# HSB-LN2I

Intel<sup>®</sup> Atom<sup>™</sup> D525/N455 Processor

ISA Expansion Half-size SBC

Two 204-pin DDR3 667/800 SODIMM

3 SATA 3.0 Gb/s/ 1 IDE/ 1 CompactFlash™

5 USB2.0/ 2 COM/ 1 VGA/ 1 LVDS

HSB-LN2I Manual 2nd Ed. September 18, 2014

# **Copyright Notice**

This document is copyrighted, 2014. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEON assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

AAEON reserves the right to make changes in the product design without notice to its users.

# Acknowledgments

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

- AMI is a trademark of American Megatrends Inc.
- CompactFlash<sup>™</sup> is a trademark of the Compact Flash Association.
- Intel<sup>®</sup>, and Atom<sup>TM</sup> are trademarks of Intel<sup>®</sup> Corporation.
- Microsoft Windows<sup>®</sup> is a registered trademark of Microsoft Corp.
- ITE is a trademark of Integrated Technology Express, Inc.
- IBM, PC/AT, PS/2, and VGA are trademarks of International Business Machines Corporation.
- SoundBlaster is a trademark of Creative Labs, Inc.

All other product names or trademarks are properties of their respective owners.

# **Packing List**

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

- 1 ATA100 Cable
- 1 USB Cable
- 1 Keyboard & Mouse Cable
- 1 Serial + Parallel Cable
- 1 Serial Cable
- 3 SATA Cables
- 1 Product CD (manual in PDF format and drivers)
- 1 HSB-LN2I CPU Card

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

# Contents

### **Chapter 1 General Information**

1.1 Introduction1	1-2
1.2 Features 1	1-3
1.3 Specification	1-4

2.1 Safety Precautions	. 2-2
2.2 Location of Connectors and Jumpers	. 2-3
2.3 Mechanical Drawing	. 2-5
2.4 List of Jumpers	. 2-7
2.5 List of Connectors	. 2-8
2.6 Setting Jumpers	. 2-10
2.7 CF Selection (JP1)	. 2-11
2.8 LCD Panel Voltage Selection (JP2)	. 2-11
2.9 LCD Backlight Voltage Selection (JP3)	. 2-11
2.10 LCD Backlight Inverter VCC Selection (JP3)	. 2-12
2.11 Clear CMOS (JP4)	. 2-12
2.12 Auto Power Button Selection (JP5)	. 2-12
2.13 Front Panel Connector (FP1)	. 2-13
2.14 Front Panel Connector (FP2)	. 2-13
2.15 VGA Connector (VGA1)	. 2-14
2.16 RS-232 Serial Connector (COM1)	. 2-15
2.17 RS-232/485/422 Serial Connector (COM2)	. 2-15

2.18 Caseopen Pin Header(CN1)2-1	6
2.19 HD Audio Codec with Realtek ALC888 (Optional)	
Connector (CN2) 2-1	6
2.20 LVDS Connector (CN3)2-1	7
2.21 PS2 Keyboard/Mouse Connector (CN4) 2-1	9
2.22 Keyboard Connector (CN5)2-1	9
2.23 LVDS Inverter/ Backlight Connector (CN6)2-2	0
2.24 Realtek LAN (RJ-45) Port (LAN1) 2-2	0
2.25 Realtek LAN (RJ-45) Port (LAN2) 2-2	1
2.26 DDR3 SODIMM Slot (DIMM1) 2-2	2
2.27 DDR3 SODIMM Slot (DIMM2) 2-2	2
2.28 USB2.0 Port 4 and Port 5 (USB1)2-2	2
2.29 USB2.0 Port 2 and Port 3 (USB2)2-2	3
2.30 USB2.0 Port 1 (USB3) 2-2	3
2.31 4-Pin CPU Fan Connector (CPU_FAN1) 2-2	4
2.32 4-Pin SYS Fan Connector (SYS_FAN1) 2-2	4
2.33 4-Pin ATX Power Connector (PCIE_12V1)2-2	5
2.34 Battery Connector (BT1) 2-2	5
2.35 SATA Port 1 (SATA1)2-2	5
2.36 SATA Port 1 (SATA2)2-2	6
2.37 SATA Port 1 (SATA3)2-2	6
2.38 BIOS DEBUG PORT (SPI1)2-2	7
2.39 IDE Connector (IDE1)	8
2.40 Parallel Port Connector (LPT1)2-3	0

Half-size	ѕвс
-----------	-----

# Chapter 3 AMI BIOS Setup

3.1 System Test and Initialization
3.2 AMI BIOS Setup 3-3
Chapter 4 Driver Installation
4.1 Installation 4-3
Appendix A Programming The Watchdog Timer
A.1 ProgrammingA-2
A.2 W83627DHG Watchdog Timer Initial ProgramA-2
Appendix B I/O Information
B.1 I/O Address MapB-2
B.2 Memory Address MapB-3
B.3 IRQ Mapping ChartB-4
B.4 DMA Channel AssignmentsB-6
Appendix C Mating Connector
C.1 List of Mating Connectors and Cables C-2
Appendix D AHCI Setting

D.1 Setting AHCI	)-2
------------------	-----

# Chapter

# General Information

Chapter 1 General Information 1-1

### **1.1 Introduction**

The HSB-LN2I utilizes the Intel<sup>®</sup> Atom<sup>™</sup> D525/N455 and ICH8M chipset, supporting Intel<sup>®</sup> Atom<sup>™</sup> D525 processor with a FSB of 800MHz up to 1.8GHz and Intel<sup>®</sup> Atom<sup>™</sup> N455 processor with a FSB of 533MHz up to 1.66GHz. The HSB-LN2I with D525 supports DDR3 800MT/s SODIMM system memory up to 4 GB. N455 supports DDR3 667MT/s SODIMM system memory up to 2 GB.

This model offers a multitude of I/O including two COM ports and five USB2.0 ports. To meet today's increasing storage demands it also supports three SATA 3.0 Gb/s, one Type 2 CompactFlash<sup>™</sup> to share IDE channel, and one ATA100 sockets. The flexible expansion and storage makes the HSB-LN2I a great solution for your vital applications.

In addition to the comprehensive COM and USB offering the HSB-LN2I can also be configured with two Gigabit Ethernet ports to meet the needs of high bandwidth connectivity. Supporting CRT & LCD simultaneously along with the optional high definition audio board, the HSB-LN2I is an ideal solution for demanding multimedia based applications.

### 1.2 Features

- Intel<sup>®</sup> Atom<sup>™</sup> D525/N455 Processor
- Intel<sup>®</sup> Atom<sup>™</sup> D525/N455 + ICH8M
- 204-Pin DDR3 800 SODIMM, Up to 4 GB (D525); DDR3 667 SODIMM, Up to 2 GB (N455)
- Gigabit Ethernet x 2
- Intel<sup>®</sup> Atom<sup>™</sup> D525/N455 Integrated VGA, Shared Memory Up To 324MB With DVMT4.0.
- Optional HD Codec Audio Daughter Board
- SATA 3.0Gb/s x 3, CompactFlash™ Type 2 x 1, ATA100 x 1
- USB2.0 x 5, RS-232/422/485 x 1, RS-232 x 1, Parallel x 1
- ISA Expansion
- +5V, +12V Operation, AT Power

**<u>Note</u>:** HSB-LN2I has to be operated with an ISA backplane to supply +5V, +12V, and -12V power inputs to make COM1 work functionally.

