

OMNI-5155L

Industrial Touch Panel PC
With Intel[®] Bay Trail Platform

User's Manual 1st Ed

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Packing List

Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
● OMNI-5155L	1
● Product CD with User's Manual (in pdf) and drivers	1
● HDD bracket	1

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

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the AAEON.com for the latest version of this document.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. All cables and adapters supplied by AAEON are certified and in accordance with the material safety laws and regulations of the country of sale. Do not use any cables or adapters not supplied by AAEON to prevent system malfunction or fires.
3. Make sure the power source matches the power rating of the device.
4. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
5. Always completely disconnect the power before working on the system's hardware.
6. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
7. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
8. Always disconnect this device from any AC supply before cleaning.
9. While cleaning, use a damp cloth instead of liquid or spray detergents.
10. Make sure the device is installed near a power outlet and is easily accessible.
11. Keep this device away from humidity.
12. Place the device on a solid surface during installation to prevent falls
13. Do not cover the openings on the device to ensure optimal heat dissipation.
14. Watch out for high temperatures when the system is running.
15. Do not touch the heat sink or heat spreader when the system is running
16. Never pour any liquid into the openings. This could cause fire or electric shock.

17. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
18. If any of the following situations arises, please the contact our service personnel:
 - i. Damaged power cord or plug
 - ii. Liquid intrusion to the device
 - iii. Exposure to moisture
 - iv. Device is not working as expected or in a manner as described in this manual
 - v. The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device
19. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.**

FCC Statement

Warning!



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON Panel PC/ Workstation

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	○	○	○	○	○	○
外部信号 连接器及线材	○	○	○	○	○	○
外壳	○	○	○	○	○	○
中央处理器 与内存	○	○	○	○	○	○
硬盘	○	○	○	○	○	○
液晶模块	○	○	○	○	○	○
光驱	○	○	○	○	○	○
触控模块	○	○	○	○	○	○
电源	○	○	○	○	○	○

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在
SJ/T 11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出
SJ/T 11363-2006 标准规定的限量要求。

备注:

- 一、此产品所标示之环保使用期限，系指在一般正常使用状况下。
- 二、上述部件物质中央处理器、内存、硬盘、光驱、触控模块为选购品。

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products
 AAEON Panel PC/ Workstation

Component	Poisonous or Hazardous Substances or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
PCB & Other Components	○	○	○	○	○	○
Wires & Connectors for External Connections	○	○	○	○	○	○
Chassis	○	○	○	○	○	○
CPU & RAM	○	○	○	○	○	○
Hard Disk	○	○	○	○	○	○
LCD	○	○	○	○	○	○
Optical Drive	○	○	○	○	○	○
Touchscreen	○	○	○	○	○	○
PSU	○	○	○	○	○	○
<p>O: The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.</p> <p>X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.</p> <p>Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only</p>						

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Chapter 1

Product Specifications

1.1 Specifications

System

- **Processor** Intel® Celeron® J1900, 2 GHz
- **System Memory** 204-pin DDR3L 1333 SODIMM x 1, up to 8 GB
- **Ethernet** 10/100/1000Base-TX, RJ-45 x 2
- **Bottom I/O**
 - DB-9 for RS-232 x 1
 - DB-9 for RS-485/422/232 x 1
 - 10/100/1000Base-T, RJ-45 x 2
 - Type A USB 2.0 x 2
 - Type A USB 3.0 x 1
 - VGA x 1
 - HDMI x 1
 - Lockable 12 Vdc power input x 1
 - Power on/off switch x1
- **Storage Disk Drive** Internal SATA 2.5" HDD x 1
- **Expansion Slot**
 - Full Size Mini Card x 1
 - Half Size mini card x 1
- **OS Support**
 - Windows® 10
 - Windows® 7
 - Ubuntu16.04.4 Kernel 4.8.0-36-generic x86_64

Environmental

- **Operating Temperature** -10°C~55°C with industrial grade device (with 0.5 m/s air flow, according to IEC68-2-14
*AAEON suggests users use industrial grade wide temperature DRAM and wide temperature storage devices.
- **Storage Temperature** -20 ~ 70°C (-4 ~ -158°F)
- **Operating Humidity** 90% @ 40°C, non-condensing
- **Anti-Vibration** 1 Grms/ 5 ~ 500 Hz/ Operation (HDD)
- **EMC** CE/FCC Class A

Power Supply

- **DC Input** 12 V

Mechanical

- **Construction** IP65/ NEMA 4 for aluminum front bezel
IP30 ECC chassis
- **Mounting** VESA 100 / Panel Mount / Stand
- **Dimension (W x H x D)** 369 x 304 x 67 mm
- **Gross Weight** 6.35kg

LCD

- Display Type 15" TFT LCD
- Max. Resolution 1024 x 768
- Max Colors 16.7M (RGB 8 bits)
- Luminance (cd/m2) 300 nits
- Contrast 2,000 : 1
- Viewing Angle 176(H), 176(V)
- Backlight LED
- Backlight MTBF (Hours) 70K

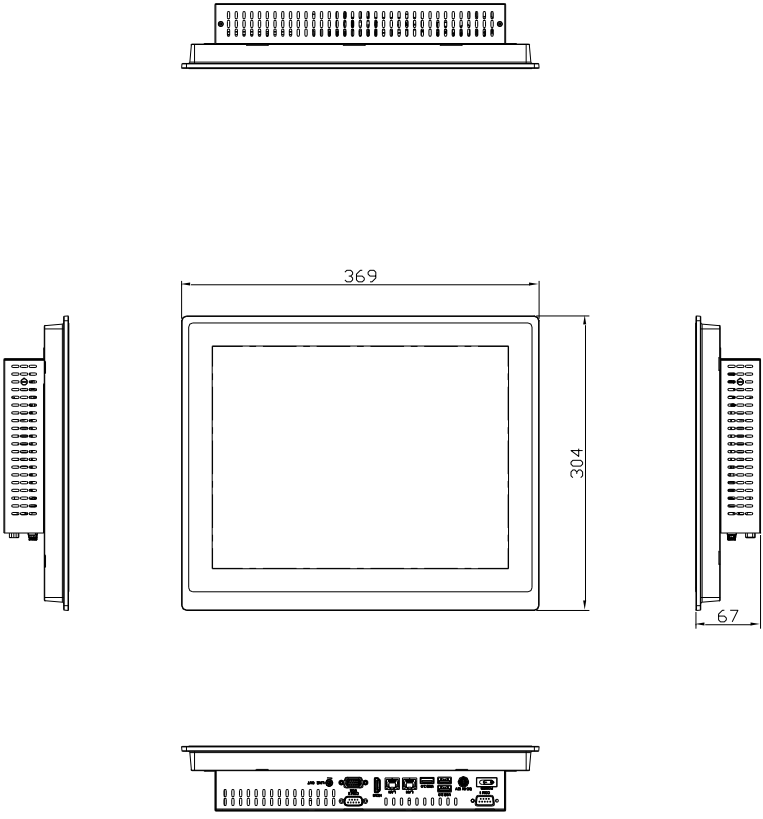
Touchscreen (P-CAP)

- Type 5 Wire Resistive Touch Screen
- Light Transmission >80%
- Lifetime 10,000,000 times keystrokes

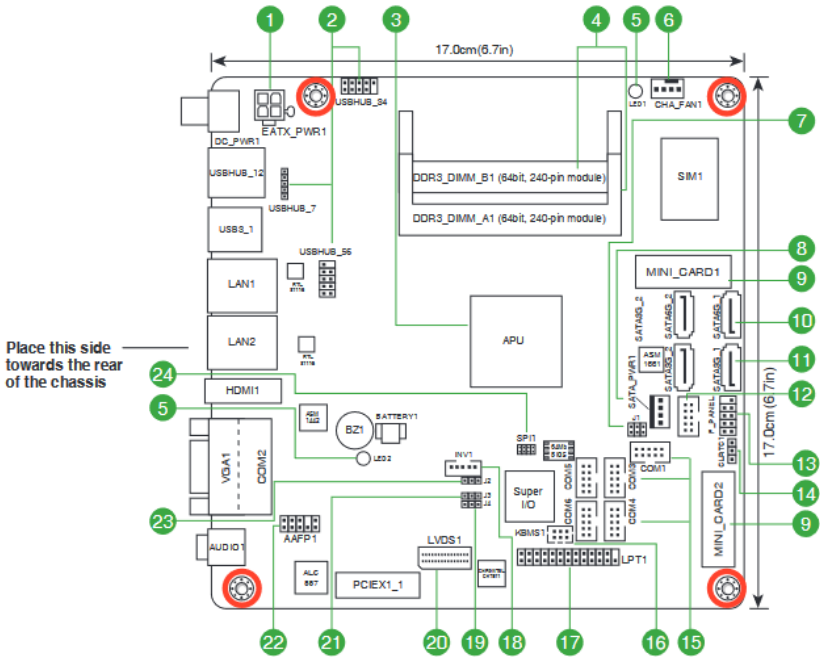
Chapter 2

Hardware Information

2.1 Dimensions



2.2 Motherboard



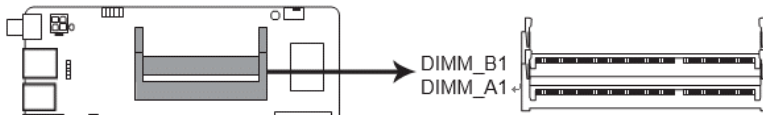
Please refer to the table below for all of the system's jumpers from EMB-BT1 that you can configure for your application

