AEC-6402

Embedded Controller

Intel[®] Atom[™] N2600 1.6GHz Processor

2 USB2.0, 2 COM, 1 Mini-HDMI

1 CANBus, 1 mSATA

AEC-6402 Manual 1st Ed. April 25, 2014

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Packing List

Before you begin operating your PC, please make sure that the following materials are enclosed:

- 1 AEC-6402 Embedded Controller
- 1 Burn-Proof Bracket
- 3 RJ-45 to Dsub cable
- 1 CD-ROM for manual (in PDF format) and drivers
- 1 mini-HDMI to HDMI cable
- 1 Power Adapter

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

Safety & Warranty

- 1. Read these safety instructions carefully.
- 2. Keep this user's manual for later reference.
- 3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- 4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- 5. Keep this equipment away from humidity.
- 6. Put this equipment on a firm surface during installation. Dropping it or letting it fall could cause damage.
- 7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- 8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
- 9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 10. All cautions and warnings on the equipment should be noted.
- 11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- 12. Never pour any liquid into an opening. This could cause fire or electrical shock.
- 13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
- 14. If any of the following situations arises, get the equipment checked by service personnel:
 - a. The power cord or plug is damaged.
 - b. Liquid has penetrated into the equipment.
 - c. The equipment has been exposed to moisture.

- d. The equipment does not work well, or you cannot get it to work according to the user's manual.
- e. The equipment has been dropped and damaged.
- f. The equipment has obvious signs of breakage.
- DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20°C (-4°F) OR ABOVE 70°C (158°F). IT MAY DAMAGE THE EQUIPMENT.

FCC



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

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Below Table for China RoHS Requirements 产品中有毒有害物质或元素名称及含量

AAEON Boxer/ Industrial System

	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	0
及其电子组件	^	0	0	0	0	0
外部信号	~		0		0	0
连接器及线材		0	0	0	0	0
外壳	×	0	0	0	0	0
中央处理器	~		0			0
与内存			0			0
硬盘	×	0	0	0	0	0
电源	×	0	0	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/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:

一、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。

二、上述部件物质中央处理器、内存、硬盘、电源为选购品。

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Chapter

General Information

1.1 Introduction

AAEON introduces the slimmest product in the Boxer series, AEC-6402, which utilizes the Intel[®] Atom[™] N2600 processor: this embedded controller expands its graphics performance greatly with the newest generation of Atom[™] processors.

So far, there is no other boxer PC can be so tiny and slim like AEC-6402, not even Pico-ITX system. With this tiny dimension form factor, customers can fit it almost everywhere, and it provides quite a lot of I/O ports for basic applications. AEC-6402 adopts fanless design for high reliability to fit in most rugged environment. It also provides wireless communication features and it's really convenient for customers to build up network connection at all locations and markets.

The AEC-6402 is a standalone high performance controller designed for long-life operation and with high reliability. It can replace traditional methods and become the mainstream controller for diversified markets.

1.2 Features

- Intel[®] Atom[™] N2600 1.6 GHz Processor
- Intel[®] NM10 Express chipset
- Worldwide Slimmest fanless Boxer: Compact design: (system 125 x 77 x 20mm)
- Uniform I/O ports: USB & RJ-45, CANBus Connector
- mini-HDMI connector for HDMI output
- Anti-drop power connector design
- RJ45 for COM port
- Aluminum CNC enclosure
- Fanless System Design

1.3 Specifications

● CPU		Intel [®] Atom™ N2600 1.6 GHz
Chipset		Intel [®] NM10
System Memo	ory	DDR3 SODIMM x 1, Max. 2 GB,
		support DDR3 800/1066
 Display 	VGA	—
Interface	DVI	—
	HDMI	Mini HDMI x 1
	Others	—
 Storage 	SSD	Half-size mSATA
Device	HDD	—
Network LAN		Gigabit Ethernet
	Wireless	Optional
 Front I/O 	USB Host	USB2.0 x 2
	LAN	—
	Serial Port	—
	DIO	—
	KB/MS	—
	Others	Mini HDMI x 1 for HDMI, 2-pin for
		CANBus, Power button
• Rear I/O	USB Host	-
LAN		RJ-45 x 2
	Serial Port	RJ-45 x 2 for RS-232/422/485

