Half-size SBC | HSB-CV1P

HSB-CV1P

Intel® Atom™ D2550/N2600 Processor

10/100/1000Base-TX Ethernet

2 SATA 3.0Gb/s

PCI Interface Expansion

8 USB2.0, 4 COM

1 VGA, 1 LVDS

HSB-CV1P Manual Rev. A 1st Ed.

July 2012

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Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- HSB-CV1P CPU Card with Active Cooler (Intel® Atom™ D2550 version) or Passive Heatsink (Intel® Atom™ N2600 version)
- DVD-ROM 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.

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Chapter

1

General Information

1.1 Introduction

AAEON, a leading embedded boards manufacturer, is pleased to announce the debut of the new generation Half-size Single Board Computer—HSB-CV1P.

HSB-CV1P adopts Intel® Atom™ D2550/ N2600 Processor. The system memory is deployed with 204-pin SODIMM DDR3 800/1066 up to 4 GB for Intel® Atom™ D2550 processor and up to 2 GB for Intel® Atom™ N2600 Processor. In addition, Realtek RTL8111E supports two 10/100/1000Base-TX that allow a faster network connection.

The display of HSB-CV1P supports CRT/LCD, LVDS/LCD simultaneous and dual view displays. Moreover, two SATA 3.0Gb/s provide a better storage. Eight USB2.0, four COM Ports (three RS-232, one RS-232/422/485) and 8-bit digital I/O are configured on the HSB-CV1P as well. Full functions make HSB-CV1P user friendly. This brand new slot CPU board is developed to suit the requirements of Industrial/Factory Automation, Transportation, banking machine, ITS, HMI and workstation applications.

1.2 Features

- Onboard Intel® Atom™ D2550/ N2600 Processor
- Intel® NM10
- DDR3 800 / 1066 SODIMM x 1, max. 4GB (D2550), 2GB (N2600)
- Intel® Graphics Media Accelerator Supports DirectX 10, OpenGL 3.0
- HD Codec Audio Daughter Board (optional)
- Realtek RTL 8111E, Gigabit Ethernet, RJ-45 x 2
- USB 2.0 x 8 (Pin header x 3, 2 xOnboard Type A connector x 2,One for Nano USB)
- COM x 4 (RS-232 x 3, RS-232/422/485 x 1)
- SATA 3.0Gb/s x 2, Digital I/O, Parallel Port x 1, IrDA Port x 1*
- VGA Output Connector for Display
- Supports LVDS Up to 24-bit Single Channel (N2600 Supports 18-bit Single Channel Only)

Note*: The IrDA function will be disabled under Windows® 7 Operating System.

1.3 Specifications

System

● Processor	Intel® Atom™ D2550/ N2600 processor, (1.86 GHz for D2550, 1.6 GHz for N2600)
● System Memory	204-pin DDR3 SODIMM x 1, Max. 4 GB (DDR3 800/1066) for Intel® Atom™D2550; Max. 2 GB (DDR3 800/1066) for Intel® Atom™N2600
● Chipset	Intel® NM10
● I/O Chipset	Fintek 81866F
● Ethernet	Realtek RTL8111E, 10/100/1000Base-TX, RJ-45 x 2
● BIOS	AMI Plug & Play SPI BIOS – 8 MB Flash
● Wake On LAN	Yes
● Watchdog Timer	1~255 steps by software program
● H/W Status Monitoring	Supports Fan Speed, Voltages and Temperature Monitoring
● Expansion Interface	PCI

- Power Requirement: +12V, ATX
- Battery: Lithium battery
- Board Size: 7.3”(L) x 4.8”(W) (185mm x 122mm)
- Gross Weight: 0.75 lb (0.35 Kg)
- Operating Temperature: 32˚F~ 140˚F (0˚C ~ 60˚C)
- Storage Temperature: -4˚F~ 158˚F (-20˚C ~ 70˚C)
- Operating Humidity: 10%~80% relative humidity, non-condensing

Display: Supports CRT/LCD, LVDS/LCD, simultaneous and dual view displays

- Chipset: Intel® Graphics Media Accelerator supports DirectX 10, OpenGL 3.0
- Resolution: Up to 1920x1200 for CRT; Up to 1440x900 for LVDS (D2550); Up to 1366x768 for LVDS (N2600)
- LCD Interface: 18/24-bit Single Channel LVDS LCD for Intel® Atom™D2550; 18-bit Single Channel LVDS LCD for Intel® Atom™ N2600
- Output Interface: VGA x 1, LVDS x 1

I/O

● Storage	SATA 3.0Gb/s x 2
● Serial Port	COM x 4 (box header) COM2 : RS-232/422/485 (Box header 2.0mm) COM1, COM3, COM4 :RS-232 (Box header 2.0mm)
● Parallel Port	SPP/EPP/ECP modes
● USB Port	USB2.0 x 8 (internal 5x2 pin header x 3, onboard Type A connector x 2)
● PS/2 Port	Mini-DIN PS/2 Keyboard and Mouse x 1
● Digital I/O	Supports 8-bit (Programmable)
● Audio(daughter board)	High definition codec audio daughter board (optional)

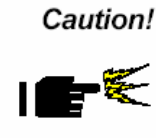
Chapter

2

Quick Installation Guide

2.1 Safety Precautions

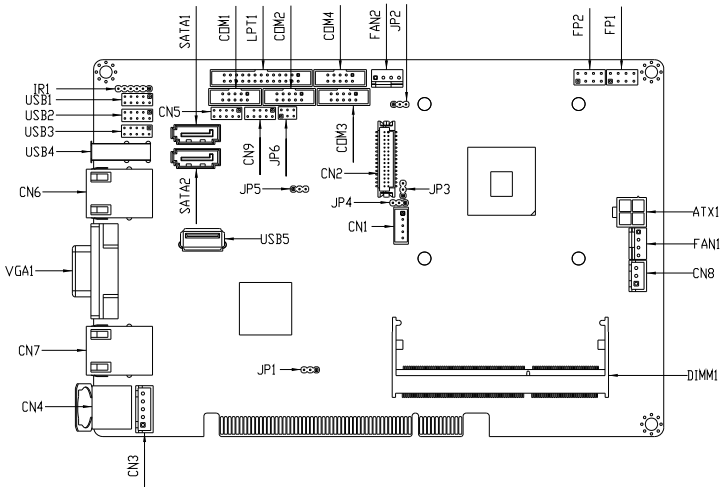
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.



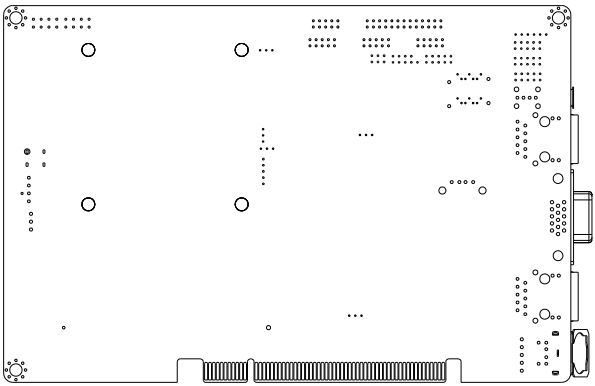
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis

2.2 Location of Connectors and Jumpers

Component Side

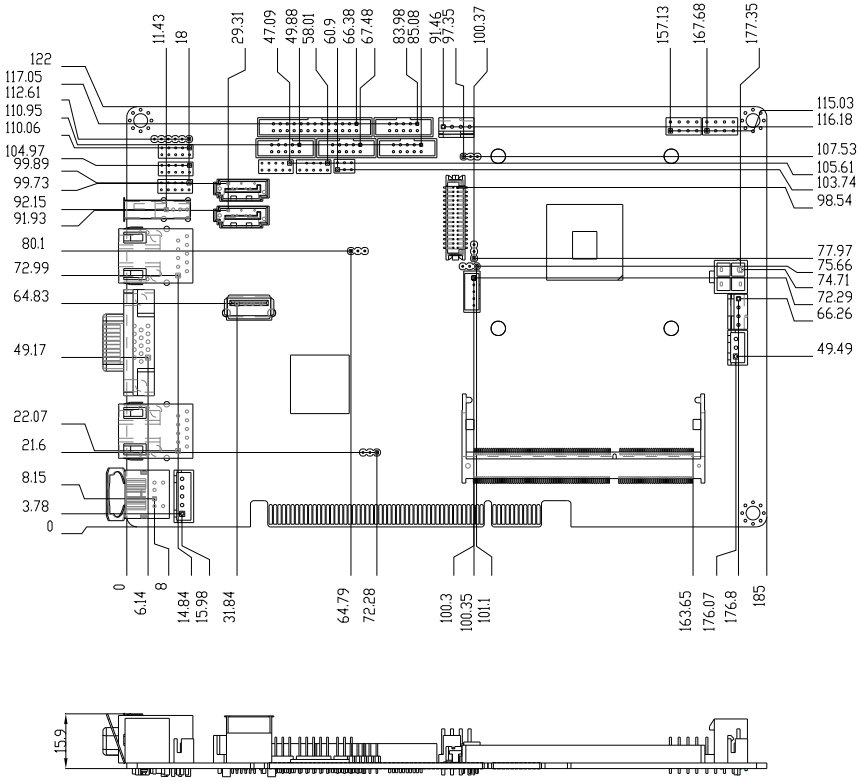


Solder side



2.3 Mechanical Drawing

Component Side



2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.
The table below shows the function of each of the board's jumpers:

Label	Function
JP1	Clear CMOS
JP2	LVDS Operating Voltage Selection
JP3	LVDS Inverter/ Backlight Voltage Selection
JP4	LVDS Inverter/ Backlight Bias/PWM Mode Selection
JP5	AT/ATX Power Mode Selection
JP6	COM2 RI/+5/+12V Selection

2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

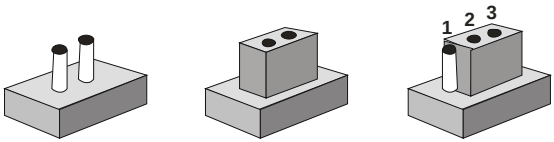
Label	Function
CN1	LVDS Inverter/ Backlight Connector
CN2	LVDS Output(Single Channel18/24bit)
CN3	Keyboard Connector
CN4	PS2 Keyboard/Mouse Connector
CN5	Digital I/O
CN6	RJ-45 Ethernet
CN7	RJ-45 Ethernet
CN8	External +5VSB Input
CN9	HD Audio Codec with Realtek ALC888 (Optional) Connector
FP1	Front Panel Connector 1
FP2	Front Panel Connector 2

VGA1	Analog CRT Display Connector
USB1	USB Port #0 and #1 Connector
USB2	USB Port #2 and #3 Connector
USB3	USB Port #4 and #5 Connector
USB4	USB Port #6 Connector
USB5	USB Port #7 Connector
COM1	RS-232 Serial port1 Connector
COM2	RS-232/422/485 Serial port2 Connector
COM3	RS-232 Serial port3 Connector
COM4	RS-232 Serial port4 Connector
IR1	Infrared Connector
LPT1	Parallel Port Connector
SATA1	SATA Port1 Connector
SATA2	SATA Port2 Connector
SPI1	BIOS Debug Port
DIMM1	DDR3 SODIMM Slot
BAT1A1	Battery
FAN1	4-Pin CPU Fan Connector
FAN2	4-Pin System Fan Connector
ATX1	4-Pin ATX Power Connector

2.6 Setting Jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip.

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



Open **Closed** **Closed 2-3**

A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

2.7 Clear CMOS (JP1)

JP1	Function
1-2	Normal (Default)
3-4	Clear CMOS

2.8 LVDS Operating Voltage Selection (JP2)

JP2	Function
1-2	+5V
2-3	+3.3V (Default)