Label	Function
1	12VDC connector (4-pin EATX_PWR1)
2	USB 2.0 connector
3	CPU
4	SO-DIMM memory slots
5	Standby Power LED (SB_PWR_LED1, SB_PWR_LED2)
6	Chassis fan connectors (4-pin CHA_FAN)
7	COM1 Ring/+5V/+12V selection (6-pin J1)

8	SATA power connector (SATA_PWR1)
9	Minicard connectors (MINI_CARD1, MINI_CARD2)
10	Serial ATA 6.0Gb/s connectors (7-pin SATA6G_1, SATA6G_2)
11	Serial ATA 3.0Gb/s connectors (7-pin SATA3G_1, SATA3G_2)
12	Digital I/O connector (DIO1)
13	System panel connector (10-1 pin F_PANEL)
14	Clear RTC RAM (CLRTC)
15	Serial port connectors (10-1 pin COM1, COM3~6)
16	PS/2 keyboard and mouse connector (KBMS1)
17	LPT connector (26-1 pin LPT1)
18	Backlight inverter power connector (5-pin INV1)
19	LVDS panel voltage selection (3-pin J4)
20	LVDS connector (30-pin LVDS1)
21	Inverter backlight control of inverter selector (3-pin J3)
22	Front panel audio connector (10-1 pin AAFP)
23	Inverter voltage selection (3-pin J2)
24	BIOS programmable connector (8-pin SPI)

2.3 System Memory

This motherboard comes with two Double Data Rate 3 Low Voltage (DDR3L) Small Outline Dual Inline Memory Modules (SO-DIMM) socket. The figure illustrates the location of the DDR3L DIMM socket:

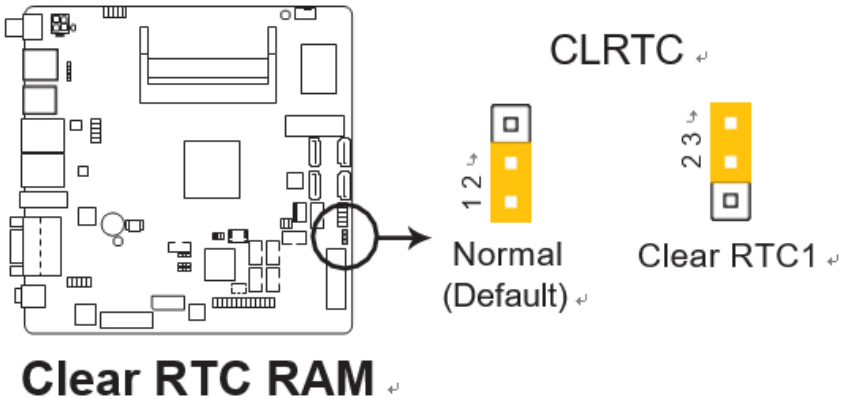


204-pin DDR3L SO-DIMM sockets

2.4 Jumpers

2.4.1 Clear RTC RAM (CLRRTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.



To erase the RTC RAM:

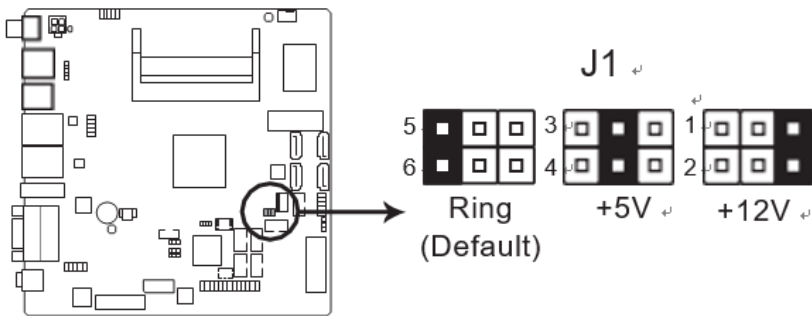
1. Turn OFF the computer and unplug the power cord.
2. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
3. Plug the power cord and turn ON the computer.
4. Hold down the key during the boot process and enter BIOS setup to reenter data.

CAUTION! Except when clearing the RTC RAM, never remove the cap on CLRRTC jumper default position. Removing the cap will cause system boot failure!

Note :

- If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After clearing the CMOS, reinstall the battery.
- You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the CPU Parameter Recall (C.PR) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values

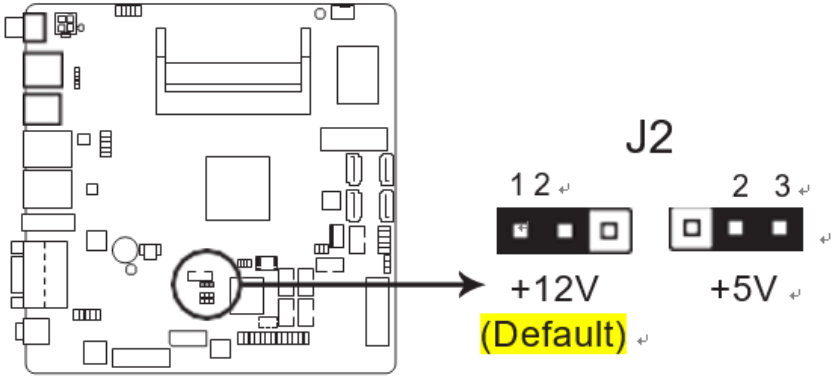
2.4.2 COM1 Ring/+5V/+12V selector (6-pin J1)



COM2 Ring/+5V/+12V Selection

Setting	Pins
+12V	1-2
+5V	3-4
Ring (Default)	5-6

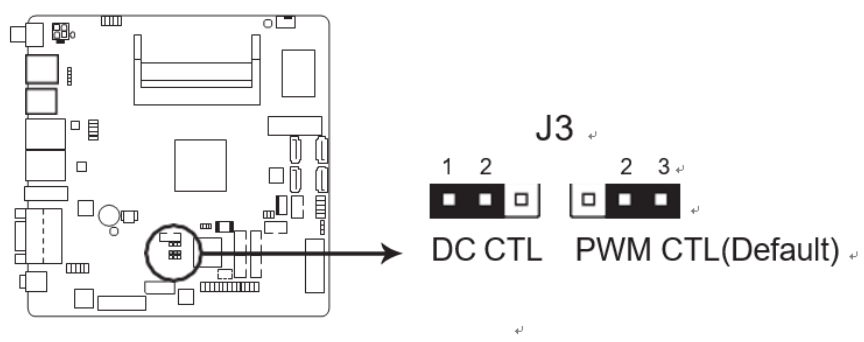
2.4.3 Inverter voltage selection (3-pin J2)



Inverter Voltage Selection

Setting	Pins
+12V (Default)	1-2
+5V	2-3

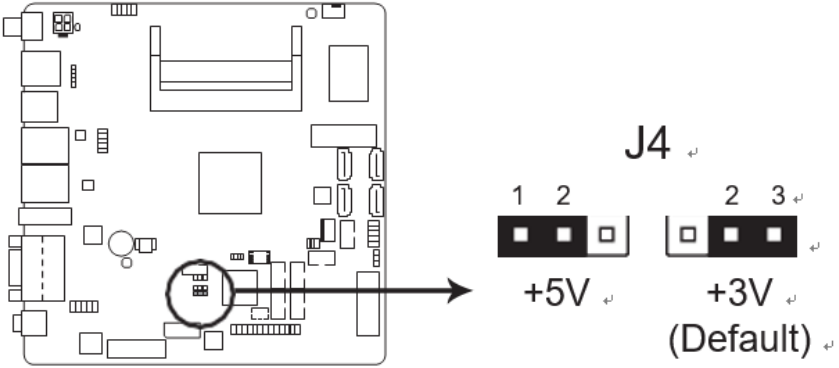
2.4.4 Inverter Backlight Control of Inverter selector (3-pin J3)



Back Light Control of Inverter Mode

Setting	Pins
DC Voltage Control	1-2
PWM Control (Default)	2-3

2.4.5 LVDS panel voltage selection (3-pin J4)

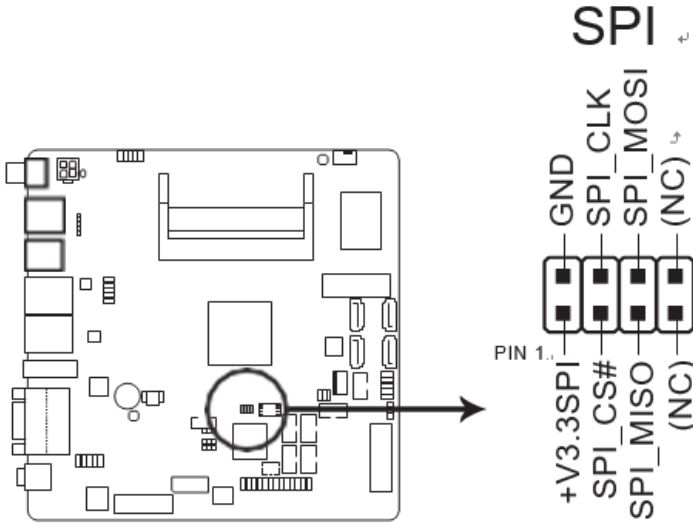


LVDS Panel Voltage Selection

Setting	Pins
+5V	1-2
+3V (Default)	2-3

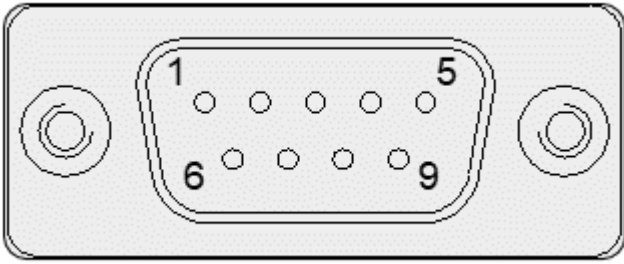
2.4.6 BIOS programmable connector (8-pin SPI)

Use this connector to flash the BIOS ROM.