	Others	DC-jack w/ lock for power input	
• Expansion	Mini Card	_	
	Mini PCI	—	
	Others	Onboard USB Pin header x 2	
 Indicator 	Front	System LED x 1	
	Rear	_	
Power Requir	ement	12V DC in with lockable connector	
Power Consu	mption	Intel [®] Atom™ N2600 1.6GHz, 0.79A @	
		+12V	
 System Cooli 	ng	Passive cooling	
 Mounting 		VESA 75/100, DIN-Rail	
 Operating Ter 	nperature	$32^{\circ}\text{F} \sim 104^{\circ}\text{F}~(0^{\circ}\text{C} \sim 40^{\circ}\text{C})$ (without	
		airflow)	
		32°F ~ 122°F (0°C ~ 50°C) (with	
		airflow)	
 Storage Temp 	erature	-4°F ~ 158°F (-20°C ~ 70°C)	
Anti-Vibration		3 g rms/ 5~500 Hz/ operation-mSATA	
 Anti-Shock 		50 G peak acceleration (11 msec.	
		duration) –mSATA	
• MTBF		50,000	
• Certification	EMC	CE/FCC Class A	
• Dimension (W x H x D)		4.92" x 3.03" x 0.79" (125mm x 77mm x	
		20mm)	
Gross Weight		2.64 lb (1.2 Kg)	

	Embedded Controller	A E C - 6 4 0 2
•	OS Support	Windows [®] XP Embedded, Windows [®] XP, Windows [®] 7, Windows [®] Embedded Standard 7



Hardware Installation

2.1 Dimension and I/O of AEC-6402



2.2 List of Jumpers

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

Label	Function
JP2	Clear CMOS
JP6	AT/ATX Mode Selection

2.3 List of Connectors

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

Label	Function
CN1	CAN BUS Flash Pin header
CN10	LPC Expansion I/F
CN11	CAN BUS Connector
CN12	RJ-45 Ethernet RTL8111E
CN13	RJ-45 Ethernet RTL8111E
CN17	Mini HDMI TYPE C
CN21	COM1 RS-232/422/485
CN22	COM2 RS-232/422/485
CN25	USB Port 1 Connector
CN26	USB Port 2 Connector
CN27	USB Pin header
BAT1A	Battery Connector
DIMM1	DDR3 SODIMM Slot
PCIEA	mSATA Mini-Card Slot

2.4 Clear CMOS Jumper (JP2)





Normal (Default)

Clear CMOS

JP2	Function
1-2	Normal (Default)
2-3	Clear CMOS

2.5 AT/ATX Power Supply Mode Selection (JP6)





AT Mode

ATX Mode(Default)

JP6	Function
1-2	AT Mode
2-3	ATX Mode (Default)

2.6 CAN BUS FLASH PIN HEADER (CN1)



Pin	Pin Name	Signal Type	Signal Level
1	+3.3V	PWR	+3.3V
2	TDO		

A E C - 6 4 0 2

3	ТСК		
4	TDI		
5	GND	GND	
6	TMS		

2.7 LPC Port (CN10)



Pin	Pin Name	Signal Type	Signal Level
1	LAD0	I/O	+3.3V
2	LAD1	I/O	+3.3V
3	LAD2	I/O	+3.3V
4	LAD3	I/O	+3.3V
5	+3.3V	PWR	+3.3V
6	LFRAME#	IN	
7	LRESET#	OUT	+3.3V
8	GND	GND	
9	LCLK	OUT	
10	LDRQ0	IN	

Embedded Controller		A E C - 6 4 0 2	
11	LDRQ1	IN	
12	SERIRQ	I/O	+3.3V

2.8 CAN BUS Port (CN11)



Pin	Pin Name	Signal Type	Signal Level
1	CAN0H	DIFF	
2	CAN0L	DIFF	

2.9 Realtek LAN (RJ-45) Port (CN12)



CI
_

8 MDI3- DIFF

2.10 Realtek LAN (RJ-45) Port (CN13)



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	

2.11 HDMI Type C (CN17)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	

A E C - 6 4 0 2

2	HDMI_TX2+	DIFF	
3	HDMI_TX2-	DIFF	
4	GND	GND	
5	HDMI_TX1+	DIFF	
6	HDMI_TX1-	DIFF	
7	GND	GND	
8	HDMI_TX0+	DIFF	
9	HDMI_TX0-	DIFF	
10	GND	GND	
11	HDMI_CLK+	DIFF	
12	HDMI_CLK-	DIFF	
13	GND	GND	
14	NC	NC	
15	HDMI_DDC_CLK	I/O	+5V
16	HDMI_DDC_DATA	I/O	+5V
17	NC	NC	
18	DPD_HPD	IN	
19	DPD_PWR	PWR	+5V

