assigned to the patch code, press and you will immediately be allowed to enter Setup.

3.1.1 Main Setup

When you first enter the BIOS Setup Utility, you will encounter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the key legend.

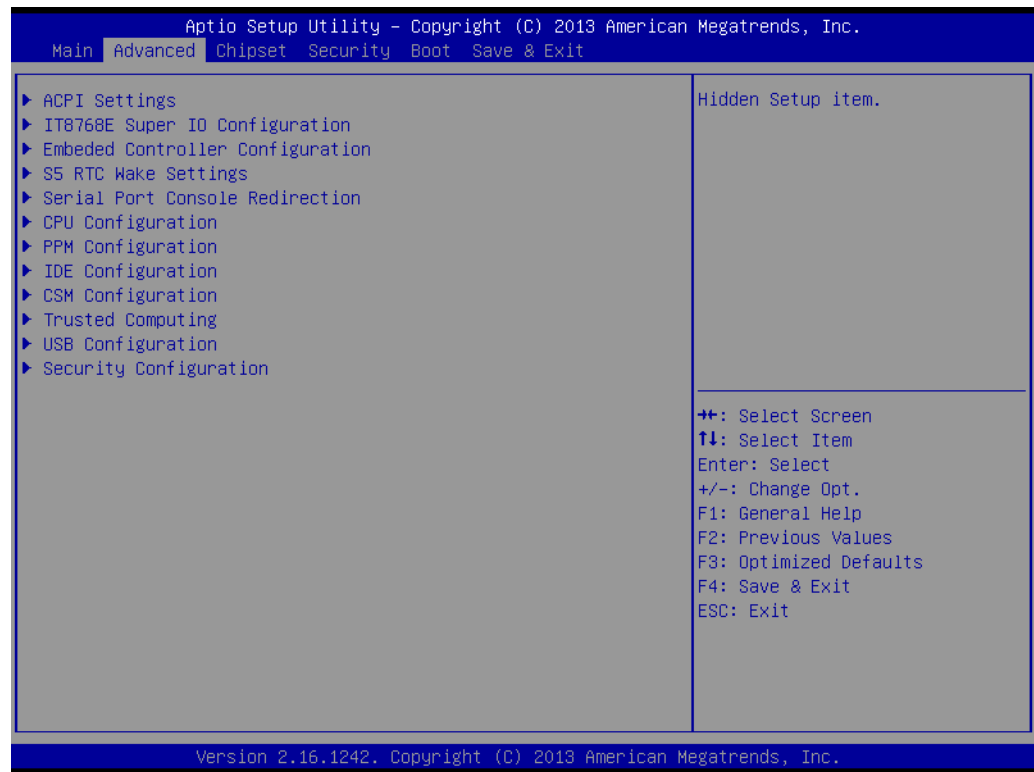
Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

■ System time / System date

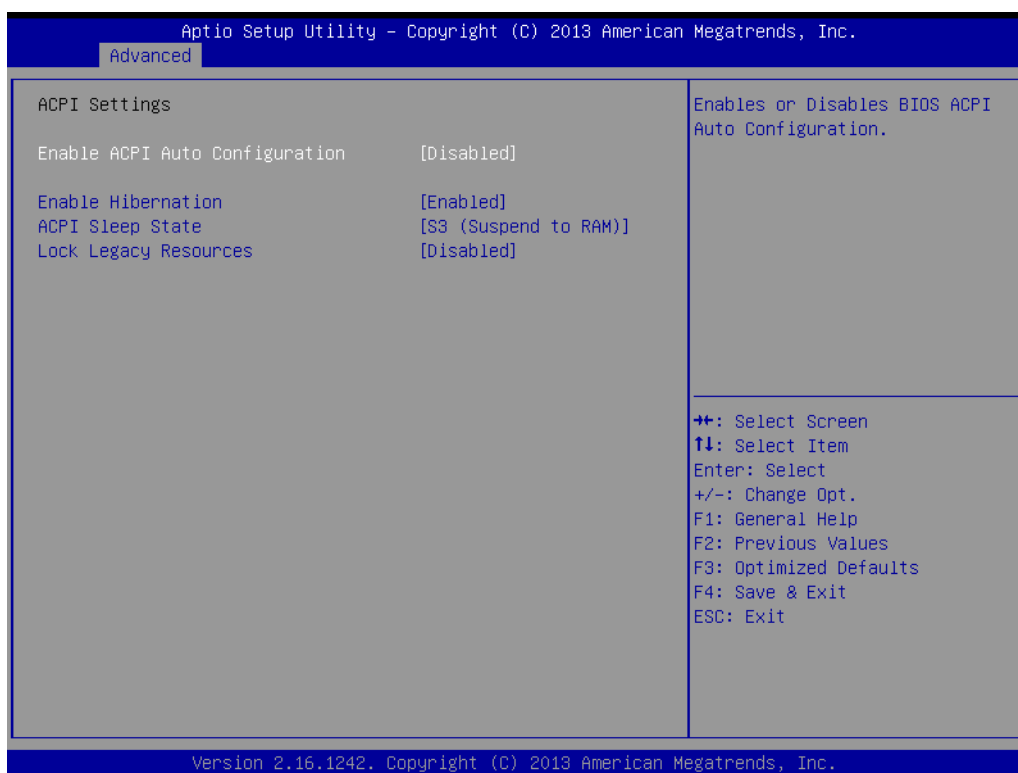
Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

3.1.2 Advanced BIOS Features Setup

Select the Advanced tab from the PCM-9365 setup screen to enter the Advanced BIOS Setup screen. You can select any of the items in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens is shown below. The sub menus are described on the following pages.

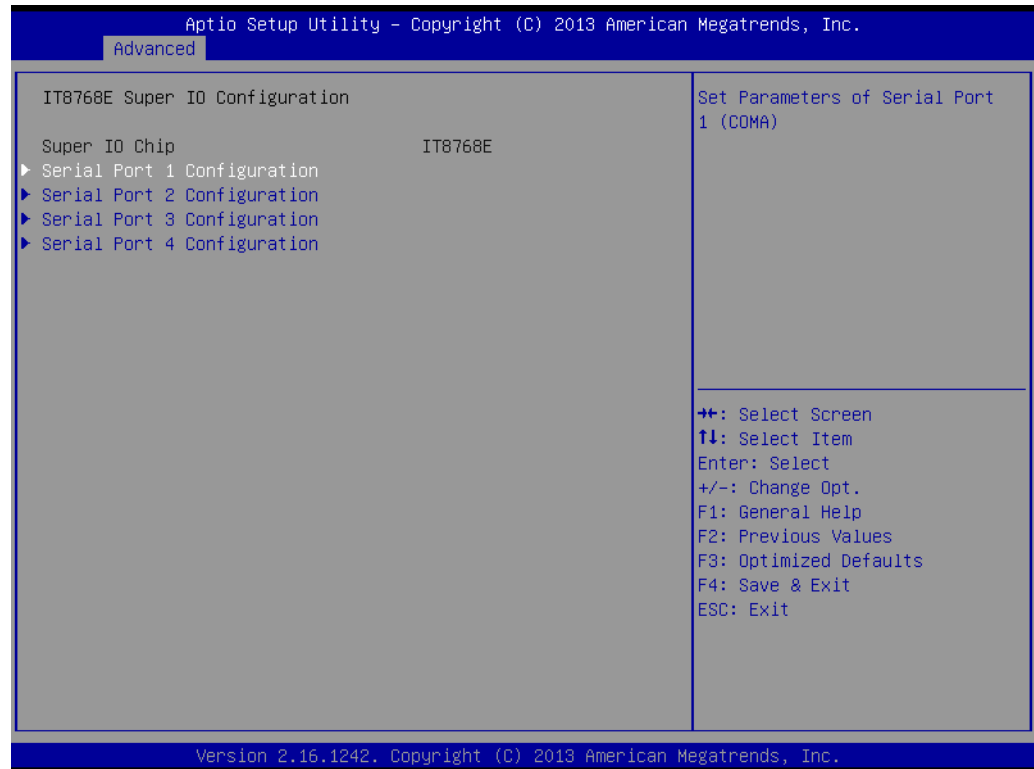


3.1.2.1 ACPI Settings



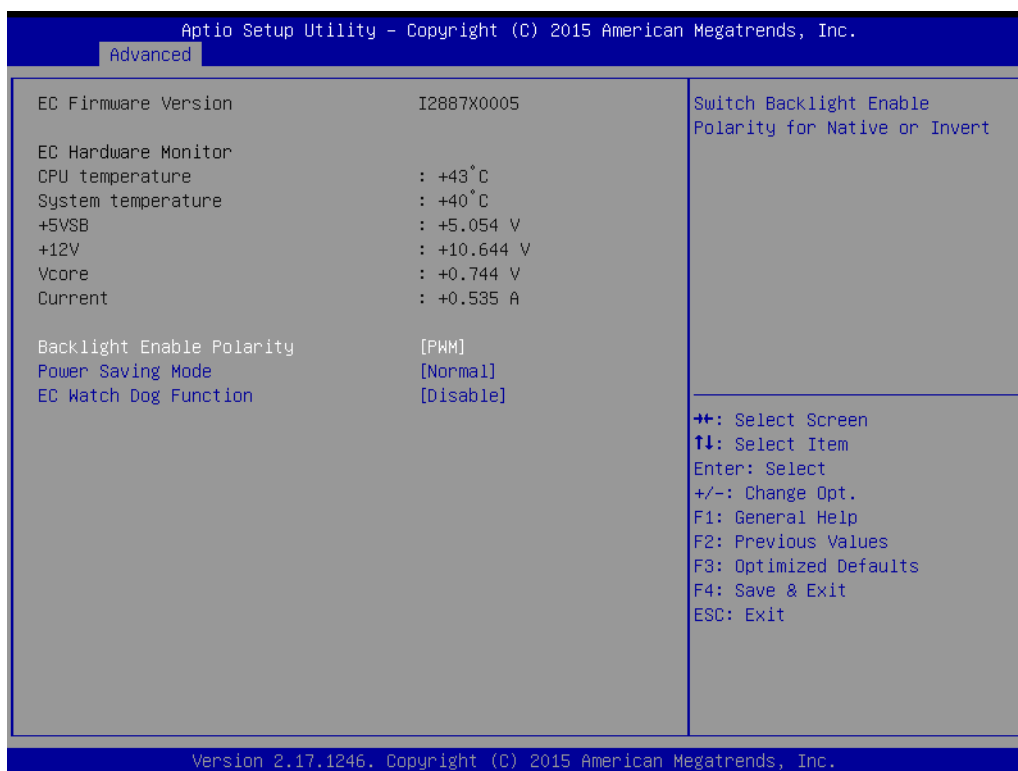
- **Enable ACPI Auto Configuration**
Enable or disable BIOS ACPI auto configuration.
- **Enable Hibernation**
Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
- **ACPI Sleep State**
Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
- **Lock Legacy Resources**
Enables or Disables Lock of Legacy Resources