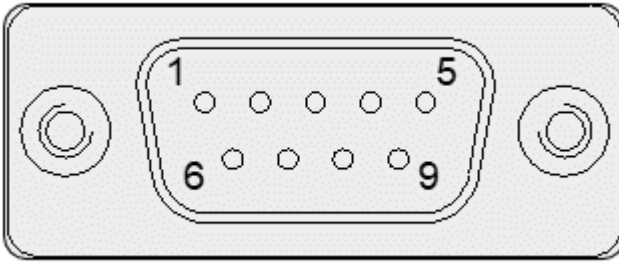
BIOS Programmable Connector

2.4.7 COM1 (RS232/422/485): D-SUB9(M)



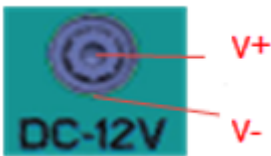
Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI/+12V/+5V		

2.4.8 COM2 (RS232): D-SUB9(M)



Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI/+12V/+5V		

2.4.9 12VDC power Input

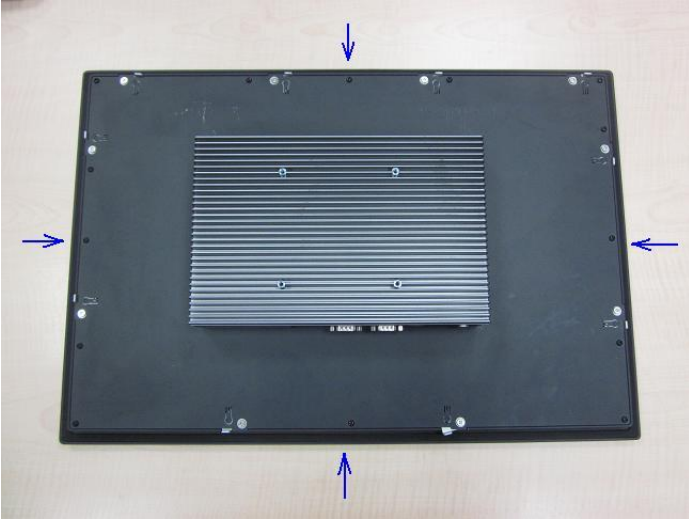


V+: 12V

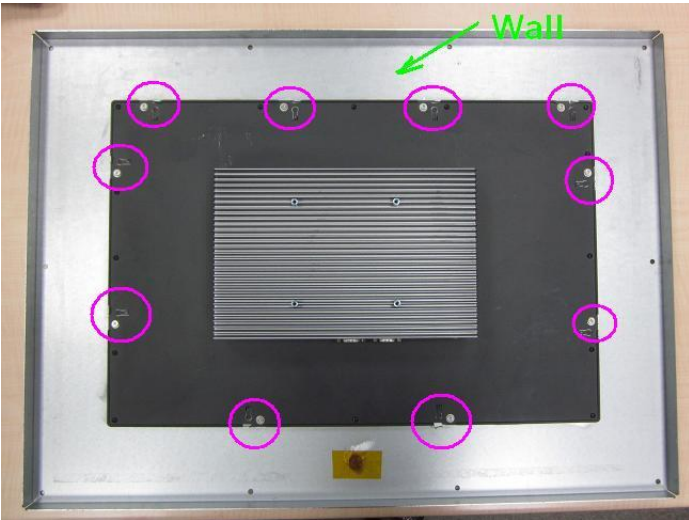
V-: GND

2.5 Mount the OMNI onto the wall

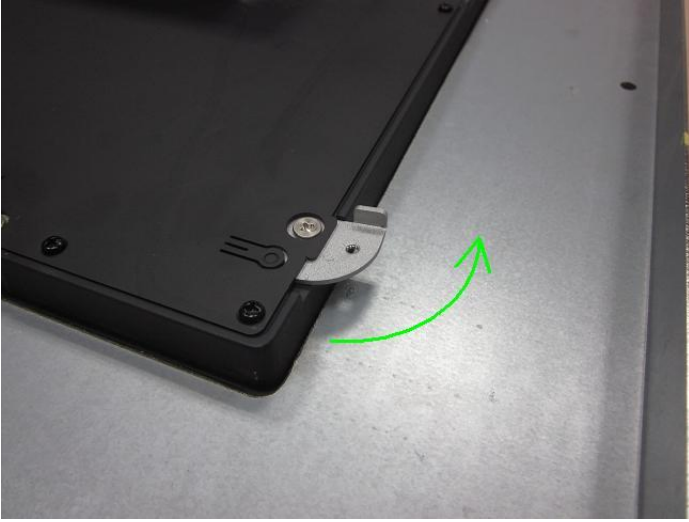
Step 1 - Glue the water-proof rubber along back side of the panel



Step 2 - Screw the provided mounting brackets into back of the panel



Step 3 - Secure the panel with wall-mount brackets onto the wall with screws



Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

The system uses certain routines to perform testing and initialization. If an error, fatal or non-fatal, is encountered, a few short beeps or an error message will be outputted. The board can usually continue the boot up sequence with non-fatal errors.

The system configuration verification routines check the current system configuration against the values stored in the CMOS memory. If they do not match, an error message will be outputted, in which case you will need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

- You are starting your system for the first time
- You have changed your system's hardware
- The CMOS memory has lost power and the configuration information is erased

The system's CMOS memory uses a backup battery for data retention, which is to be replaced once emptied.

3.2 AMI BIOS Setup

The AMI BIOS ROM has a pre-installed Setup program that allows users to modify basic system configurations, which is stored in the battery-backed CMOS RAM and BIOS NVRAM so that the information is retained when the power is turned off.

To enter BIOS Setup, press or <F2> immediately while your computer is powering up.

The function for each interface can be found below.

Main – Date and time can be set here. Press <Tab> to switch between date elements

Advanced – Enable/ Disable boot option for legacy network devices

Chipset – For hosting bridge parameters

Boot – Enable/ Disable quiet Boot Option

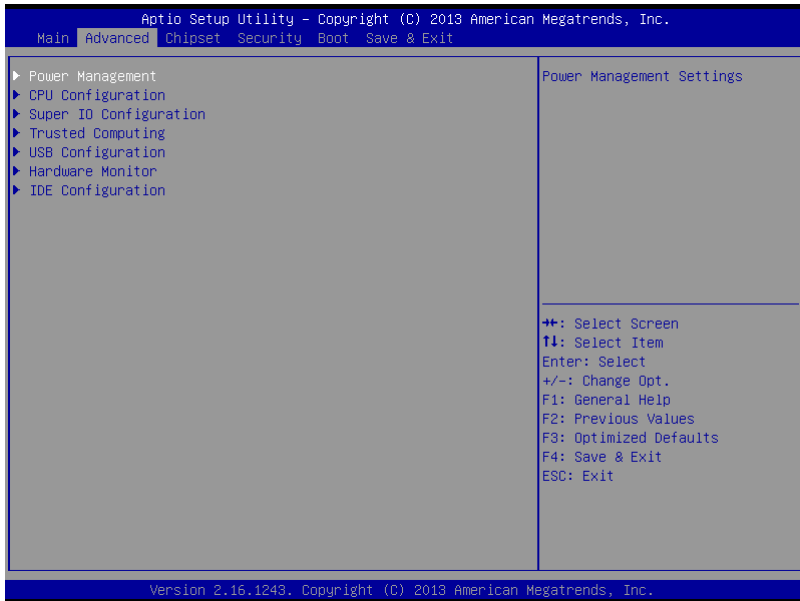
Security – The setup administrator password can be set here

