AHP-1154

Intel® Celeron®
J1900 / N2807 Processor
15" TFT LCD
Touch Panel PC

Copyright Notice

Acknowledgments

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

- AMI is a trademark of American Megatrends Inc.

- Intel®, and Celeron® are trademarks of Intel® Corporation.

- Microsoft Windows® is a registered trademark of Microsoft Corp.

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Packing List

Before you begin operating your PC, please make sure that the following materials are enclosed:

- AHP-1154 Touch Panel PC
- Phoenix Terminal Block
- Mounting brackets and screws
- DVD for manual (in PDF format) and drivers

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

Safety & Warranty

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

1. Disconnect this device from any AC supply before cleaning.

2. While cleaning, use a damp cloth instead of liquid or spray detergents.

3. For any pluggable equipment, the power outlet must be installed near the device and easily accessible.

4. Keep this device away from humidity.

5. Place this device on a solid surface during installation. Dropping it or letting it fall could cause damage.

6. The openings on the device's enclosure are for dissipating heat. DO NOT COVER THE OPENINGS.

7. Watch out for high temperatures that may occur during system operation.

8. Make sure the voltage of the power source is correct before connecting the device to the power outlet.

9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

10. All cautions and warnings on the device should be noted.

11. 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.

12. Never pour any liquid into the openings. This could cause fire or electric shock.

13. 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 devices.

14. **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**

15. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20°C (-4°F) OR ABOVE 70°C (158° F) TO PREVENT DAMAGE.**

FCC

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.

China RoHS Requirements
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。

Contents

Chapter

1

General Information

1.1 Introduction

Powered by Intel$^{®}$ Celeron$^{®}$ J1900 2GHz and N2807 1.58GHz processors, the AHP-1154 is a operator panel computer designed to serve as a human machine interface (HMI). It is a PC-based system with a 15" color TFT LCD display, onboard Ethernet controller, and multi-COM port interfaces. With a built-in CFast socket, the AHP-1154 is as compact and user friendly as a multi-function computer. In addition, its "fit anywhere" design makes it very flexible and able to be used in many different kinds of installations. It can be VESA 75/100 wall mounted.

For system integrators, this simple, complete, compact and highly integrated system let you easily build an operator panel into your applications. Common industrial applications include factory automation systems, precision machinery, and production process control. It is also suitable for many non-industrial applications, including vending machine, and car park automation. Our operator panel is a reliable, cost-effective solution to your application's processing requirements.

1.2 Features

- 15" 450-nits XGA LED Backlight

- Intel® Celeron® J1900 2GHz/ N2807 1.58GHz Processor

- IP65-rated front plastic bezel & back metal chassis

- Fanless

- Supports Windows® 7 32-bit/ Windows® Embedded Standard 7 32-bit/ Linux Kernel 2.6.x or above

1.3 Specifications

System

- CPU   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   MiniCard x 2 (full-sized x 1, half-sized x

                             1)

- OS Support   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   16.02" (W) x 12.22" (H) x 2.3" (D) (407mm x 310.5mm x 58.3mm)
- Carton Dimension   19.8" (W) x 8.2" (H) x 17.9" (D) (505 mm x 210 mm x 455 mm)
- Cutout Size for panel mount   394 x 297.5mm
- Net Weight   11.02lbs (5kg)
- Gross Weight   14.99lbs (6.8kg)

Environmental

- Operating Temperature   13.9°F ~ 122°F (-10°C ~ 50°C) with 0.5m/s airflow
- Storage Temperature   -4°F~158°F (-20°C~70°C)
- Operating Humidity   90%@ 40°C, non-condensing
- Vibration   1 g rms/ 5-500Hz/ Operation (HDD)
- Shock   20 G peak acceleration (11 msec. duration)
- EMC   CE/FCC Class A
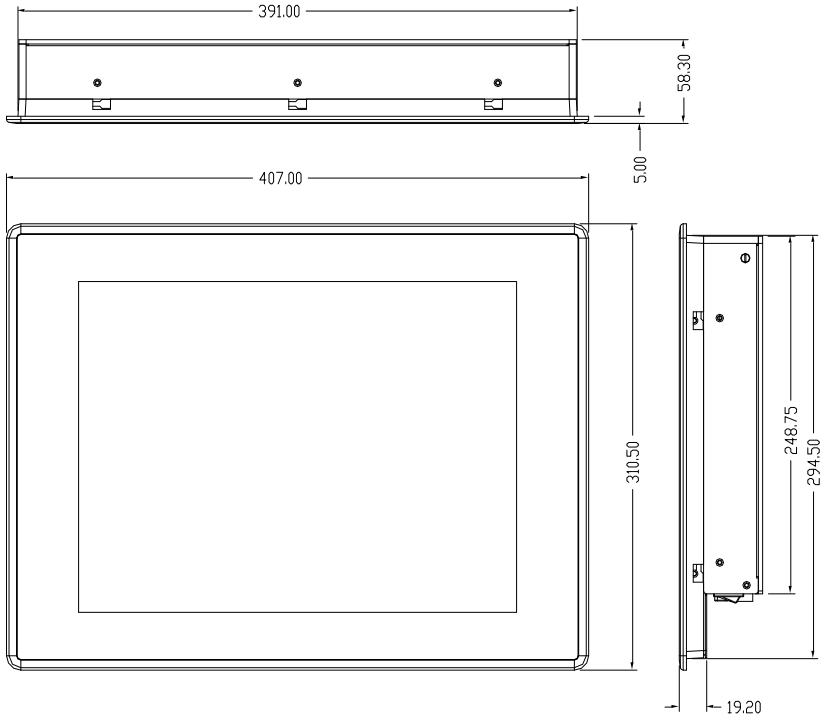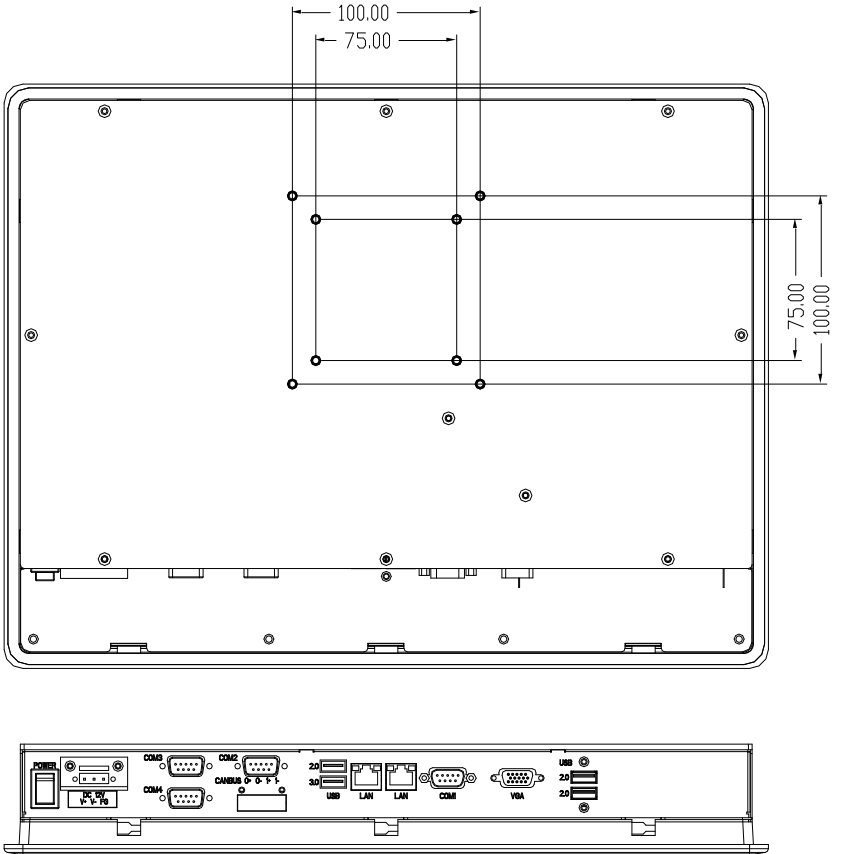- Power Supply   12V DC/ Min 9V – Max 30V input