3.1.2.2 Super I/O Configuration



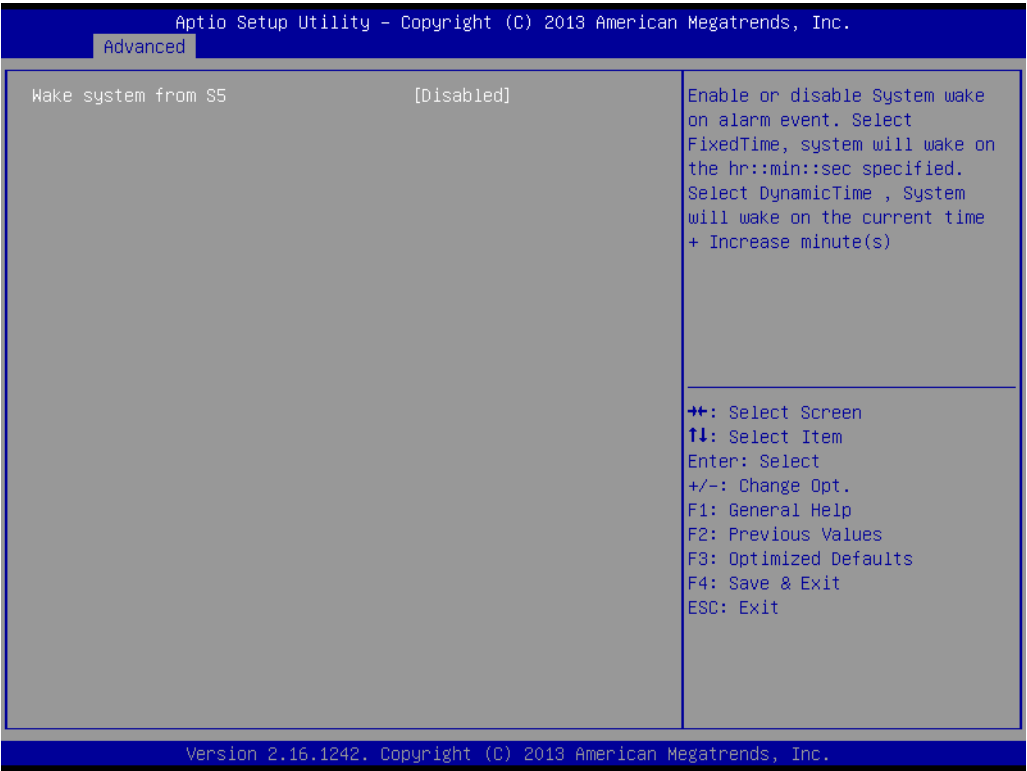
- **Serial Port 1 Configuration**
Set Parameters of Serial Port 1 (COM1).
- **Serial Port 2 Configuration**
Set Parameters of Serial Port 2 (COM2).
- **Serial Port 3 Configuration**
Set Parameters of Serial Port 3 (COM3).
- **Serial Port 4 Configuration**
Set Parameters of Serial Port 4 (COM4).

3.1.2.3 Embedded Controller Configuration



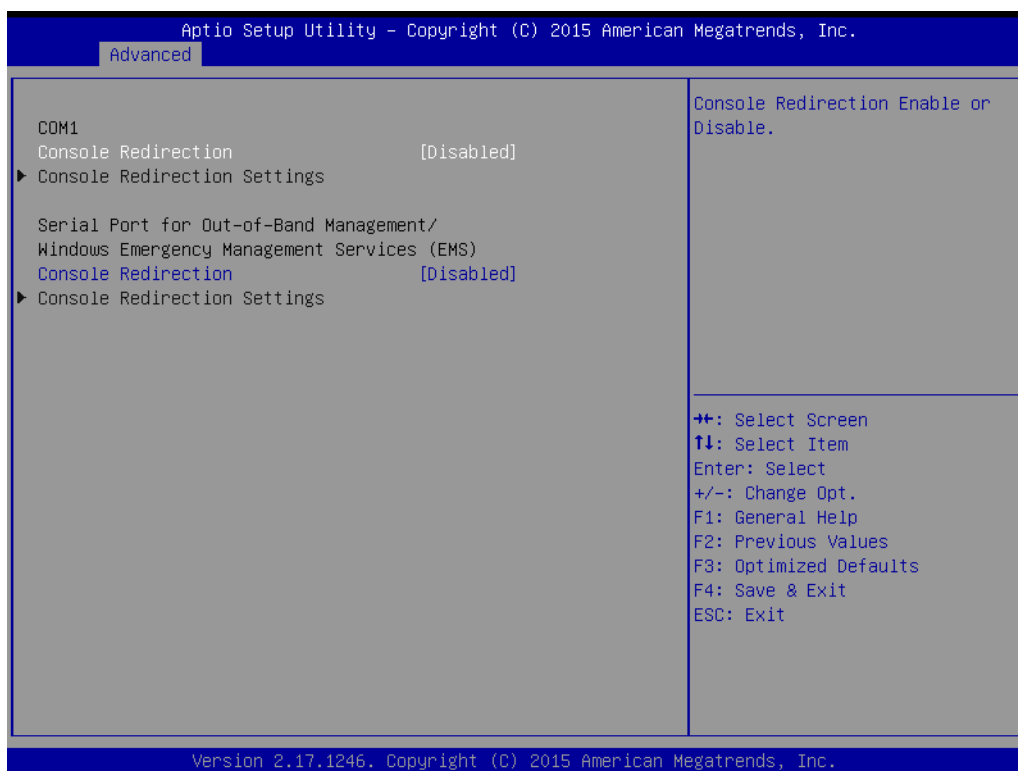
- **EC Hardware Monitor**
This page displays all information about system Temperature/Voltage/Current.
- **Backlight Enable Polarity**
This item allows users to set backlight mode.
- **EC Power Saving Mode**
This item allows users to set the board's power saving mode when off.
- **EC Watch Dog Function**
This item allows users to select the EC watchdog timer.

3.1.2.4 S5 RTC Wake Settings



- **Wake system from S5**
Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr:min:sec specified.

3.1.2.5 Serial Port Console Redirection



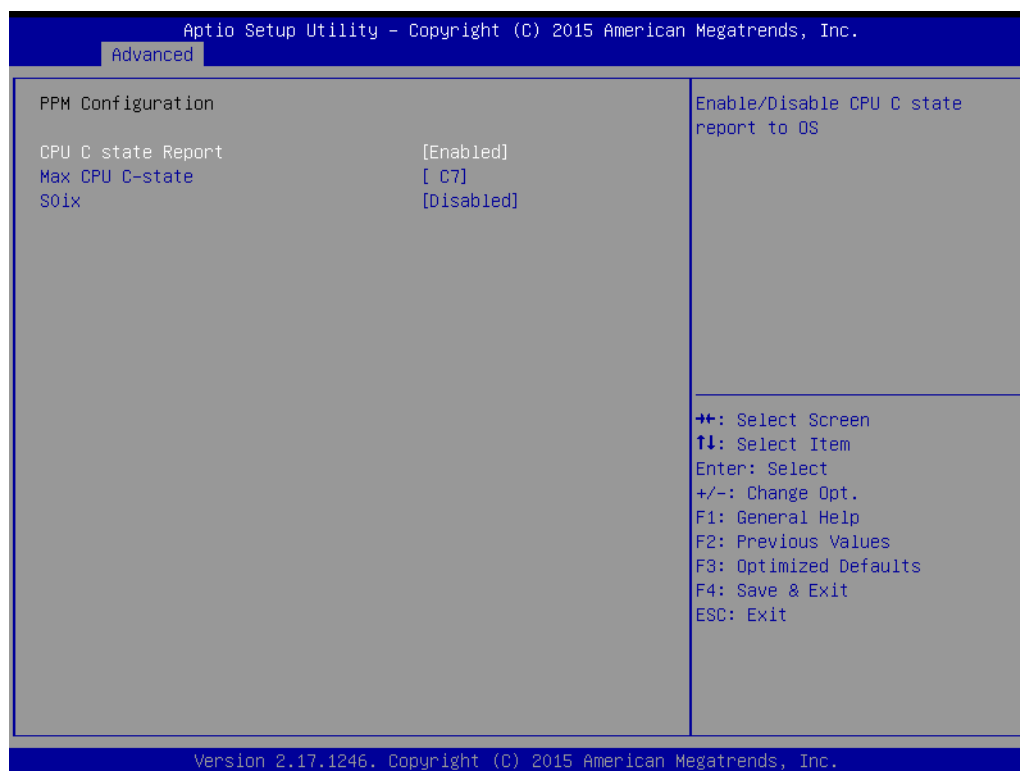
- **Console Redirection**
This item allows users to enable or disable console redirection for Microsoft Windows Emergency Management Services (EMS).
- **Console Redirection**
This item allows users to configuration console redirection detail settings.

3.1.2.6 CPU Configuration



- **Limit CPUID Maximum**
Disabled for Windows XP.
- **Execute Disable Bit**
XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)
- **Intel Virtualization Technology**
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
- **Power Technology**
Enable the power management features.

