COM-HM76

3rd Generation Intel® Core™ i7/i5/i3 Processor

Intel® HM76

Gigabit Ethernet

4 SATA

8 USB2.0, up to 4 USB3.0

1 PCI-E[x16], 7 PCI-E[x1]

COM Express Basic Module

COM-HM76 Manual Rev.A 1st Ed.
May 14, 2014

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Packing List

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

- 4 M2.5 Screw
- 1 DVD-ROM for manual (in PDF format) and drivers
- 1 COM-HM76

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 board manufacturer, is pleased to announce the debut of their new generation COM Express Module: COM-HM76. The COM-HM76 is a cutting-edge product that provides high performance and low power consumption in the embedded market.

COM-HM76 adopts the latest Intel® 3rd generation Core™ i7/i5/i3/Celeron® processor. The system memory deploys with one SODIMM 204-pin DDR3L 1333/1600 memory, up to 8 GB. In addition, Intel® 82579LM supports Gigabit Ethernet that allows faster network connections. This model applies seven PCI-Express[x1], one PCI-Express[x16], one LPC bus, one SMBus, and two UART. Moreover, four SATA ports are configured on the COM-HM76. COM-HM76 also equips eight USB2.0 (including four USB3.0) for flexible I/O expansions.

The display of COM-HM76 supports up to three independent displays simultaneously. This brand new COM Express Module is developed to cater to the requirements of Automation, Medical, ticket machine, transportation, gaming, KIOSK, and POS/POI applications.

1.2 Features

- Onboard 3rd Generation Intel® Core™ i7/ i5/ i3 Processor
- Intel® HM76 PCH
- Single Channel SODIMM DDR3L 1333/1600 Memory, Max.8 GB
- Gigabit Ethernet
- VGA x 1, DDI x 2, LVDS x 1 (18/24-bit Dual-channel LVDS LCD)
- High Definition Audio Interface
- SATA x 4
- USB2.0 x 8 (Including USB3.0 x 4)
- PCI-Express [x16] x 1 (Gen. 3.0), PCI-Express [x1] x 7 (Gen. 2.0)

Note: Configurable to PCI-Express[x8] Port x 2; Configurable to PCI-Express[x8] Port x 1 and PCI-Express[x4] Port x 2

- DC Input Range, +12V
- COM Express Basic Module, Pin-out Type 6, COM.0 Rev. 2.1

1.3 Specifications

System

Form Factor	COM Express Basic module, Pin-out Type 6, COM. 0 Rev. 2.1
Processor	Onboard 3rd Generation Intel® Core™ i7/i5/i3 Processor
System Memory	204-pin DDR3L SODIMM x 1, Max. 8GB (DDR3L 1333/1600), supports single channel function
Chipset	Intel® HM76
I/O Chipset	Intel® HM76 (Winbond SIO on the carrier board)
Ethernet	Intel® 82579LM, 10/100/1000Base-TX PHY
BIOS	AMI BIOS SPI type
EEPROM	FMD. FT24C02A, save BIOS and configuration data
Wake On LAN	Yes
BBS (BIOS Boot Spec.)	Yes
Watchdog Timer	ITE8518, 255 levels
H/W Status Monitoring	Supports CPU Temperature Monitoring
Expansion Interface	PCI-Express [x16] x 1 PCI-Express [x1] x 7 LPC bus x 1 SMBus x 1 UART x 2 (TX/RX only)
Power Requirement	+12V only 2-pin wafer for RTC battery

- **Board Size** 4.92" (L) x 3.75"(W) (125mm x 95mm)
- **Gross Weight** 0.66lb (0.3kg)
- **Operating Temperature** 32°F ~ 140°F (0°C ~ 60°C)
- **Storage Temperature** -40°F ~ 176°F (-40°C ~ 80°C)
- **Operating Humidity** 0% ~ 90% relative humidity, non-condensing
- **OS Support** Windows® 7, Windows® 8, Linux Fedora 16

Display

- **Chipset** 3rd Generation Intel® Core™ i7/i5/i3 Processor Integrated
- **Memory** Shared system memory up to 512MB/ DVMT 5.0
- **Resolution** Up to 2560 x 2048 for CRT
  Up to 1920 x 1200 for LVDS
- **LCD Interface** Up to 24-bit dual-channel LVDS, VGA

I/O

- **Storage** SATA x 4
- **Serial Port** From LPC to EC, then to the carrier board (EC x 2)
- **USB** USB2.0 x 8 (including USB 3.0 x 4)
- **Audio** High definition audio
- **GPIO** Up to 4 in and 4 out

Chapter

2

Quick Installation Guide

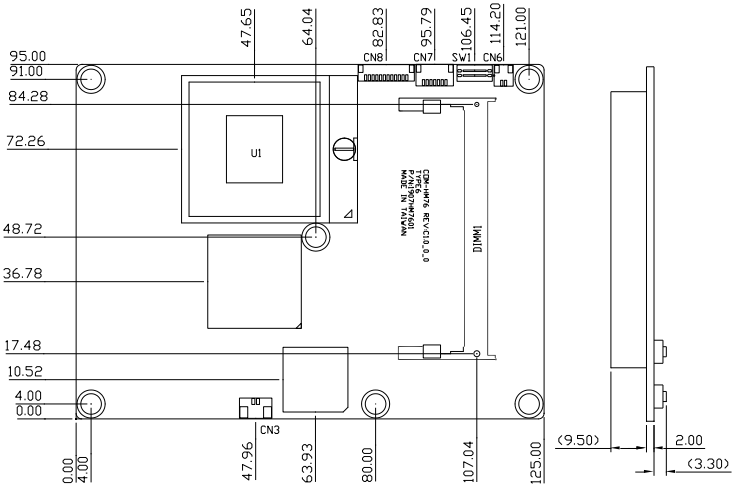
2.1 Safety Precautions

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.

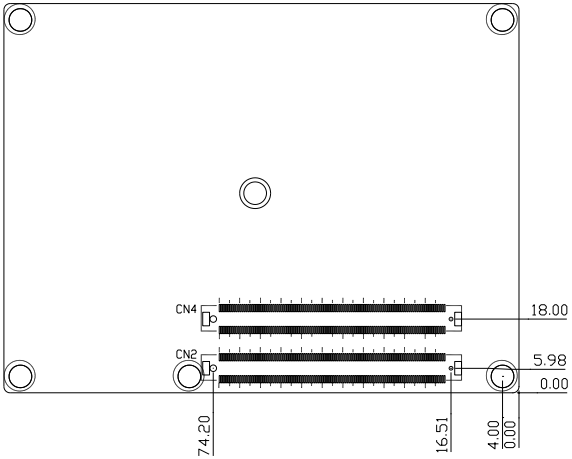
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

2.2 Mechanical Drawings of Connectors and Switches

Component Side



Solder Side



2.3 List of Switch

There is a switch on the board that allows you to configure your system to suit your application. The table below shows the function of the switch.

Label	Function
SW1	AT/ATX Setting Switch

2.4 List of Connectors

There are a number of connectors of the board that allow you to configure your system to suit your application. The table below shows the function of each connector in the board:

Label	Function
DIMM1	SODIMM COM
CN3	RTC Battery Connector
CN4	Express ROW C/D Connector
CN5	Express ROW A/B Connector
CN6	RSVD Connector
CN7	SPI Flash Programming Connector
CN8	LPC Debug Card Connector

2.5 AT/ATX Setting Switch (SW1)

	ON	OFF
1	AT Selection	ATX Selection
2	ME_EN	ME_DIS

2.6 COM Express ROW C/D Connector (CN4)

Row C		Row D	
C1	GND (FIXED)	D1	GND (FIXED)
C2	GND (FIXED)	D2	GND (FIXED)
C3	USB_SSRX0-	D3	USB_SSTX0-
C4	USB_SSRX0+	D4	USB_SSTX0+
C5	GND (FIXED)	D5	GND (FIXED)
C6	USB_SSRX1-	D6	USB_SSTX1-
C7	USB_SSRX1+	D7	USB_SSTX1+
C8	GND (FIXED)	D8	GND (FIXED)
C9	USB_SSRX2-	D9	USB_SSTX2-
C10	USB_SSRX2+	D10	USB_SSTX2+
C11	GND (FIXED)	D11	GND (FIXED)
C12	USB_SSRX3-	D12	USB_SSTX3-
C13	USB_SSRX3+	D13	USB_SSTX3+
C14	GND (FIXED)	D14	GND (FIXED)
C15	DDI1_PAIR6+	D15	DDI1_CTRLCLK_AUX+
C16	DDI1_PAIR6-	D16	DDI1_CTRLDATA_AUX-

C17	RSVD	D17	RSVD
C18	RSVD	D18	RSVD
C19	PCIE_RX6+	D19	PCIE_TX6+
C20	PCIE_RX6-	D20	PCIE_TX6-
C21	GND (FIXED)	D21	GND (FIXED)
C22	PCIE_RX7+	D22	PCIE_TX7+
C23	PCIE_RX7-	D23	PCIE_TX7-
C24	DDI1_HPD	D24	RSVD
C25	DDI1_PAIR4+	D25	RSVD
C26	DDI1_PAIR4-	D26	DDI1_PAIR0+
C27	RSVD	D27	DDI1_PAIR0-
C28	RSVD	D28	RSVD
C29	DDI1_PAIR5+	D29	DDI1_PAIR1+
C30	DDI1_PAIR5-	D30	DDI1_PAIR1-
C31	GND (FIXED)	D31	GND (FIXED)
C32	DDI2_CTRLCLK_AUX+	D32	DDI1_PAIR2+
C33	DDI2_CTRLDATA_AUX-	D33	DDI1_PAIR2-
C34	DDI2_DDC_AUX_SEL	D34	DDI1_DDC_AUX_SEL
C35	RSVD	D35	RSVD
C36	DDI3_CTRLCLK_AUX+	D36	DDI1_PAIR3+
C37	DDI3_CTRLDATA_AUX-	D37	DDI1_PAIR3-
C38	DDI3_DDC_AUX_SEL	D38	RSVD
C39	DDI3_PAIR0+	D39	DDI2_PAIR0+

C40	DDI3_PAIR0-	D40	DDI2_PAIR0-
C41	GND (FIXED)	D41	GND (FIXED)
C42	DDI3_PAIR1+	D42	DDI2_PAIR1+
C43	DDI3_PAIR1-	D43	DDI2_PAIR1-
C44	DDI3_HPD	D44	DDI2_HPD
C45	RSVD	D45	RSVD
C46	DDI3_PAIR2+	D46	DDI2_PAIR2+
C47	DDI3_PAIR2-	D47	DDI2_PAIR2-
C48	RSVD	D48	RSVD
C49	DDI3_PAIR3-	D49	DDI2_PAIR3+
C50	DDI3_PAIR3-	D50	DDI2_PAIR3-
C51	GND (FIXED)	D51	GND (FIXED)
C52	PEG_RX0+	D52	PEG_TX0+
C53	PEG_RX0-	D53	PEG_TX0-
C54	TYPE0#	D54	PEG_LAN_RV#
C55	PEG_RX1+	D55	PEG_TX1+
C56	PEG_RX1-	D56	PEG_TX1-
C57	TYPE1#	D57	TYPE2#
C58	PEG_RX2+	D58	PEG_TX2+
C59	PEG_RX2-	D59	PEG_TX2-
C60	GND (FIXED)	D60	GND (FIXED)
C61	PEG_RX3+	D61	PEG_TX3+
C62	PEG_RX3-	D62	PEG_TX3-
C63	RSVD	D63	RSVD