LCD

- Display Type   15" XGA TFT LCD
- Max. Resolution   1024x768
- Max. Colors   16.8M (8-bit/color)
- Luminance (cd/m^2)   450 nits
- Viewing Angle 160° (H),140° (V)
- Backlight   LED
- Backlight MTBF (Hours)   100,000

Touch Screen

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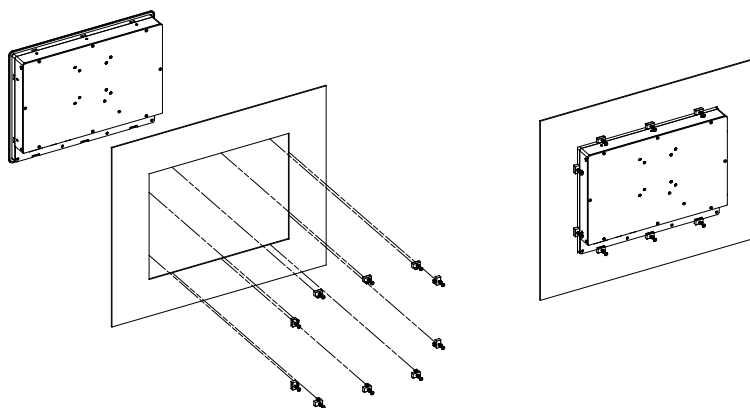
1.4 Product Overview

Chapter

2

Hardware Installation

2.1 Panel-mount Installation

To mount the panel onto a wall, you will need a strong mounting surface, screws along with the mounting brackets.
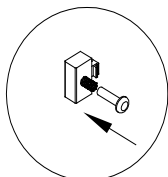
Please take a look at the illustration below before starting to mount the panel.


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

Step 2: Place the rear of the panel through the opening
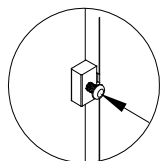
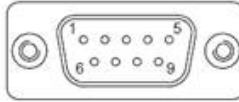Step 3: Insert a screw through each of the mounts

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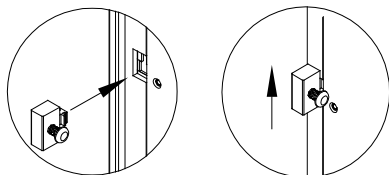
Step 5: Once all the mounts are secured, secure the panel itself by tightening the screws.

2.2 COM 1/4 (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	

2.3 COM 2/3 (D-SUB 9)
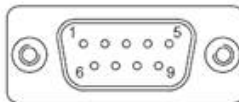
RS-232

Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	RX	IN	
3	TX	OUT	±5V
4	DTR	OUT	±5V
5	GND	GND	

Touch Panel PC		AHP-1154	
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
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
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

2.4 Hard Disk Drive 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

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then 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:

1. You are starting your system for the first time

2. You have changed the hardware attached to your system

3. The CMOS memory has lost power and the configuration information has been erased.

The AHP-1154 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2   AMI BIOS Setup

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

Entering Setup
Power on the computer and press <Del> or <F2> immediately. This will allow you to enter Setup.

Main
Set the date, use tab to switch between date elements.

Advanced
Enable disable boot option for legacy network devices.

Chipset
Host bridge parameters.