Save & Exit – Save your changes and exit the program

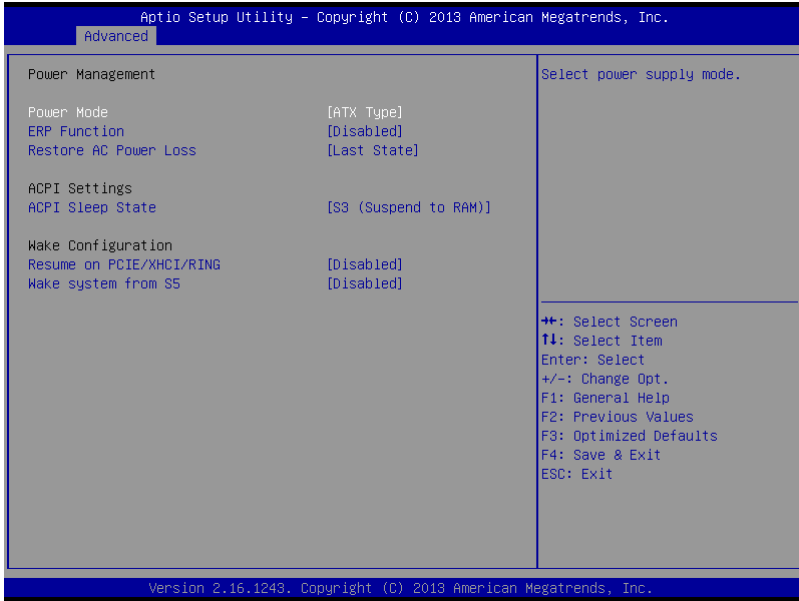
3.3 Setup Submenu: Main



3.4 Setup Submenu: Advanced



3.4.1 Advanced: Power Management

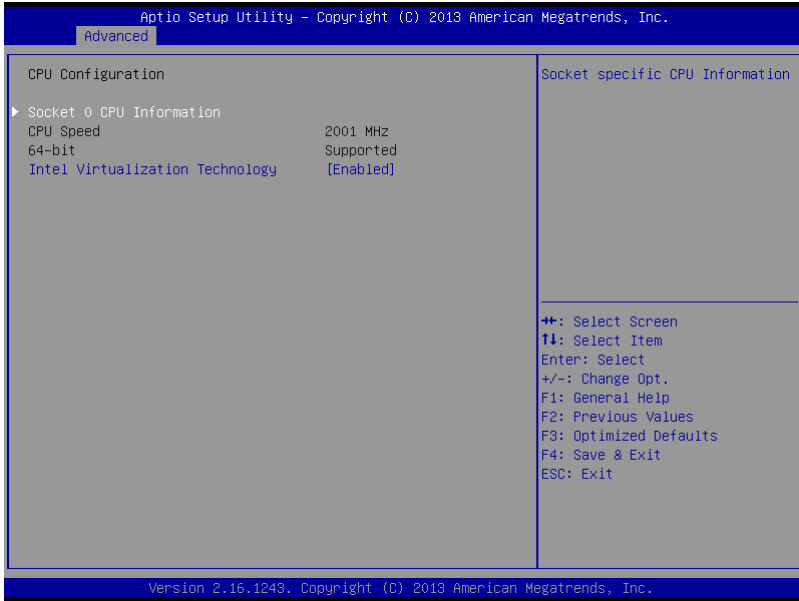


Options summary:

Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
Select power supply mode.		
ERP Function	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled/Disabled ERP power saving function.		
Restore AC Power Loss	Power Off	Optimal Default, Failsafe Default
	Power On	
	Last State	
Select AC power state when power is re-applied after a power failure.		
ACPI	Suspend Disabled	Optimal Default, Failsafe Default
	S3 (Suspend to RAM)	
Select the highest ACPI sleep state the system will enter when SUSPEND button is pressed.		
Resume on PCIE/XHCI/RING	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled/Disabled Resume from PCIE/XHCI signal.		

Wake system from S5	Disabled	Optimal Default, Failsafe Default
	Fixed Time	
	Dynamic Time	
Fixed Time : System will wake on the hr::min::sec specified. Dynamic Time : System will wake on the current time + Increase minutes(s)		

3.4.2 Advanced: CPU Configuration



Options summary:

Socket 0 CPU Information	Socket specific CPU Information.	
Intel Virtualization Technology	Disabled	Optimal Default, Failsafe Default
	Enabled	
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.		

3.4.2.1 Socket 0 CPU Information

The screenshot displays the 'Advanced' menu of the Aptio Setup Utility. The 'Socket 0 CPU Information' section is expanded, showing the following details:

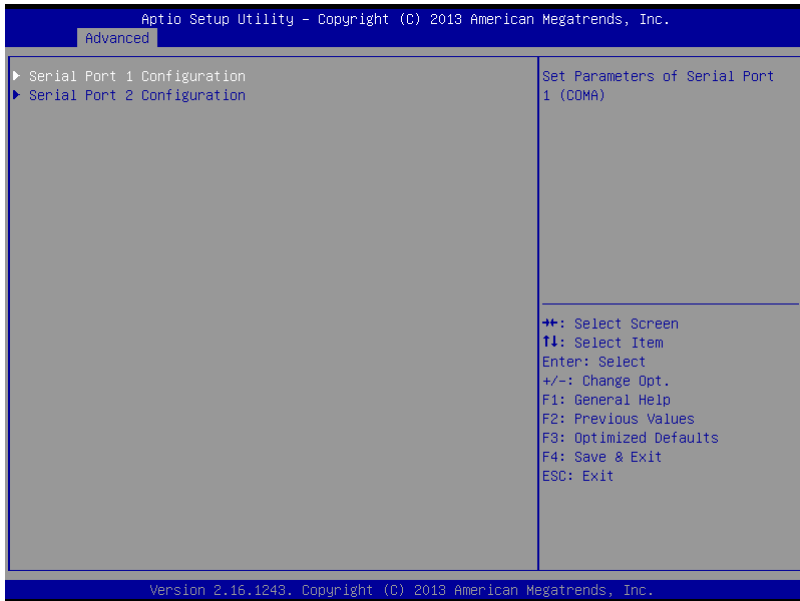
Socket 0 CPU Information	
Intel(R) Celeron(R) CPU J1900 @ 1.99GHz	
CPU Signature	30678
Microcode Patch	835
Max CPU Speed	1990 MHz
Min CPU Speed	1334 MHz
Processor Cores	4
Intel HT Technology	Not Supported
Intel VT-x Technology	Supported
L1 Data Cache	24 KB x 4
L1 Code Cache	32 KB x 4
L2 Cache	1024 KB x 2
L3 Cache	Not Present

Navigation instructions are listed on the right side of the screen:

- ++: Select Screen
- F1: Select Item
- Enter: Select
- +/-: Change Opt.
- F1: General Help
- F2: Previous Values
- F3: Optimized Defaults
- F4: Save & Exit
- ESC: Exit

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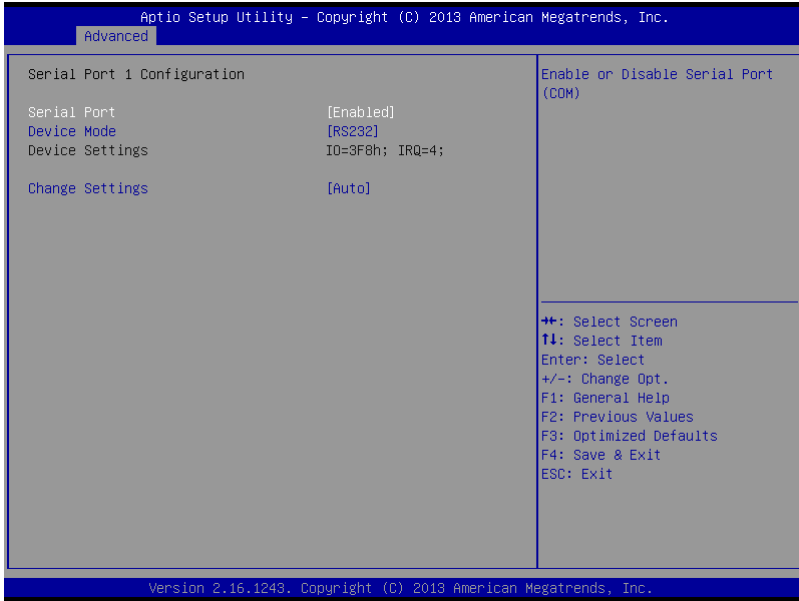
3.4.3 Advanced: Super IO Configuration



Options summary:

Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA)
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB)

3.4.3.1 Serial Port 1 Configuration



Options summary:

Serial Port	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled or Disabled Serial Port (COM).		
Device Mode	RS232	Optimal Default, Failsafe Default
	RS422	
	RS485	
Select working model.		
Change Settings	Auto	Optimal Default, Failsafe Default
	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ=3,4;	
	IO=2F8h; IRQ=3,4;	
	IO=3E8h; IRQ=3,4;	
	IO=2E8h; IRQ=3,4;	
Select an optimal settings for Super IO Device.		

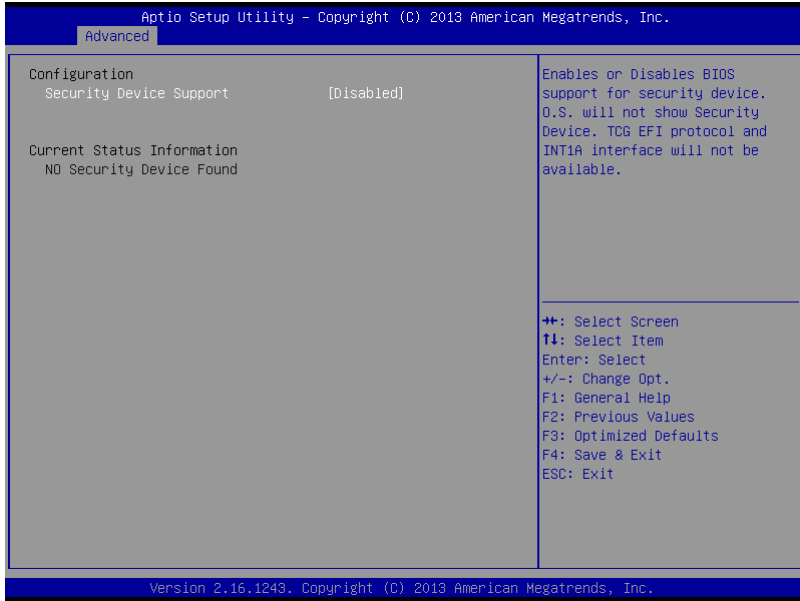
3.4.3.2 Serial Port 2 Configuration



Options summary:

Serial Port	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled or Disabled Serial Port (COM).		
Change Settings	Auto	Optimal Default, Failsafe Default
	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ=3,4;	
	IO=2F8h; IRQ=3,4;	
	IO=3E8h; IRQ=3,4;	
	IO=2E8h; IRQ=3,4;	
Select an optimal settings for Super IO Device.		