C64	RSVD	D64	RSVD
C65	PEG_RX4+	D65	PEG_TX4+
C66	PEG_RX4-	D66	PEG_TX4-
C67	RSVD	D67	GND (FIXED)
C68	PEG_RX5+	D68	PEG_TX5+
C69	PEG_RX5-	D69	PEG_TX5-
C70	GND (FIXED)	D70	GND (FIXED)
C71	PEG_RX6+	D71	PEG_TX6+
C72	PEG_RX6-	D72	PEG_TX6-
C73	GND (FIXED)	D73	GND (FIXED)
C74	PEG_RX7+	D74	PEG_TX7+
C75	PEG_RX7-	D75	PEG_TX7-
C76	GND (FIXED)	D76	GND (FIXED)
C77	RSVD	D77	RSVD
C78	PEG_RX8+	D78	PEG_TX8+
C79	PEG_RX8-	D79	PEG_TX8-
C80	GND (FIXED)	D80	GND (FIXED)
C81	PEG_RX9+	D81	PEG_TX9+
C82	PEG_RX9-	D82	PEG_TX9-
C83	RSVD	D83	RSVD
C84	GND (FIXED)	D84	GND (FIXED)
C85	PEG_RX10+	D85	PEG_TX10+
C86	PEG_RX10-	D86	PEG_TX10-
C87	GND (FIXED)	D87	GND (FIXED)

C88	PEG_RX11+	D88	PEG_TX11+
C89	PEG_RX11-	D89	PEG_TX11-
C90	GND (FIXED)	D90	GND (FIXED)
C91	PEG_RX12+	D91	PEG_TX12+
C92	PEG_RX12-	D92	PEG_TX12-
C93	GND	D93	GND
C94	PEG_RX13+	D94	PEG_TX13+
C95	PEG_RX13-	D95	PEG_TX13-
C96	GND (FIXED)	D96	GND (FIXED)
C97	RSVD	D97	RSVD
C98	PEG_RX14+	D98	PEG_TX14+
C99	PEG_RX14-	D99	PEG_TX14-
C100	GND (FIXED)	D100	GND (FIXED)
C101	PEG_RX15+	D101	PEG_TX15+
C102	PEG_RX15-	D102	PEG_TX15-
C103	GND (FIXED)	D103	GND
C104	VCC_12V	D104	VCC_12V
C105	VCC_12V	D105	VCC_12V
C106	VCC_12V	D106	VCC_12V
C107	VCC_12V	D107	VCC_12V
C108	VCC_12V	D108	VCC_12V
C109	VCC_12V	D109	VCC_12V
C110	GND (FIXED)	D110	GND (FIXED)

2.7 COM Express ROW A/B Connector (CN5)

Row A		Row B	
A1	GND (FIXED)	B1	GND (FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#
A4	GBE0_LINK100#	B4	LPC_AD0
A5	GBE0_LINK1000#	B5	LPC_AD1
A6	GBE0_MDI2-	B6	LPC_AD2
A7	GBE0_MDI2+	B7	LPC_AD3
A8	GBE0_LINK	B8	LPC_DRQ0#
A9	GBE0_MDI1-	B9	LPC_DRQ1#
A10	GBE0_MDI1+	B10	LPC_CLK
A11	GND (FIXED)	B11	GND (FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CK
A14	GBE0_CTREF	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND (FIXED)	B21	GND (FIXED)

A22	SATA2_TX+	B22	SATA3_TX+
A23	SATA2_TX-	B23	SATA3_TX-
A24	SUS_S5#	B24	PWR_OK
A25	SATA2_RX+	B25	SATA3_RX+
A26	SATA2_RX-	B26	SATA3_RX-
A27	BATLOW#	B27	WDT
A28	ATA_ACT#	B28	AC_SDIN2
A29	AC_SYNC	B29	AC_SDIN1
A30	AC_RST#	B30	AC_SDIN0
A31	GND (FIXED)	B31	GND (FIXED)
A32	AC_BITCLK	B32	SPKR
A33	AC_SDOUT	B33	I2C_CK
A34	BIOS_DIS0#	B34	I2C_DAT
A35	THRMTRIP#	B35	THRM#
A36	USB6-	B36	USB7-
A37	USB6+	B37	USB7+
A38	USB_6_7_OC#	B38	USB_4_5_OC#
A39	USB4-	B39	USB5-
A40	USB4+	B40	USB5+
A41	GND (FIXED)	B41	GND (FIXED)
A42	USB2-	B42	USB3-
A43	USB2+	B43	USB3+
A44	USB_2_3_OC#	B44	USB_0_1_OC#
A45	USB0-	B45	USB1-

A46	USB0+	B46	USB1+
A47	VCC_RTC	B47	EXCD1_PERST#
A48	EXCD0_PERST#	B48	EXCD1_CPPE#
A49	EXCD0_CPPE#	B49	SYS_RESET#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND (FIXED)	B51	GND (FIXED)
A52	PCIE_TX5+	B52	PCIE_RX5+
A53	PCIE_TX5-	B53	PCIE_RX5-
A54	GPI0	B54	GPO1
A55	PCIE_TX4+	B55	PCIE_RX4+
A56	PCIE_TX4-	B56	PCIE_RX4-
A57	GND	B57	GPO2
A58	PCIE_TX3+	B58	PCIE_RX3+
A59	PCIE_TX3-	B59	PCIE_RX3-
A60	GND (FIXED)	B60	GND (FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1	B63	GPO3
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0#
A67	GPI2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-

A70	GND (FIXED)	B70	GND (FIXED)
A71	LVDS_A0+	B71	LVDS_B0+
A72	LVDS_A0-	B72	LVDS_B0-
A73	LVDS_A1+	B73	LVDS_B1+
A74	LVDS_A1-	B74	LVDS_B1-
A75	LVDS_A2+	B75	LVDS_B2+
A76	LVDS_A2-	B76	LVDS_B2-
A77	LVDS_VDD_EN	B77	LVDS_B3+
A78	LVDS_A3+	B78	LVDS_B3-
A79	LVDS_A3-	B79	LVDS_BKLT_EN
A80	GND (FIXED)	B80	GND (FIXED)
A81	LVDS_A_CK+	B81	LVDS_B_CK+
A82	LVDS_A_CK-	B82	LVDS_B_CK-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL
A84	LVDS_I2C_DAT	B84	VCC_5V_SBY
A85	GPI3	B85	VCC_5V_SBY
A86	RSVD	B86	VCC_5V_SBY
A87	RSVD	B87	VCC_5V_SBY
A88	PCIE0_CK_REF+	B88	BISO_DIS1#
A89	PCIE0_CK_REF-	B89	VGA_RED
A90	GND (FIXED)	B90	GND (FIXED)
A91	SPI _POWER	B91	VGA_GRN
A92	SPI_MISO	B92	VGA_BLU
A93	GPO0	B93	VGA_HSYNC

A94	SPI_CLK	B94	VGA_VSYNC
A95	SPI_MOSI	B95	VGA_I2C_CK
A96	TPM_PP	B96	VGA_I2C_DAT
A97	TYPE10#	B97	SPI_CS#
A98	SER0_TX	B98	RSVD
A99	SER0_RX	B99	RSVD
A100	GND (FIXED)	B100	GND (FIXED)
A101	SER1_TX	B101	FAN_PWNOUT
A102	SER1_RX	B102	FAN_TACHIN
A103	LID#	B103	SLEEP#
A104	VCC_12V	B104	VCC_12V
A105	VCC_12V	B105	VCC_12V
A106	VCC_12V	B106	VCC_12V
A107	VCC_12V	B107	VCC_12V
A108	VCC_12V	B108	VCC_12V
A109	VCC_12V	B109	VCC_12V
A110	GND (FIXED)	B110	GND (FIXED)

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 **SJT 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 **SJT 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 these tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal or 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 COM-HM76 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

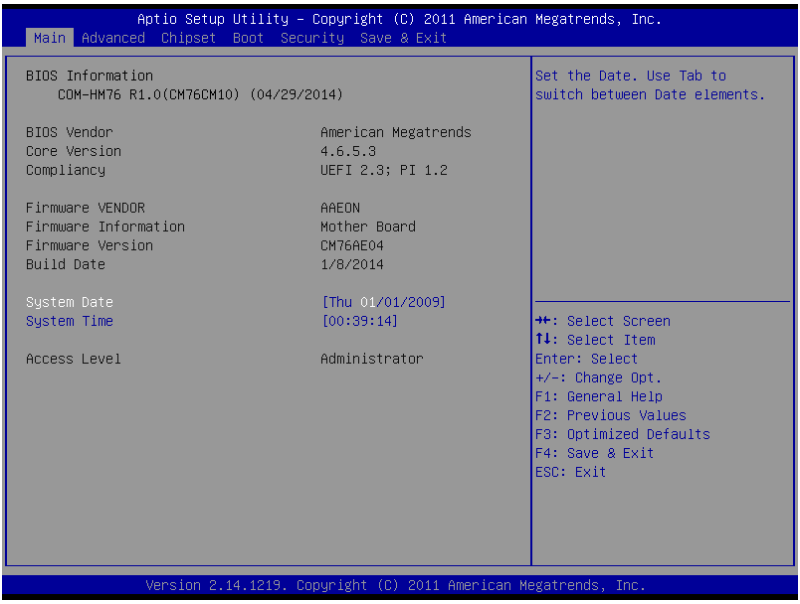
Set setup administrator password.

Save&Exit

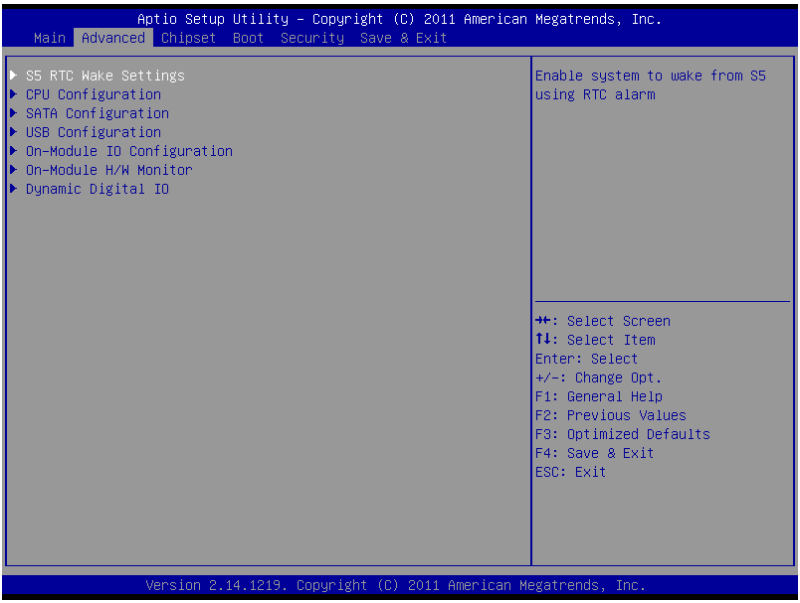
Exit system setup after saving the changes.

