

AHP-1154

Industrial HMI Touch Panel

User's Manual 2nd Ed

Copyright Notice

This document is copyrighted, 2015. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEMON assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

AAEMON reserves the right to make changes in the product design without notice to its users.

Acknowledgement

All other products' name or trademarks are properties of their respective owners.

- Microsoft Windows[®] is a registered trademark of Microsoft Corp.
- ITE is a trademark of Integrated Technology Express, Inc.
- IBM, PC/AT, PS/2, and VGA are trademarks of International Business Machines Corporation.

All other product names or trademarks are properties of their respective owners.

Packing List

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

Item	Quantity
● AHP-1154	1
● Mounting brackets and screws	10
● Phoenix terminal block	1
● Product CD with User's Manual (in pdf) and drivers	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. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. 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.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. 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.

17. 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
18. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.**

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	X	○	○	○	○	○
Wires & Connectors for External Connections	X	○	○	○	○	○
Chassis	X	○	○	○	○	○
CPU & RAM	X	○	○	○	○	○
Hard Disk	X	○	○	○	○	○
LCD	X	○	○	○	○	○
Optical Drive	X	○	○	○	○	○
Touchscreen	X	○	○	○	○	○
PSU	X	○	○	○	○	○
<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>						

Table of Contents

Chapter 1 - Product Specifications	1
1.1 Specifications.....	2
Chapter 2 – Hardware Information.....	5
2.1 COM Port Definition.....	6
2.2 Panel-mount Installation.....	8
2.3 HDD Installation.....	10
Chapter 3 - AMI BIOS Setup.....	11
3.1 System Test and Initialization	12
3.2 AMI BIOS Setup.....	13
3.3 Setup Submenu: Main.....	14
3.4 Setup Submenu: Advanced	15
3.4.1 Advanced: Power Management.....	16
3.4.1.1 Power Management: S5 RTC Wake Settings.....	18
3.4.2 Advanced: Super IO Configuration	19
3.4.2.1 Super IO Configuration: Serial Port 1 Configuration	20
3.4.2.2 Super IO Configuration: Serial Port 2 Configuration	21
3.4.2.3 Super IO Configuration: Serial Port 3 Configuration	22
3.4.2.4 Super IO Management: Serial Port 4 Configuration.....	23
3.4.3 Advanced: H/W Monitor.....	26
3.4.4 Advanced: CPU Configuration.....	27
3.4.5 Advanced: IDE Configuration	28
3.4.6 Advanced: CSM Configuration.....	30
3.4.7 Advanced: Trusted Computing.....	32
3.4.8 Advanced: USB Configuration	33
3.4.9 Advanced: Touch Device.....	35
3.5 Setup submenu: Chipset.....	36

3.5.1	Chipset: Host Bridge	37
3.5.1.1	Host Bridge: IGD – LCD Control.....	38
3.5.2	Chipset: South Bridge.....	39
3.5.2.1	South Bridge: PCI Express Configuration	40
3.6	Setup submenu: Security.....	41
3.7	Setup submenu: Boot.....	42
3.8	Setup submenu: Exit.....	43
Chapter 4 – Drivers Installation		44
4.1	Product CD/DVD.....	45
Appendix A - Watchdog Timer Programming		52
A.1	Watchdog Timer Registers.....	53
A.2	Watchdog Sample Program	55
Appendix B - I/O Information		57
B.1	I/O Address Map.....	58
B.2	Memory Address Map.....	60
B.3	IRQ Mapping Chart	61
Appendix C – Mating Connectors.....		67
C.1	List of Mating Connectors and Cables.....	68
Appendix D – Electrical Specifications for I/O Ports		70
D.1	Electrical Specifications for I/O Ports	71

Chapter 1

Product Specifications

1.1 Specifications

System

- **Processor** Intel® Celeron® J1900 2GHz/ N2807 1.58GHz Processor
- **System Memory** 204-pin DDR3L 1333MHz SODIMM x 1, up to 8GB (J1900)/ 4GB (N2807)
2GB build-in system RAM
- **LCD / CRT Controller** Integrated in Processor
- **Ethernet** 10/100/1000Base-TX, RJ-45 x 2
- **I/O Port** USB 3.0 x 1
USB 2.0 x 3
RS-232 x 2
RS-232/422/485 x 2 (COM2, COM3)
LAN x 2
VGA x 1
3-pin terminal block for power input
Power button x 1
- **Storage Disk Drive** 2.5" SATA Hard Disk Drive x 1
CFast socket x 1
- **Expansion Slot** MiniCard x 2 (full-sized x 1, half-sized x 1)
- **OS Support** Windows® 10 32/64-bit
Windows® 7 32-bit
Windows® Embedded Standard 7
Linux Kernel 2.6.x or above

Mechanical

- **Construction** IP65-rated front plastic bezel and back metal chassis
- **Mounting** Panel, VESA 75/100
- **Dimension (W x H x D)** 407 x 310.5 x 58.3 mm (16.02 x 12.22 x 2.3")
- **Carton Dimension (W x H x D)** 505 x 210 x 455 mm (19.8 x 8.2 x 17.9")
- **Cutout Size for Panel Mount** 394 x 297.5 mm (15.51 x 11.71")
- **Net Weight** 5 kg (11.02 lb)
- **Gross Weight** 6.8 kg (14.99 lb)

Environmental

- **Operating Temperature** -10 ~ 60°C with 0.5 m/s airflow (N2807)
-10 ~ 50°C with 0.5 m/s airflow (J1900)
- **Storage Temperature** -20 ~70°C (-4 ~158°F)
- **Operating Humidity** 90% @ 40°C, non-condensing
- **Anti-Vibration** 1 Grms/ 5-500Hz/ Operation (HDD)
- **Anti-Shock** 20 G peak acceleration (11 msec. duration)
- **EMC** CE/FCC Class A

Power Supply

- **DC Input** 12 VDC/ Min 9V – Max 30V input

LCD

- Display Type 15" XGA TFT LCD
- Max. Resolution 1024x768
- Max Colors 16.8M (8-bit/color)
- Luminance (cd/m²) 450 nits
- Viewing Angle 160° (H), 140° (V)
- Backlight LED
- Backlight MTBF (Hours) 100,000

Touchscreen

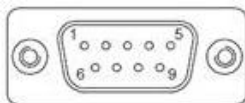
- Type 5-wire analog resistive
- Light Transmission 80%
- Lifetime 10 million activations

Chapter 2

Hardware Information

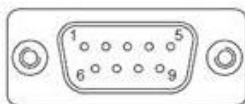
2.1 COM Port Definition

COM1/4 (D-SUB 9)



Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	RX	IN	
3	TX	OUT	±9V
4	DTR	OUT	±9V
5	GND	GND	
6	DSR	IN	
7	RTS	OUT	±9V
8	CTS	IN	
9	RI	IN	

COM2/3 (D-SUB9)



RS-232			
Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	RX	IN	
3	TX	OUT	±5V
4	DTR	OUT	±5V
5	GND	GND	
6	DSR	IN	
7	RTS	OUT	±5V
8	CTS	IN	
9	RI/ +5V/ +12V	IN/ PWR	+5V/ +12V

RS-422

Pin	Pin Name	Signal Type	Signal Level
1	RS422_TX-	OUT	
2	RS422_TX+	OUT	
3	RS422_RX+	IN	
4	RS422_RX-	IN	
5	GND	GND	
6	NC		
7	NC		
8	NC		
9	NC/ +5V/ +12V	PWR	

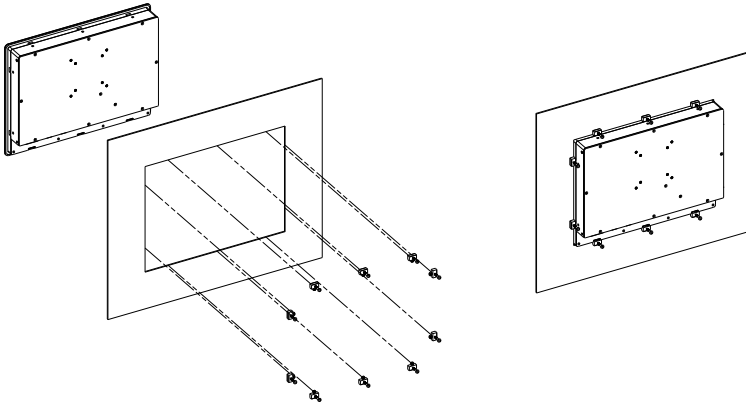
RS-485

Pin	Pin Name	Signal Type	Signal Level
1	RS485_D-	I/O	
2	RS485_D+	I/O	
3	NC	IN	
4	NC	IN	
5	GND	GND	
6	NC		
7	NC		
8	NC		
9	NC/ +5V/ +12V	PWR	

2.2 Panel-mount Installation

To mount the panel onto a wall, you will need a strong mounting surface, screws, along with the mounting brackets.

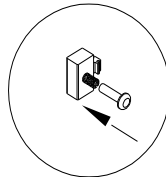
Please take a look at the illustration below before starting to mount the panel.



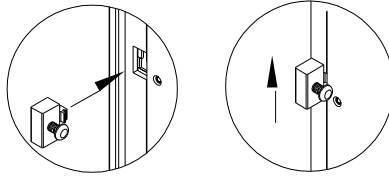
Step 1: Prepare a 394 x 297.5mm opening on the surface to be mounted

Step 2: Place the rear of the panel through the opening

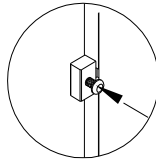
Step 3: Insert a screw through each of the mounts



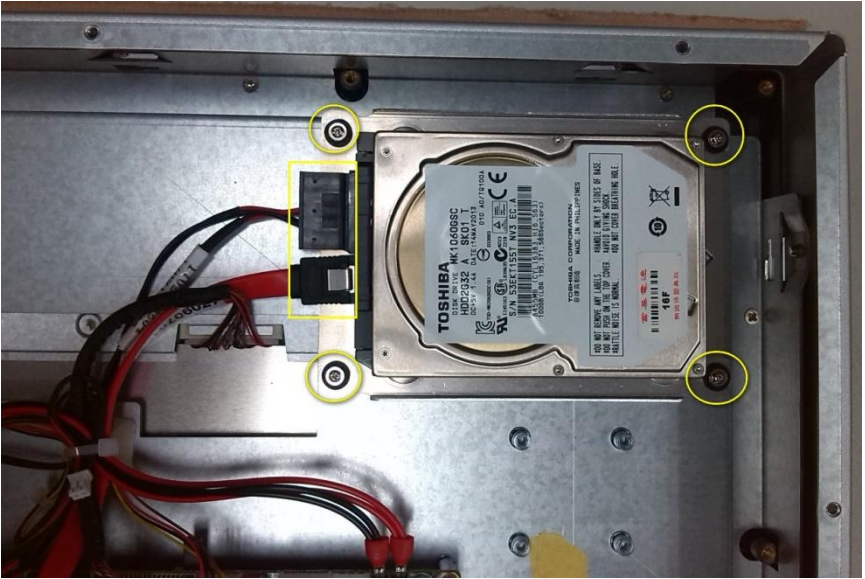
Step 4: There is a funnel-shaped track inside each of the mount holes on the panel. Insert each mount into the holes from the wide end of the track and push it towards the narrow end to secure. Do this for all the mounts.



Step 5: Once all the mounts are secured, secure the panel itself by tightening the screws.