### **1.3 Specification**

System			
•	Form Factor	ISA Half-size Board	
•	CPU	Onboard Intel <sup>®</sup> Atom™ D525	
		Processor up to 1.8GHz with a 1	
		MB L2 cache; Onboard Intel®	
		Atom™ N455 Processor up to	
		1.66GHz with a 512KB L2 cache	
•	System Memory	Two 204-pin DDR3 800 SODIMM,	
		up to 4GB (D525); DDR3 667	
		SODIMM, up to 2GB (N455)	
•	Chipset	Intel <sup>®</sup> Atom™D525/N455 + Intel <sup>®</sup>	
		ICH8M	
•	Ethernet	Realtek RTL 8111E x 2,	
		Gigabit Ethernet, RJ-45 x 2	
•	Audio (Optional	HD Audio Codec with Realtek	
	Daughter Board)	ALC888	
•	BIOS	AMI Plug & Play SPI BIOS –	
		4 MB ROM	
•	I/O Chip	Winbond 83627DHG-P	
•	Storage	40-pin IDE slot x 1 (Slave), SATA	
		3.0 Gb/s x 3,	
•	SSD	CompactFlash™ Type 2	
		connector, shares IDE channel	

	Half-size SBC	H S B - L N 2 I
		(Master)
•	Watchdog Timer	1~255 steps, can be set with
		software on Super I/O
•	RTC	Internal RTC
•	H/W Status Monitor	Monitoring system temperature,
		voltage, and cooling fan status
•	Battery	Lithium battery
•	Power Requirement	+5V, $\pm$ 12V by ISA bus, onboard
		4-pin power connector (+5V,
		+12V)
	<b>Note:</b> HSB-LN2I has to be operated with an ISA backplane. Normally, onboard 4-pin power connector can supply power (+5\ and +12V) to operate the board. But the COM1 will need +5V a ±12V power supplied through the ISA bus.	
•	Board Size	7.3"(L) x 4.8" (W)
		(185mm x 122mm)
•	Gross Weight	0.71lb (0.3kg)

Gross Weight 0.71lb (0.3kg)
Operating Temperature 32°F~140°F(0°C~60°C)

- Storage Temperature -4°F~158°F(-20°C~70°C)
  - Operating Humidity 10%~80%, non-condensing
  - EMI CE/FCC Class A

### Display

•	Chipset	Intel <sup>®</sup> Atom™D525/ N455 +
		ICH8M
•	Graphic Engine	Intel <sup>®</sup> Atom™D525/ N455 with

	Half-size SBC	H S B - L N 2 I
		integrated Graphics Core
•	Resolutions	D525: Up to 2048x1536 @ 60Hz
		for CRT; 1366x768 @ 60Hz for
		LCD
		N455: Up to 1400x1050 @ 60Hz
		for CRT; 1366x768 @ 60Hz for
		LCD
•	Output Interface	VGA x 1, LVDS x 1
I/O		
•	Serial Port	COM1: RS-232
		COM2: RS-232/422/485
•	Parallel Port	Supports SPP/EPP/ECP mode
•	Keyboard/Mouse	Keyboard/Mouse x 1

- Universal Serial Bus
- Audio
- Ethernet
- Display

- USB2.0 x 5, 5x2-pin header x 2, Type A x 1
- Audio Jack x 2
- RJ-45 x 2
- NJ-45 X Z
- VGA x 1, LVDS x 1



Quick Installation Guide

### 2.1 Safety Precautions



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

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

### **Component Side**



### Solder Side



### 2.3 Mechanical Drawing

### **Component Side**



### Solder Side



### 2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

Label	Function
JP1	CF Selection
JP2	LCD Panel Voltage Selection
JP3	LCD Backlight Voltage Selection LCD Backlight Inverter VCC Selection
JP4	Clear CMOS
JP5	Auto Power Button Selection

### 2.5 List of Connectors

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

Label	Function
FP1	Front Panel Connector 1
FP2	Front Panel Connector 2
VGA1	VGA Port Connector
COM1	RS-232 Serial Connector
COM2	RS-232/485/422 Serial Connector
CN1	Caseopen Pin Header
CN2	HD Audio Codec with Realtek ALC888( Optional ) Connector
CN3	LVDS Connector
CN4	PS2 Keyboard/Mouse Connector
CN5	Keyboard Connector
CN6	LVDS Backlight Connector
LAN1	100/1000Base-TX Ethernet Connector
LAN2	100/1000Base-TX Ethernet Connector
DIMM1	DDR3 SODIMM Slot
DIMM2	DDR3 SODIMM Slot
USB1	USB Connector
USB2	USB Connector
USB3	USB Connector
CPU_FAN1	4-Pin CPU Fan Connector

SYS_FAN1	4-Pin System Fan Connector
PCIE_12V1	4-Pin ATX Power Connector
BT1	Battery Connector
SATA1	SATA Connector
SATA2	SATA Connector
SATA3	SATA Connector
SPI1	BIOS DEBUG PORT
IDE1	IDE Connector
LPT1	Parallel Port 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.



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 CF Selection (JP1)

3	2	1	 3	2	1

Master	Slave
JP1	Function
1-2	Master (Default)
2-3	Slave

### 2.8 LCD Panel Voltage Selection (JP2)

1 • 2 • 3 •	1
+5V	+3.3V (Default)
JP3	Function
	Function
1-2	+5V

### 2.9 LCD Backlight Voltage Selection (JP3)

1		2	1		2
3		4	3		4
5		6	5		6

PWM Mode

Bias Mode (Default)

JP3	Function
1-3	PWM Mode
3-5	Bias Mode (Default)

### 2.10 LCD Backlight Inverter VCC Selection (JP3)

1		2	1		2
3		4	3		4
5		6	5		6

+5V	+12V (Default)	
JP3	Function	
2-4	+5V	
4-6	+12V (Default)	

### 2.11 Clear CMOS (JP4)

3 2 1	3 2 1 
JP4	Function
1-2	Normal (Default)
2-3	Clear CMOS

### 2.12 Auto Power Button Selection (JP5)

<b>123 Disable</b>	123 DDD Enable (Default)
JP5	Function
1-2	Disable
2-3	Enable(Default)

### 2.13 Front Panel Connector (FP1)



Pin	Signal
1	PWR_BTN+
2	H/W RESET+
3	PWR_BTN-
4	H/W RESET-
5	HDD_LED+
6	PWR_LED+
7	HDD_LED-
8	PWR_LED-

### 2.14 Front Panel Connector (FP2)

2	4	6	8
1	3	5	7

Pin	Signal
1	External Speaker (+)
2	Key Board Lock (+)
3	N.C.

4	GND
5	Internal Buzzer (-)
6	I2C Bus SMB Clock
7	External Speaker (-)
8	I2C Bus SMB Data

### 2.15 VGA Connector (VGA1)



Pin	Pin Name	Signal Type	Signal Level
1	RED	OUT	
2	GREEN	OUT	
3	BLUE	OUT	
4	NC		
5	GND	GND	
6	RED_GND_RTN	GND	
7	GREEN_GND_RTN	GND	
8	BLUE_GND_RTN	GND	
9	+5V	PWR	+5V
10	GND	GND	
11	NC		
12	DDC_DATA	I/O	+5V
13	HSYNC	OUT	
14	VSYNC	OUT	

Half-Size SE	ЗС
--------------	----

15	DDC_CLK	I/O	+5V

### 2.16 RS-232 Serial Connector (COM1)



Pin	Pin Name	Signal Type	Signal Level
1	DCD	IN	
2	RXD	IN	
3	TXD	OUT	±9V
4	DTR	OUT	±9V
5	GND	PWR	GND
6	DSR	IN	
7	RTS	OUT	±9V
8	CTS	IN	
9	RI/+5V/+12V	IN/ PWR	+5V/+12V
10	NC	NC	NC

### 2.17 RS-232/485/422 Serial Connector (COM2)

2	4	6	8	10
1	3	5	7	9

Pin	Pin Name	Signal Type	Signal Level
1	DCD(422TXD-/485DATA-)	IN	

HSB-LN2I

2	RXD (422RXD+)	IN	
3	TXD(422TXD+/485DATA+)	OUT	±9V
4	DTR(422RXD-)	OUT	±9V
5	GND	PWR	GND
6	DSR	IN	
7	RTS	OUT	±9V
8	CTS	IN	
9	RI/+5V/+12V	IN/ PWR	+5V/+12V
10	NC	NC	NC