Setup Menu

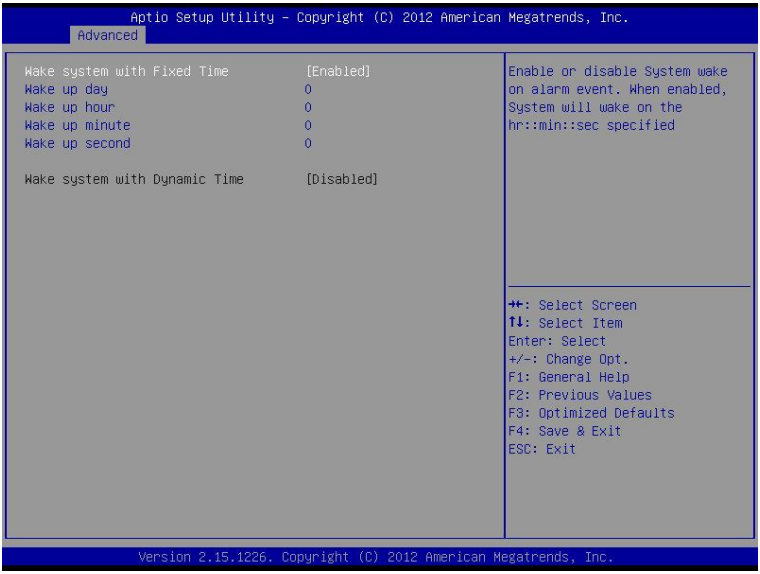
Setup submenu: Main



Setup submenu: Advanced



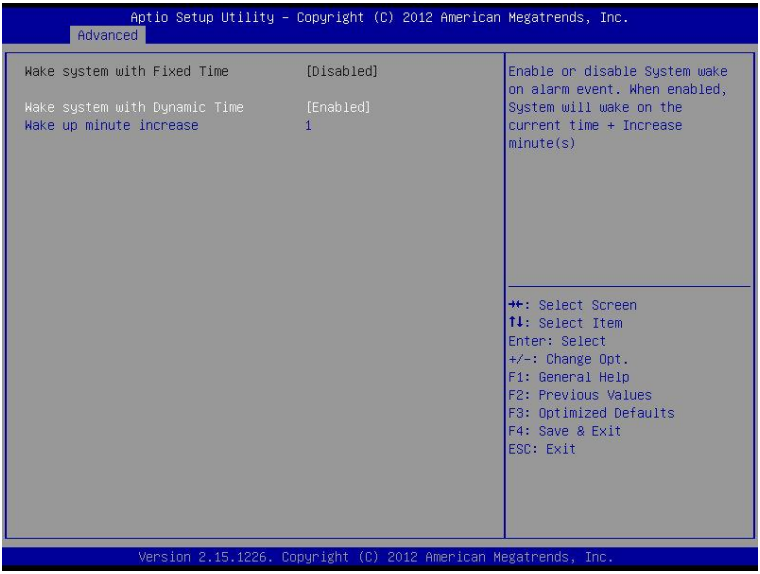
S5 RTC Wake Settings (Fixed Time)



Options summary:

Wake system with Fixed Time	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable System wake on alarm event. When enabled, System will wake on the hr:min:sec specified		
Wake up day	0-31	Default 0
Select 0 for daily system wake up, 1-31 for witch day of the moth that you would like the system to wake up.		
Wake up day	0-23	Default 0
Select 0-23 For example enter 3 for 3am and 15 for 3pm		
Wake up day	0-59	Default 0
Select 0-59		
Wake up day	0-59	Default 0
Select 0-59		

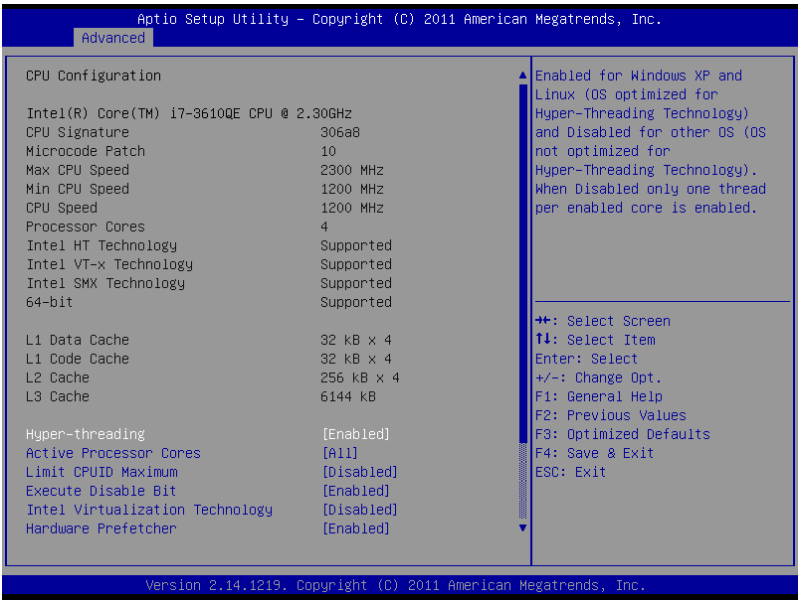
S5 RTC Wake Settings (Dynamic Time)

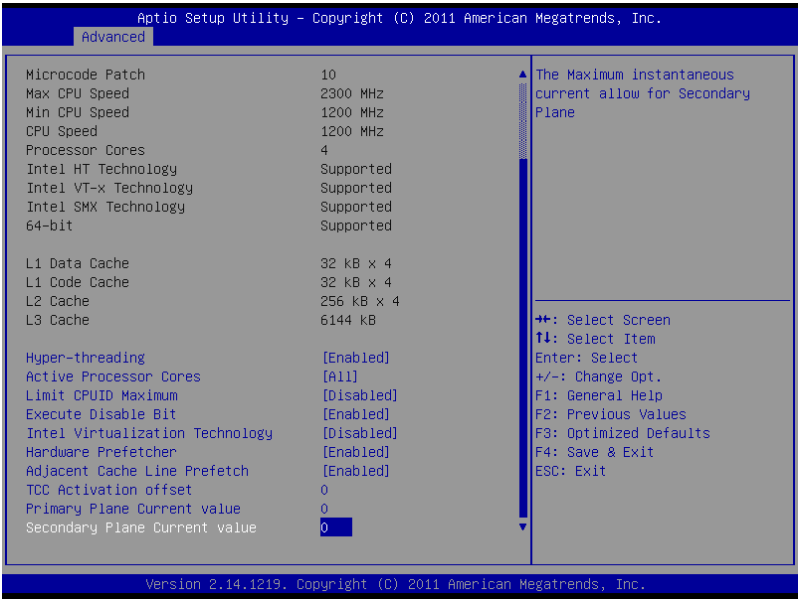


Options summary:

Wake system with Dynamic Time	Disabled	Optimal Default, Failsafe Default
	Enabled	
En/Disable System wake on alarm event. When enabled, System will wake on current time + Increases minutes(s)		
Wake up day	1-5	Default 1
Select 1-5		

CPU Configuration

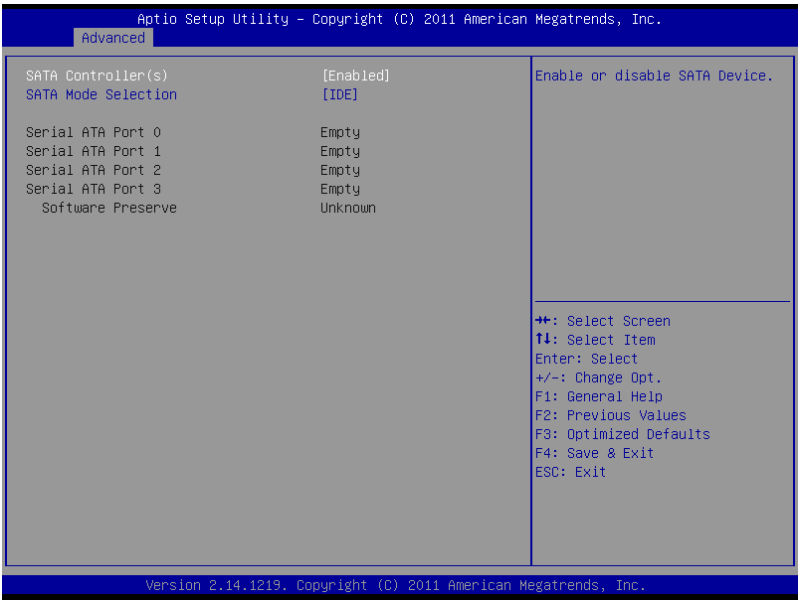



Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
Microcode Patch 10
Max CPU Speed 2300 MHz
Min CPU Speed 1200 MHz
CPU Speed 1200 MHz
Processor Cores 4
Intel HT Technology Supported
Intel VT-x Technology Supported
Intel SMX Technology Supported
64-bit Supported
L1 Data Cache 32 kB x 4
L1 Code Cache 32 kB x 4
L2 Cache 256 kB x 4
L3 Cache 6144 kB
Hyper-threading [Enabled]
Active Processor Cores [All]
Limit CPUID Maximum [Disabled]
Execute Disable Bit [Enabled]
Intel Virtualization Technology [Disabled]
Hardware Prefetcher [Enabled]
Adjacent Cache Line Prefetch [Enabled]
TCC Activation offset 0
Primary Plane Current value 0
Secondary Plane Current value 0
The Maximum instantaneous current allow for Secondary Plane
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Option summary:

Hyper-Threading	Disabled	
	Enabled	Default
Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one thread per enabled core is enabled.		
Active Processor Cores	All	Default
	1	
	2	
	3	
Number of cores to enable in each processor package.		
Limit CPUID Maximum	Disabled	Default
	Enabled	
Disabled for Windows XP		
Execute Disable Bit	Disabled	
	Enabled	Default
XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.)		
Intel Virtualization Technology	Disabled	Default
	Enabled	
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.		
Hardware Prefetcher	Disabled	
	Enabled	Default
To turn on/off the Mid Level Cache (L2) streamer prefetcher.		
Adjacent Cache Line Prefetch	Disabled	
	Enabled	Default
To turn on/off prefetching of adjacent cache lines.		
TCC Activation offset	0~50	Default (0)
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.		
Primary Plane Current value	0~255	Default (0)
The Maximum instantaneous current allow for Primary Plane		
Secondary Plane Current value	0~255	Default (0)
The Maximum instantaneous current allow for Secondary Plane		

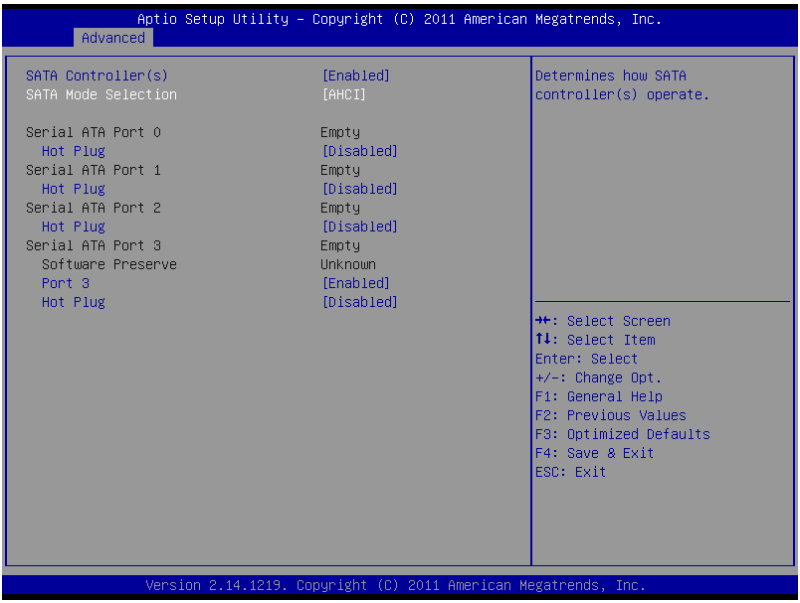
SATA Configuration (IDE)



Option summary:

SATA Controllers	Disabled	Default
	Enabled	
En/Disable SATA Controller.		
SATA Mode Selection	IDE	Default
	AHCI	
Determines how SATA controller(s) operate.		