Boot
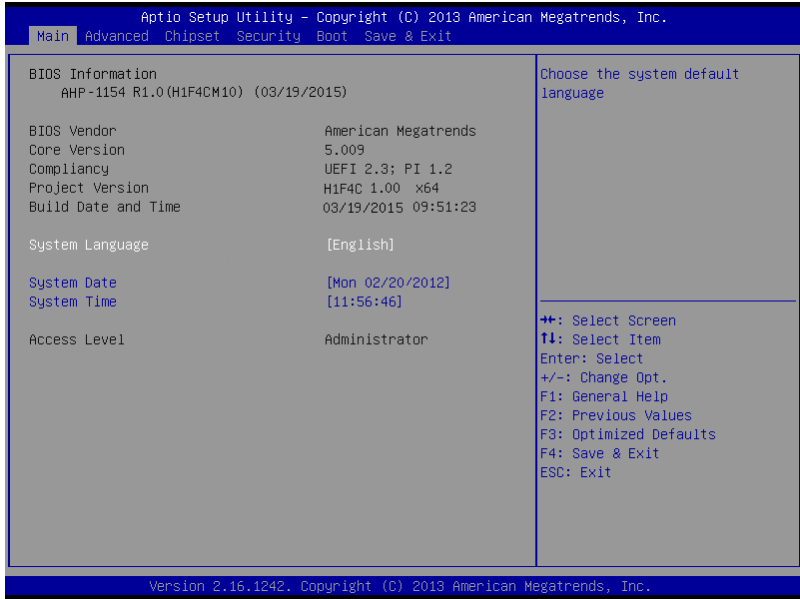Enables/disable quiet boot option.

Security
Set setup administrator password.
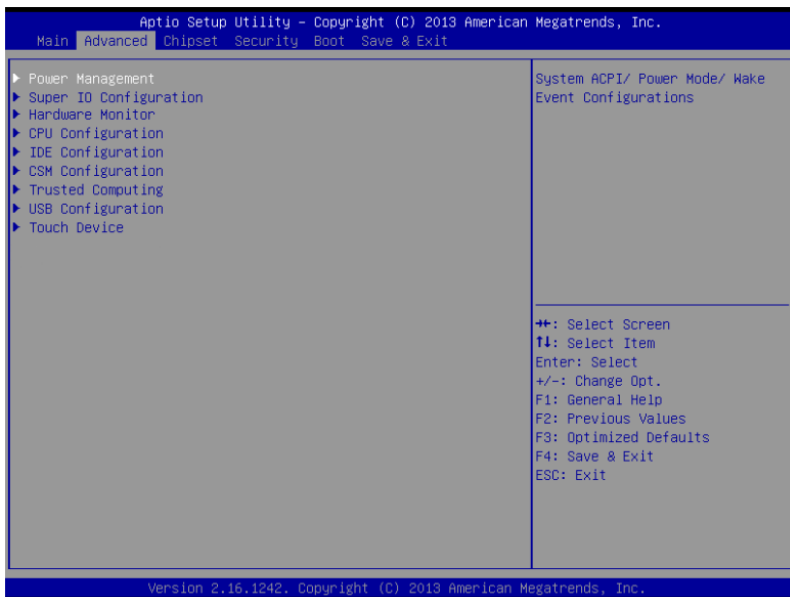
Save&Exit
Exit system setup after saving the changes.
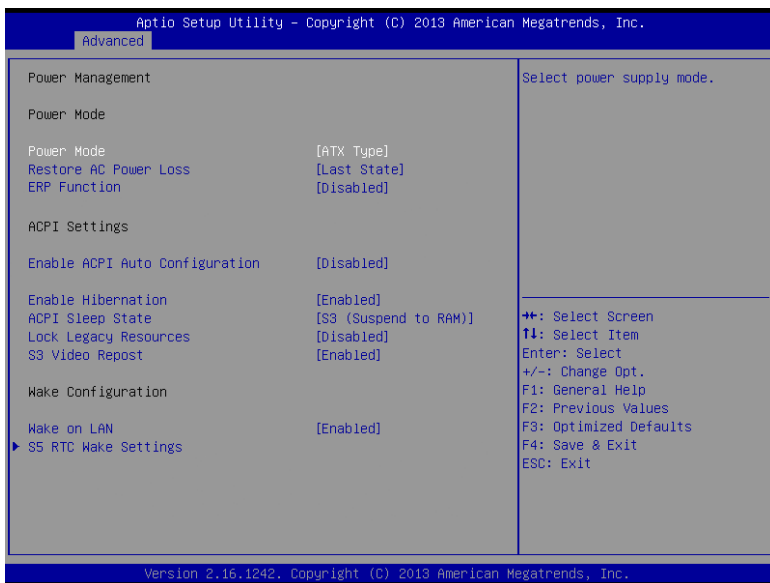
BIOS Setup Menu

Setup submenu: Main

Press "Delete" to enter Setup

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
      Main  Advanced  Chipset  Security  Boot  Save & Exit

      BIOS Information                                      Choose the system default
         AHP-1154 R1.0(H1F4CM10) (03/19/2015)               language

      BIOS Vendor                   American Megatrends
      Core Version                  5.009
      Compliancy                    UEFI 2.3; PI 1.2
      Project Version               H1F4C 1.00  x64
      Build Date and Time           03/19/2015 09:51:23

      System Language               [English]

      System Date                   [Mon 02/20/2012]
      System Time                   [11:56:46]
                                                           →←: Select Screen
      Access Level                  Administrator          ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit


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```

Setup submenu: Advanced


```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Main  Advanced  Chipset  Security  Boot  Save & Exit

▶ Power Management                              System ACPI/ Power Mode/ Wake
▶ Super IO Configuration                        Event Configurations
▶ Hardware Monitor
▶ CPU Configuration
▶ IDE Configuration
▶ CSM Configuration
▶ Trusted Computing
▶ USB Configuration
▶ Touch Device

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

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```

Advanced -> Power Management

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
    Advanced

Power Management                                              Select power supply mode.

Power Mode

Power Mode                         [ATX Type]
Restore AC Power Loss              [Last State]
ERP Function                       [Disabled]

ACPI Settings

Enable ACPI Auto Configuration     [Disabled]

Enable Hibernation                 [Enabled]
ACPI Sleep State                   [S3 (Suspend to RAM)]     →←: Select Screen
Lock Legacy Resources              [Disabled]                ↑↓: Select Item
S3 Video Repost                    [Enabled]                 Enter: Select
                                                             +/-: Change Opt.
Wake Configuration                                           F1: General Help
                                                             F2: Previous Values
Wake on LAN                        [Enabled]                 F3: Optimized Defaults
▶ S5 RTC Wake Settings                                       F4: Save & Exit
                                                             ESC: Exit



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```
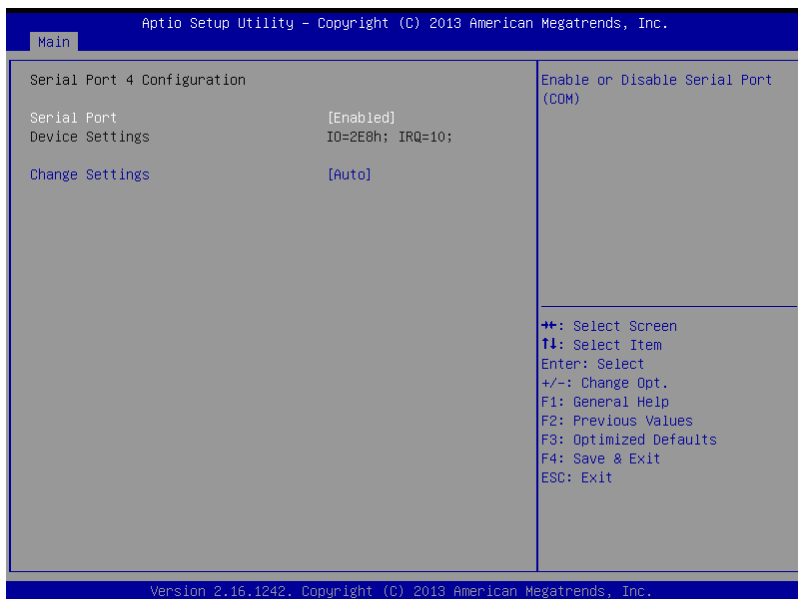
Options summary:

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		

Advanced -> Power Management -> S5 RTC Wake Settings

```
                Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
   Main

 Wake system with Fixed Time        [Disabled]         Enable or disable System wake
                                                       on alarm event. When enabled,
 Wake system with Dynamic Time      [Disabled]         System will wake on the
                                                       hr::min::sec specified




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




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```

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			

Advanced -> Super IO Configuration

```
                Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
         Advanced

   Super IO Configuration                                     Set Parameters of Serial Port
                                                              1 (COMA)
   Super IO Chip                     F81866
 ▶ Serial Port 1 Configuration
 ▶ Serial Port 2 Configuration
 ▶ Serial Port 3 Configuration
 ▶ Serial Port 4 Configuration



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




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```
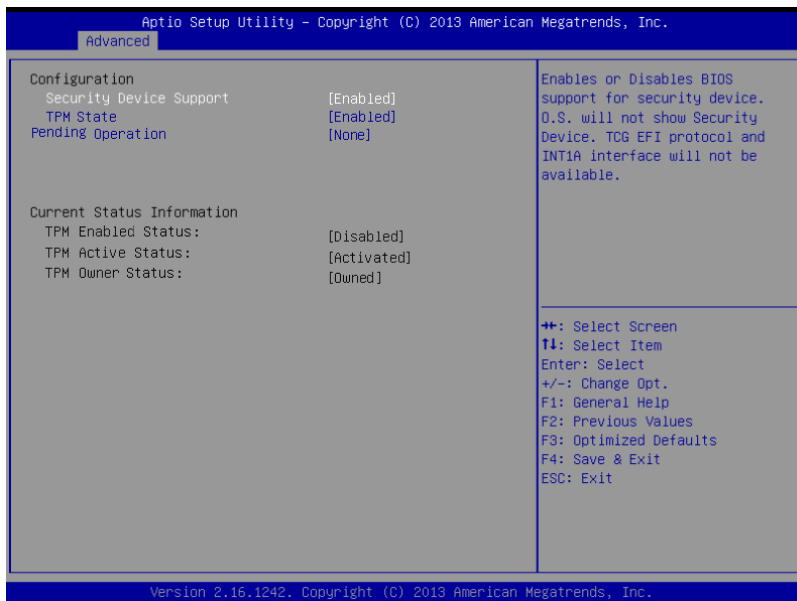
Advanced -> Super IO Configuration Serial Port 1

Configuration

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Main

   Serial Port 1 Configuration                              Enable or Disable Serial Port
                                                            (COM)
   Serial Port                         [Enabled]
   Device Settings                     IO=3F8h; IRQ=4;

   Change Settings                     [Auto]



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



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```
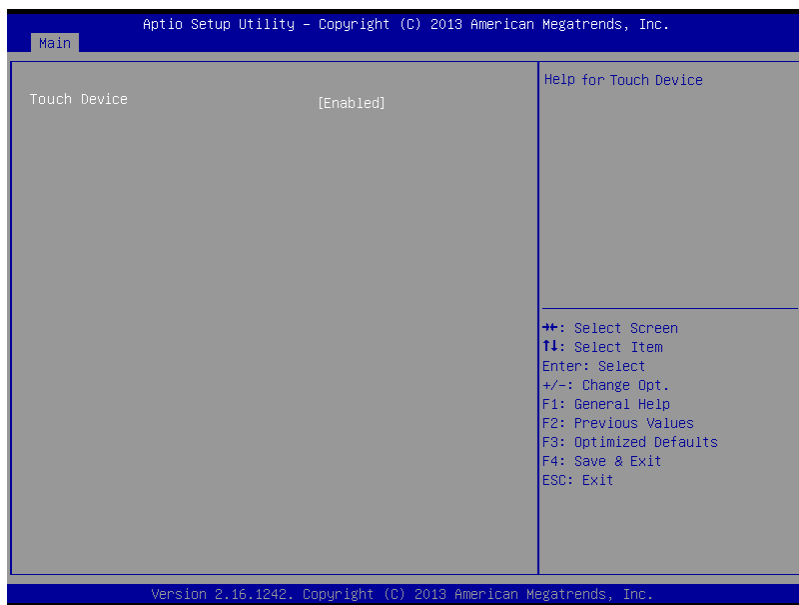
Advanced -> Super IO Configuration Serial Port 2

Configuration

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
 Main

   Serial Port 2 Configuration                              Enable or Disable Serial Port
                                                            (COM)
   Serial Port                        [Enabled]
   Device Settings                    IO=2F8h; IRQ=3;

   Change Settings                    [Auto]
   Working model                      [RS232]




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



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```

Advanced -> Super IO Configuration Serial Port 3

Configuration

