

EQM-A50M

AMD G-Series Qseven Module

User's Manual

1st Ed –27 March 2013

Notice

This guide is designed for experienced users to perform quick setup of the system. For detailed information, please always refer to the electronic user's manual.

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Part No. E2047222000R

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1. Getting Started

1.1 Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!



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

1.2 Packing List

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

- 1 x EQM-A50M AMD G-Series Qseven Module
- 1 x Quick Installation Guide
- 1 x DVD-ROM contains the followings:
 - User's Manual (In PDF)
 - Ethernet drivers and utilities
 - VGA drivers and utilities
 - Audio drivers and utilities



If any of the above items is damaged or missing, contact your retailer.

1.3 Document Amendment History

Revision	Date	By	Comment
1 st	2013 March	Avalue	Initial Release

1.4 Manual Objectives

This manual describes in details Avalue Technology EQM-A50M QSeven Module.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up EQM-A50M QSeven Module or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

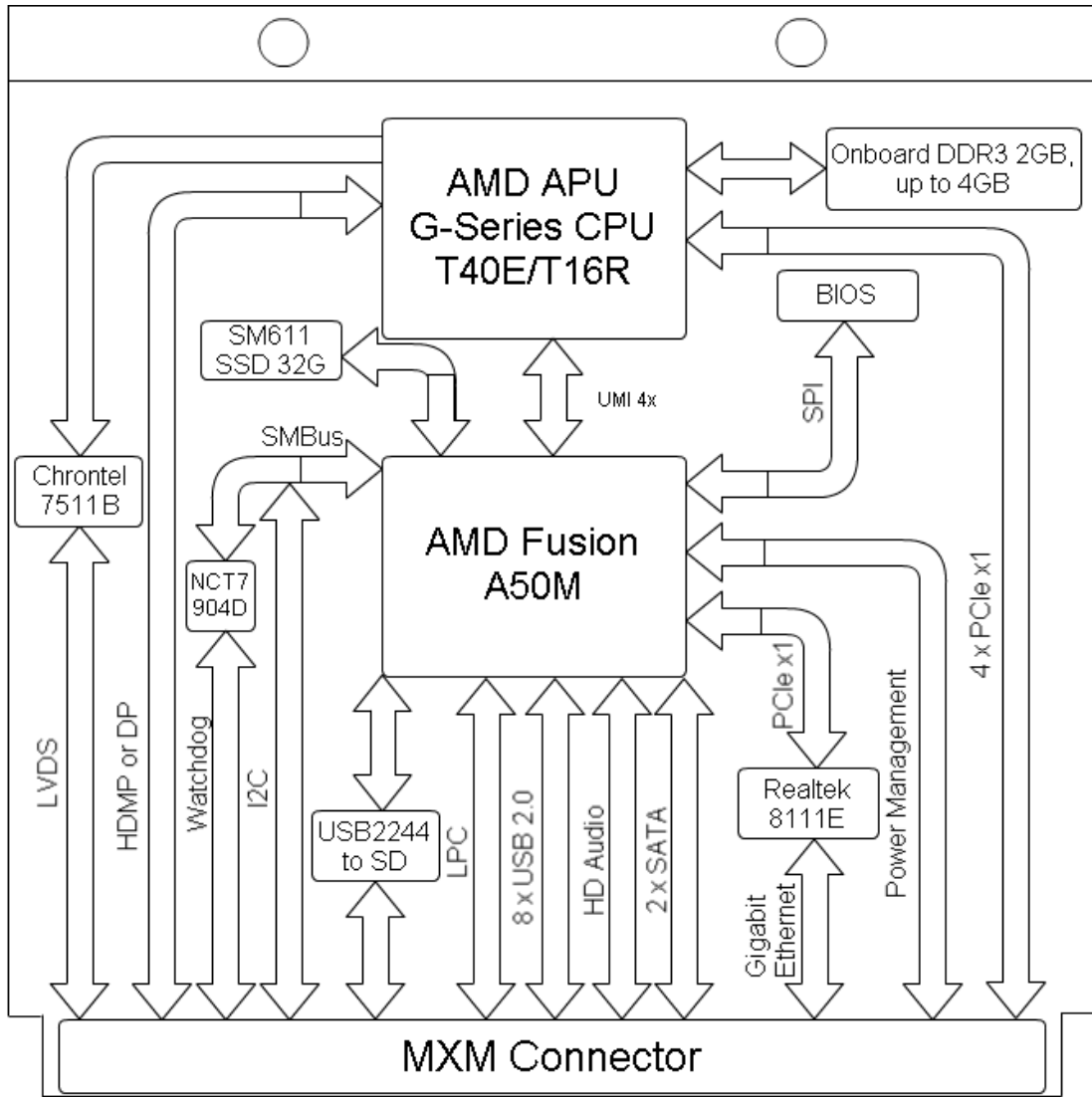
If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.5 System Specifications

System	
CPU	Onboard AMD G-series T40E Dual Core 1.0GHz or T16R 615MHz CPU
BIOS	AMI 32M-bit SPI BIOS
System Chipset	AMD A50M Chipset
System Memory	Onboard 2G DDR3 800/1066, up to 4GB DDR3 800/1066 SDRAM
Watchdog Timer	Reset: 1 min.~255 min, 1 min./step
H/W Status Monitor	Monitoring system temperature, voltage. Auto trotting control when CPU overheats
SSD	Optional SSD
I/O Interface	
SATA	2 x SATA ports to baseboard
USB	8 x USB 2.0 ports to baseboard
PCIe	4 PCIe x1
SD	USB to SD
Audio	HD Audio Interface
Others	LPC Bus, I2C Bus,SMBus
Display	
Chipset	AMD Integrated Radeon HD6250
Resolution	HDMI/DP: 1920 x 1200 @ 60Hz LCD/Simultaneous: 1920 x 1200 @ 60Hz
Multiple Display	HDMI/DP + LVDS to baseboard
LCD Interface	Dual channel 18/24-bit LVDS (with eDP to LVDS Chronitel Ch7511)
Ethernet	
LAN Chip	1 x Realtek 8111E Gigabit Ethernet
Ethernet Interface	10/100/1000 Base-Tx Gigabit Ethernet Compatible
Mechanical & Environmental	
Power Requirement	+5V or +5V&+5VSB
ACPI	ACPI 3.0 Compliant, Single power ATX Support S0, S3, S4, S5
Operating Temp.	0 to 60°C
Storage Temp.	-20~-80°C
Operating Humidity	0%~90% relative humidity, non-condensing
Size (L x W)	70mm x 70mm
Weight	0.02 Kg

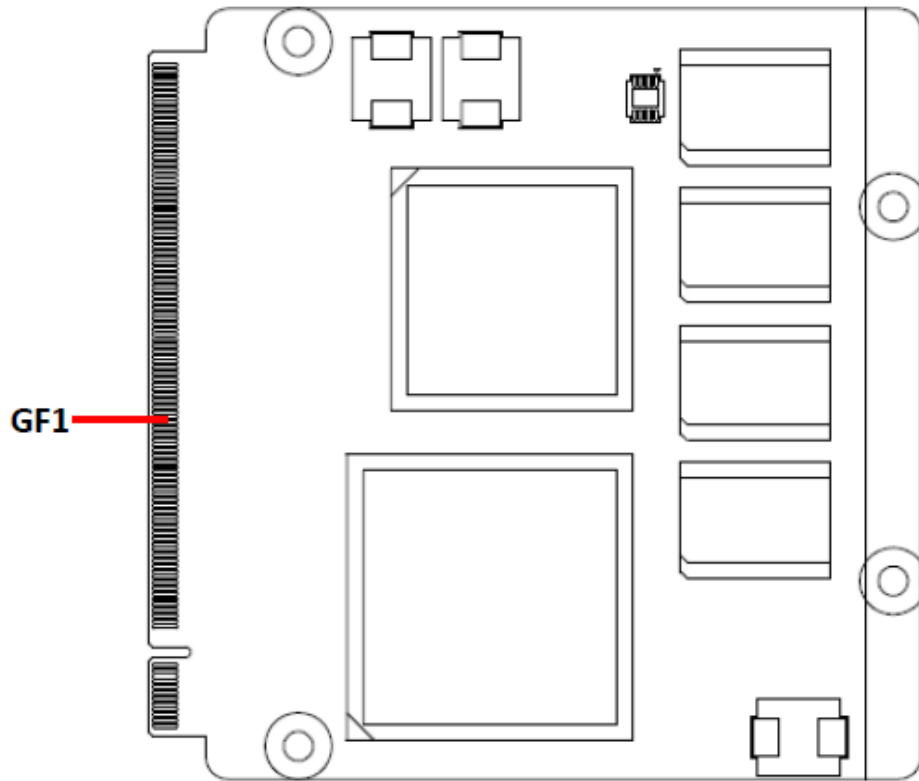
1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of EQM-A50M QSeven Module.



2. Hardware Configuration

2.1 Product Overview



2.2 Connector List

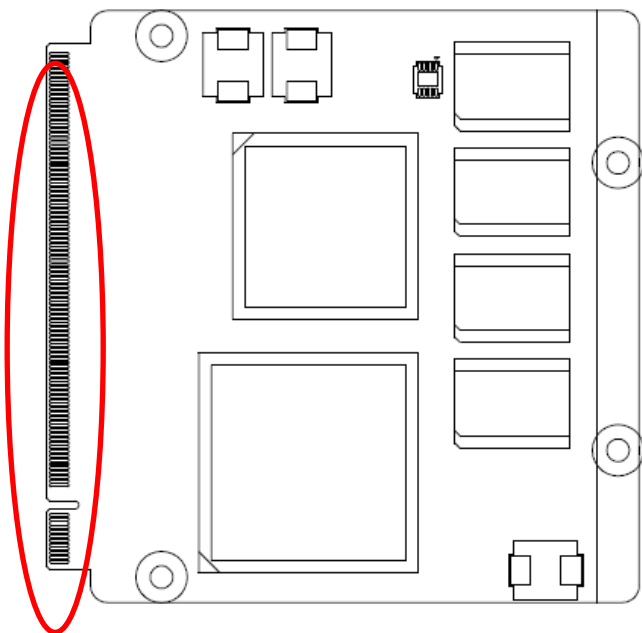
The following tables list the function of each of the board's connectors.