2.9 LVDS Inverter/ Backlight Voltage Selection (JP3)

JP3	Function
1-2	+12V (Default)
2-3	+5V

2.10 LVDS Inverter/ Backlight Bias/PWM Mode Selection (JP4)

JP4	Function
1-2	Bias (Default)
2-3	PWM Control

2.11 AT/ATX Power Mode Selection (JP5)

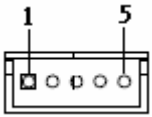
JP5	Function
1-2	ATX(Default)
2-3	AT

2.12 COM2 RI/+5V/+12V Selection (JP6)

JP6	Function
1-2	+12V

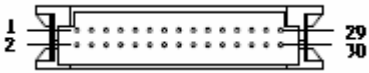
3-4	RI (Default)
5-6	+5V

2.13 LVDS Inverter/ Backlight Connector (CN1)



Pin	Signal
1	12V / 5V
2	VCON
3	GND
4	GND
5	INV_EN

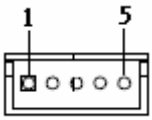
2.14 LVDS Connector(CN2)



Pin	Signal
1	BKLT_EN
2	BKLT_CTRL
3	LVDSVCC
4	GND
5	LVDS1_CLK#
6	LVDS1_CLK
7	LVDSVCC
8	GND
9	LVDS1_DATA0#

10	LVDS1_DATA0
11	LVDS1_DATA1#
12	LVDS1_DATA1
13	LVDS1_DATA2#
14	LVDS1_DATA2
15	LVDS1_DATA3#
16	LVDS1_DATA3
17	LVDS_DDC_DATA
18	LVDS_DDC_CLK
19	LVDS2_DATA0#
20	LVDS2_DATA0
21	LVDS2_DATA1#
22	LVDS2_DATA1
23	LVDS2_DATA2#
24	LVDS2_DATA2
25	LVDS2_DATA3#
26	LVDS2_DATA3
27	LVDSVCC
28	GND
29	LVDS2_CLK#
30	LVDS2_CLK

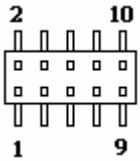
2.15 Keyboard Connector (CN3)



Pin	Signal
1	KB_CLK

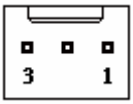
2	KB_DATA
3	N.C.
4	GND
5	+5V

2.16 Digital I/O Connector (CN5)



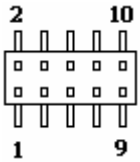
Pin	Signal
1	IN0
2	IN1
3	IN2
4	IN3
5	OUT0
6	OUT1
7	OUT2
8	OUT3
9	+3.3V
10	GND

2.17 External +5VSB Input Connector (CN8)



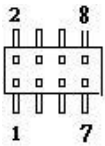
Pin	Signal
1	PS_ON#
2	GND
3	+5VSB

2.18 HD Audio Codec with Realtek ALC888 (Optional) Connector (CN9)



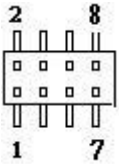
Pin	Signal
1	RST
2	SYNC
3	SDIN
4	SDOUT
5	DET
6	BCLK
7	GND
8	+5V
9	N.C.
10	+3.3V

2.19 Front Panel Connector 1 (FP1)



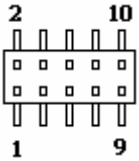
Pin	Signal
1	Power On Button (+)
2	Reset Switch (+)
3	Power On Button (-)
4	Reset Switch (-)
5	HDD LED (+)
6	Power LED (+)
7	HDD LED (-)
8	Power LED (-)

2.20 Front Panel Connector 1 (FP2)



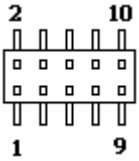
Pin	Signal
1	External Speaker (+)
2	Key Board Lock (+)
3	N.C
4	GND
5	Internal Buzzer (-)
6	I2C Bus SMB Clock
7	External Speaker (-)
8	I2C Bus SMB Data

2.21 USB Port #0 and #1 Connector (USB1)



Pin	Signal
1	+5V_USB
2	GND
3	USB0N
4	GND
5	USB0P
6	USB1P
7	GND
8	USB1N
9	GND
10	+5V_USB

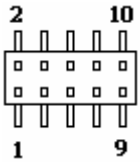
2.22 USB Port #2 and #3 Connector (USB2)



Pin	Signal
1	+5V_USB
2	GND

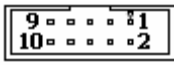
3	USB2N
4	GND
5	USB2P
6	USB3P
7	GND
8	USB3N
9	GND
10	+5V_USB

2.23 USB Port #4 and #5 Connector (USB3)



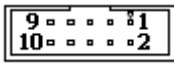
Pin	Signal
1	+5V_USB
2	GND
3	USB4N
4	GND
5	USB4P
6	USB5P
7	GND
8	USB5N
9	GND
10	+5V_USB

2.24 RS-232 Serial port1 Connector (COM1)



Pin	Signal
1	DCD1
2	RXD1
3	TXD1
4	DTR1
5	GND
6	DSR1
7	RTS1
8	CTS1
9	RI1
10	N.C.

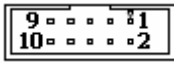
2.25 RS-232/422/485 Serial port1 Connector (COM2)



Pin	Signal
1	DCD2
2	RXD2
3	TXD2
4	DTR2
5	GND
6	DSR2
7	RTS2
8	CTS2

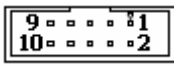
9	RI1
10	N.C.

2.26 RS-232 Serial port3 Connector (COM3)



Pin	Signal
1	DCD3
2	RXD3
3	TXD3
4	DTR3
5	GND
6	DSR3
7	RTS3
8	CTS3
9	RI1
10	N.C.

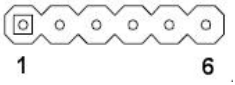
2.27 RS-232 Serial port4 Connector (COM4)



Pin	Signal
1	DCD4
2	RXD4
3	TXD4
4	DTR4
5	GND
6	DSR4

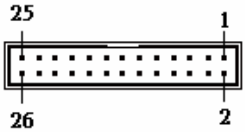
7	RTS4
8	CTS4
9	RI1
10	N.C.

2.28 Infrared Connector (IR1)



Pin	Signal
1	+5V
2	N.C
3	IRRX
4	GND
5	IRTX
6	N.C

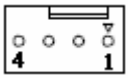
2.29 Parallel Port Connector (LPT1)



Pin	Signal
1	STB#
2	AFD#
3	DATA0
4	ERR#
5	DATA1

6	INIT#
7	DATA2
8	SLIN#
9	DATA3
10	GND
11	DATA4
12	GND
13	DATA5
14	GND
15	DATA6
16	GND
17	DATA7
18	GND
19	ACK#
20	GND
21	BUSY
22	GND
23	PE
24	GND
25	SELECT
26	GND

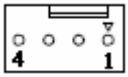
2.30 4-Pin CPU Fan Connector (FAN1)



Pin	Signal
1	GND
2	+12V

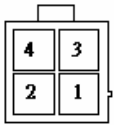
3	FAN_TAC
4	FAN_CTL

2.31 4-Pin CPU System Connector (FAN2)



Pin	Signal
1	GND
2	+12V
3	FAN_TAC
4	FAN_CTL

2.32 4-Pin ATX Power Connector (ATX1)



Pin	Signal
1	GND
2	GND
3	+12V
4	+12V

2.33 DDR3 SODIMM Slot (DIMM1)

Standard specification

Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

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	×	○	○	○	○	○

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：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。

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 stored in the CMOS memory and BIOS NVRAM. If system configuration is not found or system configuration data error is detected, system will load optimized default and re-boot with this default system configuration automatically.

There are four situations in which you will need to setup system configuration:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The system configuration is reset by Clear-CMOS jumper
4. The CMOS memory has lost power and the configuration information has been erased.

The HSB-CV1P 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 and BIOS NVRAM 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.

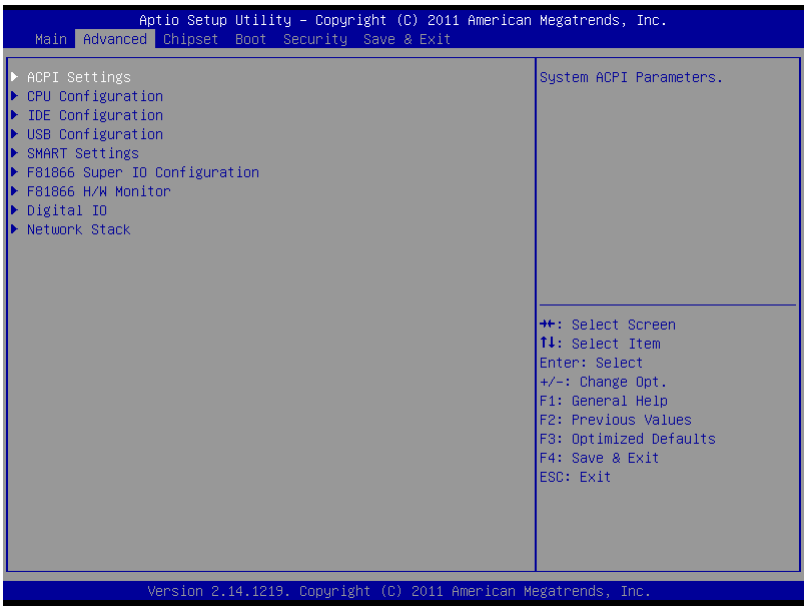
Save&Exit

Exit system setup after saving the changes.

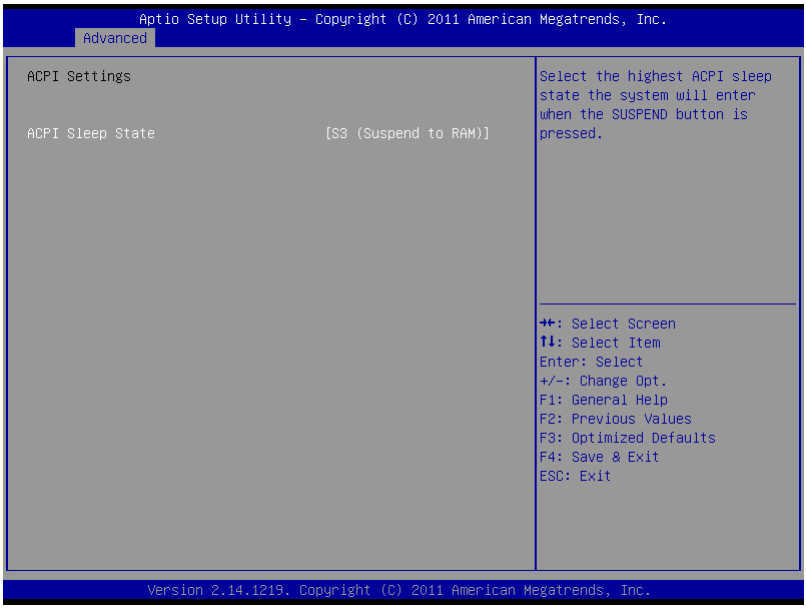
Setup Menu

Setup submenu: Main

Setup submenu: Advanced



ACPI Settings



Options Summary :

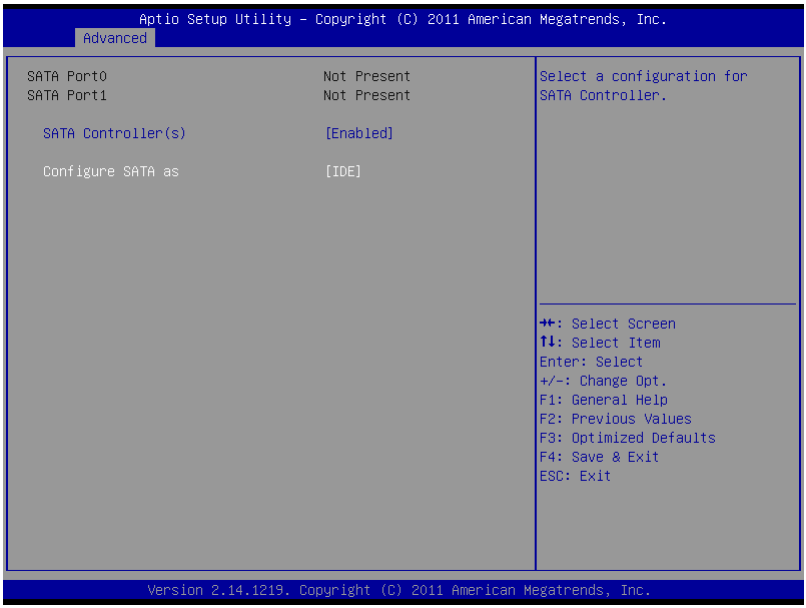
ACPI Sleep State	S3 (Suspend to RAM)	Default
	Suspend Disabled	
Select the Highest ACPI sleep state the system will enter when the SUSPEND button is pressed.		