3.1.2.7 PPM Configuration



- **CPU C state Report**
Enable/Disable CPU C state report to OS.
- **Max CPU C-state**
This option controls Max C state that the processor will support.
- **S0ix**
Enable/Disable CPU S0ix state.

3.1.2.8 IDE Configuration



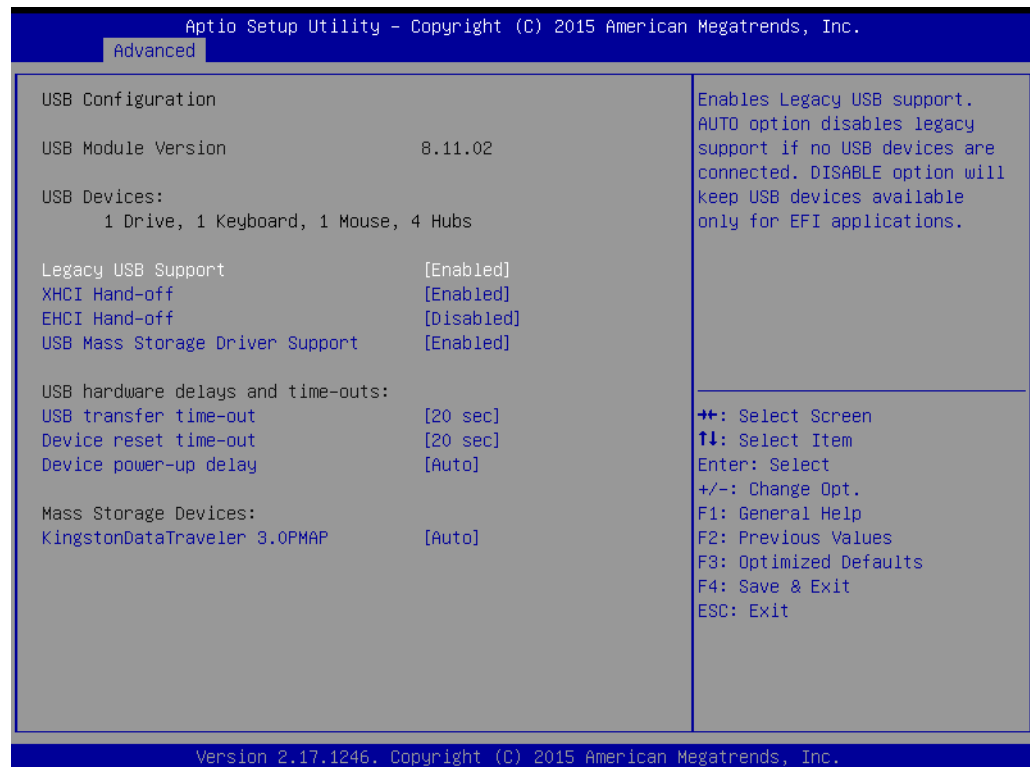
- **Serial-ATA (SATA)**
Enable / Disable Serial ATA.
- **SATA Speed Support**
SATA Speed Support Gen1 or Gen2.
- **SATA ODD Port**
SATA ODD is Port0 or Port1.
- **SATA Mode**
Select IDE / AHCI.
- **Serial-ATA Port 0 / Port1**
Enable / Disable Serial ATA Port0 / Port1.

3.1.2.9 CSM Configuration



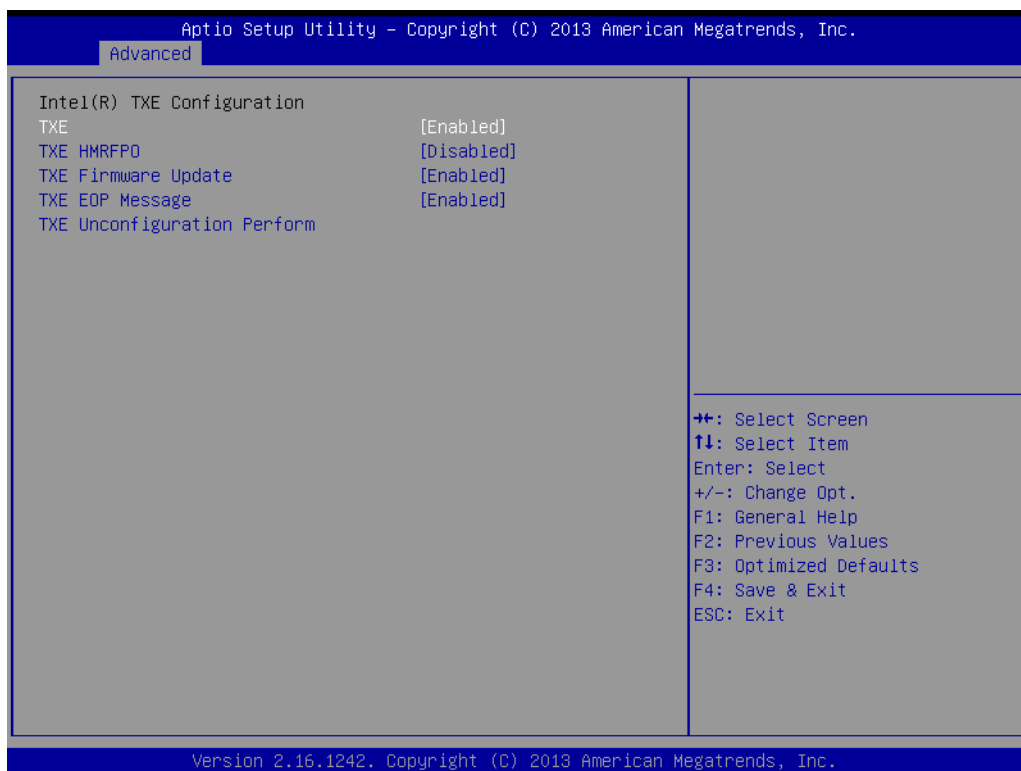
- **CSM Support**
Enable/Disable CSM Support.
- **GateA20 Active**
UPON REQUEST - GA20 can be disabled using BIOS services. Never disable GA20; this option is useful when any RT code is executed above 1MB.
- **Option ROM Messages**
Set display mode for Option ROM.
- **Boot option filter**
This option controls Legacy/UEFI ROMs priority.
- **Network**
Controls the execution of UEFI and Legacy PXE OpROM.
- **Storage**
Controls the execution of UEFI and Legacy Storage OpROM.
- **Video**
Controls the execution of UEFI and Legacy Video OpROM.
- **Other PCI devices**
Determines OpROM execution policy for devices other than Network, Storage, or Video.

3.1.2.10 USB Configuration



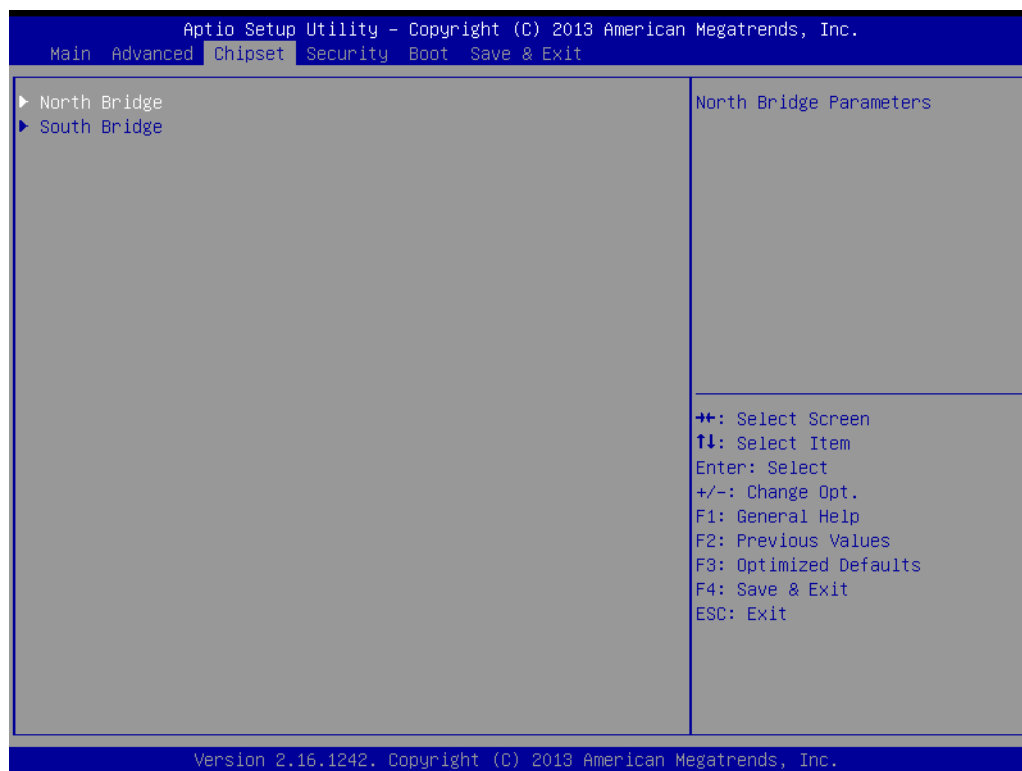
- **Legacy USB Support**
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
- **XHCI Hand-off**
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
- **EHCI Hand-Off**
This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should claim by EHCI driver.
- **USB Mass Storage Driver Support**
Enable/Disable USB Mass Storage Driver Support.
- **USB transfer time-out**
Time-out value for control, Bulk, and interrupt transfers.
- **Device reset time-out**
USB mass storage device start unit command time-out.
- **Device power-up delay**
Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.