### 2.18 Caseopen Pin Header(CN1)



Pin	Pin Name	Signal Type	Signal Level
1	CASEOPEN#	IN	
2	GND	PWR	GND

### 2.19 HD Audio Codec with Realtek ALC888 (Optional) Connector

### (CN2)

1		2
3		4
5		6
7		8
9		10

Pin	Pin Name	Signal Type	Signal Level
1	RST	IN	
2	SYNC	IN	
3	SDIN	IN	
4	SDOUT	OUT	+3.3V
5	DET	IN	
6	BCLK	IN	
7	RTS	PWR	GND
8	+5V	PWR	+5V
9	NC	NC	NC
10	+3.3V	PWR	+3.3V

### 2.20 LVDS Connector (CN3)



Half-Size	SBC
-----------	-----

HSB-LN2I

LVDS_A_CLK-	DIFF	
LVDS_A_CLK+	DIFF	
LCD_PWR	PWR	+3.3V/+5V
GND	GND	
LVDS_DA0-	DIFF	
LVDS_DA0+	DIFF	
LVDS_DA1-	DIFF	
LVDS_DA1+	DIFF	
LVDS_DA2-	DIFF	
LVDS_DA2+	DIFF	
LVDS_DA3-	DIFF	
LVDS_DA3+	DIFF	
DDC_DATA	I/O	+3.3V
DDC_CLK	I/O	+3.3V
LVDS_DB0-	DIFF	
LVDS_DB0+	DIFF	
LVDS_DB1-	DIFF	
LVDS_DB1+	DIFF	
LVDS_DB2-	DIFF	
LVDS_DB2+	DIFF	
LVDS_DB3-	DIFF	
LVDS_DB3+	DIFF	
LCD_PWR	PWR	+3.3V/+5V
	LVDS_A_CLK- LVDS_A_CLK+ LCD_PWR GND LVDS_DA0- LVDS_DA0- LVDS_DA1- LVDS_DA1- LVDS_DA1+ LVDS_DA2- LVDS_DA2+ LVDS_DA3- LVDS_DA3+ DDC_CLK LVDS_DB0- LVDS_DB0- LVDS_DB0- LVDS_DB1- LVDS_DB1+ LVDS_DB1+ LVDS_DB2- LVDS_DB3- LVDS_DB3+	LVDS_A_CLK-DIFFLVDS_A_CLK+DIFFLCD_PWRPWRGNDGNDLVDS_DA0-DIFFLVDS_DA0+DIFFLVDS_DA1-DIFFLVDS_DA1+DIFFLVDS_DA2-DIFFLVDS_DA2+DIFFLVDS_DA3+DIFFDDC_DATAI/ODDC_CLKI/OLVDS_DB0-DIFFLVDS_DB1+DIFFLVDS_DB1+DIFFLVDS_DB1+DIFFLVDS_DB2+DIFFLVDS_DB3-DIFFLVDS_DB3+DIFF

Half-Size SBC		Half-Size SBC	HSB-LN2I			
_						
	29	LVDS_B_CLK-	DIFF			
-	30	LVDS_B_CLK+	DIFF			
No	Note: LVDS LCD_PWR can be set to +3.3V or +5V by JP2.					

### 2.21 PS2 Keyboard/Mouse Connector (CN4)



Pin	Pin Name	Signal Type	Signal Level
1	KBDATA	IN	
2	NC	NC	
3	GND	GND	
4	VCC	PWR	+5V
5	KBCLK	IN	
6	NC	NC	

### 2.22 Keyboard Connector (CN5)



Pin	Pin Name	Signal Type	Signal Level
1	KBCLK	IN	

Half-Size SBC		H S B - L N 2 I		
2	KBDATA	IN		
3	NC	NC		
4	GND	PWR	GND	
5	VCC	PWR	+5V	

### 2.23 LVDS Inverter/ Backlight Connector (CN6)



Pin	Pin Name	Signal Type	Signal Level
1	BKL_PWR	PWR	+5V / +12V
2	BKL_CONTROL	IN	
3	GND	GND	
4	GND	GND	
5	BKL_ENABLE	OUT	+5V

Note: LVDS1 BKL\_PWR can be set to +5V or +12V by JP3. LVDS1 BKL\_CONTROL can be set by JP3.

### 2.24 Realtek LAN (RJ-45) Port (LAN1)



Pin	Pin Name	Signal Type	Signal Level
1	MDI0+	DIFF	
2	MDI0-	DIFF	
3	MDI1+	DIFF	
4	MDI2+	DIFF	
5	MDI2-	DIFF	
6	MDI1-	DIFF	
7	MDI3+	DIFF	
8	MDI3-	DIFF	

### 2.25 Realtek LAN (RJ-45) Port (LAN2)



Pin	Pin Name	Signal Type Signal Level	
1	MDI0+	DIFF	
2	MDI0-	DIFF	
3	MDI1+	DIFF	
4	MDI2+	DIFF	
5	MDI2-	DIFF	
6	MDI1-	DIFF	
7	MDI3+	DIFF	
8	MDI3-	DIFF	

### 2.26 DDR3 SODIMM Slot (DIMM1)

Standard specification

### 2.27 DDR3 SODIMM Slot (DIMM2)

Standard specification

### 2.28 USB2.0 Port 4 and Port 5 (USB1)

2	4	6	8	10
1	3	5	7	9

Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	GND	PWR	GND
3	USB4_D-	DIFF	
4	GND	PWR	GND
5	USB4_D+	DIFF	
6	USB5_D+	DIFF	
7	GND	PWR	GND
8	USB5_D-	DIFF	
9	GND	PWR	GND
10	+5VSB	PWR	+5V

### 2.29 USB2.0 Port 2 and Port 3 (USB2)

2	4	6	8	10
1	3	5	7	9

Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
2	GND	PWR	GND
3	USB2_D-	DIFF	
4	GND	PWR	GND
5	USB2_D+	DIFF	
6	USB3_D+	DIFF	
7	GND	PWR	GND
8	USB3_D-	DIFF	
9	GND	PWR	GND
10	+5VSB	PWR	+5V

### 2.30 USB2.0 Port 1 (USB3)



Pin	Pin Name	Signal Type	Signal Level
1	+5VSB	PWR	+5V
	Half-Size SBC	HSE	3 - L N 2 I
---	---------------	------	-------------
2	USB2_D-	DIFF	
3	USB2_D+	DIFF	
4	GND	PWR	GND

#### 2.31 4-Pin CPU Fan Connector (CPU\_FAN1)



Pin	Pin Name	Signal Type	Signal Level
1	GND	PWR	GND
2	+12V	PWR	
3	SENSE	IN	
4	CTRL	IN	

#### 2.32 4-Pin SYS Fan Connector (SYS\_FAN1)



Pin	Pin Name	Signal Type	Signal Level
1	GND	PWR	GND
2	+12V	PWR	
3	SENSE	IN	
4	CTRL	IN	

Chapter 2 Quick Installation Guide 2-24

# 2.33 4-Pin ATX Power Connector (PCIE\_12V1)



Pin	Pin Name	Signal Type	Signal Level
1	+12V	PWR	+12V
2	GND	PWR	GND
3	GND	PWR	GND
4	+5V_ATX	PWR	+5V

#### 2.34 Battery Connector (BT1)



Pin	Pin Name	Signal Type	Signal Level
1	VBAT	PWR	+3V
2	GND	PWR	GND

#### 2.35 SATA Port 1 (SATA1)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	

Chapter 2 Quick Installation Guide 2-25

Half-Size SBC		H S B - L N 2 I	
2	SATA_TX0+	DIFF	
3	SATA_TX0-	DIFF	
4	GND	GND	
5	SATA_RX0-	DIFF	
6	SATA_RX0+	DIFF	
7	GND	GND	