2.12 COM1,COM2 RS-232/422/485 (RJ-45) Port (CN21, CN22)



Pin	RS-232	RS-422	RS-485
1	DSR		
2	RTS		
3	GND		
4	ТХ		RX+
5	RX	DATA+	TX+
6	DCD	DATA-	TX-
7	CTS		
8	DTR		RX-

2.13 USB 2.0 Port 1 (CN25)

Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	USB4_D-	DIFF	
3	USB4_D+	DIFF	
4	GND	GND	

2.14 USB 2.0 Port 2 (CN26)

Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	USB4_D-	DIFF	
3	USB4_D+	DIFF	
4	GND	GND	

2.15 USB 2.0 Port 3 (CN27)



Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	USB5_D-	DIFF	
3	USB5_D+	DIFF	
4	GND	GND	
5	NC	NC	
6	WIR_DIS	SINGLE	

2.16 DDR3 SODIMM Slot (DIMM1)

Standard specification

2.17 mSATA Mini-Card Slot (PCIEA)

Pin	Pin Name	Signal Type	Signal Level
1	NC		
2	+3.3V	PWR	+3.3V
3	NC		
4	GND	GND	
5	NC		
6	+1.5V	PWR	+1.5V
7	NC		

8	NC		
9	GND	GND	
10	NC		
11	NC		
12	NC		
13	NC		
14	NC		
15	GND	GND	
16	NC		
17	NC		
18	GND	GND	
19	NC		
20	NC		
21	GND	GND	
22	NC		
23	mSATA_RX+	DIFF	
24	+3.3V	PWR	+3.3V
25	mSATA_RX-	DIFF	
26	GND	GND	
27	GND	GND	
28	+1.5V	PWR	+1.5V
29	GND	GND	
30	SMB_CLK	I/O	+3.3V
31	mSATA_TX	DIFF	

Embed	ded	Control	ller

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32	SMB_DATA	I/O	+3.3V
33	mSATA_TX+	DIFF	
34	GND	GND	
35	GND	GND	
36	NC		
37	GND	GND	
38	NC		
39	+3.3V	PWR	+3.3V
40	GND	GND	
41	+3.3V	PWR	+3.3V
42	NC		
43	NC		
44	NC		
45	NC		
46	NC		
47	NC		
48	+1.5V	PWR	+1.5V
49	NC		
50	GND	GND	
51	NC		
52	+3.3V	PWR	+3.3V

2.18 mSATA Storage Installation

Step 1: Remove the 4pcs M2*4 screws in the bottom case.



Step 2: Install the mSATA module (screw in 2 pcs M2 x 3).



Step 3: Fasten the M4 x 4 screws in the bottom case.

2.19 DRAM Installation

Step 1: Remove the 4pcs M2*4 screws in the bottom case.



Step 2: Install the DRAM module.



Step 3: Fasten the M4 x 4 screws in the bottom case.

2.20 Mounting Bracket& burn-Proof bracket installation

- Mounting bracket is the middle device for DIN-RAIL & VESA-Mount.
- Burn-Proof bracket is crucial for protective use. It's recommended to install for safety.

Step 1: Remove the 4pcs M2*4 screws in the bottom case.



Step 2: Use the longer M2*8 screws in the accessory pack to replace the

M2*4 screws.



Step 3: Then fasten the screws and install both the Mounting Bracket and Burn-Proof bracket as the following graphics show.



Step 4: The installation complete photo is shown below.



2.21 DIN-RAIL bracket Installation

Step 1: First, please install the Mounting Bracket and Burn-proof bracket as the above section 2.4 shows. Then fasten the 3 pcs M3*6 screws to install DIN-RAIL bracket.



Step 2: The side-view of the installation complete photo is shown below.



2.22 VESA-Mount bracket Installation (for Display Panels)

Step 1: First, please install the Mounting Bracket and Burn-proof bracket as the above section 2.4 shows. Then start to install the VESA-Mount bracket for Display Panels.



Step 2: Align the AEC-6402 with the VESA-Mount bracket through the rail.

Then smoothly push the AEC-6402 to fit in the bracket.



Chapter 2 Hardware Installation 2 - 18



Step 3: The installation complete photos are shown below.

Bottom View



Top View

Chapter 3

AMI BIOS Setup

3.1 System Test and linitialization

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 AEC-6402 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the
complete unit when it finally runs down.