3.1.2.11 Security Configuration



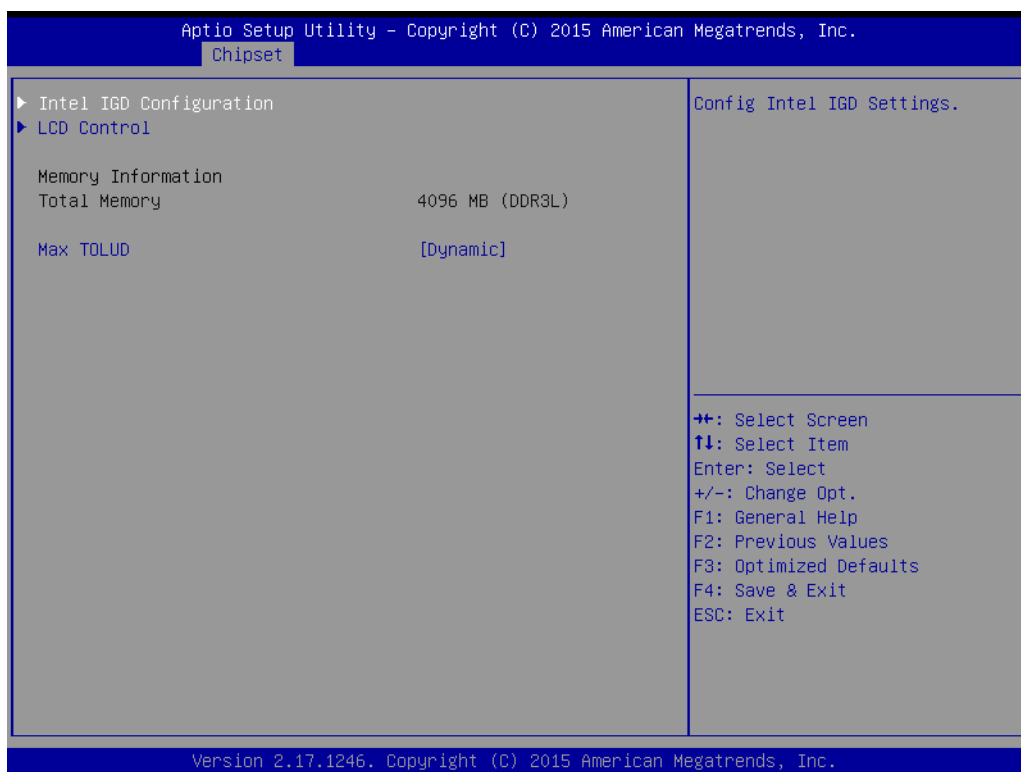
- **TXE**
- **TXE HMRFP0 Disable**
- **TXE Firmware Update**
- **TXE EOP Message**
Send EOP Message Before Enter OS
- **TXE Unconfiguration Perform**
Revert TXE settings to factory defaults

3.1.3 Chipset Configuration



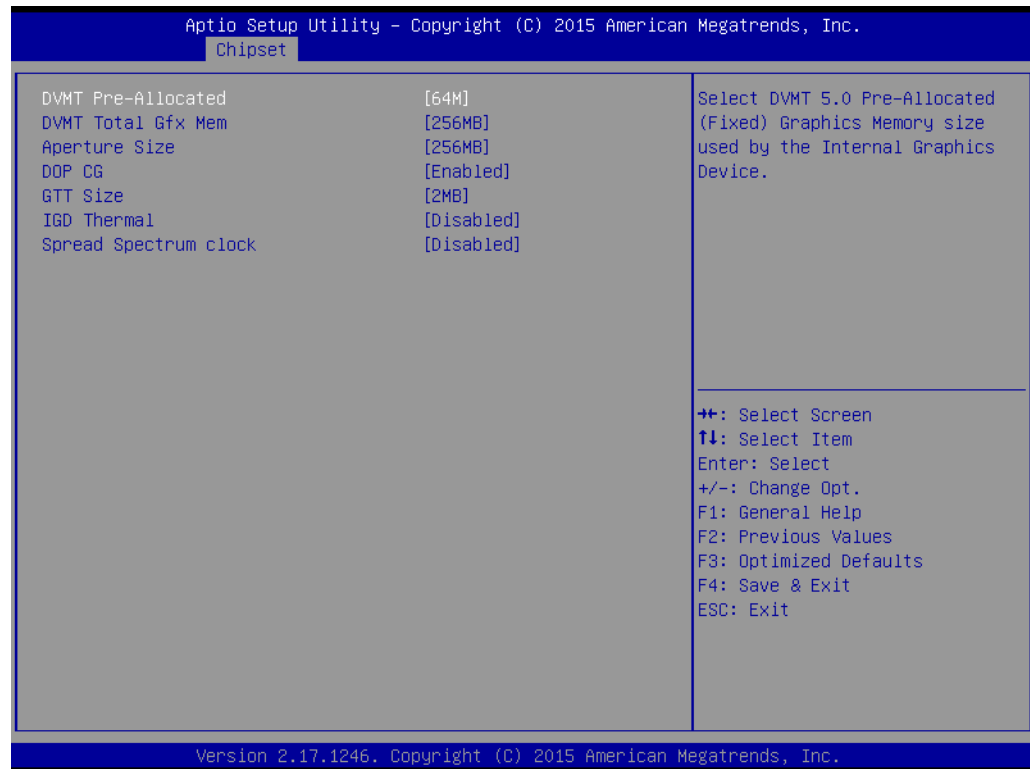
- **North Bridge**
Details for North Bridge items.
- **South Bridge**
Details for South Bridge items.

3.1.3.1 North Bridge



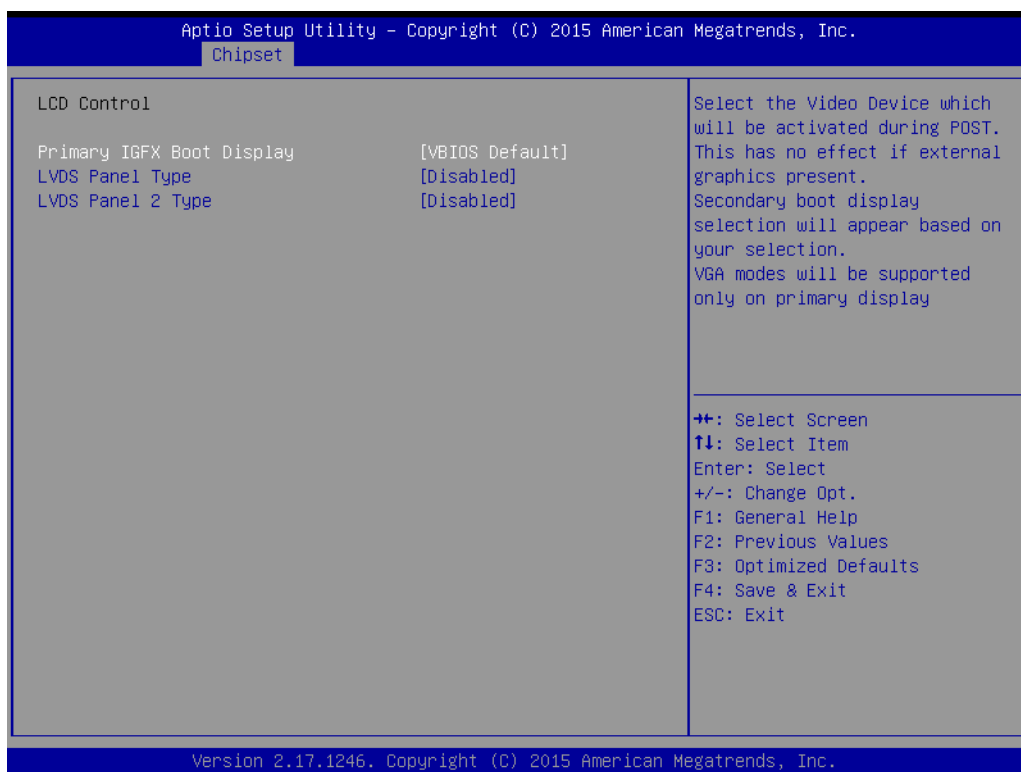
- **Intel IGD Configuration**
Config Intel IGD Settings.
- **LCD Control**
Config LCD Setting.
- **Max TOLUD**
Maximum Value of TOLUD.

3.1.3.2 Intel IGD Configuration



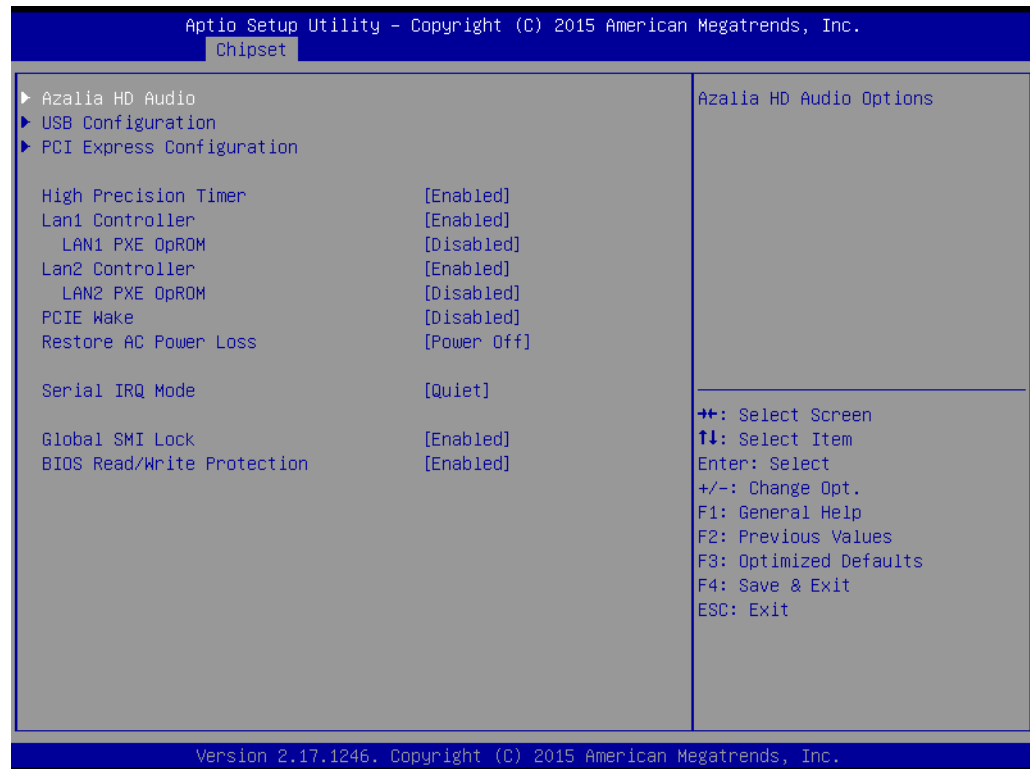
- **DVMT Pre-Allocated**
Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
- **DVMT Total Gfx Mem**
Select DVMT 5.0 Total Graphic Memory size used by the Internal Graphics Device.
- **Aperture Size**
Select the Aperture Size.
- **DOP CG**
Enable/Disable DOP clock gating.
- **GTT Size**
Select the GTT Size
- **IGD Thermal**
Enable/Disable IGD Thermal.
- **Spread Spectrum clock**
Enable/Disable Spread Spectrum clock.