Connectors

Label	Function	Note
GF1	QSeven connector	

2.3 Setting Connectors

2.3.1 QSeven connector (GF1)



*Default

Signal	PIN	PIN	Signal
GND1	1	2	GND2
GBE_MDI3-	3	4	GBE_MDI2-
GBE_MDI3+	5	6	GBE_MDI2+
GBE_LINK100#	7	8	GBE_LINK1000#
GBE_MDI1-	9	10	GBE_MDI0-
GBE_MDI1+	11	12	GBE_MDI0+
GBE_LINK#	13	14	GBE_ACT#
GBE_CTREF	15	16	SUS_S5#
WAKE#	17	18	SUS_S3#
SUS_STAT#	19	20	PWRBTN#
SLP_BTN#	21	22	LID_BTN#
GND3	23	24	GND4
GND5	25	26	PWGIN
BATLOW#	27	28	RSTBTN#
SATA0_TX+	29	30	SATA1_TX+
SATA0_TX-	31	32	SATA1_TX-
SATA_ACT#	33	34	GND6
SATA0_RX+	35	36	SATA1_RX+
SATA0_RX-	37	38	SATA1_RX-

Signal	PIN	PIN	Signal
GND7	39	40	GND8
BIOS_DISABLE#	41	42	SDIO_CLK#
SDIO_CD#	43	44	SDIO_LED
SDIO_CMD	45	46	SDIO_WP
SDIO_PWR#	47	48	SDIO_DAT1
SDIO_DAT0	49	50	SDIO_DAT3
SDIO_DAT2	51	52	SDIO_DAT5
SDIO_DAT4	53	54	SDIO_DAT7
SDIO_DAT6	55	56	NC
GND9	57	58	GND10
HDA_SYNC	59	60	SMB_CLK
HDA_RST#	61	62	SMB_DAT
HDA_BCLK	63	64	SMB_ALERT#
HDA_SDI	65	66	I2C_CLK
HDA_SDO	67	68	I2C_DAT
THRM#	69	70	WDTRIG#
THRMTRIP#	71	72	WDOUT
GND11	73	74	GND12
USB_P7-	75	76	USB_P6-
USB_P7+	77	78	USB_P6+
USB_6_7_OC#	79	80	USB_4_5_OC#
USB_P5-	81	82	USB_P4-
USB_P5+	83	84	USB_P4+
USB_2_3_OC#	85	86	USB_0_1_OC#
USB_P3-	87	88	USB_P2-
USB_P3+	89	90	USB_P2+
NC	91	92	NC
USB_P1-	93	94	USB_P0-
USB_P1+	95	96	USB_P0+
GND13	97	98	GND14
LVDS_A0+	99	100	LVDS_B0+
LVDS_A0-	101	102	LVDS_B0-
LVDS_A1+	103	104	LVDS_B1+

Signal	PIN	PIN	Signal
LVDS_A1-	105	106	LVDS_B1-
LVDS_A2+	107	108	LVDS_B2+
LVDS_A2-	109	110	LVDS_B2-
LVDS_PPEN	111	112	LVDS_BLEN
LVDS_A3+	113	114	LVDS_B3+
LVDS_A3-	115	116	LVDS_B3-
GND15	117	118	GND16
LVDS_A_CLK+	119	120	LVDS_B_CLK+
LVDS_A_CLK-	121	122	LVDS_B_CLK-
LVDS_BLT_CTRL	123	124	NC
LVDS_DID_DAT	125	126	NC
LVDS_DID_CLK	127	128	NC
NC	129	130	NC
SDVO_BCLK+	131	132	NC
SDVO_BCLK-	133	134	NC
GND17	135	136	GND18
SDVO_GREEN+	137	138	SDVO_FLDSTALL+
SDVO_GREEN-	139	140	SDVO_FLDSTALL-
GND19	141	142	GND20
SDVO_BLUE+	143	144	NC
SDVO_BLUE-	145	146	NC
GND21	147	148	GND22
SDVO_RED+	149	150	SDVO_CTRL_DAT
SDVO_RED-	151	152	SDVO_CTRL_CLK
HDMI_HPD#	153	154	DP_HPD#
PCIE_CLK_REF+	155	156	PCIE_WAKE#
PCIE_CLK_REF-	157	158	PCIE_RST#
GND23	159	160	GND24
PCIE3_TX+	161	162	PCIE3_RX+
PCIE3_TX-	163	164	PCIE3_RX-
GND25	165	166	GND26
PCIE2_TX+	167	168	PCIE2_RX+
PCIE2_TX-	169	170	PCIE2_RX-

Signal	PIN	PIN	Signal
EXCD0_PERST#	171	172	EXCD1_PERST#
PCIE1_TX+	173	174	PCIE1_RX+
PCIE1_TX-	175	176	PCIE1_RX-
EXCD0_CPPE#	177	178	EXCD1_CPPE#
PCIE0_TX+	179	180	PCIE0_RX+
PCIE0_TX-	181	182	PCIE0_RX-
GND27	183	184	GND28
LPC_AD0	185	186	LPC_AD1
LPC_AD2	187	188	LPC_AD3
LPC_CLK	189	190	LPC_FRAME#
SERIRQ	191	192	LPC_LDRQ#
VCC_RTC	193	194	SPKR
FAN_TACHOIN	195	196	FAN_PWMOUT
GND29	197	198	GND30
SPI_MOSI	199	200	SPI_CS0#
SPI_MISO	201	202	SPI_CS1#
SPI_SCK	203	204	NC
VCC_5V_SB1	205	206	VCC_5V_SB2
NC	207	208	NC
NC	209	210	NC
VCC1	211	212	VCC2
VCC3	213	214	VCC4
VCC5	215	216	VCC6
VCC7	217	218	VCC8
VCC9	219	220	VCC10
VCC11	221	222	VCC12
VCC13	223	224	VCC14
VCC15	225	226	VCC16
VCC17	227	228	VCC18
VCC19	229	230	VCC20

3. BIOS Setup

3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

3.2 Starting Setup

The BIOS is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

By pressing immediately after switching the system on, or

By pressing the key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test).

Press or <F2> to enter setup

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values.
F3 key	Optimized defaults
F4 key	Save & Exit Setup
F6 key	Reserved
F7 key	Reserved
F8 key	Reserved
F9 key	Reserved

- **Navigating Through The Menu Bar**

Use the left and right arrow keys to choose the menu you want to be in.



Note: Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**

Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A “>” pointer marks all sub menus.

3.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or <Enter> key again.

3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the BIOS supports an override to the NVRAM settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

3.6 BIOS setup

Once you enter the AMI BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

3.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.



3.6.1.1 System Language

Use this option to select system language

3.6.1.2 System Date

Use the system Date option to set the system date. Manually enter the day, month and year.

3.6.1.3 System Time

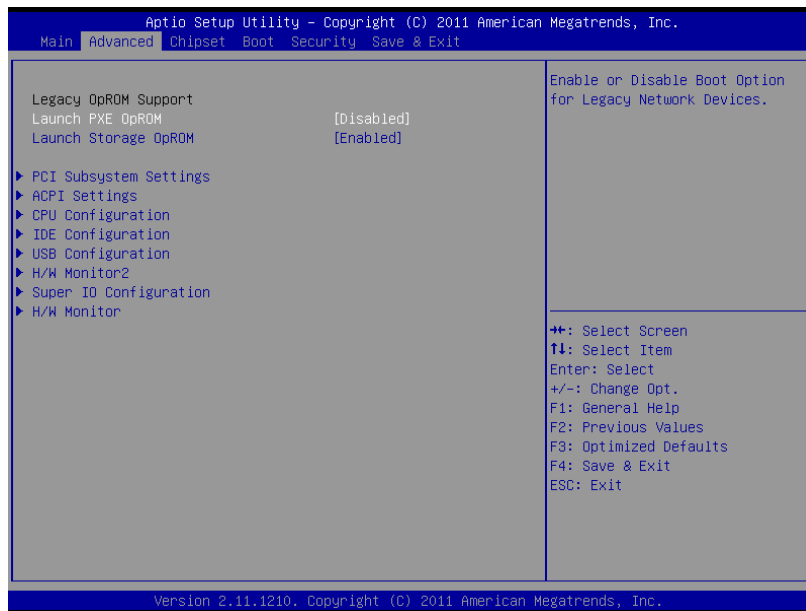
Use the system time option to set the system time. Manually enter the hours, minutes and seconds.



Note: BIOS setup screens shown in this chapter are for reference only, and may not exactly match what you see on your screen. Visit the Avalue website (www.avalue.com.tw) to download the latest product and BIOS information.

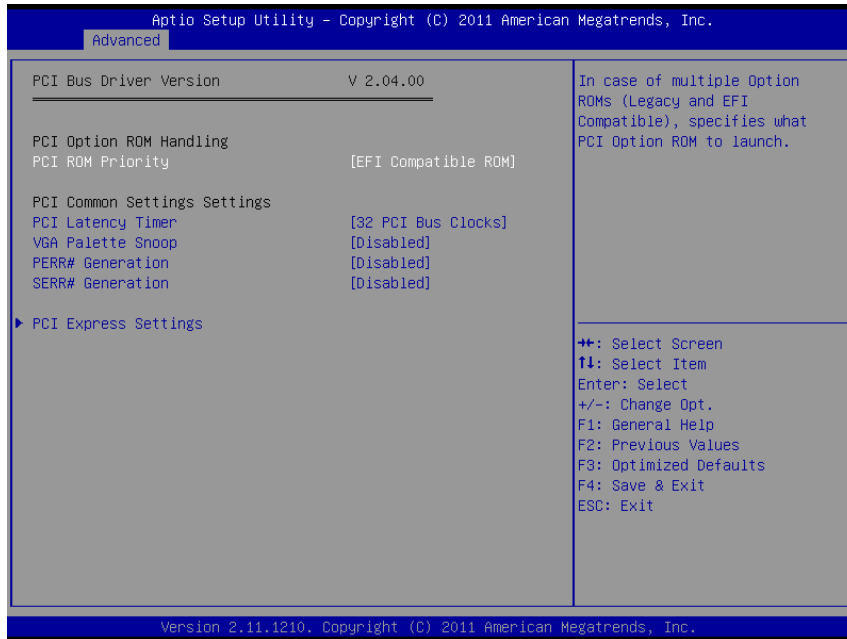
3.6.2 Advanced BIOS settings

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.



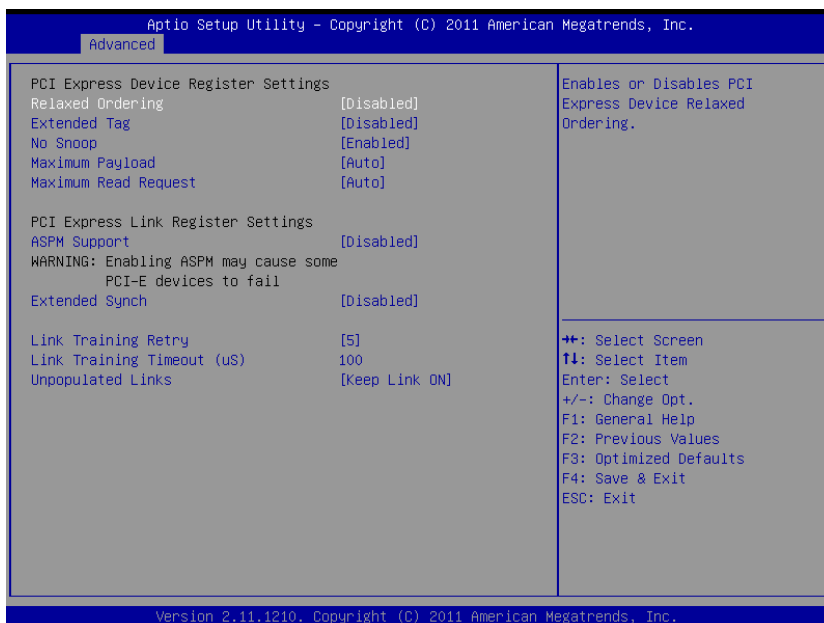
Item	Options	Description
Launch PXE OpROM	Disabled[Default], Enabled	Enable or Disable Boot Option for Legacy Network Devices
Launch Storage OpROM	Disabled, Enabled[Default]	Enable or Disable Boot Option for Legacy Mass Storage Devices with Option ROM.