CPU Configuration

Options Summary :

Hyper-Threading	Disabled	
	Enabled	Default
Enable for Windows XP and Linux (OS optimized for Hyper0Threading Technology) and Disabled for other OS (OS not optimized for Hyper0Threading Technology).		
Limit CPUID Maximum	Disabled	Default
	Enabled	
Disabled for Windows XP		

IDE Configuration (IDE)



Options Summary :

Configure SATA as	IDE	Default
	AHCI	
Select a configuration for SATA Controller.		

IDE Configuration (AHCI)

```
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Advanced

SATA Port0                          Not Present
SATA Port1                          Not Present

  SATA Controller(s)                [Enabled]

  Configure SATA as                 [AHCI]

    SATA Port 0                     [Enabled]
    SATA Port 0 Hot Plug            [Enabled]
    SATA Port 1                     [Enabled]
    SATA Port 1 Hot Plug            [Enabled]

Select a configuration for
SATA Controller.

→←: 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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```
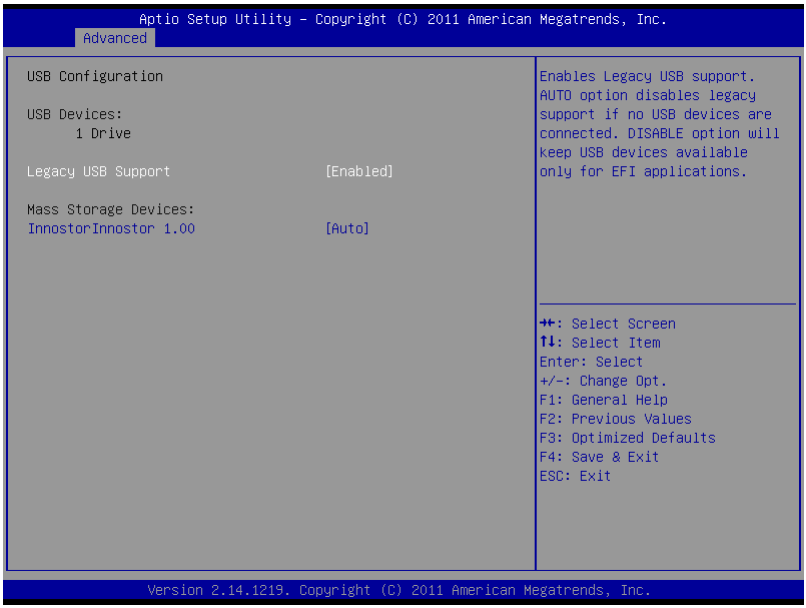

Options Summary :

SATA Controller(s)	Disabled	
	Enabled	Default
Enable or Disable SATA Port.		
SATA Mode	IDE	
	AHCI	Default
Select a configuration for SATA Controller		
SATA Port 0	Disable	
	Enabled	Default
Enable or Disable SATA Port.		
SATA Port 0 Hot Plug	Disable	
	Enabled	Default
Designates this port as Hot Pluggable.		
SATA Port 1	Disable	
	Enabled	Default
Enable or Disable SATA Port.		
SATA Port 1 Hot Plug	Disable	
	Enabled	Default
Designates this port as Hot Pluggable.		

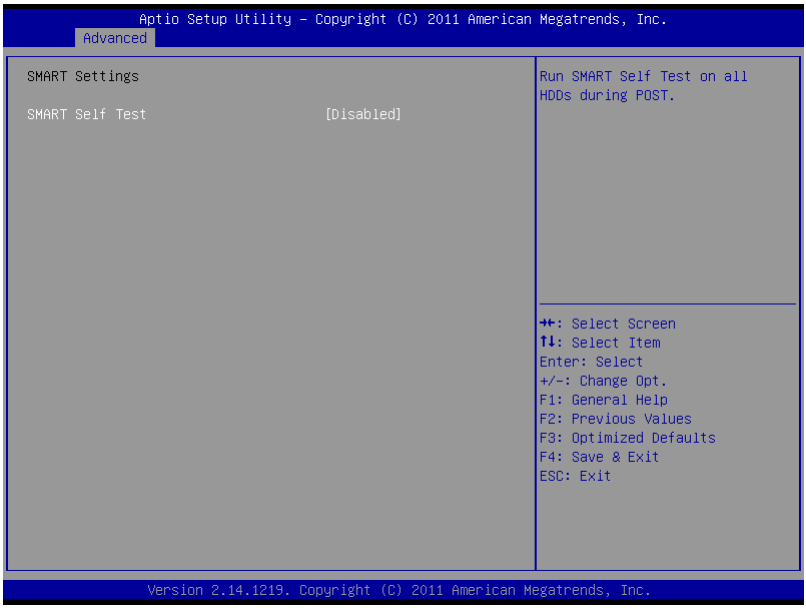
USB Configuration



Options Summary :

Legacy USB Support	Enabled	Default
	Disabled	
	Auto	
Enable Legacy USB support AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.		

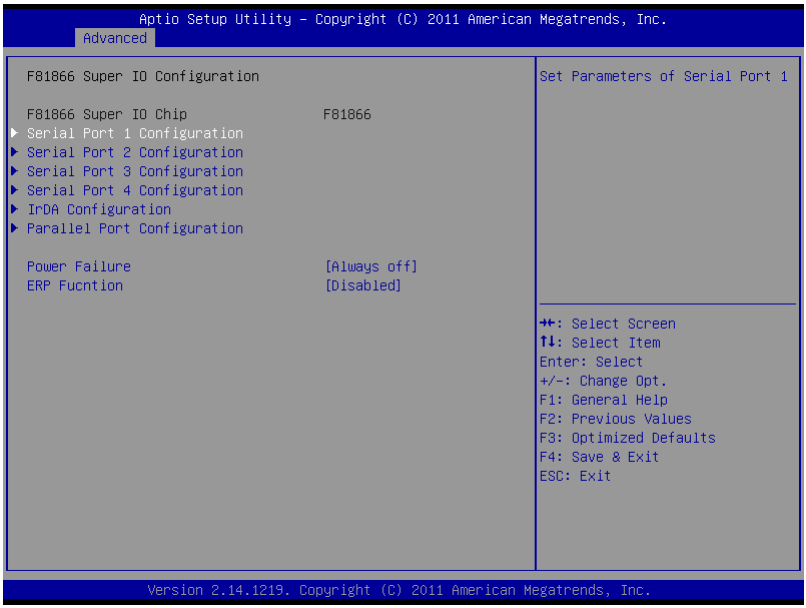
SMART Settings



Options Summary :

SMART Self Test	Disabled	Default
	Enabled	
Run SMART Self Test on all HDDs during POST.		

F81866 Super IO Configuration



Options Summary :

Power Failure	Keep last state	
	Always on	
	Always off	Default
Select power state when power is re-applied after a power failure.		
ERP Fucntion	Disabled	Default
	Enabled	
ERP Fucntion Enable/Disable.		

Serial Port 1,2,3,4 Configuration