2.3 HDD Installation



Step 1: Remove the rear cover

Step 2: Remove the HDD bracket

Step 3: Place the HDD onto the bracket. Tighten the screws to secure

Step 4: Connect the SATA cable to the HDD

Step 5: Tighten the screws to secure the assembly to the chassis

Step 6: Close and secure the rear cover

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

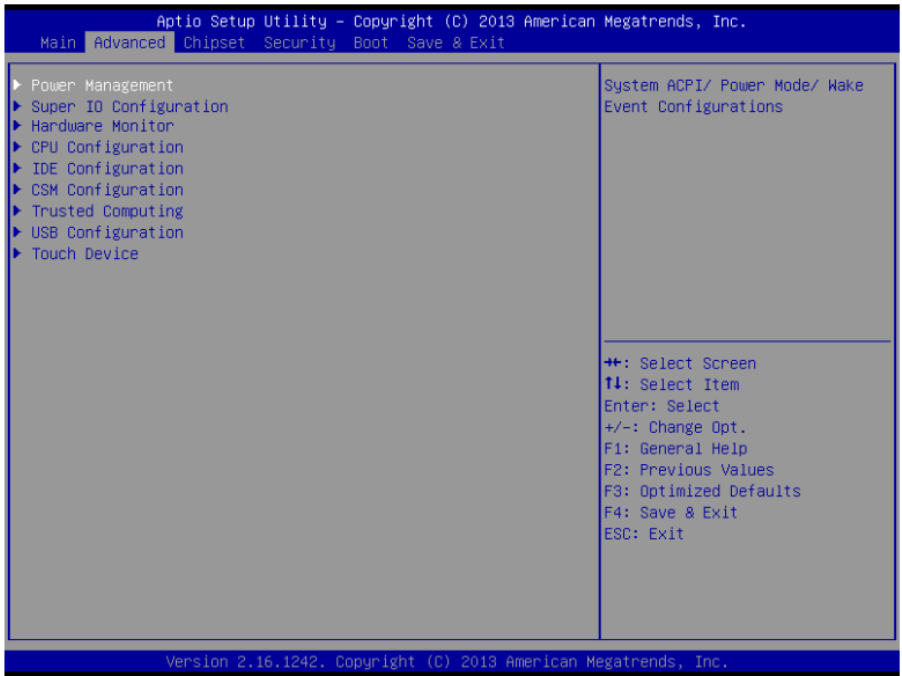
Save & Exit – Save your changes and exit the program

3.3 Setup Submenu: Main

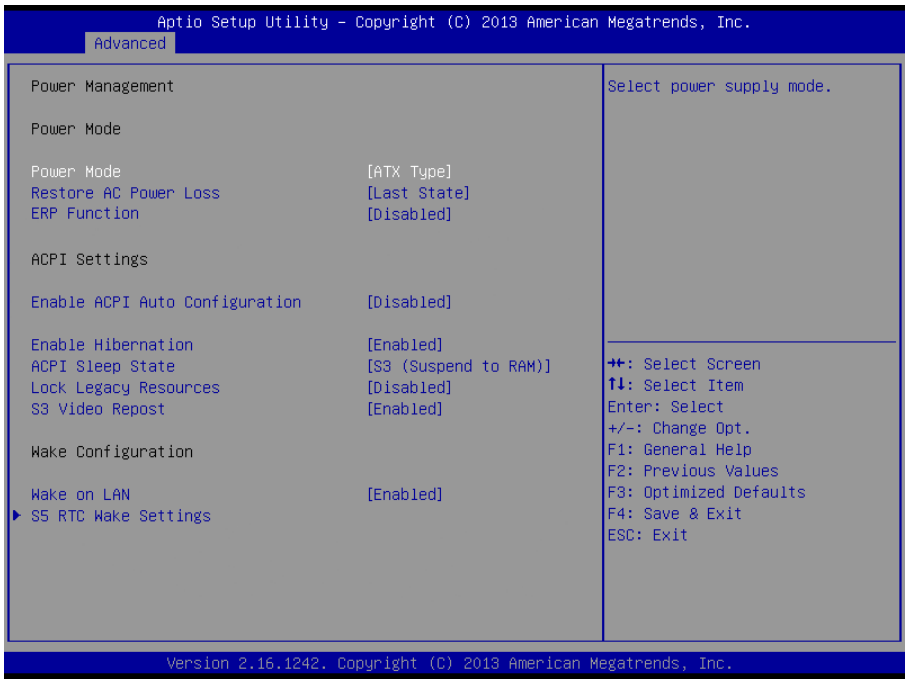
Press **Delete** to enter Setup



3.4 Setup Submenu: Advanced



3.4.1 Advanced: Power Management

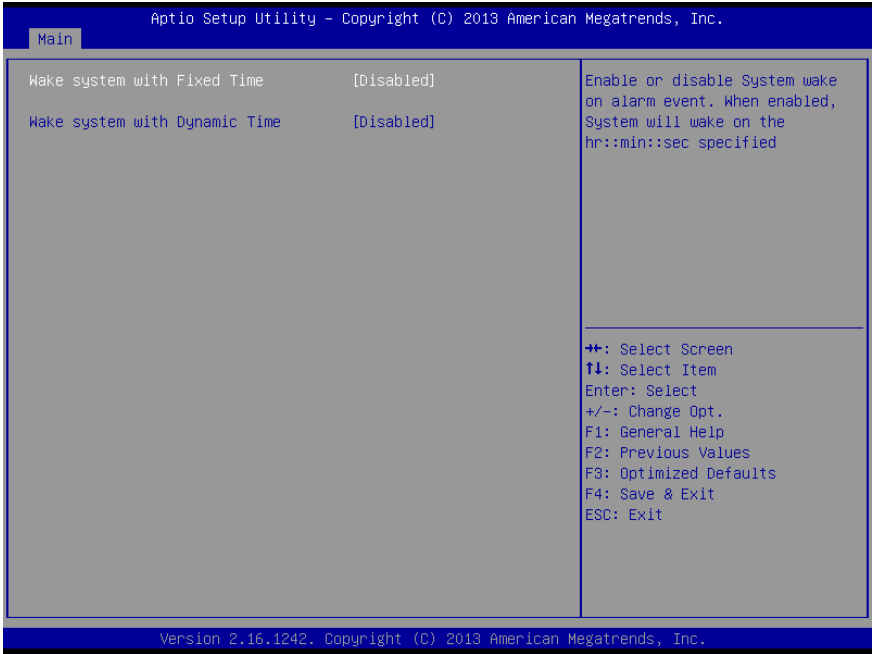


Options summary:

Power Mode	ATX Type	Optimal Default, Failsafe Default
	AT Type	
Select power supply mode		
Restore AC Power Loss	Power Off	
	Power On	
	Last State	Optimal Default, Failsafe Default
Select AC power state when power is re-applied after a power failure		
ERP Function	Enable	
	Disable	Optimal Default, Failsafe Default

Enable ACPI Auto Configuration	Enable	
	Disable	Optimal Default, Failsafe Default
Enables or Disables BIOS ACPI Auto Configuration		
Enable Hibernation	Enable	Optimal Default, Failsafe Default
	Disable	
Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS		
Lock Legacy Resources	Enable	
	Disable	Optimal Default, Failsafe Default
Enables or Disables Lock of Legacy Resources		
S3 Video Repost	Enable	Optimal Default, Failsafe Default
	Disable	
Enabled/Disabled S3 Video Repost		
Wake on LAN	Enable	Optimal Default, Failsafe Default
	Disable	
Enabled/Disabled wake from LAN		

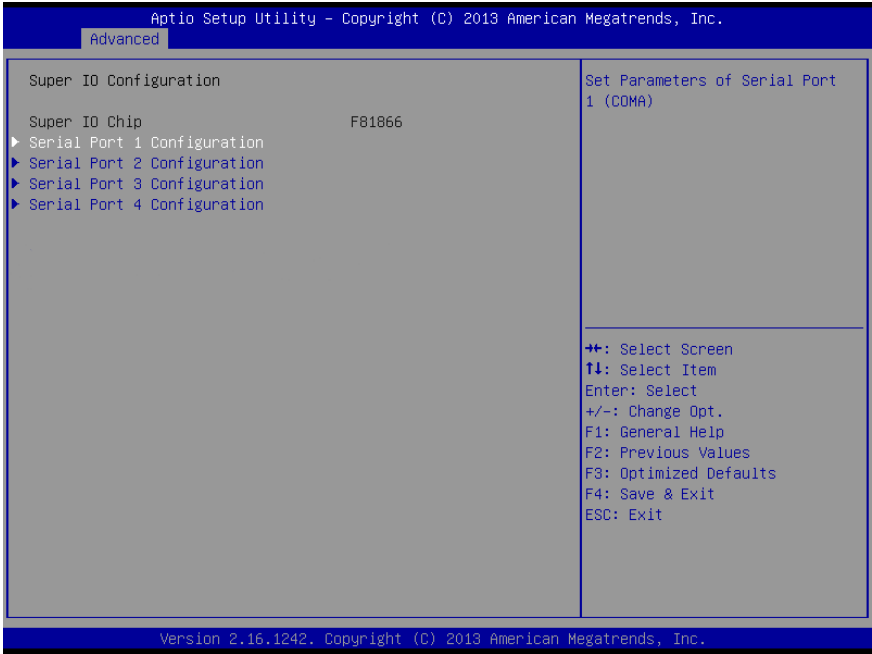
3.4.1.1 Power Management: S5 RTC Wake Settings



Options summary:

Wake system with Fixed Time	Enable	
	Disable	Optimal Default, Failsafe Default
Wake up hour	0	
Wake up minute	0	
Wake up second	0	
Wake system with Dynamic Time	Enable	
	Disable	Optimal Default, Failsafe Default
Wake up minute increase	0	
Select RTC wake mode		

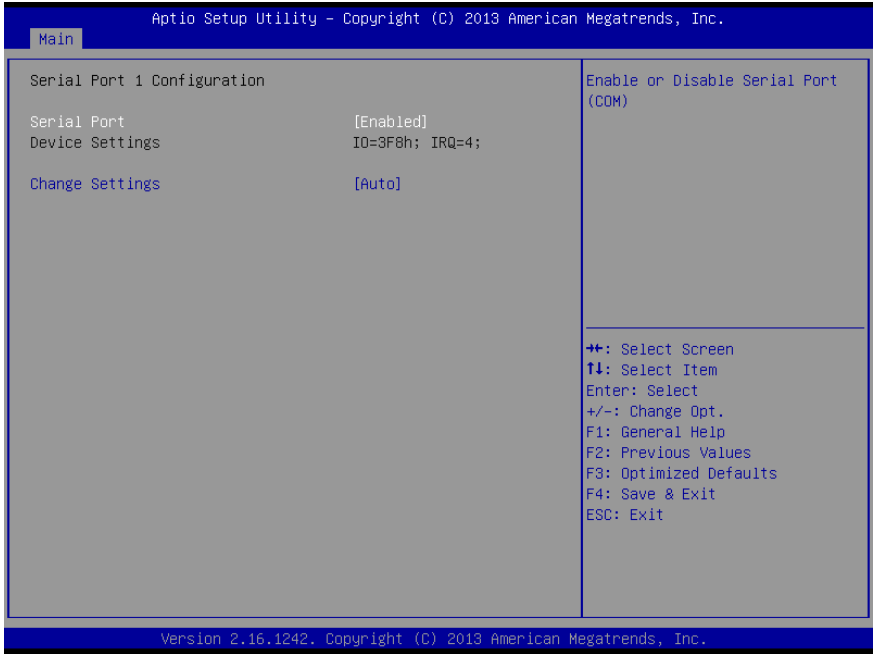
3.4.2 Advanced: Super IO Configuration



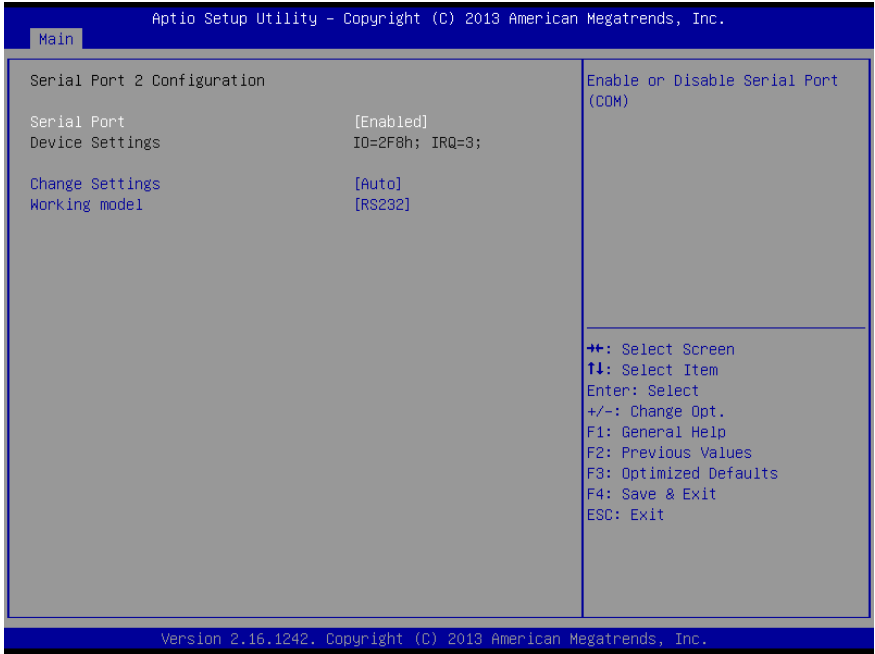
Options summary:

Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
<p>Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS.</p> <p>AUTO option disables legacy support if no USB devices are connected</p>		

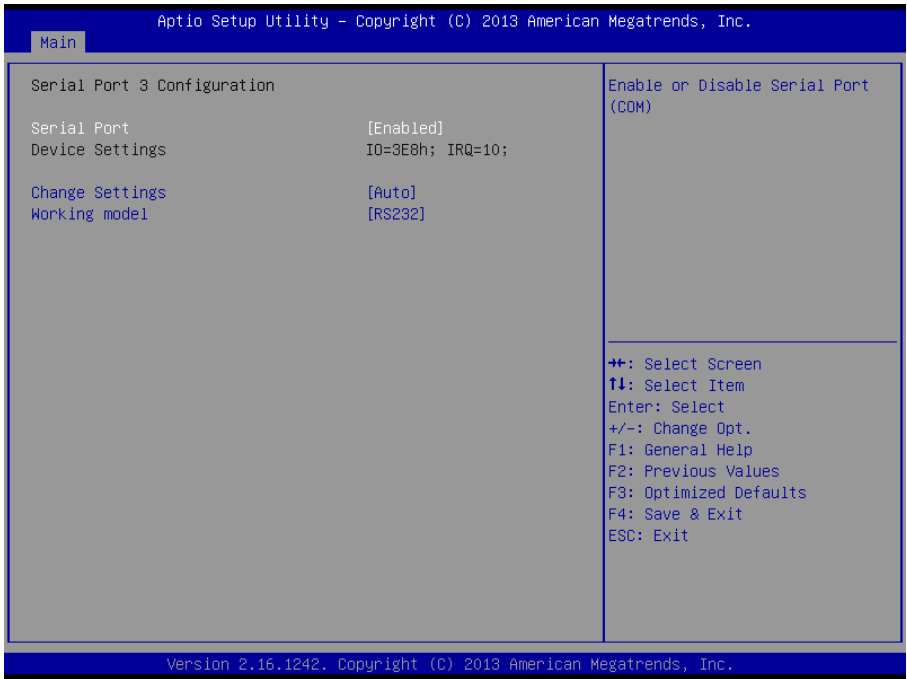
3.4.2.1 Super IO Configuration: Serial Port 1 Configuration



3.4.2.2 Super IO Configuration: Serial Port 2 Configuration

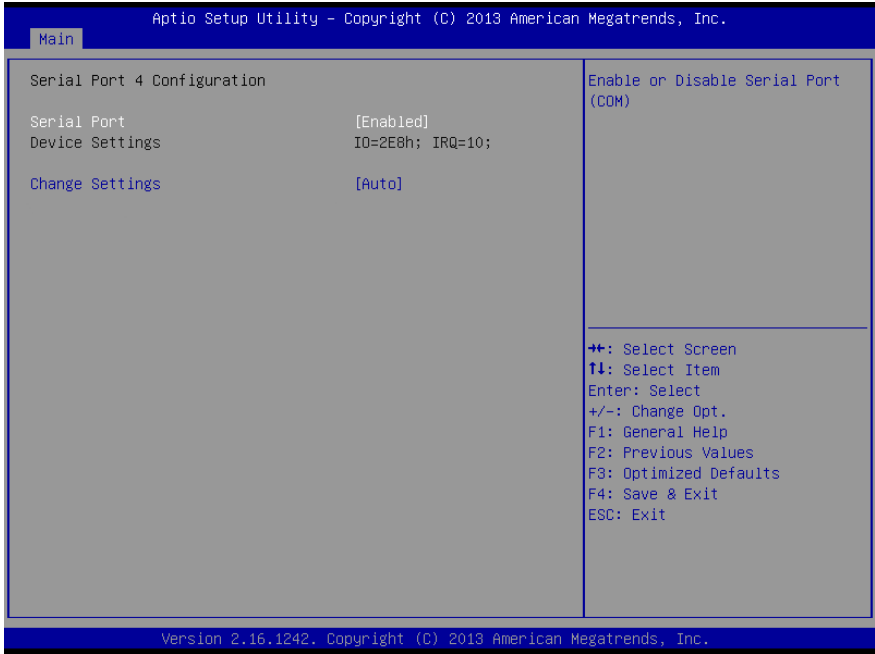


3.4.2.3 Super IO Configuration: Serial Port 3 Configuration



Note: Serial Port 5 ~ 8 are activated with OMNI Module

3.4.2.4 Super IO Management: Serial Port 4 Configuration



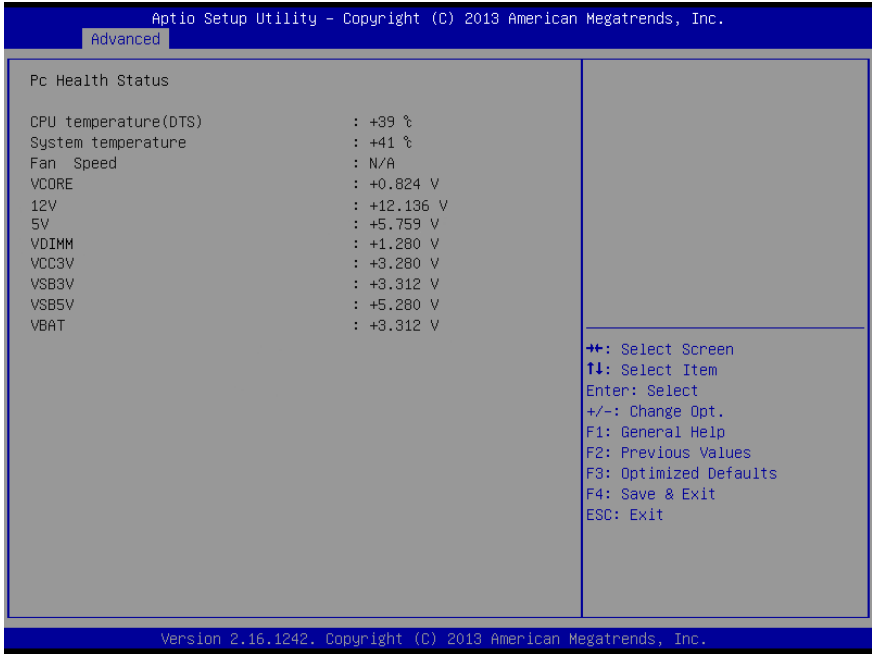
Options summary:

Serial Port	Disabled	
	Enabled	Default
Allows BIOS to En/Disable correspond serial port.		
Change Settings (Serial Port 1)	Auto	Default
	IO=3F8h; IRQ=4;	
	IO=3F8h;	
	IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2F8h;	
	IRQ=3,4,5,6,7,9,10,11,12;	

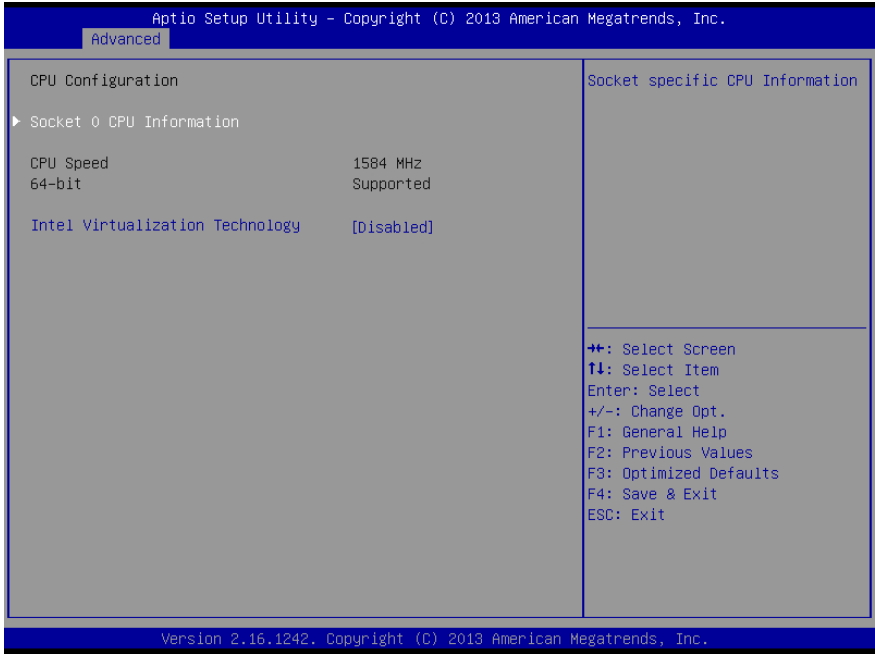
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;			
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;			
Allows BIOS to Select Serial Port resource.				
Change Settings (Serial Port 2)	Auto	Default		
	IO=2F8h; IRQ=3;			
	IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;			
	IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;			
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;			
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;			
	Working model		RS232	Default
			RS422	
	RS485			
Select Working model				
Change Settings (Serial Port 3)	Auto	Default		
	IO=3E8h; IRQ=7;			
	IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;			
	IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;			
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;			
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;			

	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	
Working model	RS232	Default
	RS422	
	RS485	
Select Working model		
Change Settings (Serial Port 4)	Auto	Default
	IO=2E8h; IRQ=7;	
	IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12;	
	IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12;	

3.4.3 Advanced: H/W Monitor



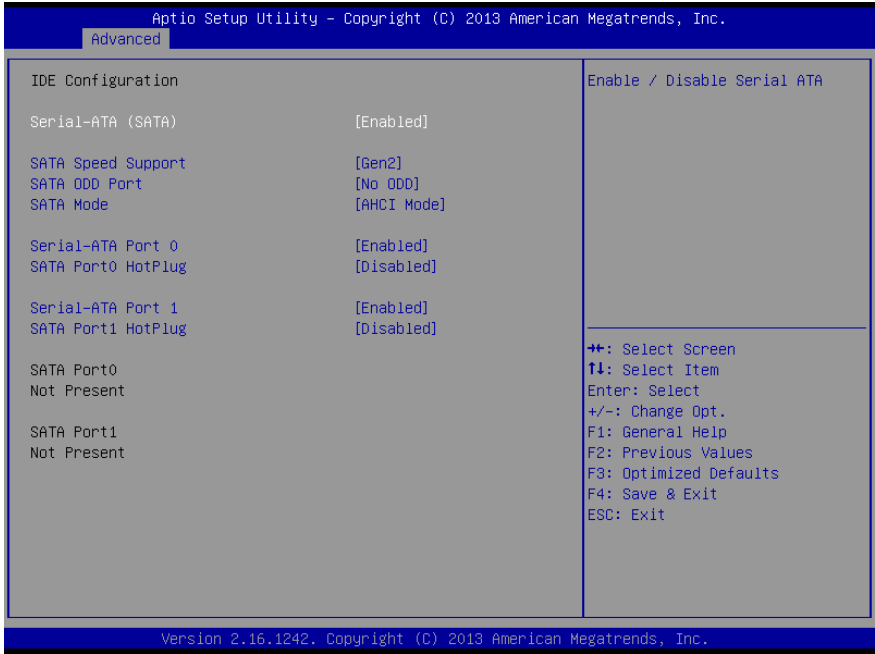
3.4.4 Advanced: CPU Configuration



Options summary:

Intel Virtualization	Disabled	Optimal Default, Failsafe Default
Technology	Enabled	
When enabled, a VMM can utilize the additional hardware capabilities provided by Vander pool Technology		

3.4.5 Advanced: IDE Configuration

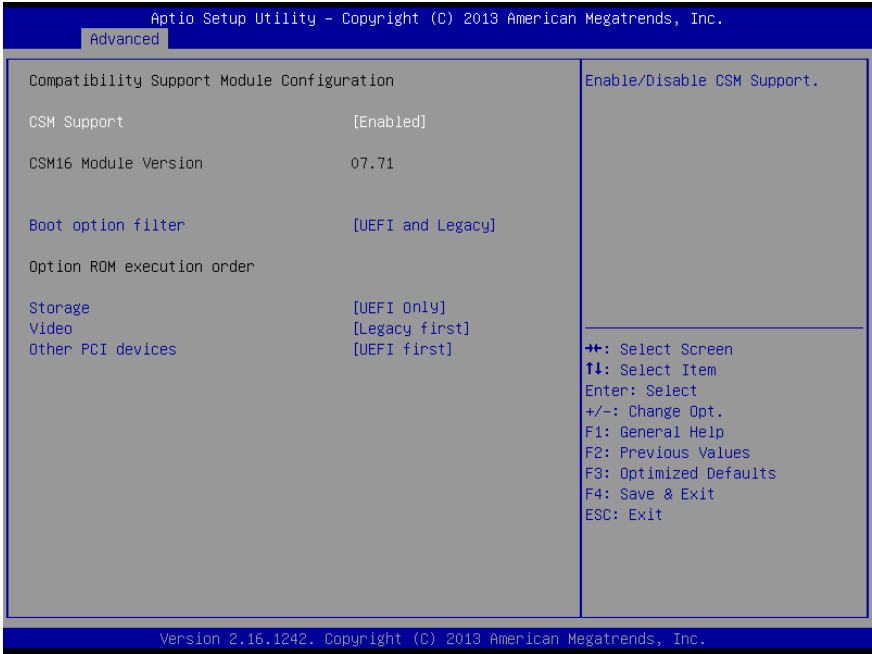


Options summary:

Serial-ATA(SATA)	Enabled	Default
	Disable	
SATA Speed Support	Gen1	
	Gen2	Default
SATA ODD Port	Port0 ODD	
	Port1 ODD	
	No ODD	Default
SATA Mode	IDE	
	AHCI	Default

IDE: Configure SATA controllers as legacy IDE		
AHCI: Configure SATA controllers to operate in AHCI mode		
Serial-ATA Port0/1	Enabled	Default
	Disable	
SATA Port0/1 HotPlug	Enabled	
	Disable	Default

3.4.6 Advanced: CSM Configuration

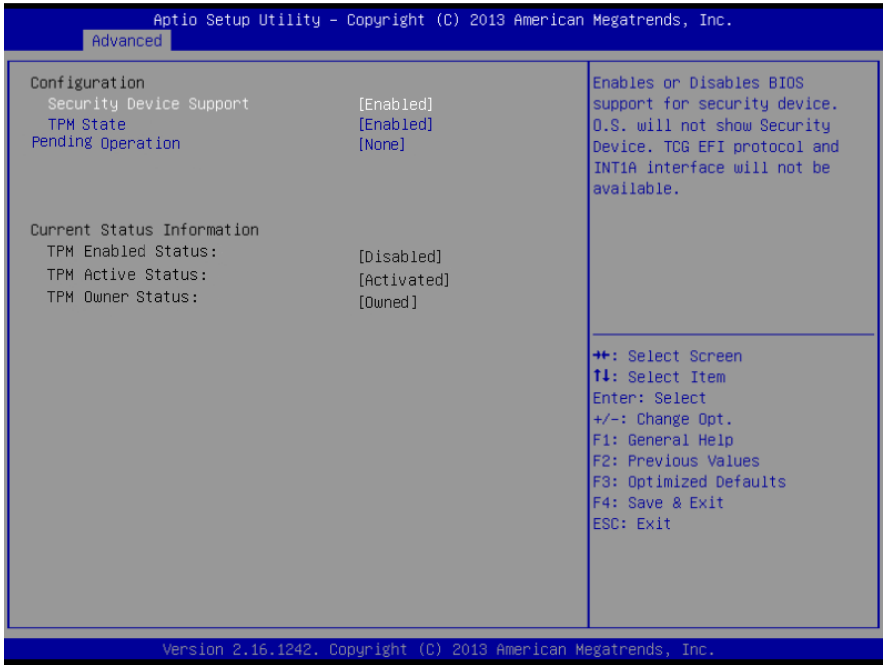


Options summary:

CSM Support	Enabled	Default
	Disable	
Boot option filter	UEFI and Legacy	Default
	Legacy only	
	UEFI only	
Storage & Video	Do not launch	Default
	UEFI only	
	Legacy only	
	Legacy first	
	UEFI first	

Other PCI devices	UEFI first	Default
	Legacy only	

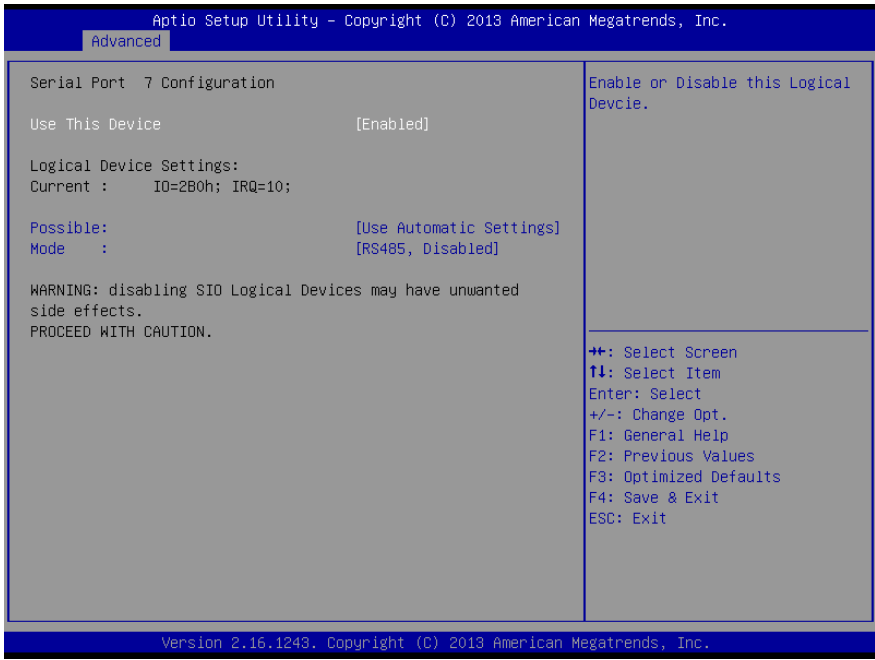
3.4.7 Advanced: Trusted Computing



Options summary:

Security Device Support	Enabled	Default
	Disable	
TPM State	Enabled	Default
	Disable	
Pending Operation	None	Default
	Enable Take Ownership	
	Disable Take Ownership	
	TPM Clear	

3.4.8 Advanced: USB Configuration

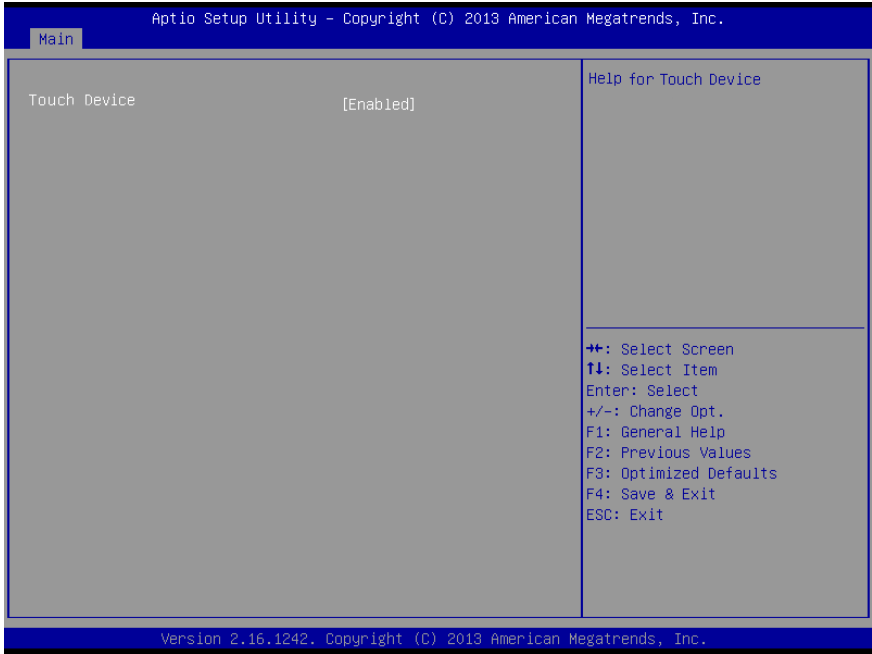


Options summary:

Legacy USB Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
	Auto	
<p>Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS.</p> <p>AUTO option disables legacy support if no USB devices are connected</p>		
Device Name (Emulation Type)	Auto	Optimal Default, Failsafe Default
	Floppy	
	Forced FDD	
	Hard Disk	

	CDROM	
If Auto. USB devices less than 530MB will be emulated as Floppy and remaining as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD(Ex. ZIP drive)		