3.6.2.1 PCI Subsystem Settings



Item	Options	Description
PCI ROM Priority	Legacy ROM EFI Compatible ROM[Default]	In case of multiple Option ROMs (Legacy and EFI Compatible), specifies what PCI Option ROM to launch.
PCI Latency Timer	32 PCI Bus Clocks[Default] 64 PCI Bus Clocks 96 PCI Bus Clocks 128 PCI Bus Clocks 160 PCI Bus Clocks 192 PCI Bus Clocks 224 PCI Bus Clocks 248 PCI Bus Clocks	Value to be programmed into PCI Latency Timer Register.
VGA Palette Snoop	Enabled Disabled[Default]	Enables or Disables VGA Palette Registers Snooping.
PERR# Generation	Enabled Disabled[Default]	Enables or Disables PCI Device to Generate PERR#
SERR# Generation	Enabled Disabled[Default]	Enables or Disables PCI Device to Generate SERR#
PCI Express Settings	Change PCI Express Devices Settings.	

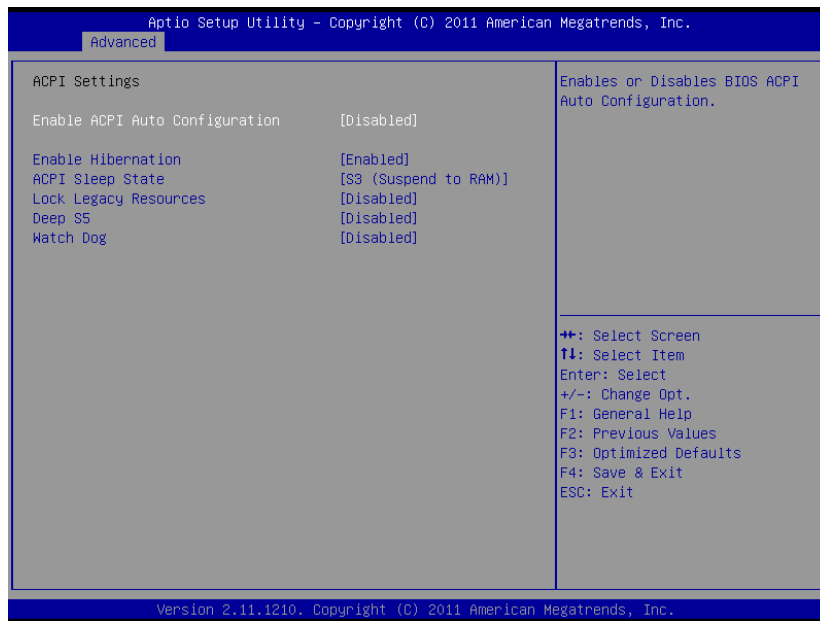
3.6.2.1.1 PCI Subsystem Settings



Item	Options	Description
Relaxed Ordering	Enabled Disabled[Default]	Enables or Disable PCI Express Device Relaxed Ordering.
Extended Tag	Enabled Disabled[Default]	If ENABLED allows Device to use 8-bit Tag field as a requester.
No Snoop	Enabled[Default] Disabled	Enables or Disables PCI Express Device No Snoop option.
Maximum Payload	Auto[Default] 128 Bytes 256 Bytes 512 Bytes 1024 Bytes 2048 Bytes 4096 Bytes	Set Maximum Payload of PCI Express Device or allow System BIOS to select the value.
Maximum Read Request	Auto[Default] 128 Bytes 256 Bytes 512 Bytes 1024 Bytes 2048 Bytes 4096 Bytes	Set Maximum Read Request Size of PCI Express Device or allow System BIOS to select the value.
ASPM Support	Disabled[Default] Auto Force L0s	Set the ASPM Level: Force L0s – Force all links to L0s State : AUTO – BIOS auto configure: DISABLE – Disables ASPM.
Extended Synch	Enabled Disabled[Default]	If ENABLED allows generation of Extended Synchronization patterns.
Link Training Retry	Disabled 2 3 5[Default]	Defines number of Retry Attempts software will take to retrain the link if previous training attempt was unsuccessful.
Link Training Timeout (uS)	10-1000	Defines number of Microseconds software will wait before polling 'Link Training' bit in Link Status register. Value range from 1 to 100 uS.
Unpopulated Links	Keep Link ON[Default] Disable Link	In order to save power, software will disable unpopulated PCI Express links, if this option set to 'Disable Link'.

3.6.2.2 ACPI Settings

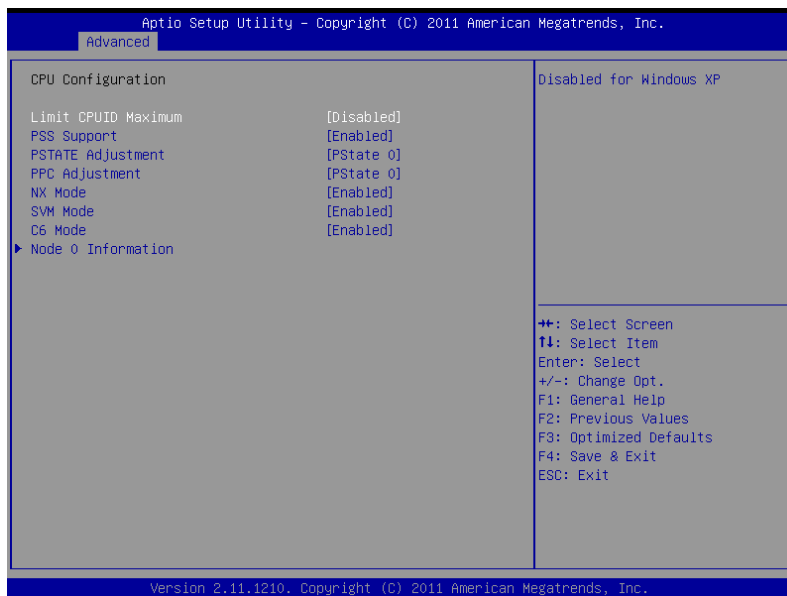
You can use this item to set up ACPI Configuration.



Item	Options	Description
Enable ACPI Auto Configuration	Disabled[Default], Enabled	Enables or Disables BIOS ACPI Auto Configuration.
Enable Hibernation	Disabled, Enabled[Default]	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	Suspend Disabled, S3 (Suspend to RAM) [Default]	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
Lock Legacy Resources	Disable[Default], Enable	Enables or Disables Lock of Legacy Resources.
DeepS5	Disabled[Default], Enabled	Enable or Disable Deep S5.
Watch Dog	Disabled[Default], Enabled	Set SIO watch dot timer.

3.6.2.3 CPU Configuration

Use the CPU configuration menu to view detailed CPU specification and configure the CPU.



Item	Options	Description
Limit CPUID Maximum	Disable[Default] Enable	Disabled for Windows XP.
PSS Support	Disable Link, Enabled[Default]	Enable/disable the generation of ACPI_PPC, _PSS, and _PCT objects.
PSTATE Adjustment	PState 0[Default]/ PState 1/PState 2/ PState 3/PState 4/ PState 5/PState 6/ PState 7	Provide to adjust startup P –state level.
PPC Adjustment	PState 0[Default]/ PState 1/PState 2/	Provide to adjust _PPC object.
NX Mode	Disable Link, Enabled[Default]	Enable/disable No – execute page protection Function.
SVM Mode	Disable Link, Enabled[Default]	Enable/disable CPU Virtualization.
C6 Mode	Disable Link, Enabled[Default] Auto	Enable/disable C6.
Node 0 Information	View Memory Information related to Node 0.	

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3.6.2.3.1 Memory Information related to Node 0

```
Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Advanced
Node0: AMD G-T16R Processor
Single Core Running @ 624 MHz 950 mV
Max Speed:615 MHz Intended Speed:615 MHz
Min Speed:615 MHz
Microcode Patch Level: 5000101

----- Cache per Core -----
L1 Instruction Cache: 32 KB/8-way
L1 Data Cache: 32 KB/2-way
L2 Cache: 512 KB/16-way
No L3 Cache Present

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

Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```

3.6.2.4 IDE Configuration

Lists the hard disk connected to the system.

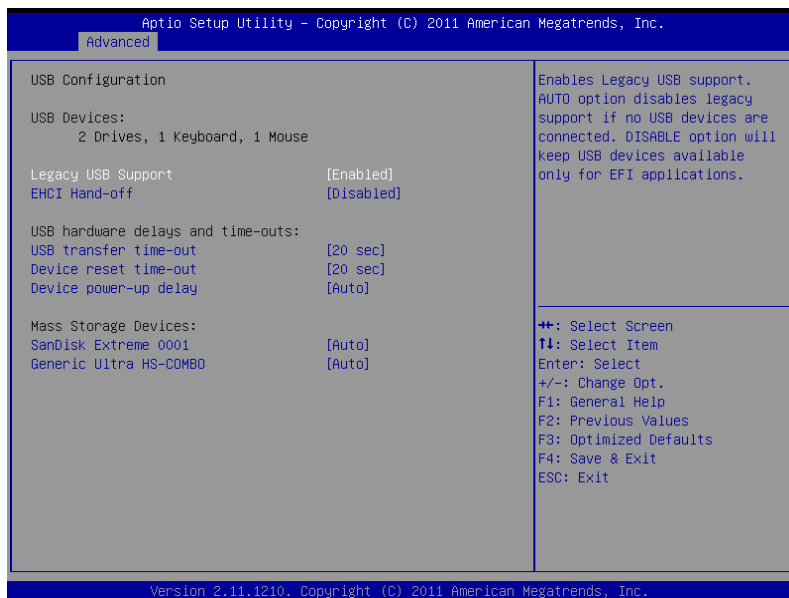
```
Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Advanced
IDE Configuration
SATA Port0 Not Present
SATA Port1 Not Present
SATA Port2 Not Present
SATA Port3 Not Present
SATA Port4 Not Present
SATA Port5 Not Present