3.2 AMI BIOS Setup

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

Entering Setup

Power on the computer and press 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.

<u>Setup Menu</u> Setup submenu: Main

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc. Main Advanced Chipset Boot Security Save & Exit		
BIOS Information AEC-6402 R1.0(A402AM	10) (04/08/2014)	Set the Date. Use Tab to switch between Date elements.
BIOS Vendor Core Version Compliancy System Date System Time	American Megatrends 4.6.5.3 UEFI 2.3; PI 1.2 [Tue 04/08/2014] [10:10:08]	
Access Level	Administrator	
		<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	.15.1226. Copyright (C) 2012 American	Megatrends, Inc.

System Date	Day MM:DD:YYYY	
Change the month, year and century. The 'Day' is changed automatically.		
System Time	HH : MM : SS	
Change the clock of the system.		

Setup submenu: Advanced

Aptio Setup Utili Main Advanced Chipset Boot	ity – Copyright (C) 2012 American Security Save & Exit	Megatrends, Inc.
 ACPI Settings CPU Configuration IDE Configuration USB Configuration F81801 Super ID Configuration Hardware Monitor 		System ACPI Parameters. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.122	26. Copyright (C) 2012 American M	egatrends, Inc.

ACPI Settings	
System ACPI Parameters	
CPU Configuration	
CPU Configuration Parameters	
IDE Configuration	
IDE Device Options Settings	
USB Configuration	
USB Configuration Parameters	
F81801 Super IO Configuration	

System Super IO Parameters	
H/W Monitor	
Monitor hardware status	

ACPI Settings

Aptio Setup Advanced) Utility – Copyright (C) 2012 Ame	rican Megatrends, Inc.
ACPI Settings		Enables or Disables System ability to Hibernate (OS/S4
Enable Hibernation ACPI Sleep State ▶ RTC Wake Settings	(Enabled) [AUTO]	Sleep State). This option may be not effective with some OS.
		+: 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 Ameri	can Megatrends, Inc.

Enable Hibernation	Enabled	
	Disabled	
Enabled or disabled hiber	nate (OS/S4 Sleep State).	
ACPI Sleep State	Suspend Disabled	
	S1 only(CPU Stop Clock)	
	S3 only(Suspend to RAM)	
	Αυτο	
Select the ACPI state used for System Suspend		
RTC Wake Settings		
Enable system to wake from S5 using RTC alarm.		

RTC Wake Settings

Aptio Setup Utility Advanced	– Copyright (C) 2012 Ar	merican Megatrends, Inc.
Wake system with Fixed Time Wake up day Wake up hour Wake up minute Wake up second	[Enabled] 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 Wake up minute increase	[Disabled] 1	
		++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
		rican Megatrends, Inc.

Options summary: (default setting)

Wake system with Fixed	Disabled	
Time	Enabled	
Enable or disable System w	vake on alarm event. Wake	e up time is setting by following
settings.		
Wake up day	0-31	
Select 0 for daily system wake up 1-31 for which day of the month that you would		
like the system to wake up		
Wake up hour	0-23	

Chapter 3 AMI BIOS Setup 3-8

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Wake up minute	0-59	
Wake up second	0-59	
Wake system with	Disabled	
Dynamic Time	Enabled	
Enable or disable System wake on alarm event. Wake up time is current time +		
Increase minutes.		
Wake up minute increase	1-5	

A E C - 6 4 0 2

CPU Configuration

Aptio Setup Utility – Advanced	Copyright (C) 2012 American	Megatrends, Inc.
CPU Configuration		Enabled for Windows XP and
Processor Type EMT64 Processor Speed System Bus Speed Ratio Status Actual Ratio System Bus Speed Processor Stepping Microcode Revision	Intel(R) Atom(TM) CPU N2 Not Supported 1600 MHz 400 MHz 16 16 400 MHz 30661 269 2055 to	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 Execute Disable Bit Limit CPUID Maximum CPU Smart Thermal Control	[Enabled] [Enabled] [Disabled] [Disabled]	+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1226. C	opyright (C) 2012 American M	egatrends, Inc.

Options summary: (default setting)

Hyper-Threading	Disabled	
	Enabled	
En/Disable CPU Hyper-Thread	ding function	
Execute Disable Bit	Disabled	
	Enabled	
En/Disable XD bit for supporting OS		
Limit CPUID Maximum	Disabled	
	Enabled	
Disabled for Windows XP		
CPU Smart Thermal Control	Disabled	

Chapter 3 AMI BIOS Setup 3-10

	55	
	60	
	65	
	70	
CPU will reduce frequency automatically when CPU temperature higher than the		

setting value.