3.1.3.3 LCD Control



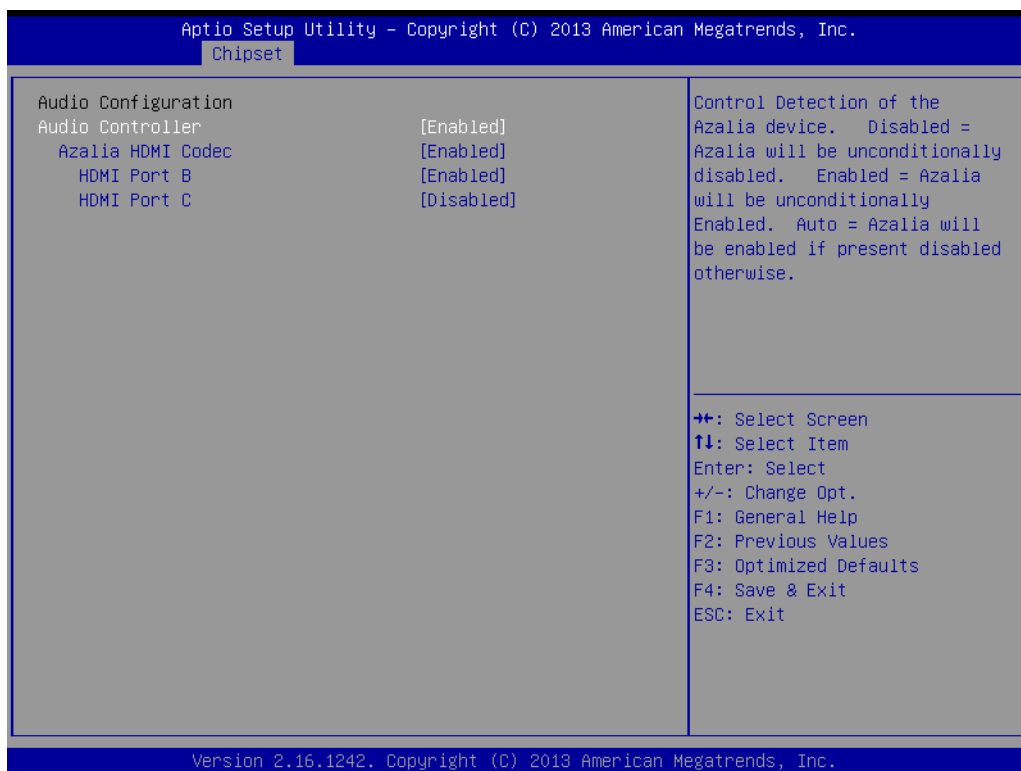
- **Primary IGFX Boot Display**
Select the Video Device which will be activated during POST. This has no effect if an external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.
- **LVDS / LVDS 2 Panel Type**
This item allow user to select LVDS panel type.

3.1.3.4 South Bridge



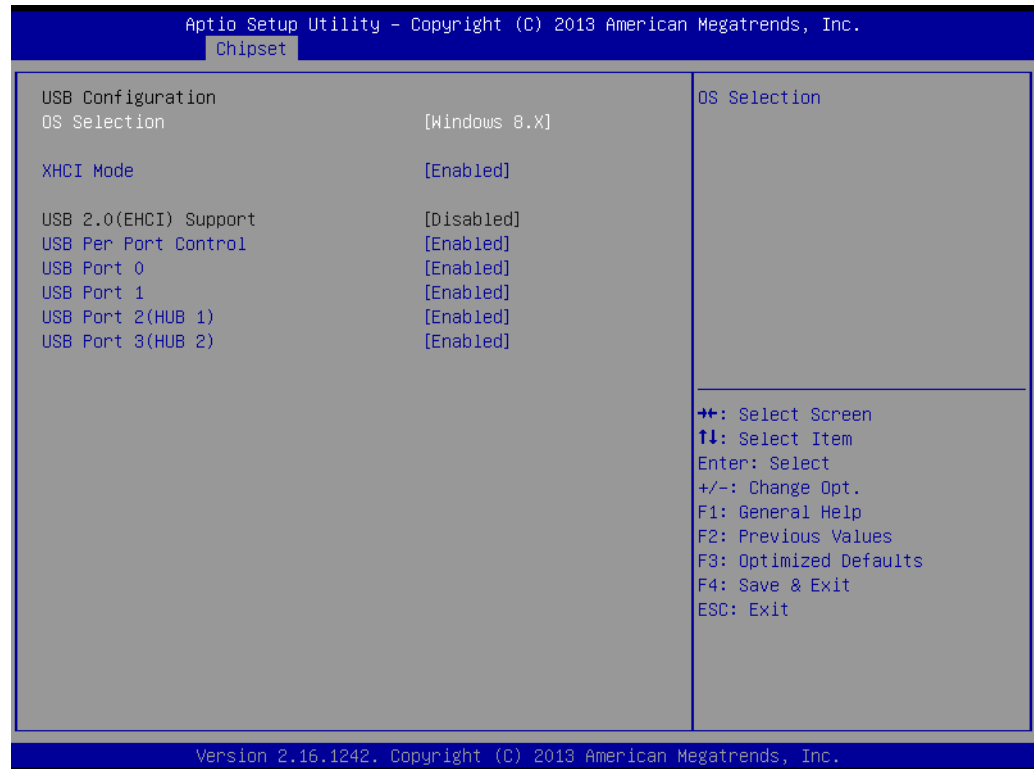
- **Azalia HD Audio**
Azalia HD Audio Options.
- **USB Configuration**
USB Configuration Settings.
- **PCI Express Configuration**
PCI Express Configuration settings.
- **High Precision Timer**
Enables or disables the high precision timer.
- **LAN1 Controller**
Enable or Disable the LAN1.
- **LAN1 PXE OpROM**
Enable or Disable boot option for LAN1 controller.
- **LAN2 Controller**
Enable or Disable the LAN2.
- **LAN2 PXE OpROM**
Enable or Disable boot option for LAN2 controller.
- **PCIE Wake**
Enable or Disable PCIE to wake the system from S5.
- **Restore AC Power Loss**
Select AC power state when power is re-applied after a power failure.
- **Serial IRQ Mode**
Configure Serial IRQ Mode.
- **Global SMI Lock**
Enable or Disable SMI lock.
- **BIOS Read/Write Protection**
Enable or Disable BIOS SPI region read/write protect.

3.1.3.5 Azalia HD Audio



- **Audio Controller**
Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled. Enabled = Azalia will be unconditionally Enabled. Auto = Azalia will be enabled if present disabled otherwise.
- **Azalia HDMI Codec**
Enable/Disable internal HDMI codec for Azalia
- **HDMI Port B**
Enable/Disable HDMI Port B
- **HDMI Port C**
Enable/Disable HDMI Port C

3.1.3.6 USB Configuration



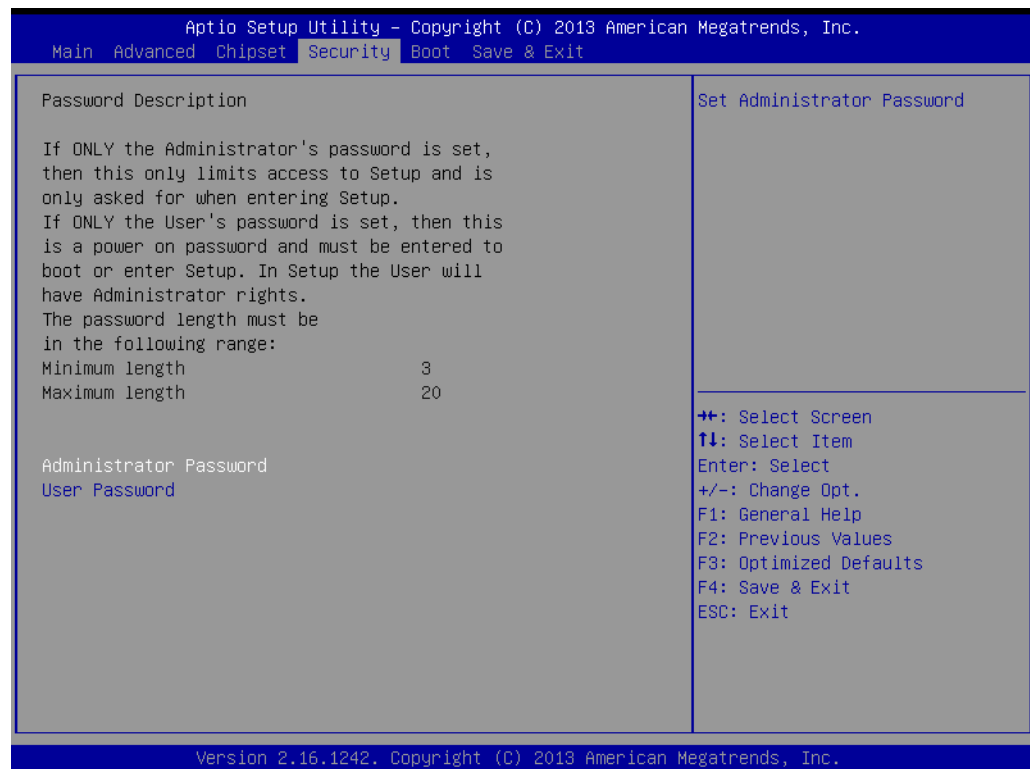
- **OS Selection**
OS Selection to choose Windows 8.x / Windows 7.
- **XHCI Mode**
Mode of operation of xHCI controller.
- **USB 2.0(EHCI) Support**
Control the USB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.
- **USB Per Port Control**
Control each of the USB ports (0~3). Enable: Enable USB per port; Disable: Use USB port X settings.