#### 2.36 SATA Port 1 (SATA2)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TX1+	DIFF	
3	SATA_TX1-	DIFF	
4	GND	GND	
5	SATA_RX1-	DIFF	
6	SATA_RX1+	DIFF	
7	GND	GND	

# 2.37 SATA Port 1 (SATA3)



Chapter 2 Quick Installation Guide 2-26

Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TX2+	DIFF	
3	SATA_TX2-	DIFF	
4	GND	GND	
5	SATA_RX2-	DIFF	
6	SATA_RX2+	DIFF	
7	GND	GND	

# 2.38 BIOS DEBUG PORT (SPI1)

2	4	6	8
1	3	5	7

Pin	Pin Name	Signal Type	Signal Level
1	+3.3V_SPI	PWR	+3.3V
2	GND	PWR	GND
3	SPI_CE	IN	
4	SPI_CLK	IN	
5	SPI_SO	OUT	+3.3V
6	SPI_SI	IN	
7	SPI_HOLD	IN	
8	NC	NC	

Chapter 2 Quick Installation Guide 2-27

# 2.39 IDE Connector (IDE1)

Pin	Pin Name	Signal Type	Signal Level
1	/RESET	IN	
2	GND	PWR	GND
3	Data 7	I/O	
4	Data 8	I/O	
5	Data 6	I/O	
6	Data 9	I/O	
7	Data 5	I/O	
8	Data 10	I/O	
9	Data 4	I/O	
10	Data 11	I/O	
11	Data 3	I/O	
12	Data 12	I/O	
13	Data 2	I/O	
14	Data 13	I/O	
15	Data 1	I/O	
16	Data 14	I/O	
17	Data 0	I/O	
18	Data 15	I/O	

Chapter 2 Quick Installation Guide 2-28

Half-Size SBC

HSB-LN2I

19	GND	PWR	GND
20	NC	NC	
21	DMA Request	I	
22	GND	PWR	GND
23	Write Strobe	IN	
24	GND	PWR	GND
25	Read Strobe	IN	
26	GND	PWR	GND
27	I/O Ready	OUT	
28	Spindle Sync or Cable Select	IN	
29	DMA Acknowledge		
30	GND	PWR	GND
31	Interrupt Request	OUT	
32	NC		
33	Address 1	IN	
34	Passed Diagnostics		
35	Address 0	IN	
36	Address 2	IN	
37	/IDE_CS0		
38	/IDE_CS1		
39	/ACTIVE	IN	
40	GND	PWR	GND

#### 2.40 Parallel Port Connector (LPT1)

	П	П	П	П	П	П	П	П	П	П	П	П.	Π	
25													□ 1	
26													□ <b>2</b>	
								П	Π			Ц		_

Pin	Pin Name	Signal Type	Signal Level
1	STROBE#	IN	
2	AFD#	I/O	
3	PD0	I/O	
4	ERROR#	IN	
5	PD1	I/O	
6	PRINT#	I/O	
7	PD2	I/O	
8	SLIN#	I/O	
9	PD3	I/O	
10	GND	GND	
11	PD4	I/O	
12	GND	GND	
13	PD5	I/O	
14	GND	GND	
15	PD6	I/O	
16	GND	GND	
17	PD7	I/O	
18	GND	GND	

Chapter 2 Quick Installation Guide 2-30

	Half-Size SBC	HSB-LN2I	
19	ACK#	IN	
20	GND	GND	
21	BUSY	IN	
22	GND	GND	
23	PE	IN	
24	GND	GND	
25	SLCT	IN	
26	NC		

#### **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

	有毒有害物质或元素					
部件名称	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
	(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	(PBDE)
印刷电路板	×				0	0
及其电子组件	^		0	0	0	0
外部信号	~				0	0
连接器及线材	^		0		0	0
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/Ⅰ TI303-2006 标准规定的限重安水以下。						
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 TISOS-2000 你在然正的限里安水。						
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。						

Half-size SBC

# Chapter 3

# AMI BIOS Setup

Chapter 3 AMI BIOS Setup 3-1

#### 3.1 System Test and Initialization

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

#### System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

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

The HSB-LN2I CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

#### 3.2 AMI BIOS Setup

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

Entering Setup

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

#### Main

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

#### Advanced

Enable disable boot option for legacy network devices.

#### Chipset

host bridge parameters.

#### Boot

Enables/disable quiet boot option.

#### Security

Set setup administrator password.

#### Save&Exit

Exit system setup after saving the changes.

# Setup submenu: Main

Main Advance	Aptio Setup Utility – ed Chipset Boot Secu	Copyright (C) 2011 American rity Save & Exit	Megatrends, Inc.
BIOS Informat HSB–LN2I K	ion R1.1(HLNIAM11) (02/14/2	014)	Set the Time. Use Tab to switch between Time elements.
BIOS Vendor Core Version Compliancy System Date System Time		American Megatrends 4.6.4.1 UEFI 2.1 [Fri 02/14/2014] [15:10:46] Administrator	
			<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
	Version 2.14.1219. Co	pyright (C) 2011 American Mu	

#### H S B - L N 2 I

# Setup submenu: Advanced

Aptio Setup Utility – Copyright (C) 2011 American Main <mark>Advanced</mark> Chipset Boot Security Save & Exit	Megatrends, Inc.
<ul> <li>ACPI Settings</li> <li>CPU Configuration</li> <li>IDE Configuration</li> <li>USB Configuration</li> <li>W83627DHG Super IO Configuration</li> <li>W83627DHG HW Monitor</li> <li>Dynamic Digital IO</li> <li>Power Management</li> </ul>	System ACPI Parameters. ++: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American M	egatrends, Inc.

# **ACPI Settings**

Aptio S Advanced	Setup Utility – Copyright	(C) 2011 American	Megatrends, Inc.
ACPI Settings			Select the highest ACPI sleep
ACPI Sleep State		(Auto)]	when the SUSPEND button is pressed.
			<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Versio		C) 2011 American Me	

Options Summary :

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

pressed.

# **CPU** Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2011 American	Megatrends, Inc.
CPU Configuration		Enabled for Windows XP and Linux (OS optimized for
Processor Type EMT64 Processor Speed System Bus Speed Actio Status Actual Ratio System Bus Speed Processor Stepping Microcode Revision	Intel(R) Atom(TM) CPU Supported 1800 MHz 9 9 800 MHz 106ca 263	Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology).
L1 Cache RAM L2 Cache RAM	2x56 k 2x512 k	
Processor Core Hyper-Threading	Dual Supported	↔: Select Screen †↓: Select Item Enter: Select
Hyper-Threading	[Enabled]	+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Co	pyright (C) 2011 American Me	egatrends, Inc.

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.				

# SATA Configuration (IDE)

Aptio Setup Utili Advanced	ty – Copyright (C) 2011 Am	merican Megatrends, Inc.
IDE Configuration		Select ATA or IDE
PATA Master PATA Slave	Not Present Not Present	
SATA PortO SATA Port1 SATA Port2	Not Present Not Present Not Present	
ATA Or IDE Configuration Configure SATA As	[Enhanced] [IDE]	
		++: Select Screen f1: Select Item Enter: Select +/-: Change Ont
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit
		ESC: Exit
Version 2.14.121	9. Copyright (C) 2011 Amer	rican Megatrends, Inc.

# SATA Configuration (AHCI)

Aptio Setup Utilit Advanced	y – Copyright (C) 2011 Americ	an Megatrends, Inc.
IDE Configuration		Select a configuration for
PATA Master	Not Present	
PATA Slave	Not Present	
SATA PortO SATA Port1 SATA Port2	Not Present Not Present Not Present	
ATA Or IDE Configuration Configure SATA As	[Enhanced] [AHCI]	
		++: Select Screen f↓: Select Item Enter: Select
		+/-: Change Opt.
		F1: General Help E2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
Version 2.14.1219	). Copyright (C) 2011 American	Megatrends. Inc.