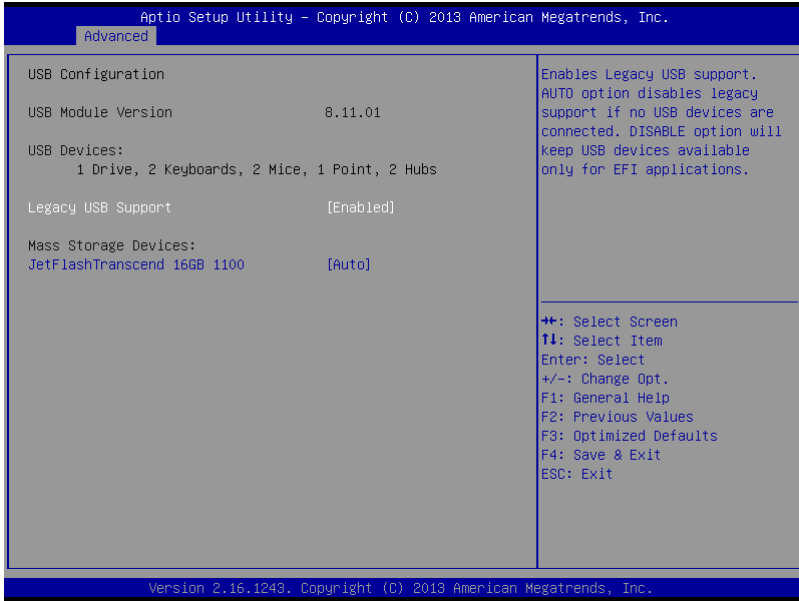
3.4.4 Advanced: Trusted Computing



Options summary:

Security Device Support	Disable	Optimal Default, Failsafe Default
	Enable	
Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.		

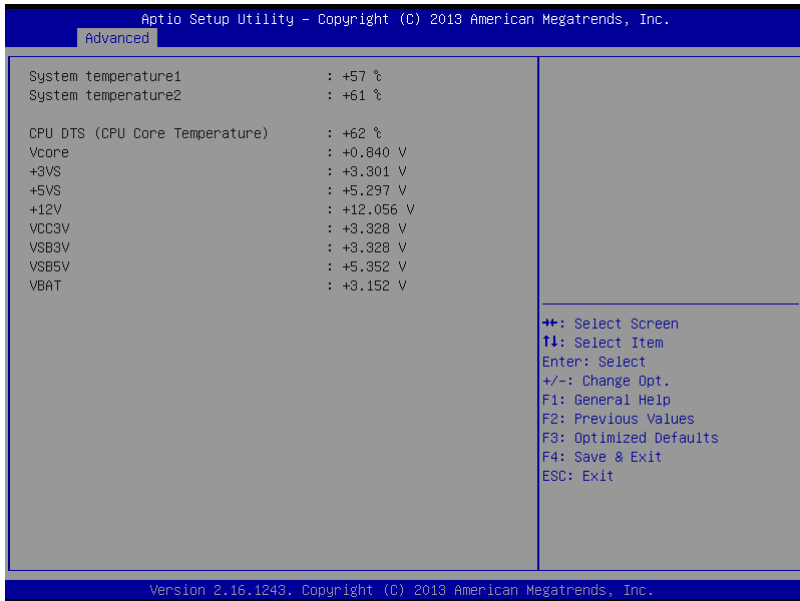
3.4.5 Advanced: USB Configuration



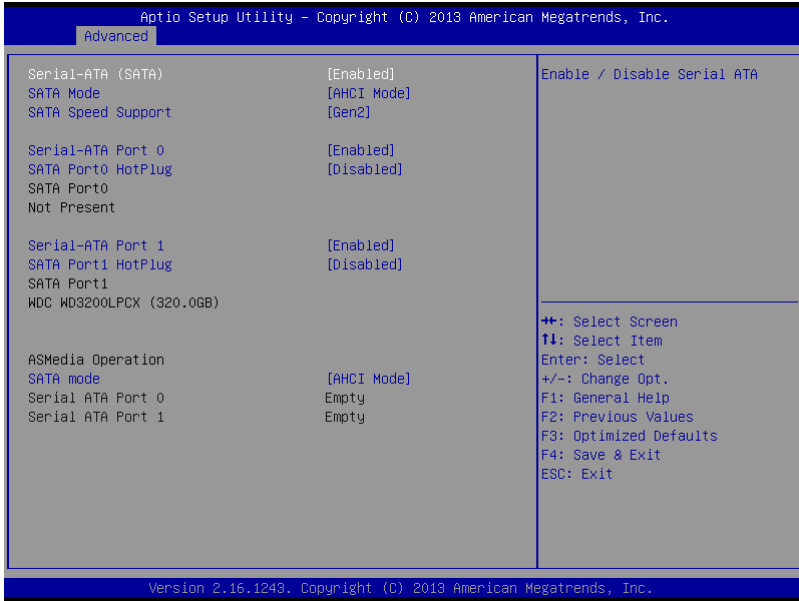
Options summary:

Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
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.		
Device Name (Emulation Type)	Auto	Optimal Default, Failsafe Default
	Floppy	
	Forced FDD	
	Hard Disk	
	CD-ROM	
Mass storage device emulation type. 'Auto' enumerates devices according to their media format. Optional drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.		

3.4.6 Advanced: Hardware Monitor



3.4.7 Advanced: IDE Configuration

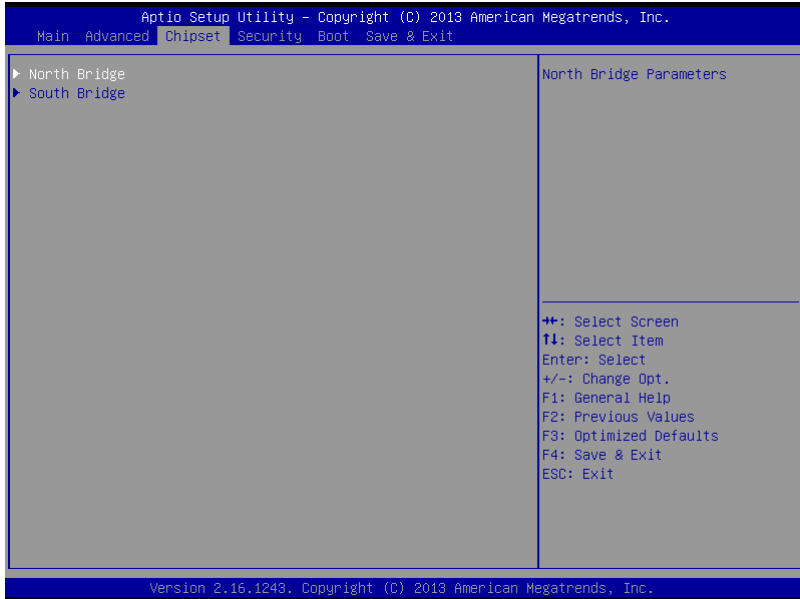


Options summary:

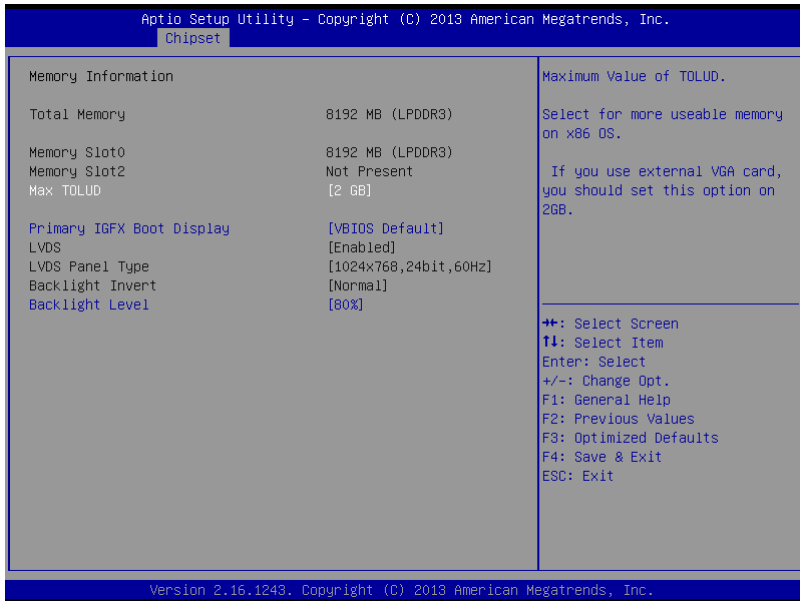
Serial-ATA (SATA)	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable / disable Serial ATA.		
SATA Mode	IDE Mode	Optimal Default, Failsafe Default
	AHCI Mode	
Select IDE / AHCI.		
SATA Speed Support	Gen1	Optimal Default, Failsafe Default
	Gen2	
SATA Speed Support Gen1 or Gen2.		
Serial-ATA Port 0	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable / disable Serial ATA Port 0.		
SATA Port0 HotPlug	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable / disable SATA Port 0 HotPlug.		
Serial-ATA Port 1	Enabled	Optimal Default, Failsafe Default
	Disabled	

Enable / disable Serial ATA Port 1.		
SATA Port1 HotPlug	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable / disable SATA Port 1 HotPlug.		
SATA mode	AHCI Mode	Optimal Default, Failsafe Default
ACHI Mode.		