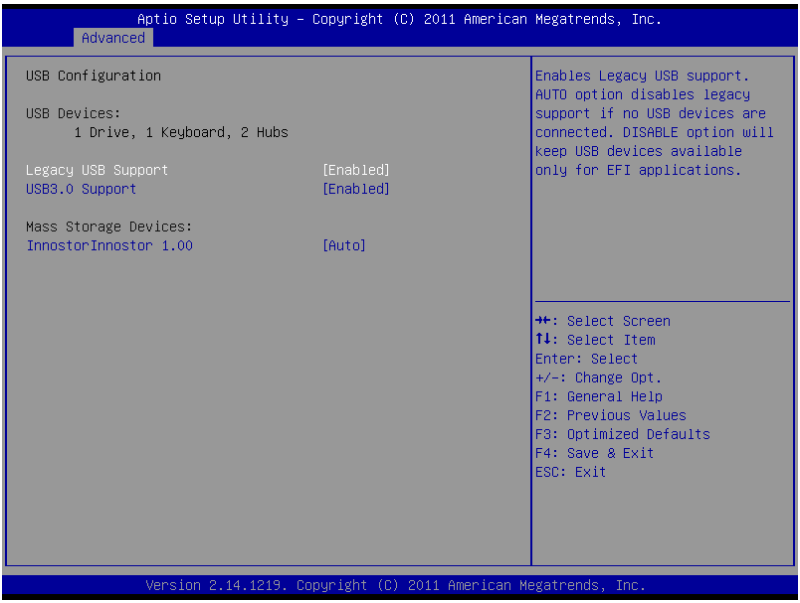
SATA Configuration (AHCI)



Option summary:

Hot Plug	Disabled	
	Enabled	Default
En/Disable Hot Plug feature.		
Port 3	Disabled	
	Enabled	Default
En/Disable SATA Port.		

USB Configuration



Option summary:

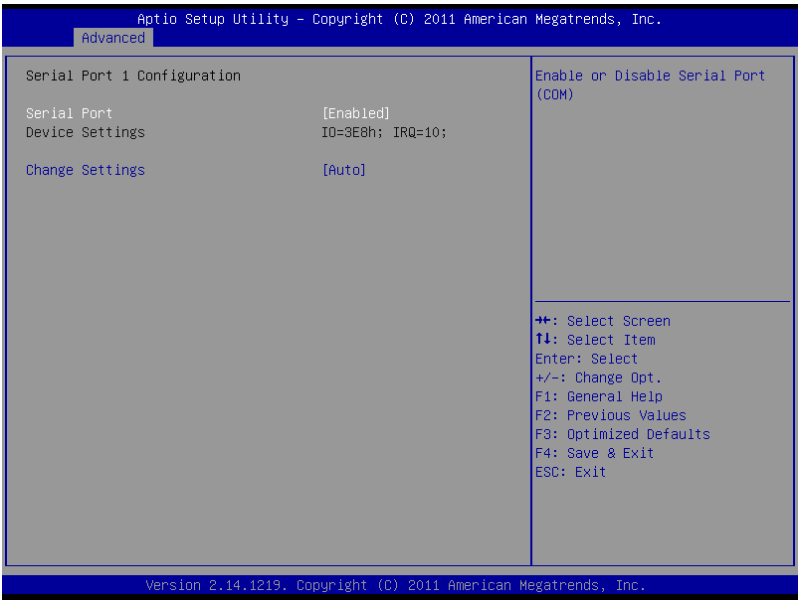
Legacy USB Support	Enabled	Default
	Disabled	
	Auto	
Enables BIOS Support for Legacy USB Support. When enabled, USB can be functional in legacy environment like DOS. AUTO option disables legacy support if no USB devices are connected		
USB3.0 Support	Enabled	Default
	Disabled	
Enable/Disable USB3.0 (XHCI) Controller support.		

On-Module IO Configuration

Option summary:

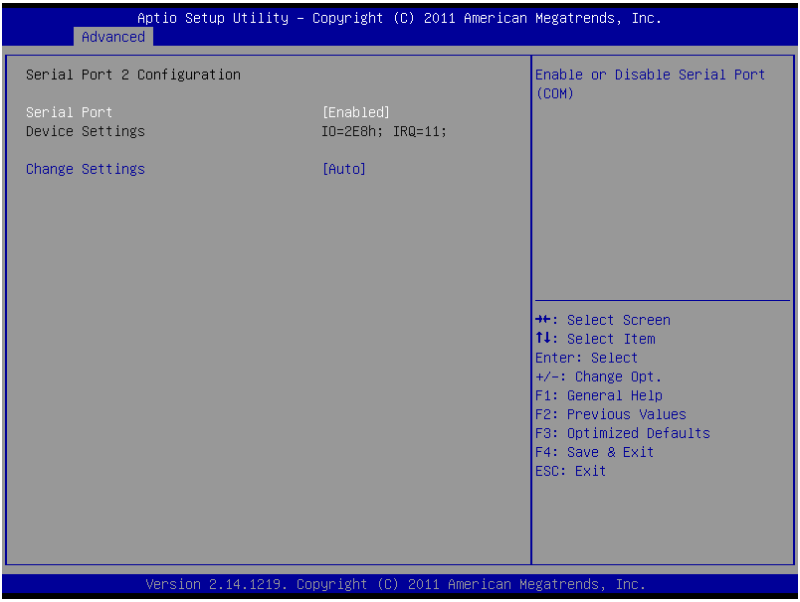
Restore on Power Loss	Always OFF	
	Always ON	
	Last State	Default
Select power state when power is re-applied after a power failure.		

Serial Port Configuration



Option summary:

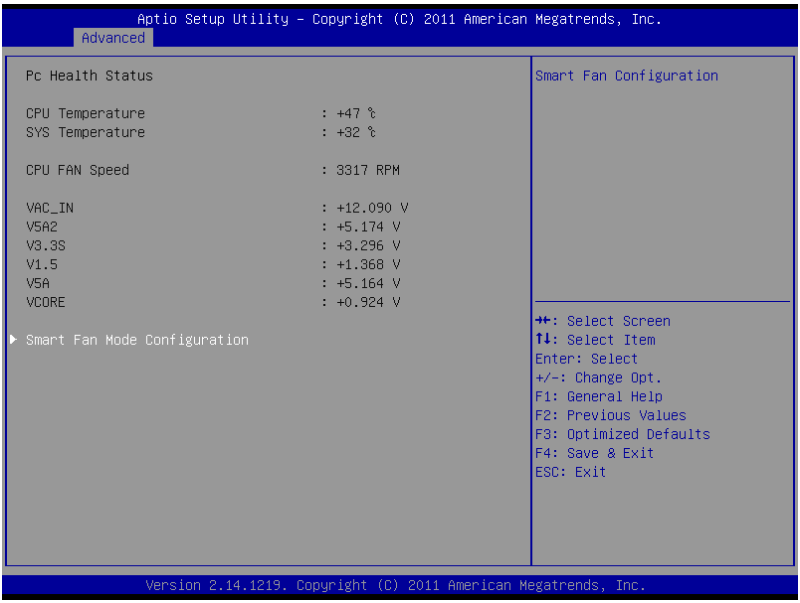
Serial Port	Disabled	
	Enabled	Default
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
	IO=3F8h; IRQ=3;	
	IO=3F8h; IRQ= 3,4,5,6,7,10,11;	
	IO=2F8h; IRQ= 3,4,5,6,7,10,11;	
	IO=3E8h; IRQ= 3,4,5,6,7,10,11;	
	IO=2E8h; IRQ= 3,4,5,6,7,10,11;	
Allows BIOS to Select Serial Port resource.		



Option summary:

Serial Port	Disabled	
	Enabled	Default
Allows BIOS to En/Disable correspond serial port.		
Change Settings	Auto	Default
	IO=2F8h; IRQ=4;	
	IO=3F8h; IRQ= 3,4,5,6,7,10,11;	
	IO=2F8h; IRQ= 3,4,5,6,7,10,11;	
	IO=3E8h; IRQ= 3,4,5,6,7,10,11;	
	IO=2E8h; IRQ= 3,4,5,6,7,10,11;	

On-Module H/W Monitor

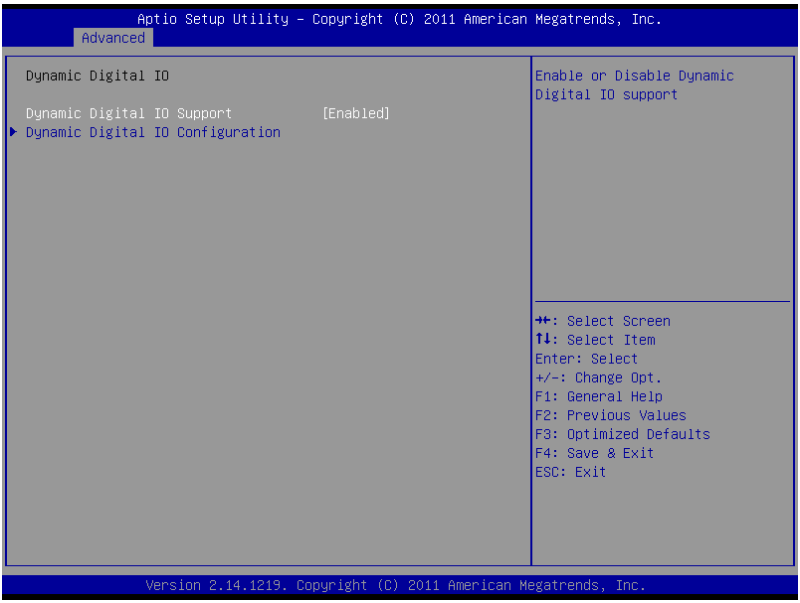


Smart Fan Mode Configuration

Option summary:

CPU Smart Fan Control	Full Mode	
	Manual Mode by PWM	Default
	Auto Mode by PWM	
Select CPU Fan control mode		
Manual Setting	70 (0 - 100)	Default
Set Fan at fixed Duty-Cycle Min=0 Max=100 Please input Dec number		

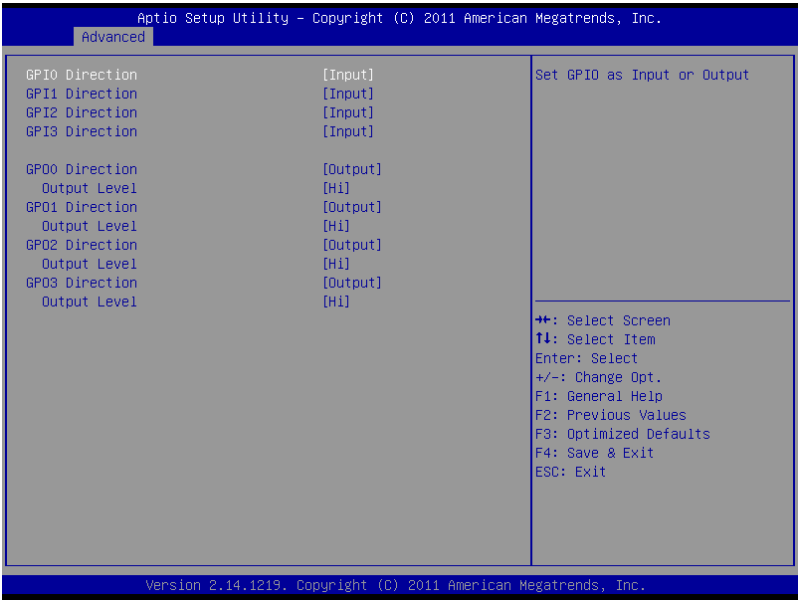
Dynamic Digital IO



Options summary:

Dynamic Digital IO Support	Disabled	Default
	Enabled	
En/Disable Dynamic Digital IO Support.		