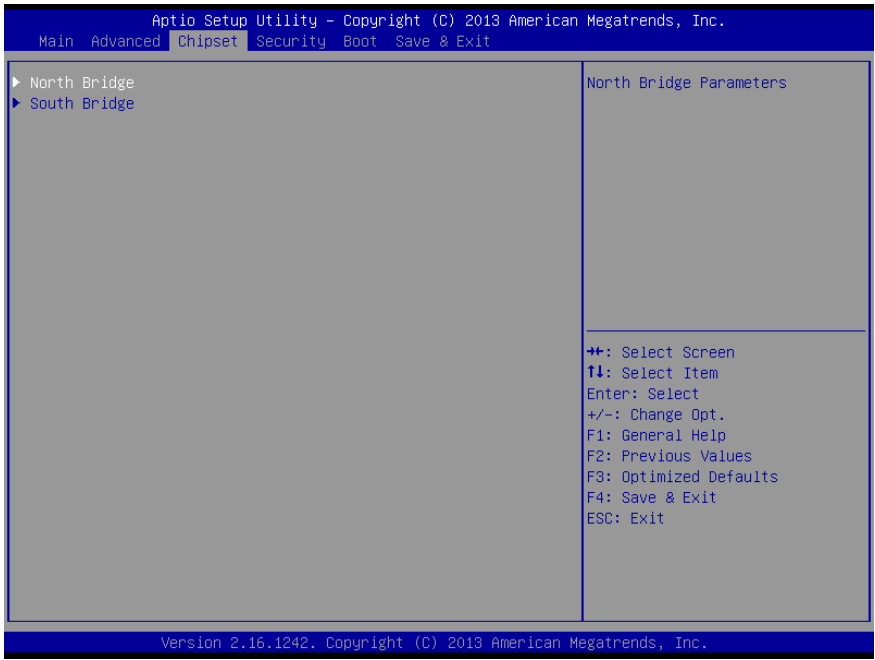
3.4.9 Advanced: Touch Device



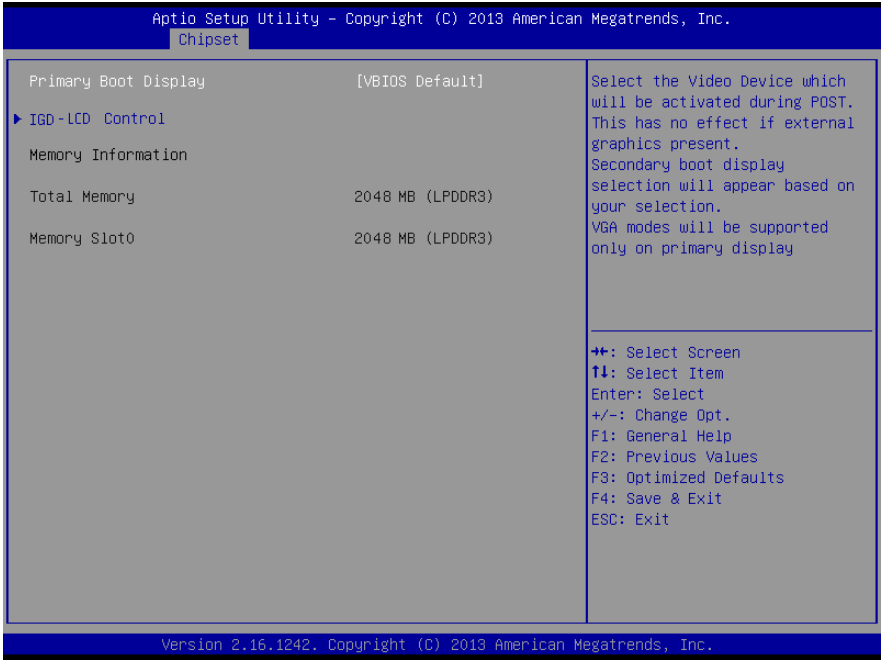
Options summary:

Touch Device	Enabled	Default
	Disable	

3.5 Setup submenu: Chipset

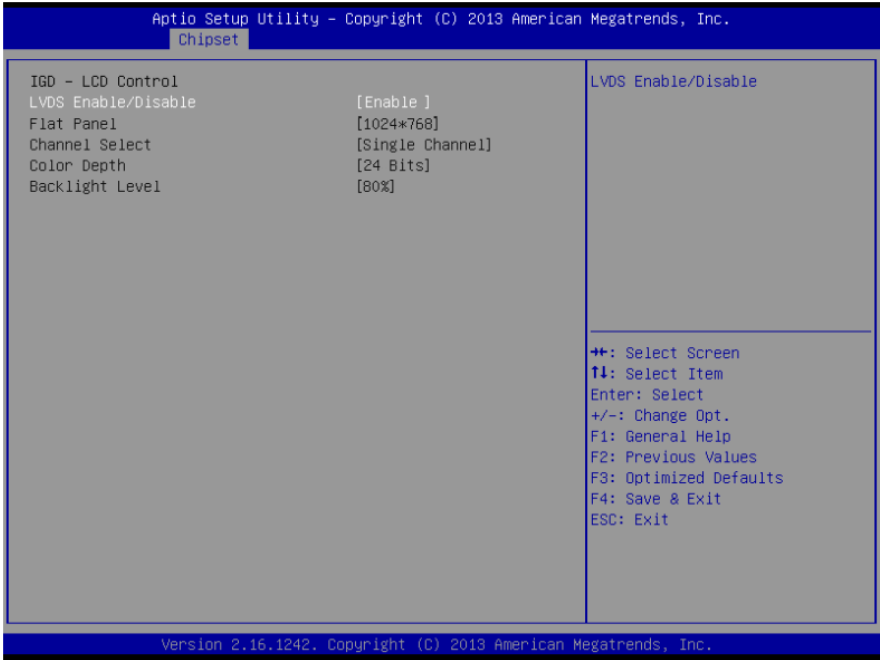


3.5.1 Chipset: Host Bridge

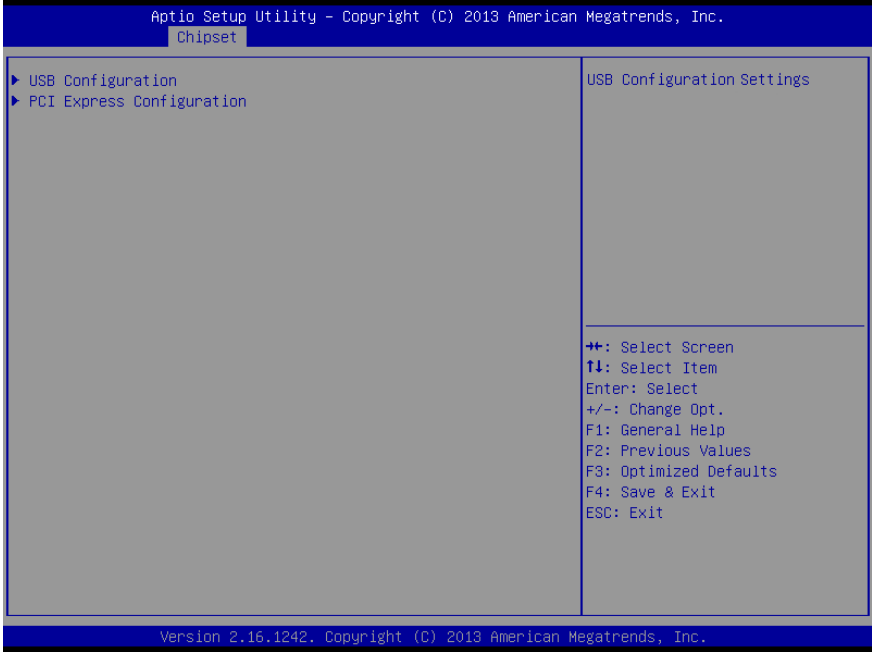


Primary Boot Display	VBIOS Default	Default
	CRT	
	DP/HDMI	

3.5.1.1 Host Bridge: IGD – LCD Control



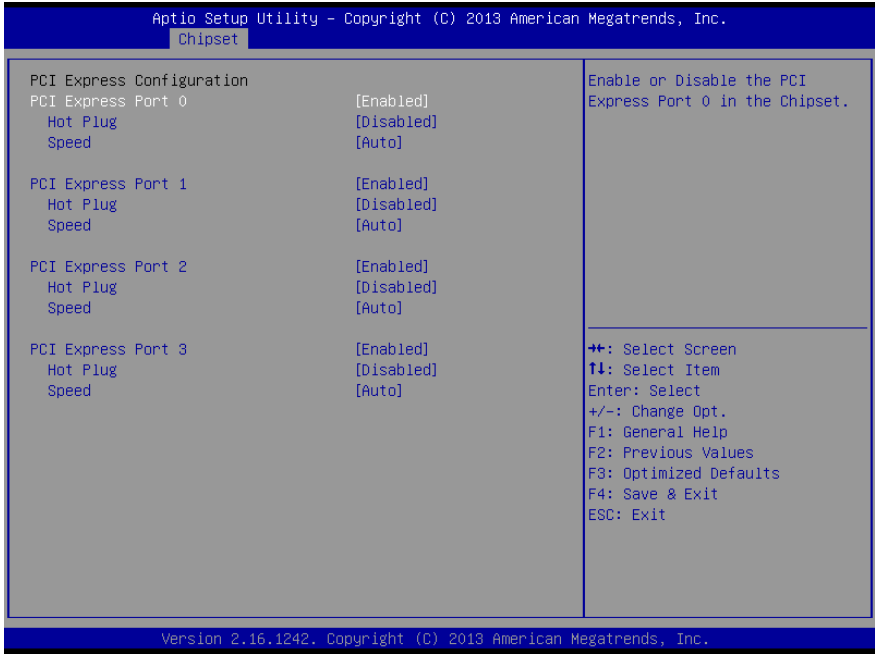
3.5.2 Chipset: South Bridge



Options summary:

USB OTG Support	PCI mode	Default
	Disable	
XHCI Mode	Enabled	Default
	Disabled	
	Auto	
	Smart Auto	
USB Per Port Control	Enabled	Default
	Disabled	
USB Port0/1/2/3	Enabled	Default
	Disabled	

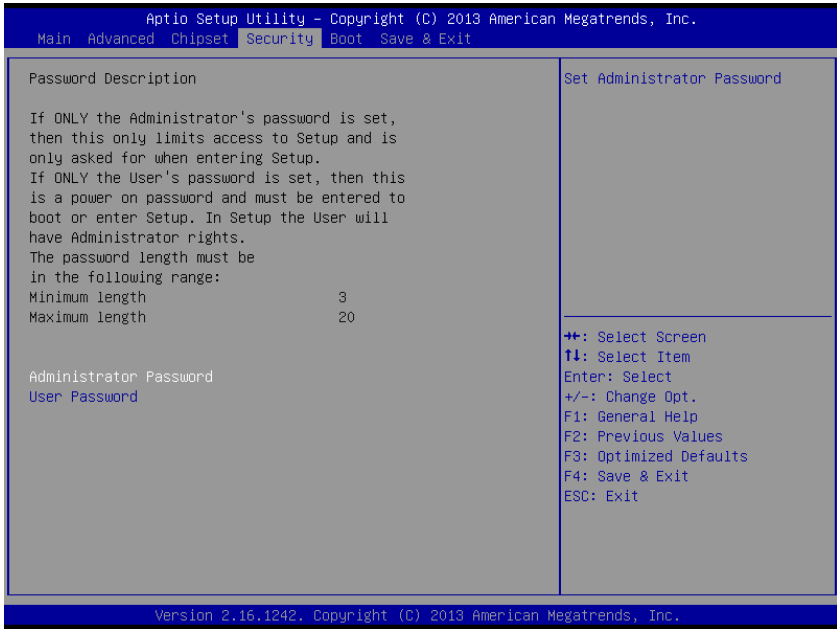
3.5.2.1 South Bridge: PCI Express Configuration



Options summary:

PCI Express Root Port 0/1/2/3	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabling/Disabling PCI Express root ports		
Hot Plug	Disabled	Default
	Enabled	
Speed	Auto	Default
	Gen2	
	Gen1	

3.6 Setup submenu: Security



Change User/Administrator Password

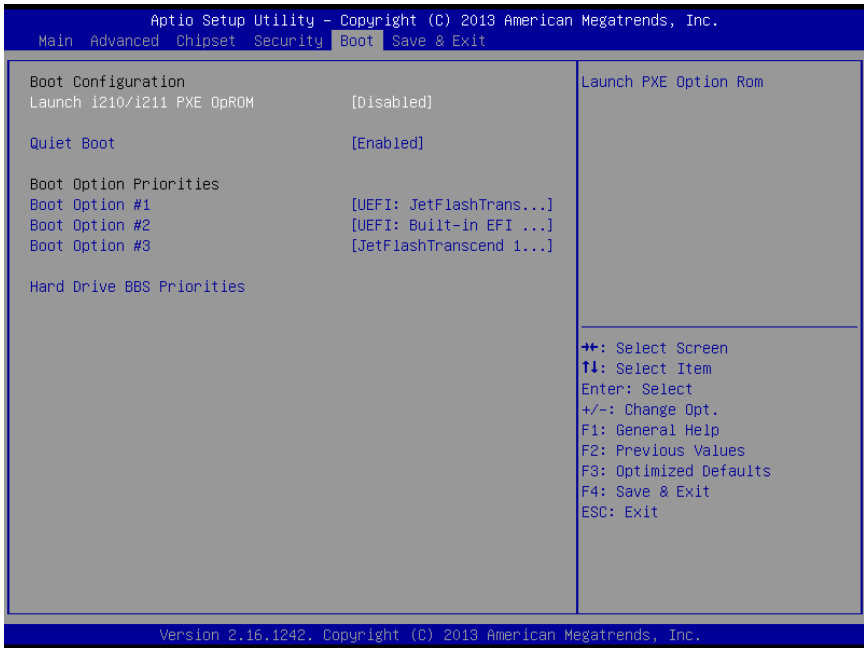
You can set a User Password once an Administrator Password is set. The password will be required during boot up, or when the user enters the Setup utility. Please Note that a User Password does not provide access to many of the features in the Setup utility.