3.5 Setup submenu: Chipset



3.5.1 Chipset: North Bridge

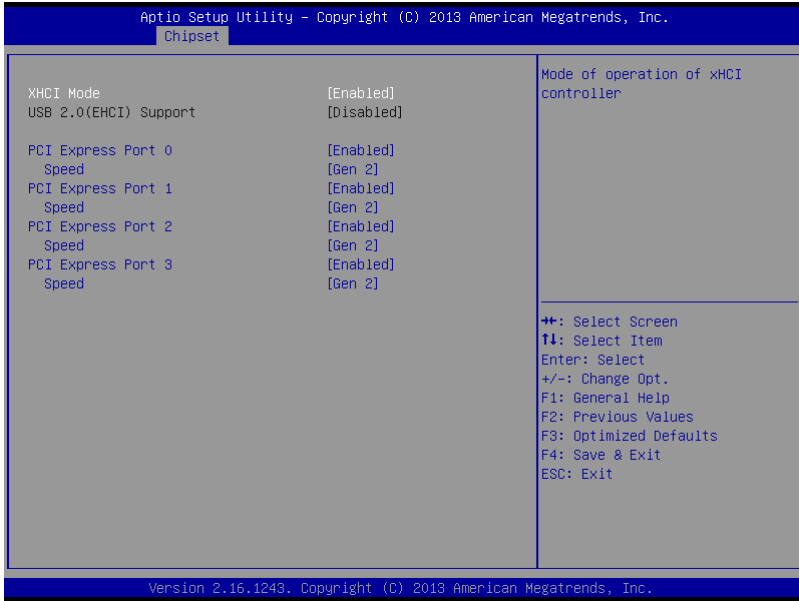


Options summary:

Max TOLUD	2GB	Optimal Default, Failsafe Default
	2.25GB	
	2.5GB	
	2.75GB	
	3GB	
<p>Maximum Value of TOLUD. Select for more useable memory on x86 OS. If you use external VGA card, you should set this option om 2GB.</p>		
Primary IGFX Boot Display	VBIOS Default	Optimal Default, Failsafe Default
	CRT	
	HDMI	
	LVDS	
<p>Select the Video Device which will be activated during POST. This has no effect if external graphic present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display.</p>		

Backlight Level	10%	Optimal Default, Failsafe Default
	20%	
	30%	
	40%	
	50%	
	60%	
	70%	
	80%	
	90%	
100%		
Help for Backlight Level. 0-100%		

3.5.2 Chipset: South Bridge

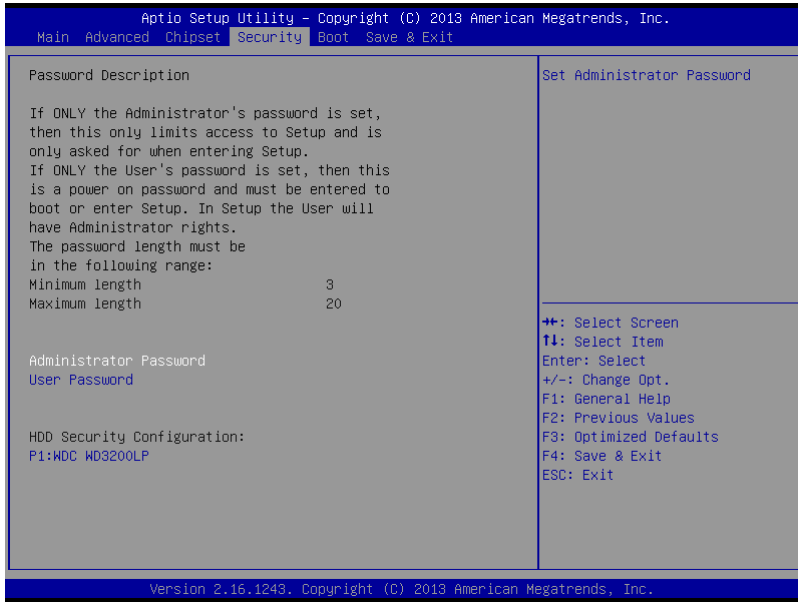


Options summary:

XHCI Mode	Enabled	Optimal Default, Failsafe Default
	Disabled	
Mode of operation of XHCI controller.		
PCI Express Port 0	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enabled or Disabled the PCI Express Port 0 in the Chipset.		
Speed	Auto	Optimal Default, Failsafe Default
	Gen 1	
	Gen 2	
Configure PCIe Port Speed.		
PCI Express Port 1	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enabled or Disabled the PCI Express Port 1 in the Chipset.		
Speed	Auto	Optimal Default, Failsafe Default
	Gen 1	
	Gen 2	
Configure PCIe Port Speed.		

PCI Express Port 2	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enabled or Disabled the PCI Express Port 2 in the Chipset.		
Speed	Auto	Optimal Default, Failsafe Default
	Gen 1	
	Gen 2	
Configure PCIe Port Speed.		
PCI Express Port 3	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enabled or Disabled the PCI Express Port 3 in the Chipset.		
Speed	Auto	Optimal Default, Failsafe Default
	Gen 1	
	Gen 2	
Configure PCIe Port Speed.		

3.6 Setup submenu: Security



Change User/Administrator Password

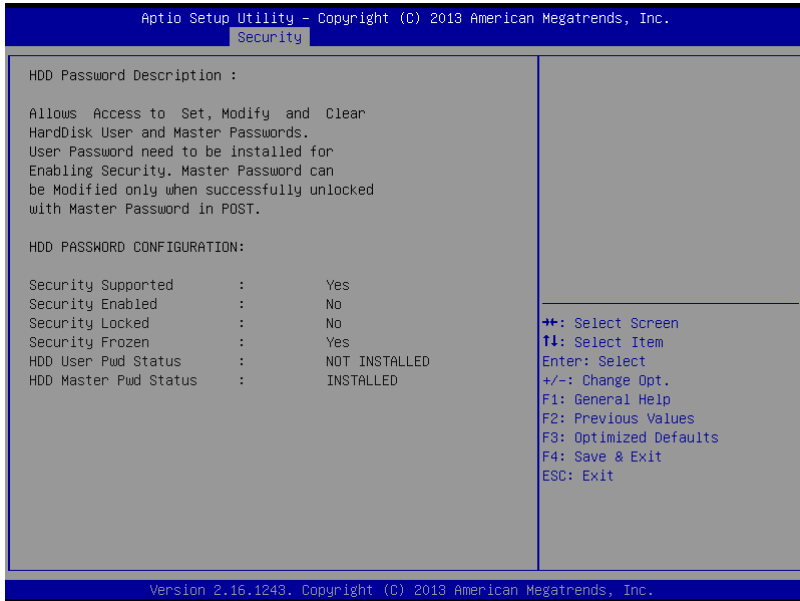
You can set a User Password once an Administrator Password is set. The password will be required during boot up, or when the user enters the Setup utility. Please Note that a User Password does not provide access to many of the features in the Setup utility.

Select the password you wish to set, press Enter to open a dialog box to enter your password (you can enter no more than six letters or numbers). Press Enter to confirm your entry, after which you will be prompted to retype your password for a final confirmation. Press Enter again after you have retyped it correctly.

