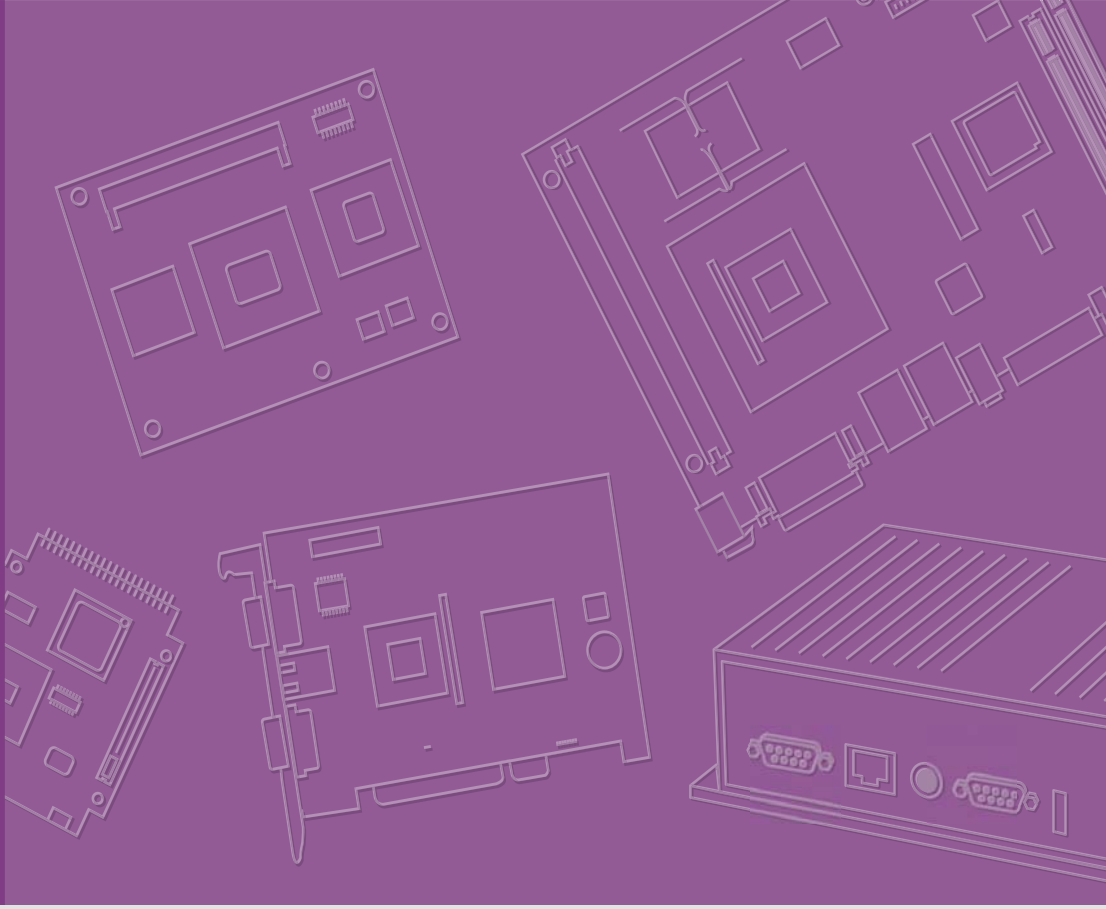

User Manual

PCM-9563

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Product Warranty (2 years)

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

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.

If you think you have a defective product, follow these steps:

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 merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Declaration of Conformity

FCC Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Technical Support and Assistance

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

Warnings, Cautions and Notes

Warning! *Warnings indicate conditions, which if not observed, can cause personal injury!*

Caution! *Cautions are included to help you avoid damaging hardware or losing data. e.g.*

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.

Note! *Notes provide optional additional information.*

Document Feedback

To assist us in making improvements to this manual, we would welcome comments and constructive criticism. Please send all such - in writing to: support@advantech.com

Packing List

Before setting up the system, check that the items listed below are included and in good condition. If any item does not accord with the table, please contact your dealer immediately.

- 1 x PCM-9563 SBC
- 1 x Startup manual
- 1 x mini jumper pack 9689000002

Ordering Information

Model Number Description

Model Name	CPU	Memory	VGA	LVDS	HDMI*	DP*	eDP*	GbE 1	SATAIII	mSATA	HD Audio	RS-422/485	RS-232	USB 3.0	USB 2.0	miniPCIe	M.2 E key	PCI-104
PCM-9563N-S1A1E	Intel Celeron N3350	SODIMM	1	1	-	-	-	2	1	1	V	2	4	2	6	1	1	Yes
PCM-9563NF-S2A1E	Intel Pentium N4200	SODIMM	1	1	-	-	-	3	2	-	V	2	4	2	6	1	1	Yes
PCM-9563NF-S1A1E	Intel Celeron N3350	SODIMM	1	1	-	-	-	3	2	-	V	2	4	2	6	1	1	Yes

* By request

Optional Accessories

Part Number	Description
PCM-10586-9563E	Wiring kit for PCM-9563 Series
PCM-110-00A3E	1-slot PCI riser card for 5.25" biscuits
PCM-120-00A3E	2-slot PCI riser card for 5.25" biscuits
PCM-200-00A2E	PC/104-Plus to PCI bus module
CF-HDD-ADP	CompactFlash 50-pin to IDE 44-pin adapter
TBD	Hearspreader 157.4 x 100 x 24 mm

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it to work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Wichtige Sicherheishinweise

1. Bitte lesen sie Sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Die NetzanschluBsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor überhitzung schützt. Sorgen Sie dafür, daB diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim. AnschluB an das Stromnetz die AnschluBwerte.
9. Verlegen Sie die NetzanschluBleitung so, daB niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
15. Netzkabel oder Netzstecker sind beschädigt.
16. Flüssigkeit ist in das Gerät eingedrungen.
17. Das Gerät war Feuchtigkeit ausgesetzt.
18. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
19. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
20. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
21. VOSICHT: Explisionsgefahr bei unsachgemaben Austausch der Batterie.Ersatz nur durch densellben order einem vom Hersteller empfohlene-mahnlichen Typ. Entsorgung gebrauchter Batterien navh Angaben des Herstellers.
22. ACHTUNG: Es besteht die Explosionsgefahr, falls die Batterie auf nicht fachmännische Weise gewechselt wird. Verfangen Sie die Batterie nur gleicher oder entsprechender Type, wie vom Hersteller empfohlen. Entsorgen Sie Batterien nach Anweisung des Herstellers.
23. Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weiger.

Haftungsausschluss: Die Bedienungsanleitungen wurden entsprechend der IEC-704-1 erstellt. Advantech lehnt jegliche Verantwortung für die Richtigkeit der in diesem Zusammenhang getätigten Aussagen ab.

Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

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Chapter 1

General Information

1.1 Introduction

- Intel® Pentium N4200 Celeron N3350 & Atom™E3950/E3940/E3930 processor
- EBX form factor standard, supports PCI-104
- One SODIMM up to 8G DDR3L 1867MHz
- Dual Display: VGA + LVDS(Displayport *) + HDMI * (Displayport)
- Supports 6 x USB 2.0, 2 x USB 3.0
- Supports 2 x SATAIII
- Supports up to 6 x COM (Support Auto flow control)
- Supports up to 2 x Watchdog Timer
- Supports up to 3 x Intel Giga Ethernet support
- Supports Wake-on-LAN, Wake-on-Modem
- Power off protection and Software I^2C API support

1.2 Product Specifications

General

CPU	Intel Pentium N4200 Celeron N3350 & Atom™E3950/ E3940/E3930
L2 Cache	2MB
System Chipset	
BIOS	AMI 64 Mbit
System Memory	One SODIMM up to 8G DDR3L 1867MHz
Power Management	ACPI support
Expansion Interface	Supports PCI-104, PCI slot x1, Mini PCIe
Battery	Lithium 3 V / 210 mAH

I/O

I/O Interface	1x PS/2, 1x KB/Mouse,1x Reset Button,1x SMBUS, 1x I2C, 1x LTP, 4 x (RS-232), 2 x RS-422/485
USB	6 x USB 2.0 2 x USB 3.0 compliant Ports
Audio	ACL888, Line-in, Line-out, Mic-in, speaker out (R/L)
GPIO	16-bit general purpose

Ethernet

Chipset	i210
Speed	10/100/1000Mbps
Interface	3 (RJ-45 connector through the cable and GbE3 is full version only)
Standard	Compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3x, IEEE 8023y, IEEE 802.ab

Display

Controller	Intel® Gen9 Graphic engine
VRAM	Shared Memory Architecture up to 224 MB system memory
LVDS LCD	Single channel 48-bit LVDS up to 1920 x 1200
VGA	Maximum Resolution up to 1920 x 1200
Dual Independent Display	VGA+ LVDS/eDP*+ HDMI*/DP*

1.3 Chipset

1.3.1 Functional Specifications

1.3.1.1 Processor

- Intel Pentium N4200 Celeron N3350 & Atom™E3950/E3940/E3930 processor 1.1/1.1/1.6/1.6/1.3 GHz
- CPU Process: 45nm.

1.3.1.2 Chipset

Controller Hub	Intel Pentium N4200 Celeron N3350 & Atom™E3950/ E3940/E3930 processor 1.1/1.1/1.6/1.6/1.3 GHz
Memory	DDR3L 1867MHz
Multi Display	VGA+ LVDS/eDP*+ HDMI*/DP*
VGA Memory	Up to 224 MB of dynamic video memory allocation
Display	VGA: Supports QXGA Up to 1920 x 1200 LVDS: Single channel 48-bit LVDS up to 1920 x 1200
Internal Graphics Features	3D HW Acceleration: DirectX* 12.3/12, 4K Decode fo rHEVC4, H.264, VP8; 4K Encode forH.264, VP8

1.3.1.3 Others

Ethernet	
Chipset	GbE 1 : Intel i210 GbE 2: Intel i210 GbE 3: Intel i210
IEEE Compliant	Compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3x, IEEE 8023y, IEEE 802.ab
Disable LAN through BIOS	Yes
Driver Support	Win 10, Android, Linux, QNX
Audio	
Codec	HD Audio, ALC888 Codec
Connector	Line in, Line out, Mic in, Speak out (R/L, 8 Ohm 1W/4Ohm 2W)
Hardware Monitor	
Super I/O	LPC I/O for onboard alarm
	SCH3106
Fan	1. Smart FAN Support. 2. Programmable automatic fan monitor based on tempera-ture. 3. 2 pin connector for LED indication when fan fail or system abnormal. 4. System FAN Power Connector x 1 5. Reserve CPU FAN Power Connector x 1 Pin2: +12 V Pin3: Fan speed signal input
Temperature	CPU Temperature
Voltage	3.3 V,+5 V, +12 V, Vcore
PCI Compliant	
Chipset	follow PCIe bridge XIO2001IZGU

1.3.2 Mechanical Specifications

1.3.2.1 Dimensions

203mm(L*146mm(W) mm (8" x 5.75 inches)

1.3.2.2 Height

top side 19mm, PCB 1.6mm, bottom side 6.8mm, total 27.4mm

1.3.2.3 Weight

700 g (1.54 lb) (with heatsink) (reference weight of total package)

1.3.3 Electrical Specifications

1.3.3.1 Power Supply Voltage

- **Power Type**
  AT/ATX
- **Power Supply Voltage**
  ATX: 12 V ± 10%
  AT: 12 V ±10% only

1.3.3.2 Power Consumption

Power Consumption (Typical)

PCM-9563E-S7A1E with E3950:0.64@12V(7.68W)

Power Consumption (Max, test in HCT)

PCM-9563E-S7A1E with E3950:1.03A@12V(12.38W)

1.3.3.3 RTC Battery

- **Typical Voltage:** 3.0 V
- **Normal discharge capacity:** 210 mAh

1.3.4 Environmental Specifications

1.3.4.1 Operating Temperature

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

1.3.4.2 Operating Humidity

- **Operating Humidity:** 0% ~ 90% Relative Humidity, non-condensing

1.3.4.3 Storage Temperature

Standard products (0~60°C)

- **Storage temperature:** -40~85°C

1.3.4.4 Storage Relative Temperature

Standard products (0~60°C)

- **Relative humidity:** 95% @ 60°C

Phoenix products (-20~80°C)

- **Relative humidity:** 95% @ 60°C

Platinum Phoenix products (-40~85°C)

- **Relative humidity:** 95% @ 60°C

Chapter 2

Hardware Installation

This chapter explains the setup procedures of the PCM-9563 A1 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.

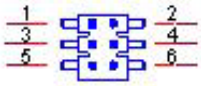
2.1 Jumpers

J1	**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

J2	**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

J3	**PCI104 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

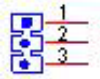


J5	LVDS VCON Setting
Part Number	1653000014
Footprint	HD_2x2P_79
Description	PIN HEADER 2x2P 2.00mm 180D(M) SMD 21N22050
Setting	**Function**
(1-2)*	3.3V High for VCON on LVDS
(1-3)	Low for VCON on LVDS

J6	COM5 RS422/485 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)*	RS485
(1-3)	RS422

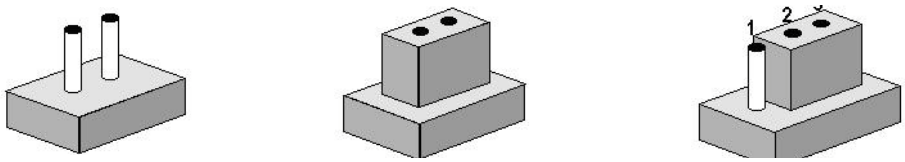
J7	COM6 RS422/485 Setting
Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS
Setting	**Function**
(1-2)*	RS485
(1-3)	RS422

J8	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

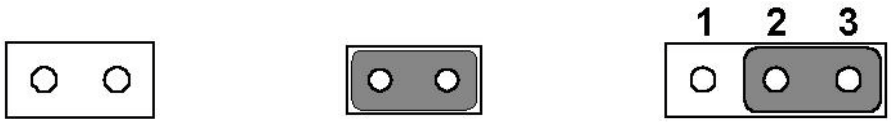


2.1.1 Jumper Description

Cards can be configured 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.

Warning! *To avoid damaging the computer, always turn off the power supply before setting jumpers to clear CMOS. Before turning on the power supply, set the jumper back to 3.0 V Battery On.*

2.2 Connectors

Onboard connectors link the PCM-9563 to external devices such as hard disk drives, a keyboard, or floppy drives. The table below lists the function of each of the connectors.

2.2.1 Connector List

CN1	12V Power Input
CN3	Standby Power Input
CN4	5V power output
CN5	Battery
CN6	SODIMMDDR3RVS_204
CN8	Power Switch
CN9	Reset
CN10	Audio
CN11	LAN1
CN12	LAN1/2 LED
CN13	LAN2
CN14	LAN3
CN15	PCI-104
CN16	SIM
CN17	Mini PCIE
CN18	SATA
CN19	SATA
CN20	mSATA
CN21	M.2 E Key
CN22	COM1/COM2
CN23	COM3/COM4
CN24	COM5/COM6
CN25	Inverter Power Output
CN26	48 bits LVDS Panel
CN27	VGA
CN28	HDMI
CN29	eDP
CN30	Internal USB
CN31	Internal USB
CN32	Internal USB
CN33	Internal USB 3.0
CN34	LPT
CN35	PS2
CN36	I2C
CN37	SMBus
CN38	GPIO 0-7
CN39	GPIO 8-15
CN40	System Fan
CN45	PCI Slot
CN46	PWR/HD/LAN3 LED
CN48	PCI-104 -12V Input

2.3 Mechanical

2.3.1 Jumper and Connector Location

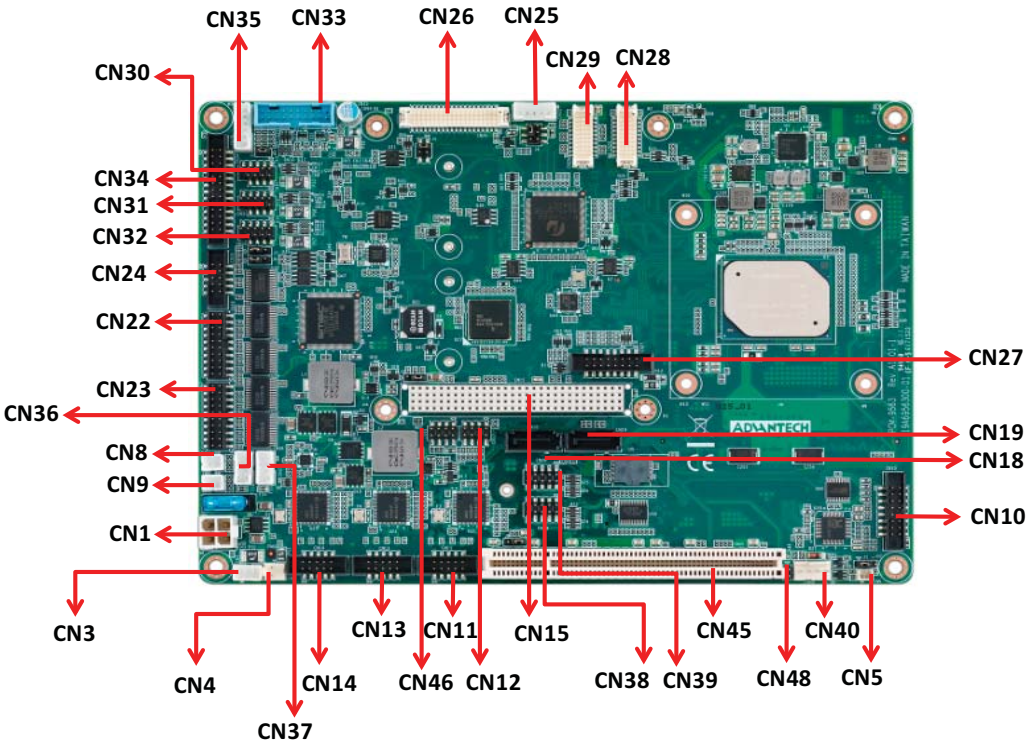


Figure 2.1 Jumper and Connector Layout (Component Side)