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

Version 2.11.1210. Copyright (C) 2011 American Megatrends, Inc.
```


3.6.2.5 USB Configuration

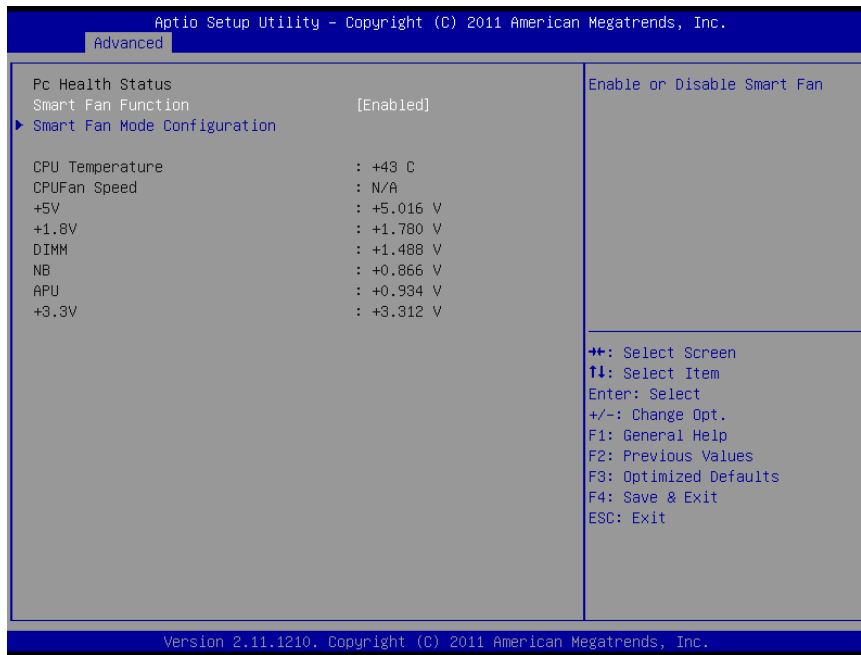
The USB configuration menu is used to read USB configuration information and configure USB.



Item	Options	Description
Legacy USB support	Enabled[Default] Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE will keep USB devices available only for EFI applications.
ECHI Hand-off	Enabled Disabled[Default]	This is a workaround for OSES without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
USB transfer time-out	1sec / 5sec 10sec / 20sec[Default]	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10sec / 20sec[Default] 30sec / 40sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto[Default] Manual	Maximum time the device will take before it properly reports itself to the Host Controller. "Auto" uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.
Mass Storage Devices	Auto[Default] Floppy Forced FDD Hard Disk CD-ROM	Mass storage device emulation type. 'Auto' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.
Generic Ultra HS-COMBO	Generic Ultra HS-COMBO is onboard SSD.	

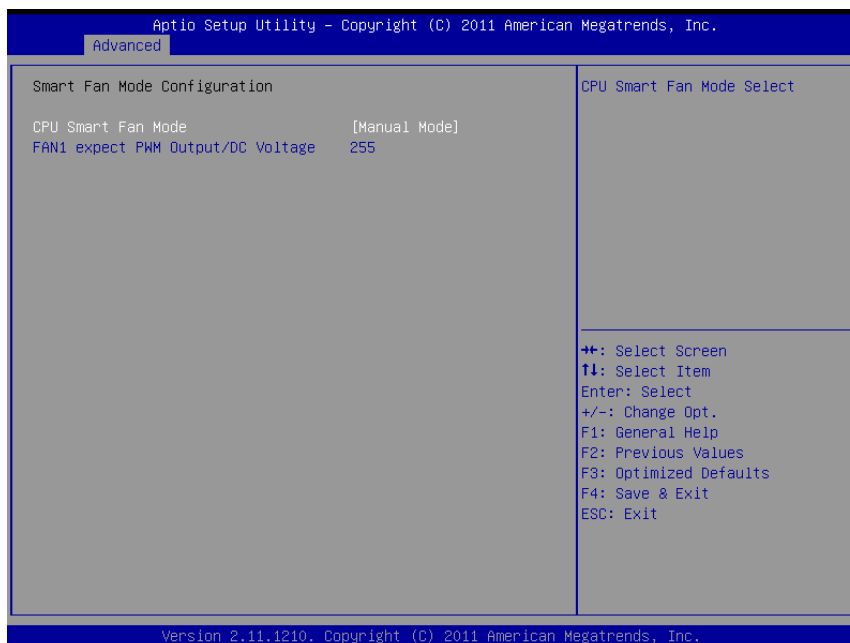
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3.6.2.6 H/W Monitor2



Item	Options	Description
Smart Fan Function	Disabled Enabled[Default]	Enable or Disable Smart Fan.
Smart Fan Mode Configuration	Smart Fan Mode Select.	

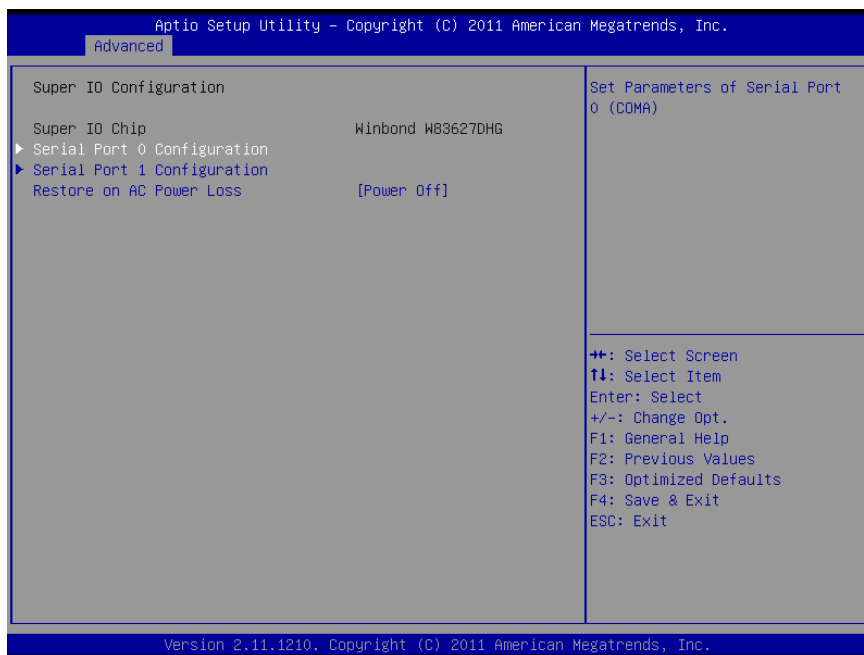
3.6.2.6.1 Smart Fan Mode Configuration



Item	Options	Description
CPU Smart Fan Mode	Manual Mode [Default] Smart Fan IV Mode	CPU Smart Fan Mode Select.
FAN1 expect PWM Output/DC Voltage	0-255	Input expect PWM Output Value(Range:0 – 255).

3.6.2.7 Super IO Configuration

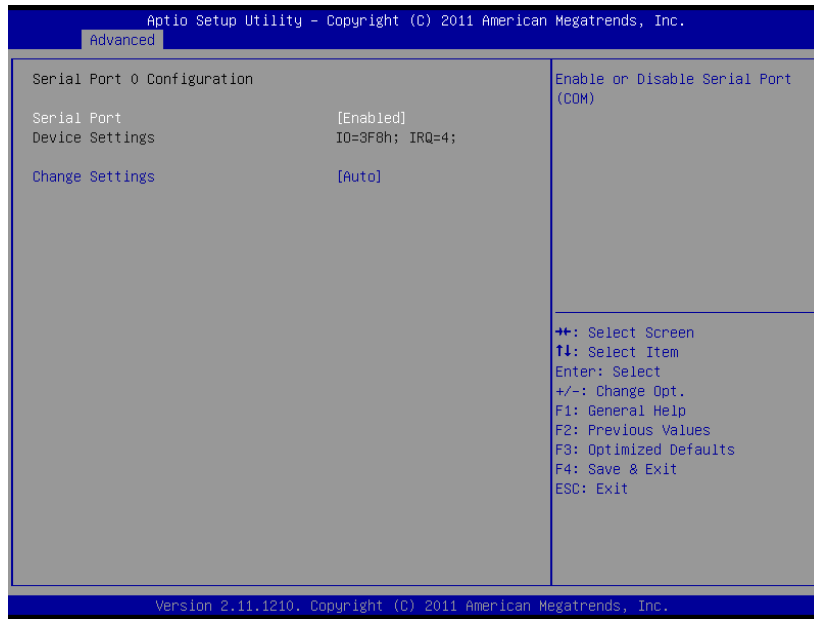
You can use this item to set up or change the Super IO configuration for serial ports. Please refer to 3.6.2.7.1 and 3.6.2.7.2 for more information.



Item	Option	Description
Restore on AC Power Loss	Power Off [Default] Power On Last State	Set Restore on AC Power Loss for ATX Mode.

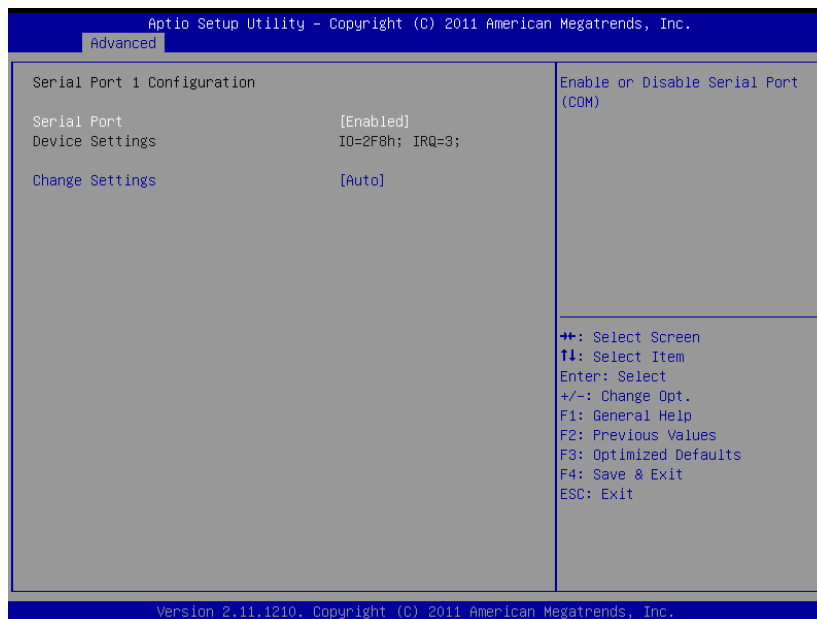
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3.6.2.7.1 Serial Port 0 Configuration



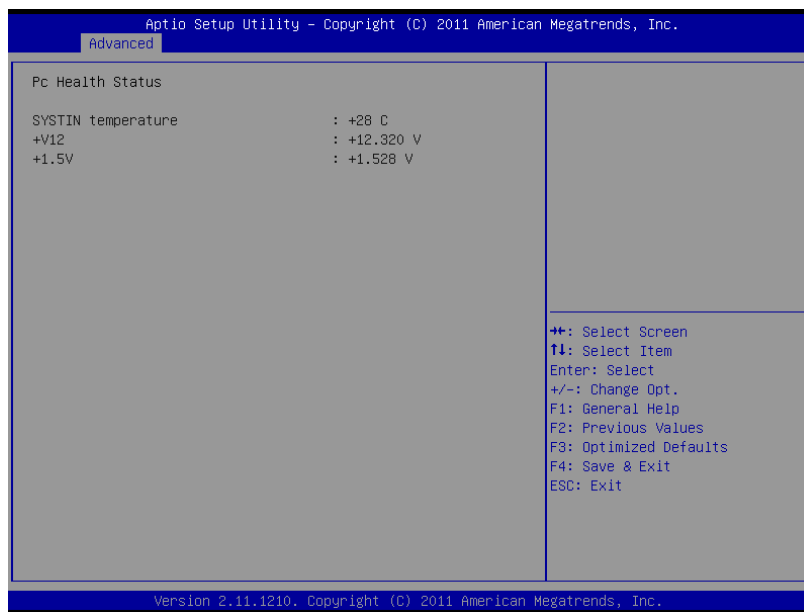
Item	Option	Description
Serial Port	Enabled[Default], Disabled	Enable or Disable Serial Port (COM).
Change Settings	Auto[Default] IO=3F8h; IRQ=4, IO=3F8h; IRQ=3,4,5,6,7,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for Super IO device.

3.6.2.7.2 Serial Port 1 Configuration

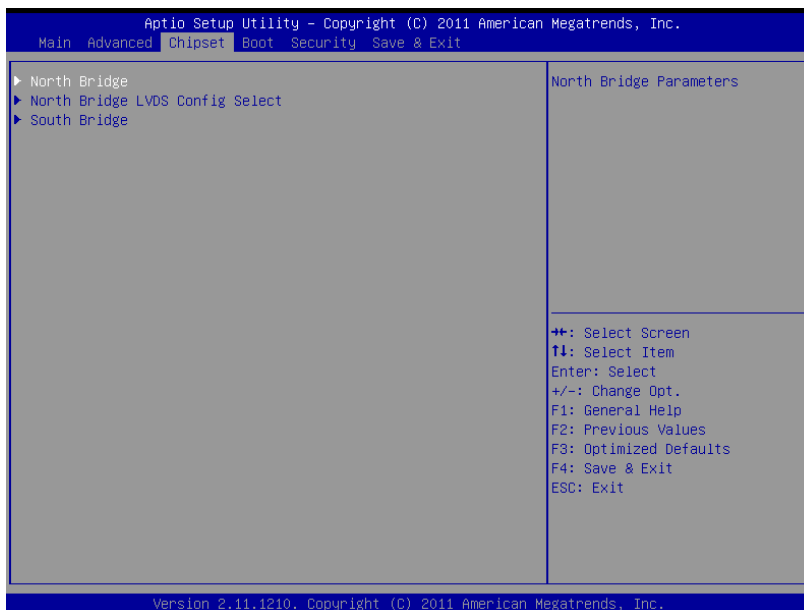


Item	Option	Description