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

Aptio Setup Uti Advanced	lity – Copyright (C) 2011 Am	merican Megatrends, Inc.
USB Configuration		Enables Legacy USB support.
USB Devices: 1 Drive, 1 Mouse		AUTU option disables legacy support if no USB devices are connected. DISABLE option will keen USB devices available
Legacy USB Support		only for EFI applications.
Mass Storage Devices: TOSHIBA TransMemory PMAP	[Auto]	
		++: Select Screen f1: Select Item Enter: Select +/-: Change Opt, F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1	219. Copyright (C) 2011 Amer	rican Megatrends, Inc.

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.				

# W83627DHG Super IO Configuration

Aptio Setup Utility - Advanced	· Copyright (C) 2011 American	Megatrends, Inc.
W83627DHG Super IO Configuration		Set Parameters of Serial Port
<ul> <li>H836270HG Super IO Chip</li> <li>Serial Port 1 Configuration</li> <li>Serial Port 2 Configuration</li> <li>Parallel Port Configuration</li> </ul>	W83627DHG	0 (CDMA) ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. 0	Copyright (C) 2011 American M	legatrends, Inc.

Serial Port 1	Set Parameters of Serial Port 1 (COMA)
Configuration	
Serial Port 2	Set Parameters of Serial Port 2 (COMB)
Configuration	
Parallel Port	Set Parameters of Parallel Port (LPT/LPTE)
Configuration	

# -Serial Port 1 Configuration



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



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

На	Half-size SBC		H S B - L N 2 I
DC000/400 405	DS0	22	Default
R3232/422,403	ROZ	52	Delault
	RS42	22	
	RS48	35	
RS232/422,485	switch		

# -Parallel Port Configuration



Parallel Port	Disabled		
	Enabled	Default	
Enable or Disable Parallel Port (LPT/LPTE)			
Change Settings	Auto	Default	

Ha	lf-size	SBC

	IO=378h; IRQ=7	
	IO=378h; IRQ=5, 7	
	IO=278h; IRQ=5, 7	
	IO=3BCh; IRQ=5, 7	
Select an optimal setting for Su	per 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 – Advanced	Copyright (C) 2011 American	Megatrends, Inc.
Pc Health Status		Enable or Disable Smart Fan
Smart Fan Function ▶ Smart Fan Mode Configuration		
SYSTIN temperature CPU Temperature	: +41 ℃ : +25 ℃	
System Fan Speed CPU Fan Speed	: N/A : 5113 RPM	
VCORE +1.5V DDR +5V +3.3V +12V AVCC VCC3V VSB3 VBAT	: +1.056 V : +1.512 V : +5.120 V : +3.312 V : +3.312 V : +3.312 V : +3.312 V : +3.312 V : +3.392 V : +3.088 V	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Cr	opyright (C) 2011 American M	egatrends, Inc.

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

# -Smart Fan Mode Configuration

Aptio Setup Utility - Advanced	Copyright (C) 2011 American	Megatrends, Inc.
Smart Fan Mode Configuration		SYS Smart Fan Mode Select
SYS Smart Fan Mode SYSFAN Target Temperature SYSFAN Tolerance of Target Temp	[Thermal Cruise Mode] 50 5	
CPU Smart Fan O Node CPUFANO Target Temperature CPUFANO Tolerance of Target Temp CPUFANO FMK/DC Voltage Output CPUFANO Max Output CPUFANO Output Step	[SMART FAN III Mode] 50 5 255 255 1	
FAN Step down Time FAN Step up Time	10 10	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. C	opyright (C) 2011 American M	egatrends, Inc.

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

Half-size SBC		HSB-	L N 2 I
CPU Smart Fan 0 Mode	Man	ual Mode	Default
	The	rmal Cruise	
	Mod	le	
	Fan	Speed Cruise	
	Mod	le	
	SMA	ART FAN III	
	Mod	le	
CPU Smart Fan 0 Mode Select			
CPUFAN0 PWM/DC Voltage	0~2	55	Default : 255
Output			
Input expect PWM Output Value	(Ran	ige: 0 – 255)	
It's also the Fan Output initial value in Smart Fan III Mode			
FAN Step down Time	Time	9	Default : 10
FAN Step down time value, unit is 0.1, default is 1 second			cond
FAN Step up Time	Time	9	Default: 10
FAN Step up time			

# Dynamic Digital IO Configuration

Advance	Aptio Setup Utility – d	Copyright (C)	2011 American	Megatrends,	Inc.
Advance DI00 Direction DI01 Direction DI02 Direction DI03 Direction Output Level DI05 Direction Output Level DI05 Direction Output Level DI07 Direction Output Level		[Input] [Input] [Input] [Input] [Input] [Output] [Hi] [Output] [Hi] [Output] [Hi] [Hi]		++: Select S T4: Select S T4: Select S T4: Select S Enter: Select +/-: Change F1: General F2: Previous F3: Optimize F4: Save & F ESC: Exit	ID as Input or ID as Input or Screen Item Item Item St Dpt. Help s Values ed Defaults Xit
	Version 2.14.1219. C	opyright (C) 2	011 American M	egatrends. In	10.

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	·	·

H S B - L N 2 I

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

#### **Power Management**

Aptio Setup L Advanced	Jtility – Copyright (C) 2011 Am	erican Megatrends, Inc.
Power Management		Select power supply mode.
Power Mode AC Power Loss State	[ATX Type] [Last State]	
Wake Configuration Resume from RI ▶ S5 RTC Wake Settings	[Enabled]	
		<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt.</pre>
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14	4.1219. Copyright (C) 20 <u>11 Amer</u>	ican Megatrends, Inc.

Power Mode	ATX Type	Default
	АТ Туре	
Select power supply mode.		
AC Power Loss State	Always OFF	
	Always ON	
	Last State	Default
Select AC power state when power is re-applied after a power failure.		
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.

-S5 RTC Wake Settings

Aptio Setup Utility – Advanced	Copyright (C) 2011 American	Megatrends, Inc.
Hake system with Fixed Time Make up day Make up hour Make up minute Make up second	[Enabled] 0 0 0 0	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)	++: Select Screen
		14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Co	opyright (C) 2011 American M	egatrends, Inc.

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			

Half-size SBC	Half-size SBC		H S B - L N 2 I	
Wake system with Dynamic	Dis	abled	Default	
Time	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) 2011 American Main Advanced <mark>Chipset</mark> Boot Security Save & Exit	Megatrends, Inc.
▶ Host Bridge ▶ South Bridge	Host Bridge parameters
	+: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Me	

Host Bridge	System Agent (SA) Parameters
Sourth Bridge	I/O Controller Hub Parameters

### Host Bridge

Aptio Setup Utility - Chipset	Copyright (C) 2011 American	n Megatrends, Inc.
Host Bridge		Intel IGD Configuration
жжжжже Memory Information жжжжже Memory Frequency	800 Mhz	
Total Memory	4096 MB	
DIMM#0 DIMM#1	2048 MB 2048 MB	
▶ Intel IGD Configuration		
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
Version 2.14.1219. Co	opyright (C) 2011 American M	Megatrends, Inc.

Int	el IGD Configuration	Configure Integrated Graphic Settings
	er iod conngulation	Configure integrated Oraphic Dettings

# -Intel IGD Configuration

Aptio Setup Ut Chipset	ility – Copyright (C) 2011 Americ	can Megatrends, Inc.
Intel IGD Configuration IGD - Boot Type LCD Panel Type LVDS Backlight Level LVDS Backlight Type	[VBIOS Default ] [1024x768] [ 80%] [Normal]	Select the Video Device which will be activated during POST. This has no effect if external graphics present.
Version 2.14.	1219. Copyright (C) 2011 America	n Megatrends, Inc.