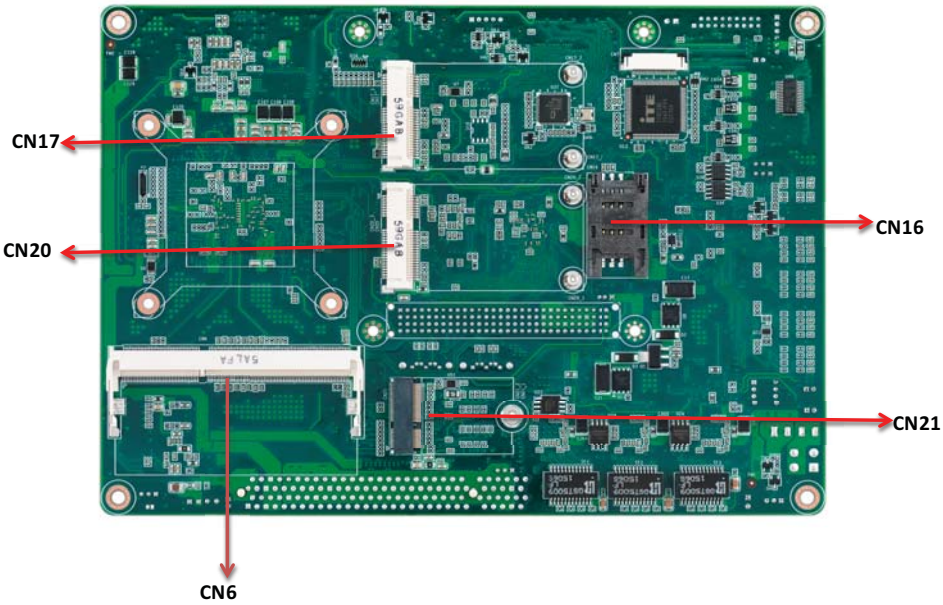


Figure 2.2 Jumper and Connector Layout (Solder Side)

2.3.2 Board Dimensions

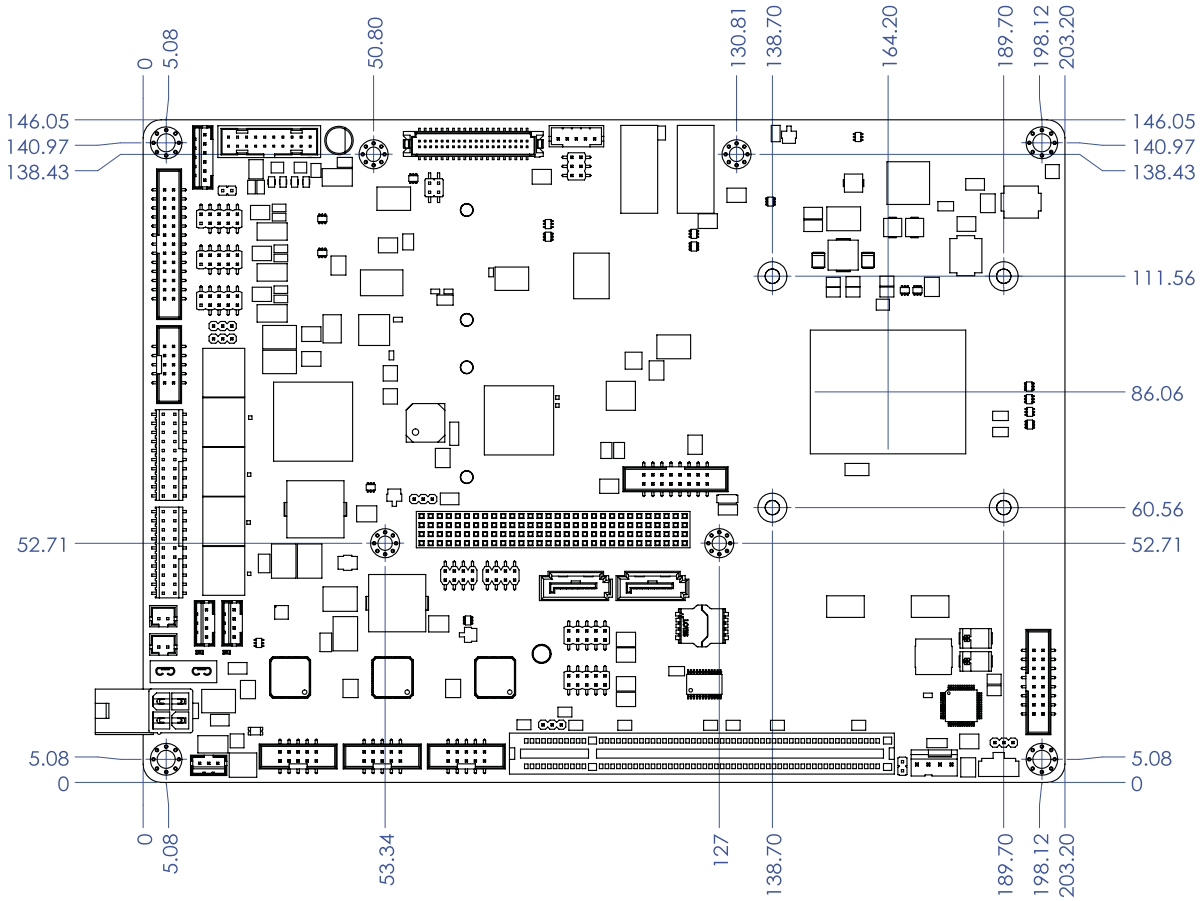


Figure 2.3 Board Dimension Layout (Component Side)

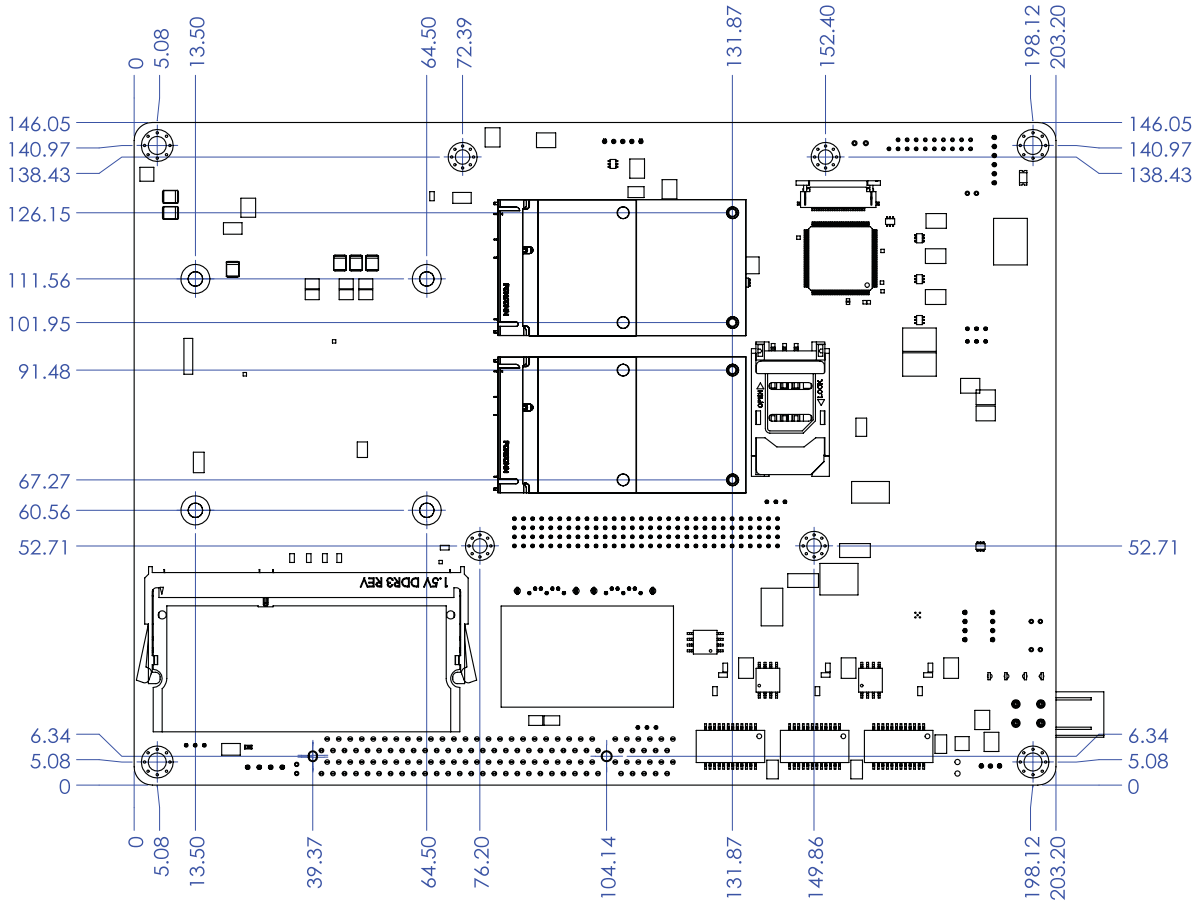


Figure 2.4 Board Dimension Layout (Solder Side)

Chapter 3

BIOS Settings

AMIBIOS has been integrated into many motherboards for over a decade. 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-9563 BIOS setup screens.

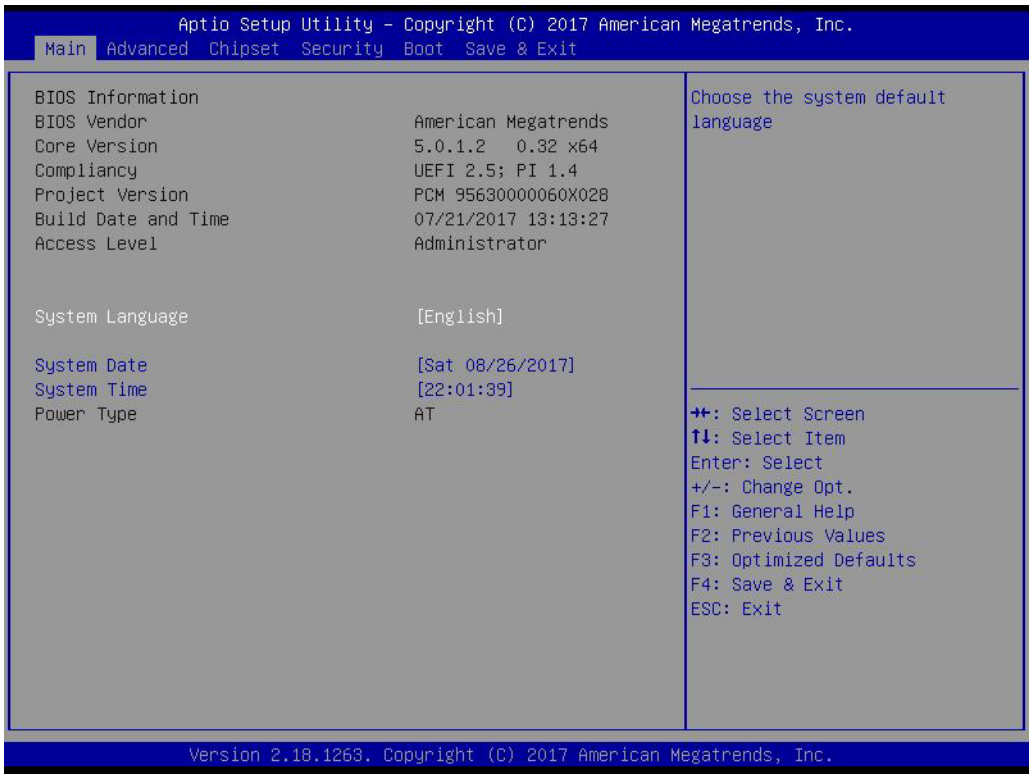
AMI's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed CMOS so it retains the Setup information when the power is turned off.

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 <DEL> and you will immediately be allowed to enter Setup.

3.1.1 Main Setup

When you first enter the BIOS Setup Utility, you will enter 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.

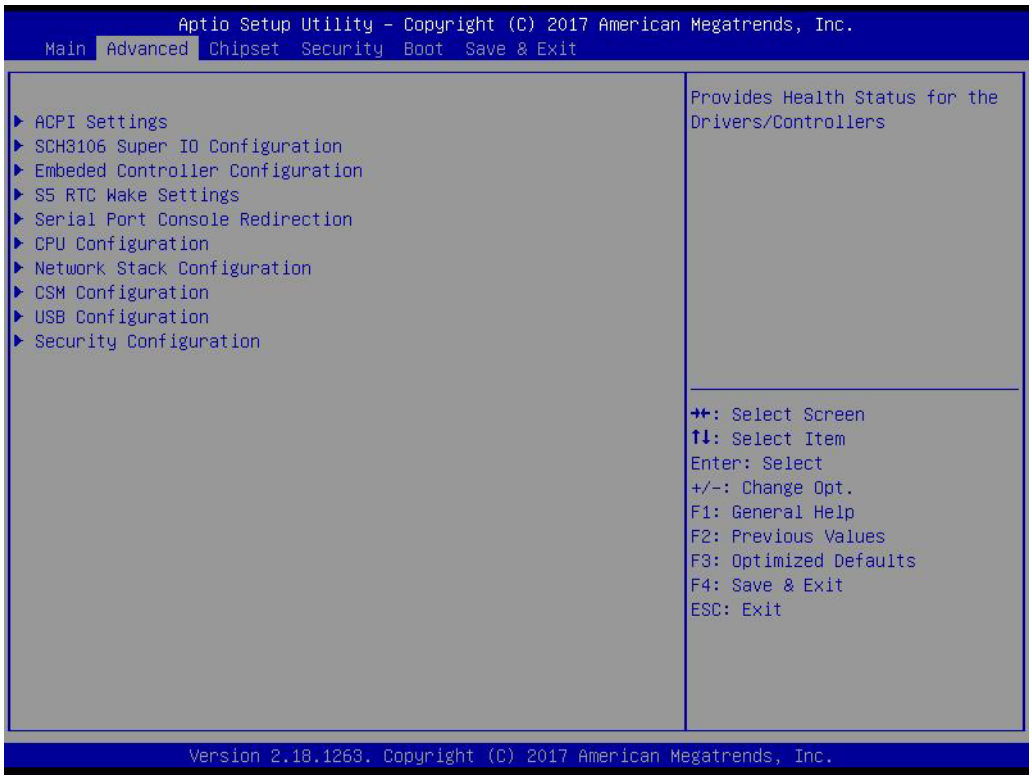
Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

- **System time / System date**

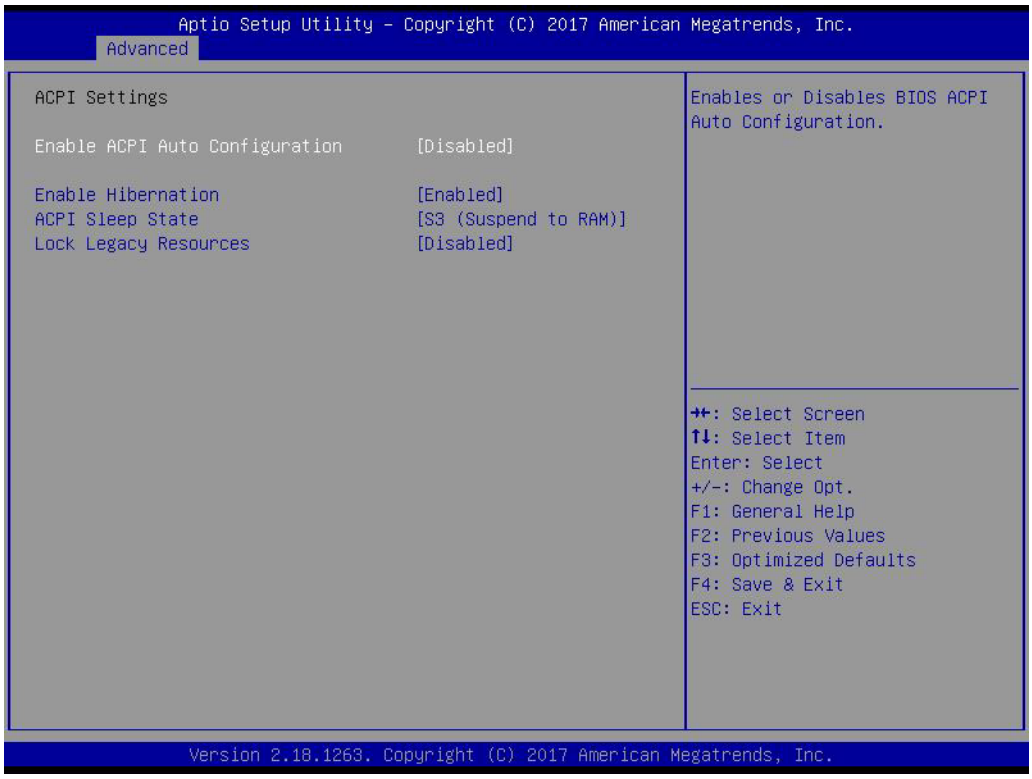
  Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

3.1.2 Advanced BIOS Features Setup

Select the Advanced tab from the PCM-9563 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.