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.

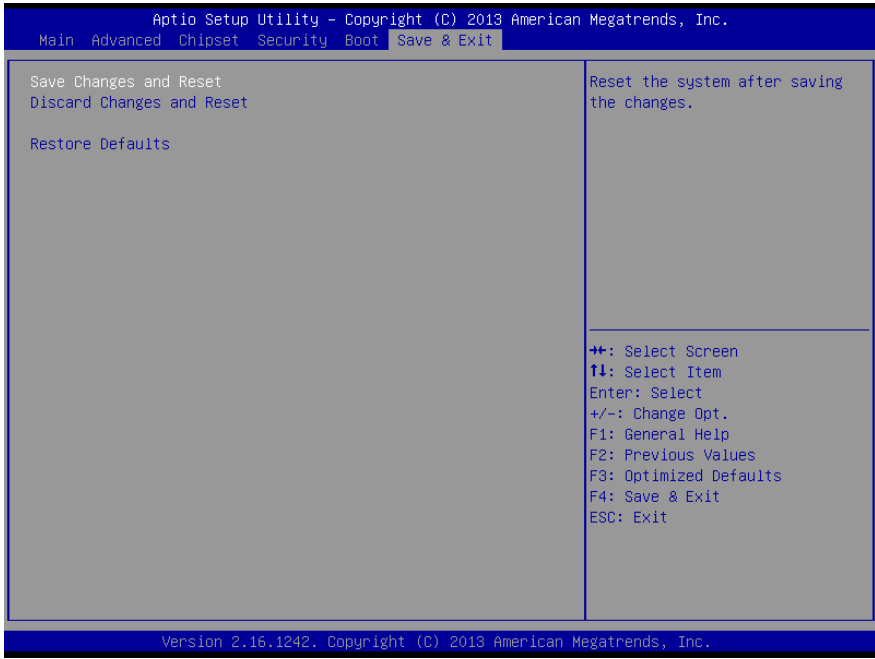
3.7 Setup submenu: Boot



Options summary:

Quiet Boot	Disabled	Default
	Enabled	
En/Disable showing boot logo.		
Launch i210/i211 PXE OpROM	Disabled	Default
	Enabled	
En/Disable PXE boot for i210/i211 LAN		

3.8 Setup submenu: Exit



Chapter 4

Drivers Installation

4.1 Product CD/DVD

The AHP-1154 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 - Graphics** 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 Touch Driver

1. Open the **STEP4 – PenMount Touch 6000** folder followed by **Setup.exe**

2. Follow the instructions
3. Drivers will be installed automatically

Step 5 – Install TXE Drivers (Windows 8/10 only)

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

Step 6 – Install USB 3.0 Drivers (Windows 7 only)

1. Open the **STEP6 – USB 3.0** folder followed by **Setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

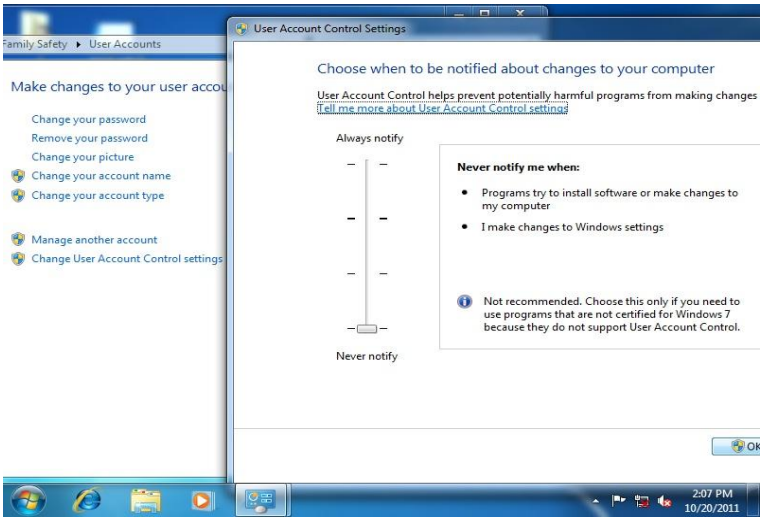
Step 7 – Install MBI Driver (Windows 8.1/10 only, optional)

1. Open the **STEP7 – MBI (Optional)** folder and select your OS
2. Open the **Setup.exe** in the folder
3. Follow the instructions
4. Drivers will be installed automatically

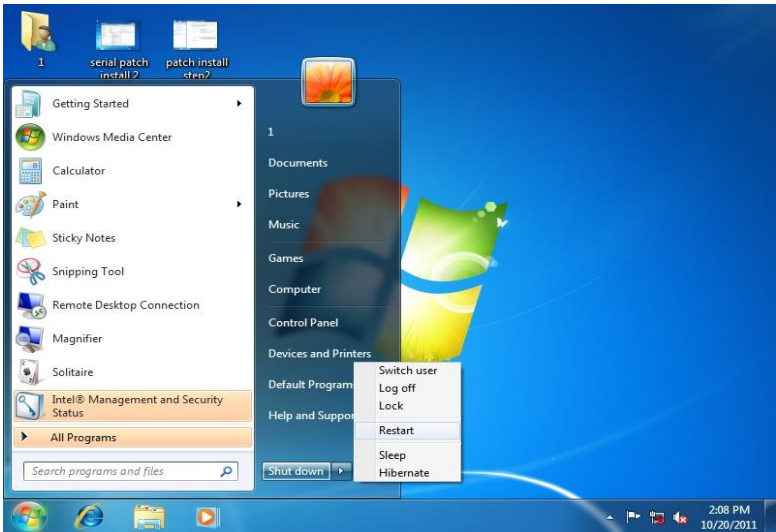
Step 8 – Serial Port Drivers (Optional)

For Windows 7:

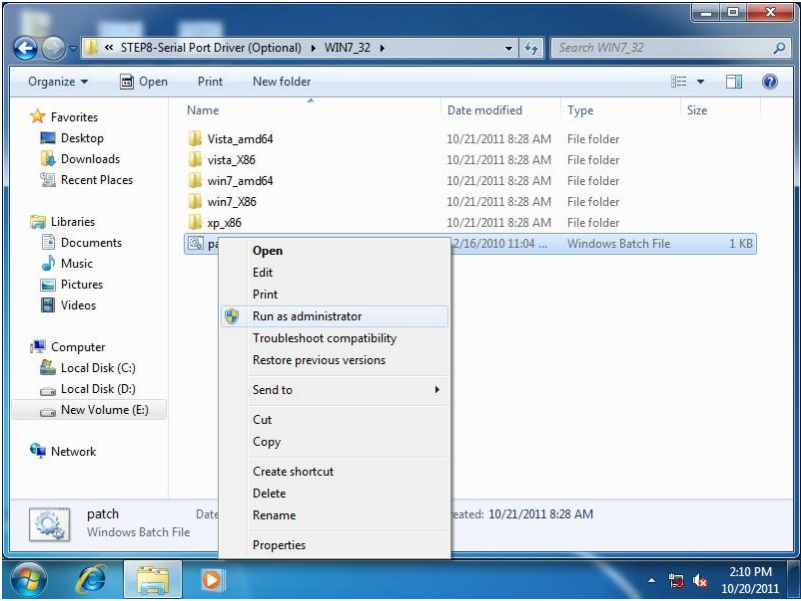
1. Change User Account Control settings to **Never notify**



2. Reboot and log in as administrator

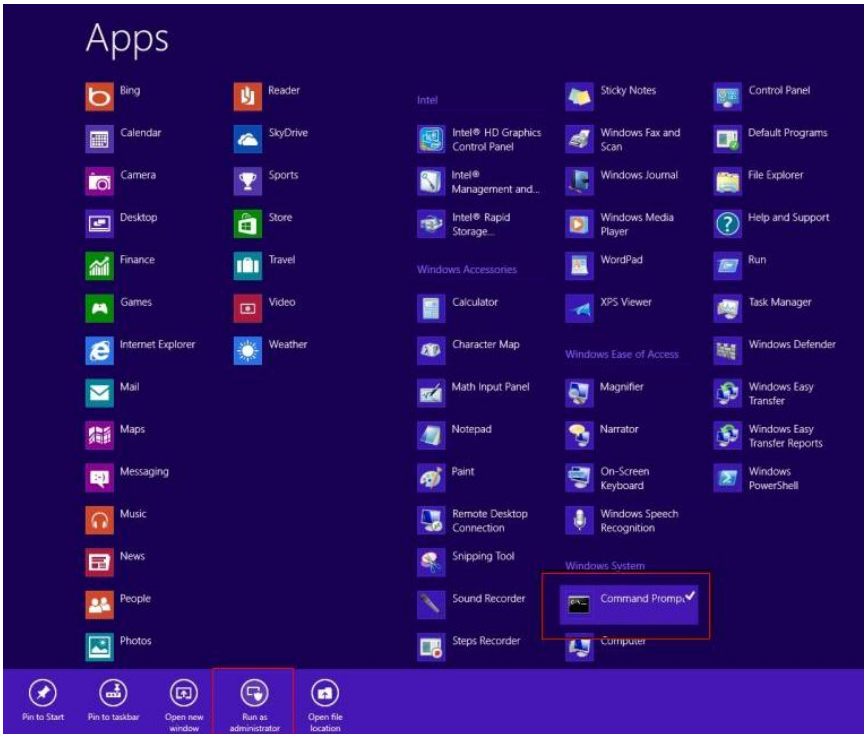


3. Run patch.bat as administrator



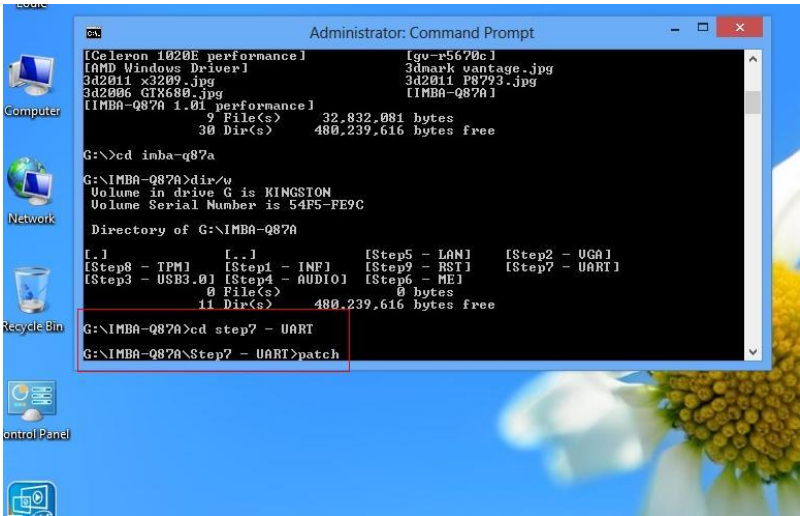
For Windows 8:

1. Open the Apps Screen, right click on the **Command Prompt** tile and select **Run as Administrator**

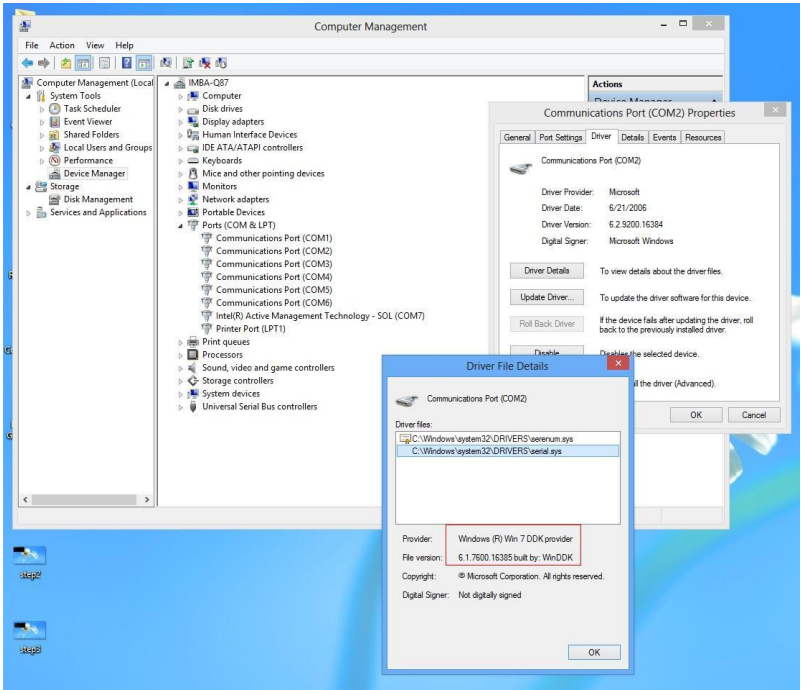


2. To install the driver (patch.bat), you will first have to locate the file in command prompt. To do that, first go to the directory which contains the file by entering **<drive letter>**: eg. if the driver is in D drive, enter **D:**
3. You are now at the directory containing the installation file. Next, go to the folder in which the file resides by entering **cd <folder>** eg: if the file is in a folder named abc, enter **cd <abc>**.
4. You are now at the folder where the file is located. Enter the **patch.bat** to open and install the drivers. If your file is in a subfolder, enter the **cd**

<folder> command again to access the subfolder (screenshot below is for reference only).



5. Reboot after installation completes.
6. To confirm the installation, go to Device Manager, expand the Ports (COM & LPT) tree and double click on any of the COM ports to open its properties. Go to the Driver tab, select Driver Details and click on **serial.sys**, you should see its provider as **Windows (R) Win 7 DDK Provider**.



For Windows 10

1. Open the **WIN10** folder followed by **setup.exe**
2. Follow the instructions
3. Drivers will be installed automatically

Appendix A

Watchdog Timer Programming

A.1 Watchdog Timer Registers

Table 1 : Watch dog relative IO address

I/O Base Address	Default Value	Note
	0xA00	I/O Base address for Watchdog operation. This address is assigned by SIO LDN7, register 0x60-0x61.

Table 2 : Watchdog relative register table

Register	Offset	BitNum	Value	Note
Watchdog WDTRST# Enable	0x00	7	1	Enable/Disable time out output via WDTRST# 0: Disable 1: Enable
Pulse Width	0x05	0:1	01	Width of Pulse signal 00: 1ms (do not use) 01: 25ms 10: 125ms 11: 5s <i>Pulse width is must longer than 16ms.</i>
Signal Polarity	0x05	2	0	0: low active 1: high active <i>Must set this bit to 0</i>
Counting Unit	0x05	3	0	Select time unit. 0: second 1: minute

Output Signal Type	0x05	4	1	0: Level 1: Pulse <i>Must set this bit to 1</i>
Watchdog Timer Enable	0x05	5	1	0: Disable 1: Enable
Timeout Status	0x05	6	1	1: timeout occurred. Write a 1 to clear timeout status
Timer Counter	0x06			Time of watchdog timer (0~255)

A.2 Watchdog Sample Program

```
*****// WDT I/O
operation relative definition (Please reference to Table 1)
#define WDTAddr 0xA00 // WDT I/O base address
Void WDTWriteByte(byte Register, byte Value);
byte WDTReadByte(byte Register);
Void WDTSetReg(byte Register, byte Bit, byte Val);
// Watch Dog relative definition (Please reference to Table 2)
#define DevReg 0x00 // Device configuration register
#define WDRstBit 0x80 // Watchdog WDTRST# (Bit7)
#define WDRstVal 0x80 // Enabled WDTRST#
#define TimerReg 0x05 // Timer register
#define PSWidthBit 0x00 // WDTRST# Pulse width (Bit0:1)
#define PSWidthVal 0x01 // 25ms for WDTRST# pulse
#define PolarityBit 0x02 // WDTRST# Signal polarity (Bit2)
#define PolarityVal 0x00 // Low active for WDTRST#
#define UnitBit 0x03 // Unit for timer (Bit3)
#define ModeBit 0x04 // WDTRST# mode (Bit4)
#define ModeVal 0x01 // 0:level 1: pulse
#define EnableBit 0x05 // WDT timer enable (Bit5)
#define EnableVal 0x01 // 1: enable
#define StatusBit 0x06 // WDT timer status (Bit6)
#define CounterReg 0x06 // Timer counter register
*****
*****
VOID Main(){
// Procedure : AaeonWDTConfig
// (byte)Timer : Counter of WDT timer.(0x00~0xFF)
```

```

// (boolean)Unit : Select time unit(0: second, 1: minute).
AaeonWDTConfig(Counter, Unit);
// Procedure : AaeonWDTEnable
// This procedure will enable the WDT counting.
WDTSetBit(TimerReg, PSWidthBit, PSWidthVal);
// Watchdog WDRST# Enable
WDTSetBit(DevReg, WDRstBit, WDRstVal);
}
VOID WDTClearTimeoutStatus(){
WDTSetBit(TimerReg, StatusBit, 1);
}
*****

*****

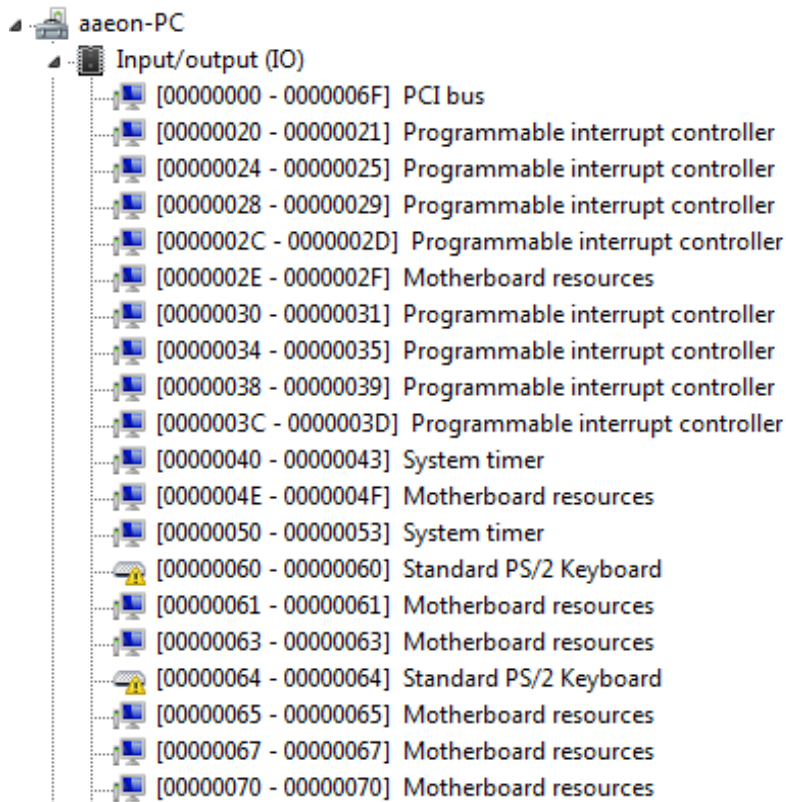
VOID WDTWriteByte(byte Register, byte Value){
IOWriteByte(WDTAddr+Register, Value);
}
byte WDTReadByte(byte Register){
return IOReadByte(WDTAddr+Register);
}
VOID WDTSetBit(byte Register, byte Bit, byte Val){
byte TmpValue;
TmpValue = WDTReadByte(Register);
TmpValue &= ~(1 << Bit);
TmpValue |= Val << Bit;
WDTWriteByte(Register, TmpValue);
}
*****

```













































Appendix B

I/O Information

B.1 I/O Address Map



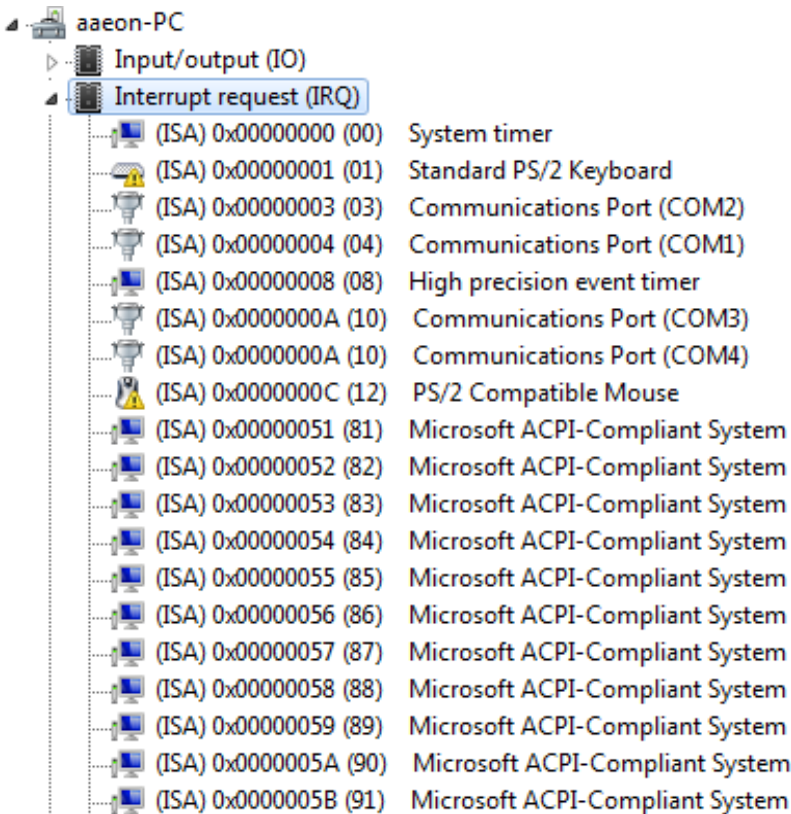
Address Range	Component
[00000000 - 0000006F]	PCI bus
[00000020 - 00000021]	Programmable interrupt controller
[00000024 - 00000025]	Programmable interrupt controller
[00000028 - 00000029]	Programmable interrupt controller
[0000002C - 0000002D]	Programmable interrupt controller
[0000002E - 0000002F]	Motherboard resources
[00000030 - 00000031]	Programmable interrupt controller
[00000034 - 00000035]	Programmable interrupt controller
[00000038 - 00000039]	Programmable interrupt controller
[0000003C - 0000003D]	Programmable interrupt controller
[00000040 - 00000043]	System timer
[0000004E - 0000004F]	Motherboard resources
[00000050 - 00000053]	System timer
[00000060 - 00000060]	Standard PS/2 Keyboard
[00000061 - 00000061]	Motherboard resources
[00000063 - 00000063]	Motherboard resources
[00000064 - 00000064]	Standard PS/2 Keyboard
[00000065 - 00000065]	Motherboard resources
[00000067 - 00000067]	Motherboard resources
[00000070 - 00000070]	Motherboard resources