IDE Configuration

Aptio Setup Ut. Advanced	ility – Copyright (C) 2012 Ame	rican Megatrends, Inc.
SATA Port mSATA Port	Drive Modelname Drive Modelname	Select a configuration for SATA Controller.
SATA Controller(s)	[Enabled]	
		++: 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	1926 - Popuright (P) 2012 Ameri	can Mediatrands Top

SATA Controller(s)	Disabled	
	Enabled	
En/Disable SATA controlle	r	
Configure SATA as	IDE	
	AHCI	
Configure SATA controller operating as IDE/AHCI mode.		

USB Configuration

Aptio Setup Utility - Advanced	Copyright (C) 2012 American	Megatrends, Inc.
USB Configuration		Enables Legacy USB support.
USB Devices: 1 Drive, 1 Keyboard, 1 Mouse		support if no USB devices are connected. DISABLE option will keen USB devices available
Legacy USB Support		only for EFI applications.
Mass Storage Devices: USB Device Modelname	[Auto]	
		++: Select Screen
		Enter: Select
		+/−: Change Upt. F1: General Help
		F2: Previous Values
		F4: Save & Exit
		ESC: Exit
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Legacy USB Support	Enabled	
	Disabled	
	Auto	
Enables BIOS Support for L	egacy USB Support. Whe	n enabled, USB can be
functional in legacy environment like DOS. AUTO option disables legacy support if		
no USB devices are connected. DISABLE option will keep USB devices available		
only for EFI application		
Device Name	Auto	
(Emulation Type)	Floppy	

	Forced FDD		
	Hard Disk		
	CD-ROM		
If Auto. USB devices less than 530MB will be emulated as Floppy and remaining as			
Floppy and remaining as hard drive. Forced FDD option can be used to force a			
HDD formatted drive to boot as FDD(Ex. ZIP drive)			

F81801 Super IO Configuration



Serial Port 1/2 Configuration		
Set Parameters of Serial Port 7	1/2	

Serial Port 1 Configuration

Aptio Setup Utility - Advanced	- Copyright (C) 2012 Americar	n Megatrends, Inc.
Serial Port 1 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=4;	(604)
Change Settings Device Type	[Auto] [RS232]	
		the Salast Sanaan
		11: Select Item Enter: Select +/-: Change Ont.
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit
		LOUY EAT
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Serial Port	Disabled	
	Enabled	
En/Disable specified serial p	port.	
Change Settings	Auto	
	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ=3,4,5,7,10,11,12;	
	IO=2F8h; IRQ=3,4,5,7,10,11,12;	
	IO=3E8h; IRQ=3,4,5,7,10,11,12;	
	IO=2E8h; IRQ=3,4,5,7,10,11,12;	

Select a resource setting for Super IO device.		
Device Type	RS232	
	RS422	
	RS485	
Configure COM2 operated	as RS232, RS422 or RS485.	

Serial Port 2 Configuration



Serial Port	Disabled	
	Enabled	
En/Disable specified seria	l port.	
Change Settings	Auto	
	IO=2F8h; IRQ=3;	
	IO=3F8h; IRQ=3,4,5,7,10,11,12;	
	IO=2F8h; IRQ=3,4,5,7,10,11,12;	
	IO=3E8h; IRQ=3,4,5,7,10,11,12;	
	IO=2E8h; IRQ=3,4,5,7,10,11,12;	

Select a resource setting for Super IO device.		
Device Type	RS232	
	RS422	
	RS485	
Configure COM2 operated	d as RS232, RS422 or RS485.	

H/W Monitor

Aptio Setup Utility Advanced	– Copyright (C) 2012 America	n Megatrends, Inc.
Pc Health Status		
CPU temperature System temperature CPU_VCORE VCC_DIMM 3.3V 3VSB VBAT	: +35 C : +35 C : +1.088 V : +1.512 V : +3.328 V : +3.360 V : +3.216 V	<pre>+*: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.15.1226.	Copyright (C) 2012 American	Megatrends, Inc.

