FSB-B75H

Intel® Core™ i7/i5/i3
LGA 1155 Processor
Full-size CPU Card
With DDR3, 2 Gigabit Ethernet
USB 3.0, SATA 6.0Gb/s

FSB-B75H Manual Rev.A 2nd Ed.
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Packing List

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

- 1   Serial Port Cable with one DB-9 connector
- 1   Cable with serial port and LPT port
- 1   USB Cable
- 4   SATA Cables
- 1   DVD-ROM for manual (in PDF format) and Drivers
- 1   FSB-B75H

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 Industrial PC manufacturer, announces the debut of a high performance full-size Single Board Computer, the FSB-B75H. AAEON has developed this full-size SBC based on the latest Intel® B75 chipset and the Intel® 3rd generation Core™i7/i5/i3 LGA 1155 processor, to fulfill the increasing demands of multi-core processing.

In a PICMG 1.3 SHB Express form factor the FSB-B75H system host board takes full advantage of the Intel® B75 chipset for enhanced system performance and generous expansion capabilities.   Considerable bandwidth is available with point-to-point serial PCI-Express via [x16] and [x4] interfaces. Maximizing the available PCI-Express channels offers the greatest flexibility to today's demanding I/O requirements. Two DIMM slots of dual-channel DDR3 1333/1600 sockets provide ample memory bus bandwidth for demanding applications.   The FSB-B75H has been designed for users that require high performance and reliability for critical applications.

1.2 Features

- Intel® 3rd Generation Core™ i7/i5/i3 LGA 1155 Processor
- Intel® B75 Chipset
- Dual-Channel DDR3 1333/1600 DIMM Socket x 2 (Up to 16 GB)
- Intel® B75 Integrated Intel® HD Graphics
- Gigabit Ethernet x 2
- SATA 6.0 Gb/s x 1, SATA 3.0 Gb/s x 2 (Backplane x 2), CFast™ x 1, Floppy Disk Drive x 1
- USB3.0 x 4, USB2.0 x 4, COM x 2, LPT x 1
- Compliance with PICMG 1.3
- ATX 2.1 Power Requirement

1.3 Specification

System

- Form Factor   PICMG 1.3 Full size SBC
- Processor   Intel® 3rd Generation Core™ i7/i5/i3 LGA

  1155 Processor
- System Memory   240-pin Dual-Channel DDR3 1333/1600

  DIMM socket x 2, up to 16GB
- Chipset   Intel® B75
- I/O Chipset   Winbond W83627DHG-P
- Ethernet   Realtek 8111E 10/100/1000Base-TX,

  RJ-45 x 2 on bracket
- BIOS   AMI Plug & Play SPI BIOS-128MB ROM
- Wake on LAN   Yes
- H/W Status Monitoring System temperature, voltage and cooling

  fan status monitoring
- Expansion Interface   Follow PICMG 1.3 Regulation
- Battery   Lithium battery
- Power Requirement   ATX 2.1
- Board Size   13.3" x 5" (339mm x 126mm)
- Gross Weight   1.2 lb (0.5 Kg)
- Operating   32°F ~ 140 °F (0°C ~ 60 °C)

  Temperature
- Storage Temperature   -4°F ~ 158 °F (-20°C ~ 70 °C)
- Operating Humidity   5%~90% resistive humidity,

non-condensing

Display

- Chipset   Intel® B75

- Graphic Engine   Integrated Intel® HD Graphics

- Resolution   Up to 2048x1536 @ 75Hz for CRT

- Output Interface   DVI x 1 on bracket, VGA (optional)

I/O

- Storage   SATA 6.0 Gb/s x 1, SATA 3.0 Gb/s x 2

                     (Backplane x 2), CFast™ x 1

- Serial Port   COM x 2 (box headers)

                     COM1: RS-232

                     COM2: RS-232/422/485

- PS/2 Port   Keyboard/Mouse x 1 (4x2 pin header)

- USB   USB3.0 x 4 (Internal 10x2 pin header x 2)

                     USB2.0 x 4 (onboard dual type-A

                     connector x 2, internal 5x2 pin header x

                     1) (4 USB on backplane)

- Parallel Port   LPT port x 1

- Audio   HDAC daughter board (optional) Mic-in/

                     Line-in/ Line-out

- Digital I/O   8-bit programmable (4-in/ 4-out)

Chapter

2

Quick Installation Guide

2.1 Safety Precautions

Warning!

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.

Caution!

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
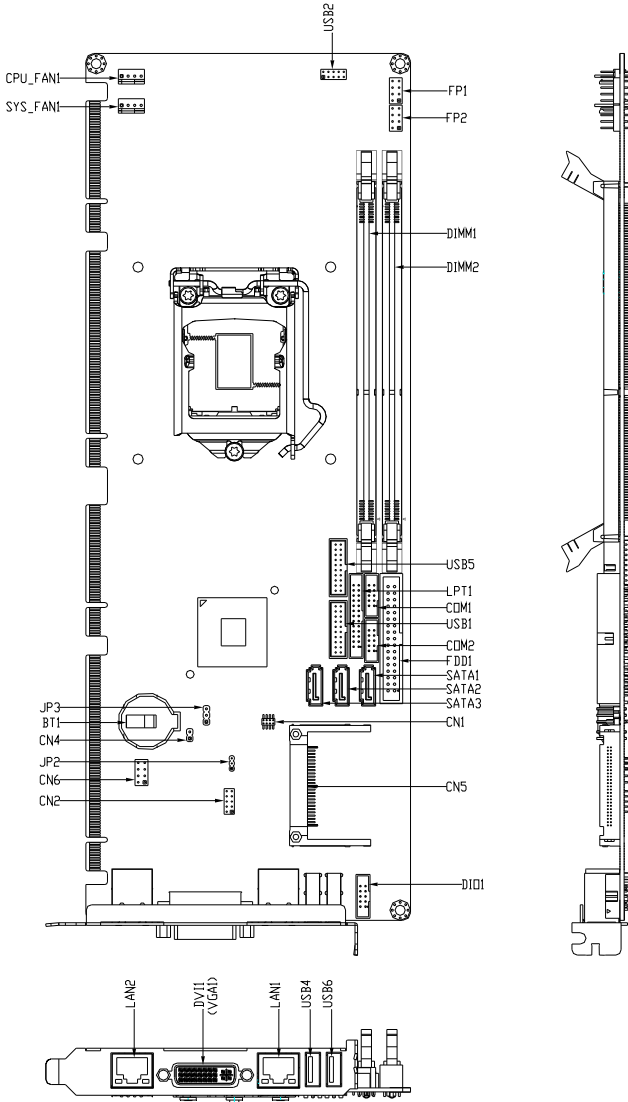
2.3 Mechanical Drawing
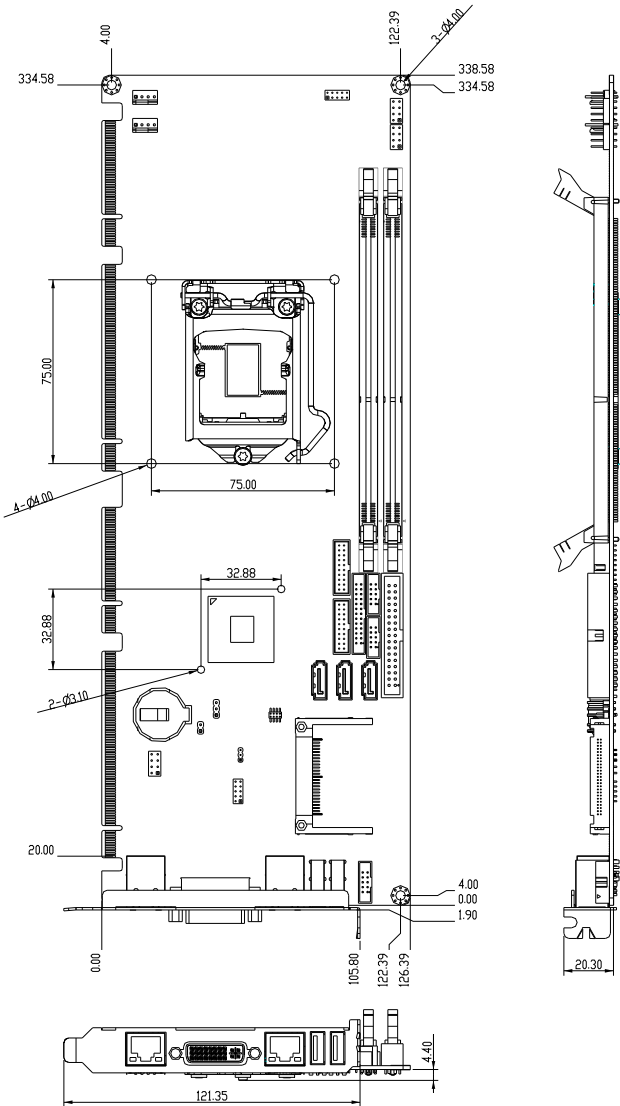
2.4 List of Jumpers