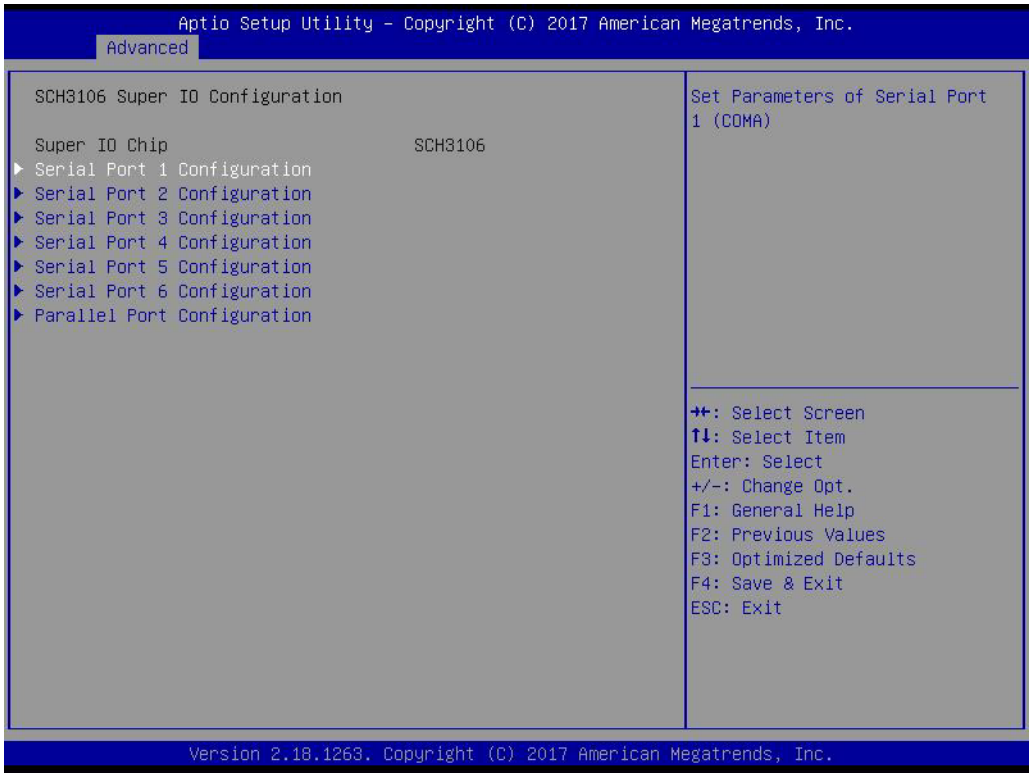
3.1.2.1 ACPI Settings



- **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.

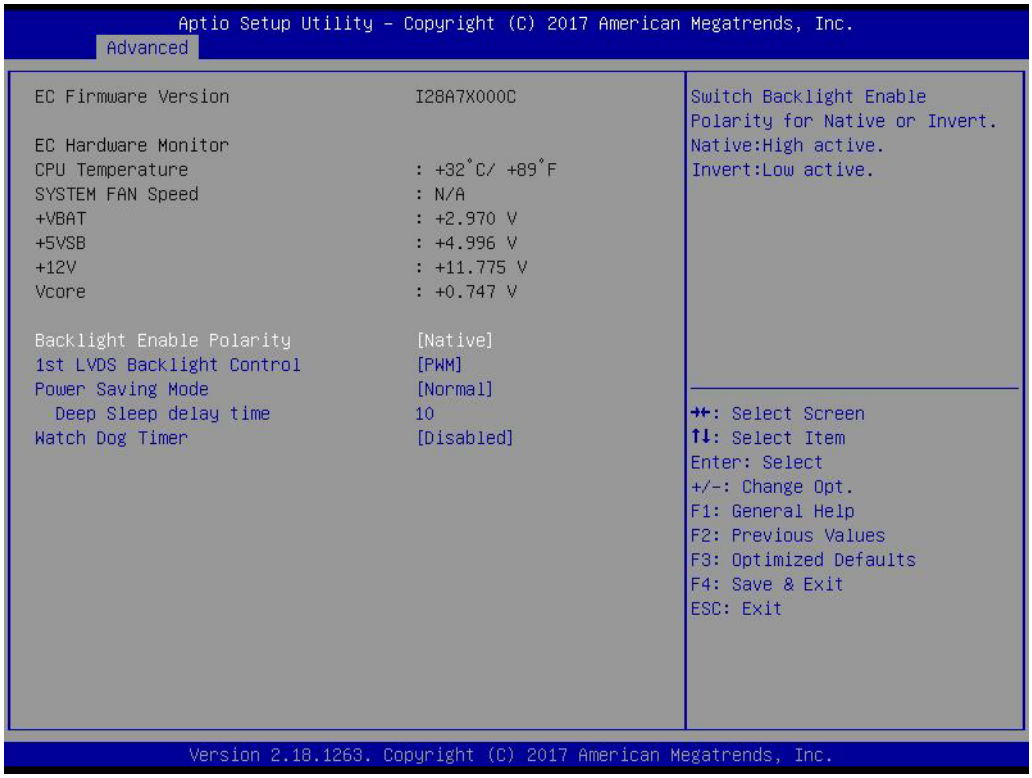
- **ACPI Sleep State**
  Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
- **Lock Legacy Resources**
  Enables or Disables Lock of Legacy Resources

3.1.2.2 SCH3106 Super IO Configuration



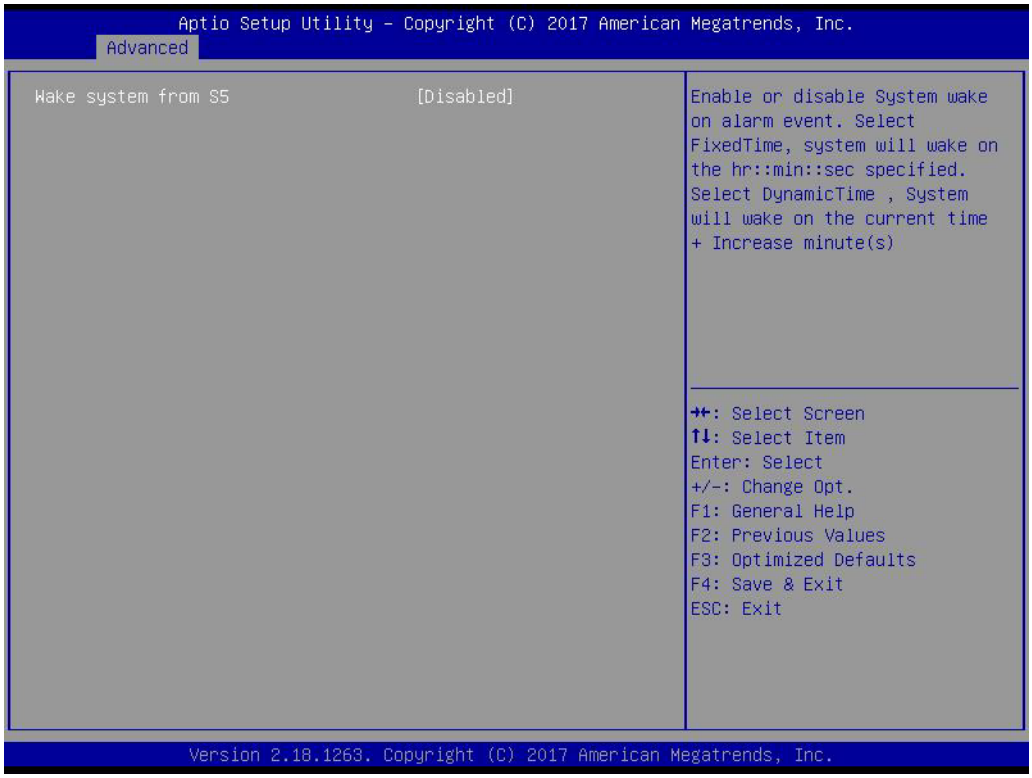
- **Serial Port 1 Configuration**
  Set Parameters of Serial Port 1 (COMA).
- **Serial Port 2 Configuration**
  Set Parameters of Serial Port 2 (COMB).
- **Serial Port 3 Configuration**
  Set Parameters of Serial Port 3 (COMC).
- **Serial Port 4 Configuration**
  Set Parameters of Serial Port 4 (COMD).
- **Serial Port 5 Configuration**
  Set Parameters of Serial Port 5 (COME).
- **Serial Port 6 Configuration**
  Set Parameters of Serial Port 6 (COMF).
- **Parallel Port Configuration**
  Set Parameters of Parallel Port (LPT/LPTE).

3.1.2.3 Embedded Controller Configuration



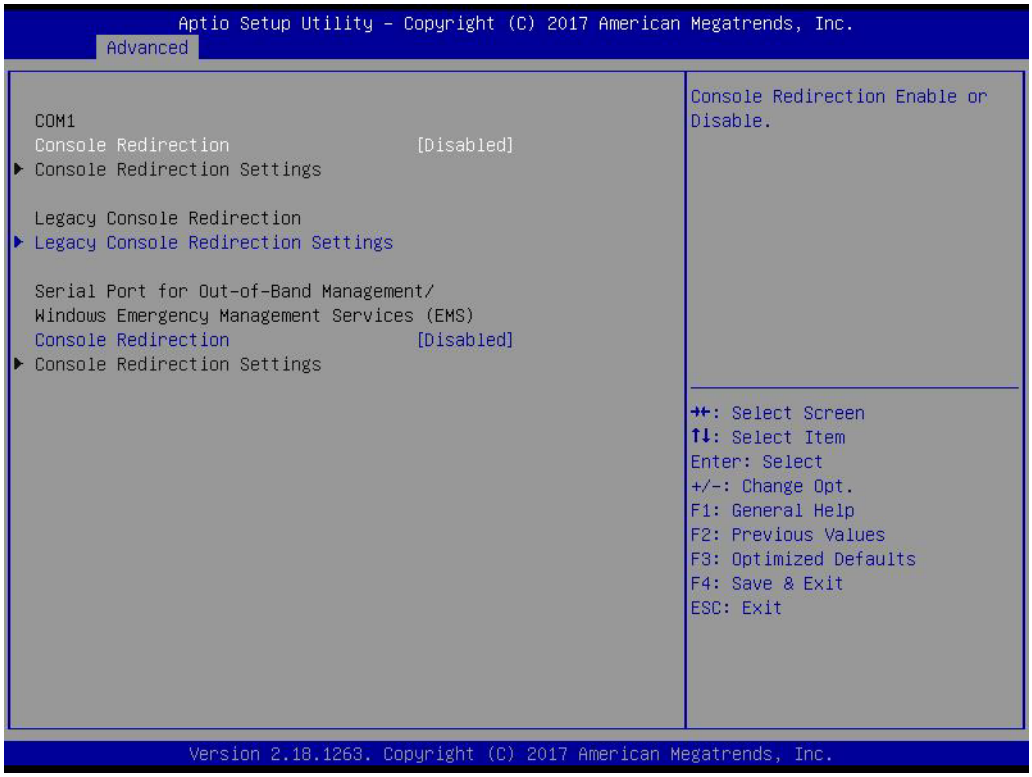
- **EC Hardware Monitor**
  This page display all information about system Temperature/Voltage/Current.
- **Backlight Enable Polarity**
  This item allows users to set backlight mode.
- **1st LVDS Backlight control**
  This item allows users to switch Backlight Control for PWM or DC mode.
- **Power Saving Mode**
  This item allows users to set board's power saving mode when off.
- **Watch Dog Timer**
  This item allows users to select EC watchdog timer.

3.1.2.4 S5 RTC Wake Settings



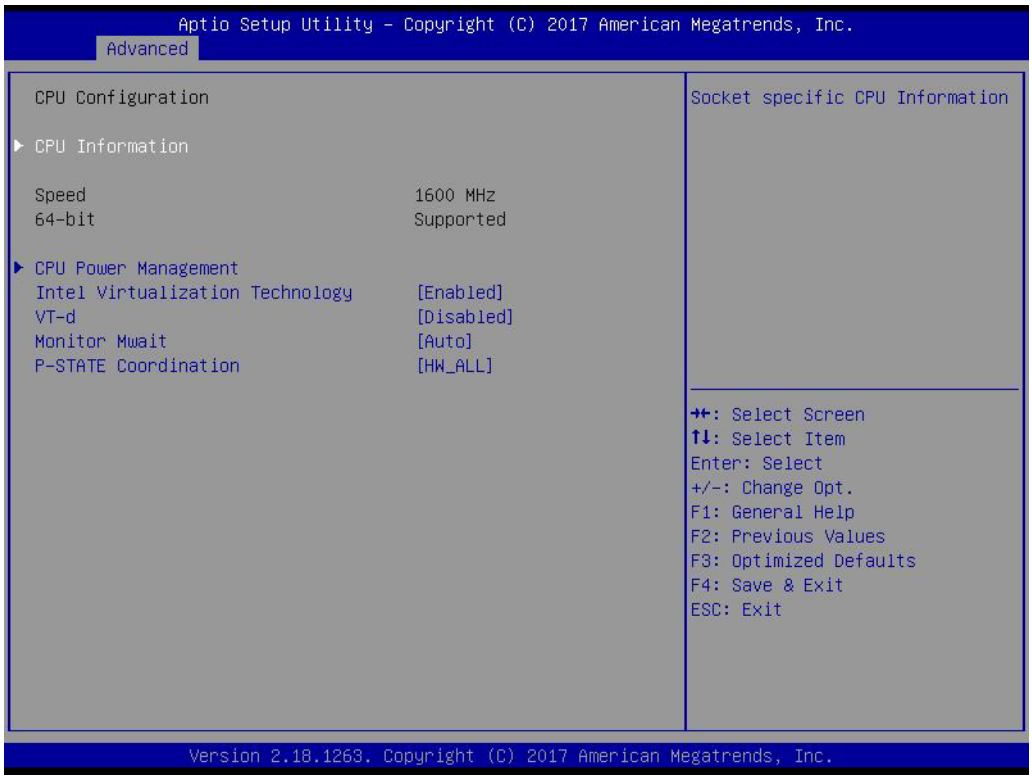
- **Wake system from S5**
  Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified.

3.1.2.5 Serial Port Console Redirection



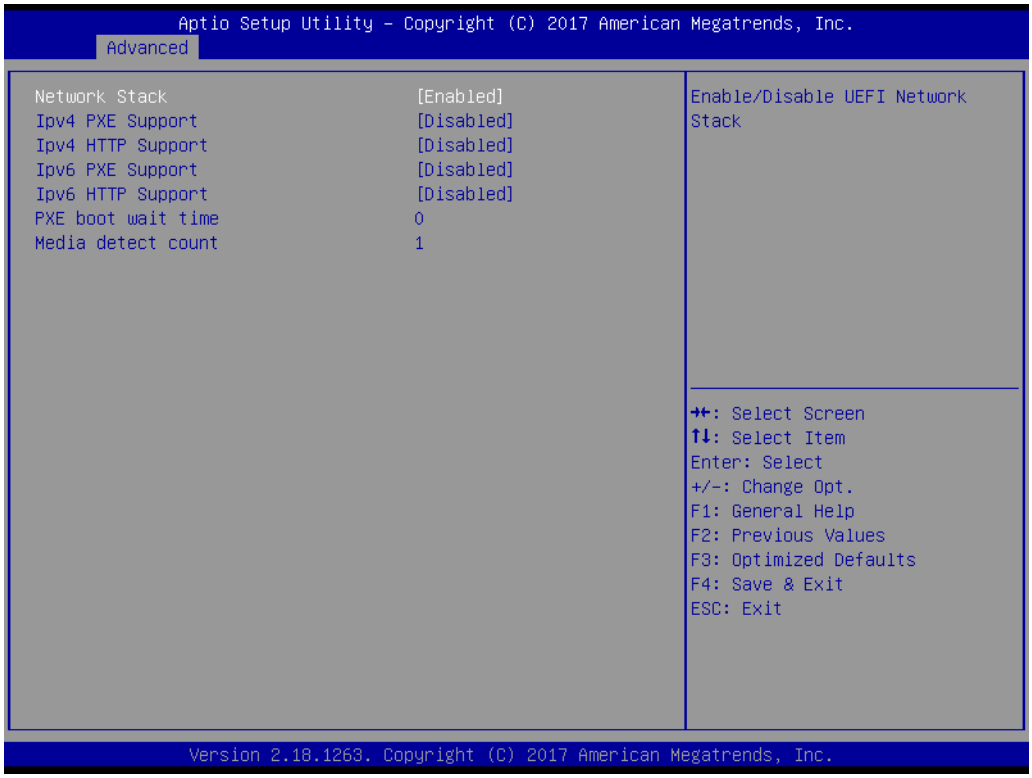
- **Console Redirection**
  This item allows users to enable or disable console redirection for Microsoft Windows Emergency Management Services (EMS).
- **Console Redirection**
  This item allows users to configuration console redirection detail settings.
- **Legacy Console Redirection**
  This item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

3.1.2.6 CPU Configuration



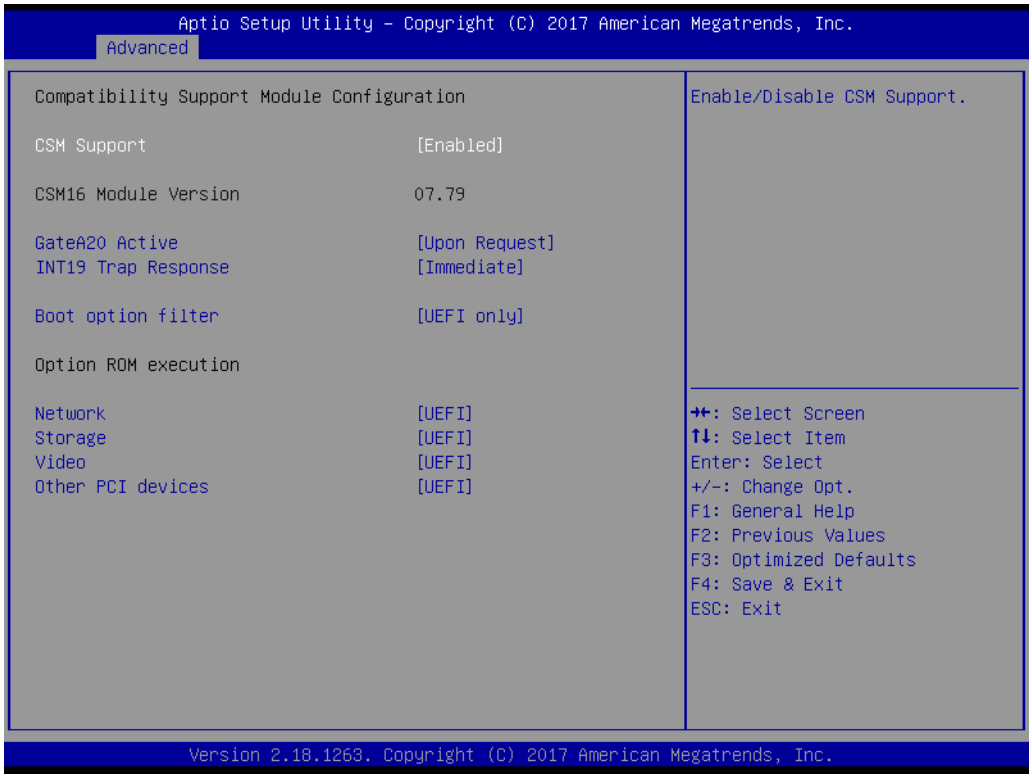
- **CPU Power Management**
  CPU Power Management options.
- **Intel Virtualization Technology**
  When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.
- **VT-d**
  Enable/Disable CPU VT-d.
- **Monitor Mwait**
  Enable/Disable Monitor Mwait.
- **P-STATE Coordination**
  Change P-STATE Coordination type.