```
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Advanced

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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```

```
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Advanced

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

Change Settings                [Auto]
RS232/422,485                  [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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```
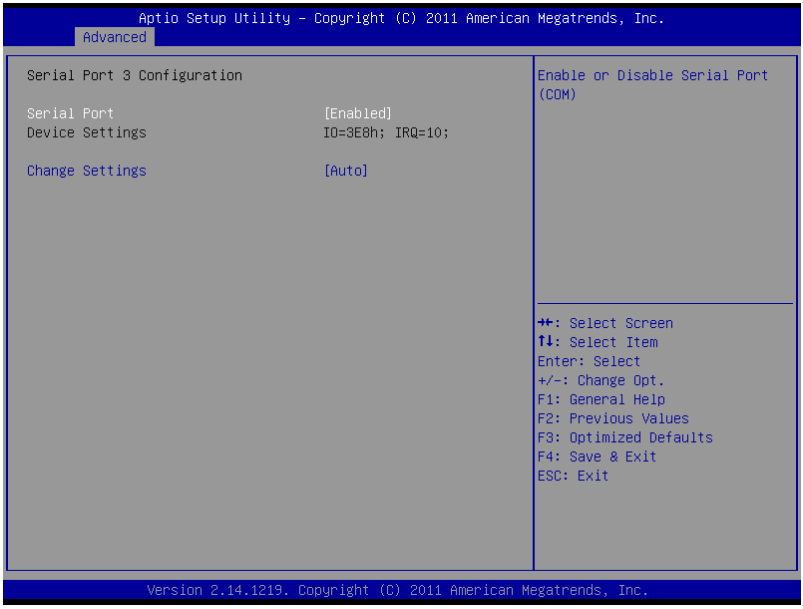
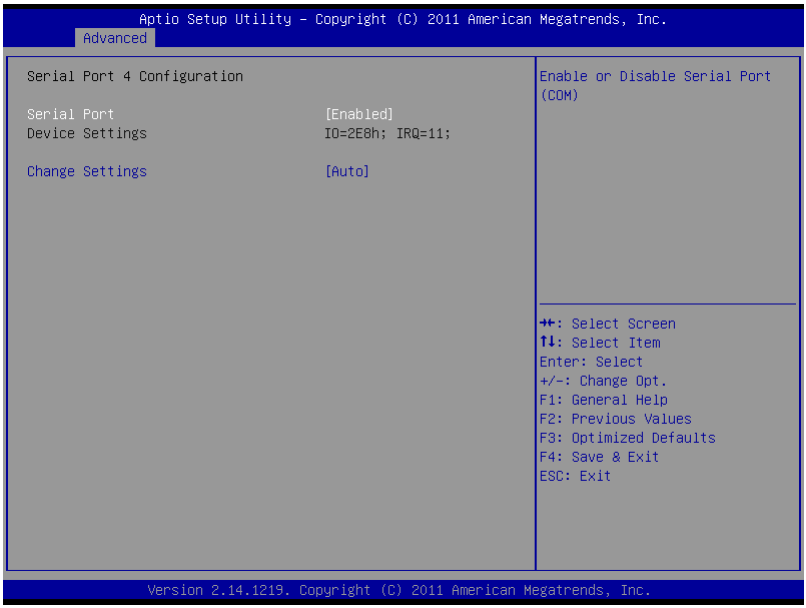

Options Summary :

Serial Port	Disabled	
	Enabled	Default
Enable or Disable serial Port (COM)		
Change Settings (Serial Port 1)	Auto	Default
	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ= 3,4;	
	IO=2F8h; IRQ= 3,4;	
Select an optimal setting for Super IO device.		
Change Settings (Serial Port 2)	Auto	Default
	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ= 3,4;	
	IO=2F8h; IRQ= 3,4;	
Select an optimal setting for Super IO device.		
RS232/422,485	RS232	Default
	RS422	
	RS485	
RS232/422,485 switch		

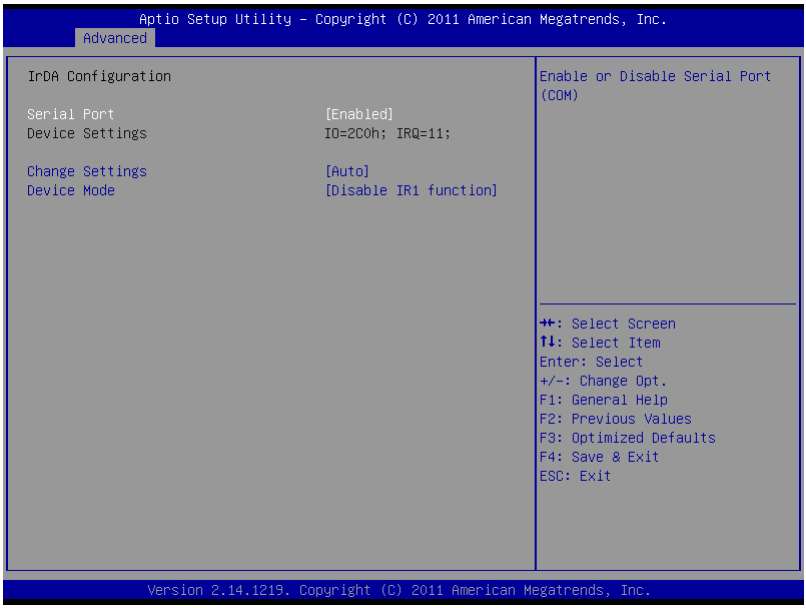




Options Summary :

Serial Port (Serial Port 3 and 4)	Enabled	Default
	Disabled	
Enable or Disable Serial Port (COM)		
Change Settings (Serial Port 3)	Auto	Default
	IO=3E8h; IRQ=11;	
	IO=3F8h; IRQ= 11;	
	IO=2F8h; IRQ= 11;	
Select an optimal setting for Super IO device.		
Change Settings (Serial Port 4)	Auto	Default
	IO=2E8h; IRQ=11;	
	IO=3F8h; IRQ= 11;	
	IO=2F8h; IRQ= 11;	
Select an optimal setting for Super IO device.		

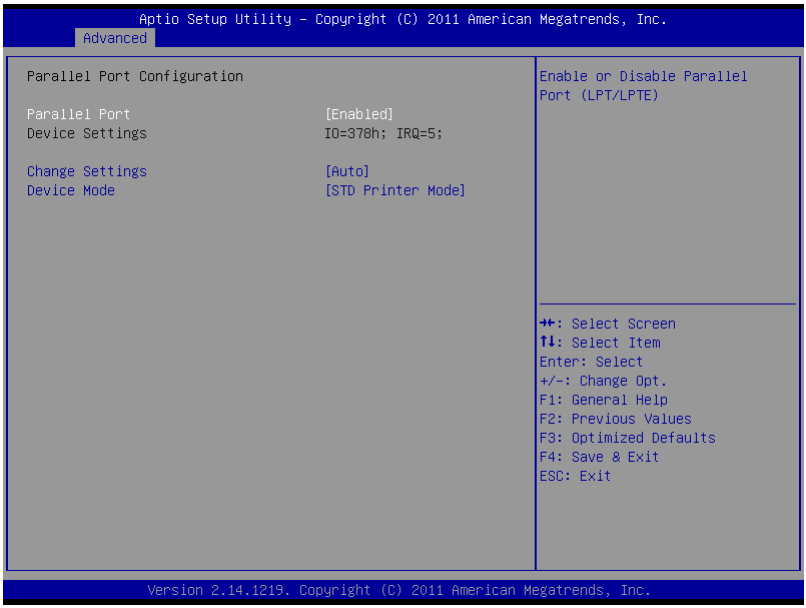
IrDA Configuration



Options Summary :

Serial Port	Enabled	
	Disabled	Default
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Default
	IO=2C0h;IRQ=11;	
	IO=2C8h; IRQ=11;	
	IO=2C8h; IRQ=11;	
Select an optimal setting for Super IO device.		
Device Mode	Disable IR1 function	
	Enable IR1 function, active pulse 1.6uS	Default
	Enable IR1 function, active pulse 3/16 bit time	
Change the Serial Port mode. Select <High Speed> or <Normal mode> mode		

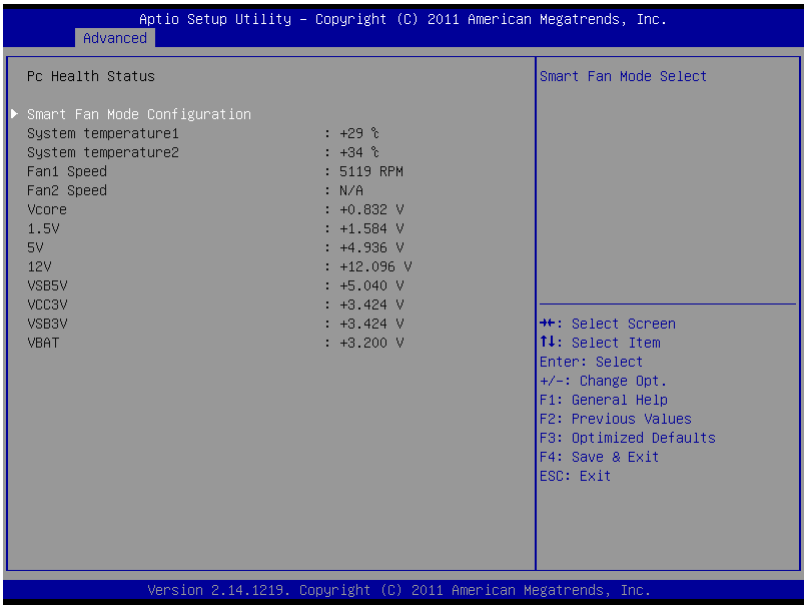
Parallel Port Configuration



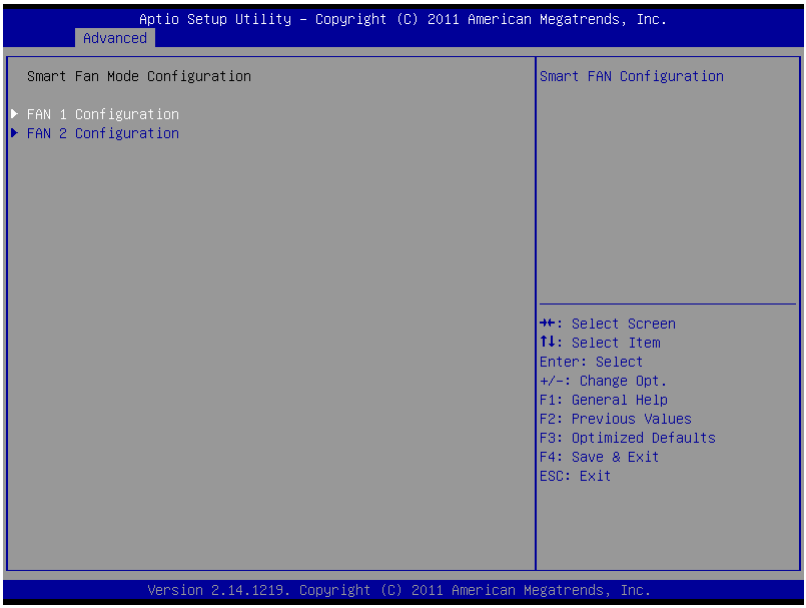
Options Summary :

Parallel Port	Enabled	Default
	Disable	
Enable or Disable Parallel Port (LPT/LPTE)		
Change Settings	Auto	Default
	IO=378h; IRQ=5;	
	IO=378h; IRQ=5,6,7,10,11,12;	
	IO=278h; IRQ=5,6,7,10,11,12;	
	IO=3BCh; IRQ=5,6,7,10,11,12;	
Select an optimal setting for Super IO device.		
Device Mode	STD Printer Mode	Default
	SPP Mode	
	EPP-1.9 and SPP Mode;	
	EPP-1.7 and SPP Mode	
	ECP Mode;	
	ECP and EPP 1.9 Mode	
	ECP and EPP 1.7 Mode	
Change the Printer Port mode		

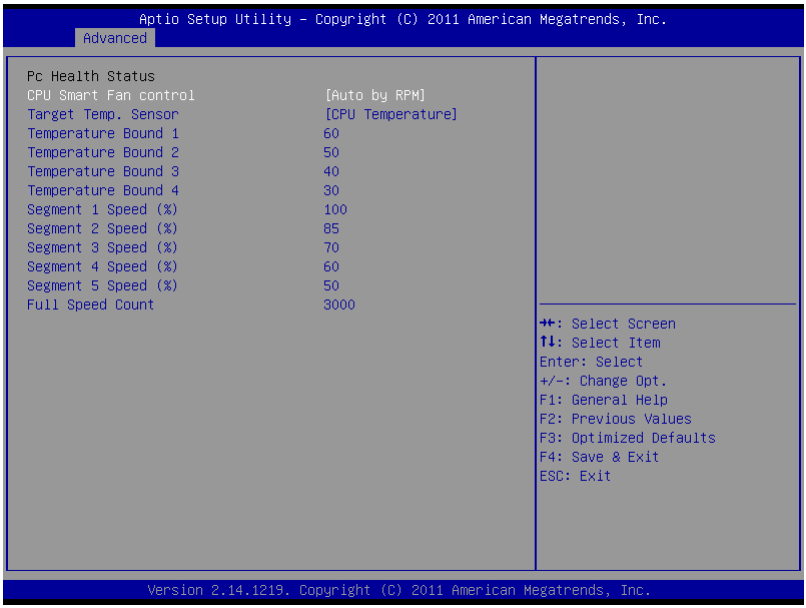
PC Health Status



Smart Fan Mode Configuration



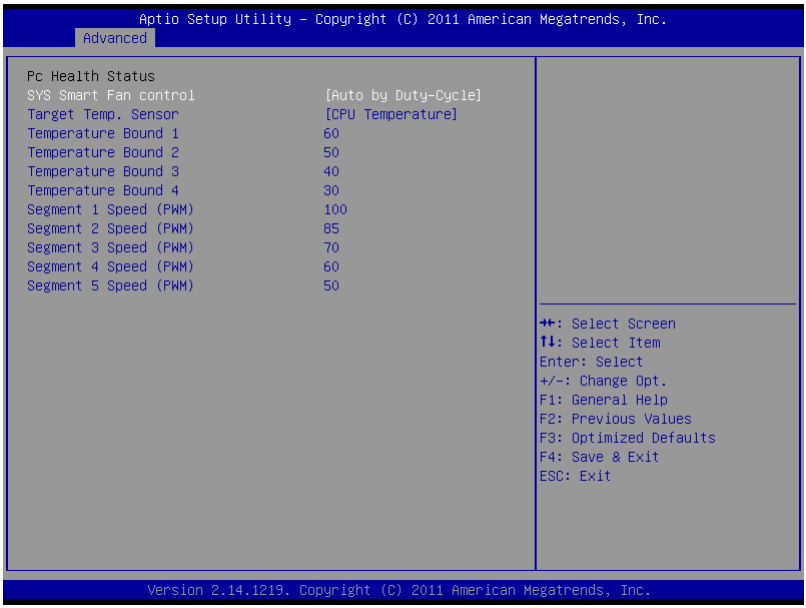
Fan 1 Configuration



Options Summary :

CPU Smart Fan Control [Auto by RPM]	Auto by RPM	Default
	Auto by Duty-Cycle	
	Manual by RPM	
	Manual by Duty-Cycle	
Control Fan Speed		
Target Temp. Sensor	CPU Temperature	Default
	PCH TEmperature;	
Set temperature of CPU/PCH for controlling Fan		

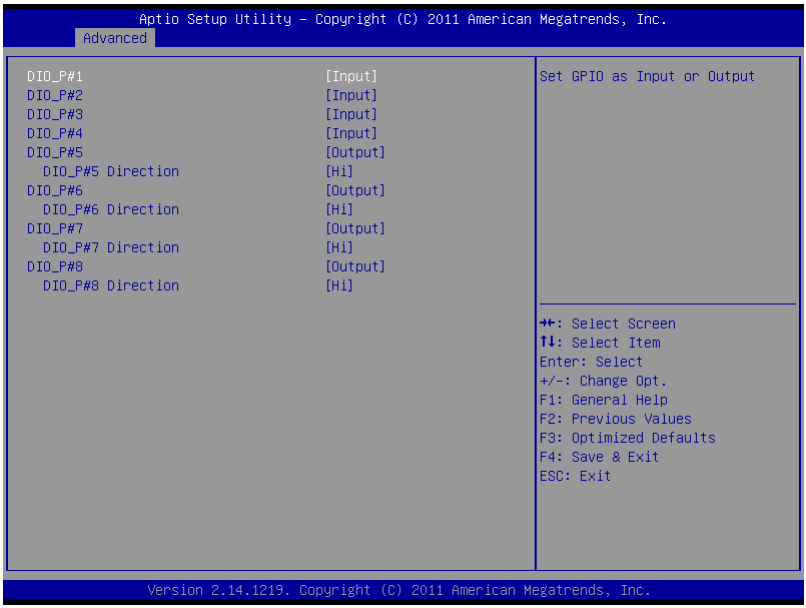
Fan 2 Configuration



Options Summary :

System Smart Fan control	Auto by RPM	
	Auto by Duty-Cycle	Default
	Manual by RPM	
	Manual by Duty-Cycle	
Control Fan Speed		
Target Temp. Sensor	CPU Temperature	Default
	PCH Temperature;	
Set temperature of CPU/PCH for controlling Fan		

Digital IO

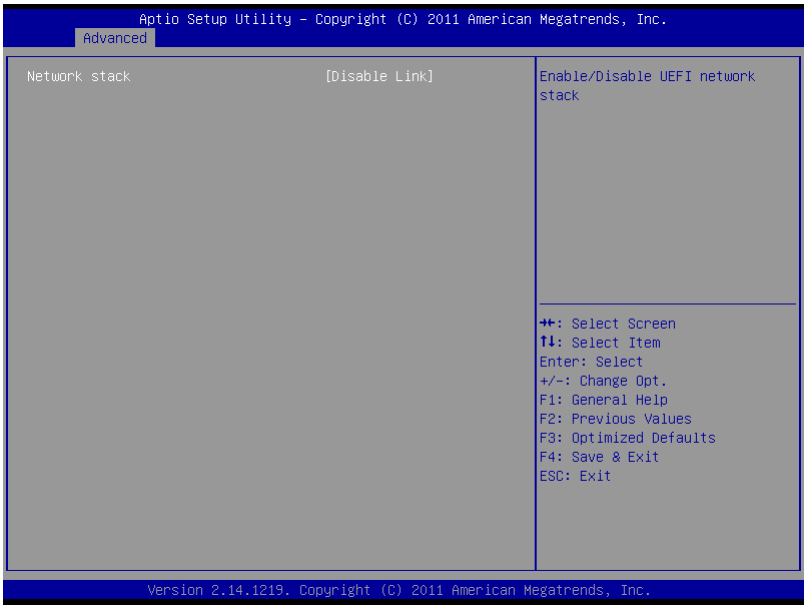


Options Summary :

DIO_P#1	Input	Default
	Output	
DIO_P#2	Input	Default
	Output	
DIO_P#3	Input	Default
	Output	
DIO_P#4	Input	Default
	Output	
DIO_P#5	Input	
	Output	Default
DIO_P#5 Direction	Low	
	Hi	Default
DIO_P#6	Input	
	Output	Default
DIO_P#6 Direction	Low	
	Hi	Default

DIO_P#7	Input	
	Output	Default
DIO_P#7 Direction	Low	
	Hi	Default
DIO_P#8	Input	
	Output	Default
DIO_P#8 Direction	Low	
	Hi	Default
Set GPIO as Input or Output - Direction: Set GPIO Output as Hi or Low.		

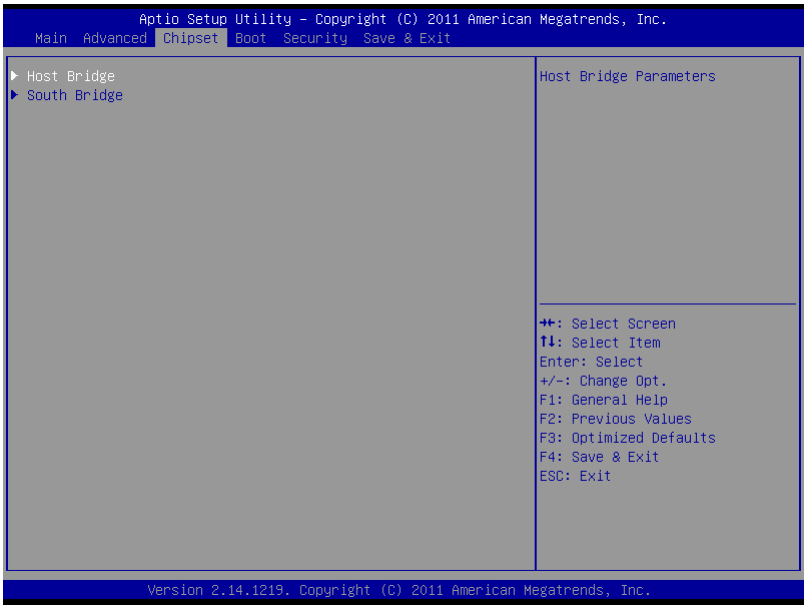
Network Stack



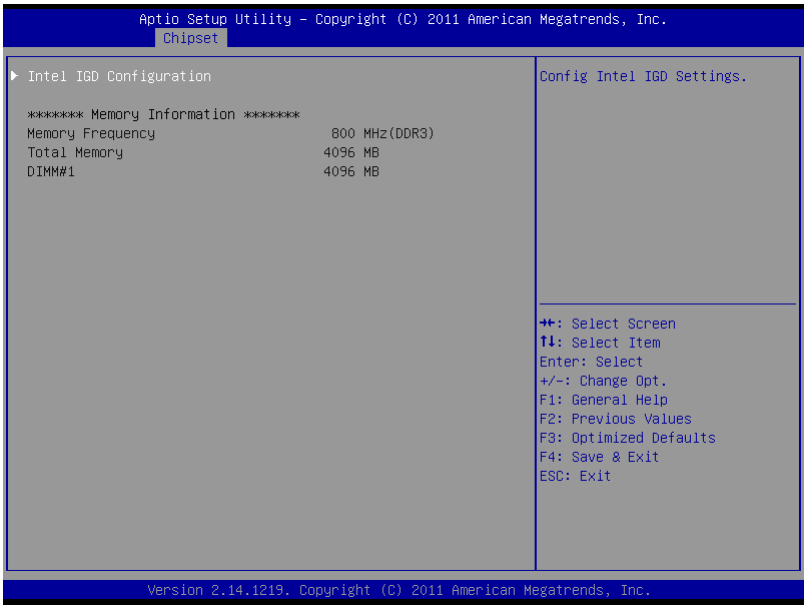
Options Summary :

Network stack	Disable Link	Default
	Enabled	
Enable/Disable UEFI network stack		

Setup submenu: Chipset



Host Bridge


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Chipset
Intel IGD Configuration
******* Memory Information *******
Memory Frequency 800 MHz(DDR3)
Total Memory 4096 MB
DIMM#1 4096 MB
Config Intel IGD Settings.
→←: 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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Graphics Configuration