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:

Jumpers

Label	Function
JP2	Auto Power Button
JP3	Clear CMOS

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
FP1	Front Panel Connector 1
FP2	Front Panel Connector 2
CN1	SPI Flash programmer Connector
CN2	Audio Pin Header
CN4	Case Open Connector
CN5	CFast Connector
CN6	PS2 KB/MS Pin Header
COM1	RS-232 Pin Header
COM2	RS-232/422/485 Pin Header

DIO1	Digital I/O Pin Header
FDD1	Floppy Pin Header
LPT1	Parallel Port Pin Header
USB1	USB 3.0 Pin Header
USB2	USB Pin Header
USB4	USB Connector
USB5	USB 3.0 Pin Header
USB6	USB Connector
BT1	Battery
SATA1~SATA3	SATA Connector
LAN1	10/100/1000Base-TX Ethernet Connector
LAN2	10/100/1000Base-TX Ethernet Connector
DIMM1	DDR3 DIMM Slot
DIMM2	DDR3 DIMM Slot
CPU_FAN	4 Pin Fan Connector
SYS_FAN	4 Pin Fan Connector
DVI1	DVI-I 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**
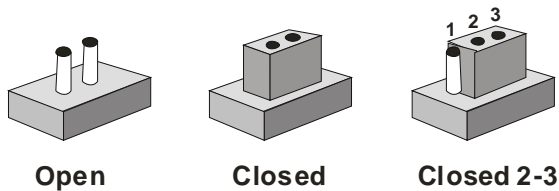
A pair of needle-nose pliers may be helpful when working with jumpers.

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 Auto Power Button (JP2)

JP2	Function
1-2	Power ON by Button (default)
2-3	Auto Power ON

2.8 Clear CMOS (JP3)

JP3	Function
1-2	Protected (default)
2-3	Clear

2.9 Front Panel Connector (FP1)

Pin	Signal	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 (-)

2.10 Front Panel Connector (FP2)

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

Note: Closed Pin 5, 7: Internal Buzzer Enable

2.11 Digital I/O Pin Header (DIO1)

Pin	Signal	Pin	Signal
1	DIO_30	2	DIO_31
3	DIO_32	4	DIO_33
5	DIO_34	6	DIO_35
7	DIO_36	8	DIO_37
9	+5V	10	GND

2.12 USB3.0 Port Pin Header (USB1, USB5)

Pin	Signal	Pin	Signal
1	VCC	20	NC
2	USB3_RX1_DN_C	19	VCC
3	USB3_RX1_DP_C	18	USB3_RX2_DN_C
4	GND	17	USB3_RX2_DP_C
5	USB3_TX1_DN_C	16	GND
6	USB3_TX1_DP_C	15	USB3_TX2_DN_C
7	GND	14	USB3_TX2_DP_C
8	USBP_0N_C	13	GND
9	USBP_0P_C	12	USBP_1N_C
10	NC	11	USBP_1P_C

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 Iinitialization

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 FSB-B75H 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.

Chapter 3 AMI BIOS Setup   3-2

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

```
            Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
 Main  Advanced  Chipset  Boot  Security  Save & Exit

    BIOS Information                                    Set the Date. Use Tab to
        FSB-B75H R1.0(FB75AM10) (08/20/2012)            switch between Date elements.

    BIOS Vendor                  American Megatrends
    Core Version                 4.6.5.3 x64
    Compliancy                   UEFI 2.3; PI 1.2

    System Date                  [Mon 08/20/2012]
    System Time                  [14:50:51]

    Access Level                 Administrator


                                                       →←: 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: Advanced

```
                Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
    Main    Advanced   Chipset   Boot   Security   Save & Exit

▶ ACPI Settings                                         System ACPI Parameters.
▶ CPU Configuration
▶ SATA Configuration
▶ USB Configuration
▶ W83627DHG Super IO Configuration
▶ W83627DHG HW Monitor
▶ Dynamic Digital IO
▶ S5 RTC Wake 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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```

ACPI Settings

```
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     Advanced

 ACPI Settings                                              Select ACPI sleep state the
                                                            system will enter when the
 ACPI Sleep State                    [S3 only(Suspend to ...]   SUSPEND button is pressed.




                                                            →←: 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 :

ACPI Sleep State	S1 Only (CPU Stop Clock)	
	S3 Only (Suspend to RAM)	Default
Select ACPI sleep state the system will enter when the SUSPEND button is pressed.		

CPU Configuration

```
           Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
    Advanced

   CPU Configuration                                         Enabled for Windows XP and
                                                             Linux (OS optimized for
   Intel(R) Core(TM) i7-3770 CPU @ 3.40GHz                   Hyper-Threading Technology)
   CPU Signature              306a8                          and Disabled for other OS (OS
   Microcode Patch            10                             not optimized for
   Max CPU Speed              3400 MHz                       Hyper-Threading Technology).
   Min CPU Speed              1600 MHz                       When Disabled only one thread
   CPU Speed                  3400 MHz                       per enabled core is enabled.
   Processor Cores            4
   Intel HT Technology        Supported
   Intel VT-x Technology      Supported
   Intel SMX Technology       Supported
   64-bit                     Supported
                                                             ↔: Select Screen
   L1 Data Cache              32 kB x 4                       ↑↓: Select Item
   L1 Code Cache              32 kB x 4                      Enter: Select
   L2 Cache                   256 kB x 4                     +/-: Change Opt.
   L3 Cache                   8192 kB                        F1: General Help
                                                             F2: Previous Values
   Hyper-threading            [Enabled]                      F3: Optimized Defaults
   Intel Virtualization Technology  [Disabled]               F4: Save & Exit
                                                             ESC: Exit




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```

Options 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.		
Intel Virtualization Technology	Disabled	Default
	Enabled	