Setup submenu: Chipset

Aptio Setup Utility – Copyright (C) 2012 Ame Main Advanced <mark>Chipset</mark> Boot Security Save & Exit	erican 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 & Kxit ESC: Exit
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Host Bridge	
Host Bridge Parameters	
South Bridge	
South Bridge Parameters	

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Host Bridge

Aptio Setup Utility - Chipset	Copyright (C) 2012 American	Megatrends, Inc.
******* Memory Information ****** Memory Frequency Total Memory	800 MHz(DDR3) 1024 MB	Configure Fixed Graphics Memory Size
Intel IGD Configuration Fixed Graphics Memory Size		
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1226. Cc	puright (C) 2012 American M	egatrends. Inc.

Fixed Graphics Memory	128MB	
Size	256MB	
Configure Fixed Graphics Memory Size		

South Bridge

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc. Chipset		
▶ Onboard Devices		Enable/Disable Intel(R) IO Controller Hub (TPT) devices
High Precision Event Timer Configurat High Precision Timer	tion [Enabled]	
Power Mode SLP_S4 Assertion Width Restore AC Power Loss	[ATX Type] [1-2 Seconds] [Last State]	
		++: 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. Cor	ouright (C) 2012 American M	egatrends, Inc.

Onboard Devices		
Onboard devices parame	ters configurations	
High Precision Timer	Enabled	
	Disabled	
Enable or Disable the High Precision Event Timer		
Power Mode	АТХ Туре	
	АТ Туре	
Select the power type used on the system		
SLP_S4 Assertion Width	1-2 Seconds	
	2-3 Seconds	

	3-4 Seconds	
	4-5 Seconds	
Select a minimum asserti	on width of the SLP_S4# sig	nal
Restore AC Power Loss	Power On	
	Power Off	
	Last State	
Select AC power state when power is re-applied after a power failure.		

Onboard Devices

Aptio Setup L Chipset	Jtility – Copyright (C) 2012 Amer	ican Megatrends, Inc.
Azalia Controller LANI Controller LAN2 Controller SMBus Controller	[HD_Audio] [Enabled] [Enabled] [Enabled]	Azalia Controller
		<pre>+: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
	5.1226. Copyright (C) 2012 Americ	an Megatrends, Inc.

Azalia Controller	Disabled	
	HD Audio	
Enable or disable Azalia Controller		
LAN1 Controller	Disabled	
	Enabled	
Enable or disable Realtek R8111E PCIE Lan Device		
LAN2 Controller	Disabled	
	Enabled	
Enable or disable Realtek R8111E PCIE Lan Device		

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SMBus Controller	Disabled	
	Enabled	
Enable or Disable OnChip SMBus Controller		

Setup submenu: Boot

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc. Main Advanced Chipset <mark>Boot</mark> Security Save & Exit		
Boot Configuration Quiet Boot Launch LAN PXE OpROM	[Enabled] [Disabled]	Enables or disables Quiet Boot option
Boot Option Priorities Boot Option #1 Boot Option #2 Boot Option #3 Boot Option #4 Boot Option #5 CD/DVD ROM Drive BBS Priorities Hand Drive BBS Priorities Floppy Drive BBS Priorities Network Device BBS Priorities	[Device Modelname] [Device Modelname] [Device Modelname] [Device Modelname] [Device Modelname]	++: Select Screen 1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version_2_15_122	6. Copyright (C) 2012 Americ	an Megatrends, Inc.

Quiet Boot	Disabled	
	Enabled	
En/Disable showing boot lo	go.	
Launch LAN PXE OpROM	Disabled	
	Enabled	
En/Disable PXE boot for RT	L8111E LAN	
Boot Option #X/		
XXXX Drive BBS Priorities		
The order of boot priorities.		

BBS Priorities

	Aptio Setup Utility – Copyrigh Boot	t (C) 2012 American	Megatrends, Inc.
Boot Option # Boot Option # Boot Option # Boot Option # Boot Option #	1 Device 2 Device 3 Device 4 Device 5 Device 6 Device	Modelname] Modelname] Modelname] Modelname] Modelname] Modelname]	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 American Me	egatrends, Inc.

Boot Option #x	Disabled	
	Device name	
Sets the system boot order		

Setup submenu: Security

Aptio Setup Utility Main Advanced Chipset Boot Se	- Copyright (C) 2012 American curity <mark>Save & Exit</mark>	Megatrends, Inc.
Password Description		Set Administrator Password
If ONLY the Administrator's passwon then this only limits access to Se only asked for when entering Setup If ONLY the User's password is set is a power on password and must be boot or enter Setup. In Setup the M have Administrator rights. The password length must be in the following range: Minimum length	rd is set, sup and is then this entered to Jser will	
Maximum length	20	++: Select Screen
Administrator Password		Enter: Select
User Password		+/-: Change Opt. F1: General Help F2: Previous Values
HDD Security Configuration: HDD 0:HDD Modelname		F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1226. (Copyright (C) 2012 American Mo	egatrends, Inc.