IGD – Boot Type	VBIOS Default	Default		
	CRT			
	LFP			
	CRT + LFP			
Select the Video Device which will be activated during POST.				
LVDS Panel Type	640x480			
	800x600			
	1024x768	Default		
	800x480			

Half-size SBC		HSB-	
Γ	1		1
	1280	0x1024	
	1280	)x768	
	1366	6x768	
	1280	008x0	
Select LCD panel used by Interr	nal G	raphics Device b	by selecting the
appropriate setup item.			
LVDS Backlight Level	1009	%	
	90%		
	80%		Default
	70%		
	60%	l l	
	50%	l l	
	40%		
	30%	l l	
	20%	l l	
	10%		
	0%		
Select Backlight brightness of LVDS			
LVDS Backlight Type	Norr	nal	Default
	Inve	rted	
Select Backlight Control Type			·
#### H S B - L N 2 I

#### South Bridge

	Aptio Setup Utility - Chipset	Copyright (C) 2011 American	Megatrends, Inc.
South Bridge			HD Audio Controller
HD Audio Cont			
			++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Evit
	Version 2.14.1219. Co	pyright (C) 2011 American M	exatrends, Inc.

Options Summary :

HD Audio Controller	Enabled	
	Disabled	Default
For En/Disable HD Audio Controller.		

#### Setup submenu: Boot

Aptio Setup Utility Main Advanced Chipset Boot Se	– Copyright (C) 2011 American curity Save & Exit	Megatrends, Inc.
Boot Configuration		Enables or disables Quiet Boot
Quiet Boot Launch RTL8111E PXE OpROM	[Enabled] [Disabled]	option
Boot Option Priorities Boot Option #1 Boot Option #2	[UEFI: TOSHIBA Tran] [TOSHIBA TransMemor]	
Hard Drive BBS Priorities		
		↑↓: Select Item Enter: Select
		F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit
		ESU: EXIT
Version 2.14.1219.	Copyright (C) 2011 American M	egatrends, Inc.

Options summary :

Quiet Boot	Disabled	
	Enabled	Default
Enables or disables Quiet Boo	ot option	
Launch RTL8111E PXE	Disabled	Default
OpROM	Enabled	
En/Disable PXE boot for RTL8	B111E LAN	

#### **Boot Option Priorities**

Aptio Setup	Utility – Copyright (C) 2012 Boot	American Megatrends, Inc.
Boot Option #1	[Skymedi USB3_Pen_	_Dr] Sets the system boot order
		++: Select Screen 14: 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 Am	merican Megatrends, Inc.

Options Summary :

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

#### Setup submenu: Security

Aptio Setup Utility – Copyright (C) 2011 American Main Advanced Chipset Boot <mark>Security</mark> Save & Exit	Megatrends, Inc.
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 must be 3 to 20 characters long.	
Administrator Password User Password	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Me	egatrends, Inc.

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.

#### HSB-LN2I

#### Setup submenu: Exit

Aptio Setup Utility — Copyright (C) 2011 American Main Advanced Chipset Boot Security Save & Exit	Megatrends, Inc.
Save Changes and Reset Discard Changes and Reset	Reset the system after saving the changes.
Restore Defaults Save as User Defaults Restore User Defaults	
Boot Override UEFI: TOSHIBA TransMemory PMAP TOSHIBA TransMemory PMAP	
	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
	F4: Save & Exit ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Ma	egatrends, Inc.

# Chapter

### Driver Installation

Chapter 4 Driver Installation 4-1

The HSB-LN2I comes with a CD-ROM that contains all drivers your need.

#### 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 AHCI Driver Step 5 – Install Audio Driver

Please read following instructions for detailed installations.

#### 4.1 Installation:

Insert the HSB-LN2I CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 5 in order.

#### Step 1 – Install Chipset Driver

- 1. Click on the **Step 1 Chipset** folder and then double click on the **infinst\_autol.exe**
- 2. Follow the instructions that the window shows
- 3. The system will help you to install the driver automatically

#### Step 2 – Install VGA Driver

- 1. Click on the *Step 2 VGA* folder and select the OS 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 to install the driver automatically

#### Step 3 – Install LAN Driver

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

#### Step 4 – Install AHCI Driver

Please refer to Appendix D AHCI Setting

#### Step 5 – Install Audio Driver

- 1. Click on the **Step 5 Audio** folder and select the OS your system is
- 2. Double click on .exe file located in each OS folder
- 3. Follow the instructions that the window shows
- 4. The system will help you to install the driver automatically

# Appendix A

# Programming the Watchdog Timer

Appendix A Programming the Watchdog Timer A-1

#### A.1 Programming

HSB-LN2I utilizes W83627DHG-P 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**



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.

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.

		Bula i on
0aah:	2Eh	2Fh

WatchDog Timer Register I (Index=F5h, Default=00h)

#### CRF5 (PLED and KBC P20 Control Mode Register)

Bit 7-5 : select PLED mode = 000 Power LED pin is driven high.

= 001 Power LED pin outputs 0.5Hz pulse with 50% duty cycle.

Address Port Data Port

	= 010 Power LED pin is driven low.
	= 011 Power LED pin outputs 2Hz pulse with 50% duty cycle.
	= 100 Power LED pin outputs 1Hz pulse with 50% duty cycle.
	= 101 Power LED pin outputs 4Hz pulse with 50% duty cycle.
	= 110 Power LED pin outputs 0.25Hz pulse with 50% duty cycle.
	=111 Power LED pin outputs 0.25Hz pulse with 50% duty cycle
Bit 4	: WDTO# count mode is 1000 times faster.
	= 0 Disable.
	= 1 Enable.
Bit 3	: select WDTO# count mode.
	= 0 second
	= 1 minute
Bit 2	: Enable the rising edge of keyboard Reset (P20) to force Time-out event.
	= 0 Disable
	= 1 Enable
Bit 1	: Disable / Enable the WDTO# output low pulse to the KBRST# pin (PIN60)
	= 0 Disable
	= 1 Enable
Bit 0	: Reserved.

#### WatchDog Timer Register II (Index=F6h, Default=00h)

- = 0 x 01 Time-out occurs after 1 second/minute
- = 0 x 02 Time-out occurs after 2 second/minutes
- = 0 x 03 Time-out occurs after 3

second/minutes

.....

= 0 x FF Time-out occurs after 255

second/minutes

#### WatchDog Timer Register III (Index=F7h, Default=00h)

Bit 7	: Mouse interrupt reset Enable or Disable	
	= 1	Watchdog Timer is reset upon a Mouse interrupt
	= 0	Watchdog Timer is not affected by Mouse interrupt
Bit 6	: Keyboard interrupt reset Enable or Disable	
	= 1	Watchdog Timer is reset upon a
		Keyboard interrupt
	= 0	Watchdog Timer is not affected by
		Keyboard interrupt
Bit 5	: Ford	e Watchdog Timer Time-out. Write
	Only	/

Appendix A Programming the Watchdog Timer A-5

Half-size SBC			H S B - L N 2 I
	= 1	Fc	prce Watchdog Timer time-out
		ev	ent: this bit is self-clearing
Bit 4	:Wa	tchc	log Timer Status. R/W
	= 1	W	atchdog Timer time-out occurred
	= 0	W	atchdog Timer counting
Bit 3-0	: The	se	bits select IRQ resource for
	Wato	hdc	og. Setting of 2 selects SMI.