```
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Chipset

Intel IGD Configuration                    Select the Video Device which
IGFX – Boot Type          [VBIOS Default]  will be activated during POST.
LCD Panel Type            [1024x768   18Bit]  This has no effect if
Active LFP                [LVDS]           external graphics present.
LVDS Backlight Level      [ 80%]
Backlight Control         [PWM Normal]
Fixed Graphics Memory Size [256MB]

                                           →←: 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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```
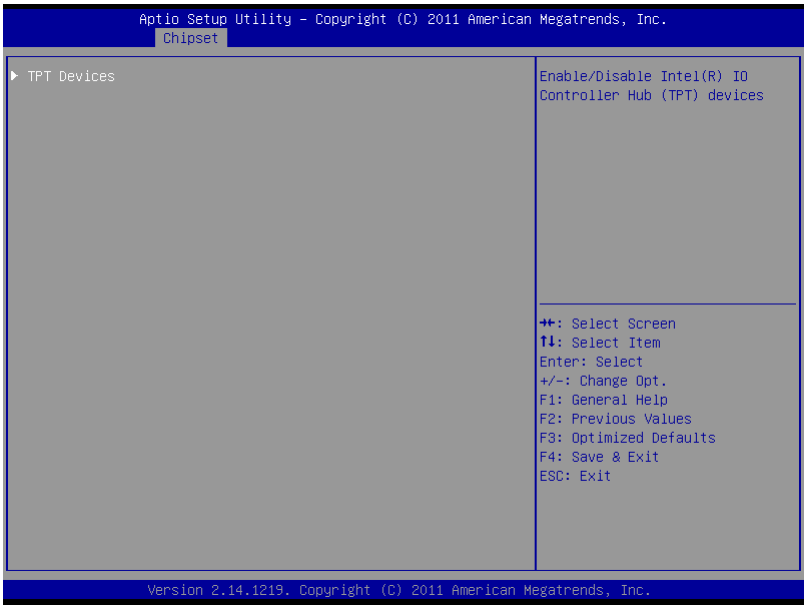

Options Summary :

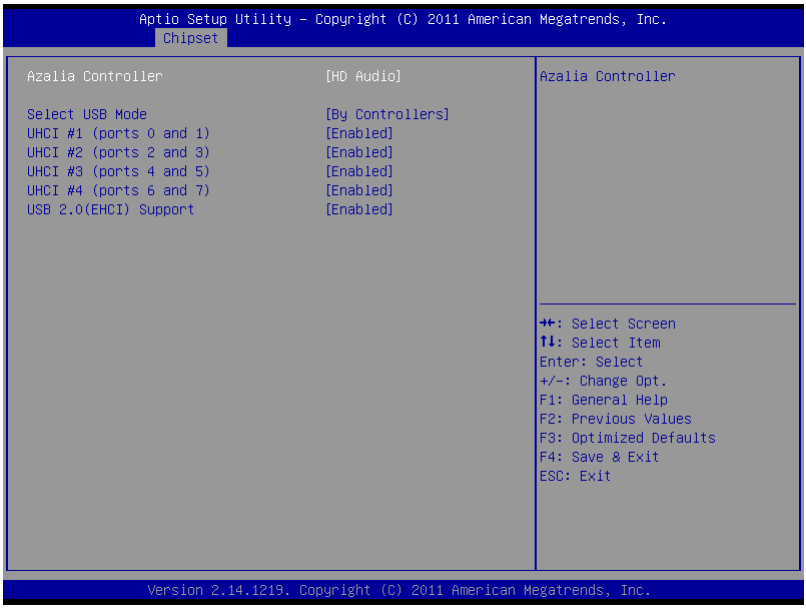
IGFX - Boot Type	VBIOS Default	Default
	CRT	
	LVDS	
Select the Video Device which will be activated during POST. This has no effect if external graphics present.		
LCD Panel Type	800x600 18Bit	
	1024x768 18Bit	Default
	1024x768 24Bit	
	1440x900 24Bit	
	1366x768 18Bit	
	1600x1200 24Bit	
	1366x768 24Bit	
	1280x768 18Bit	
	1280x768 24Bit	
	1440x990 24Bit	
	1280x1024 24Bit	
Select panel native resolution.		
Active LFP	No LVDS	

	LVDS	Default
	EDP	
Active LFP		
LCDS Backlight Level	100%	
	90%	
	80%	Default
	70%	
	60%	
	50%	
	40%	
	30%	
	20%	
	10%	
	0%	
Select Backlight brightness of LVDS		
Backlight Control	PWM Inverted	
	PWM Normal	Default
Back Light Control Setting		
Fixed Graphics Memory Size	128MB	
	256MB	Default
Select the amount of system memory used by the Internal graphics device.		