When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology

SATA Configuration (IDE)

```
              Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
        Advanced

     SATA Configuration                                         Enable or disable SATA Device.

     SATA Controller(s)                [Enabled]
     SATA Mode Selection               [IDE]

     Serial ATA Port 0                 Empty
     Serial ATA Port 1                 Empty
     Serial ATA Port 2                 Empty
     Serial ATA Port 3                 Empty
     Serial ATA Port 4                 Empty
     Serial ATA Port 5                 Empty

                                                               →←: 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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```
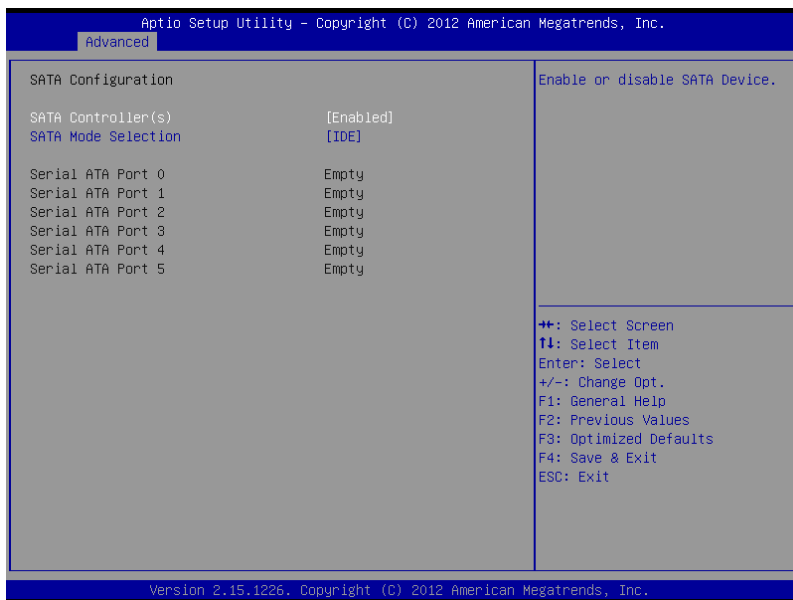
SATA Configuration (AHCI)

```
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     Advanced

  SATA Configuration                                      Determines how SATA
                                                          controller(s) operate.
  SATA Controller(s)              [Enabled]
  SATA Mode Selection             [AHCI]

  Serial ATA Port 0               Empty
    Port 0                        [Enabled]
    Hot Plug                      [Disabled]
  Serial ATA Port 1               Empty
    Port 1                        [Enabled]
    Hot Plug                      [Disabled]
  Serial ATA Port 2               Empty
    Port 2                        [Enabled]
    Hot Plug                      [Disabled]       ++: Select Screen
  Serial ATA Port 3               Empty            ↑↓: Select Item
    Port 3                        [Enabled]        Enter: Select
    Hot Plug                      [Disabled]       +/-: Change Opt.
  Serial ATA Port 4               Empty            F1: General Help
    Port 4                        [Enabled]        F2: Previous Values
    Hot Plug                      [Disabled]       F3: Optimized Defaults
  Serial ATA Port 5               Empty            F4: Save & Exit
    Port 5                        [Enabled]        ESC: Exit
    Hot Plug                      [Disabled]



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```

Options summary :

SATA Controller(s)	Enabled	Default
	Disabled	
Enable or disable SATA device.		
SATA Mode Selection	IDE	Default
	AHCI	
Determines how SATA controller(s) operate.		

USB Configuration

```
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            Advanced

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

USB3.0 Support                  [Enabled]
Mass Storage Devices:
Skymedi USB3_Pen_Drive 1.01     [Auto]


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



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```

Options summary :

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.		
USB3.0 Support	Enabled	Default
	Disabled	
Enable/Disable USB3.0 (XHCI) Controller support.		

W83627DHG Super IO Configuration

```
            Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
        Advanced

    W83627DHG Super IO Configuration                    Set Parameters of Floppy Disk
                                                        Controller (FDC)
    W83627DHG Super IO Chip             W83627DHG

  ▶ Floppy Disk Controller Configuration
  ▶ Serial Port 1 Configuration
  ▶ Serial Port 2 Configuration
  ▶ Parallel Port Configuration

    Restore AC Power Loss               [Last State]


                                                        ↦: 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 :

Floppy Disk Controller Configuration	Set Parameters of Floppy Disk Controller (FDC)
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA)
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB)

Parallel Port Configuration	Set Parameters of Parallel Port (LPT/LPTE)	
Restore AC Power Loss	Always OFF	
	Always ON	
	Last State	Default
Select AC power state when power is re-applied after a power failure.		

Floppy Disk Controller Configuration

```
          Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
   Advanced

 Floppy Disk Controller Configuration             Enable or Disable Floppy Disk
                                                  Controller
 Floppy Disk Controller          [Enabled]
 Device Settings                 IO=3F0h; IRQ=6; DMA=2;




                                                  →←: 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 :

Floppy Disk Controller	Disabled	
	Enabled	Default
Enable or Disable Floppy Disk Controller		

Serial Port 1 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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```

Options Summary :

Serial Port	Disabled	
	Enabled	Default
Enable or Disable Serial Port (COM)		
Change Settings	Auto	Default

	IO=3F8h; IRQ=4	
	IO=2F8h; IRQ=3	
Select an optimal setting for Super IO device.		

Serial Port 2 Configuration

```
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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	Auto	Default
	IO=2F8h; IRQ=3	
	IO=3F8h; IRQ=4	
Select an optimal setting for Super IO device.		
RS232/422,485	RS232	Default
	RS422	
	RS485	
RS232/422,485 switch		

Parallel Port Configuration

```
           Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
    Advanced

  Parallel Port Configuration                          Enable or Disable Parallel
                                                       Port (LPT/LPTE)
  Parallel Port                     [Enabled]
  Device Settings                   IO=378h; IRQ=5;

  Change Settings                   [Auto]
  Device Mode                       [STD Printer Mode]




                                                       ++: 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 :

Parallel Port	Disabled	
	Enabled	Default
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.

W83627DHG HW Monitor

```
            Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
  Advanced

 Pc Health Status                                    Enable or Disable Smart Fan

 Smart Fan Function          [Enabled]
▶Smart Fan Mode Configuration

 SYSTIN temperature          : +36 %
 CPU Temperature             : +53 %

 System Fan Speed            : N/A
 CPU Fan Speed               : 1814 RPM

 VCORE                       : +0.984 V
 +12V                        : +12.032 V
 +3.3V                       : +3.440 V             →←: Select Screen
 V_SM                        : +1.520 V             ↑↓: Select Item
 AVCC                        : +3.424 V             Enter: Select
 VCC3V                       : +3.424 V             +/-: Change Opt.
 VSB3                        : +3.424 V             F1: General Help
 VBAT                        : +3.136 V             F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

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```

Options Summary :

Smart Fan Function	Disabled	
	Enabled	Default
Enable or Disable Smart Fan		
Smart Fan Mode Configuration	Smart Fan Mode Select	