Dynamic Digital IO Configuration

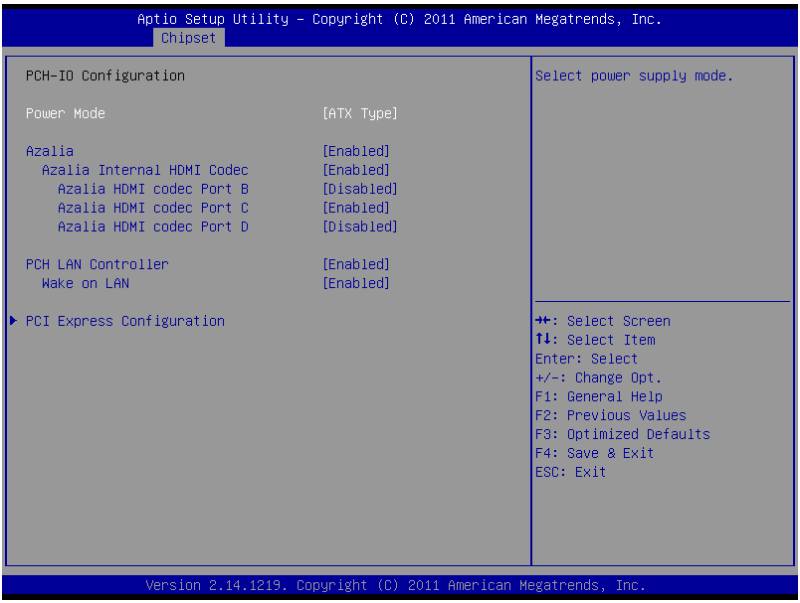


Options summary:

GPI0~3 Direction	Input	Default
	Output	
Set GPIO as Input or Output.		
GPO0~3 Direction	Input	
	Output	Default
Set GPIO as Input or Output.		
Output Level	Low	
	Hi	Default
Allows BIOS to select high/low voltage level to output to corresponding DIO ping.		

Setup submenu: Chipset

PCH-IO Configuration

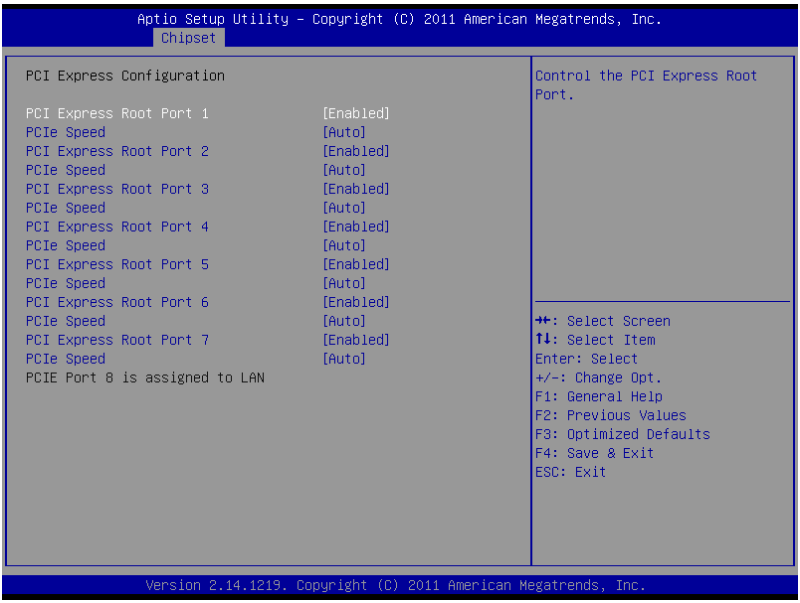


Option summary:

Power Mode	ATX Type	Default
	AT Type	
Select power supply mode		
Azalia	Disabled	
	Enabled	Default
Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled. Enabled = Azalia will be unconditionally Enabled. Auto = Azalia will be enabled if present, disabled other wise.		
Azalia Internal HDMI Codec	Disabled	
	Enabled	Default
Enable or disable internal HDMI codec for Azalia.		
Azalia HDMI codec Port B	Disabled	Default
	Enabled	
Enable or disable internal HDMI codec Port for Azalia.		
Azalia HDMI codec Port C	Disabled	
	Enabled	Default
Enable or disable internal HDMI codec Port for Azalia.		

Azalia HDMI codec Port D	Disabled	Default
	Enabled	
Enable or disable internal HDMI codec Port for Azalia.		
PCH LAN Controller	Disabled	
	Enabled	Default
Enable or disable onboard NIC.		
Wake on LAN	Disabled	
	Enabled	Default
Enable or disable integrated LAN to wake the system. (The Wake On LAN cannot be disabled if ME is on at Sx state)		

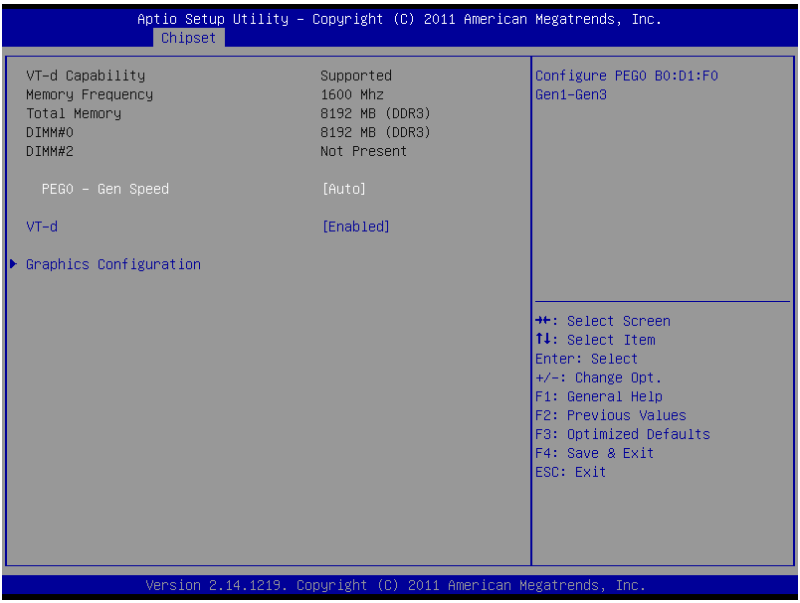
PCI Express Configuration



Option summary:

PCI Express Root Port (1 - 7)	Enabled	Default
	Disabled	
Control the PCI Express Root Port.		
PCI Speed	Auto	Default
	Gen1	
	Gen2	
Select PCI Express port speed.		

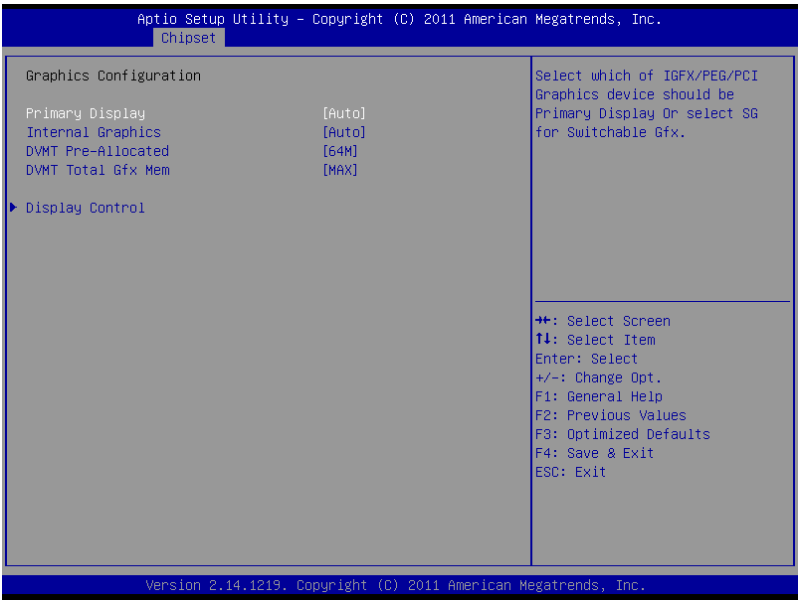
System Agent (SA) Configuration



Option summary:

PEGO – Gen Speed	Auto	Default
	Gen1	
	Gen2	
	Gen3	
Configure PEG0 B0:D1:F0 Gen1-Gen3		
VT-d	Enabled	Default
	Disabled	
Check to enable VT-D function on MCH		

Graphics Configuration

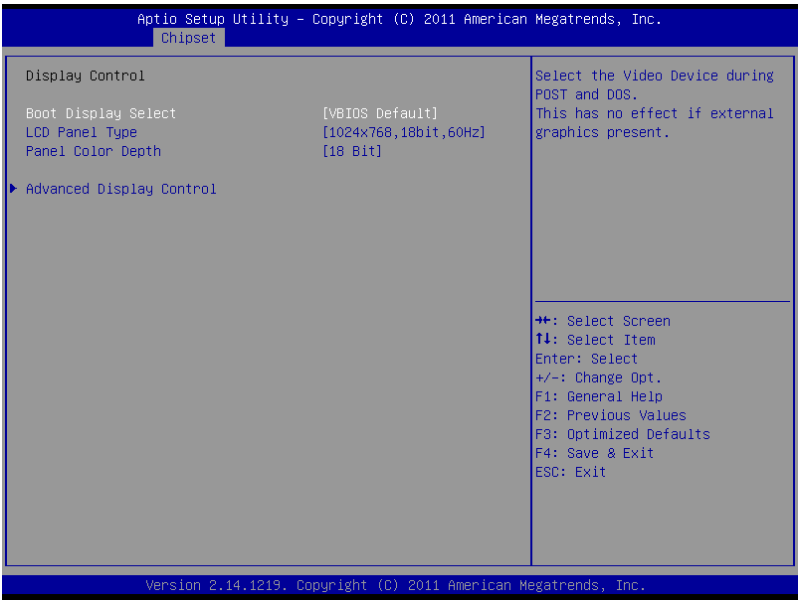


Option summary:

Primary Display	Auto	Default
	IGFX	
	PEG	
	PCI	
Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select SG for Switchable Gfx.		
Internal Graphics	Auto	Default
	Disabled	
	Enabled	
Keep IGD enabled based on the setup Option.		
DVMT Pre-Allocated	32M	
	64M	Default
	96M	
	128M	
	160M	
	192M	
	224M	
	256M	

	288M	
	320M	
	352M	
	284M	
	416M	
	448M	
	480M	
	512M	
	1024M	
Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.		
DVMT Total Gfx Mem	128M	
	256M	
	MAX	Default
Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.		