3.1.2.7 Network Stack Configuration



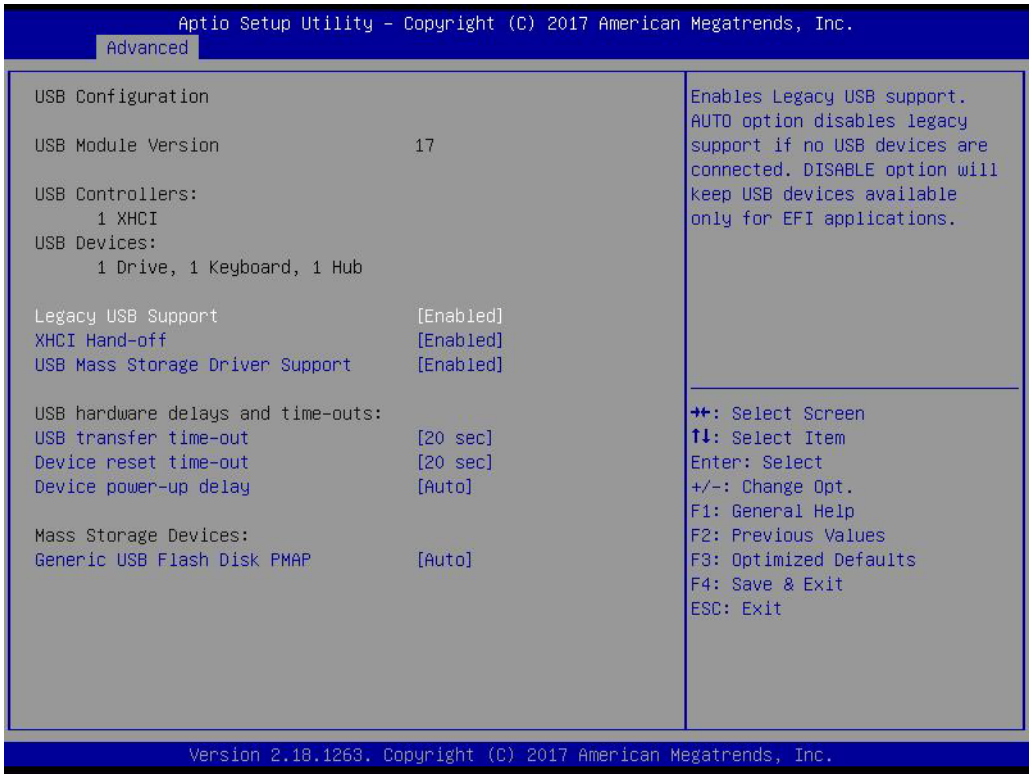
- **Network Stack**
  Enable/Disable UEFI Network Stack.
- **Ipv4 PXE Support**
  Enable Ipv4 PXE Boot Support. If disabled IPV4 PXE boot option will not be created.
- **Ipv4 HTTP Support**
  Enables Ipv4 HTTP boot support. If disabled IPV4 HTTP boot option will not be created.
- **PXE boot wait time**
  Wait time to press ESC key to abort the PXE boot.
- **Media detect count**
  Number of times presence of media will be checked.

3.1.2.8 CSM Configuration



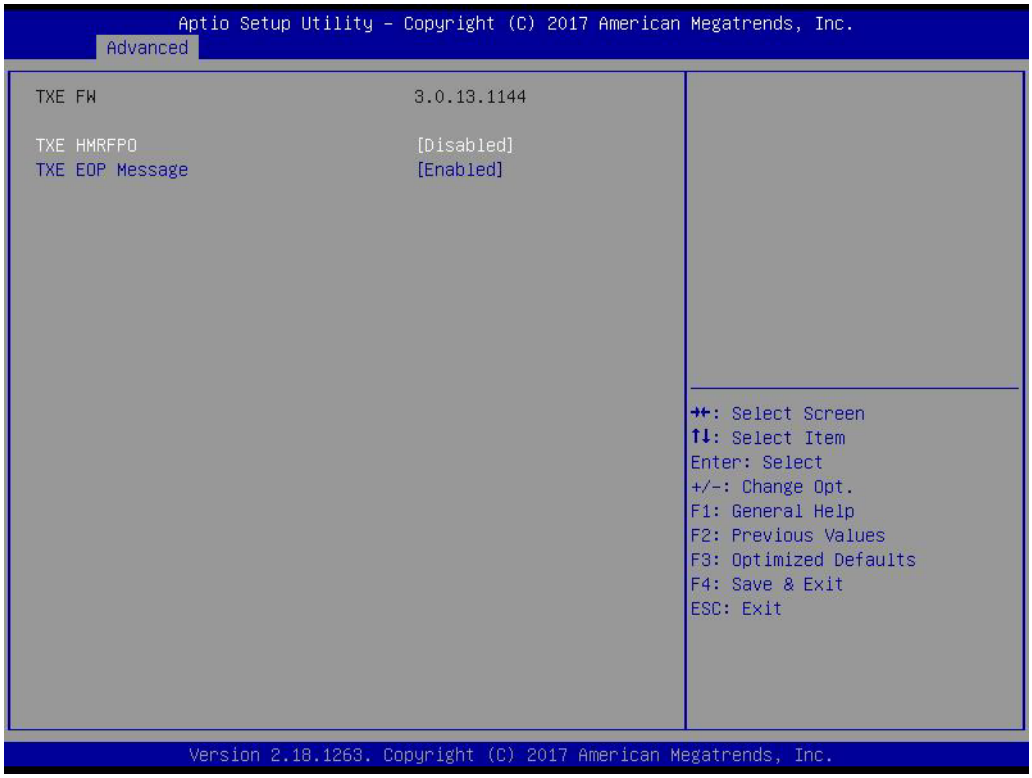
- **CSM Support**
  Enable/Disable CSM Support.
- **GateA20 Active**
  UPON REQUEST - GA20 can be disabled using BIOS services. ALWAYS - do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.
- **INT19 Trap Response**
  BIOS reaction on INT19 trapping by Option ROM: IMMEDIATE - execute the trap right away; POSTPONED - execute the trap during legacy boot.
- **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.

3.1.2.9 USB Configuration



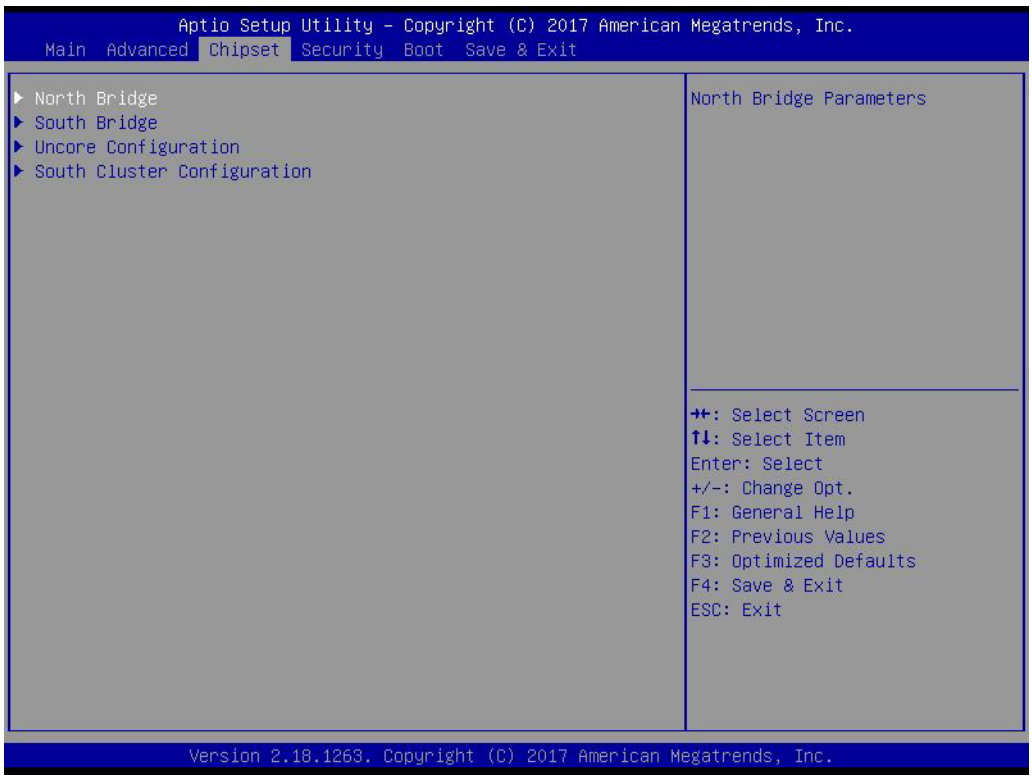
- **Legacy USB Support**
  Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
- **XHCI Hand-off**
  This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
- **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.

3.1.2.10 Security Configuration



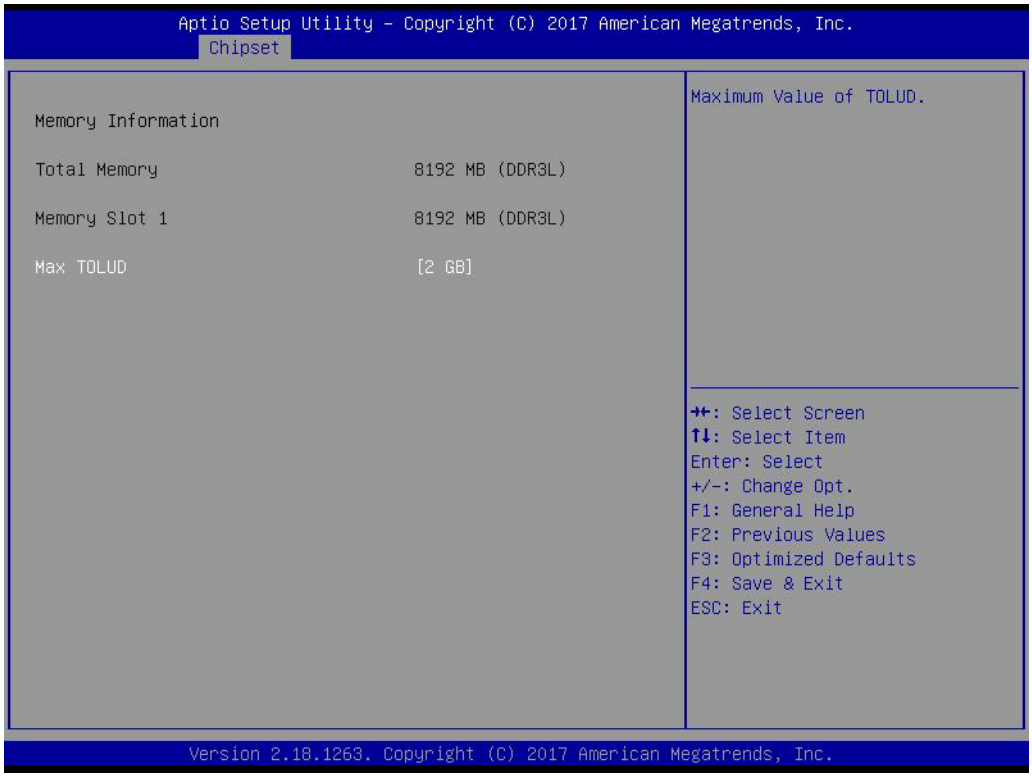
- **TXE HMRFPO Disable**
- **TXE EOP Message**
  Send EOP Message Before Enter OS

3.1.3 Chipset Configuration



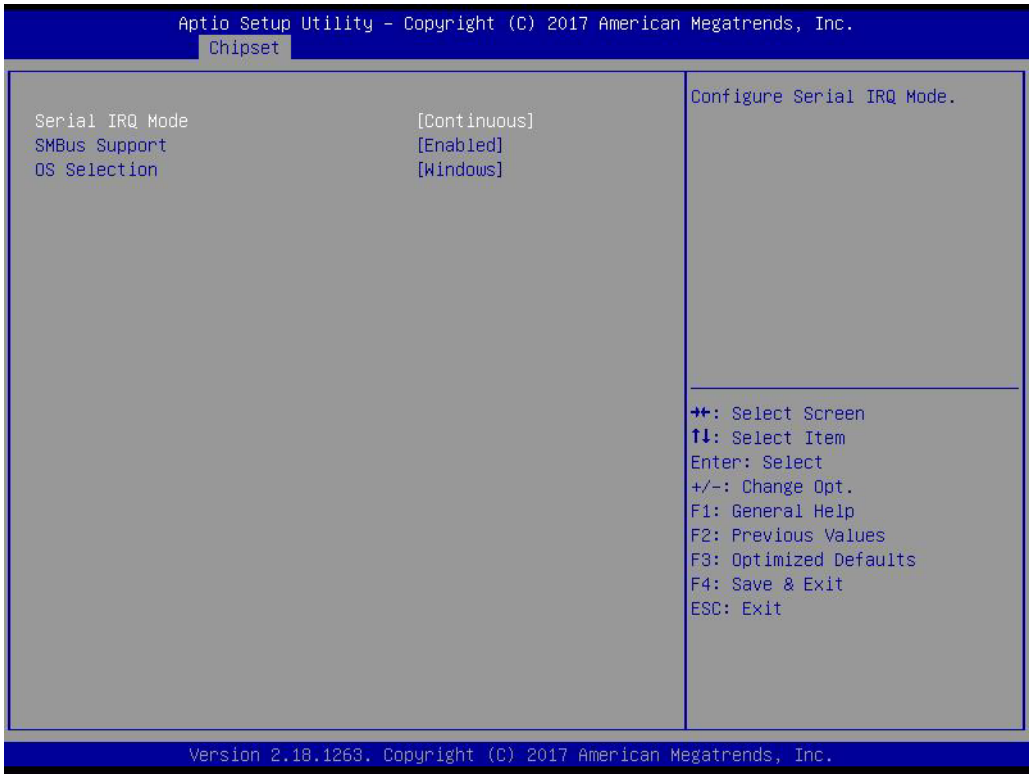
- **North Bridge**
  Details for North Bridge items.
- **South Bridge**
  Details for South Bridge items.
- **Uncore Configuration**
  Details for Uncore Configuration.
- **South Cluster Configuration**
  Details for South Cluster Configuration.

3.1.3.1 North Bridge



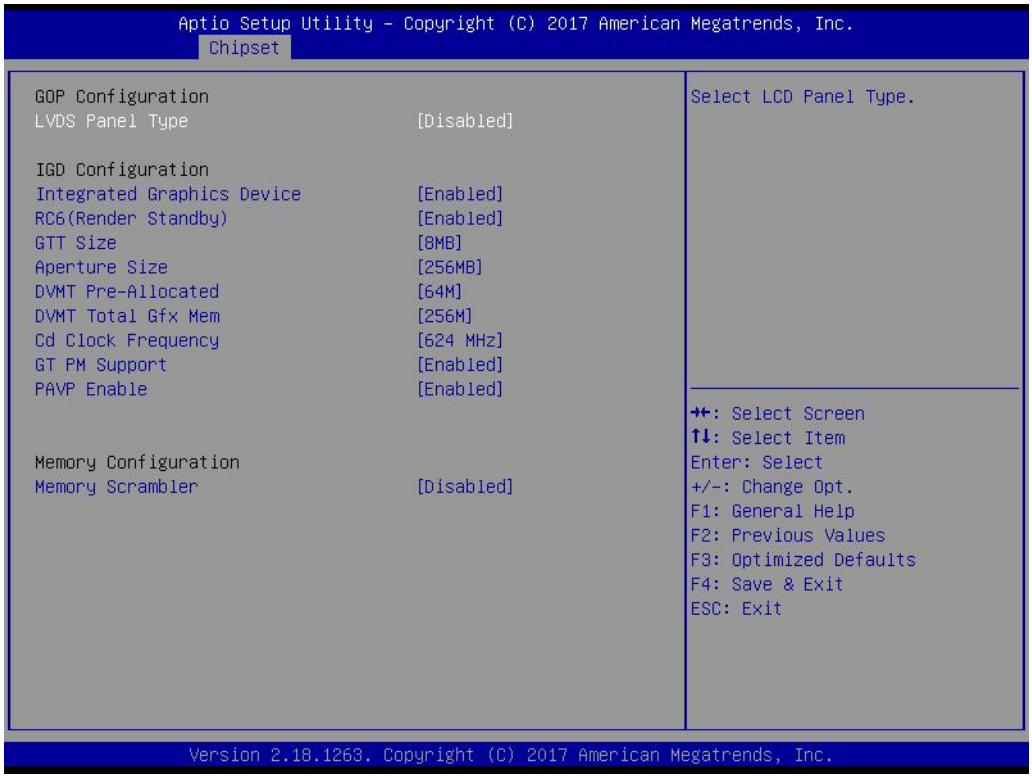
- **Max TOLUD**
  Maximum Value of TOLUD.