Smart Fan Mode Configuration

```
              Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
          Advanced

      Smart Fan Mode Configuration                              SYS Smart Fan Mode Select

      SYS Smart Fan Mode                     [Manual Mode]
      SYSFAN PWM/DC Voltage Output           255

      CPU Smart Fan 0 Mode                   [Manual Mode]
      CPUFAN0 PWM/DC Voltage Output          255

      FAN Step down Time                     10
      FAN Step up Time                       10

                                                             →←: 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 :

SYS Smart Fan Mode	Manual Mode	Default
	Thermal Cruise Mode	
	Fan Speed Cruise Mode	
SYS Smart Fan Mode Select		
SYSFAN PWM/DC Voltage Output	0~255	Default : 255
Input expect PWM Output Value(Range:0 – 255)		

CPU Smart Fan 0 Mode	Manual Mode	Default
	Thermal Cruise Mode	
	Fan Speed Cruise Mode	
	SMART FAN III Mode	
CPU Smart Fan 0 Mode Select		
CPUFAN0 PWM/DC Voltage Output	0~255	Default : 255
Input expect PWM Output Value(Range: 0 – 255) It's also the Fan Output initial value in Smart Fan III Mode		
FAN Step down Time	Time	Default : 10
FAN Step down time value, unit is 0.1, default is 1 second		
FAN Step up Time	Time	Default: 10
FAN Step up time		

Dynamic Digital IO(Default Disabled)

```
          Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
     Advanced

 Dynamic Digital IO                                    Enable or Disable Dynamic
                                                       Digital IO support
 Dynamic Digital IO Support          [Disabled]




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


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```

Dynamic Digital IO(Enabled)

```
              Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
        Advanced

  Dynamic Digital IO                                        Dynamic Digital IO
                                                            Configuration
  Dynamic Digital IO Support            [Enabled]
▶ Dynamic Digital IO Configuration




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



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```

Options Summary :

Dynamic Digital IO Configuration	Dynamic Digital IO Configuration

Dynamic Digital IO Configuration

```
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      Advanced

   DIO0 Direction            [Input]               Set Digital IO as Input or
   DIO1 Direction            [Input]               Output
   DIO2 Direction            [Input]
   DIO3 Direction            [Input]

   DIO4 Direction            [Output]
     Output Level            [Hi]
   DIO5 Direction            [Output]
     Output Level            [Hi]
   DIO6 Direction            [Output]
     Output Level            [Hi]
   DIO7 Direction            [Output]
     Output Level            [Hi]

                                                   →←: 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 :

DIO0 Direction	Input	Default
	Output	
Set Digital IO as Input or Output		
DIO1 Direction	Input	Default
	Output	
Set Digital IO as Input or Output		
DIO2 Direction	Input	Default
	Output	
Set Digital IO as Input or Output		

DIO3 Direction	Input	Default
	Output	
Set Digital IO as Input or Output		
DIO4 Direction	Input	
	Output	Default
Set Digital IO as Input or Output		
DIO5 Direction	Input	
	Output	Default
Set Digital IO as Input or Output		
DIO6 Direction	Input	
	Output	Default
Set Digital IO as Input or Output		
DIO7 Direction	Input	
	Output	Default
Set Digital IO as Input or Output		
Output Level	Hi	Default
	Low	
Set Digital IO Output as Hi or Low		

S5 RTC Wake Settings

```
          Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
      Advanced

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




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


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```

Options Summary :

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

Setup submenu: Chipset

```
                Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
      Main  Advanced  Chipset  Boot  Security  Save & Exit

  ▶ System Agent (SA) Configuration                        System Agent (SA) Parameters
  ▶ PCH-IO Configuration




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


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```

Options Summary :

System Agent (SA) Configuration	System Agent (SA) Parameters
PCH-IO Configuration	PCH Parameters

System Agent (SA) Configuration

```
                Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
                     Chipset

     Memory Information                                  Configure PEG0 B0:D1:F0
                                                         Gen1-Gen3
     Memory Frequency            1333 Mhz
     Total Memory                4096 MB (DDR3)
     DIMM#0                      Not Present
     DIMM#2                      4096 MB (DDR3)

       PEG0 - Gen X              [Auto]

   ▶ Graphics Configuration

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

                Version 2.15.1226. Copyright (C) 2012 American Megatrends, Inc.
```

Options Summary :

Graphics Configuration	Configure PEGO B0:D1:F0 Fen1-Gen3

Graphics Configuration

```
              Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
                Chipset
  ┌──────────────────────────────────────────────────────────┬─────────────────────────────┐
  │ Graphics Configuration                                     │ Select which of IGFX/PEG/PCI│
  │                                                            │ Graphics device should be   │
  │ Primary Display                   [Auto]                   │ Primary Display Or select SG│
  │ Internal Graphics                 [Auto]                   │ for Switchable Gfx.         │
  │ DVMT Pre-Allocated                [64M]                    │                             │
  │ DVMT Total Gfx Mem                [MAX]                    │                             │
  │                                                            │                             │
  │ Primary IGFX Boot Display         [VBIOS Default]          │                             │
  │                                                            │                             │
  │                                                            │                             │
  │                                                            │                             │
  │                                                            │─────────────────────────────│
  │                                                            │ ++: Select Screen           │
  │                                                            │ ↑↓: Select Item             │
  │                                                            │ Enter: Select               │
  │                                                            │ +/-: Change Opt.            │
  │                                                            │ F1: General Help            │
  │                                                            │ F2: Previous Values         │
  │                                                            │ F3: Optimized Defaults      │
  │                                                            │ F4: Save & Exit             │
  │                                                            │ ESC: Exit                   │
  │                                                            │                             │
  └──────────────────────────────────────────────────────────┴─────────────────────────────┘
              Version 2.15.1226. Copyright (C) 2012 American Megatrends, Inc.
```

Options 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	

	Disabled	
	Enabled	
Keep IGD enabled based on the setup options.		
DVMT Pre-Allocated	32M	
	64M	Default
	96M	
	128M	
	160M	
	192M	
	224M	
	256M	
	288M	
	320M	
	352M	
	384M	
	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.

Primary IGFX Boot Display	VBIOS Default	Default
	CRT	
	DVI	

Select the Video Device which will be activated during POST. This has no effect if external graphics present.

Secondary boot display selection will appear based on your selection.

VGA modes will be supported only on primary display

PCH-IO Configuration

```
          Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
              Chipset

   Power Mode                         [ATX Type]              Select power supply mode.

 ▶ PCI Express Configuration
 ▶ PCH Azalia Configuration

   Onboard LAN 1                      [Enabled]
   Onboard LAN 2                      [Enabled]

   RI# Wake                           [Enabled]
   PCIE Ports 0-3 Configuration       [Four x1 Ports]

                                                             ↔: 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 :

Power Mode	ATX Type	Default
	AT Type	
Select power supply mode.		
PCI Express Configuration	PCI Express Configuration settings	
PCH Azalia Configuration	PCH Azalia Configuration settings.	
Onboard LAN 1	Disabled	Default
	Enabled	

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En/Disable Onboard LAN 1 (RTL8111E)		
Onboard LAN 2	Disabled	
	Enabled	Default
En/Disable Onboard LAN 2 (RTL8111E)		
RI# Wake	Disabled	
	Enabled	Default
For En/Disable Ring In wake up function. Attention please, when this function is enabled, some devices which connect to Serial Port may cause the system auto wake up from sleep mode.		
PCIE PORTS 0-3 Configuration	Four x1 Ports	Default
	One x4 Port	
To configure PCI-E Port 0-3 of PCH as four x1 slots or one x4 slot. Step: 1. Change the option and save, system will issue special beep during next boot. 2. When user hear the special beep, please shutdown system and remove AC power cord. 3. Plug-in AC power cord and power on the system will set to the mode that user		

PCI Express Configuration