-  [00000070 - 00000070] Motherboard resources
-  [00000070 - 00000077] System CMOS/real time clock
-  [00000078 - 00000CF7] PCI bus
-  [00000080 - 0000008F] Motherboard resources
-  [00000092 - 00000092] Motherboard resources
-  [000000A0 - 000000A1] Programmable interrupt controller
-  [000000A4 - 000000A5] Programmable interrupt controller
-  [000000A8 - 000000A9] Programmable interrupt controller
-  [000000AC - 000000AD] Programmable interrupt controller
-  [000000B0 - 000000B1] Programmable interrupt controller
-  [000000B2 - 000000B3] Motherboard resources
-  [000000B4 - 000000B5] Programmable interrupt controller
-  [000000B8 - 000000B9] Programmable interrupt controller
-  [000000BC - 000000BD] Programmable interrupt controller
-  [000002E8 - 000002EF] Communications Port (COM4)
-  [000002F8 - 000002FF] Communications Port (COM2)
-  [000003B0 - 000003BB] Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor
-  [000003C0 - 000003DF] Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor
-  [000003E8 - 000003EF] Communications Port (COM3)
-  [000003F8 - 000003FF] Communications Port (COM1)
-  [00000400 - 0000047F] Motherboard resources
-  [000004D0 - 000004D1] Programmable interrupt controller
-  [000003E8 - 000003EF] Communications Port (COM3)
-  [000003F8 - 000003FF] Communications Port (COM1)
-  [00000400 - 0000047F] Motherboard resources
-  [000004D0 - 000004D1] Programmable interrupt controller
-  [00000500 - 000005FE] Motherboard resources
-  [00000600 - 0000061F] Motherboard resources
-  [00000680 - 0000069F] Motherboard resources
-  [00000A00 - 00000A0F] Motherboard resources
-  [00000A10 - 00000A1F] Motherboard resources
-  [00000A20 - 00000A2F] Motherboard resources
-  [00000D00 - 0000FFFF] PCI bus
-  [0000D000 - 0000DFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root
-  [0000E000 - 0000EFFF] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Root
-  [0000F000 - 0000F01F] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control I
-  [0000F020 - 0000F03F] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
-  [0000F040 - 0000F043] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
-  [0000F050 - 0000F057] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
-  [0000F060 - 0000F063] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
-  [0000F070 - 0000F077] Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
-  [0000F080 - 0000F087] Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor
-  > Interrupt request (IRQ)
-  > Memory























B.2 Memory Address Map























Address Range	Device Name
[000A0000 - 000BFFFF]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processo
[000A0000 - 000BFFFF]	PCI bus
[000C0000 - 000DFFFF]	PCI bus
[000E0000 - 000FFFFFF]	PCI bus
[80000000 - D0812FFF]	PCI bus
[C0000000 - CFFFFFFF]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processo
[D0000000 - D03FFFFFF]	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processo
[D0400000 - D04FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Executio
[D0500000 - D05FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Executio
[D0600000 - D061FFFF]	Intel(R) I211 Gigabit Network Connection
[D0600000 - D06FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Ro
[D0620000 - D0623FFF]	Intel(R) I211 Gigabit Network Connection
[D0700000 - D071FFFF]	Intel(R) I211 Gigabit Network Connection #2
[D0700000 - D07FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Ro
[D0720000 - D0723FFF]	Intel(R) I211 Gigabit Network Connection #2
[D0800000 - D080FFFF]	Intel(R) USB 3.0 eXtensible Host Controller
[D0810000 - D081001F]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Contro
[D0812000 - D08127FF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[E0000000 - EFFFFFFF]	Motherboard resources
[FED00000 - FED003FF]	High precision event timer
[FED01000 - FED01FFF]	Motherboard resources
[D0500000 - D05FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Executio
[D0600000 - D061FFFF]	Intel(R) I211 Gigabit Network Connection
[D0600000 - D06FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Ro
[D0620000 - D0623FFF]	Intel(R) I211 Gigabit Network Connection
[D0700000 - D071FFFF]	Intel(R) I211 Gigabit Network Connection #2
[D0700000 - D07FFFFFF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Ro
[D0720000 - D0723FFF]	Intel(R) I211 Gigabit Network Connection #2
[D0800000 - D080FFFF]	Intel(R) USB 3.0 eXtensible Host Controller
[D0810000 - D081001F]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control
[D0812000 - D08127FF]	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
[E0000000 - EFFFFFFF]	Motherboard resources
[FED00000 - FED003FF]	High precision event timer
[FED01000 - FED01FFF]	Motherboard resources
[FED03000 - FED03FFF]	Motherboard resources
[FED04000 - FED04FFF]	Motherboard resources
[FED08000 - FED08FFF]	Motherboard resources
[FED0C000 - FED0CFFF]	Motherboard resources
[FED1C000 - FED1CFFF]	Motherboard resources
[FED40000 - FED44FFF]	Trusted Platform Module 1.2
[FEE00000 - FEEFFFFFFF]	Motherboard resources
[FEF00000 - FEFFFFFFFF]	Motherboard resources
[FF000000 - FFFFFFFF]	Intel(R) 82802 Firmware Hub Device























B.3 IRQ Mapping Chart




































































Device	IRQ
System timer	(ISA) 0x00000000 (00)
Standard PS/2 Keyboard	(ISA) 0x00000001 (01)
Communications Port (COM2)	(ISA) 0x00000003 (03)
Communications Port (COM1)	(ISA) 0x00000004 (04)
High precision event timer	(ISA) 0x00000008 (08)
Communications Port (COM3)	(ISA) 0x0000000A (10)
Communications Port (COM4)	(ISA) 0x0000000A (10)
PS/2 Compatible Mouse	(ISA) 0x0000000C (12)
Microsoft ACPI-Compliant System	(ISA) 0x00000051 (81)
Microsoft ACPI-Compliant System	(ISA) 0x00000052 (82)
Microsoft ACPI-Compliant System	(ISA) 0x00000053 (83)
Microsoft ACPI-Compliant System	(ISA) 0x00000054 (84)
Microsoft ACPI-Compliant System	(ISA) 0x00000055 (85)
Microsoft ACPI-Compliant System	(ISA) 0x00000056 (86)
Microsoft ACPI-Compliant System	(ISA) 0x00000057 (87)
Microsoft ACPI-Compliant System	(ISA) 0x00000058 (88)
Microsoft ACPI-Compliant System	(ISA) 0x00000059 (89)
Microsoft ACPI-Compliant System	(ISA) 0x0000005A (90)
Microsoft ACPI-Compliant System	(ISA) 0x0000005B (91)


 (ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
 (ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
 (ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
 (ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
 (ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
 (ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
 (ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
 (ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
 (ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System
 (ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
 (ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
 (ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
 (ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
 (ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
 (ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
 (ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
 (ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System

 (ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
 (ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
 (ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
 (ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
 (ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
 (ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
 (ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System
 (ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
 (ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
 (ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
 (ISA) 0x0000007A (122)	Microsoft ACPI-Compliant System
 (ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System
 (ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
 (ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
 (ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
 (ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
 (ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
 (ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
 (ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System
 (ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
 (ISA) 0x00000084 (132)	Microsoft ACPI-Compliant System
 (ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System

	(ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System
	(ISA) 0x00000086 (134)	Microsoft ACPI-Compliant System
	(ISA) 0x00000087 (135)	Microsoft ACPI-Compliant System
	(ISA) 0x00000088 (136)	Microsoft ACPI-Compliant System
	(ISA) 0x00000089 (137)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008A (138)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008B (139)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008C (140)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
	(ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
	(ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
	(ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
	(ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System
	(ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
	(ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System
	(ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
	(ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
	(ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System
	(ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System

 (ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
 (ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
 (ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
 (ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System

	(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x00000005 (05)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control
	(PCI) 0x00000010 (16)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Roo
	(PCI) 0x00000011 (17)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Roo
	(PCI) 0x00000013 (19)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
	(PCI) 0xFFFFFFF5 (-11)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFF6 (-10)	Intel(R) I211 Gigabit Network Connection
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(PCI) 0x00000005 (05)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Platform Control
	(PCI) 0x00000010 (16)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Roo
	(PCI) 0x00000011 (17)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Roo
	(PCI) 0x00000013 (19)	Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor AHCI - 0F23
	(PCI) 0xFFFFFFF5 (-11)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFF6 (-10)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFF7 (-9)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFF8 (-8)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFFF9 (-7)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFFA (-6)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFFB (-5)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFFC (-4)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFFFDD (-3)	Intel(R) USB 3.0 eXtensible Host Controller
	(PCI) 0xFFFFFFFEE (-2)	Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor

▶  Memory

Appendix C

Mating Connectors

C.1 List of Mating Connectors and Cables

Connector Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
CN1	External AUX Power and PS_ON#	JST	PHR-6	N/A	N/A
CN3	LVDS Inverter Connector	JST	PHR-5	N/A	N/A
CN4	+5Vout Connector	JST	PHR-2	2 Pins For SATA HDD Power	1702150155
CN5	External +5VSB Power Input and PS_ON#	JST	XHP-3	ATX Cable	170220020B
CN6	SATA Connector	Molex	887505318	SATA Cable	1709070500
CN7	+12V Vin Connector	Molex	19211-0003	Power Cable	170204010R
CN8	LVDS Connector	HIROSE	DF13-30DS-1.25C	N/A	N/A
CN9	Audio Connector	Molex	51021-1000	Audio Cable	1709100254
CN11	LPC Connector	JST	SHR-12V-S-B	AAEON LPC Cable	1703120130
CN12	COM Port #2 Connector	Molex	51021-0900	Serial Port Cable	1701090150

CN13	LPT Connector	Molex	51110-2650	Parallel Port Cable	1701260200
CN14	COM Port #3 Connector	Molex	51021-0900	Serial Port Cable	1701090150
CN15	COM Port #4 Connector	Molex	51021-0900	Serial Port Cable	1701090150
CN16	Digital IO Connector	Molex	51110-1050	N/A	N/A
CN17	USB Port #3 Connector	Molex	51021-0500	USB Cable	1700050207
CN18	USB Port #2 Connector	Molex	51021-0500	USB Cable	1700050207
CN22	PS/2 KB/MS Connector	JST	PHDR-06VS	PS/2 KB/MS Cable	1700060152
CN23	Touch Screen Connector	JST	SHR-9V-S-B	N/A	N/A
CN24	CPU Fan Connector	Molex	22-01-2035	N/A	N/A
CN31	External RTC Connector	Molex	51021-0200	Battery Cable	175011901M

Appendix D

Electrical Specifications for I/O Ports

D.1 Electrical Specifications for I/O Ports

I/O	Reference	Signal Name	Rate Output
LVDS Port Inverter / Backlight Connector	CN3	+5V/+12V	+5V/1.5A or +12V/1.5A
+5V Output for SATA HDD	CN4	+5V	+5V/1A
LVDS Port	CN8	+3.3V/+5V	+3.3V/2A or +5V/2A
Audio I/O Port	CN9	+5V	+5V/1A
Mini-Card Slot (Half-Mini Card)	CN10	+3.3VSB +1.5V	+3.3V/1.1A +1.5V/0.375A
LPC Port	CN11	+3.3V	+3.3V/0.5A
COM Port 2	CN12	+5V/+12V	+5V/1A or +12V/1A
COM Port 3	CN14	+5V/+12V	+5V/1A or +12V/1A
Digital IO Port	CN16	+5V	+5V/1A
USB 2.0 Ports 3	CN17	+5VSB	+5V/0.5A (per channel)
USB 2.0 Ports 2	CN18	+5VSB	

PS/2 Keyboard/Mouse Combo Port	CN22	+5VSB	+5V/1A
CPU FAN	CN24	+12V	+12V/0.5A
USB Ports 0 and 1	CN25	+5VSB	+5V/1A (per channel)
HDMI Port	CN29	+5V	+5V/1A
VGA Port	CN30	+5V	+5V/1A (reserved)
CFast Slot	CN33	+3.3V	+3.3V/0.5A
Mini-Card Slot (Full-Mini Card)	CN37	+3.3VSB +1.5V	+3.3V/1.1A +1.5V/0.375A