3.1.3.2 South Bridge



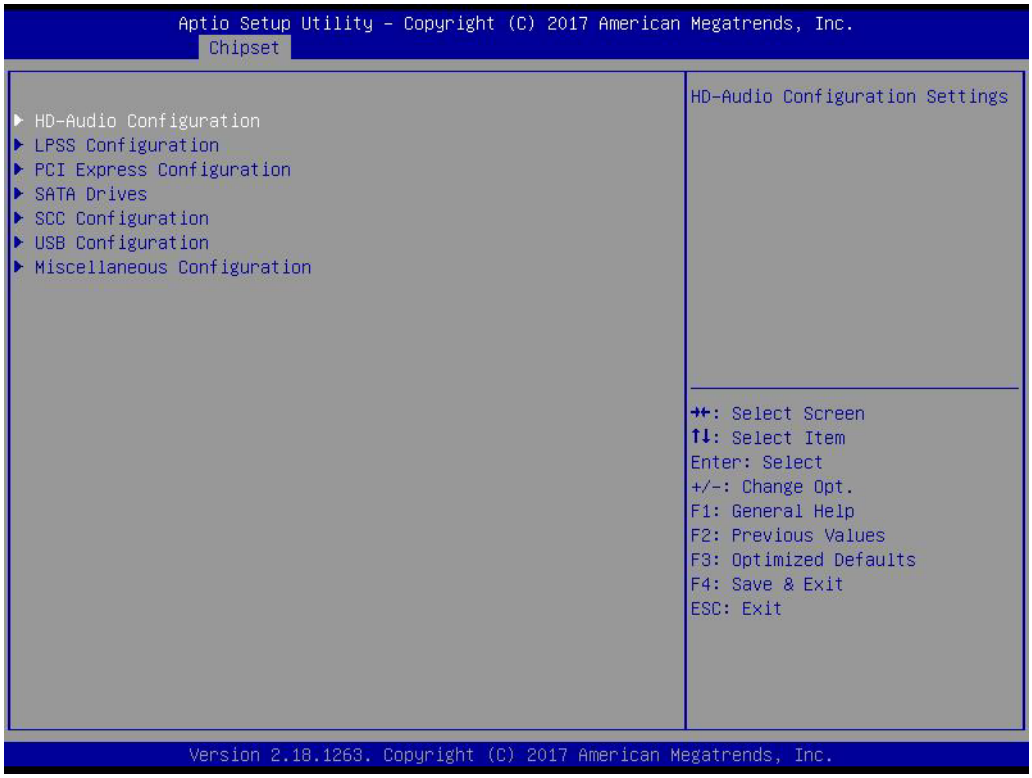
- **Serial IRQ Mode**
  Configure Serial IRQ Mode.
- **SMBus Support**
  Enable/Disable SMBus Support.
- **OS Selection**
  Select the target OS.

3.1.3.3 Uncore Configuration



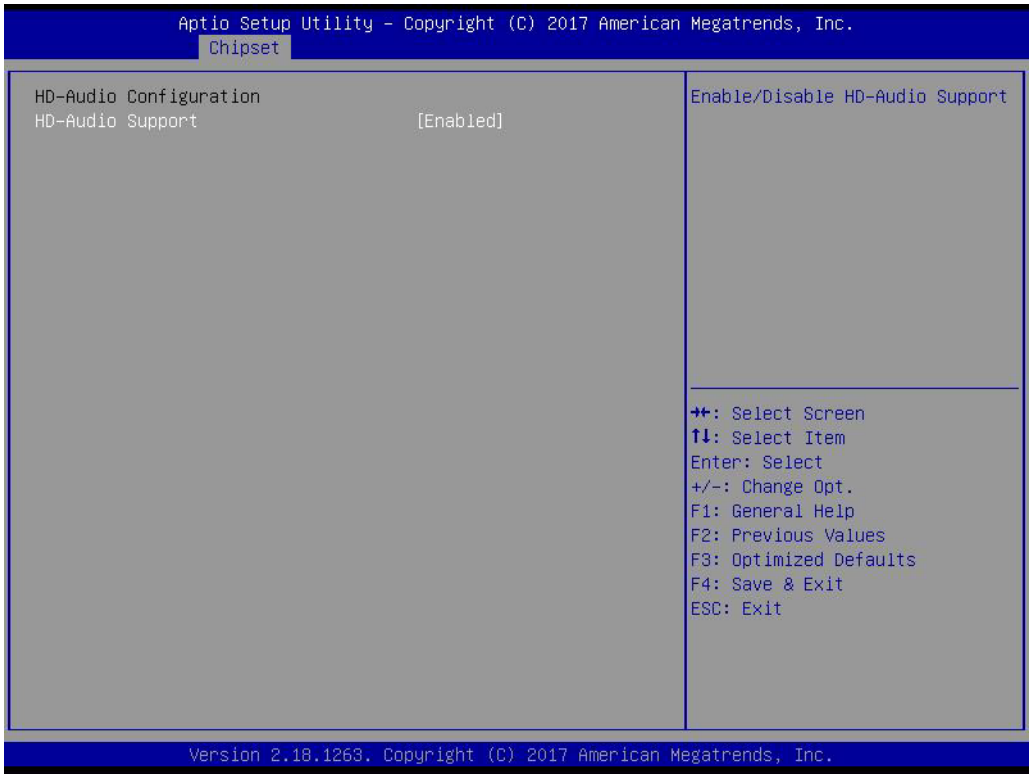
- **LVDS Panel Type**
  Select LCD Panel Type.
- **Integrated Graphics Device**
  Enable: Enable Integrated Graphics Device (IGD) when selected as the Primary Video Adaptor. Disable : Always disable IGD.
- **RC6 Render Standby)**
  Check to enable render standby support.
- **GTT Size**
  Select the GTT Size
- **Aperture Size**
  Select the Aperture Size.
- **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.
- **Cd Clock Frequency**
  Select the highest Cd Clock frequency supported by the platform.
- **GT PM Support**
  Enable/Disable GT PM Support.
- **PAVP Enable**
  Enable/Disable PAVP.
- **Memory Scrambler**
  Enable/Disable Memory Scrambler support.

3.1.3.4 South Cluster Configuration



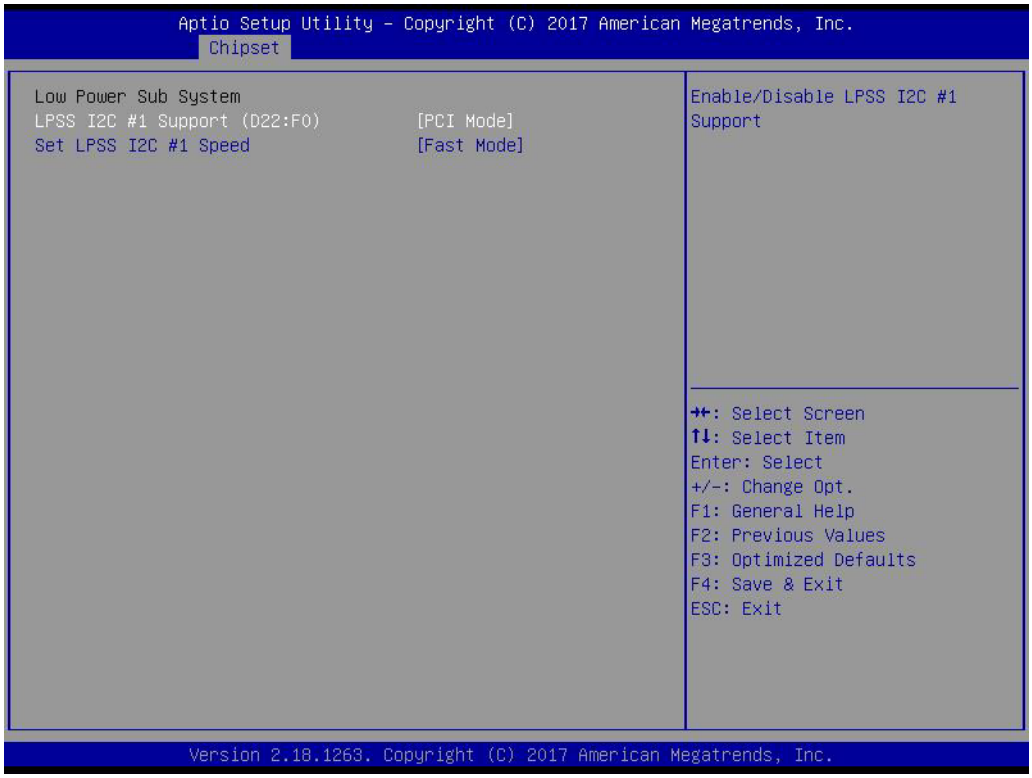
- **HD-Audio Configuration**
  HD-Audio Configuration Settings.
- **LPSS Configuration**
  LPSS Configuration Settings.
- **PCI Express Configuration**
  PCI Express Configuration Settings.
- **SATA Drives**
  Press <Enter> to select the SATA Device Configuration Setup options.
- **SCC Configuration**
  SCC Configuration Settings.
- **USB Configuration**
  USB Configuration Settings.
- **Miscellaneous Configuration**
  Enable/Disable Misc. Features.

3.1.3.4.1 HD-Audio Configuration



- **HD-Audio Support**
  Enable/Disable HD-Audio Support.

3.1.3.4.2 LPSS Configuration

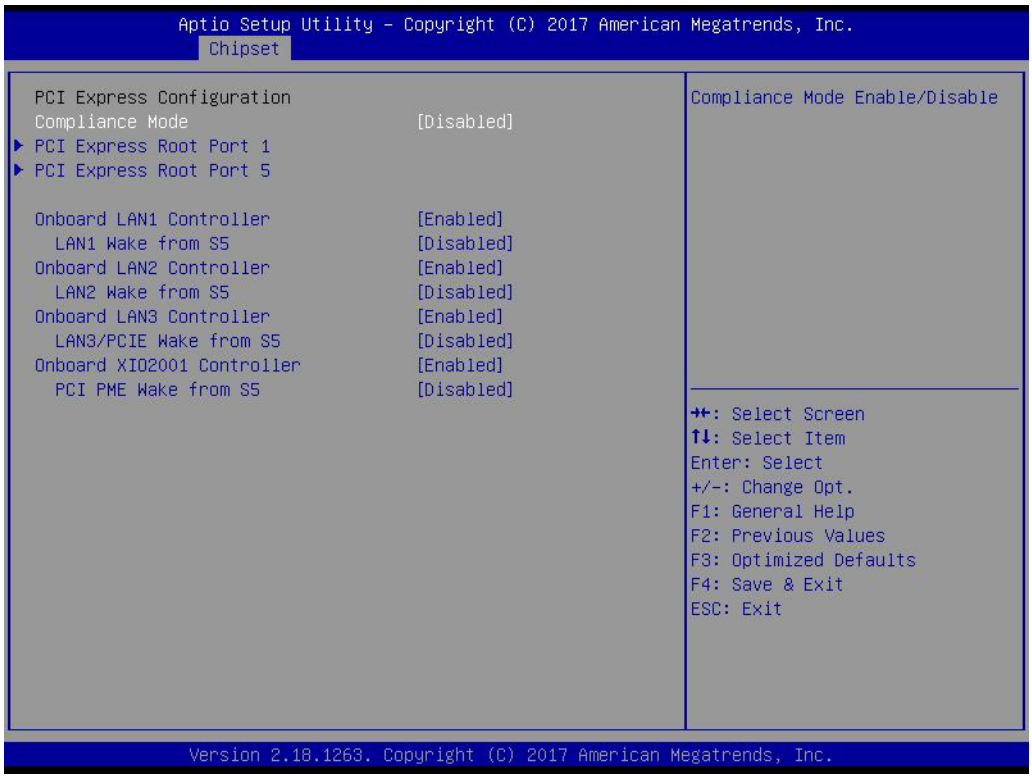


- **LPSS I2C #1 Support (D22:F0)**

Enable/Disable LPSS I2C #1 Support.

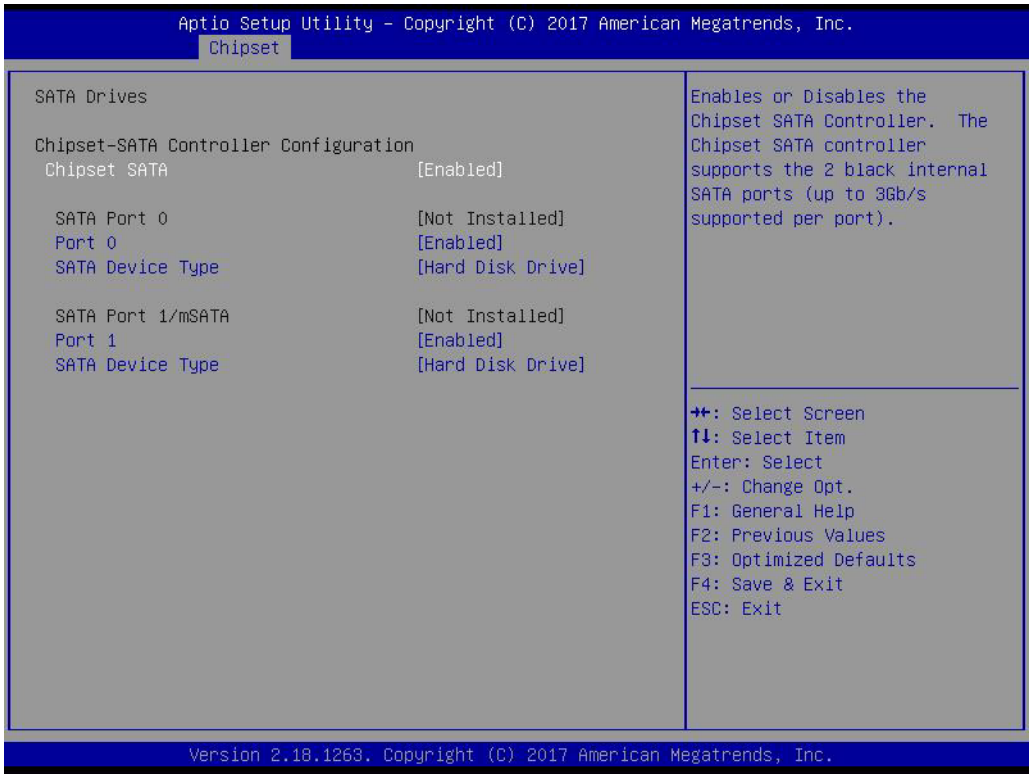
- **Set LPSS I2C #1 Speed**
  Select LPSS I2C #1 Speed.

3.1.3.4.3 PCI Express Configuration



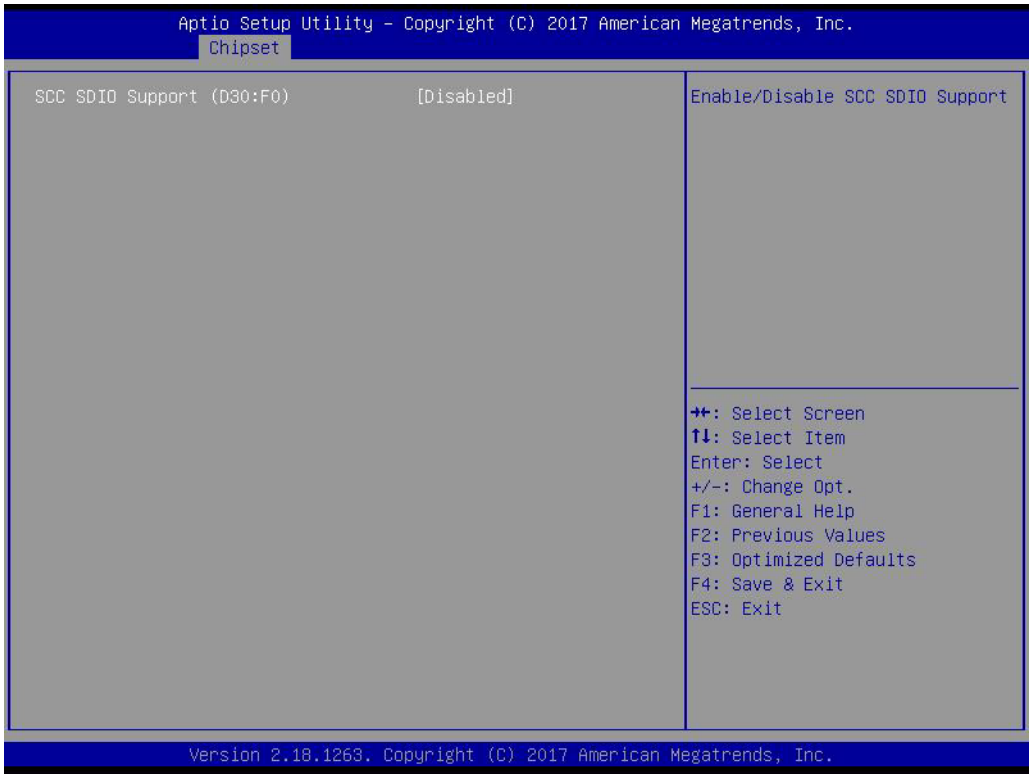
- **Compliance Mode**
  Compliance Mode Enable/Disable.
- **PCI Express Root Port 1 / 5**
  Control the PCI Express Root Port.
- **Onboard LAN1/LAN2/LAN3 Controller**
  Select to Enable or Disable Onboard LAN1/LAN2/LAN3 Controller.
- **LAN Option ROM**
  Enabled / Disabled Onboard LAN's PXE option ROM.
- **Onboard XIO2001 Controller**
  Select to Enable or Disable Onboard PCI-to-PCI Bridge.
- **PCI PME Wake from S5**
  Enable or disable PCI PME to wake the system from S5.