```
                Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
                Chipset

   PCI Express Configuration                                     Control the PCI Express Root
                                                                 Port.
   PCI Express Root Port 1            [Enabled]
   PCIe Speed                         [Auto]

   PCI Express Root Port 2            [Enabled]
   PCIe Speed                         [Auto]

   PCI Express Root Port 3            [Enabled]
   PCIe Speed                         [Auto]

   PCI Express Root Port 4            [Enabled]
   PCIe Speed                         [Auto]
                                                                 →←: Select Screen
                                                                 ↑↓: Select Item
                                                                 Enter: Select
                                                                 +/–: Change Opt.
                                                                 F1: General Help
                                                                 F2: Previous Values
                                                                 F3: Optimized Defaults
                                                                 F4: Save & Exit
                                                                 ESC: Exit

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```

Options Summary :

PCI Express Root	Disabled	
Port 1	Enabled	Default
Control the PCI Express Root Port.		
PCIe Speed	Auto	
	Gen 1	
	Gen 2	
Select PCI Express port speed.		
PCI Express Root	Disabled	
Port 2	Enabled	Default

Control the PCI Express Root Port.

PCIe Speed	Auto	
	Gen 1	
	Gen 2	

Select PCI Express port speed.

PCI Express Root Port 3	Disabled	
	Enabled	Default

Control the PCI Express Root Port.

PCIe Speed	Auto	
	Gen 1	
	Gen 2	

Select PCI Express port speed.

PCI Express Root Port 4	Disabled	
	Enabled	Default

Control the PCI Express Root Port.

PCIe Speed	Auto	
	Gen 1	
	Gen 2	

Select PCI Express port speed.

PCH Azalia Configuration

```
          Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
            Chipset

  PCH Azalia Configuration                          Control Detection of the
                                                    Azalia device.
  Azalia                         [Auto]             Disabled = Azalia will be
                                                    unconditionally disabled
                                                    Enabled = Azalia will be
                                                    unconditionally Enabled
                                                    Auto = Azalia will be enabled
                                                    if present, disabled otherwise.



                                                    →←: 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 :

Azalia	Disabled	
	Enabled	
	Auto	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 otherwise.		

Setup submenu: Boot

Boot Option Priorities

```
          Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
                    Boot

   Boot Option #1                    [Skymedi USB3_Pen_Dr...]    Sets the system boot order




                                                                →←: 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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```
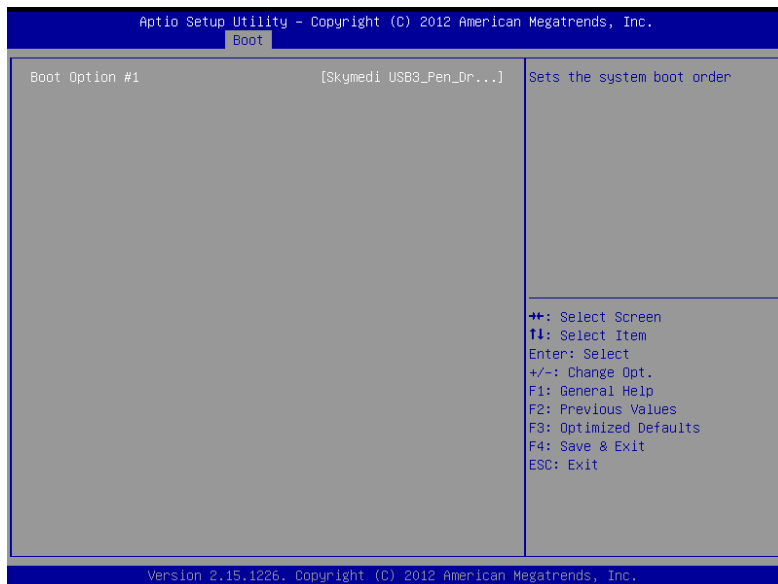
Options Summary :

Boot Option #X	Your device	
	Your device	
Sets the system boot order		

Setup submenu: Security

```
              Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
   Main  Advanced  Chipset  Boot  Security  Save & Exit

   Password Description                              Set Administrator Password

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



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```

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
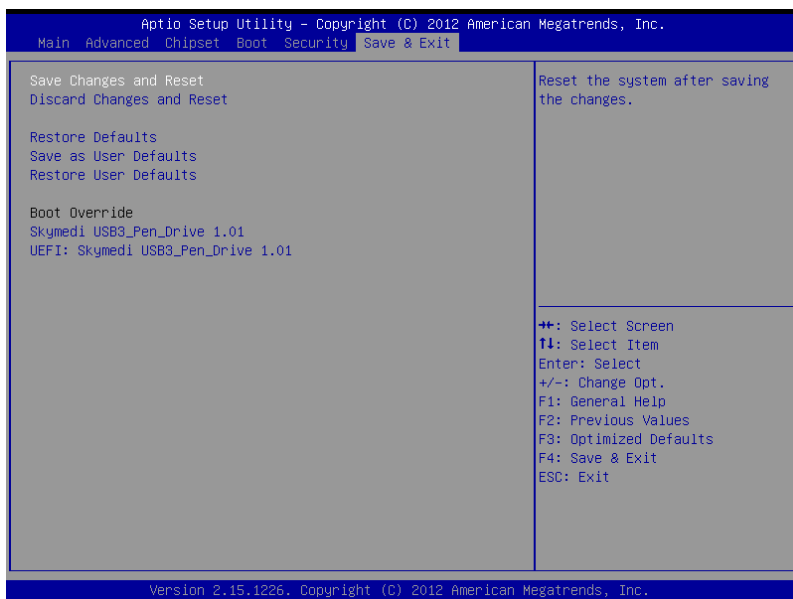
Chapter

4

Driver Installation

The FSB-B75H comes with a DVD-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 USB3.0 Driver

Step 6 – Install AHCI Driver

Step 7 – Install ME Driver

4.1 Installation:

Insert the FSB-B75H 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 *infinst_autol_9.3.0.1021.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-VGA* 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

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 *Step 4-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 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 AHCI Driver

Please refer to the Appendix D AHCI Settings

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 Programming

FSB-B75H utilizes W83627DHG chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEON intial watchdog timer program is also attached based on which you can develop customized program to fit your application.

Configuring Sequence Description