Administrator Password/	Not set	
User Password		
You can install a Supervisor	password, and if you insta	all a supervisor password, you
can then install a user pass	word. A user password doe	es not provide access to many
of the features in the Setup	utility.	
Install the Password:		
Press Enter on this item, a c	dialog box appears which le	ets you enter a password. You
can enter no more than six I	etters or numbers. Press I	Enter after you have typed in
the password. A second dia	log box asks you to retype	the password for
confirmation. Press Enter af	ter you have retyped it cor	rectly. 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.

HDD Security

Aptio Se	tup Utilit	:y − Copyright (C) 2012 Ar Security	merican Megatrends, Inc.
HDD Password Description Allows Access to Set HardDisk User and Maste User Password need to b Enabling Security, Mas- be Modified only when s with Master Password in HDD PASSWORD CONFIGURAT	on : , Modify er Passwor de install ter Passwo successful n POST. TION:	and Clear ds. ed for nd can ly unlocked	
Security Supported Security Enabled Security Locked Security Frozen HOD User Pwd Status HDD Master Pwd Status Set User Password Set Master Password	:::::::::::::::::::::::::::::::::::::::	Yes No No NO INSTALLED INSTALLED	++: Select Screen fl: 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 Amer	rican Megatrends, Inc.

Set User Password/	Not set	
Set Master Password		
You can install a Master and	d User password. Before boo	oting to OS, HDD will be set
to frozen state. On S3 resur	me HDD will be unlocked usi	ing the HDD Password we
entered while system bootir	ng.	
Install the Password:		
Press Enter on this item, a c	dialog box appears which let	s you enter a password. You
can enter no more than six	letters or numbers. Press Er	nter after you have typed in
the password. A second dia	log box asks you to retype th	ne password for
confirmation. Press Enter a	fter you have retyped it corre	ectly. 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

Aptio Setup Utility – Copyright (C) 2012 American Main Advanced Chipset Boot Security <mark>Save & Exit</mark>	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	
	++: 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 M	egatrends, Inc.

Save Changes and Reset		
Reset the system after saving the	ne changes	
Discard Changes and Reset		
Reset system setup without sav	ring any changes	
Restore Defaults		
Restore/Load Default values for	all the setup options.	
Save as User Defaults		
Save the changes done so far a	as User Defaults	
Restore User Defaults		
Restore the User Defaults to all	the setup options	

.

Chapter

Driver Installation

Chapter 4 Driver Installation 4-1

The AEC-6402 comes with an AutoRun CD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver CD, the driver CD-title will auto start and show the installation guide. If not, please follow the sequence below to install the drivers.

Follow the sequence below to install the drivers:

- Step 1 Install Chipset Driver
- Step 2 Install VGA Driver
- Step 3 Install LAN Driver
- Step 4 Install AHCI Driver
- Step 5 Install Serial Port Driver (Optional)
- Step 6 Install Wireless Driver (Optional)
- Step 7 Install CAN Bus Driver (Optional)

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the AEC-6402 CD-ROM into the CD-ROM drive. And install the drivers from Step 1 to Step 7 in order.

Step 1 – Install Chipset Driver

- Click on the STEP1-Chipset folder and select the OS folder your system is
- Double click on the *infinst_autol_1034.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 2 – Install VGA Driver

For Windows[®] 7

- Click on the STEP2-VGA folder and select the folder of WIN7_32
- 2. Double click on the **Setup.exe** file
- 3. Follow the instructions that the window shows
- 4. The system will help you install the driver automatically

For Windows[®] XP

- 1. Install Framework 3.5
 - Double click on the *dotnetfx35.exe*
 - Follow the instructions that the window shows
 - The system will help you install the driver automatically

- 2. Install IEMGD
 - Double click on the *WindowsDriverSETUP.exe*
 - Select the configuration
 - Follow the instructions that the window shows
 - The system will help you install the driver automatically



Chapter 4 Driver Installation 4-4

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ntelR Embedded Media and Graphics Driver Setup	×
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* If you are an End-User, then only Exhibit A, the INTEL END-USER SOFTWARE LICENSE AGREEMENT, applies.	
C I disagree Install Close	

The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (<u>Tell me why</u> this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.
If you want to update driver, please uninstall driver first.