3.1.3.4.4 SATA Drives



- **Chipset SATA**
  Enable or Disable the Chipset SATA Controller.

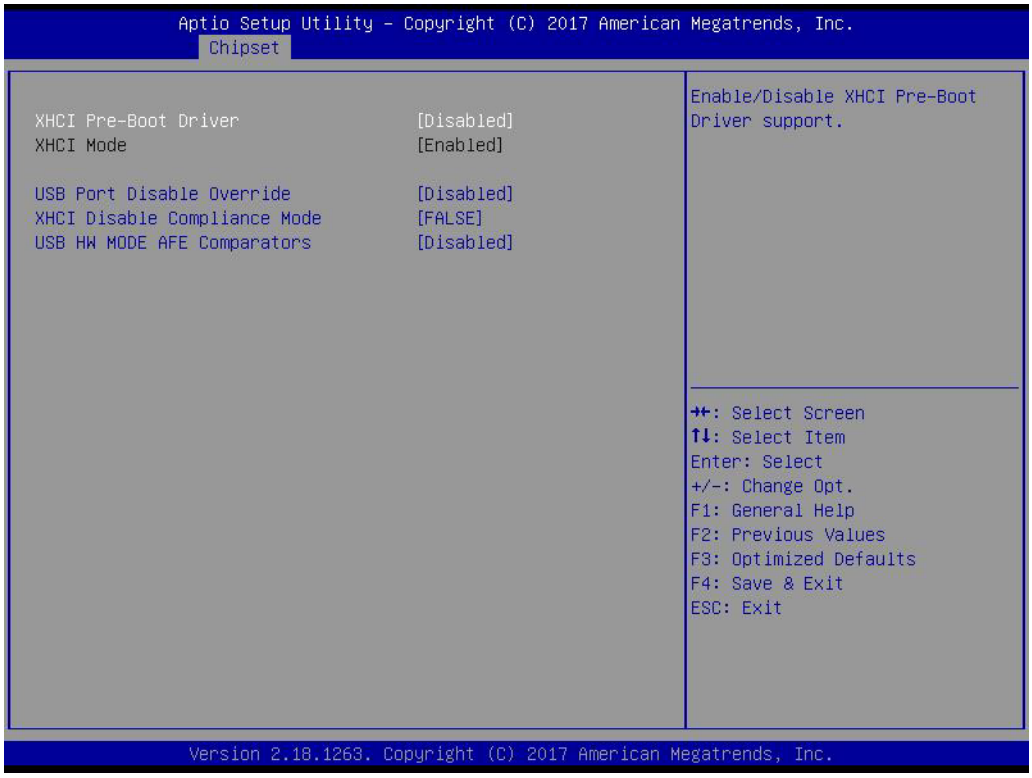
3.1.3.4.5 SCC Configuration



- **SCC SDIO Support (D30:F0)**

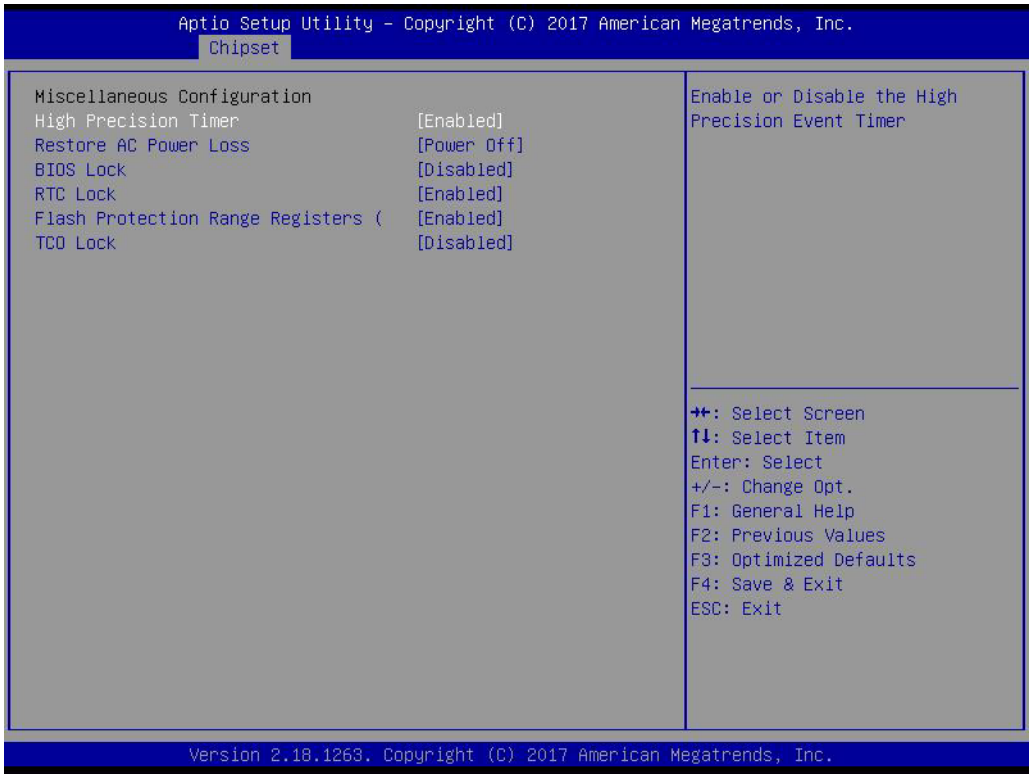
Enable/Disable SCC SDIO Support.

3.1.3.4.6 USB Configuration



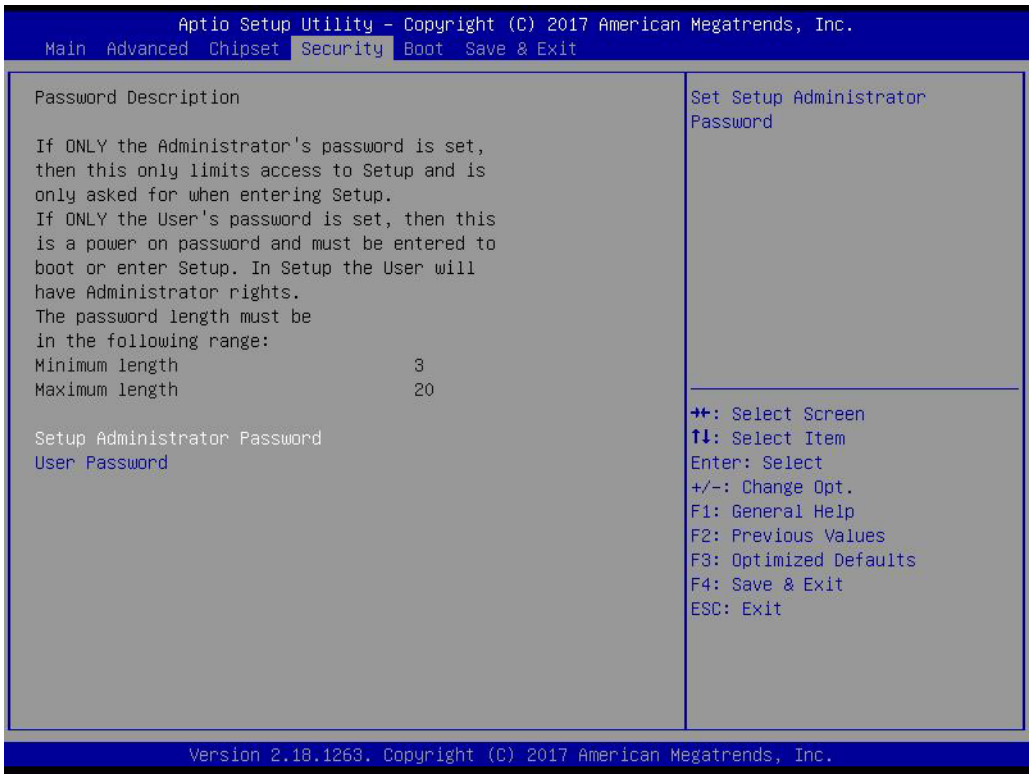
- **XHCI Pre-Boot Driver**
  Enable/Disable XHCI Pre-Boot Driver Support.
- **USB Port Disable Override**
  Selectively Enable/Disable corresponding USB port from reporting a Device Connection to the controller.
- **XHCI Disable Compliance Mode**
  Options to disable XHCI Link Compliance Mode.
- **USB HW MODE AFE Comparators**
  Enable/Disable USB HW MODE AFE Comparators.

3.1.3.4.7 Miscellaneous Configuration



- **High Precision Timer**
  Enable or Disable the High Precision Timer.
- **Restore AC Power Loss**
  Specify what state to go to when power is re-applied after a power failure (G3 state).
- **BIOS Lock**
  Enable/Disable the BIOS Lock Enable feature.
- **RTC Lock**
  Enable or disable bytes 38h-3Fh in the upper and lower 128-byte bank of RTC RAM lockdown.
- **Flash Protection Range Registers**
  Enable/Disable the SC BIOS Lock Enable feature.
- **TCO SMI Lock**
  Enable TCO and Lock Down TCO.

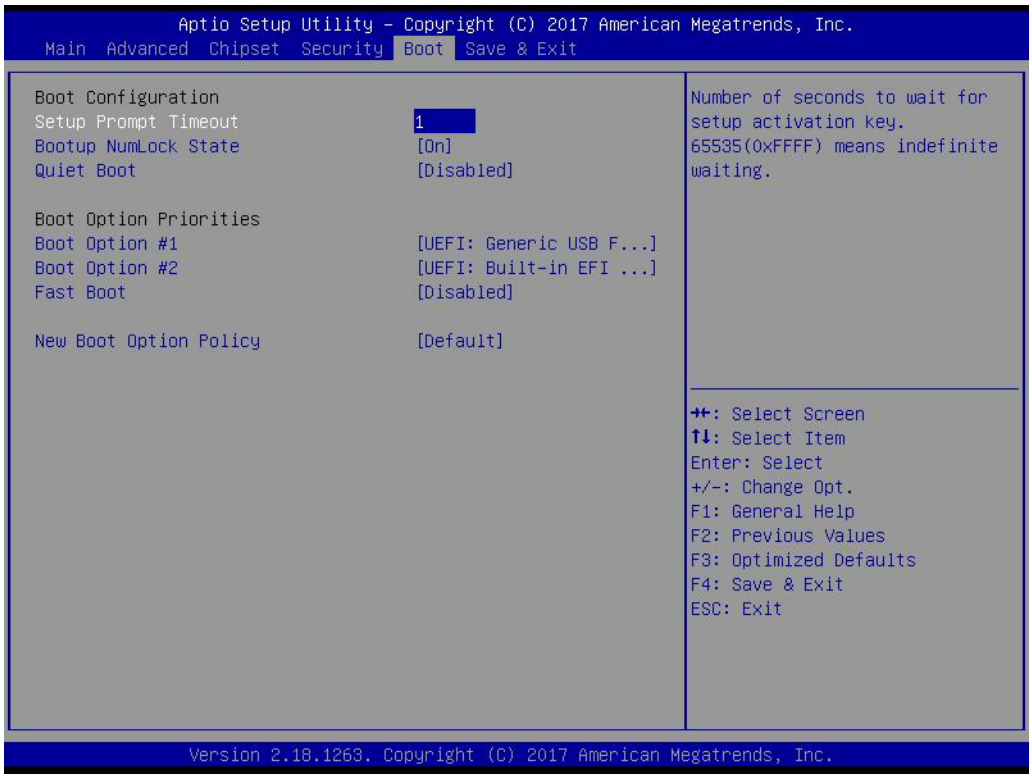
3.1.4 Security



Select Security Setup from the PCM-9563 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>:

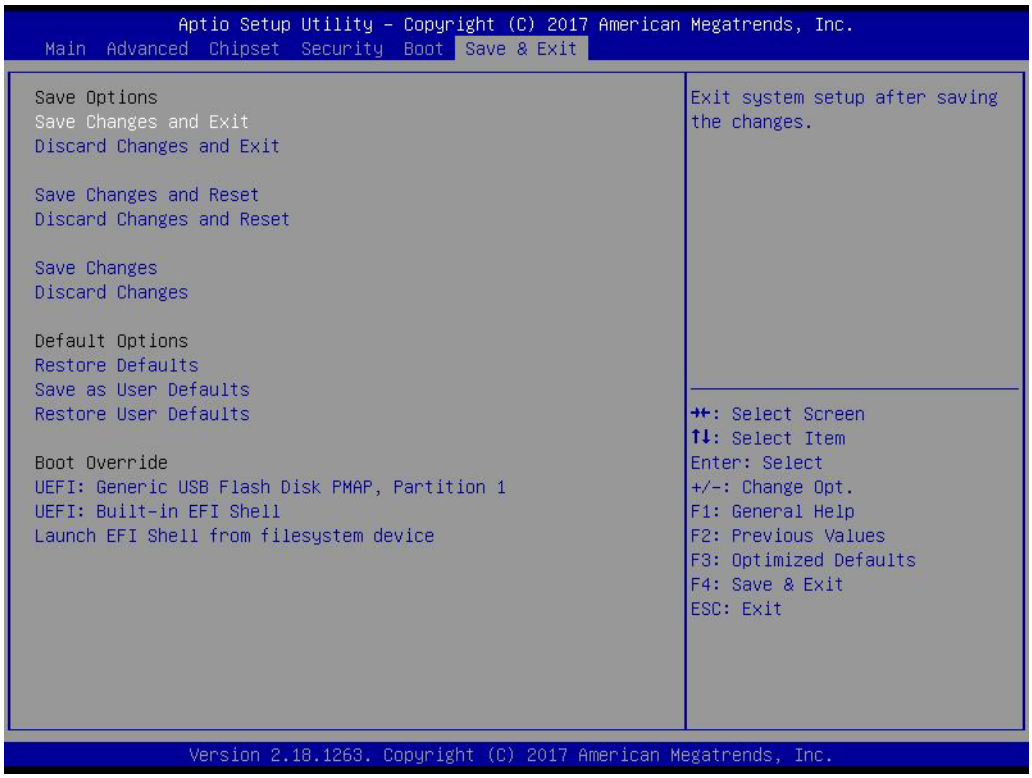
- **Change Administrator / User Password**
  Select this option and press <ENTER> to access the sub menu, and then type in the password.

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.
- **Fast Boot**
  Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.
- **New Boot Option Policy**
  Controls the placement of newly detected UEFI boot options.