```
┌─────────────────────────┐
│   Unlock W83627DHG      │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│    Select register of   │
│     watchdog timer      │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│   Enable the function of│
│     the watchdog timer  │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│   Use the function of the│
│      watchdog timer     │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│     Lock W83627DHG      │
└─────────────────────────┘
```
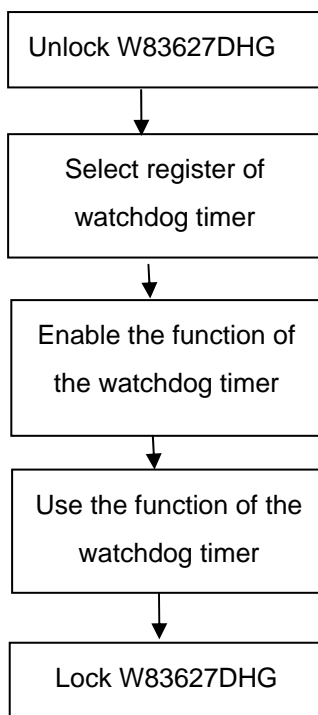
There are three steps to complete the configuration setup:

>   (1) Enter the W83627DHG config Mode

>   (2) Modify the data of configuration registers

(3) Exit the W83627DHG config Mode. Undesired result may occur if the config Mode is not exited normally.

(1) Enter the W83627DHG config Mode

To enter the W83627DHG config Mode, two 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 two write operations to the Special Address port (2EH). The different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h,87h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the config 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 W83627DHG config Mode

The exit key is provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
0aah:	2Eh	2Fh

CR 30h. (Default 02h)

BIT	READ/WRITE	DESCRIPTION
7~3	Reserved.	
2	R/W	0: GPIO6 is inactive.　　1: GPIO6 is active.

1	R/W	0: GPIO5 is inactive. 1: GPIO5 is active.
0	R/W	0: WDTO# and PLED are inactive. 1: WDTO# and PLED are inactive.

CR F5h. (WDTO# and KBC P20 Control Mode Register; Default 00h)

BIT	READ/WRITE	DESCRIPTION
7~5	Reserved.	
4	R/W	1000 time faster in WDTO# count mode. 0: Disable. 1: Enable. (If bit-3 is Second Mode, the count mode is 1/1000 Sec.) (If bit-3 is Minute Mode, the count mode is 1/1000 Min.)
3	R/W	Select WDTO# count mode. 0: Second Mode. 1: Minute Mode.
2	R/W	Enable the rising edge of KBC reset (P20) to issue time-out event. 0: Disable. 1: Enable.
1	R/W	Disable/ Enable the WDTO# output low pulse to the KBRST# pin (PIN60) 0: Disable. 1: Enable.
0	Reserved.	

CR F6h. (WDTO# Counter Register; Default 00h)

BIT	READ/WRITE	DESCRIPTION
7~0	R/W	Watch Dog Timer Time-out value. Writing a non-zero value to this register causes the counter to load the value to Watch Dog Counter and start counting down. If bits 7 and 6 of CR F7h are set, any Mouse Interrupt or Keyboard Interrupt event will also cause the reload of previously-loaded non-zero value to Watch Dog Counter and start counting down. Reading this resigter returns current value in Watch Dog Counter instead of Watch Dog Timer Time-out value. 00h: Time-out Disable

		01h: Time-out occurs after 1 second/minute 02h: Time-out occurs after 2 second/minutes 03h: Time-out occurs after 3 second/minutes ……………………………………………….. FFh: Time-out occurs after 255 second/minutes

CR F7h. (WDTO# Control & Status Register; Default 00h)

BIT	READ/WRITE	DESCRIPTION
7	R/W	Mouse interrupt reset watch-dog timer enable 0: Watchdog timer is not affected by mouse interrupt. 1: Watchdog timer is reset by mouse interrupt.
6	R/W	Keyboard interrupt reset watch-dog timer enable 0: Watchdog timer is not affected by keyboard interrupt. 1: Watchdog timer is reset by keyboardd interrupt.
5	Write "1" Only	Trigger WDTO# event. This bit is self-clearing.
4	R/W Write"0"Clear	WDTO# status bit 0: Watchdog timer is running. 1: Watchdog timer issue time-out event.
3~0	R/W	These bits select IRQ resource for WDTO#. (02h for SMI# event.)

A.2 W83627DHG Watchdog Timer Initial Program

	LDN	Register	Bit	Description
WDT Timer value	0x07	0xF6	Bit [7-0]	00h: Time-out Disable 01h: Time-out occurs after 1 minute only. 02h: Time-out occurs after 2 second/minutes 03h: Time-out occurs after 3 second/minutes ……………………....................................... FFh: Time-out occurs after 255 second/minutes (The deviation is approx 1 second.)
WDT Unit	0x07	0xF5	Bit3	Select WDTO# count mode. 0: Second Mode. 1: Minute Mode.

```
****************************************************************************************
#include <stdio.h>
#include <conio.h>

#define SIOIndex    0x2E   //Modify for project support 2E/4E
#define SIOData     0x2F   //Modify for project support 2F/4F
#define void AaeonWDTConfig(void);
#define void AaeonWDTEnable(Byte Timer, boolean Unit);

void Main(){
    // Procedure : AaeonWDTConfig
    // This procudure will enable the WDT counting.
    AaeonWDTConfig (void);

    // Procedure : AaeonWDTEnable
    // (byte)Timer       : Time of WDT timer.(0x00~0xFF)
    // (boolean)Unit     : Select time unit(0: second, 1: minute).
    AaeonWDTEnable(Byte Timer, boolean Unit);
}
```

```
**********************************************************************************
// Procedure : AaeonWDTConfig
   void AaeonWDTConfig (void){
        Byte val;
        //Super I/O Entry Key
        outportb(SIOIndex,0x87);
        outportb(SIOIndex,0x87);

        //Setting WDT Pin.
        outportb(SIOIndex,0x2D);
        val = inportb((SIOData);
        outportb(SIOIndex,0x2D);
        outportb(SIOData,val & 0xFE);

        // Enable WatchDog function
        outportb(SIOIndex,0x07);
        outportb(SIOData,0x08);
        outportb(SIOIndex,0x30);
        outportb(SIOData, 0x01);
        }
  **********************************************************************************
**
```

```
****************************************************************************
// Procedure :
void AaeonWDTEnable (Byte Timer, boolean Unit){
       Byte val;

       //Super I/O Entry Key
       outportb(SIOIndex,0x87);
       outportb(SIOIndex,0x87);

       // Select Logic Device Number Register
       outportb(SIOIndex,0x07);
       outportb(SIOData,0x08);

       // Setting WDT Operation Mode
       outportb(SIOIndex,0xF5);
       val = inportb((SIOData);
       outportb(SIOIndex,0xF5);
       outportb(SIOData, val | Unit << 3 );

       // Setting WDT Counter
       outportb(SIOIndex,0xF6);
       outportb(SIOData,Timer);
       }
****************************************************************************
```

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 - 000000FF] Numeric data processor
[000002F8 - 000002FF] Communications Port (COM2)
[00000378 - 0000037F] Printer Port (LPT1)
[000003B0 - 000003BB] Intel(R) HD Graphics 4000
[000003C0 - 000003DF] Intel(R) HD Graphics 4000
[000003F0 - 000003F5] Standard floppy disk controller
[000003F7 - 000003F7] Standard floppy disk controller
[000003F8 - 000003FF] Communications Port (COM1)
[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
[00000A00 - 00000A0F] Motherboard resources
[00000D00 - 0000FFFF] PCI bus
[00001000 - 0000100F] Motherboard resources
[0000164E - 0000164F] Motherboard resources
[0000D000 - 0000D0FF] Realtek PCIe GBE Family Controller
[0000D000 - 0000DFFF] Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 8 - 1E1E
[0000E000 - 0000E0FF] Realtek PCIe GBE Family Controller #2
[0000E000 - 0000EFFF] Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 7 - 1E1C
[0000F000 - 0000F03F] Intel(R) HD Graphics 4000
[0000F040 - 0000F05F] Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
[0000F060 - 0000F07F] Intel(R) 7 Series/C216 Chipset Family SATA AHCI Controller - 1E02
[0000F080 - 0000F083] Intel(R) 7 Series/C216 Chipset Family SATA AHCI Controller - 1E02
[0000F090 - 0000F097] Intel(R) 7 Series/C216 Chipset Family SATA AHCI Controller - 1E02
[0000F0A0 - 0000F0A3] Intel(R) 7 Series/C216 Chipset Family SATA AHCI Controller - 1E02
[0000F0B0 - 0000F0B7] Intel(R) 7 Series/C216 Chipset Family SATA AHCI Controller - 1E02
[0000FFFF - 0000FFFF] Motherboard resources
[0000FFFF - 0000FFFF] Motherboard resources

B.2 1st MB Memory Address Map