Serial Port	Enabled[Default], Disabled	Enable or Disable Serial Port (COM).
Change Settings	Auto[Default] IO=2F8h; IRQ=3, IO=3F8h; IRQ=3,4,5,6,7,10,11,12; IO=2F8h; IRQ=3,4,5,6,7,10,11,12; IO=3E8h; IRQ=3,4,5,6,7,10,11,12; IO=2E8h; IRQ=3,4,5,6,7,10,11,12;	Select an optimal setting for Super IO device.

3.6.2.8 H/W Monitor

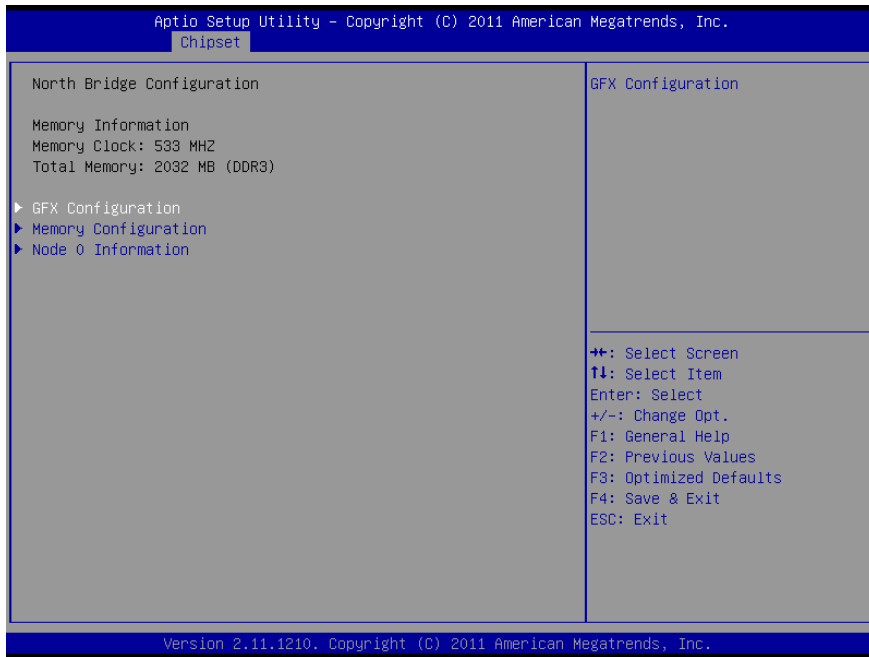


3.6.3 Advanced Chipset Features

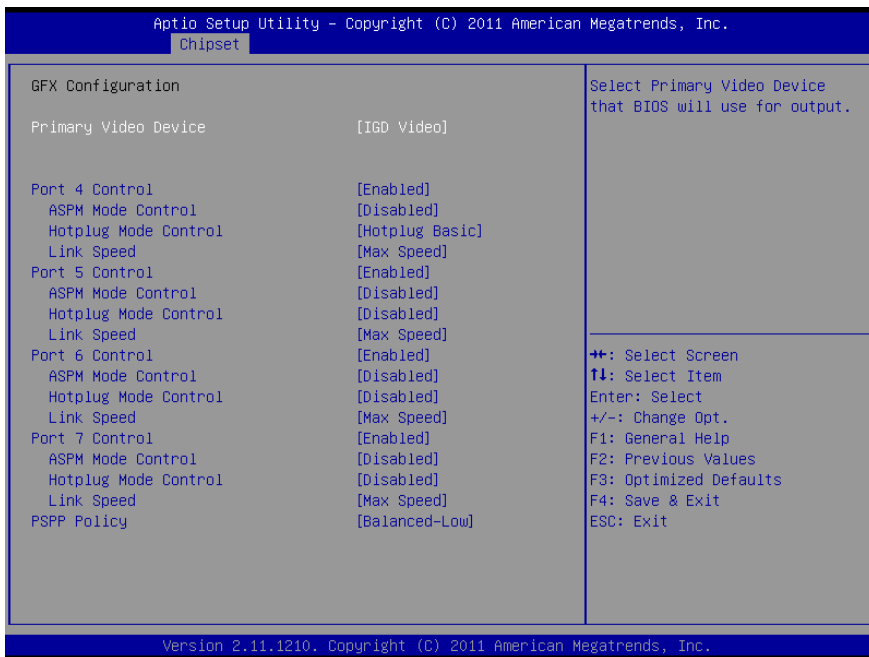


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3.6.3.1 North Bridge



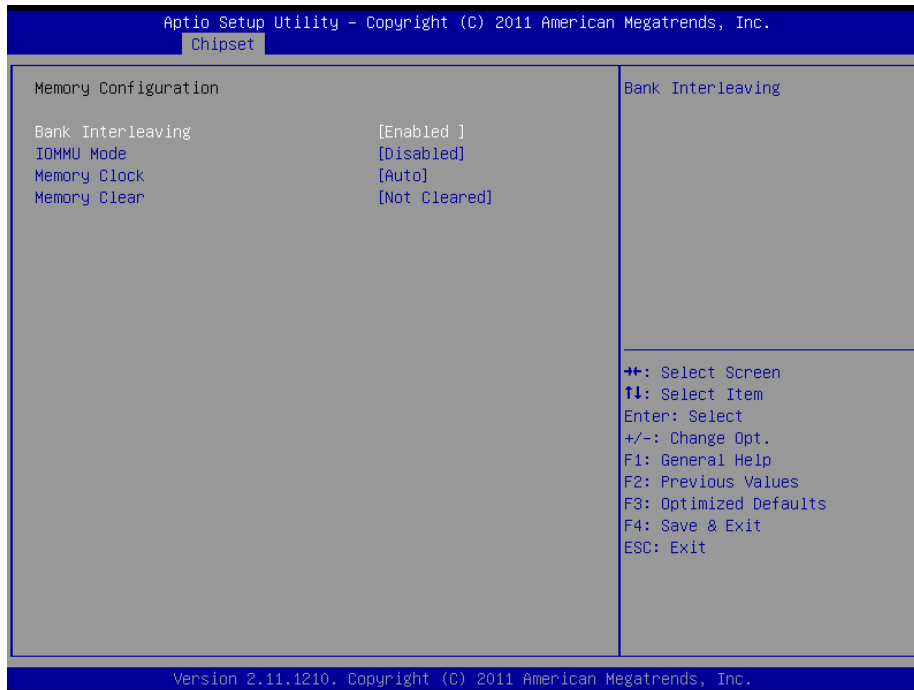
3.6.3.1.1 GFX Configuration



Item	Option	Description
Primary Video Device	IGD Video[Default] NB PCIe slot Video	Select Primary Video Device that BIOS will use for output.
Port 4 Control	Disabled Enabled[Default]	Port 4 Enabled/Disabled.
ASPM Mode Control	Disabled[Default] L0s Entry L1 Entry L0s and L1 Entry	NB root port ASPM mode control.
Hotplug Mode Control	Disabled Hotplug Basic[Default] Hotplug Server Hotplug Enhanced Hotplug Inboard	NB root port hotplug mode control.
Link Speed	Max Speed[Default] Pcie Gen1 Pcie Gen2	NB root port Pcie link speed, the link speed may overwritten by Pssp settings.
Port 5/6/7 Control	Disabled Enabled[Default]	Port 5/6/7 Enabled/Disabled.
ASPM Mode Control	Disabled[Default] L0s Entry L1 Entry L0s and L1 Entry	NB root port ASPM mode control.
Hotplug Mode Control	Disabled[Default] Hotplug Basic Hotplug Server Hotplug Enhanced Hotplug Inboard	NB root port hotplug mode control.
Link Speed	Max Speed[Default] Pcie Gen1 Pcie Gen2	NB root port Pcie link speed, the link speed may overwritten by Pssp settings.
PSP Policy	Disabled Performance Balanced-High Balanced-Low[Default] Power Saving	PCIe speed power policy.

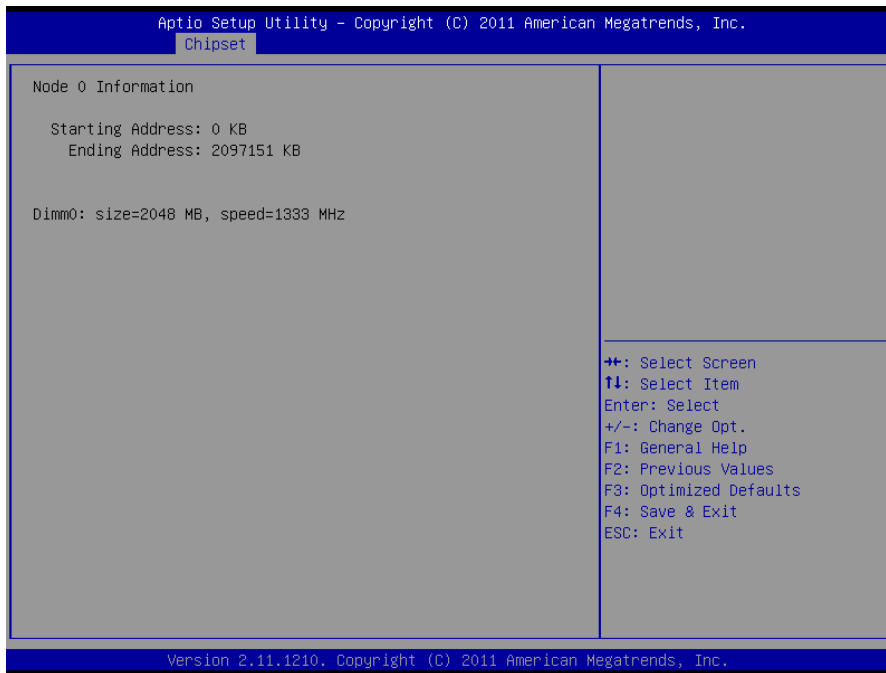
EQM-A50M

3.6.3.1.2 Memory Configuration

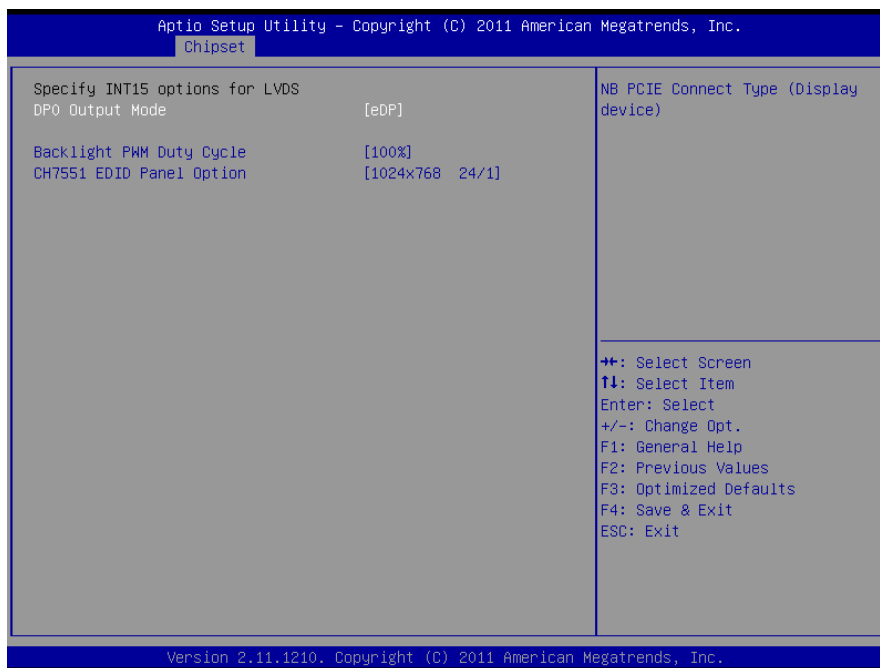


Item	Option	Description
Bank Interleaving	Disabled Enabled [Default]	Bank Interleaving.
IOMMU Mode	Disabled [Default] 32MB/64MB/128MB/256MB /512MB/1GB/2GB	IOMMU is supported on LINUX based system to convert 32bit I/O to 64bit MMIO.
Memory Clock	Auto [Default] 400 MHz 533 MHz 667 MHz	The Option Allow User to select different Memory Clock, Default value is 400Mhz.
Memory Clear	Not Cleared [Default] Cleared	Memory Clear functionality control.

3.6.3.1.3 Node 0 Information



3.6.3.2 North Bridge LVDS Config Select



Item	Option	Description
DP0 Output Mode	eDP[Default] Disabled	NB PCIE Connect Type (Display device).
Backlight PWM Duty Cycle	00%/25%/50%/75%/100%[Default]	Select LVDS back light PWM duty.
CH7551 EDID Panel Option	1024x768 24/1[Default] 800x600 24/1 1024x768 18/1	DP0-EDP to LVDS(Chrotel 7551) Panel EDID Option.