South Bridge



TPT Devices

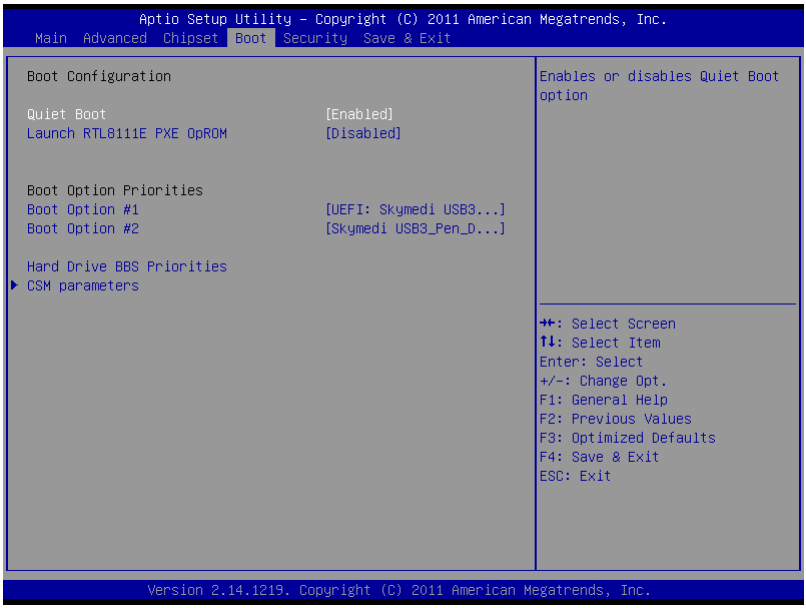


Options Summary :

Azalia Controller	Disabled	
	HD Audio	Default
Azalia Controller		
Select USB Mode	By Ports	
	By Controllers	Default
Select USB mode to control USB ports.		
UHCI #1 (ports 0 and 1)	Disabled	
	Enabled	Default
Control the USB UHCI (USB 1.1) functions. Disable from highest to lowest Controller		
UHCI #2 (ports 2 and 3)	Disabled	
	Enabled	Default
Control the USB UHCI (USB 1.1) functions. Disable from highest to lowest controller		
UHCI #3 (ports 4 and 5)	Disabled	
	Enabled	Default

Control the USB UHCI (USB 1.1) functions. Disable from highest to lowest controller		
UHCI #4 (ports 6 and 7)	Disabled	
	Enabled	Default
Control the USB UHCI (USB 1.1) functions. Disable from highest to lowest controller		
USB 2.0(EHCI) Support	Disabled	
	Enabled	Default
Enable or Disable USB 2.0 (EHCI) Support		

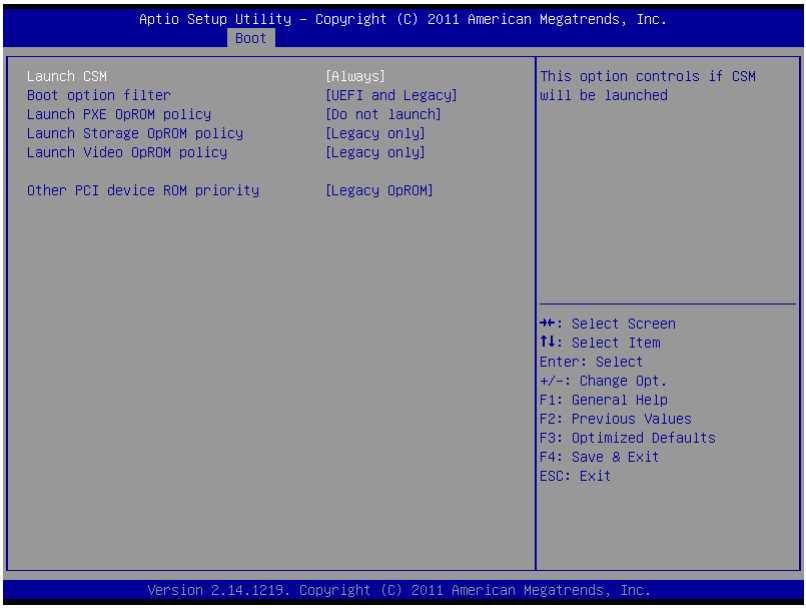
Setup submenu: Boot



Options Summary :

Quiet Boot	Disabled	
	Enabled	Default
En/Disable showing boot logo.		
Launch RTL8111E PXE OpROM	Disabled	Default
	Enabled	
En/Disable Boot option for Legacy Network Devices		

CSM parameters

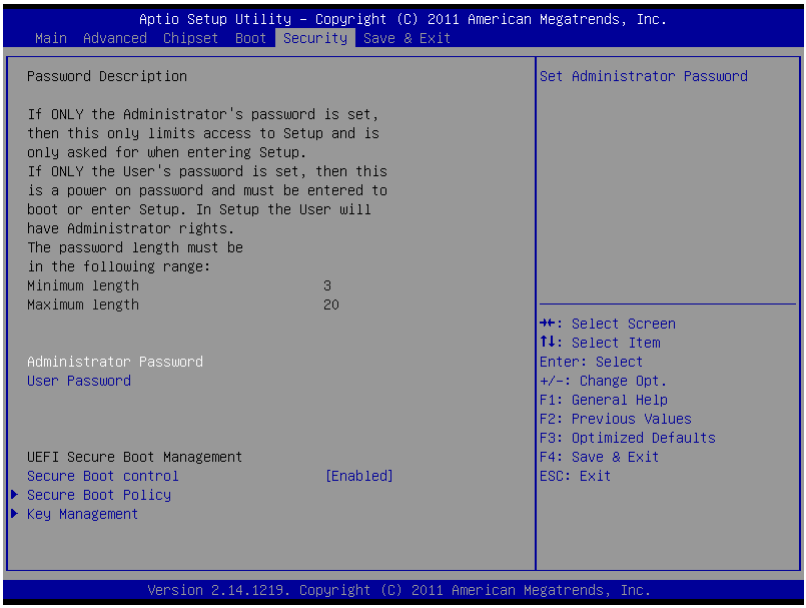


Option Summary :

Lauch CSM	Auto	
	Always	Default
	Never	
Controls If CSM will be launched.		
Boot option filter	UEFI and Legacy	Default
	Legacy only	
	UEFI only	
Controls what devices system can boot to.		
Launch PXE OpROM policy	Do not Launch	Default
	UEFI only	
	Legacy only	
Controls the execution of UEFI and Legacy PXE OpROM.		
Launch Storage OpROM policy	Do not launch	
	UEFI only	
	Legacy only	Default
Controls the execution of UEFI and Legacy Storage OpROM.		
Launch Video OpROM policy	Do no launch	
	UEFI only	

	Legacy only	Default
Controls the execution of UEFI and Legacy Video OpROM.		
Other PCI device ROM priority	UEFI OpROM	
	Legacy OpROM	Default
For PCI devices other than Network, Mass storage or Video defines which OpROM to launch.		

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.

Options Summary :

Secure Boot control	Disabled	
	Enabled	Default
Secure boot flow control.		

Security Boot Policy

```
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                          Security

Internal FV                 [Always Execute]     Image Execution Policy on
Option ROM                  [Deny Execute]       Security Violation. Image load
Removable Media             [Deny Execute]       device path
Fixed Media                 [Deny Execute]

                                                 →←: 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 :

Internal FV	Always Execute	
Option ROM	Always Execute	
	Always Deny	
	Allow Execute	
	Defer Execute	
	Deny Execute	Default
	Query User	
Removable Media	Always Execute	
	Always Deny	
	Allow Execute	
	Defer Execute	
	Deny Execute	Default
	Query User	
Fixed Media	Always Execute	
	Always Deny	
	Allow Execute	
	Defer Execute	
	Deny Execute	Default
	Query User	
Image Execution Policy on Security Violation. Image load device path.		

Key Management

```
Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
                              Security

  System Mode                          Setup
  Secure Boot Mode                     Disabled

  Platform Key (PK)                    Not Set
▶ Set PK from File
▶ Get PK to File
▶ Delete the PK
  Key Exchange Key Database(KEK)       Not Set
▶ Set KEK from File
▶ Get KEK to File
▶ Delete the KEK
▶ Append an entry to KEK
  Authorized Signature Database(DB)    Not Set
▶ Set DB from File
▶ Get DB to File
▶ Delete the DB
▶ Append an entry to DB
  Forbidden Signature Database(DBX)    Not Set
▶ Set DBX from File
▶ Get DBX to File
▶ Delete the DBX
▶ Append an entry to DBX

  Manage All Factory Keys (PK,KEK,DB,DBX)
  Install Factory Defaults

Launches the Filebroswer to
set the Platform Key from file

→←: 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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```
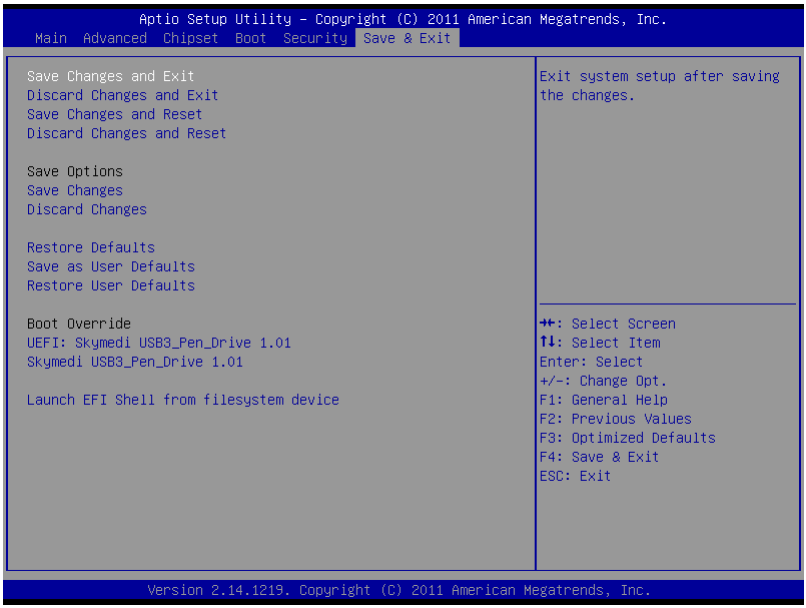

Setup submenu: Exit



Chapter

4

Driver Installation

The HSB-CV1P comes with a CD-ROM that contains all drivers and utilities that meet your needs.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install Audio Driver

Step 5 – Install Serial Port Driver (Optional)

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the HSB-CV1P CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 5 in order.