```
▲ ▥ Memory
    �=== [000A0000 - 000BFFFF]  Intel(R) HD Graphics 4000
    ▝▀ [000A0000 - 000BFFFF]  PCI bus
    ▝▀ [000D0000 - 000D3FFF]  PCI bus
    ▝▀ [000D4000 - 000D7FFF]  PCI bus
    ▝▀ [000D8000 - 000DBFFF]  PCI bus
    ▝▀ [000DC000 - 000DFFFF]  PCI bus
    ▝▀ [000E0000 - 000E3FFF]  PCI bus
    ▝▀ [000E4000 - 000E7FFF]  PCI bus
    ▝▀ [20000000 - 201FFFFF]  System board
    ▝▀ [40004000 - 40004FFF]  System board
    ▝▀ [DFA00000 - DFA00FFF]  Motherboard resources
    ▝▀ [DFA00000 - FEAFFFFF]  PCI bus
    ▝▀ [E0000000 - EFFFFFFF]  Intel(R) HD Graphics 4000
    ▝▀ [F0000000 - F0003FFF]  Realtek PCIe GBE Family Controller
    ▝▀ [F0000000 - F00FFFFF]  Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 8 - 1E1E
    ▝▀ [F0100000 - F0103FFF]  Realtek PCIe GBE Family Controller #2
    ▝▀ [F0100000 - F01FFFFF]  Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 7 - 1E1C
    ▝▀ [F7800000 - F7BFFFFF]  Intel(R) HD Graphics 4000
    ▝▀ [F7C00000 - F7C00FFF]  Realtek PCIe GBE Family Controller
    ▝▀ [F7C00000 - F7CFFFFF]  Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 8 - 1E1E
    ▝▀ [F7D00000 - F7D00FFF]  Realtek PCIe GBE Family Controller #2
    ▝▀ [F7D00000 - F7DFFFFF]  Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 7 - 1E1C
    ▝▀ [F7E00000 - F7E0FFFF]  Intel(R) USB 3.0 eXtensible Host Controller
    ▝▀ [F7E11000 - F7E110FF]  Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
    ▝▀ [F7E12000 - F7E127FF]  Intel(R) 7 Series/C216 Chipset Family SATA AHCI Controller - 1E02
    ▝▀ [F7E13000 - F7E133FF]  Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26
    ▝▀ [F7E14000 - F7E143FF]  Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D
    ▝▀ [F7E16000 - F7E1600F]  Intel(R) Management Engine Interface
    ▝▀ [F8000000 - FBFFFFFF]  Motherboard resources
    ▝▀ [FED00000 - FED003FF]  High precision event timer
    ▝▀ [FED10000 - FED17FFF]  Motherboard resources
    ▝▀ [FED18000 - FED18FFF]  Motherboard resources
    ▝▀ [FED19000 - FED19FFF]  Motherboard resources
    ▝▀ [FED1C000 - FED1FFFF]  Motherboard resources
    ▝▀ [FED20000 - FED3FFFF]  Motherboard resources
    ▝▀ [FED40000 - FED44FFF]  System board
    ▝▀ [FED45000 - FED8FFFF]  Motherboard resources
    ▝▀ [FED90000 - FED93FFF]  Motherboard resources
    ▝▀ [FEE00000 - FEEFFFFF]  Motherboard resources
    ▝▀ [FF000000 - FFFFFFFF]  Intel(R) 82802 Firmware Hub Device
    ▝▀ [FF000000 - FFFFFFFF]  Motherboard resources
```

B.3 IRQ Mapping Chart

```
Interrupt request (IRQ)
    (ISA) 0x00000000 (00)    System timer
    (ISA) 0x00000003 (03)    Communications Port (COM2)
    (ISA) 0x00000004 (04)    Communications Port (COM1)
    (ISA) 0x00000006 (06)    Standard floppy disk controller
    (ISA) 0x00000008 (08)    System CMOS/real time clock
    (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) 0x0000000F (15)    Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
(PCI) 0x00000010 (16)    Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D
(PCI) 0x00000010 (16)    Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10
(PCI) 0x00000010 (16)    Intel(R) Management Engine Interface
(PCI) 0x00000012 (18)    Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 7 - 1E1C
(PCI) 0x00000013 (19)    Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 8 - 1E1E
(PCI) 0x00000013 (19)    Intel(R) 7 Series/C216 Chipset Family SATA AHCI Controller - 1E02
(PCI) 0x00000017 (23)    Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26
(PCI) 0xFFFFFFFB (-5)    Realtek PCIe GBE Family Controller
(PCI) 0xFFFFFFFC (-4)    Realtek PCIe GBE Family Controller #2
(PCI) 0xFFFFFFFD (-3)    Intel(R) USB 3.0 eXtensible Host Controller
(PCI) 0xFFFFFFFE (-2)    Intel(R) HD Graphics 4000
```

B.4 DMA Channel Assignments

```
Direct memory access (DMA)
    2   Standard floppy disk controller
    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		
SATA1	SATA Connector	TECHBEST	161S01-029A-L	SATA Cable	1709070800
SATA2	SATA Connector	TECHBEST	161S01-025A	SATA Cable	1709070800
SATA3	SATA Connector	TECHBEST	161S01-025A	SATA Cable	1709070800
LPT1	Parallel Port Connector	Catch Electronics	1147-000-26S	LPT Cable	1701260307
FP1	Front Panel Connector	JIH VEI Electronics	21B22564-XXS 10B-01G-6/3-V XX		N/A
FP2	Front Panel Connector	JIH VEI Electronics	21B22564-XXS 10B-01G-6/3-V XX		N/A
USB1	USB 3.0 Connector	PINREX	52X-40-20GV52		NA
USB2	USB Connector	JIH VEI Electronics	21B22564-10S1 0B-01G-6/3-V10	USB Cable	1709100204
USB4	USB Connector	HO-BASE	KS-001V-ANW		NA
USB5	USB 3.0 Connector	PINREX	52X-40-20GV52		NA
USB6	USB Connector	HO-BASE	KS-001V-ANW		NA
COM1	COM Port Connector	Catch Electronics	1147-000-10S	Serial Port Cable	1701100305
COM2	COM Port Connector	Catch Electronics	1147-000-10S	Serial Port Cable	1701100305
DIO1	DIO Port Connector	Catch Electronics	1147-000-10S		N/A

CPU_FAN	FAN Connector	Catch Electronics	1190-700-042		N/A
SYS_FAN1	FAN Connector	Catch Electronics	1190-700-042		N/A
DIMM1	DDR3 204PIN SKT	KORTAK	AR240H-101B-A0H		N/A
DIMM2	DDR3 204PIN SKT	KORTAK	AR240H-101B-A0H		N/A
FDD1	Floppy Connector	Catch Electronics	1137-000-34SA		NA
DVI1	DVI-I Connector	KORTAK	9D0290-08SC-00H		NA
VGA1	VGA Connector	Astron	HDLH-B15-CFHN1T-1-R		NA
LAN1	LAN Connector	UDE	RDA-1A5BAK1A		NA
LAN2	LAN Connector	UDE	RDA-1A5BAK1A		NA
CN5	CFast Connector	3M	N7G24-A0B2RA-10-0HT-DY		NA

Appendix

D

AHCI Settings

D.1 Setting AHCI

OS Installation to Setup AHCI mode

Step 1: Copy the files below from the **Driver CD: Step 6 -**

AHCI\Driver\winxp_32 or **winxp_64** to Disk.