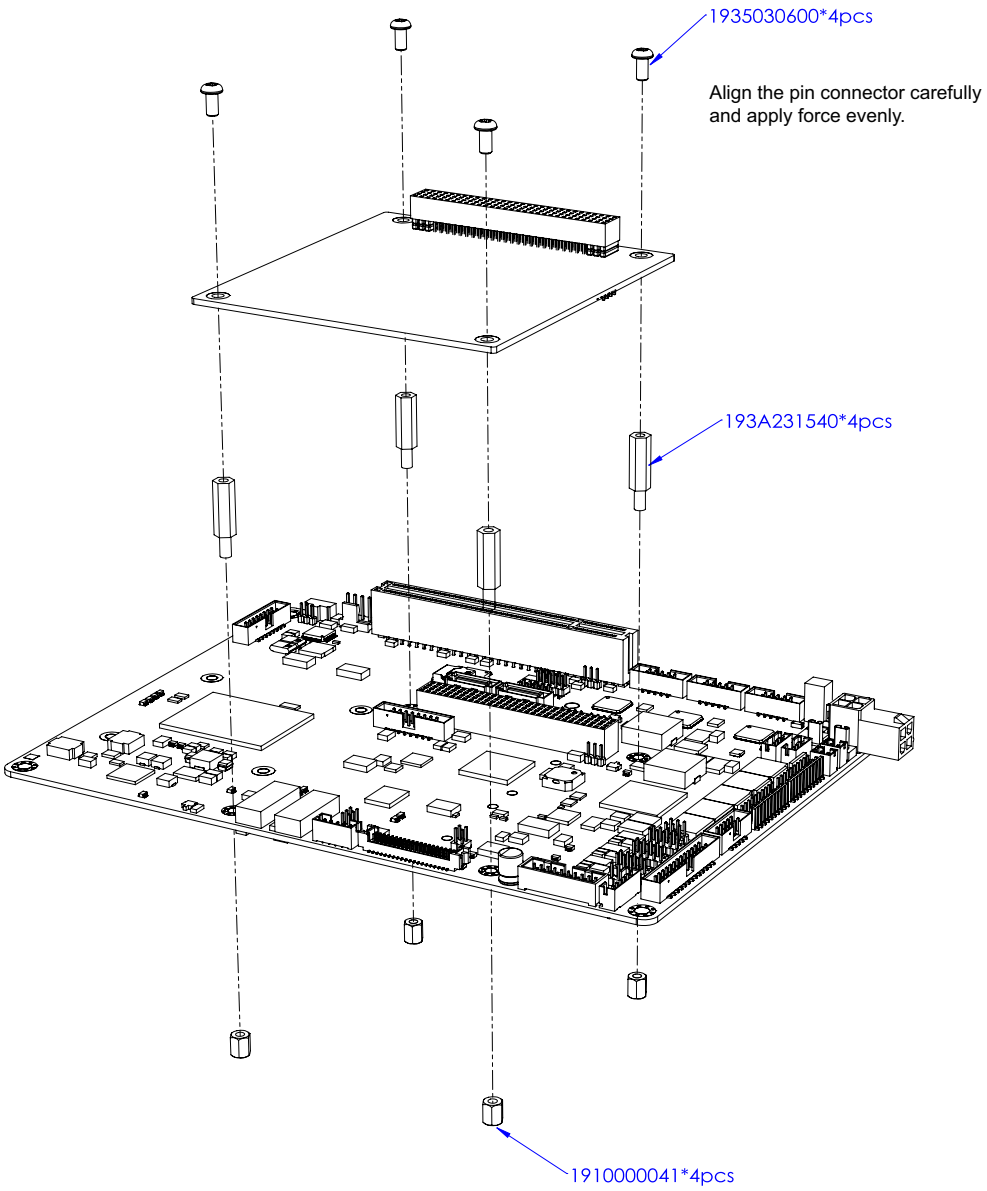
3.1.6 Save & Exit

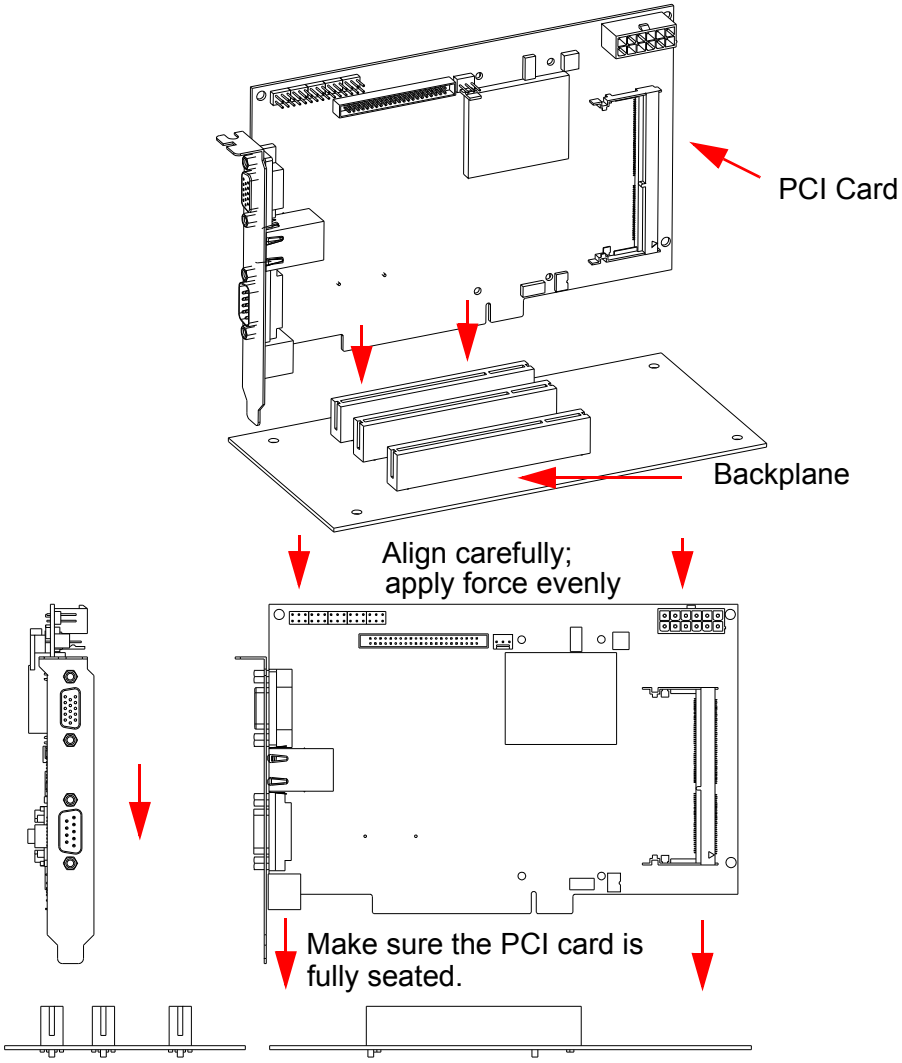


- **Save Changes and Exit**
  This item allows you to exit system setup after saving the changes.
- **Discard Changes and Exit**
  This item allows you to exit system setup without saving any changes.
- **Save Changes and Reset**
  This item allows you to reset the system after saving the changes.
- **Discard Changes and Reset**
  This item allows you to rest 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.

Chapter 4

Extension I/O Installation


1935030600*4pcs
Align the pin connector carefully
and apply force evenly.
193A231540*4pcs
1910000041*4pcs


PCI Card
Backplane
Align carefully;
apply force evenly
Make sure the PCI card is
fully seated.

Appendix A

Pin Assignments

CN1	**12V Power Input**
Part Number	1655004509-01
Footprint	WF_2x2P_165_BOX_D
Description	
Pin	**Pin Name**
1	GND
2	GND
3	+12V
4	+12V

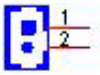
CN3	**Standby Power Input**
Part Number	1655303020
Footprint	WHL3V-2M
Description	WAFER BOX 3P 2.0mm 180D(M) DIP 2001-WS-3
Pin	**Pin Name**
1	+5VSB
2	GND
3	PSON#

CN4	**5V power output**
Part Number	1655002000
Footprint	WF_2P_100_D
Description	WAFER 2P 2.54mm 180D(M) DIP 2542-WS-2
Pin	**Pin Name**
1	+5V
2	GND

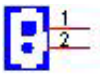
CN5	Battery
Part Number	1655902032
Footprint	WHL2V-125
Description	WAFER BOX 2P 1.25mm 180D(M) DIP 53047-0210
Pin	Pin Name
1	+3V
2	GND

CN6	SODIMMDDR3RVS_204
Part Number	1651002082-11
Footprint	DDR3_204P_AS0A626-N2
Description	
Pin	**Pin Name**

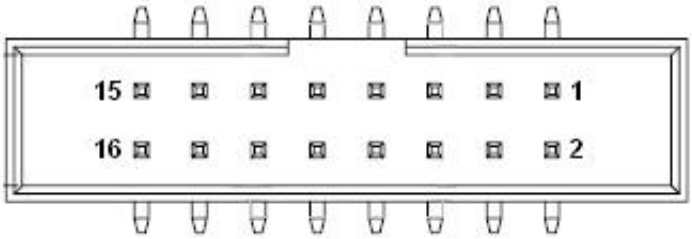
CN8	Power Switch
Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 2.0mm 180D(M) DIP A2001WV2-2P
Pin	**Pin Name**
1	PSIN
2	GND



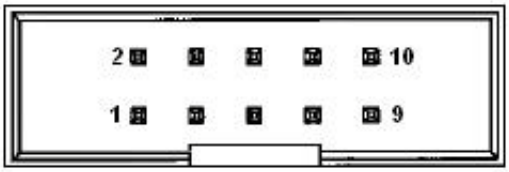
CN9	Reset
Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 2.0mm 180D(M) DIP A2001WV2-2P
Pin	**Pin Name**
1	RESET#
2	GND



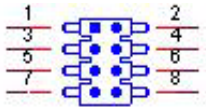
CN10	Audio
Part Number	1653208260
Footprint	HD_8x2P_79_BOX
Description	BOX HEADER 8x2P 2.00mm 180D(M) SMD 23N6850
Pin	**Pin Name**
1	SPK_R+
2	SPK_R-
3	SPK_L+
4	SPK_L-
5	LOUTR
6	LOUTL
7	GND
8	GND
9	LINR
10	LINL
11	GND
12	GND
13	NC
14	MICR
15	MICL
16	GND



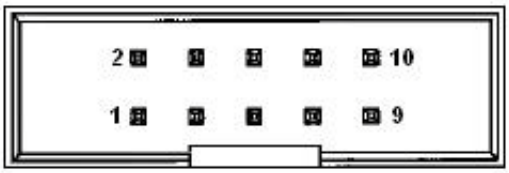
CN11	LAN1
Part Number	1653205260
Footprint	HD_5x2P_79_BOX
Description	BOX HEADER 5x2P 2.0mm 180D(M) SMD 23N6850
Pin	**Pin Name**
1	GND
2	GND
3	BI_DD+(GHz)
4	BI_DD-(GHz)
5	BI_DC+(GHz)
6	BI_DC-(GHz)
7	RX+(10/100),BI_DB+(GHz)
8	RX-(10/100),BI_DB-(GHz)
9	TX+(10/100),BI_DA+(GHz)
10	TX-(10/100),BI_DA-(GHz)



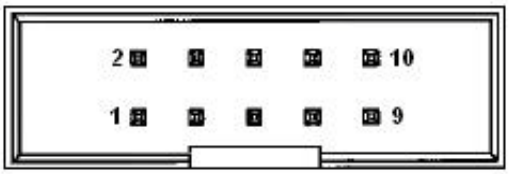
CN12	LAN1/2 LED
Part Number	1653004260
Footprint	HD_4x2_79
Description	PIN HEADER 4x2P 2.0mm 180D(M) SMD 21N22050
Pin	**Pin Name**
1	+V3.3_LAN1CON
2	GND
3	LAN1_LINK100#
4	LAN2_LINK100#
5	LAN1_ACT#
6	LAN2_ACT#
7	LAN1_LINK1000#
8	LAN2_LINK1000#



CN13	LAN2
Part Number	1653205260
Footprint	HD_5x2P_79_BOX
Description	BOX HEADER 5x2P 2.0mm 180D(M) SMD 23N6850
Pin	**Pin Name**
1	GND
2	GND
3	BI_DD+(GHz)
4	BI_DD-(GHz)
5	BI_DC+(GHz)
6	BI_DC-(GHz)
7	RX+(10/100),BI_DB+(GHz)
8	RX-(10/100),BI_DB-(GHz)
9	TX+(10/100),BI_DA+(GHz)
10	TX-(10/100),BI_DA-(GHz)



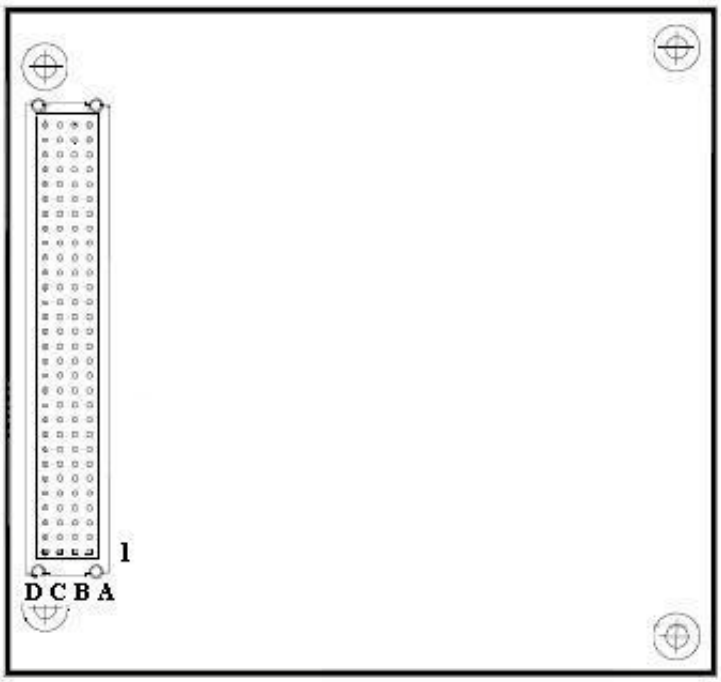
CN14	LAN3
Part Number	1653205260
Footprint	HD_5x2P_79_BOX
Description	BOX HEADER 5x2P 2.0mm 180D(M) SMD 23N6850
Pin	**Pin Name**
1	GND
2	GND
3	BI_DD+(GHz)
4	BI_DD-(GHz)
5	BI_DC+(GHz)
6	BI_DC-(GHz)
7	RX+(10/100),BI_DB+(GHz)
8	RX-(10/100),BI_DB-(GHz)
9	TX+(10/100),BI_DA+(GHz)
10	TX-(10/100),BI_DA-(GHz)



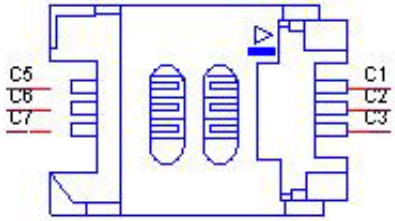
CN15	**PCI-104**
Part Number	1653130428
Footprint	PCI_PLUS_264-40303
Description	PCB SKT 30x4P 2.00mm 180D(F) DIP 264-40303-02
Pin	**Pin Name**
PA1	GND
PA2	VI/O (+5V or +3.3V)
PA3	AD05
PA4	C/BE0#
PA5	GND
PA6	AD11
PA7	AD14
PA8	+3.3V
PA9	SERR#
PA10	GND
PA11	STOP#
PA12	+3.3V
PA13	FRAME#
PA14	GND
PA15	AD18
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

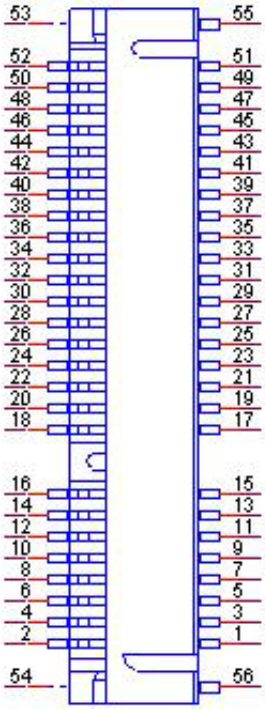


CN16	SIM
Part Number	1654010809-01
Footprint	SIM_6P_5210622-SINR03
Description	SIM card conn. 6p 2.54mm 90D(F) SMD 5210622-SINR
Pin	**Pin Name**
C1	UIM_PWR
C2	UIM_RESET
C3	UIM_CLK
C5	GND
C6	UIM_VPP
C7	UIM_DATA

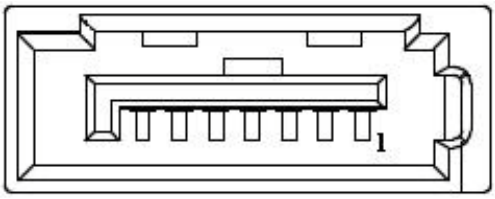


CN17	**Mini PCIE**
Part Number	1654002538
Footprint	FOX_AS0B226-S68K7F
Description	MINI PCI E 52P 6.8mm 90D SMD AS0B226-S68Q-7H
Pin	**Pin Name**
1	WAKE#
2	+3.3VSB
3	NC
4	GND
5	NC
6	+1.5V
7	NC
8	UIM_PWR
9	GND
10	UIM_DATA
11	REFCLK-
12	UIM_CLK
13	REFCLK+
14	UIM_RESET
15	GND
16	UIM_VPP
17	NC
18	GND
19	NC
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

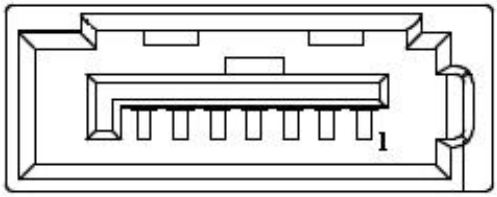
43	GND
44	NC
45	NC
46	NC
47	NC
48	+1.5V
49	NC
50	GND
51	NC
52	+3.3VSB



CN18	**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

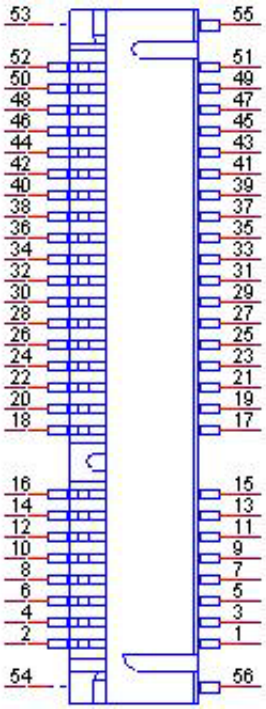


CN19	SATA
Part Number	1654004659
Footprint	SATA_7P_WATM-07DBN4A3B8UW_D
Description	Serial ATA 7P 1.27mm 180D(M) DIP WATM-07DBN4A3B8
Pin	**Pin Name**
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND



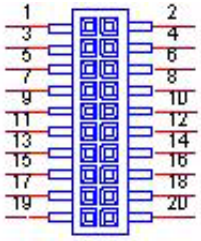
CN20	mSATA
Part Number	1654002538
Footprint	FOX_AS0B226-S68K7F
Description	MINI PCI E 52P 6.8mm 90D SMD AS0B226-S68Q-7H
Pin	**Pin Name**
1	WAKE#
2	+3.3VSB
3	NC
4	GND
5	NC
6	+1.5V
7	NC
8	UIM_PWR
9	GND
10	UIM_DATA
11	REFCLK-
12	UIM_CLK
13	REFCLK+
14	UIM_RESET
15	GND
16	UIM_VPP
17	NC
18	GND
19	NC
20	W_DISABLE#
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	GND
44	NC
45	NC
46	NC
47	NC
48	+1.5V
49	NC
50	GND
51	NC
52	+3.3VSB

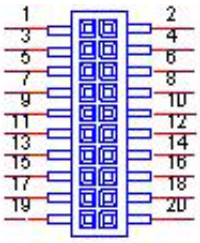


CN21	**M.2 connector symbol**
Part Number	1654011871-01
Footprint	NGFF_75P_2199230-2
Description	
Pin	**Pin Name**
1	GND
2	+3.3VSB
3	USB_D+
4	+3.3VSB
5	USB_D-
7	GND
9	SDIO_CLK
11	SDIO_CMD
13	SDIO_DATA0
15	SDIO_DATA1
17	SDIO_DATA2
18	GND
19	SDIO_DATA3
21	SDIO_WAKE#
23	SDIO_RESET#
33	GND
35	PETp0
37	PETn0
39	GND
41	PERp0
43	PERn0
45	GND
47	REFCLK+
49	REFCLK-
51	GND
52	PERESET#
54	W_DISABLE#2
55	PEWAKE#
56	W_DISABLE#1
57	GND
59	NC
61	NC
63	GND
64	NC
65	NC
67	NC
69	GND
71	NC
73	NC
75	GND