#### A.2 W83627DHG Watchdog Timer Initial Program

Example: Setting 10 sec. as Watchdog timeout interval

Mov dx,2eh	;Enter W83627DHG config mode
Mov al,87h	(out 87h to 2eh twice)
Out dx,al	
Out dx,al	
;//////////////////////////////////////	///////////////////////////////////////
Mov al,07h	
Out dx,al	
Inc dx	
Mov al,08h	;Select Logical Device 8 (GPIO Port
2)	
Out dx,al	
;//////////////////////////////////////	///////////////////////////////////////
Dec dx	
Mov al,30h	;CR30 (GP20~GP27)
Out dx,al	
Inc dx	
Mov al,01h	;Activate GPIO2
Out dx,al	

Appendix A Programming the Watchdog Timer A-7

11411-5126 300	Ha	lf-size	SBC
----------------	----	---------	-----

Dec dx ;CRF5 (PLED mode register) Mov al,0f5h Out dx,al Inc dx In al,dx And al, not 08h :Set second as counting unit Out dx,al Dec dx Mov al,0f6h : CRF6 Out dx,al Inc dx Mov al,10 :Set timeout interval as 10 sec. Out dx,al Dec dx ;Exit W83627DHG config mode (out 0aah to 2eh once) Mov al.0aah Out dx,al 

# Appendix

## I/O Information

#### HSB-LN2I

#### B.1 I/O Address Map

a - 📓 🛛	nput/output (IO)
1	[00000000 - 0000000F] Direct memory access controller
	[00000000 - 000003AF] PCI bus
	[00000010 - 0000001F] Motherboard resources
	[00000020 - 00000021] Programmable interrupt controller
	[00000022 - 0000003F] Motherboard resources
	📮 [00000040 - 00000043] System timer
1	[00000044 - 0000005F] Motherboard resources
l	[00000060 - 00000060] Standard PS/2 Keyboard
	🖳 [00000061 - 00000061] System speaker
1	[00000062 - 00000063] Motherboard resources
4	[00000064 - 00000064] Standard PS/2 Keyboard
0	[00000065 - 0000006F] Motherboard resources
1	ystem CMOS/real time clock [] System CMOS/real time clock
1	[00000072 - 0000007F] Motherboard resources
1	🖳 [00000080 - 00000080] Motherboard resources
	[00000081 - 00000083] Direct memory access controller
1	[00000084 - 00000086] Motherboard resources
1	[00000087 - 00000087] Direct memory access controller
	[00000088 - 00000088] Motherboard resources
	[00000089 - 0000008B] Direct memory access controller
	[0000008C - 0000008E] Motherboard resources
1	[0000008F - 0000008F] Direct memory access controller
-1	[00000090 - 0000009F] Motherboard resources
1	[000000A0 - 000000A1] Programmable interrupt controller
1	[000000A2 - 000000BF] Motherboard resources
-1	[000000C0 - 000000DF] Direct memory access controller
1	[000000E0 - 000000EF] Motherboard resources
1	[000000F0 - 000000FF] Numeric data processor
€	a [00000170 - 00000177] ATA Channel 1
6	[000001F0 - 000001F7] ATA Channel 0
	[000002F8 - 000002FF] Communications Port (COM2)
	a [000003/6 - 000003/6] ATA Channel 1
	[00000378 - 0000037F] Printer Port (LPTI)
	[00000380 - 00000388] Intel(K) Graphics Media Accelerator 3150
	[00000380 - 000003DF] PCI Bus
	[000003C0 - 000003DF] Intel(R) Graphics Media Accelerator 3150
	[000003F0 - 000003F0] ATA Channel 0
	[0000005r6 - 000005rF] Communications Port (COMI)
	[00000400 - 000004BF] Motherboard resources
	I000004D0 - 000004D1 Motherboard resources
	[00000000 - 000008/F] Motherboard resources
	- Innonann - nnonnan-1 motuerposid lesonices

Appendix B I/O Information B-2

[000011A0 - 0000F17F] PCI bus [0000D000 - 0000D0FF] Realtek PCIe GBE Family Controller #2 [0000D000 - 0000DFFF] Intel(R) ICH8 Family PCI Express Root Port 2 - 2841 10000E000 - 0000E0FF1 Realtek PCIe GBE Family Controller [0000F000 - 0000F01F] Intel(R) ICH8 Family SMBus Controller - 283E [0000F020 - 0000F03F] Intel(R) ICH8 Family USB Universal Host Controller - 2832 📖 🥛 [0000F040 - 0000F05F] Intel(R) ICH8 Family USB Universal Host Controller - 2831 [0000F060 - 0000F07F] Intel(R) ICH8 Family USB Universal Host Controller - 2830 🔲 🖥 [0000F080 - 0000F09F] Intel(R) ICH8 Family USB Universal Host Controller - 2835 [0000F0A0 - 0000F0BF] Intel(R) ICH8 Family USB Universal Host Controller - 2834 and a controller - 2828 [0000F0C0 - 0000F0CF] Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828 a [0000F0E0 - 0000F0E3] Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828 [0000F0F0 - 0000F0F7] Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828 and a controller - 2828 [0000F100 - 0000F103] Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828 a [0000F120 - 0000F12F] Intel(R) ICH8M Ultra ATA Storage Controllers - 2850 [0000F170 - 0000F177] Intel(R) Graphics Media Accelerator 3150

#### **B.2 Memory Address Map** A Memory IO00A0000 - 000BFFFF] Intel(R) Graphics Media Accelerator 3150 1 [000A0000 - 000BFFFF] PCI bus [000C0000 - 000DFFFF] PCI bus [BF700000 - FEB02FFF] PCI bus ID0000000 - DFFFFFFF Intel(R) Graphics Media Accelerator 3150 [E0000000 - E0003FFF] Realtek PCIe GBE Family Controller #2 [E0000000 - E00FFFFF] Intel(R) ICH8 Family PCI Express Root Port 2 - 2841 [E0100000 - E0103FFF] Realtek PCIe GBE Family Controller IE0100000 - E01FFFFF1 Intel(R) ICH8 Family PCI Express Root Port 1 - 283F IF0000000 - F3FFFFFF] System board IFE700000 - FE7FFFF1 Intel(R) Graphics Media Accelerator 3150 [FE800000 - FE800FFF] Realtek PCIe GBE Family Controller #2. [FE800000 - FE8FFFFF] Intel(R) ICH8 Family PCI Express Root Port 2 - 2841 FE900000 - FE900FFF] Realtek PCIe GBE Family Controller [FE900000 - FE9FFFFF] Intel(R) ICH8 Family PCI Express Root Port 1 - 283F IFEA00000 - FEA7FFFF] Intel(R) Graphics Media Accelerator 3150 IFEA80000 - FEAFFFFF] Intel(R) Graphics Media Accelerator 3150 [FEB00000 - FEB000FF] Intel(R) ICH8 Family SMBus Controller - 283E FEB01000 - FEB013FF] Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2836 [FEB02000 - FEB023FF] Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A [FEC00000 - FEC00FFF] Motherboard resources [FED00000 - FED003FF] High precision event timer FED14000 - FED19FFF] System board [FED1C000 - FED1FFFF] Motherboard resources [FED20000 - FED8FFFF] Motherboard resources [FEE00000 - FEE00FFF] Motherboard resources IFFC00000 - FFFFFFF1 Motherboard resources

#### HSB-LN2I

#### **B.3 IRQ Mapping Chart**

⊿ 📕 Inte	errupt request (IRQ)	
	(ISA) 0x00000000 (00)	High precision event timer
	(ISA) 0x00000001 (01)	Standard PS/2 Keyboard
1	(ISA) 0x00000003 (03)	Communications Port (COM2)
	(ISA) 0x00000004 (04)	Communications Port (COM1)
	(ISA) 0x00000008 (08)	High precision event timer
- 8	(ISA) 0x0000000C (12)	Microsoft PS/2 Mouse
- 19	(ISA) 0x000000D (13)	Numeric data processor
	(ISA) 0x000000E (14)	ATA Channel 0
	(ISA) 0x0000000F (15)	ATA Channel 1
<b>I</b>	(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
- 19	(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
- 12	(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
1	(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) 0x0000008 (104)	Microsoft ACPI-Compliant System
	(ISA) 0x00000009 (105)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A (106)	Microsoft ACPI-Compliant System
	(ISA) 0X000000B (107)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C (108)	Misses & ACPI-Compliant System
	(ISA) 0X0000000 (109)	Mission ACPI-Compliant System
	(ISA) 0X000000E (110)	Misses the ACPI-Compliant System
	(ISA) 0X000000F (III)	Microsoft ACPI-Compliant System
10 der 🚰	(ISA) 0X00000070 (I12)	wilcrosoft ACPI-Compliant System