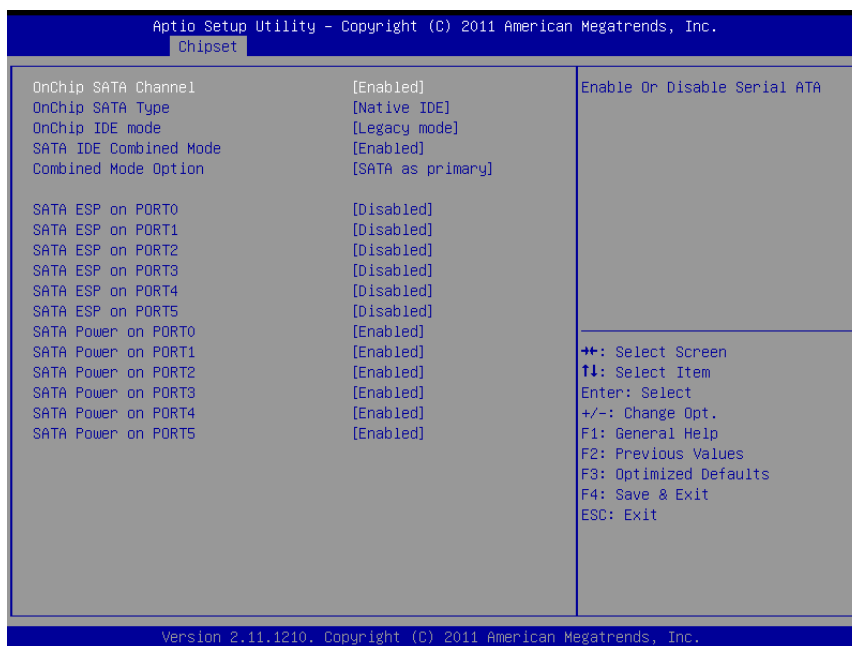
EQM-A50M

	1024x576 18/1 1024x600 18/1 1280x800 18/1 1920x1200 18/2 640x480 24/1 800x480 24/1 1280x768 18/1 1280x1024 24/2 1440x900 24/2 1600x1200 24/2 1366x768 24/1 1920x1080 24/2 1680x1050 24/2	
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3.6.3.3 South bridge



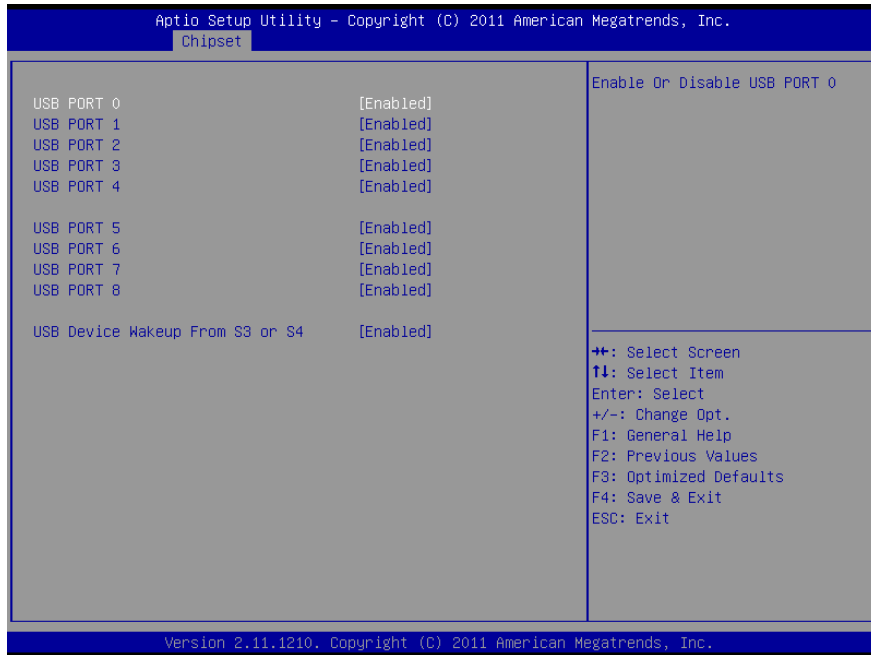
3.6.3.3.1 SB SATA Configuration



Item	Option	Description
OnChip SATA Channel	Disabled Enabled[Default]	Enable Or Disable Serial ATA.
OnChip SATA Type	Native IDE[Default] AHCI Legacy IDE	Native IDE /n RAID /n AHCI /n Legacy IDE->AHCI /n HyperFlash.
OnChip IDE mode	Legacy Mode[Default] Native Mode	The Option Allow User to select different Memory Clock, Default value is 400Mhz.
SATA IDE Combined Mode	Disabled Enabled[Default]	Combined Mode Option.
Combined Mode Option	SATA as primary[Default] SATA as secondary	Bank Interleaving.
SATA ESP on PORT0/1/2/3/4/5	Disabled[Default] Enabled	Enable Or Disable SATA ESP on PORT0/1/2/3/4/5.
SATA Power on PORT0/1/2/3/4/5	Enabled[Default] Power Down	Enable Or Disable SATA Piwer on PORT0/1/2/3/4/5.

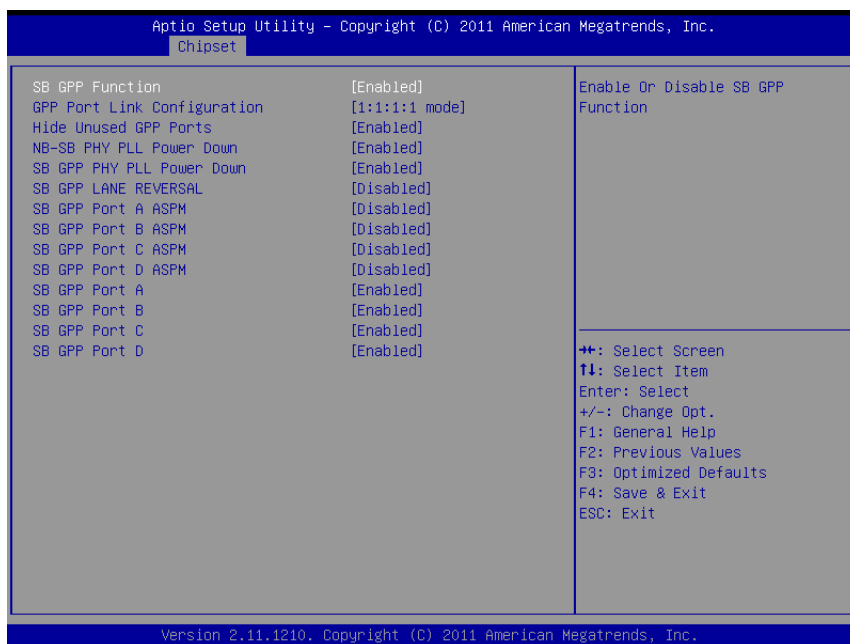
EQM-A50M

3.6.3.3.2 SB USB Configuration



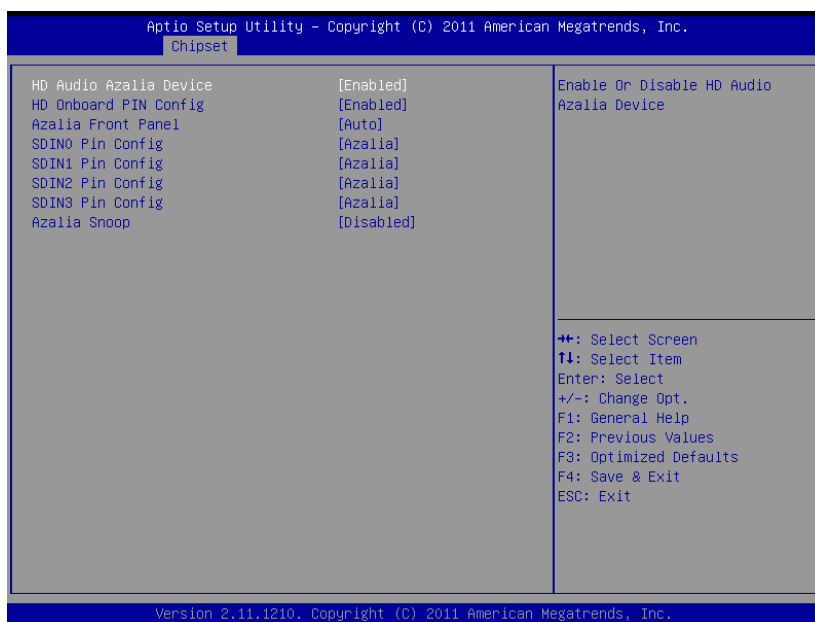
Item	Option	Description
USB PORT0/1/2/3/4/5/6/7/8	Disabled Enabled[Default]	Enable Or Disable USB PORT 0/1/2/3/4/5/6/7/8.
USB Device Wakeup From S3 or S4	Disabled Enabled[Default]	Enable Or Disable USB Device Wakeup From S3 or S4.

3.6.3.3.3 SB GPP Port Configuration



Item	Option	Description
SB GPP Function	Disabled Enabled[Default]	Enable Or Disable SB GPP Function.
GPP Port Link Configuration	x4 mode 2:2 mode 2:1:1 mode 1:1:1:1 mode[Default]	GPP Port Link Configuration Select.
Hide Unused GPP Ports	Disabled Enabled[Default]	Enable Or Disable Hide Unused GPP Ports.
NB-SB PHY PLL Power Down	Disabled Enabled[Default]	Enable Or Disable NB-SB PHY PLL Power Down.
SB GPP PHY PLL Power Down	Disabled Enabled[Default]	Enable Or Disable SB GPP PHY PLL Power Down.
SB GPP LANE REVERSAL	Disabled[Default] Enabled	Enable Or Disable SB GPP LANE REVERSAL.
SB GPP Port A/B/C/D ASPM	Disabled[Default] L0s L1 L0s + L1	Enable Or Disable SB GPP Port A/B/C/D ASPM.
SB GPP Port A/B/C/D	Disabled Enabled[Default]	

3.6.3.3.4 SB HD Azalia Configuration

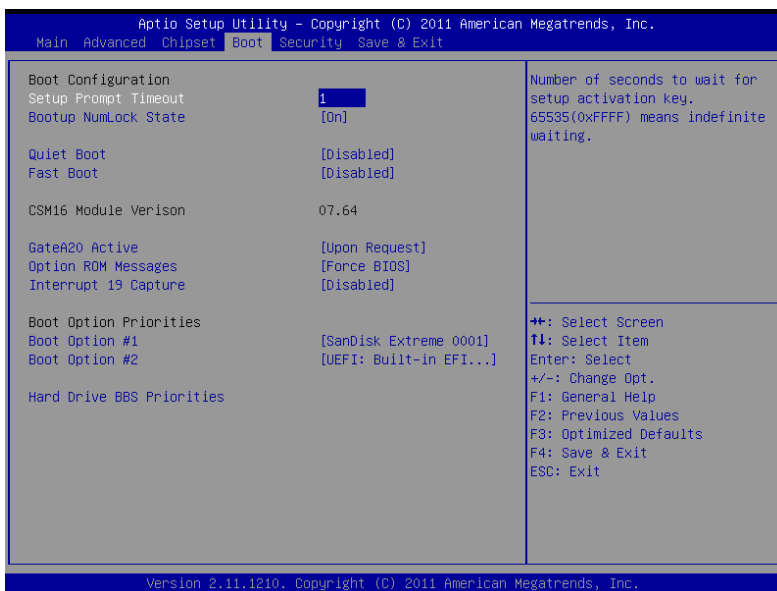


Item	Option	Description
HD Audio Azalia Device	Auto Disabled Enabled[Default]	Enable Or Disable HD Audio Device.
HD Onboard PIN Config	Disabled Enabled[Default]	Enable Or Disable HD Onboard PIN Config.
Azalia Front Panel	Auto[Default] Disabled	Config Azalia Front Panel.