```
                    Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
 Main

   Serial Port 3 Configuration                              Enable or Disable Serial Port
                                                            (COM)
   Serial Port                      [Enabled]
   Device Settings                  IO=3E8h; IRQ=10;

   Change Settings                  [Auto]
   Working model                    [RS232]




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



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```
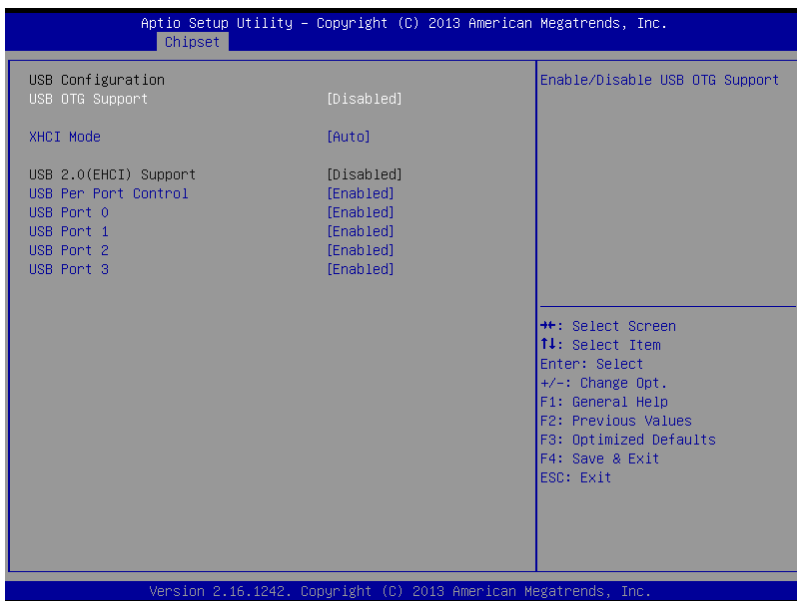
Advanced -> Super IO Configuration Serial Port 4

Configuration

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
 ┌──────┐
 │ Main │
 └──────┘
   Serial Port 4 Configuration                              Enable or Disable Serial Port
                                                            (COM)
   Serial Port                        [Enabled]
   Device Settings                    IO=2E8h; IRQ=10;

   Change Settings                    [Auto]




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




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```
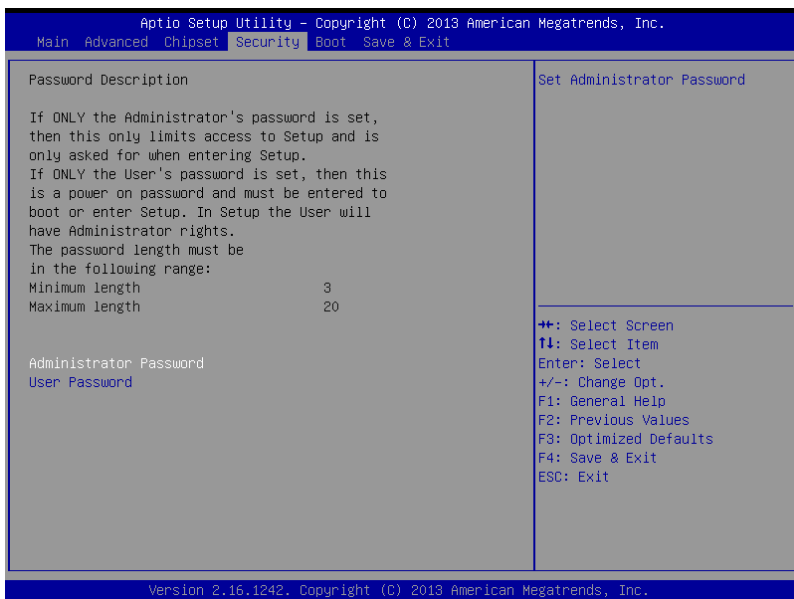
Options summary:

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=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	Auto	Default
(Serial Port 4)	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;	

Advanced -> H/W Monitor

```
                Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
          Advanced

       Pc Health Status

       CPU temperature(DTS)            : +39 %
       System temperature             : +41 %
       Fan  Speed                     : N/A
       VCORE                          : +0.824 V
       12V                            : +12.136 V
       5V                             : +5.759 V
       VDIMM                          : +1.280 V
       VCC3V                          : +3.280 V
       VSB3V                          : +3.312 V
       VSB5V                          : +5.280 V
       VBAT                           : +3.312 V

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


                Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Advanced -> CPU Configuration

```
           Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
      Advanced
  CPU Configuration                                        Socket specific CPU Information

  ▶ Socket 0 CPU Information

  CPU Speed                          1584 MHz
  64-bit                             Supported

  Intel Virtualization Technology    [Disabled]

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

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```

Options summary:

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

Advanced -> CPU Configuration Socket 0 CPU Information

```
                    Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
   Main

   Socket 0 CPU Information

   Intel(R) Celeron(R) CPU N2807 @ 1.58GHz
   CPU Signature              30678
   Microcode Patch            815
   Max CPU Speed              1580 MHz
   Min CPU Speed              500 MHz
   Processor Cores            2
   Intel HT Technology        Not Supported
   Intel VT-x Technology      Supported

   L1 Data Cache              24 kB x 2
   L1 Code Cache              32 kB x 2         →←: Select Screen
   L2 Cache                   1024 kB x 1       ↑↓: Select Item
   L3 Cache                   Not Present       Enter: Select
                                                +/-: Change Opt.
                                                F1: General Help
                                                F2: Previous Values
                                                F3: Optimized Defaults
                                                F4: Save & Exit
                                                ESC: Exit



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```

Advanced -> IDE Configuration

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
   Advanced

   IDE Configuration                                          Enable / Disable Serial ATA

   Serial-ATA (SATA)                  [Enabled]

   SATA Speed Support                 [Gen2]
   SATA ODD Port                      [No ODD]
   SATA Mode                          [AHCI Mode]

   Serial-ATA Port 0                  [Enabled]
   SATA Port0 HotPlug                 [Disabled]

   Serial-ATA Port 1                  [Enabled]
   SATA Port1 HotPlug                 [Disabled]
                                                             ++: Select Screen
   SATA Port0                                                ↑↓: Select Item
   Not Present                                               Enter: Select
                                                             +/-: Change Opt.
   SATA Port1                                                F1: General Help
   Not Present                                               F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit


           Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```
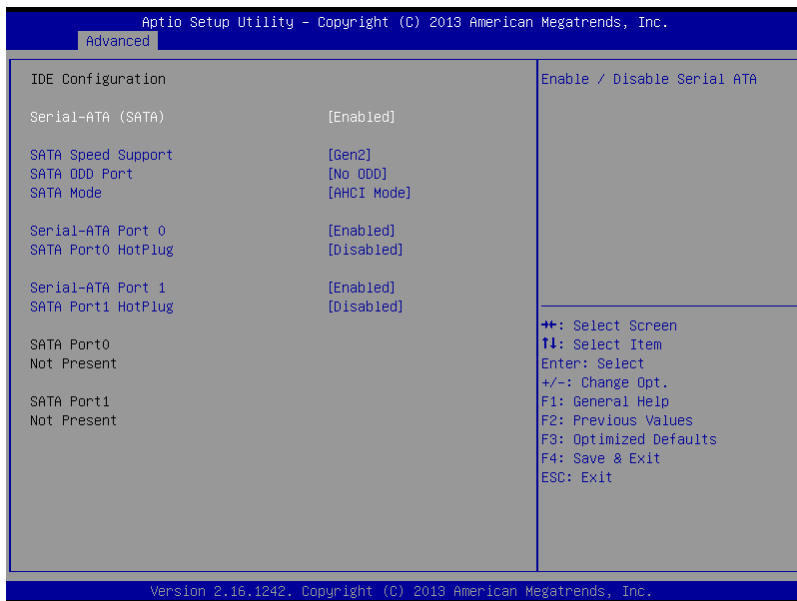
Options summary:

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

Advanced -> CSM Configuration

```
              Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
        Advanced

   Compatibility Support Module Configuration                     Enable/Disable CSM Support.

   CSM Support                        [Enabled]

   CSM16 Module Version               07.71

   Boot option filter                [UEFI and Legacy]

   Option ROM execution order

   Storage                           [UEFI Only]
   Video                             [Legacy first]
   Other PCI devices                 [UEFI first]
                                                                 →←: Select Screen
                                                                 ↑↓: Select Item
                                                                 Enter: Select
                                                                 +/-: Change Opt.
                                                                 F1: General Help
                                                                 F2: Previous Values
                                                                 F3: Optimized Defaults
                                                                 F4: Save & Exit
                                                                 ESC: Exit




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```

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	

Advanced -> Trusted Computing

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
           Advanced

    Configuration                                        Enables or Disables BIOS
      Security Device Support        [Enabled]           support for security device.
      TPM State                      [Enabled]           O.S. will not show Security
    Pending Operation                [None]              Device. TCG EFI protocol and
                                                         INT1A interface will not be
                                                         available.

    Current Status Information
      TPM Enabled Status:            [Disabled]
      TPM Active Status:             [Activated]
      TPM Owner Status:              [Owned]

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

          Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

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	

Advanced -> USB Configuration

```
              Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
  Advanced

  USB Configuration                                       Enables Legacy USB support.
                                                          AUTO option disables legacy
  USB Module Version               8.11.01                support if no USB devices are
                                                          connected. DISABLE option will
  USB Devices:                                            keep USB devices available
      1 Drive, 1 Keyboard, 1 Mouse, 2 Hubs               only for EFI applications.

  Legacy USB Support               [Enabled]
  USB Mass Storage Driver Support  [Enabled]

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

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```

Options summary:

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

Type)	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)		

Advanced -> Touch Device

```
            Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
  Main

  Touch Device                    [Enabled]            Help for Touch Device



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


            Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Touch Device	Enabled	Default
	Disable	

Chipset

```
           Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
     Main  Advanced  Chipset  Security  Boot  Save & Exit

 ▶ North Bridge                                              North Bridge Parameters
 ▶ South Bridge




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


              Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```
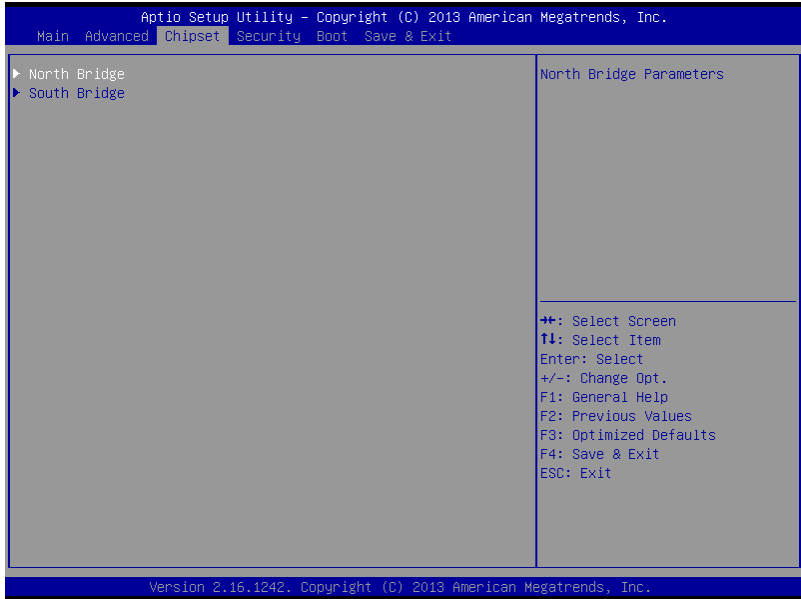
Chipset -> Host Bridge

```
              Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
                 Chipset