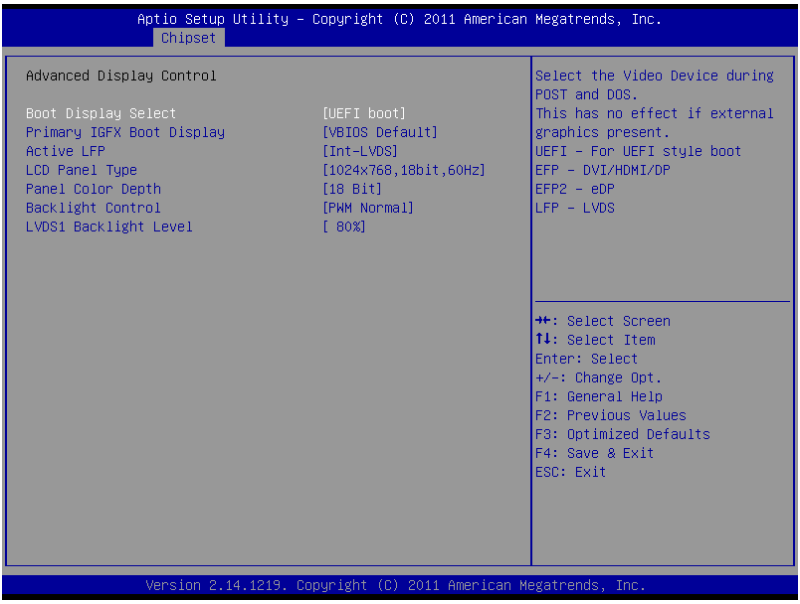
Display Control



Option summary:

Boot Display Select	VBIOS Default	Default
	CRT	
	HDMI	
	DVI	
	LVDS	
	CRT + LVDS	
Select the Video Device which will be activated during POST and DOS. This has no effect if external graphics present.		
LCD Panel Type	640x480, 18bit, 60Hz	
	800x480, 18bit, 60Hz	
	800x600, 18bit, 60Hz	
	1024x600, 18bit, 60Hz	
	1024x768, 18bit, 60Hz	Default
	1024x768, 24bit, 60Hz	
	1280x768, 24bit, 60Hz	
	1280x1024, 48bit, 60Hz	
	1366x768, 24bit, 60Hz	
	1440x900, 48bit, 60Hz	
	1600x1200, 48bit, 60Hz	
	1920x1080, 48bit, 60Hz	
	1920x1200, 48bit, 60Hz	
Select LCD panel used by internal Graphics Device by selecting the appropriate setup item.		
Panel Color Depth	18 Bit	Default
	24Bit	
Select the LFP Panel Color depth		

Advanced Display Control

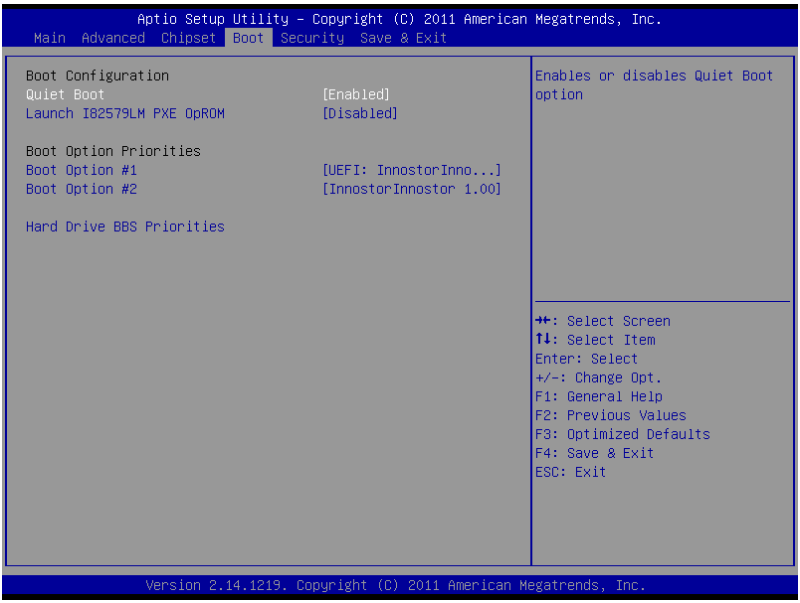


Option summary:

Boot Display Select	UEFI boot	Default
	CRT	
	EFP	
	LFP	
	CRT2	
	EFP3	
	EFP2	
	CRT + LFP	
Select the Video Device which will be activated during POST and DOS. This has no effect if external graphics present. UEFI – For UEFI style boot EFP – DVI/HDMI/DP EFP2 – eDP LFP - LVDS		
Primary IGFX Boot Display	VBIOS Default	Default
	CRT	
	EFP	
	LFP	
	CRT2	
	EFP3	
	EFP2	
	LFP2	
Select the Video Device which will be activated during POST and DOS. This has no effect if external graphics present. Secondary boot disaply selection will appear based on your selection, VGA modes will be supported only on primary disaply.		
Active LFP	No LVDS	Default
	Int-LVDS	
	SDVO LVDS	
	eDP Port-D	
Select the Active LFP Configuration. No LVDS: VBIOS does not enable LVDS. Int-LVDS: VBIOS enables LVDS driver by Integrated encoder. SDVO LVDS: VBIOS		
LCD Panel Type	640x480, 18bit, 60Hz	Default
	800x480, 18bit, 60Hz	
	800x600, 18bit, 60Hz	
	1024x600, 18bit, 60Hz	
	1024x768, 18bit, 60Hz	
	1024x768, 24bit, 60Hz	
	1280x768, 24bit, 60Hz	
	1280x1024, 48bit, 60Hz	
	1366x768, 24bit, 60Hz	
	1440x900, 48bit, 60Hz	

	1600x1200, 48bit, 60Hz	
	1920x1080, 48bit, 60Hz	
	1920x1200, 48bit, 60Hz	
Select LCD panel used by internal Graphics Device by selecting the appropriate setup item.		
Panel Color Depth	18 Bit	Default
	24Bit	
Select the LFP Panel Color depth		
Backlight Control	PWM Inverted	
	PWM Normal	Default
Back Light Control Setting		
LVDS1 Backlight Level	100%	
	90%	
	80%	Default
	70%	
	60%	
	50%	
	40%	
	30%	
	20%	
	10%	
	0%	
Select Backlight brightness of LVDS		

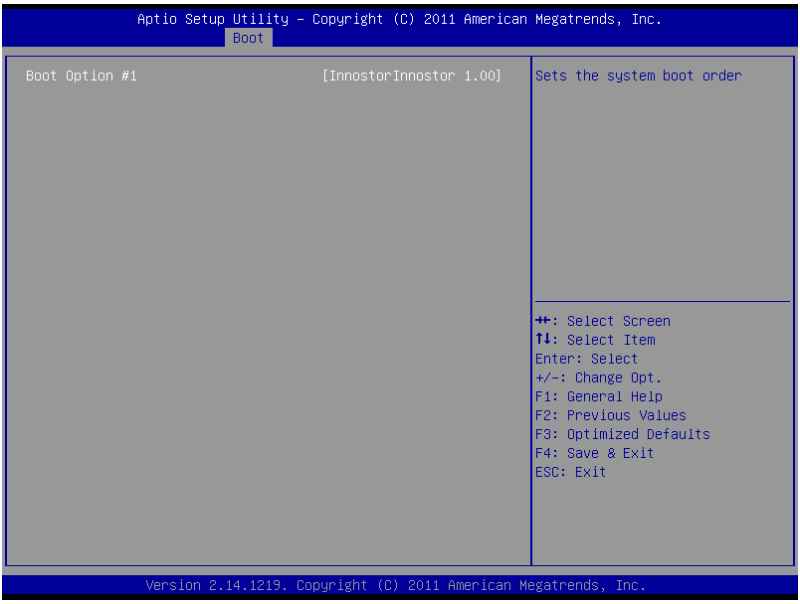
Setup submenu: Boot



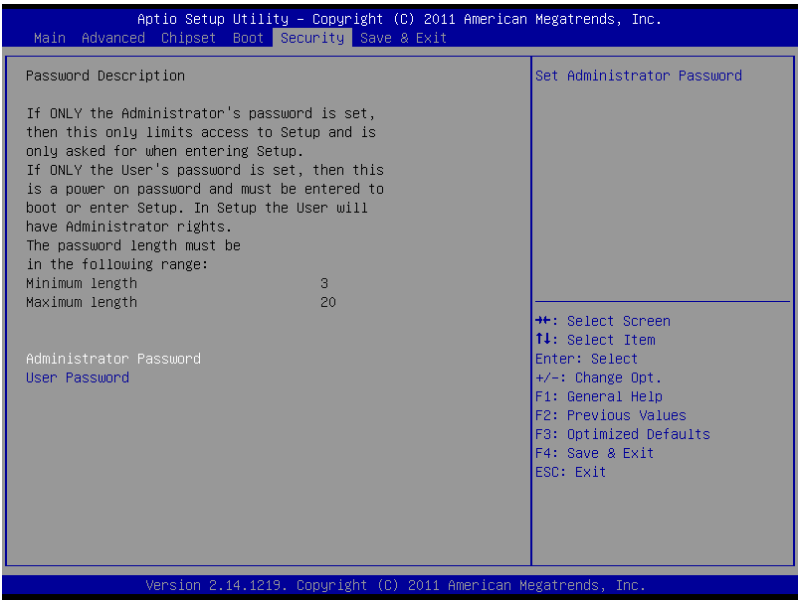
Option summary:

Quiet Boot	Disabled	
	Enabled	Default
Enables or Disables showing boot logo.		
Launch I82579LM PXE OpROM	Disabled	Default
	Enabled	
En/Disable Legacy boot Option for I82579LM.		

BBS Priorities



Security



Change User/Supervisor Password

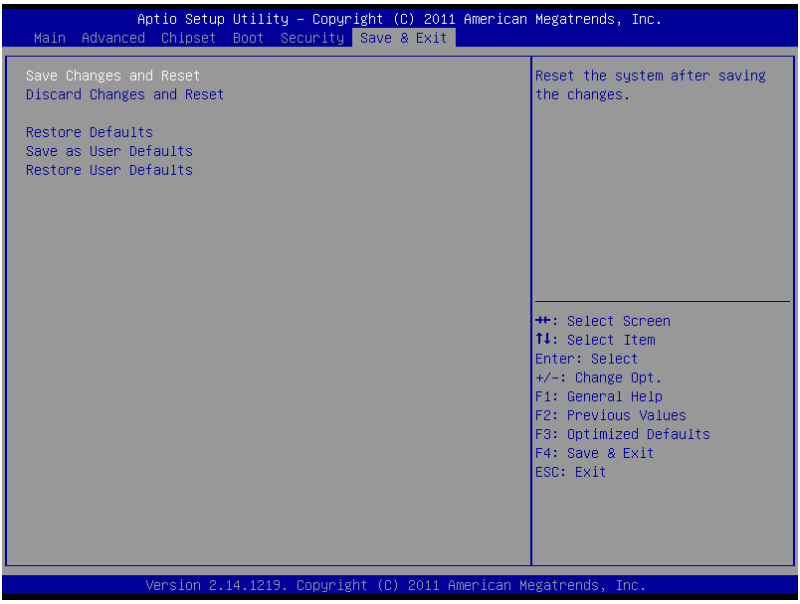
You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

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.

Setup submenu: Exit



Chapter

4

Driver Installation

The COM-HM76 comes with an AutoRun DVD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver DVD, the driver DVD-title will auto start and show the installation guide. If not, 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 VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install Audio Driver

Step 5 – Install USB3.0 Driver

Step 6 – Install RAID & AHCI Driver

Step 7 – Install ME Driver

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the COM-HM76 DVD-ROM into the DVD-ROM drive. And install the drivers from Step 1 to Step 7 in order.