#### HSB-LN2I

(ISA) 0x00000071 (113) Microsoft ACPI-Compliant System (ISA) 0x00000073 (115) Microsoft ACPI-Compliant System (ISA) 0x00000074 (116) Microsoft ACPI-Compliant System (ISA) 0x00000077 (119) 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) 0x0000007E (126) Microsoft ACPI-Compliant System (ISA) 0x0000007F (127) Microsoft ACPI-Compliant System (ISA) 0x00000081 (129) Microsoft ACPI-Compliant System ISA) 0x00000084 (132) Microsoft ACPI-Compliant System ISA) 0x00000085 (133) 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) 0x000008A (138) Microsoft ACPI-Compliant System ISA) 0x000008B (139) Microsoft ACPI-Compliant System (ISA) 0x000008C (140) Microsoft ACPI-Compliant System ISA) 0x000008D (141) 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) 0x00000094 (148) Microsoft ACPI-Compliant System (ISA) 0x00000095 (149) Microsoft ACPI-Compliant System ISA) 0x00000098 (152) 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) 0x0000009F (159) Microsoft ACPI-Compliant System (ISA) 0x000000A0 (160) Microsoft ACPI-Compliant System

#### HSB-LN2I

(ISA) 0x000000A1 (161) Microsoft ACPI-Compliant System ISA) 0x000000A4 (164) Microsoft ACPI-Compliant System ISA) 0x000000A5 (165) Microsoft ACPI-Compliant System (ISA) 0x000000A8 (168) Microsoft ACPI-Compliant System (ISA) 0x000000AA (170) Microsoft ACPI-Compliant System ISA) 0x000000AB (171) 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) 0x000000B8 (184) Microsoft ACPI-Compliant System 📜 (ISA) 0x000000B9 (185) Microsoft ACPI-Compliant System (ISA) 0x000000BA (186) Microsoft ACPI-Compliant System JUSA) 0x000000BB (187) Microsoft ACPI-Compliant System (PCI) 0x00000005 (05) Intel(R) ICH8 Family SMBus Controller - 283E Intel(R) Graphics Media Accelerator 3150 (PCI) 0x00000010 (16) Intel(R) ICH8 Family USB Universal Host Controller - 2834 (PCI) 0x00000012 (18) Intel(R) ICH8 Family USB Universal Host Controller - 2832 ... 🖥 (PCI) 0x00000012 (18) Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A a (PCI) 0x00000012 (18) Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828 (PCI) 0x00000013 (19) Intel(R) ICH8 Family USB Universal Host Controller - 2831 🔲 🕛 (PCI) 0x00000015 (21) Intel(R) ICH8 Family USB Universal Host Controller - 2835 ..... 🟺 (PCI) 0x00000017 (23) Intel(R) ICH8 Family USB Universal Host Controller - 2830 ..... 🕛 (PCI) 0x00000017 (23) Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2836 (PCI) 0xFFFFFFD (-3) Intel(R) ICH8 Family PCI Express Root Port 2 - 2841 (PCI) 0xFFFFFFE (-2) Intel(R) ICH8 Family PCI Express Root Port 1 - 283F

#### **B.4 DMA Channel Assignments**

AAEON-PC
Direct memory access (DMA)
4 Direct memory access controller



### **Mating Connector**

Appendix C Mating Connector C - 1

#### 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		
IDE1	IDE Connector	Astron	26-03-220-1G- ATB1-R	IDE Cable	1701400453
SATA1	SATA Connector	TECHBEST	161S01-025A	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	1147-000-26M	LPT Cable	1701260307
COM1	Serial Port Pin Header	Astron	27-24041-210- 1G-TB1-R	Serial Port	1701100305
				Cable	
COM2	Serial Port Pin Header	Astron	27-24041-210- 1G-TB1-R	Serial Port	1701100305
				Cable	
USB1	USB Pin Header	JIH VEI Electronics	21B22050-XX S10B-01G-4/2 .8	USB Cable	1709100201
USB2	USB Pin Header	JIH VEI Electronics	21B22050-XX S10B-01G-4/2 .8	USB Cable	1709100201
USB3	USB Connector	HO-BASE	KS-001V-ANW		N/A
LAN1	Ethernet Connector	BOTHHAND	LA1T109D-A- D43 LF		N/A
LAN2	Ethernet Connector	BOTHHAND	LA1T109D-A- D43 LF		N/A
VGA1	CRT Display Connector	Catch Electronics	3125-000-15S B		N/A

Appendix C Mating Connector C - 2

CFD1	CF Card Connector	Comweal	60328226		N/A
FP1	Front Panel Connector	JIH VEI Electronics	21B22564-XX S10B-01G-6/3 -VXX		N/A
FP2	Front Panel Connector	JIH VEI Electronics	21B22564-XX S10B-01G-6/3 -VXX		N/A
CN1	Caseopen Connector	JIH VEI Electronics	21B12564-XX S10B-01G-6/3		
CN2	Audio Pin Header	JIH VEI Electronics	21N22050-10 S10B-01G-4/2 .8-V1-G		N/A
CN3	LVDS Channel Connector	ECALL	0110-01-553-3 00		
CN4	PS2 Keyboard/ Mouse Connector	TECHBEST	DN-508BS1-6- L	KB/MS Cable	1700060192
CN5	KB Pin Header	JIH VEI Electronics	2503-H-5		N/A
CN6	LVDS BKT Ctrl Connector	Catch Electronics	1192-000-05S		N/A
BT1	BAT Connector	Catch Electronics	120170002S		N/A

# Appendix

## **AHCI** Setting

Appendix D AHCI Setting D-1

HSB-LN2I

#### **D.1 Setting AHCI**

OS installation to setup AHCI Mode

Step 1: Copy the files below from "*Driver CD -> Step 4 - AHCI-> winxp\_32* or winxp\_64 to Disk



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



#### Step 3: The setting procedures " In BIOS Setup Menu" A: Advanced -> IDE Configuration -> ATA Or IDE Configuration -> Enhanced

B: Configure SATA As -> AHCI

Aptio Setup Utilit Advanced	y – Copyright (C)	2011 Americar
PATA Master	Not Present	
PATA Slave	Not Present	
SATA Porto	ST380815AS	(80.0G
SATA Port1	Not Present	
SATA Port2	Not Present	
ATA Or IDE Configuration Configure SATA As	[Enhanced] [AHCI]	
	and the second second	

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

- Aptio Setup Utility Main Advanced Chipset Boot Sec	- Copyright (C) 2011 Americ Surity Save & Exit
Boot Configuration Quiet Boot Launch I82574L PXE OpROM	[Enabled] [Disabled]
Boot Option Priorities	
Boot Option #1	[PIONEER DVD-RW DVR]
Boot Option #2	[P0: ST380815AS]
Boot Option #3	[MITSUMI USB FDD 07]
Boot Option #4	[UEFI: FAT File System]
Hard Drive BBS Priorities Floppy Drive BBS Priorities CD/DVD ROM Drive BBS Priorities	

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



Step 6: Setup OS



Appendix D AHCI Setting D-4

#### Step 7: Press "F6"



Step 8: Choose "S"



#### Step 9: Choose "Intel(R) ICH8-M-E/M SATA AHCI Controller"

4indows Setup
You have chosen to configure a SCSI Adapter for use with Hindows, using a device support disk provided by an adapter manufacturer.
Select the SCSI Adapter you want from the following list, or press ESC to return to the previous screen.
Intel(R) ICH8M-E/M SATA AHCI Controller
Intel(R) ICHI9M-E/M SATA AHCI Controller Intel(R) ICHI9M-E/M SATA AHCI Controller Intel(R) ICH10D/DO SATA AHCI Controller
ENTER=Select F3=Exit

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



#### Step 11: Setup is loading files