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SDIN0/1/2/3 Pin Config	GPIO Azalia[Default]	SDIN0/1/2/3 Pin Config.
Azalia Snoop	Disabled[Default] Enabled	Enable Or Disable Azalia Snoop.

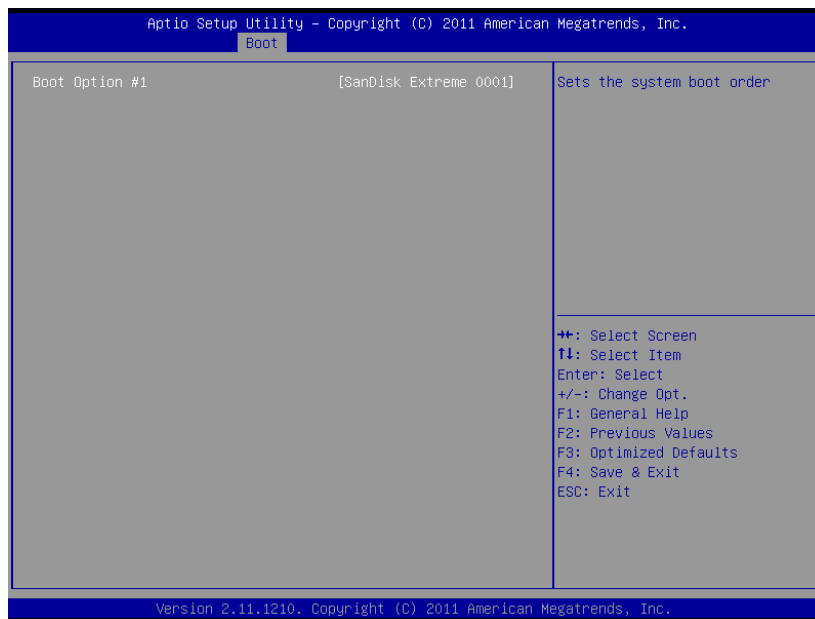
3.6.4 Boot settings



Item	Option	Description
Setup Prompt Timeout	1~65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On[Default] Off	Select the keyboard NumLock state.
Quiet Boot	Enables or disables Quiet Boot Option.	
Fast Boot	Enabled Disabled[Default]	Enables or Disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.
GateA20 Active	Upon Request[Default] Always	UPON REQUEST –GA20 can be disabled using BIOS services. ALWAYS- do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.
Option ROM Messages	Force BIOS[Default] Keep Current	Set display mode for Option ROM.
Interrupt 19 Capture	Enabled Disabled[Default]	Enabled: allows Option ROMs to trap Int 19
Boot Option Priorities	Sets the system boot order	

3.6.4.1 Hard Drive BBS Priorities

Sets the system boot order.



3.6.5 Security

Use the Security menu to set system and user password.



3.6.5.1 Administrator Password

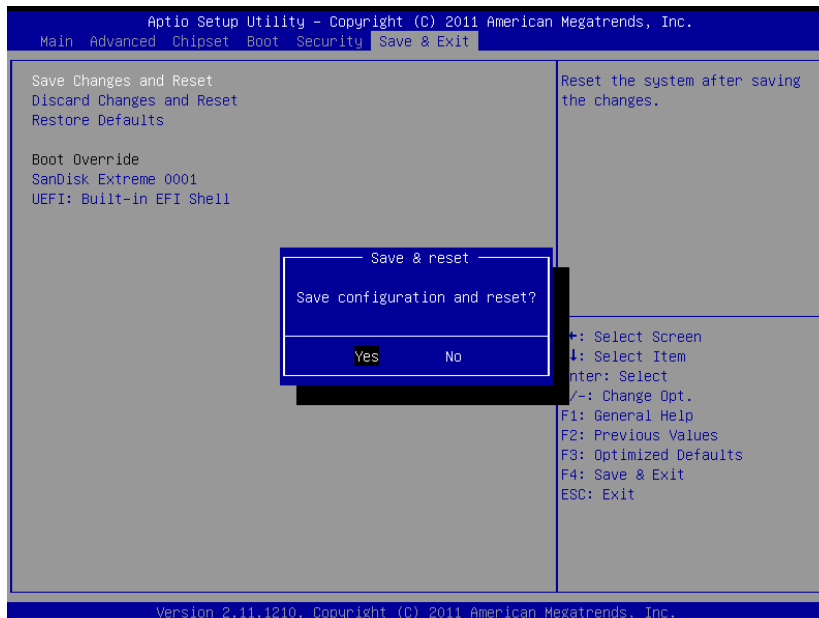
This setting specifies a password that must be entered to access the BIOS Setup Utility. If only the Administrator's password is set, then this only limits access to the BIOS setup program and is only asked for when entering the BIOS setup program. By default, no password is specified.

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3.6.5.2 User Password

This setting specifies a password that must be entered to access the BIOS Setup Utility or to boot the system. If only the User's password is set, then this is a power on password and must be entered to boot or enter the BIOS setup program. In the BIOS setup program, the User will have Administrator rights. By default, no password is specified.

3.6.6 Save & Exit



3.6.6.1 Save Changes and Reset

Any changes made to BIOS settings are stored in NVRAM. The setup program then exits and reboots the controller.

3.6.6.2 Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

3.6.6.3 Restore Defaults

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

3.6.6.4 Boot Override

This option lists all possible bootable devices and allows the user to override the **Boot Option Priorities** list for the current boot. If no changes have been made to the BIOS setup options, the system will continue booting to the selected device without first rebooting. If BIOS setup options have been changed and saved, a reboot will be required and the boot override selection will not be valid.

3.6.6.5 Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.