Step 1 – Install Chipset Driver

1. Click on the ***STEP1 - CHIPSET*** folder and double click on the ***infinst_autol.exe*** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 2 – Install VGA Driver

1. Click on the ***STEP2 - VGA*** folder and double click on the ***Setup.exe*** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 3 – Install LAN Driver

1. Click on the ***STEP3 - LAN*** folder and select the OS folder your system is
2. Double click on the ***setup.exe*** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 4 – Install Audio Driver

1. Click on the ***STEP4 - AUDIO*** folder and select the OS

folder your system is

2. Double click on the ***.exe*** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

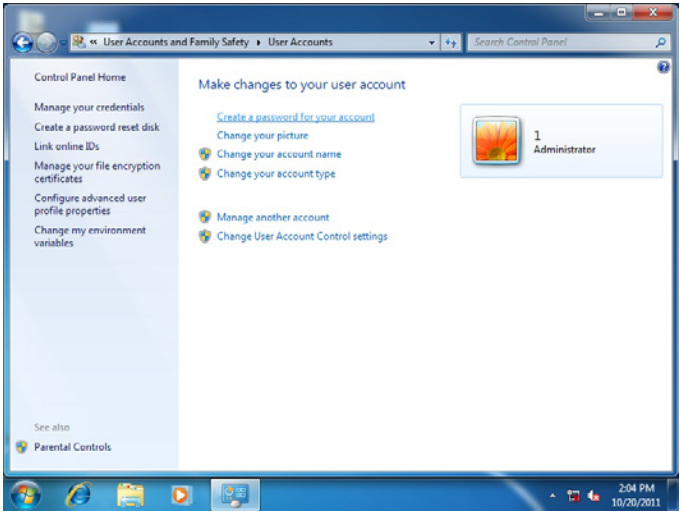
Step 5 – Install Serial Port Driver (Optional)

For Windows XP 32-bit

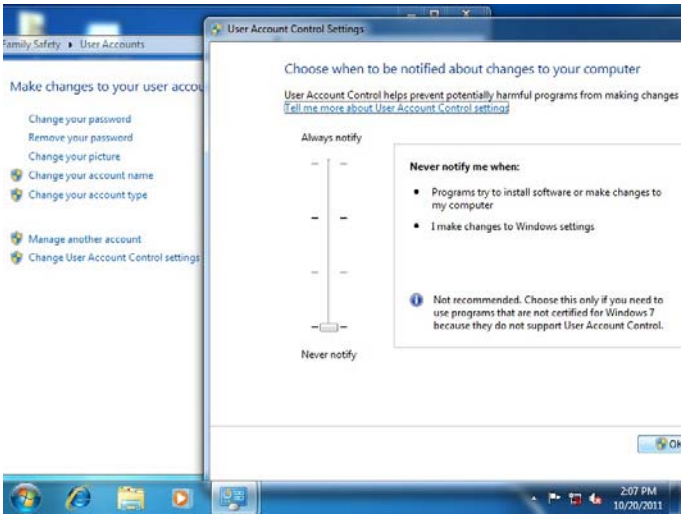
1. Click on the ***STEP5 - Serial Port Driver (Optional)*** folder and click on the folder of ***WINXP_32***
2. Double click on the ***patch.bat*** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

For Windows 7 32-bit/ 64-bit

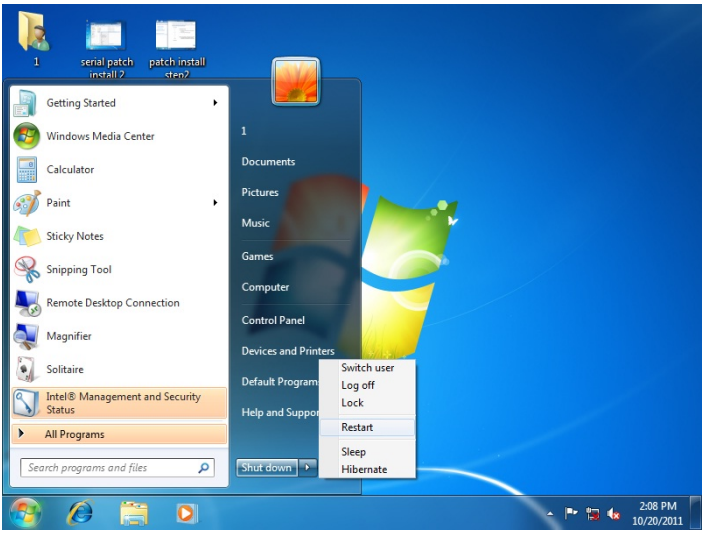
1. Create a password for Administrator account.



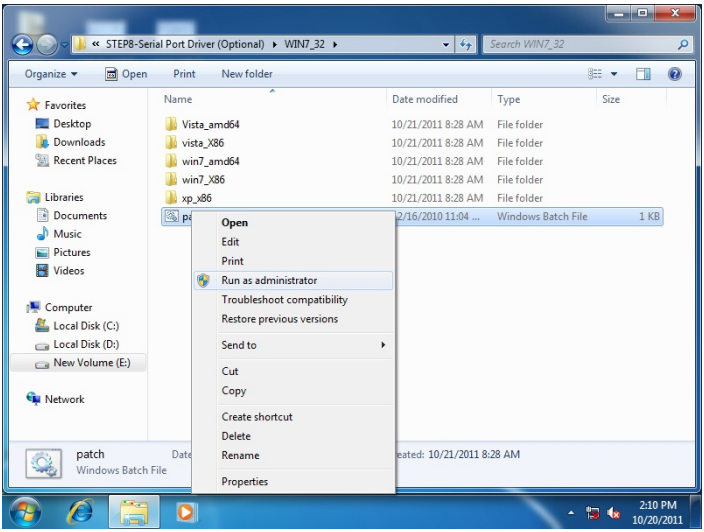
2. Change User Account Control Settings to [Never notify]



3. Reboot and Administrator login.



4. To run patch.bat with [Run as administrator].



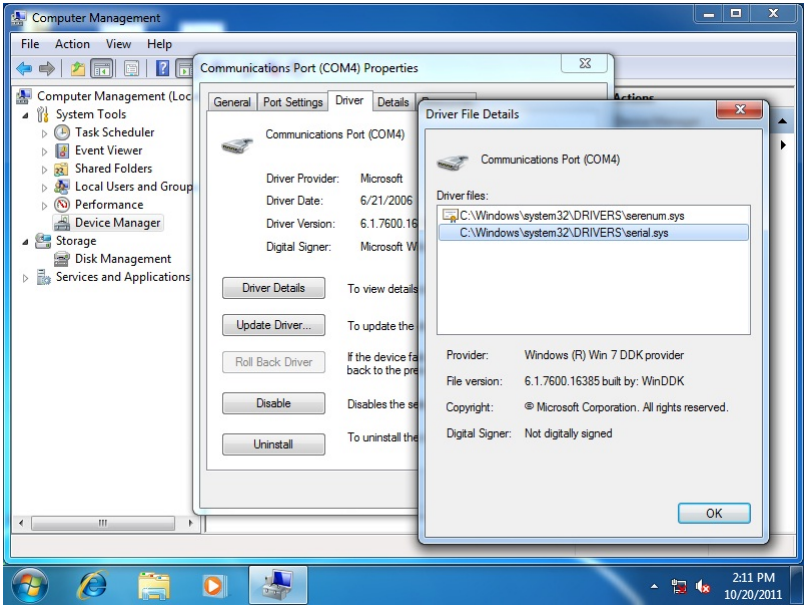
You also can install the serial port driver for Windows 7 by the Installation Procedure 2 below:

-Win7 32-bit

Copy the Driver CD\Serial Port Driver (Optional)\WIN7_32\win7_X86\serial.sys to C:\WINDOWS\system32\drivers\

-Win7 64-bit

Copy the Driver CD\Serial Port Driver (Optional)\WIN7_64\win7_amd64\serial.sys to C:\WINDOWS\system32\drivers\



Appendix

A

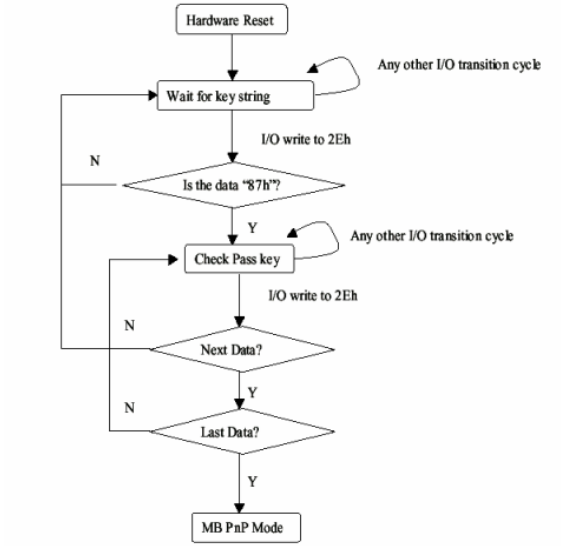
Programming the Watchdog Timer

A.1 Programming

HSB-CV1P utilizes FINTEK 81866 chipset as its watchdog timer controller. Below are the procedures to complete its configuration and the AAEON initial watchdog timer program is also attached based on which you can develop customized program to fit your application.

Configuring Sequence Description

After the hardware reset or power-on reset, the FINTEK 81866 enters the normal mode with all logical devices disabled except KBC. The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.



There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

To enter the MB PnP Mode, four special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform four write opera-tions to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

```
-o 4e 87
-o 4e 87                ( enable configuration )
```

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the MB PnP Mode

Write exit key 0xAA to the index port.

```
-o 4e aa                ( disable configuration )
```

Watch Dog Timer 1, 2, 3 Control Register (Index=F5h,F6h,FAh Default=00h)

7.8.4 Watchdog Control Configuration Register 1 — Index F5h

Bit	Name	R/W	Reset	Default	Description
7	Reserved	R	-	0	Reserved
6	WDTMOUT_STS	R/W	5VSB	0	If watchdog timeout event occurred, this bit will be set to 1. Write a 1 to this bit will clear it to 0.
5	WD_EN	R/W	5VSB	0	If this bit is set to 1, the counting of watchdog time is enabled.
4	WD_PULSE	R/W	5VSB	0	Select output mode (0: level, 1: pulse) of RSTOUT# by setting this bit.
3	WD_UNIT	R/W	5VSB	0	Select time unit (0: 1sec, 1: 60 sec) of watchdog timer by setting this bit.
2	WD_HACTIVE	R/W	5VSB	0	Select output polarity of RSTOUT# (1: high active, 0: low active) by setting this bit.
1-0	WD_PSWIDTH	R/W	5VSB	0	Select output pulse width of RSTOUT# 0: 1 ms 1: 25 ms 2: 125 ms 3: 5 sec

7.8.5 Watchdog Timer Configuration Register 2 — Index F6h

Bit	Name	R/W	Reset	Default	Description
7-0	WD_TIME	R/W	5VSB	0	Time of watchdog timer (0~255)

7.8.6 Watchdog PME Enable Configuration Register 2 — Index FAh

Bit	Name	R/W	Reset	Default	Description
7	WDT_PME	R	5VSB	0	0: No WDT PME occurred. 1: WDT PME occurred. The WDT PME is occurred one unit before WDT timeout.
6	WDT_PME_EN	R/W	5VSB	0	0: Disable Watchdog PME. 1: enable Watchdog PME.
5	Reserved	R	-	0	Reserved
4	WDT_CLK_SEL	R/W	5VSB	1	WDT Clock Source Select 0: Internal 1KHz clock. 1: 1KHZ clock driven by CLKIN.
3-1	Reserved	R	-	0	Reserved
0	WDOUT_EN	R/W	5VSB	0	0: disable Watchdog time out output via WDTRST#. 1: enable Watchdog time out output via WDTRST#.