3.1.3.7 PCI Express Configuration



- **PCI Express Port0 / Port2**
Enable or Disable the PCI Express Port0 / Port 2 in the Chipset.
- **Speed**
Configure PCIe Port Speed.

3.1.4 Security



Select Security Setup from the PCM-9365 Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protection are described in this section. To access the sub menu for the following items, select the item and press <Enter>:

- **Change Administrator / User Password**

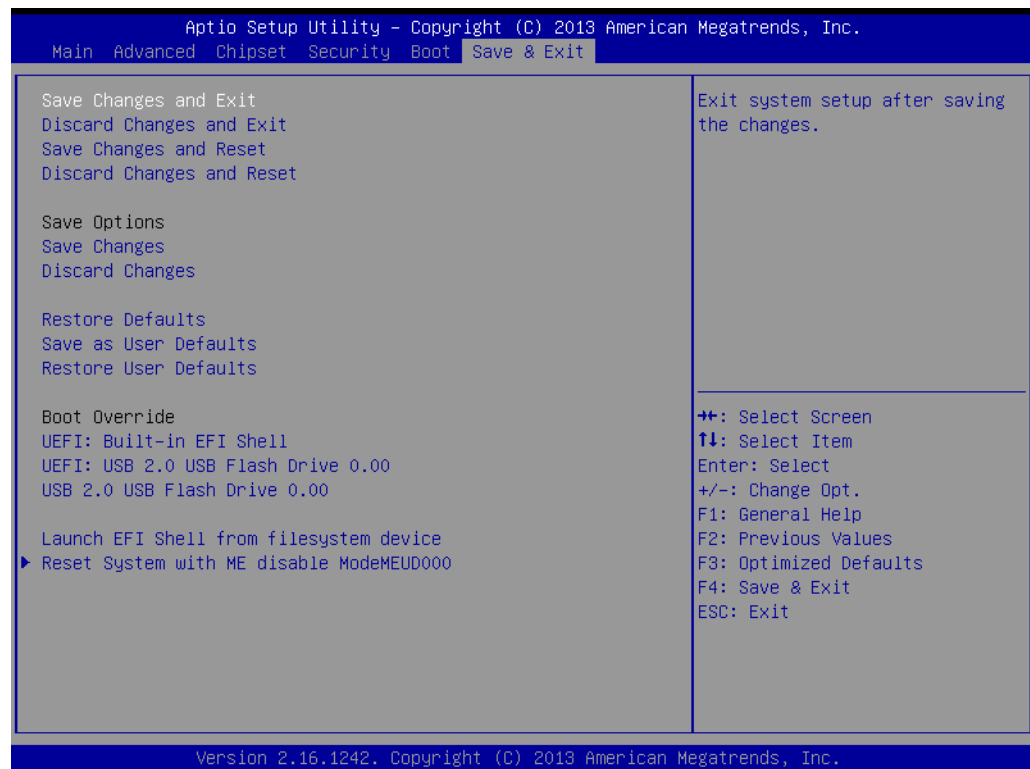
Select this option and press <ENTER> to access the sub menu, and then type in the password.

3.1.5 Boot



- **Setup Prompt Timeout**
Number of seconds that the firmware will wait before initiating the original default boot selection. A value of 0 indicates that the default boot selection is to be initiated immediately on boot. A value of 65535(0xFFFF) indicates that firmware will wait for user input before booting. This means the default boot selection is not automatically started by the firmware.
- **Bootup NumLock State**
Select the keyboard NumLock state.
- **Quiet Boot**
Enables or disables Quiet Boot option.
- **Boot Option #1**
Sets the system boot order.

3.1.6 Save & Exit



- **Save Changes and Exit**
This item allows you to exit system setup after saving the changes.
- **Discard Changes and Exit**
This item allows you to exit system setup without saving any changes.
- **Save Changes and Reset**
This item allows you to reset the system after saving the changes.
- **Discard Changes and Reset**
This item allows you to reset system setup without saving any changes.
- **Save Changes**
This item allows you to save changes done so far to any of the options.
- **Discard Changes**
This item allows you to discard changes done so far to any of the options.
- **Restore Defaults**
This item allows you to restore/load default values for all the options.
- **Save as User Defaults**
This item allows you to save the changes done so far as user defaults.
- **Restore User Defaults**
This item allows you to restore the user defaults to all the options.
- **Boot Override**
Boot device select can override your boot priority.

Appendix **A**

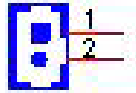
Pin Assignments

This appendix contains information of a detailed or specialized nature.

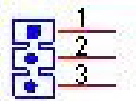
Sections include:

- Jumper and Connector Tables

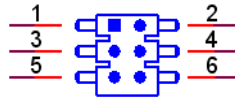
A.1 Jumper List



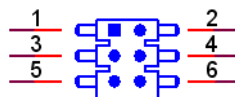
J1	Auto Power On Setting
Part Number	1653002101
Footprint	HD_2x1P_79_D
Description	PIN HEADER 2*1P 180D(M)SQUARE 2.0mm DIP W/O Pb
Setting	Function
NC	Power Button for Power On
(1-2)*	Auto Power On



J2	PCI VIO Setting
Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS
Setting	Function
(1-2)	+5V
(2-3)*	+3.3V

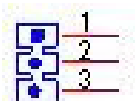


J4	LCD Power
Part Number	1653003260
Footprint	HD_3x2P_79
Description	PIN HEADER 3x2P 2.0mm 180D(M) SMD 21N22050
Setting	Function
(1-3)*	+3.3V
(3-5)	+5V
(3-4)	+12V

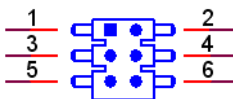


J5	LCD Power
Part Number	1653003260
Footprint	HD_3x2P_79

Description	PIN HEADER 3x2P 2.0mm 180D(M) SMD 21N22050
Setting	Function
(1-3)*	+3.3V
(3-5)	+5V
(3-4)	+12V

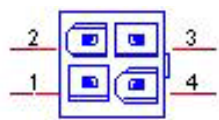


J6	Clear CMOS
Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS
Setting	Function
(1-2)*	Normal
(2-3)	Clear COMS

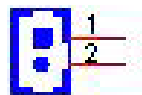


J7	LVDS JEIDA/VESA Selection Pin
Part Number	1653003260
Footprint	HD_3x2P_79
Description	PIN HEADER 3x2P 2.0mm 180D(M) SMD 21N22050
Setting	Function
(1-3)	Pull-High to +V3.3(JEIDA or VESA base on panel definition)
(3-5)*	Pull-Low to GND (JEIDA or VESA base on panel definition)
(2-4)	Pull-High to +V3.3(JEIDA or VESA base on panel definition)
(4-6)*	Pull-Low to GND (JEIDA or VESA base on panel definition)

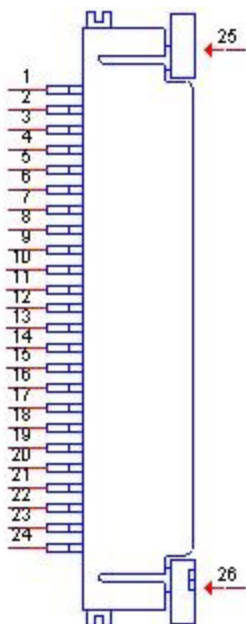
A.2 Connector Pin Definition



CN1	12V Power Input
Part Number	1655004509-01
Footprint	WF_2x2P_165_BOX_D
Description	ATX PWR Conn. 2x2P 4.2mm 180D(M) DIP 740-81-04GW
Pin	Pin Name
1	GND
2	GND
3	+12V
4	+12V

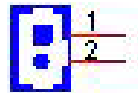


CN2	Battery
Part Number	1655902032
Footprint	WHL2V-125
Description	WAFER BOX 2P 1.25mm 180D(M) DIP 53047-0210
Pin	Pin Name
1	+3V
2	GND

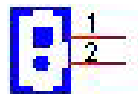


CN3	EC Debug Port
Part Number	1654009557
Footprint	FPC24H-05M
Description	FFC/FPC Conn. 24P 0.5mm 90D(F) SMD 52435-2471
Pin	Pin Name
1	EC_KSI7
2	EC_KSI6
3	EC_KSI5
4	EC_KSI4
5	EC_KSI3
6	EC_KSI2
7	EC_KSI1
8	EC_KSI0
9	EC_KSO15
10	EC_KSO14
11	EC_KSO13
12	EC_KSO12
13	EC_KSO11
14	EC_KSO10
15	EC_KSO9
16	EC_KSO8
17	EC_KSO7
18	EC_KSO6
19	EC_KSO5
20	EC_KSO4
21	EC_KSO3
22	EC_KSO2
23	EC_KSO1
24	EC_KSO0
25	GND

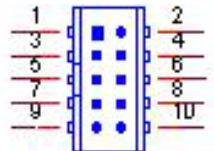
26	GND
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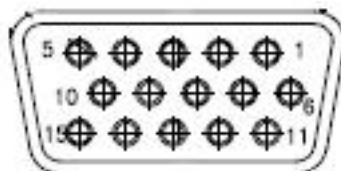
CN4	Power Switch
Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 2.0mm 180D(M) DIP A2001WV2-2P
Pin	Pin Name
1	PSIN
2	GND