   Primary Boot Display            [VBIOS Default]        Select the Video Device which
                                                          will be activated during POST.
 ▶ IGD-LCD  Control                                       This has no effect if external
                                                          graphics present.
   Memory Information                                     Secondary boot display
                                                          selection will appear based on
   Total Memory                    2048 MB (LPDDR3)       your selection.
                                                          VGA modes will be supported
   Memory Slot0                    2048 MB (LPDDR3)       only on primary display



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



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```

Primary Boot Display	VBIOS Default	Default
	CRT	
	DP/HDMI	

Chipset -> Host Bridge -> IGD – LCD Control

```
            Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
              Chipset

   IGD - LCD Control                                        LVDS Enable/Disable
   LVDS Enable/Disable            [Enable ]
   Flat Panel                     [1024*768]
   Channel Select                 [Single Channel]
   Color Depth                    [24 Bits]
   Backlight Level                [80%]




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



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```

Chipset -> South Bridge

```
          Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
            Chipset

▶ USB Configuration                                   USB Configuration Settings
▶ PCI Express Configuration




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


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```

Chipset -> South Bridge -> USB Configuration

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Chipset

USB Configuration                                        Enable/Disable USB OTG Support
USB OTG Support                    [Disabled]

XHCI Mode                          [Auto]

USB 2.0(EHCI) Support              [Disabled]
USB Per Port Control               [Enabled]
USB Port 0                         [Enabled]
USB Port 1                         [Enabled]
USB Port 2                         [Enabled]
USB Port 3                         [Enabled]

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

         Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Options summary:

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

	Disabled	

Chipset -> South Bridge -> PCI Express Configuration

```
            Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
       Chipset

 PCI Express Configuration                              Enable or Disable the PCI
 PCI Express Port 0              [Enabled]              Express Port 0 in the Chipset.
   Hot Plug                      [Disabled]
   Speed                         [Auto]

 PCI Express Port 1              [Enabled]
   Hot Plug                      [Disabled]
   Speed                         [Auto]

 PCI Express Port 2              [Enabled]
   Hot Plug                      [Disabled]
   Speed                         [Auto]

 PCI Express Port 3              [Enabled]              →←: Select Screen
   Hot Plug                      [Disabled]            ↑↓: Select Item
   Speed                         [Auto]                Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit

            Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Options summary:

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

	Gen1	

Security

```
            Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
    Main  Advanced  Chipset  Security  Boot  Save & Exit

    Password Description                            Set Administrator Password

    If ONLY the Administrator's password is set,
    then this only limits access to Setup and is
    only asked for when entering Setup.
    If ONLY the User's password is set, then this
    is a power on password and must be entered to
    boot or enter Setup. In Setup the User will
    have Administrator rights.
    The password length must be
    in the following range:
    Minimum length                    3
    Maximum length                    20
                                                    ++: Select Screen
                                                    ↑↓: Select Item
    Administrator Password                          Enter: Select
    User Password                                   +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit


            Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Setup submenu: Security

Change User/Supervisor Password

You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

If you highlight these items and press Enter, a dialog box appears

which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

Removing the Password

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

Boot

```
                    Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
      Main  Advanced  Chipset  Security  Boot  Save & Exit

      Boot Configuration                                        Launch PXE Option Rom
      Launch i210/i211 PXE OpROM          [Disabled]

      Quiet Boot                          [Enabled]

      Boot Option Priorities
      Boot Option #1                      [UEFI: JetFlashTrans...]
      Boot Option #2                      [UEFI: Built-in EFI ...]
      Boot Option #3                      [JetFlashTranscend 1...]

      Hard Drive BBS Priorities

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

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```

Options summary:

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

Exit

```
              Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
   Main  Advanced  Chipset  Security  Boot   Save & Exit

 Save Changes and Reset                            Reset the system after saving
 Discard Changes and Reset                         the changes.

 Save Options

 Restore Defaults
 Save as User Defaults
 Restore User Defaults


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


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```

Chapter

4

Driver Installation

The AHP-1154 comes with a driver disk that contains all drivers and utilities that can help you setup your product.

Insert the disk and the installation guide will start automatically. If it doesn't, please follow the sequence below to install the drivers.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset Driver

Step 2 – Install Graphics Driver

Step 3 – Install LAN Driver

Step 4 – Install PenMount Touch 6000 Driver

Step 5 – Install TXE Driver (Windows 8.1 only)

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

Step 7 – Install MBI Driver (Optional, Windows 8.1 only)

Step 8 – Install Serial Port Driver (Optional)

Please refer to the instructions below for further details.

4.1 Installation

Insert the AHP-1154 driver disk into the disk drive. And install the drivers from Step 1 to Step 8 in order.

Step 1 – Install Chipset Driver

1. Open the **Step 1 - Chipset** folder and open the **SetupChipset.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

Step 2 – Install Graphics Driver

1. Open the **Step 2 - 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 **Step 3 - 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 PenMount Touch 6000 Driver

1. Open the *STEP 4 – PenMount Touch 6000* folder and open the *Setup.exe* file

2. Follow the instructions

3. Drivers will be installed automatically

Step 5 – Install TXE Driver (Windows 8.1 only)

1. Open the *Step 5 - TXE* folder and open the *SetupTXE.exe* file

2. Follow the instructions

3. Drivers will be installed automatically

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

1. Open the *Step 6 – USB3.0* folder and open the *Setup.exe* file

2. Follow the instructions

3. Drivers will be installed automatically

Step 7 – Install MBI Driver (Optional, Windows 8.1 only)

1. Open the *Step 7 – MBI (Optional)* folder and open the *Setup.exe* file

2. Follow the instructions

3. Drivers will be installed automatically

Step 8 – Install Serial Port Driver (Optional)

Please follow the instructions in the *Step8 - Serial Port Driver (Optional)* folder

Appendix

A

Programming the Watchdog Timer

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 *Pulse width is must longer than 16ms.*
Signal Polarity	0x05	2	0	0: low active 1: high active *Must set this bit to 0*