Step 1 – Install Chipset Driver

1. Click on the ***Step 1 - Chipset*** 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 2 – Install VGA Driver

1. Click on the ***Step 2 - Graphics*** 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 3 –Install LAN Driver

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

Step 4 –Install Audio Driver

1. Click on the ***Step 4 - Audio*** folder and select the ***Win7_Win8*** folder
2. Double click on the ***Setup.exe*** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 5 – Install USB3.0 Driver

1. Click on the ***Step 5 - USB3.0*** 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 6 – Install RAID & AHCI Driver

Please refer to the ***Appendix C AHCI Setting***

Step 7 – Install ME Driver

1. Click on the ***Step 7 - ME*** 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

Appendix

A

Programming the Watchdog Timer

A.1 Watchdog Timer Initial Program

Table 1 : Embedded BRAM relative register table		
	Default Value	**Note**
Index	**0x284**(Note1)	BRAM Index Register
Data	**0x285**(Note2)	BRAM Data Register
Logical Device Number	**0xA8**(Note3)	Watch dog Logical Device Number
Function and Device Number	**0x00**(Note4)	Watch dog Function/Device Number

Table 2 : Watchdog relative register table				
	Option Register	**BitNum**	**Value**	**Note**
Timer Counter	**0x00**(Note5)		(Note10)	Time of watchdog timer (0~255)
Counting Unit	**0x01**(Note6)	**0**(Note7)	**0**(Note11)	Select time unit. 0: second 1: minute
Watchdog RST pulse width	**0x01**(Note8)	**[3:2]**(Note9)	**0**(Note12)	0: 20ms 1: 60ms 2: 100ms 3: 250ms

```
*****************************************************************************
// Embedded BRAM relative definition (Please reference to Table 1)
#define byte   EcBRAMIndex   //This parameter is represented from Note1
#define byte   EcBRAMData    //This parameter is represented from Note2
#define byte   BRAMLDNReg    //This parameter is represented from Note3
#define byte   BRAMFnDataReg   //This parameter is represented from Note4
#define   void   EcBRAMWriteByte(byte Offset, byte Value);
#define   byte   EcBRAMReadByte(byte Offset);
#define   void   IOWriteByte(byte Offset, byte Value);
#define   byte   IOReadByte(byte Offset);
// Watch Dog relative definition (Please reference to Table 2)
#define byte   TimerReg   //This parameter is represented from Note5
#define byte   TimerVal   // This parameter is represented from Note10
#define byte   UnitReg   //This parameter is represented from Note6
#define byte   UnitBit   //This parameter is represented from Note7
#define byte   UnitVal   //This parameter is represented from Note11
#define byte   RSTReg   //This parameter is represented from Note8
#define byte   RSTBit   //This parameter is represented from Note9
#define byte   RSTVal   //This parameter is represented from Note12
*****************************************************************************
```

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

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

```
**********************************************************************************
// Procedure : AaeonWDTEnable
VOID   AaeonWDTEnable (){
        WDTEnableDisable(1);
}

// Procedure : AaeonWDTConfig
VOID   AaeonWDTConfig (){
        // Disable WDT counting
        WDTEnableDisable(0);
        // WDT relative parameter setting
        WDTParameterSetting();
}

VOID   WDTEnableDisable(byte Value){
        ECBRAMWriteByte(TimerReg , Value);
}

VOID   WDTParameterSetting(){
        Byte TempByte;

        // Watchdog Timer counter setting
        ECBRAMWriteByte(TimerReg , TimerVal);
        // WDT counting unit setting
        TempByte = ECBRAMReadByte(UnitReg);
        TempByte |= (UnitVal << UnitBit);
        ECBRAMWriteByte(UnitReg , TempByte);
        // WDT RST pulse width setting
        TempByte = ECBRAMReadByte(RSTReg);
        TempByte |= (RSTVal << RSTBit);
        ECBRAMWriteByte(RSTReg , TempByte);
}
**********************************************************************************
```

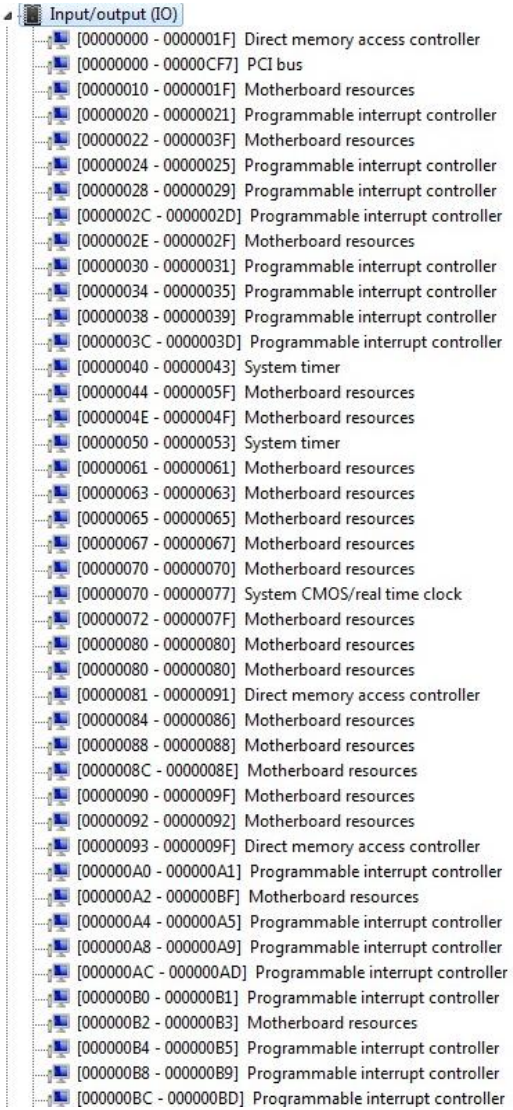
```
*****************************************************************************
VOID   ECBRAMWriteByte(byte OPReg, byte OPBit, byte Value){
        IOWriteByte(EcBRAMIndex, 0x10);
        IOWriteByte(EcBRAMData, BRAMLDNReg);
        IOWriteByte(EcBRAMIndex, 0x11);
        IOWriteByte(EcBRAMData, BRAMFnDataReg);

        IOWriteByte(EcBRAMIndex, 0x13 + OPReg);
        IOWriteByte(EcBRAMData, Value);

        IOWriteByte(EcBRAMIndex, 0x12);
        IOWriteByte(EcBRAMData, 0x30);                  //Write start
}

Byte   ECBRAMReadByte(byte OPReg){
        IOWriteByte(EcBRAMIndex, 0x10);
        IOWriteByte(EcBRAMData, BRAMLDNReg);
        IOWriteByte(EcBRAMIndex, 0x11);
        IOWriteByte(EcBRAMData, BRAMFnDataReg);

        IOWriteByte(EcBRAMIndex, 0x12);
        IOWriteByte(EcBRAMData, 0x10);                  //Read start

        IOWriteByte(EcBRAMIndex, 0x13 + OPReg);
        Return  IOReadByte(EcBRAMData, Value);
}
*****************************************************************************
```