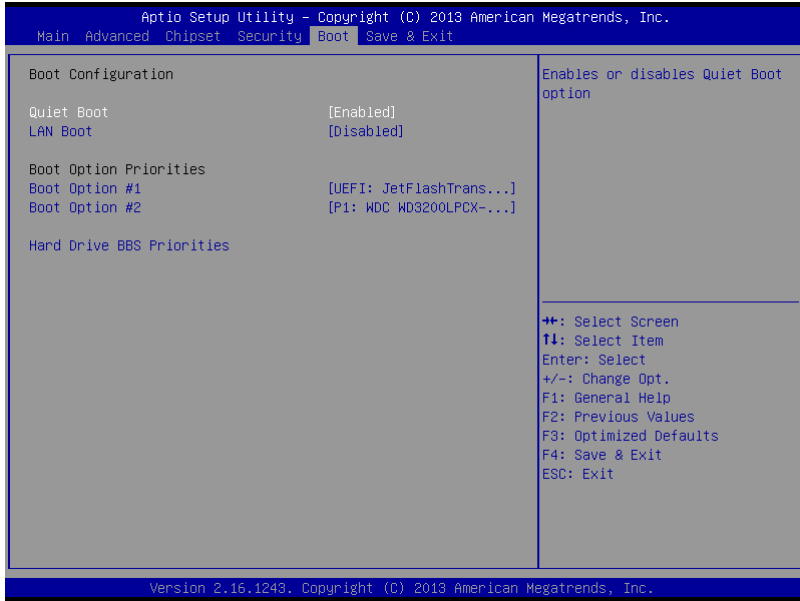
Removing the Password

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

3.6.1 Security: P1:WDC WD3200LP



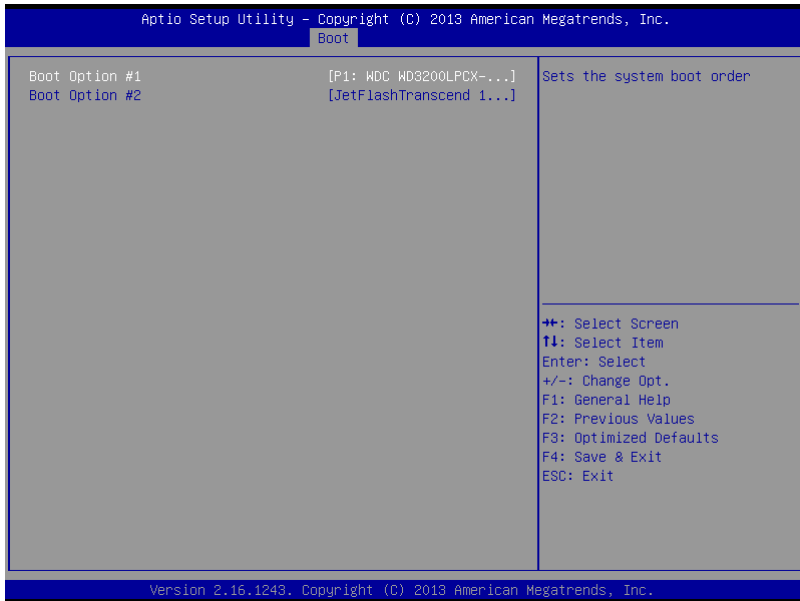
3.7 Setup submenu: Boot



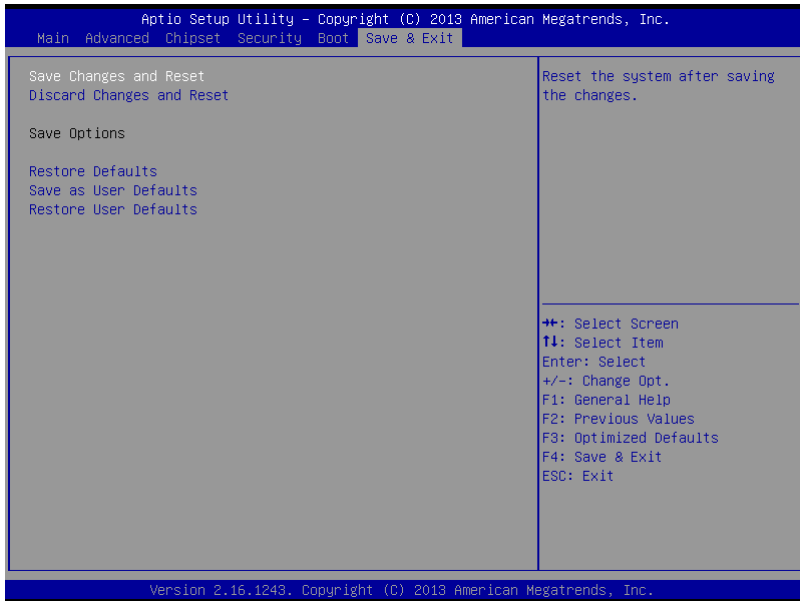
Options summary:

Quiet Boot	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enables or Disables Quiet Boot option.		
LAN Boot	Disabled	Optimal Default, Failsafe Default
	Enabled	
Launch LAN PXE oprom.		

3.7.1 Boot: Hard Drive BBS Priorities



3.8 Setup submenu: Exit



Chapter 4

Drivers Installation & Touchscreen Settings

4.1 Product CD/DVD

The OMNI-5155L series comes with a product DVD that contains all the drivers and utilities you need to setup your product. Insert the DVD and follow the steps in the autorun program to install the drivers.

In case the program does not start, follow the sequence below to install the drivers.

Step 1 – Install Chipset Drivers

1. Open the **Step 1 – Chipset** folder and select your OS
2. Open the **SetupChipset.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 2 – Install Graphics Driver

1. Open the **STEP2 - VGA** folder and select your OS
2. Open the **Setup.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 3 – Install LAN Driver

1. Open the **STEP3 – LAN** folder and select your OS
2. Open the **.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 4 – Install Audio Drivers

1. Open the **STEP4 - Audio** folder and base on your OS to install audio driver

Step 5 – Install USB 3.0 Drivers

1. Open the **STEP5 - USB3.0** folder and select your OS
2. Open the **.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Note : Install

Step 6 – Install USB Hub Drivers

1. Open the Step 6 - USB Hub folder followed by **SetupME.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 7 – Install TPM Driver

1. Open the **Step 7 - TPM** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 8 – Install Touch Driver (Resistive touchscreen)

1. Open the **Step 8 - Touch** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 9 – UART (Optional) (Optional)

1. Open the **Step 9 - UART (Optional)** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Step 10 – MBI (Optional) (Optional)

1. Open the **Step 10 - MBI (Optional)** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Appendix A

Watchdog Timer Programming

A.1 Watchdog Timer Initial Program

Table 1 : SuperIO relative register table		
	Default Value	Note
Index	0x2E(Note1)	SIO MB PnP Mode Index Register 0x2E or 0x4E
Data	0x2F(Note2)	SIO MB PnP Mode Data Register 0x2F or 0x4F

Table 2 : Watchdog relative register table					
	LDN	Register	BitNum	Value	Note
Timer Counter	0x07(Note3)	0xF6(Note4)		(Note24)	Time of watchdog timer (0~255) This register is byte access
Counting Unit	0x07(Note5)	0xF5(Note6)	3(Note7)	0(Note8)	Select time unit. 0: second 1: minute
Watchdog Enable	0x07(Note9)	0xF5(Note10)	5(Note11)	1(Note12)	0: Disable 1: Enable
Timeout Status	0x07(Note13)	0xF5(Note14)	6(Note15)	1	1: Clear timeout status
Output Mode	0x07(Note16)	0xF5(Note17)	4(Note18)	1(Note19)	Select WDTRST# output mode 0: level 1: pulse
WDTRST output	0x07(Note20)	0xFA(Note21)	0(Note22)	1(Note23)	Enable/Disable time out output via WDTRST# 0: Disable 1: Enable


```

*****
// SuperIO relative definition (Please reference to Table 1)
#define byte   SIOIndex //This parameter is represented from Note1
#define byte   SIOData //This parameter is represented from Note2
#define void   IOWriteByte(byte IOPort, byte Value);
#define byte   IOReadByte(byte IOPort);
// Watch Dog relative definition (Please reference to Table 2)
#define byte   TimerLDN //This parameter is represented from Note3
#define byte   TimerReg //This parameter is represented from Note4
#define byte   TimerVal // This parameter is represented from Note24
#define byte   UnitLDN //This parameter is represented from Note5
#define byte   UnitReg //This parameter is represented from Note6
#define byte   UnitBit //This parameter is represented from Note7
#define byte   UnitVal //This parameter is represented from Note8
#define byte   EnableLDN //This parameter is represented from Note9
#define byte   EnableReg //This parameter is represented from Note10
#define byte   EnableBit //This parameter is represented from Note11
#define byte   EnableVal //This parameter is represented from Note12
#define byte   StatusLDN // This parameter is represented from Note13
#define byte   StatusReg // This parameter is represented from Note14
#define byte   StatusBit // This parameter is represented from Note15
#define byte   ModeLDN // This parameter is represented from Note16
#define byte   ModeReg // This parameter is represented from Note17
#define byte   ModeBit // This parameter is represented from Note18
#define byte   ModeVal // This parameter is represented from Note19
#define byte   WDTRstLDN // This parameter is represented from Note20
#define byte   WDTRstReg // This parameter is represented from Note21
#define byte   WDTRstBit // This parameter is represented from Note22
#define byte   WDTRstVal // This parameter is represented from Note23
*****

```

```
*****
VOID Main(){
    // Procedure : AaeonWDTConfig
    // (byte)Timer : Time of WDT timer.(0x00~0xFF)
    // (boolean)Unit : Select time unit(0: second, 1: minute).
    AaeonWDTConfig();

    // Procedure : AaeonWDTEnable
    // This procedure will enable the WDT counting.
    AaeonWDTEnable();
}
*****
```

```

*****
// Procedure : AaeonWDTEnable
VOID  AaeonWDTEnable (){
    WDTEnableDisable(EnableLDN, EnableReg, EnableBit, 1);
}

// Procedure : AaeonWDTConfig
VOID  AaeonWDTConfig (){
    // Disable WDT counting
    WDTEnableDisable(EnableLDN, EnableReg, EnableBit, 0);
    // Clear Watchdog Timeout Status
    WDTClearTimeoutStatus();
    // WDT relative parameter setting
    WDTParameterSetting();
}

VOID  WDTEnableDisable(byte LDN, byte Register, byte BitNum, byte Value){
    SIOBitSet(LDN, Register, BitNum, Value);
}

VOID  WDTParameterSetting(){
    // Watchdog Timer counter setting
    SIOByteSet(TimerLDN, TimerReg, TimerVal);
    // WDT counting unit setting
    SIOBitSet(UnitLDN, UnitReg, UnitBit, UnitVal);
    // WDT output mode setting, level / pulse
    SIOBitSet(ModelLDN, ModeReg, ModeBit, ModeVal);
    // Watchdog timeout output via WDTRST#
    SIOBitSet(WDTRstLDN, WDTRstReg, WDTRstBit, WDTRstVal);
}

VOID  WDTClearTimeoutStatus(){
    SIOBitSet(StatusLDN, StatusReg, StatusBit, 1);
}
*****