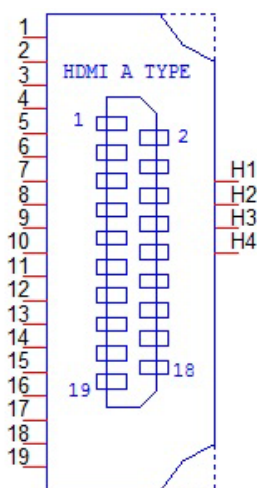
CN5	Reset
Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 2.0mm 180D(M) DIP A2001WV2-2P
Pin	Pin Name
1	RESET#
2	GND



CN6	GPIO
Part Number	1653004099
Footprint	HD_5x2P_79_23N685B-10M10
Description	BOX HEADER 5x2P 2.00mm 180D(M) SMD 23N685B-10M10
Pin	Pin Name
1	+5V
2	GPIO4
3	GPIO0
4	GPIO5
5	GPIO1
6	GPIO6
7	GPIO2
8	GPIO7
9	GPIO3
10	GND

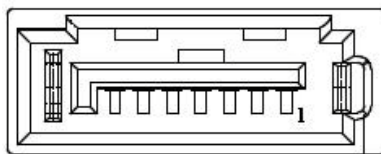


CN7	VGA
Part Number	1654000055
Footprint	DBVGA-VF5MS
Description	D-SUB Conn. 15P 90D(F) DIP 070242FR015S200ZU
Pin	Pin Name
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	NC
10	GND
11	NC
12	DDAT
13	HSYNC
14	VSYNC
15	DCLK

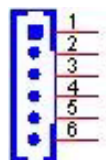


CN8	NL/HDMI_19H
Part Number	1654011175-01
Footprint	HDMI_19P_QJ51191-LFB4-7F
Description	HDMI Conn. 19P 0.5mm 90D(F) SMD QJ51191-LFB4-7F
1	HDMI_TX2+
2	GND

3	HDMI_TX2-
4	HDMI_TX1+
5	GND
6	HDMI_TX1-
7	HDMI_TX0+
8	GND
9	HDMI_TX0-
10	HDMI_CLK+
11	GND
12	HDMI_CLK-
13	NC
14	NC
15	HDMI_DCLK
16	HDMI_DDAT
17	GND
18	+5V
19	HDMI_HPD

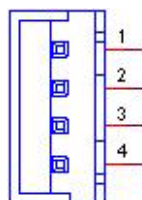


CN9	SATA
Part Number	1654004659
Footprint	SATA_7P_WATM-07DBN4A3B8UW_D
Description	Serial ATA 7P 1.27mm 180D(M) DIP WATM-07DBN4A3B8
Pin	Pin Name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

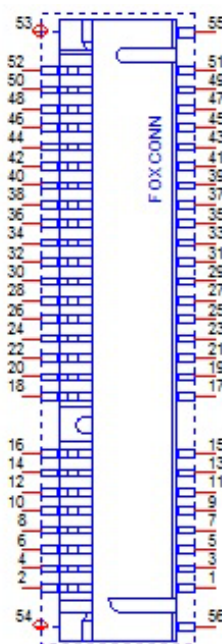


CN10	HDD & PWR LED
Part Number	1655306020
Footprint	WHL6V-2M
Description	WAFER BOX 6P 2.0mm 180D(M) DIP A2001WV2-6P
Pin	Pin Name

1	+5V
2	GND
3	Power LED+
4	Power LED-
5	HDD LED+
6	HDD LED-



CN11	SATA Power
Part Number	1655001154
Footprint	WF_4P_98_BOX_R1_D
Description	WAFER BOX 4P 2.50mm 180D(M) DIP 24W1170-04S10-01
Pin	Pin Name
1	+5V
2	GND
3	GND
4	+12V



CN12	Mini PCIE
Part Number	1654002538
Footprint	MINIPCI_E_HALF_PICO_ITX
Description	MINI PCI E 52P 6.8mm 90D SMD AS0B226-S68Q-7H
Pin	Pin Name
1	WAKE#

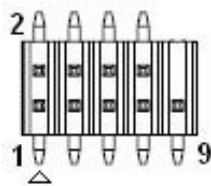
2	+3.3VSB
3	NC
4	GND
5	NC
6	+1.5V
7	NC
8	UIM_PWR
9	GND
10	UIM_DATA
11	REFCLK-
12	UIM_CLK
13	REFCLK+
14	UIM_RESET
15	GND
16	UIM_VPP
17	NC
18	GND
19	NC
20	W_DISABLE#
21	GND
22	PERST#
23	PERn0
24	+3.3VSB
25	PERp0
26	GND
27	GND
28	+1.5V
29	GND
30	SMB_CLK
31	PETn0
32	SMB_DAT
33	PETp0
34	GND
35	GND
36	USB D-
37	GND
38	USB D+
39	+3.3VSB
40	GND
41	+3.3VSB
42	NC
43	SEL
44	NC
45	NC
46	NC
47	NC
48	+1.5V
49	NC

50	GND
51	NC
52	+3.3VSB



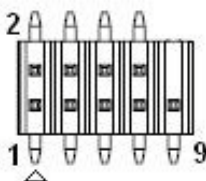
CN13	mSATA
Part Number	1654002538
Footprint	MINIPICIE_HALF_PICO_ITX
Description	MINI PCI E 52P 6.8mm 90D SMD AS0B226-S68Q-7H
Pin	Pin Name
1	NC
2	+3.3V
3	NC
4	GND
5	NC
6	+1.5V
7	NC
8	NC
9	GND
10	NC
11	NC
12	NC
13	NC
14	NC
15	GND
16	NC
17	NC
18	GND
19	NC
20	NC
21	GND

22	NC
23	B+
24	+3.3V
25	B-
26	GND
27	GND
28	+1.5V
29	GND
30	SMB_CLK
31	A-
32	SMB_DAT
33	A+
34	GND
35	GND
36	USB D-
37	GND
38	USB D+
39	+3.3V
40	GND
41	+3.3V
42	NC
43	NC
44	NC
45	NC
46	NC
47	NC
48	+1.5V
49	NC
50	GND
51	NC
52	+3.3V

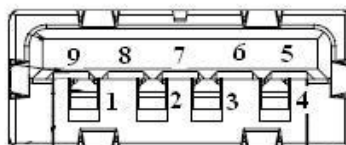


CN14	Internal USB
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2x5P 2.0mm 180D(M) SMD 21N22050
Pin	Pin Name
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+

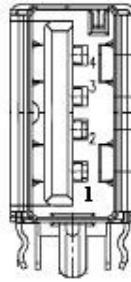
6	B_D+
7	GND
8	GND
9	GND



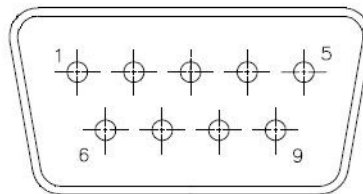
CN15	Internal USB
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2x5P 2.0mm 180D(M) SMD 21N22050
Pin	Pin Name
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND



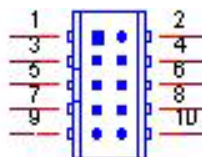
CN16	External USB3.0
Part Number	1654010026
Footprint	USB_9P_UEA3119C-4FB1-4F
Description	USB 3.0 CONN 9P 90D(F) DIP UEA3119C-4FB1-4
Pin	Pin Name
1	+5V
2	D-
3	D+
4	GND
5	SSRX-
6	SSRX+
7	GND
8	SSTX-
9	SSTX+



CN17	External USB
Part Number	1654904105
Footprint	USB_4P_22-0403N-4-1T-R
Description	USB CONN. 4P 90D(F) DIP 22-0403N-4-1T-R
Pin	Pin Name
1	+5V
2	D-
3	D+
4	GND

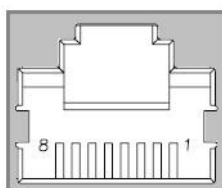


CN18	COM1
Part Number	1654000056
Footprint	DBCOM-VM5MS
Description	D-SUB Conn. 9P 90D(M) DIP 070241MR009S200ZU
Pin	Pin Name
1	DCD#
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#

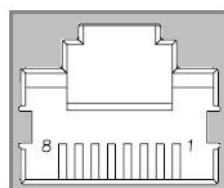
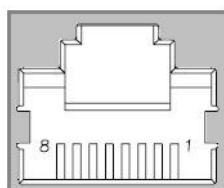


CN19	COM2
Part Number	1653004099

Footprint	HD_5x2P_79_23N685B-10M10
Description	BOX HEADER 5x2P 2.00mm 180D(M) SMD 23N685B-10M10
Pin	Pin Name
1	DCD2#
2	DSR2#
3	RXD2
4	RTS2#
5	TXD2
6	CTS2#
7	DTR2#
8	RI2#
9	GND
10	GND

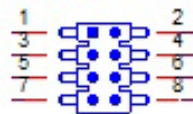


CN22	LAN1
Part Number	1652002996
Footprint	RJ45_14P_RTA-195AAK1A
Description	PHONE JACK RJ45 14P 90D(M) DIP RTA-195AAK1A
Pin	Pin Name
1	LAN1_MDI0+
2	LAN1_MDI0-
3	LAN1_MDI1+
4	LAN1_MDI1-
5	LAN1CONN
6	LAN1_GND
7	LAN1_MDI2+
8	LAN1_MDI2-
9	LAN1_MDI3+
10	LAN1_MDI3-
11	LAN1_ACT#
12	+V3.3_VDD_LAN1
13	LAN1_LINK100#
14	LAN1_LINK1000#



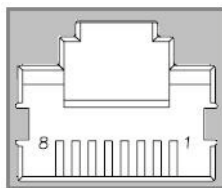
CN23	LAN1 & LAN2 (Dual LAN connector)
Part Number	1652003274