4. Drivers Installation



Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

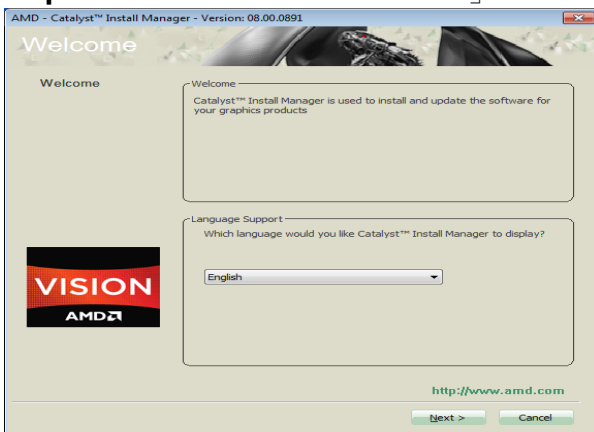
4.1 Install VGA Driver

Insert the Supporting DVD-ROM to DVD-ROM drive, click on “start” icon and it should show the index page of Avalue’s products automatically. If not, locate the folder HTML and choose the product from the targeted folder.

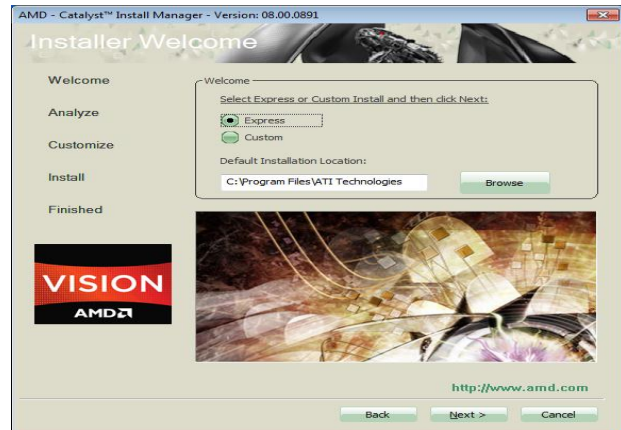


Note: The installation procedures and screen shots in this section are based on W7 operating system.

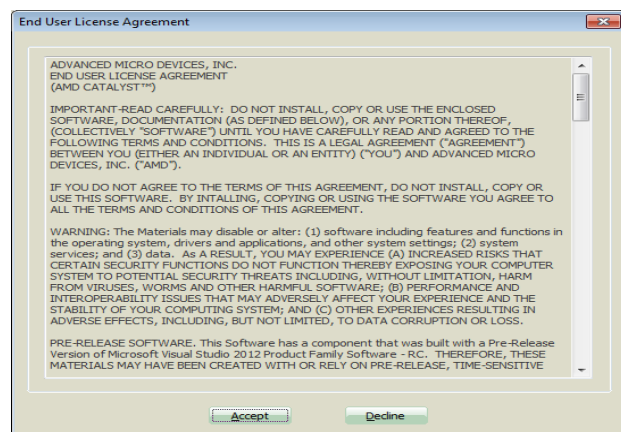
Step 1. Locate 「\VGA\EQM-A50M」



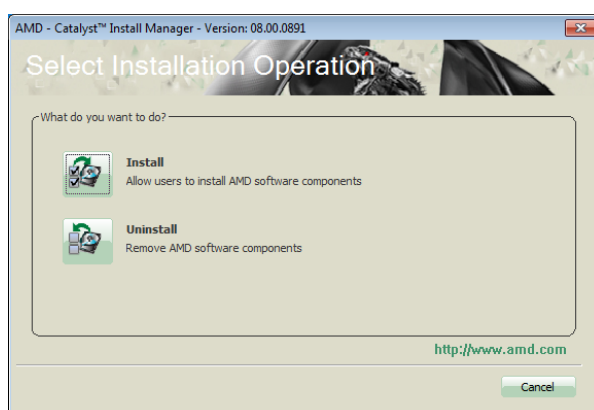
Step 2. Click **Next** to start setup program



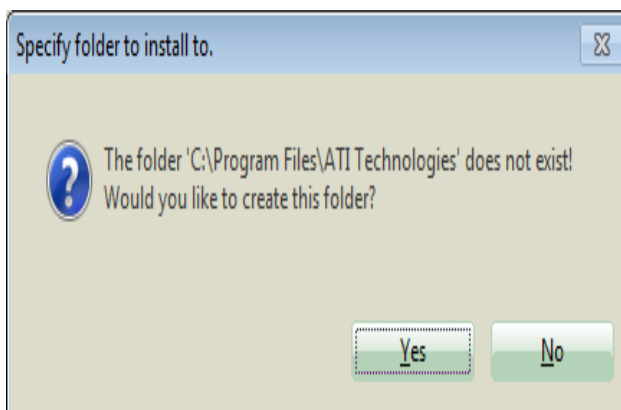
Step 4. Click **Next** to continue



Step 5. Click **Accept** to accept licence agreement

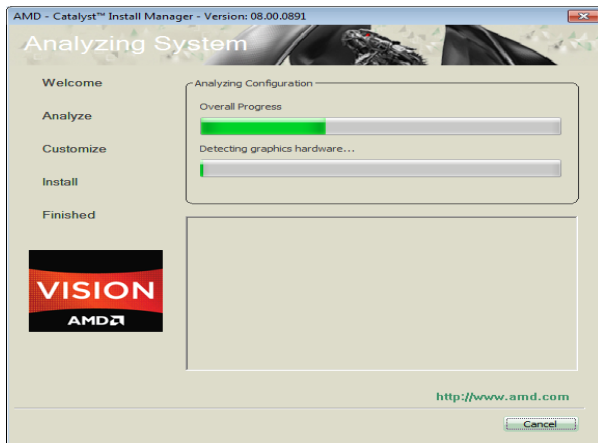


Step 3. Click **Install** to continue.

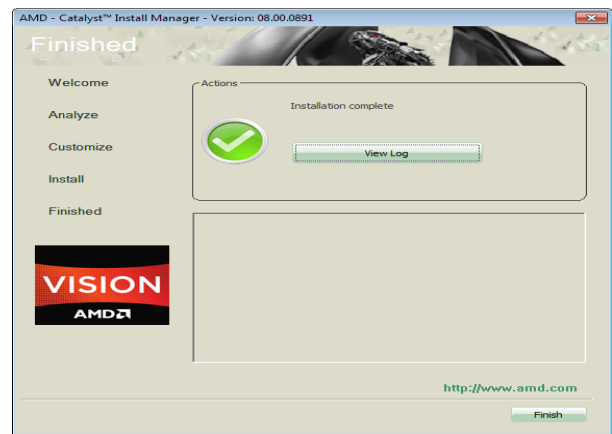


Step 6. Click **Yes** to continue.

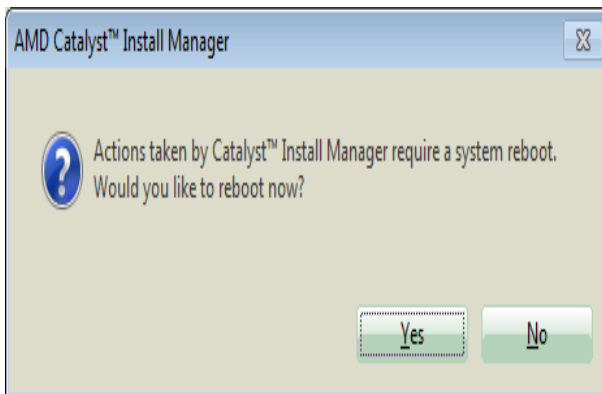
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Step 7. Wait while installing.



Step 8. Click **Finish** to complete installation.



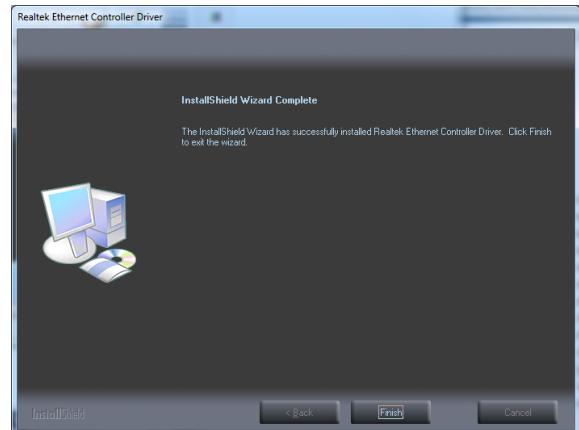
Step 9. Click **Yes** to continue.

4.2 Install Ethernet Driver (For Realtek 8111E)

Insert the Supporting DVD-ROM to DVD-ROM drive, click on “start” icon and it should show the index page of Avalue's products automatically. If not, locate the folder HTML and choose the product from the targeted folder.



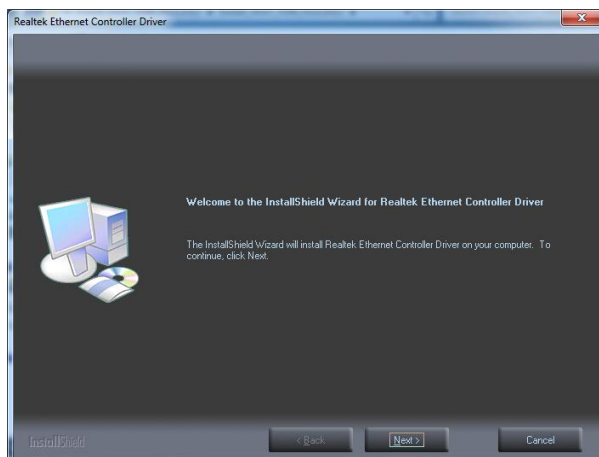
Note: The installation procedures and screen shots in this section are based on W7 operating system.



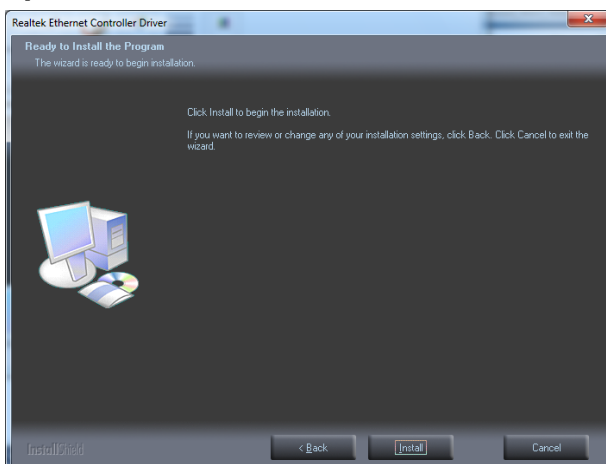
Step 4. Click **Finish** to complete installation.

Step 1. Locate

「\Driver_Gigabit\Realtek\RTL8111E\EQM-A50M」



Step 2. Click Next.



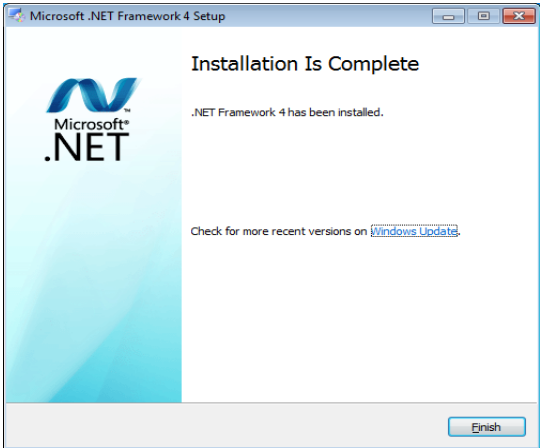
Step 3. Click Install to continue.

4.3 Install dotNetFramework 4 Driver

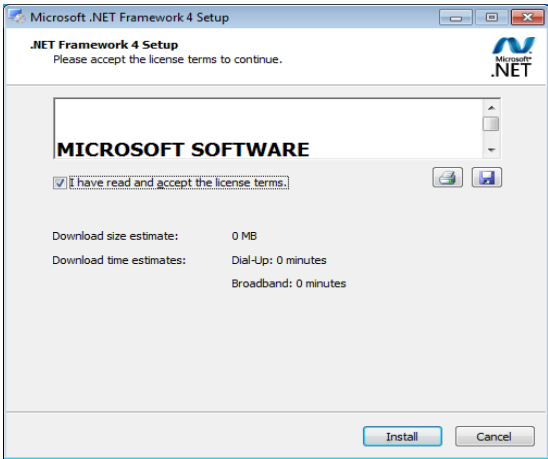
Insert the Supporting DVD-ROM to DVD-ROM drive, click on “start” icon and it should show the index page of Avalue’s products automatically. If not, locate the folder HTML and choose the product from the targeted folder.



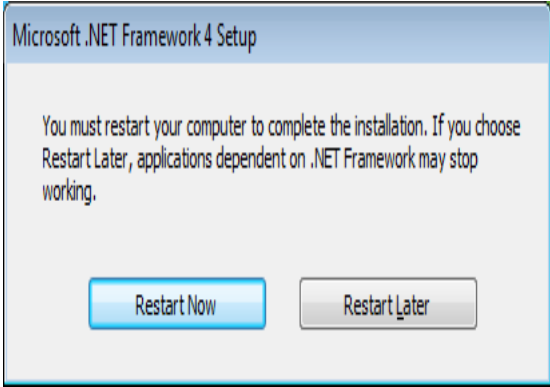
Note: The installation procedures and screen shots in this section are based on W7 operating system.



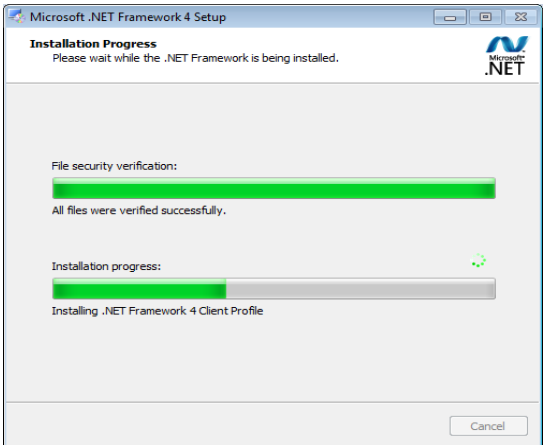
Step 3. Click Finish to complete installation.



Step 1. Click Install to start setup program



Step 5. Click Restart Now to restart your computer.



Step 2. Wait while installing.

5. Mechanical Drawing

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