A.2 F81866 Watchdog Timer Initial Program

```
Main(){
aaeonSuperIOOpen();
aaeonWdtSetCountMode(BOOL bMinute); // Set wdt count mode
aaeonWdtSetTimeoutCount(BYTE tTimeout); // Set wdt timer
aaeonWdtSetEnable(BOOL bEnable); // Enable wdt
aaeonSuperIOClose();
}

Void aaeonSuperIOOpen(){     // Config F81866 Entry key
        aaeonioWritePortByte(F81866_INDEX, 0x87);
        aaeonioWritePortByte(F81866_INDEX, 0x87);
}

Void aaeonWdtSetCountMode(BOOL bMinute){
   BYTE WDT_CONTROL = f81866ReadByte(F81866_WDT_CONTROL_REG);
   if(bMinute)
        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_CONTROL | 0x08);
   else
        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_CONTROL & 0xF7);
}
```

```
Void aaeonWdtSetTimeoutCount(BYTE tTimeout){
   f81866SetLdn(0x07);
   f81866WriteByte(F81866_WDT_TIME_REG, tTimeout);
}

Void aaeonWdtSetEnable(BOOL bEnable){
   f81866SetLdn(0x07);
   if(bEnable){
         f81866WriteByte(0x30, 0x01);
         WDT_BASE_ADDR =
         (f81866ReadByte(F81866_WDT_BASEADDR_REG_MSB) << 8)
         | f81866ReadByte(F81866_WDT_BASEADDR_REG_LSB);
         WDT_STATUS = f81866ReadByte(F81866_WDT_CONTROL_REG);
         f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_STATUS | 0x20);
         WDT_STATUS = f81866ReadByte(F81866_WDT_PME_REG);
         f81866WriteByte(F81866_WDT_PME_REG, WDT_STATUS | 0x01);
   }else{
         f81866WriteByte(0x30, 0x00);
         WDT_BASE_ADDR = 0;
         WDT_STATUS = f81866ReadByte(F81866_WDT_CONTROL_REG);
         f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_STATUS & 0xDF);
         WDT_STATUS = f81866ReadByte(F81866_WDT_PME_REG);
         f81866WriteByte(F81866_WDT_PME_REG, WDT_STATUS & 0xFE);
   }
}
```

```
Void aaeonSuperIOClose(){
        aaeonioWritePortByte(F81866_INDEX, 0xaa);
}
```

Appendix

B

I/O Information

B.1 I/O Address Map

Input/output (IO)

- [00000000 - 0000001F] Direct memory access controller
- [00000000 - 00000CF7] PCI bus
- [00000010 - 0000001F] Motherboard resources
- [00000020 - 00000021] Programmable interrupt controller
- [00000022 - 0000003F] Motherboard resources
- [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
- [00000044 - 0000005F] Motherboard resources
- [0000004E - 0000004F] Motherboard resources
- [00000050 - 00000053] System timer
- [00000061 - 00000061] Motherboard resources
- [00000062 - 00000063] Motherboard resources
- [00000063 - 00000063] Motherboard resources
- [00000065 - 00000065] Motherboard resources
- [00000065 - 0000006F] Motherboard resources
- [00000067 - 00000067] Motherboard resources
- [00000070 - 00000070] Motherboard resources
- [00000070 - 00000077] System CMOS/real time clock
- [00000072 - 0000007F] Motherboard resources
- [00000080 - 00000080] Motherboard resources
- [00000080 - 00000080] Motherboard resources
- [00000081 - 00000091] Direct memory access controller
- [00000084 - 00000086] Motherboard resources
- [00000088 - 00000088] Motherboard resources
- [0000008C - 0000008E] Motherboard resources
- [00000090 - 0000009F] Motherboard resources
- [00000092 - 00000092] Motherboard resources
- [00000093 - 0000009F] Direct memory access controller
- [000000A0 - 000000A1] Programmable interrupt controller
- [000000A2 - 000000BF] Motherboard resources
- [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
[000000C0 - 000000DF] Direct memory access controller
[000000E0 - 000000EF] Motherboard resources
[000000F0 - 000000F0] Numeric data processor
[000002E8 - 000002EF] Communications Port (COM4)
[000002F8 - 000002FF] Communications Port (COM2)
[00000378 - 0000037F] Printer Port (LPT1)
[000003B0 - 000003BB] Intel(R) Graphics Media Accelerator 3600 Series
[000003C0 - 000003DF] Intel(R) Graphics Media Accelerator 3600 Series
[000003E8 - 000003EF] Communications Port (COM3)
[000003F8 - 000003FF] Communications Port (COM1)
[00000400 - 0000047F] Motherboard resources
[00000400 - 0000047F] Motherboard resources
[000004D0 - 000004D1] Motherboard resources
[000004D0 - 000004D1] Programmable interrupt controller
[00000500 - 0000053F] Motherboard resources
[00000500 - 0000057F] Motherboard resources
[00000600 - 0000061F] Motherboard resources
[00000680 - 0000069F] Motherboard resources
[000006A0 - 000006AF] Motherboard resources
[000006B0 - 000006EF] Motherboard resources
[00000A00 - 00000A0F] Motherboard resources
[00000A10 - 00000A1F] Motherboard resources
[00000A20 - 00000A2F] Motherboard resources
[00000D00 - 0000FFFF] PCI bus
[00001000 - 0000100F] Motherboard resources
[0000D000 - 0000D0FF] Realtek PCIe GBE Family Controller #4
[0000D000 - 0000DFFF] Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
[0000E000 - 0000E0FF] Realtek PCIe GBE Family Controller #3
[0000E000 - 0000EFFF] Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
[0000F000 - 0000F01F] Intel(R) N10/ICH7 Family SMBus Controller - 27DA
[0000F020 - 0000F02F] Standard AHCI 1.0 Serial ATA Controller
[0000F040 - 0000F05F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
[0000F060 - 0000F07F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
[0000F080 - 0000F09F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
[0000F0A0 - 0000F0BF] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
[0000F0C0 - 0000F0C3] Standard AHCI 1.0 Serial ATA Controller
[0000F0D0 - 0000F0D7] Standard AHCI 1.0 Serial ATA Controller
[0000F0E0 - 0000F0E3] Standard AHCI 1.0 Serial ATA Controller
[0000F0F0 - 0000F0F7] Standard AHCI 1.0 Serial ATA Controller
[0000F100 - 0000F107] Intel(R) Graphics Media Accelerator 3600 Series
[0000FFFF - 0000FFFF] Motherboard resources
[0000FFFF - 0000FFFF] Motherboard resources

B.2 1st MB Memory Address Map

- Memory
  - [00000000 - 00000FFF] Motherboard resources
  - [00000000 - 00000FFF] Motherboard resources
  - [00000000 - 00003FFF] Motherboard resources
  - [000A0000 - 000BFFFF] Intel(R) Graphics Media Accelerator 3600 Series
  - [000A0000 - 000BFFFF] PCI bus
  - [000C0000 - 000DFFFF] PCI bus
  - [000E0000 - 000EFFFF] PCI bus
  - [000F0000 - 000FFFFF] PCI bus
  - [CF800000 - CFFFFFFF] PCI bus
  - [D0000000 - FEBFFFFF] PCI bus
  - [DFC00000 - DFCFFFFF] Intel(R) Graphics Media Accelerator 3600 Series
  - [DFD00000 - DFD03FFF] Realtek PCIe GBE Family Controller #4
  - [DFD00000 - DFDFFFFF] Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
  - [DFD04000 - DFD04FFF] Realtek PCIe GBE Family Controller #4
  - [DFE00000 - DFE03FFF] Realtek PCIe GBE Family Controller #3
  - [DFE00000 - DFEFFFFF] Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
  - [DFE04000 - DFE04FFF] Realtek PCIe GBE Family Controller #3
  - [DFF00000 - DFF03FFF] High Definition Audio Controller
  - [DFF04000 - DFF043FF] Standard AHCI 1.0 Serial ATA Controller
  - [DFF05000 - DFF053FF] Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
  - [E0000000 - EFFFFFFF] System board
  - [FEC00000 - FEC00FFF] Motherboard resources
  - [FED00000 - FED003FF] High precision event timer
  - [FED14000 - FED19FFF] System board
  - [FED1C000 - FED1FFFF] Motherboard resources
  - [FED1C000 - FED1FFFF] Motherboard resources
  - [FED20000 - FED8FFFF] Motherboard resources
  - [FED45000 - FED8FFFF] Motherboard resources
  - [FEE00000 - FEE00FFF] Motherboard resources
  - [FF000000 - FFFFFFFF] Intel(R) 82802 Firmware Hub Device
  - [FF000000 - FFFFFFFF] Intel(R) 82802 Firmware Hub Device
  - [FFC00000 - FFFFFFFF] Motherboard resources

B.3 IRQ Mapping Chart

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)	System CMOS/real time clock
(ISA) 0x0000000A (10)	Communications Port (COM3)
(ISA) 0x0000000B (11)	Communications Port (COM4)
(ISA) 0x0000000B (11)	Communications Port (COM6)
(ISA) 0x0000000D (13)	Numeric data processor
(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) 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) 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) 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) 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) 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) 0x0000000B (11) Intel(R) N10/ICH7 Family SMBus Controller - 27DA
(PCI) 0x00000010 (16) Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
(PCI) 0x00000010 (16) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
(PCI) 0x00000011 (17) Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
(PCI) 0x00000012 (18) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
(PCI) 0x00000013 (19) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
(PCI) 0x00000013 (19) Standard AHCI 1.0 Serial ATA Controller
(PCI) 0x00000016 (22) High Definition Audio Controller
(PCI) 0x00000017 (23) Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
(PCI) 0x00000017 (23) Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
(PCI) 0xFFFFFFFC (-4) Realtek PCIe GBE Family Controller #4
(PCI) 0xFFFFFFFD (-3) Realtek PCIe GBE Family Controller #3
(PCI) 0xFFFFFFFE (-2) Intel(R) Graphics Media Accelerator 3600 Series

B.4 DMA Channel Assignments

Direct memory access (DMA)
3 Printer Port (LPT1)
4 Direct memory access controller

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	LCD Inverter Connector	CATCH	1192-700-05S	N/A	N/A
CN2	LVDS Connector	E-Call	01 10-01-553-300	N/A	N/A
CN3	KB Pin Header	HoBase	2503-WS-5	N/A	N/A
CN4	PS2 Keyboard/ Mouse Connector	TechBest	DN508BS1-6-L	KB/MS Cable	1700060192
CN5	Digital I/O Connector	JIH VEI Electronics	21B22050-XXS 10B-01G-4/2.8	N/A	N/A
CN6	Ethernet Connector	UDE	RT7-17FAAM1 A	N/A	N/A
CN7	Ethernet Connector	UDE	RT7-17FAAM1 A	N/A	N/A
CN8	External +5VSB Input Connector	CATCH	1191-700-03S	+5VSB Input Cable	1703030501
CN9	Audio Pin Header	JIH VEI Electronics	21N22050-10S 10B-01G-4/2.8-V1-G	N/A	N/A
FP1	Front Panel Connector	JIH VEI Electronics	21B22564-XXS 10B-01G-6/3-V XX	N/A	N/A
FP2	Front Panel Connector	JIH VEI Electronics	21B22564-XXS 10B-01G-6/3-V XX	N/A	N/A
VGA1	CRT Display	Catch Electronics	3125-000-15SB	N/A	N/A

	Connector				
COM1	RS-232 Serial Port Connector	CATCH	1147-000-10S	Serial Port Cable	1701100305
COM2	RS-232/422/485 Serial Port Connector	CATCH	1147-000-10S	Serial Port Cable	1701100305
COM3	RS-232 Serial Port Connector	CATCH	1147-000-10S	Serial Port Cable	1701100305
COM4	RS-232 Serial Port Connector	CATCH	1147-000-10S	Serial Port Cable	1701100305
USB1	USB Pin Header	JIH VEI Electronics	21B22050-XXS 10B-01G-4/2.8	USB Cable	1709100201
USB2	USB Pin Header	JIH VEI Electronics	21B22050-XXS 10B-01G-4/2.8	USB Cable	1709100201
USB3	USB Pin Header	JIH VEI Electronics	21B22050-XXS 10B-01G-4/2.8	USB Cable	1709100201
USB4	USB Connector	HoBase	KS-001V-ANW	N/A	N/A
USB5	USB Connector	Astron	22-0104-4W-1T -R	N/A	N/A
IR1	Infrared Connector	JIH VEI Electronics	21B12050-XXS 10B-01G-4/2.8	N/A	N/A
LPT1	LPT port Connector	CATCH	1147-000-26S	LPT cable	1701260307
SATA1	SATA Connector	LOTES	ABA-SAT-046-K12	SATA cable	1709070800
SATA2	SATA Connector	LOTES	ABA-SAT-046-K12	SATA cable	1709070800
SPI1	BIOS Debug Port Connector	Astron	27-44041-204-2G-TB1R	N/A	N/A
BAT1A1	BAT Pin Header	CATCH	1201-700-02S	N/A	N/A
FAN1	FAN Connector	CATCH	1190-700-042	N/A	N/A
FAN2	FAN Connector	CATCH	1190-700-042	N/A	N/A

ATX1	ATX Power Connector	CATCH	1121-700-04S	N/A	N/A