Footprint	RJ45_28P_RTB-19GB9J1A
Description	PHONE JACK RJ45 28P DIP RTB-19GB9J1A
Pin	Pin Name
A1	LAN1_MDI0+
A2	LAN1_MDI0-
A3	LAN1_MDI1+
A4	LAN1_MDI1-
A5	LAN1CONN
A6	LAN1_GND
A7	LAN1_MDI2+
A8	LAN1_MDI2-
A9	LAN1_MDI3+
A10	LAN1_MDI3-
A11	LAN1_ACT#
A12	+V3.3_VDD_LAN1
A13	LAN1_LINK100#
A14	LAN1_LINK1000#
B1	LAN2_MDI0+
B2	LAN2_MDI0-
B3	LAN2_MDI1+
B4	LAN2_MDI1-
B5	LAN2CONN
B6	LAN2_GND
B7	LAN2_MDI2+
B8	LAN2_MDI2-
B9	LAN2_MDI3+
B10	LAN2_MDI3-
B11	LAN2_ACT#
B12	+V3.3_VDD_LAN2
B13	LAN2_LINK100#
B14	LAN2_LINK1000#

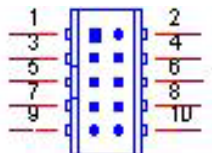


CN24	Internal LAN LED
Part Number	1653004260
Footprint	HD_4x2_79
Description	PIN HEADER 4x2P 2.0mm 180D(M) SMD 21N22050
Pin	Pin Name
1	+V3.3SB
2	+V3.3SB
3	LAN1_ACT#
4	LAN2_ACT#
5	LAN1_LINK100#
6	LAN2_LINK100#
7	LAN1_LINK1000#

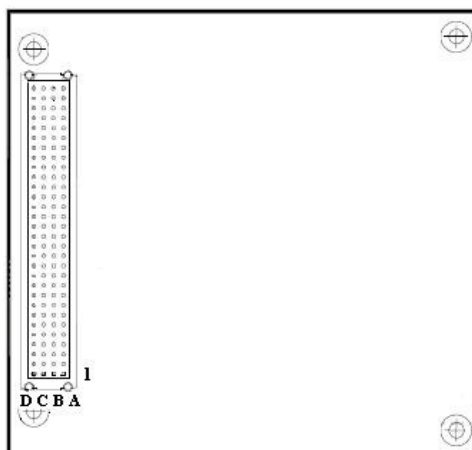
8	LAN2_LINK1000#
---	----------------



CN25	LAN2
Part Number	1652002996
Footprint	RJ45_14P_RTA-195AAK1A
Description	PHONE JACK RJ45 14P 90D(M) DIP RTA-195AAK1A
Pin	Pin Name
1	LAN2_MDIO+
2	LAN2_MDIO-
3	LAN2_MDIO+
4	LAN2_MDIO-
5	LAN2CONN
6	LAN2_GND
7	LAN2_MDIO+
8	LAN2_MDIO-
9	LAN2_MDIO+
10	LAN2_MDIO-
11	LAN2_ACT#
12	+V3.3_VDD_LAN2
13	LAN2_LINK100#
14	LAN2_LINK1000#



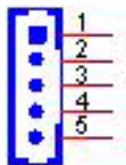
CN26	Audio
Part Number	1653004099
Footprint	HD_5x2P_79_23N685B-10M10
Description	BOX HEADER 5x2P 2.00mm 180D(M) SMD 23N685B-10M10
Pin	Pin Name
1	LOUTR
2	LINR
3	GND
4	GND
5	LOUTL
6	LINL
7	GND
8	GND
9	MIC1R
10	MIC1L



CN27	PCI-104
Part Number	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#
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#
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
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	RESET#
PD29	INTC#
PD30	GND

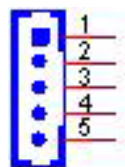


CN28	Inverter Power Output1
Part Number	1655000453
Footprint	WHL5V-2M-24W1140
Description	WAFER BOX 2.0mm 5P 180D(M) DIP WO/Pb JIH VEI
Pin	Pin Name
1	+12V
2	GND
3	ENABKL
4	VBR
5	+5V



CN29	48 bits LVDS Panel1
Part Number	1653920200
Footprint	SPH20X2
Description	B/B Conn. 40P 1.25mm 90D SMD DF13-40DP-1.25V(91)
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	NC
32	NC
33	GND
34	GND
35	LVDS0_D3-
36	LVDS1_D3-
37	LVDS0_D3+
38	LVDS1_D3+
39	NC
40	LVDS1_VCCON

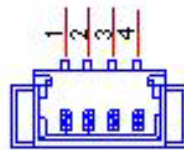


CN30	Inverter Power Output2
Part Number	1655000453
Footprint	WHL5V-2M-24W1140
Description	WAFER BOX 2.0mm 5P 180D(M) DIP WO/Pb JIH VEI
Pin	Pin Name
1	+12V
2	GND
3	ENABKL
4	VBR
5	+5V

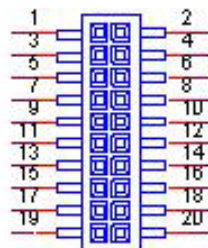


CN31	48 bits LVDS Panel2
Part Number	1653920200
Footprint	SPH20X2
Description	B/B Conn. 40P 1.25mm 90D SMD DF13-40DP-1.25V(91)
Pin	Pin Name
1	+5V or +3.3V
2	+5V or +3.3V
3	GND
4	GND
5	+5V or +3.3V
6	+5V or +3.3V
7	LVDS0_D0-
8	LVDS1_D0-
9	LVDS0_D0+
10	LVDS1_D0+
11	GND
12	GND
13	LVDS0_D1-
14	LVDS1_D1-
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	NC
32	NC
33	GND
34	GND
35	LVDS0_D3-
36	LVDS1_D3-
37	LVDS0_D3+
38	LVDS1_D3+
39	NC
40	LVDS2_VCCON

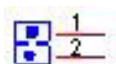


CN33	SMBus
Part Number	1655904020
Footprint	FPC4V-125M
Description	WAFER 4P 1.25mm 180D(M) SMD 85205-04001
Pin	Pin Name
1	GND
2	SMB_DAT
3	SMB_CLK
4	+5V



CN37	COM3/COM4
Part Number	1653004793
Footprint	HD_10x2P_79_23N685B-20M10
Description	BOX HEADER 10x2P 2.0mm 180D(M)SMD 23N685B-20M10B
Pin	Pin Name
1	DCD3#
2	DSR3#
3	RXD3
4	RTS3#
5	TXD3

6	CTS3#
7	DTR3#
8	RI3#
9	GND
10	GND
11	DCD4#
12	DSR4#
13	RXD4
14	RTS4#
15	TXD4
16	CTS4#
17	DTR4#
18	RI4#
19	GND
20	GND



J3	PCI-104 -12V Input
Part Number	1653002101
Footprint	HD_2x1P_79_D
Description	PIN HEADER 2*1P 180D(M)SQUARE 2.0mm DIP W/O Pb
Pin	Pin Name
1	-12V
2	GND

Appendix **B**

System Assignments

This appendix contains information of a detailed nature.

Sections include:

- System I/O Ports
- 1st MB Memory Map
- Interrupt Assignments

B.1 System I/O Ports

Table B.1: System I/O Ports

Addr. Range (Hex)	Device
20–2D	Interrupt Controller
2E – 2F	Motherboard resources
30 – 3D	Interrupt Controller
40 – 43	System timer
4E – 4F	Motherboard resources
50 – 53	System timer
61 – 67	Motherboard resources
70 - 77	System CMOS/real time clock
80 - 92	Motherboard resources
A0 – B1	Interrupt Controller
B2 – B3	Motherboard resources
B4 – BD	Interrupt Controller
272 – 273	Motherboard resources
290 – 29F	Embedded Controller resources
2E8 – 2EF	COM4
2F8 – 2FF	COM2
3B0 – 3DF	Intel® HD Graphics
3E8 – 3EF	COM3
3F8 – 3FF	COM1
400 – 47F	Motherboard resources
4D0 – 4D1	Interrupt Controller
500 – 57F	Motherboard resources

B.2 1st MB Memory Map

Table B.2: 1st MB Memory Map

Addr. Range (Hex)	Device
A0000h - BFFFFh	Intel® HD Graphics
A0000h - BFFFFh	PCI Bus
C0000h - DFFFFh	PCI Bus
E0000h - FFFFFh	PCI Bus
D0400000 – D05FFFFFF	Intel® Trusted Execution Engine Interface
E0000000 - FFFFFFFF	System resources

B.3 Interrupt Assignments

Table B.3: Interrupt assignments

Interrupt#	Interrupt source
NMI	Parity error detected
IRQ0	System timer
IRQ1	Using SERIRQ, Keyboard Emulation
IRQ2	Slave controller INTR output
IRQ3	Communications Port (COM2)
IRQ4	Communications Port (COM1)
IRQ5	Available
IRQ6	Available
IRQ7	Communications Port (COM3) / iManager WatchDog IRQ
IRQ8	Internal RTC or HPET
IRQ9	Microsoft ACPI-Compliant System
IRQ10	Available
IRQ11	Communications Port (COM4)
IRQ12	Available
IRQ13	Numeric data processor
IRQ14	SATA controller
IRQ15	SATA controller

Appendix **C**

EC Watchdog Timer
Sample Code

C.1 EC Watchdog Timer sample code

```
EC_Command_Port = 0x29Ah
EC_Data_Port = 0x299h
Write EC HW ram = 0x89
Watch dog event flag = 0x57
Watchdog reset delay time = 0x5E
Reset event = 0x04
Start WDT function = 0x28
=====
.model small
.486p
.stack 256
.data
.code
org 100h
.STARTup

mov dx, EC_Command_Port
mov al,89h          ;Write EC HW ram.
out dx,al

mov dx, EC_Data_Port
mov al, 5Fh         ;Watchdog reset delay time low byte (5Eh is high byte) index.
out dx,al

mov dx, EC_Data_Port
mov al, 30h         ;Set 3 seconds delay time.
out dx,al

mov dx, EC_Command_Port
mov al,89h          ;Write EC HW ram.
out dx,al

mov dx, EC_Data_Port
mov al, 57h         ;Watch dog event flag.
out dx,al

mov dx, EC_Data_Port
mov al, 04h         ;Reset event.
out dx,al

mov dx, EC_Command_Port
mov al,28h          ;Start WDT function.
out dx,al

.exit
END
```




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