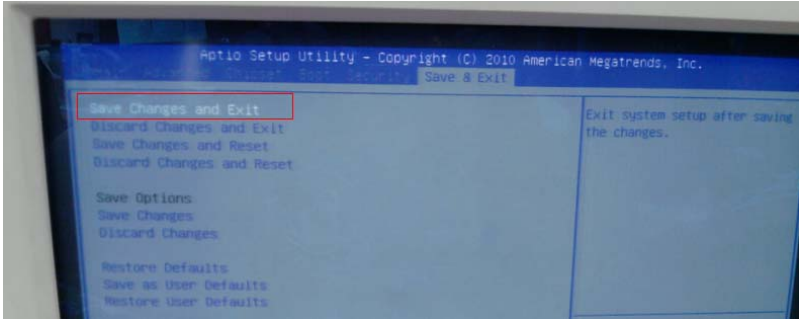Step 2: Connect the USB Floppy Disk with the AHCI files to the

board.
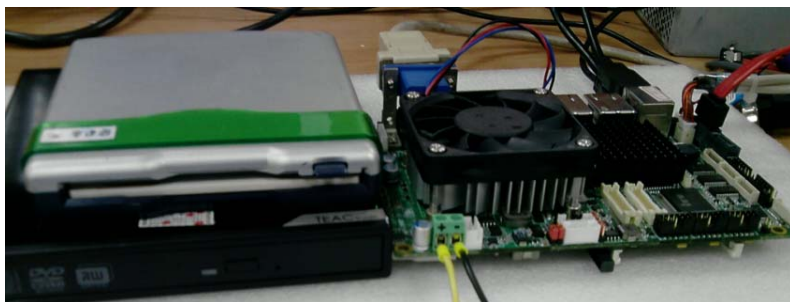
Step 3: To install **"In BIOS Setup Menu"**, select **Advanced** ->
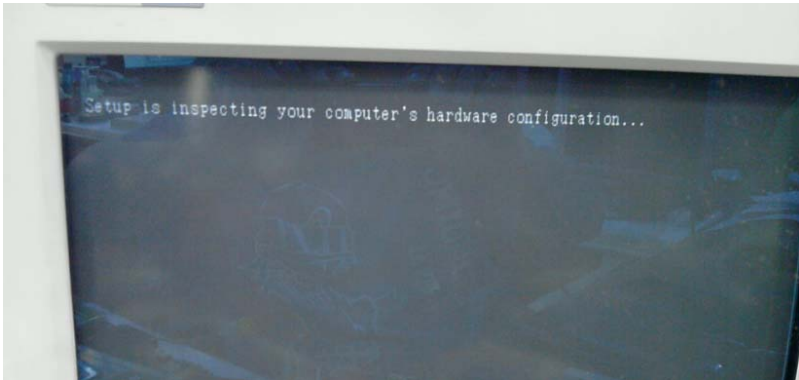**SATA Configuration** -> **SATA Mode Selection** -> **AHCI**
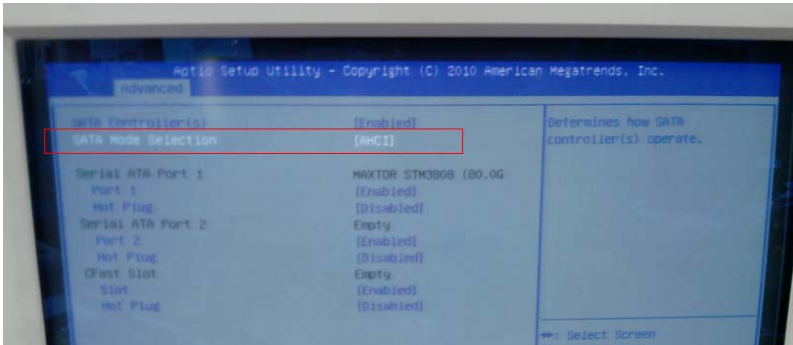
Step 4: Next, select **Boot** -> **Boot Option #1** -> **DVD ROM Type**
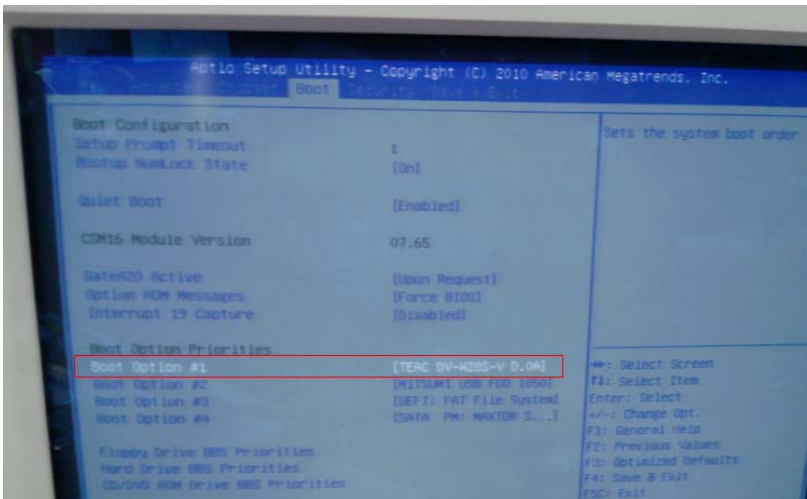
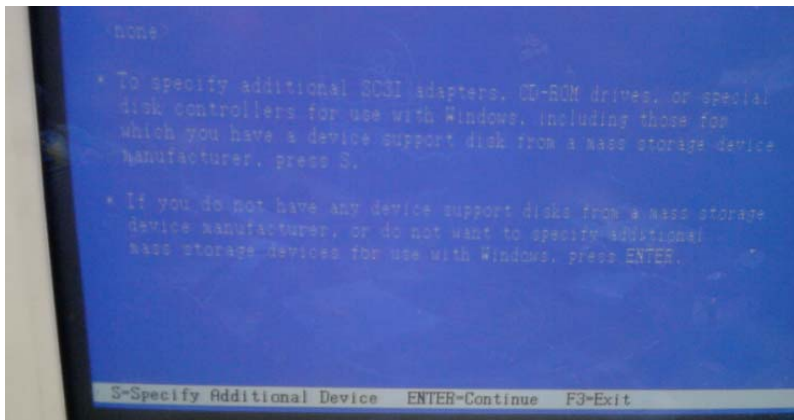Step 5: To save, select **Save & Exit** -> **Save Changes and Exit**

Step 6: Setup OS

Step 7: Press "**F6**"

Press F6 if you need to install a third party SCSI or RAID driver...

Step 8: Choose "**S**"

Step 9:

Mobile

Choose "Intel(R) 7 Series Chipset Family SATA AHCI Controller"

Desktop

Choose "Intel(R) 7 Series/C216 Chipset Family SATA AHCI Controller"

Step 10: Select "ENTER" to choose the model number

Mobile

Desktop

Step 11: Setup is loading files