Counting Unit	0x05	3	0	Select time unit. 0: second 1: minute
Output Signal Type	0x05	4	1	0: Level 1: Pulse **Must set this bit to 1**
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 WDTRstBit 0x80 // Watchdog WDTRST# (Bit7)

#define WDTRstVal 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 procudure will enable the WDT counting.
WDTSetBit(TimerReg, PSWidthBit, PSWidthVal);
// Watchdog WDTRST# Enable
WDTSetBit(DevReg, WDTRstBit, WDTRstVal);
}
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){
```
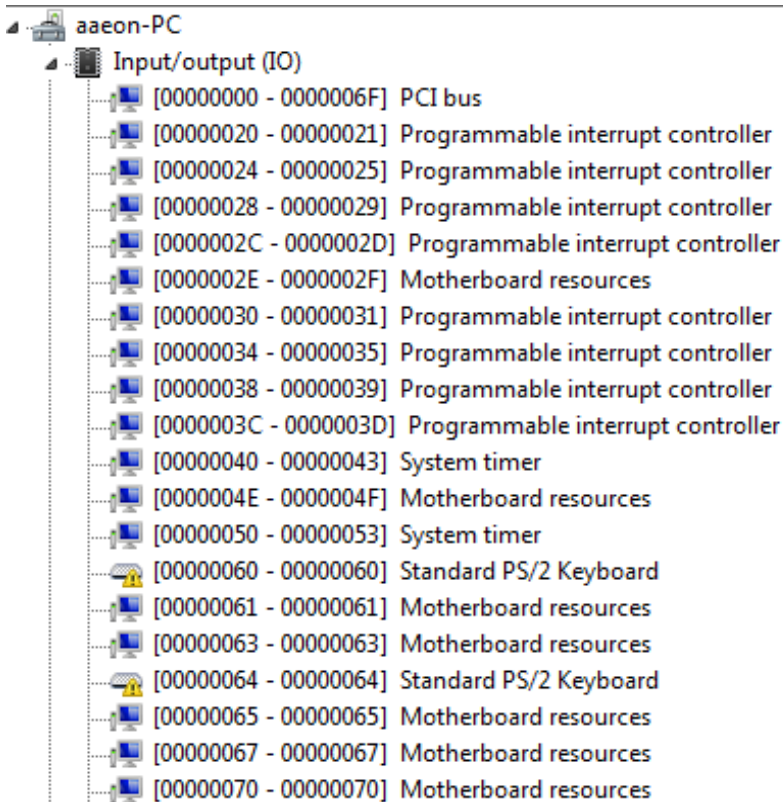
```
byte TmpValue;

TmpValue = WDTReadByte(Register);

TmpValue &= ~(1 << Bit);

TmpValue |= Val << Bit;

WDTWriteByte(Register, TmpValue);

}
```
****

Appendix

B

I/O Information

B.1 I/O Address Map

- aaeon-PC
  - Input/output (IO)
    - [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 - Roo
[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 l
[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

```
Memory
  [000A0000 - 000BFFFF]  Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processo
  [000A0000 - 000BFFFF]  PCI bus
  [000C0000 - 000DFFFF]  PCI bus
  [000E0000 - 000FFFFF]  PCI bus
  [80000000 - D0812FFF]  PCI bus
  [C0000000 - CFFFFFFF]  Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processo
  [D0000000 - D03FFFFF]  Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processo
  [D0400000 - D04FFFFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Executio
  [D0500000 - D05FFFFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Executio
  [D0600000 - D061FFFF]  Intel(R) I211 Gigabit Network Connection
  [D0600000 - D06FFFFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Roo
  [D0620000 - D0623FFF]  Intel(R) I211 Gigabit Network Connection
  [D0700000 - D071FFFF]  Intel(R) I211 Gigabit Network Connection #2
  [D0700000 - D07FFFFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Roo
  [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
```

```
[D0500000 - D05FFFFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor Trusted Execution
[D0600000 - D061FFFF]  Intel(R) I211 Gigabit Network Connection
[D0600000 - D06FFFFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Roo
[D0620000 - D0623FFF]  Intel(R) I211 Gigabit Network Connection
[D0700000 - D071FFFF]  Intel(R) I211 Gigabit Network Connection #2
[D0700000 - D07FFFFF]  Intel(R) Atom(TM)/Celeron(R)/Pentium(R) Processor PCI Express - Roo
[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 - FED0FFFF]  Motherboard resources
[FED1C000 - FED1CFFF]  Motherboard resources
[FED40000 - FED44FFF]  Trusted Platform Module 1.2
[FEE00000 - FEEFFFFF]  Motherboard resources
[FEF00000 - FEFFFFFF]  Motherboard resources
[FF000000 - FFFFFFFF]  Intel(R) 82802 Firmware Hub Device
```

B.3 IRQ Mapping Chart

```
▲ 🖥 aaeon-PC
    ▷ 🔲 Input/output (IO)
    ▲ 🔲 Interrupt request (IRQ)
        🖥 (ISA) 0x00000000 (00)    System timer
        ⚠ (ISA) 0x00000001 (01)    Standard PS/2 Keyboard
        🖨 (ISA) 0x00000003 (03)    Communications Port (COM2)
        🖨 (ISA) 0x00000004 (04)    Communications Port (COM1)
        🖥 (ISA) 0x00000008 (08)    High precision event timer
        🖨 (ISA) 0x0000000A (10)    Communications Port (COM3)
        🖨 (ISA) 0x0000000A (10)    Communications Port (COM4)
        ⚠ (ISA) 0x0000000C (12)    PS/2 Compatible Mouse
        🖥 (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)    Microsoft ACPI-Compliant System
```

(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) 0xFFFFFFFD (-3)   Intel(R) USB 3.0 eXtensible Host Controller
(PCI) 0xFFFFFFFE (-2)   Intel(R) Atom(TM) Processor E3800 Series/Intel(R) Celeron(R) Processor
▷ Memory

Appendix

C

Mating Connector

C.1 List of Mating Connectors and Cables

The table notes mating connectors and available 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	1703120130

				Cable	
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 Port

D.1 Electrical Specifications for I/O Port

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