```

```

*****
VOID  SIOEnterMBPnPMode(){
    IOWriteByte(SIOIndex, 0x87);
    IOWriteByte(SIOIndex, 0x87);
}

VOID  SIOExitMBPnPMode(){
    IOWriteByte(SIOIndex, 0xAA);
}

VOID  SIOSelectLDN(byte LDN){
    IOWriteByte(SIOIndex, 0x07); // SIO LDN Register Offset = 0x07
    IOWriteByte(SIOData, LDN);
}

VOID  SIOBitSet(byte LDN, byte Register, byte BitNum, byte Value){
    Byte TmpValue;

    SIOEnterMBPnPMode();
    SIOSelectLDN(byte LDN);
    IOWriteByte(SIOIndex, Register);
    TmpValue = IOReadByte(SIOData);
    TmpValue &= ~(1 << BitNum);
    TmpValue |= (Value << BitNum);
    IOWriteByte(SIOData, TmpValue);
    SIOExitMBPnPMode();
}

VOID  SIOByteSet(byte LDN, byte Register, byte Value){
    SIOEnterMBPnPMode();
    SIOSelectLDN(LDN);
    IOWriteByte(SIOIndex, Register);
    IOWriteByte(SIOData, Value);
    SIOExitMBPnPMode();
}
*****

```

Appendix B

I/O Information

B.1 I/O Address Map

Input/output (IO)	
[0000000000000000 - 000000000000006F]	PCI Express Root Complex
[0000000000000020 - 0000000000000021]	Programmable interrupt controller
[0000000000000024 - 0000000000000025]	Programmable interrupt controller
[0000000000000028 - 0000000000000029]	Programmable interrupt controller
[000000000000002C - 000000000000002D]	Programmable interrupt controller
[000000000000002E - 000000000000002F]	Motherboard resources
[0000000000000030 - 0000000000000031]	Programmable interrupt controller
[0000000000000034 - 0000000000000035]	Programmable interrupt controller
[0000000000000038 - 0000000000000039]	Programmable interrupt controller
[000000000000003C - 000000000000003D]	Programmable interrupt controller
[0000000000000040 - 0000000000000043]	System timer
[000000000000004E - 000000000000004F]	Motherboard resources
[0000000000000050 - 0000000000000053]	System timer
[0000000000000061 - 0000000000000061]	Motherboard resources
[0000000000000063 - 0000000000000063]	Motherboard resources
[0000000000000065 - 0000000000000065]	Motherboard resources
[0000000000000067 - 0000000000000067]	Motherboard resources
[0000000000000070 - 0000000000000070]	Motherboard resources
[0000000000000070 - 0000000000000077]	System CMOS/real time clock
[0000000000000078 - 000000000000CF7]	PCI Express Root Complex
[0000000000000080 - 000000000000008F]	Motherboard resources
[0000000000000092 - 0000000000000092]	Motherboard resources
[00000000000000A0 - 00000000000000A1]	Programmable interrupt controller
[00000000000000A4 - 00000000000000A5]	Programmable interrupt controller
[00000000000000A8 - 00000000000000A9]	Programmable interrupt controller
[00000000000000AC - 00000000000000AD]	Programmable interrupt controller
[00000000000000B0 - 00000000000000B1]	Programmable interrupt controller
[00000000000000B2 - 00000000000000B3]	Motherboard resources
[00000000000000B4 - 00000000000000B5]	Programmable interrupt controller
[00000000000000B8 - 00000000000000B9]	Programmable interrupt controller
[00000000000000BC - 00000000000000BD]	Programmable interrupt controller
[00000000000002F8 - 00000000000002FF]	Communications Port (COM2)





[00000000000003B0 - 00000000000003BB]	Intel(R) HD Graphics
[00000000000003C0 - 00000000000003DF]	Intel(R) HD Graphics
[00000000000003F8 - 00000000000003FF]	Communications Port (COM1)
[0000000000000400 - 000000000000047F]	Motherboard resources
[00000000000004D0 - 00000000000004D1]	Programmable interrupt controller
[0000000000000500 - 00000000000005FE]	Motherboard resources
[0000000000000600 - 000000000000061F]	Motherboard resources
[0000000000000680 - 000000000000069F]	Motherboard resources
[0000000000000A00 - 0000000000000A0F]	Motherboard resources
[0000000000000A10 - 0000000000000A1F]	Motherboard resources
[0000000000000A20 - 0000000000000A2F]	Motherboard resources
[0000000000000D00 - 000000000000FFFF]	PCI Express Root Complex
[000000000000B000 - 000000000000B0FF]	Realtek PCIe GBE Family Controller
[000000000000B000 - 000000000000BFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 4 - 0F4E
[000000000000B000 - 000000000000BFFF]	PCI-to-PCI Bridge
[000000000000B000 - 000000000000BFFF]	PCI-to-PCI Bridge
[000000000000C000 - 000000000000C0FF]	Realtek PCIe GBE Family Controller #2
[000000000000C000 - 000000000000CFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 3 - 0F4C
[000000000000D000 - 000000000000D01F]	Standard SATA AHCI Controller
[000000000000D000 - 000000000000DFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 2 - 0F4A
[000000000000D020 - 000000000000D023]	Standard SATA AHCI Controller
[000000000000D030 - 000000000000D037]	Standard SATA AHCI Controller
[000000000000D040 - 000000000000D043]	Standard SATA AHCI Controller
[000000000000D050 - 000000000000D057]	Standard SATA AHCI Controller
[000000000000E000 - 000000000000E01F]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12
[000000000000E020 - 000000000000E03F]	Standard SATA AHCI Controller
[000000000000E040 - 000000000000E043]	Standard SATA AHCI Controller
[000000000000E050 - 000000000000E057]	Standard SATA AHCI Controller
[000000000000E060 - 000000000000E063]	Standard SATA AHCI Controller
[000000000000E070 - 000000000000E077]	Standard SATA AHCI Controller
[000000000000E080 - 000000000000E087]	Intel(R) HD Graphics


B.2 Memory Address Map







Memory
[00000000000A0000 - 0000000000BFFFFF] Intel(R) HD Graphics
[00000000000A0000 - 0000000000BFFFFF] PCI Express Root Complex
[00000000000C0000 - 0000000000DFFFFF] PCI Express Root Complex
[00000000000E0000 - 0000000000FFFFFF] PCI Express Root Complex
[0000000000000000 - 000000008FFFFFFF] Intel(R) HD Graphics
[0000000008000000 - 00000000903FFFFF] PCI Express Root Complex
[0000000009000000 - 00000000903FFFFF] Intel(R) HD Graphics
[0000000009040000 - 000000009043FFFF] Realtek PCIe GBE Family Controller
[0000000009040000 - 00000000904FFFFF] PCI-to-PCI Bridge
[0000000009040000 - 00000000904FFFFF] PCI-to-PCI Bridge
[0000000009040000 - 00000000905FFFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 4 - 0F4E
[0000000009040400 - 000000009044FFFF] Realtek PCIe GBE Family Controller
[0000000009050000 - 0000000090503FFFF] PCI-to-PCI Bridge
[0000000009060000 - 0000000090603FFFF] Realtek PCIe GBE Family Controller #2
[0000000009060000 - 0000000090603FFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 3 - 0F4C
[0000000009060400 - 0000000090604FFFF] Realtek PCIe GBE Family Controller #2
[0000000009070000 - 00000000907001FFF] Standard SATA AHCI Controller
[0000000009070000 - 00000000907FFFFFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root Port 2 - 0F4A
[0000000009080000 - 000000009080FFFF] Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
[00000000090810000 - 00000000908133FFF] High Definition Audio Controller
[00000000090814000 - 000000009081401FF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12
[00000000090816000 - 00000000908167FFF] Standard SATA AHCI Controller
[000000000E0000000 - 00000000FFFFFFF] Motherboard resources
[000000000FED00000 - 00000000FED003FFF] High precision event timer
[000000000FED01000 - 00000000FED01FFFF] Motherboard resources
[000000000FED03000 - 00000000FED03FFFF] Motherboard resources
[000000000FED04000 - 00000000FED04FFFF] Motherboard resources
[000000000FED08000 - 00000000FED08FFFF] Motherboard resources
[000000000FED1C000 - 00000000FED1CFFF] Motherboard resources
[000000000FEE00000 - 00000000FEEFFFFFFF] Motherboard resources
[000000000FEF00000 - 00000000FEFFFFFFF] Motherboard resources
[000000000FF000000 - 00000000FFFFFFFFF] Legacy device

B.3 IRQ Mapping Chart

▼ Interrupt request (IRQ)

-  (ISA) 0x00000000 (00) System timer
-  (ISA) 0x00000003 (03) Communications Port (COM2)
-  (ISA) 0x00000004 (04) Communications Port (COM1)
-  (ISA) 0x00000008 (08) High precision event timer

 (PCI) 0x0000000B (11) Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control Unit - SMBus Port - 0F12

-  (PCI) 0xFFFFFFF9 (-7) Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
-  (PCI) 0xFFFFF9FA (-6) Intel(R) HD Graphics
-  (PCI) 0xFFFFFFF8 (-5) Realtek PCIe GBE Family Controller #2
-  (PCI) 0xFFFFFFF7 (-4) Realtek PCIe GBE Family Controller
-  (PCI) 0xFFFFFFF6 (-3) Standard SATA AHCI Controller
-  (PCI) 0xFFFFFFF5 (-2) Standard SATA AHCI Controller