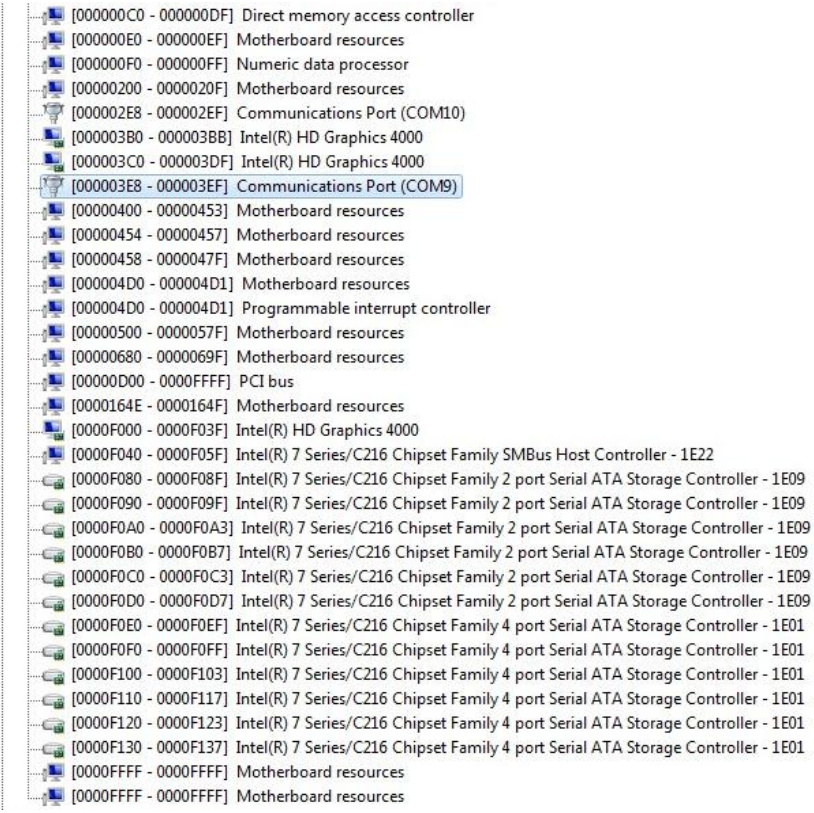
Appendix

B

I/O Information

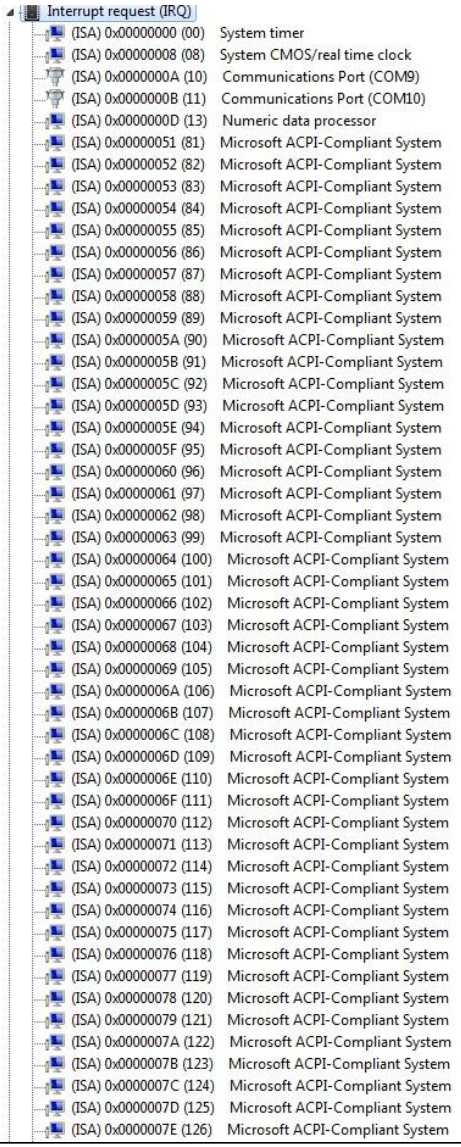
B.1 I/O Address Map



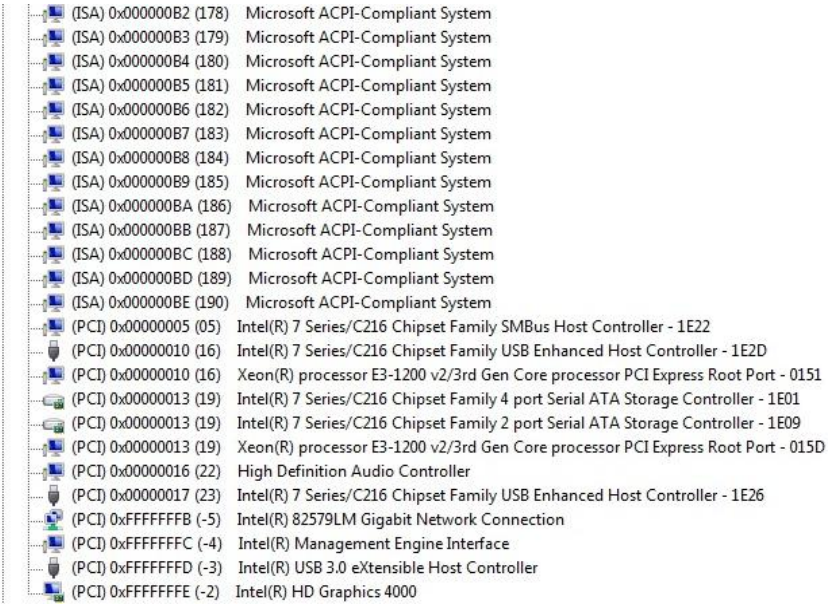

[000000C0 - 000000DF] Direct memory access controller
[000000E0 - 000000EF] Motherboard resources
[000000F0 - 000000FF] Numeric data processor
[00000200 - 0000020F] Motherboard resources
[000002E8 - 000002EF] Communications Port (COM10)
[000003B0 - 000003BB] Intel(R) HD Graphics 4000
[000003C0 - 000003DF] Intel(R) HD Graphics 4000
[000003E8 - 000003EF] Communications Port (COM9)
[00000400 - 00000453] Motherboard resources
[00000454 - 00000457] Motherboard resources
[00000458 - 0000047F] Motherboard resources
[000004D0 - 000004D1] Motherboard resources
[000004D0 - 000004D1] Programmable interrupt controller
[00000500 - 0000057F] Motherboard resources
[00000680 - 0000069F] Motherboard resources
[00000D00 - 0000FFFF] PCI bus
[0000164E - 0000164F] Motherboard resources
[0000F000 - 0000F03F] Intel(R) HD Graphics 4000
[0000F040 - 0000F05F] Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
[0000F080 - 0000F08F] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E09
[0000F090 - 0000F09F] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E09
[0000F0A0 - 0000F0A3] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E09
[0000F0B0 - 0000F0B7] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E09
[0000F0C0 - 0000F0C3] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E09
[0000F0D0 - 0000F0D7] Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E09
[0000F0E0 - 0000F0EF] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E01
[0000F0F0 - 0000F0FF] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E01
[0000F100 - 0000F103] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E01
[0000F110 - 0000F117] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E01
[0000F120 - 0000F123] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E01
[0000F130 - 0000F137] Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E01
[0000FFFF - 0000FFFF] Motherboard resources
[0000FFFF - 0000FFFF] Motherboard resources

B.2 Memory Address Map

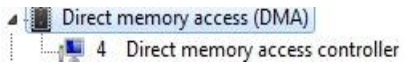
B.3 IRQ Mapping Chart



(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



B.4 DMA Channel Assignments



Appendix

C

AHCI Setting

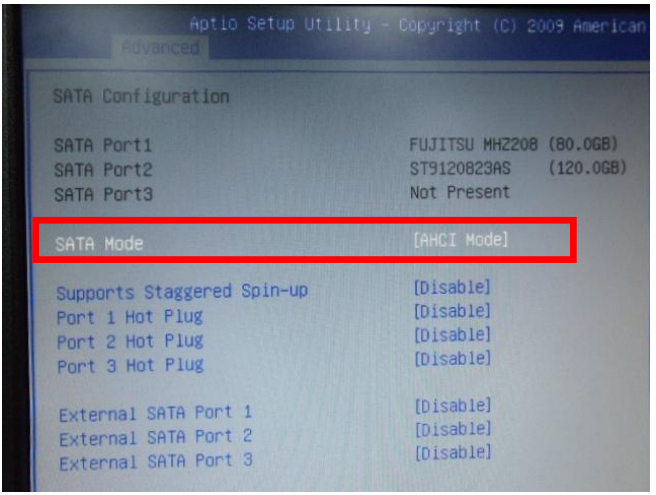
C.1 Setting AHCI

OS installation to setup AHCI Mode

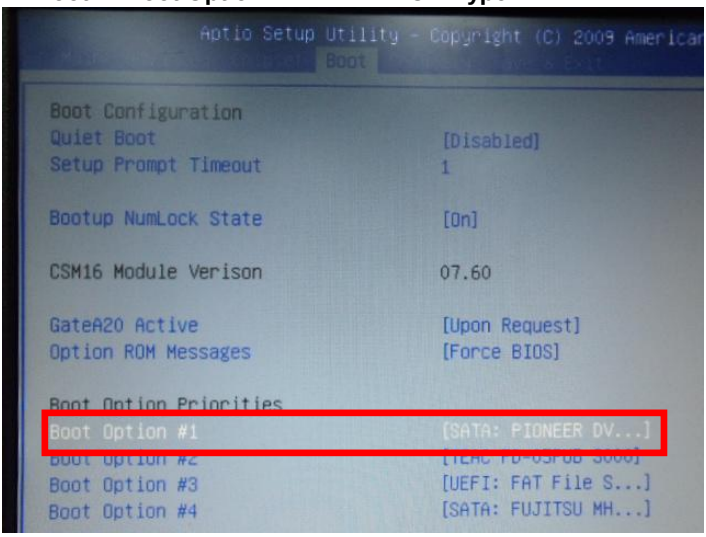
Step 1: Copy the files below from "***Driver CD ->Step 6 - RAID&AHCI"*** to Disk

Step 2: Connect the USB Floppy (disk with AHCI files) to the board

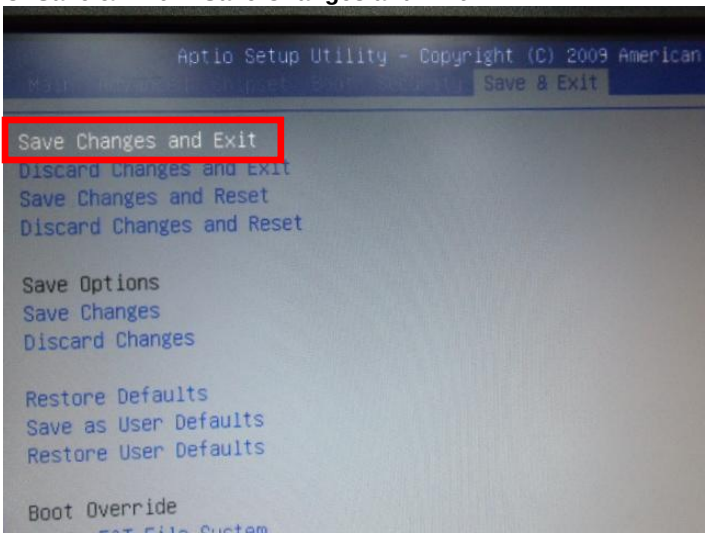
Step 3: The setting procedures " **In BIOS Setup Menu**"
A: Advanced -> SATA Configuration -> SATA Configuration -> SATA Mode -> AHCI Mode



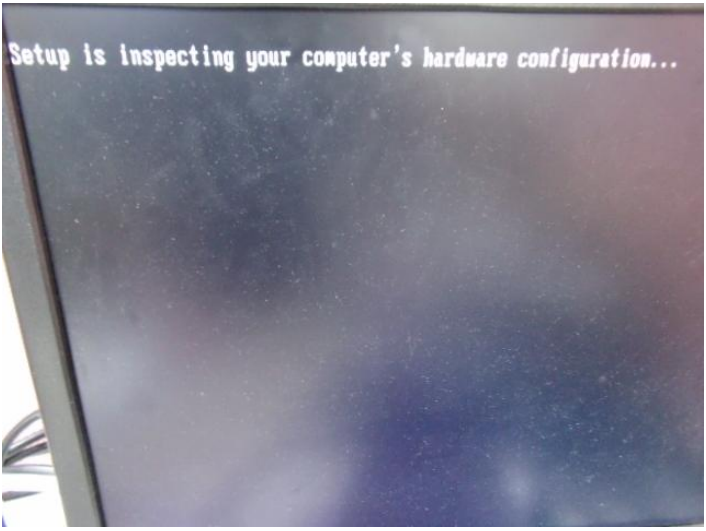
Step 4: The setting procedures "**In BIOS Setup Menu"**
B: Boot -> Boot Option #1 -> DVD-ROM Type



Step 5: The setting procedures "**In BIOS Setup Menu"**
C: Save & Exit -> Save Changes and Exit

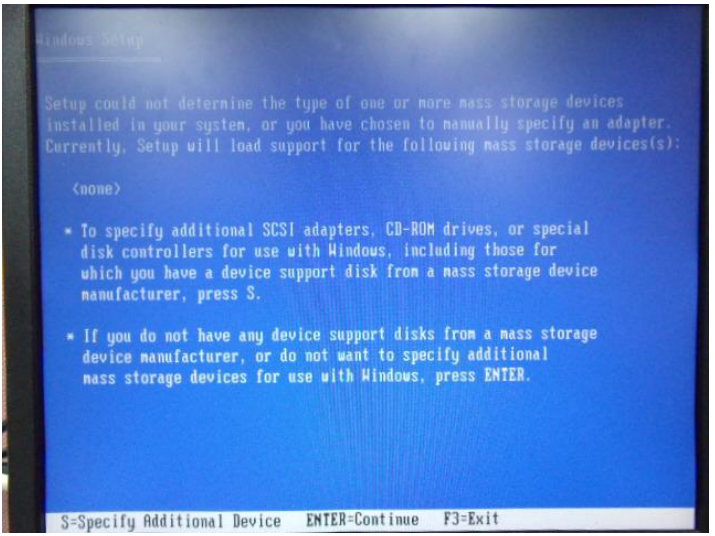


Step 6: Setup OS

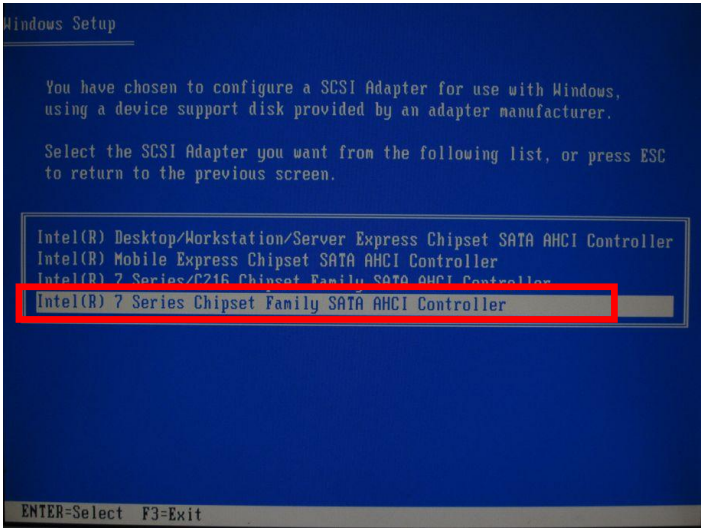


Step 7: Press "**F6**"

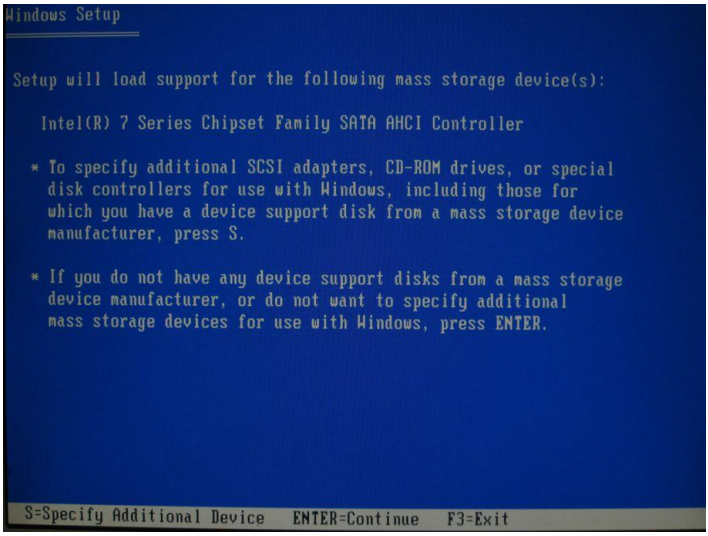
Step 8: Choose "**S**"



Step 9: Choose "**Intel(R) 7 Series Chipset Family SATA AHCI Controller**"



Step 10: It will show the model number you select and then press "**ENTER**"



Step 11: Setup is loading files