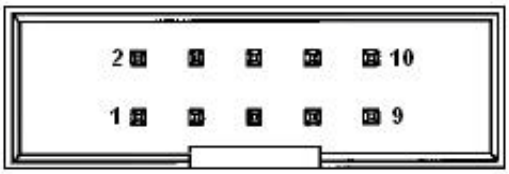
CN22	COM1/COM2
Part Number	1653004793
Footprint	HD_10x2P_79_23N685B-20M10
Description	BOX HEADER 10x2P 2.0mm 180D(M)SMD 23N685B-20M10B
Pin	**Pin Name**
1	DCD1#
2	DSR1#
3	RXD1
4	RTS1#
5	TXD1
6	CTS1#
7	DTR1#
8	RI1#
9	GND
10	GND
11	DCD2#
12	DSR2#
13	RXD2
14	RTS2#
15	TXD2
16	CTS2#
17	DTR2#
18	RI2#
19	GND
20	GND



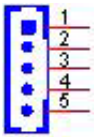
CN23	COM3/COM4
Part Number	1653004793
Footprint	HD_10x2P_79_23N685B-20M10
Description	BOX HEADER 10x2P 2.0mm 180D(M)SMD 23N685B-20M10B
Pin	**Pin Name**
1	DCD3#
2	DSR3#
3	RXD3
4	RTS3#
5	TXD3
6	CTS3#
7	DTR3#
8	RI3#
9	GND
10	GND
11	DCD4#
12	DSR4#
13	RXD4
14	RTS4#
15	TXD4
16	CTS4#
17	DTR4#
18	RI4#
19	GND
20	GND



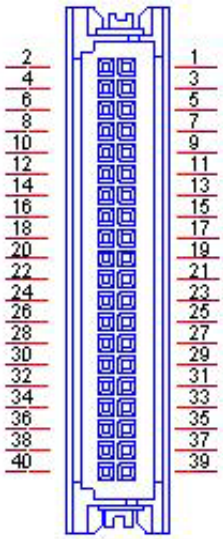
CN24	COM5/COM6
Part Number	1653205260
Footprint	HD_5x2P_79_BOX
Description	BOX HEADER 5x2P 2.0mm 180D(M) SMD 23N6850
Pin	**Pin Name**
1	COM5_422_RXD-
2	COM6_422_RXD-
3	COM5_422_RXD+
4	COM6_422_RXD+
5	COM5_485-422_TXD+
6	COM6_485-422_TXD+
7	COM5_485-422_TXD-
8	COM6_485-422_TXD-
9	GND
10	GND



CN25	Inverter Power Output
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

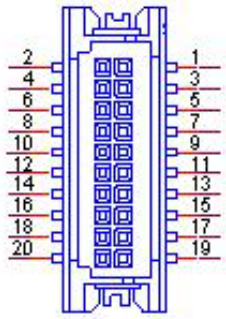


CN26	**48 bits LVDS Panel**
Part Number	1653920200
Footprint	SPH20X2
Description	B/B Conn. 40P 1.25mm 90D SMD DF13-40DP-1.25V(91)
Pin	**Pin Name**
1	+5V or +3.3V
2	+5V or +3.3V
3	GND
4	GND
5	+5V or +3.3V
6	+5V or +3.3V
7	LVDS0_D0-
8	LVDS1_D0-
9	LVDS0_D0+
10	LVDS1_D0+
11	GND
12	GND
13	LVDS0_D1-
14	LVDS1_D1-
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	VCON

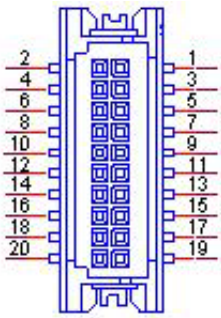


CN27	VGA
Part Number	1653208260
Footprint	HD_8x2P_79_BOX
Description	BOX HEADER 8x2P 2.00mm 180D(M) SMD 23N6850
Pin	**Pin Name**
1	RED
2	NC
3	GREEN
4	GND
5	BLUE
6	NC
7	NC
8	DDAT
9	GND
10	HSYNC
11	GND
12	VSYNC
13	GND
14	DCLK
15	GND
16	NC

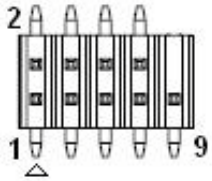
CN28	HDMI
Part Number	1653910261
Footprint	SPH10X2
Description	B/B Conn 10x2P 1.25mm 180D(M)SMD DF13-20DP-1.25V
Pin	**Pin Name**
1	GND
2	GND
3	TMDS Data2–
4	TMDS Clock–
5	TMDS Data2+
6	TMDS Clock+
7	GND
8	TMDS SDA
9	TMDS Data1–
10	TMDS SCL
11	TMDS Data1+
12	NC
13	GND
14	NC
15	TMDS Data0–
16	GND
17	TMDS Data0+
18	Hot Plug Detect
19	+5V
20	+5V



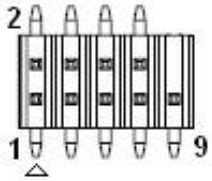
CN29	eDP
Part Number	1653910261
Footprint	SPH10X2
Description	B/B Conn 10x2P 1.25mm 180D(M)SMD DF13-20DP-1.25V
Pin	**Pin Name**
1	GND
2	GND
3	D0-
4	D3-
5	D0+
6	D3+
7	GND
8	NC
9	D1-
10	NC
11	D1+
12	AUX-
13	GND
14	AUX+
15	D2-
16	GND
17	D2+
18	Hot Plug Detect
19	+5V or +3.3V
20	+5V or +3.3V



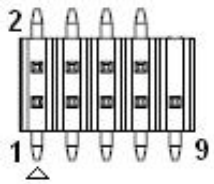
CN30	Internal USB
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2x5P 2.0mm 180D(M) SMD 21N22050
Pin	**Pin Name**
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND



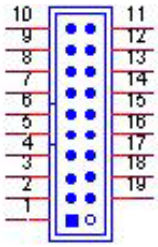
CN31	Internal USB
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2x5P 2.0mm 180D(M) SMD 21N22050
Pin	**Pin Name**
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND



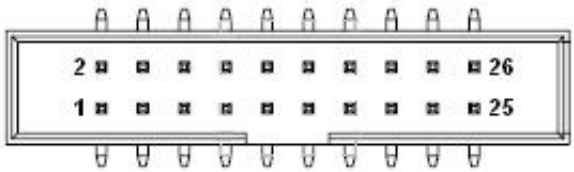
CN32	Internal USB
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2x5P 2.0mm 180D(M) SMD 21N22050
Pin	**Pin Name**
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND



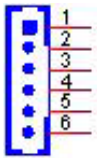
CN33	Internal USB 3.0
Part Number	1653004847
Footprint	HD_10x2P_79_BOX_D_52X-80
Description	
Pin	**Pin Name**
1	+5V
2	A_SSRX-
3	A_SSRX+
4	GND
5	A_SSTX-
6	A_SSTX+
7	GND
8	A_D-
9	A_D+
10	OC#
11	B_D+
12	B_D-
13	GND
14	B_SSTX+
15	B_SSTX-
16	GND
17	B_SSRX+
18	B_SSRX-
19	+5V



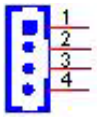
CN34	LPT
Part Number	1653213260
Footprint	HD_13x2P_79_BOX
Description	BOX HEADER 13*2P 180D(M) 2.0mm SMD
Pin	**Pin Name**
1	STROBE#
2	AUTOFEED#
3	D0
4	ERROR#
5	D1
6	INIT#
7	D2
8	SLCT IN#
9	D3
10	GND
11	D4
12	GND
13	D5
14	GND
15	D6
16	GND
17	D7
18	GND
19	ACK#
20	GND
21	BUSY
22	GND
23	PE
24	GND
25	SLCT
26	NC



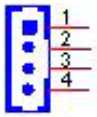
CN35	PS2
Part Number	1655306020
Footprint	WHL6V-2M
Description	WAFER BOX 6P 2.0mm 180D(M) DIP A2001WV2-6P
Pin	**Pin Name**
1	KBCLK
2	KBDAT
3	MSCLK
4	GND
5	+5V
6	MSDAT



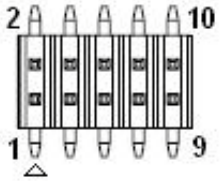
CN36	I2C
Part Number	1655304020
Footprint	WF_4P_79_BOX_R1_D
Description	WAFER BOX 2.0mm 4P 180D(M) W/LOCK A2001WV2-4P
Pin	**Pin Name**
1	GND
2	I2C_DAT
3	I2C_CLK
4	+5V



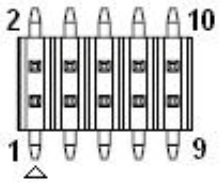
CN37	SMBus
Part Number	1655304020
Footprint	WF_4P_79_BOX_R1_D
Description	WAFER BOX 2.0mm 4P 180D(M) W/LOCK A2001WV2-4P
Pin	**Pin Name**
1	GND
2	SMB_DAT
3	SMB_CLK
4	+5V



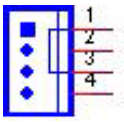
CN38	GPIO
Part Number	1653005261
Footprint	HD_5x2P_79
Description	PIN HEADER 5x2P 2.0mm 180D(M) SMD 21N22050
Pin	**Pin Name**
1	+5V
2	GPIO4
3	GPIO0
4	GPIO5
5	GPIO1
6	GPIO6
7	GPIO2
8	GPIO7
9	GPIO3
10	GND



CN39	GPIO8-15
Part Number	1653005261
Footprint	HD_5x2P_79
Description	PIN HEADER 5x2P 2.0mm 180D(M) SMD 21N22050
Pin	**Pin Name**
1	+5V
2	GPIO12
3	GPIO8
4	GPIO13
5	GPIO9
6	GPIO14
7	GPIO10
8	GPIO15
9	GPIO11
10	GND



CN40	Smart FAN
Part Number	1655004347
Footprint	WF_4P_100_D_744-81-04TW30
Description	
Pin	**Pin Name**
1	GND
2	+12V
3	SPEED
4	PWM

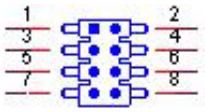


CN45	PCI Slot
Part Number	1654002099
Footprint	SL-PCI
Description	SLOT 60x2P 180D(F) DIP EH06001-HHW-DF
Pin	**Pin Name**
A1	NC
A2	+12V
A3	NC
A4	NC
A5	+5V
A6	INTA#
A7	INTC#
A8	+5V
A9	GNT#
A10	VI/O (+5V or +3.3V)
A11	GNT#
A12	GND
A13	GND
A14	+3.3VSB
A15	RESET#
A16	VI/O (+5V or +3.3V)
A17	GNT#
A18	GND
A19	PME#
A20	AD30
A21	+3.3V
A22	AD28
A23	AD26
A24	GND
A25	AD24
A26	IDSEL
A27	+3.3V

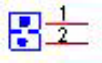
A28	AD22
A29	AD20
A30	GND
A31	AD18
A32	AD16
A33	+3.3V
A34	FRAME#
A35	GND
A36	TRDY#
A37	GND
A38	STOP#
A39	+3.3V
A40	NC
A41	NC
A42	GND
A43	PAR
A44	AD15
A45	+3.3V
A46	AD13
A47	AD11
A48	GND
A49	AD09
A52	C/BE0#
A53	+3.3V
A54	AD06
A55	AD04
A56	GND
A57	AD02
A58	AD00
A59	VI/O (+5V or +3.3V)
A60	NC
A61	+5V
A62	+5V
B1	-12V
B2	NC
B3	GND
B4	NC
B5	+5V
B6	+5V
B7	INTB#
B8	INTD#
B9	NC
B10	REQ#
B11	NC
B12	GND
B13	GND
B14	CLK
B15	GND

B16	CLK
B17	GND
B18	REQ#
19	VI/O (+5V or +3.3V)
B20	AD31
B21	AD29
B22	GND
B23	AD27
B24	AD25
B25	+3.3V
B26	C/BE3#
B27	AD23
B28	GND
B29	AD21
B30	AD19
B31	+3.3V
B32	AD17
B33	C/BE2#
B34	GND
B35	IRDY#
B36	+3.3V
B37	DEVSEL#
B38	GND
B39	LOCK#
B40	PERR#
B41	+3.3V
B42	SERR#
B43	+3.3V
B44	C/BE1#
B45	AD14
B46	GND
B47	AD12
B48	AD10
B49	GND
B52	AD08
B53	AD07
B54	+3.3V
B55	AD05
B56	AD03
B57	GND
B58	AD01
B59	VI/O (+5V or +3.3V)
B60	NC
B61	+5V
B62	+5V

CN46	PWR/HDD/LAN3 LED
Part Number	1653004260
Footprint	HD_4x2_79
Description	PIN HEADER 4x2P 2.0mm 180D(M) SMD 21N22050
Pin	**Pin Name**
1	PWR LED+
2	HDD LED+
3	PWR LED-
4	HDD LED-
5	+V3.3_LAN
6	LAN3_LINK100#
7	LAN3_ACT#
8	LAN3_LINK1000#



CN48	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

Optional Extras for PCM-9563 A1

The PCM-9563 requires several cables for normal operation. You can make them yourself or purchase an optional cable kit assembly, which includes the following

B.1 PCM-10586-9563E Cable kit for PCM-9563

Table B.1: PCM-10586-9562E Cable kit for PCM-9562 A1

P/N	Cable Description	Quantity	PCM-9563 Connector	Terminating Connector
1700001296	VGA cable	1	CN27	A Cable D-SUB 15P(F)/2*8P-2.0 15CM
1700002142	GbE cable	3	CN11,CN13, CN14	A Cable IDE#3 10P-2.0/RJ45-8P8C 15CM
1700008941	SATA cable	2	CN18,CN19	M Cable SATA 7P/SATA 7P 32CM C=R 180/180D W/Lock
1700019109	COM5.6 cable	1	CN24	F Cable 2*5P-2.0/D-SUB 9P(M)*2 25cm
1700160160	Audio cable	1	CN10	A Cable 2*8P-2.0/JACK*5 16cm C=B
1700260250	LTP cable	1	CN34	F Cable IDE#2 26P-2.0/D-SUB 25P(F) 25CM
1703060191	PS2/ KB, MS cable	1	CN35	A Cable 1*6P-2.0/M-DIN 6P(F)*2 22cm
1703100260	USB2.0 cable	3	CN30.CN31, CN32	A cable USB-A 4P*2/2*5-2.0 26cm W/BKT
1701200220	COM X2 cable	2	CN22,CN23	F Cable IDE#2 10P-2.0/D-SUB 9P(M) 25CM
1700020277-01	USB 3.0 cable	1	CN33	M Cable 2*10P-2.0/USB-A 9P(F)*2 30CM W/BKT

Note! *The cables PN maybe change because vendor phase out or change cable in the future. So, for detail information please refer to PCM-10586-9562E user note.*

Appendix C

System Assignments

C.1 1st MB Memory Map

Table C.1: 1st MB memory map	
Addr. Range (Hex)	**Device**
E0000h - FFFFFh	System ROM
D0000h - DFFFFh	System RAM
C0000h - CFFFFh	VGA BIOS
A0000h - BFFFFh	Legacy Video Area
00000h - 9FFFFh	Base memory

C.2 DMA Channel Assignments

Table C.2: DMA channel assignments	
Channel	**Function**
0	Available
1	Available
2	Available
3	Available (parallel port)**
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available
** Parallel port DMA default setting: DMA 3, Parallel port DMA selection: DMA 1 or 3	

C.3 Interrupt Assignments

Table C.3: Interrupt assignments	
Interrupt#	**Interrupt source**
IRQ0	System timer
IRQ1	Using SERIRQ, Keyboard Emulation
IRQ2	Interrupt from controller 2 (cascade)
IRQ3	Communications Port (COM2)
IRQ4	Communications Port (COM1)
IRQ5	LPT Port (LPT1)
IRQ6	Available
IRQ7	Communications Port (COM3)
IRQ8	System CMOS/real time clock
IRQ9	Microsoft ACPI-Compliant System
IRQ10	Communications Port (COM5)
IRQ11	Communications Port (COM4)
IRQ12	Available
IRQ13	Numeric data processor
IRQ14	Reserved
IRQ15	Communications Port (COM6)
* Refer to the table of msd.exe	

Table C.4: System I/O Ports	
Addr. Range (Hex)	**Device**
00-1F	Reserved
20-2D	Interrupt Controller
2E-2F	Motherboard resources
30-3D	Interrupt Controller
40-43	Timer Register
4E-4F	Motherboard resources
50-53	Timer/Counter
60-67	NMI Register/Keyboard Controller
70-7F	Real-time clock, non-maskable interrupt (NMI) mask, PMC Register
80-9F	DMA page register
A0-BF	Motherboard resources
C0-DF	Reserved
F0-F1	Reserved
278-278	LPT Port Alternate Port (LPT1)
299-29A	EC HM Index port and Data port
29C-29D	EC Index port and Data port
2E0-2E7	Communications Port (COM5)
2E8-2EF	Communications Port (COM4)
2F8-2FF	Communications Port (COM2)
378-378	LPT Port (LPT1)
3BC-3BC	LPT Port Alternate Port (LPT1)
3C0-3DF	Motherboard resources
3E0-3E7	Communications Port (COM6)
3E8-3EF	Communications Port (COM3)
3F8-3FF	Communications Port (COM1)
4D0-4D1	Motherboard resources