Uninstall IEMGD

- 1. Double click on the WindowsDriverSETUP.exe
- 2. Follow the instructions that the window shows
- 3. The system will help you uninstall the driver automatically



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

Step 4 – Install AHCI Driver

Please refer to the Appendix C AHCI Setting

Chapter 4 Driver Installation 4-6

Step 5 – Serial Port Driver (Optional)

For Windows[®] XP:

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

For Windows[®] 7:

1. Create a password for Administrator account.



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



3. Reboot and Administrator login.



Chapter 4 Driver Installation 4-8

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



Step 6 – Install Wireless Driver (Optional)

- Click on the STEP6-Wireless (Optional) folder and select the OS folder your system is.
- Double click on the VN9271_Windows_V1.3.0.0_x86 located in each OS folder
- 3. Follow the instructions that the window shows
- 4. The system will help you install the driver automatically

Step 7 – Install CAN Bus Driver (Optional)

- Click on the STEP7-CAN Bus (Optional) folder and select the OS folder your system is.
- 2. Double click on the install.exe located in each OS folder

- 3. Follow the instructions that the window shows
- 4. The system will help you install the driver automatically

Appendix A

Programming the Watchdog Timer

Appendix A Programming the Watchdog Timer A-1

A.1 Watchdog Timer Registers

Table 1 : Watch dog relative IO address		
	Default Value	Note
I/O Base	0xA00	I/O Base address for Watchdog operation.
Address		This address is assigned by SIO LDN7, register 0x60-0x61.

Table 2 : Watchdog relative register table				
Register	Offset	BitNum	Value	Note
Watchdog WDTRST# Enable Pulse Width	0x00 0x05	7 0:1	1 01	Enable/Disable time out output via WDTRST# 0: Disable 1: Enable Width of Pulse signal 00: 1ms (do not use) 01: 25ms 10: 125ms
				11: 5s Pulse width is must longer then 16ms.
Signal Polarity	0x05	2	0	0: low active 1: high active <i>Must set this bit to 0</i>
Counting Unit	0x05	3	0	Select time unit. O: second 1: minute
Output Signal Type	0x05	4	1	0: Level 1: Pulse <i>Must set this bit to 1</i>
Watchdog Timer Enable	0x05	5	1	0: Disable 1: Enable
Timeout Status	0x05	6	1	1: timeout occurred. Write a 1 to clear timeout status
Timer Counter	0x06			Time of watchdog timer (0~255)

Appendix A Programming the Watchdog Timer A-2

A.2 WatchDog Sample Program

```
****
// WDT I/O operation relative definition (Please reference to Table 1)
#define WDTAddr
                0xA00 // WDT I/0 base address
Void WDTWriteBvte(bvte Register. bvte Value);
byte WDTReadByte(byte Register);
Void WDTSetReg(byte Register, byte Bit, byte Val);
// Watch Dog relative definition (Please reference to Table 2)
#define DevRea
                0x00 // Device configuration register
   #define WDTRstBit 0x80 // Watchdog WDTRST# (Bit7)
   #define WDTRstVal 0x80 // Enabled WDTRST#
                0x05 // Timer register
#define TimerBeg
   #define PSWidthBit
                    0x00 // WDTRST# Pulse width (Bit0:1)
   #define PSWidthVal
                    0x01 // 25ms for WDTRST# pulse
   #define PolarityBit 0x02 // WDTRST# Signal polarity (Bit2)
   #define PolarityVal 0x00 // Low active for WDTRST#
   #define UnitBit
                   0x03 // Unit for timer (Bit3)
   #define ModeBit
                   0x04 // WDTRST# mode (Bit4)
   #define ModeVal
                   0x01 // 0:level 1: pulse
   #define EnableBit 0x05 // WDT timer enable (Bit5)
   #define EnableVal 0x01 // 1: enable
   #define StatusBit 0x06 // WDT timer status (Bit6)
#define CounterReg 0x06 // Timer counter register
******
*****
*****
VOID Main(){
     // Procedure : AaeonWDTConfig
     // (byte)Timer : Counter of WDT timer.(0x00~0xFF)
     // (boolean)Unit : Select time unit(0: second, 1: minute).
     AaeonWDTConfig(Counter, Unit);
```

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```
// Procedure : AaeonWDTEnable
     // This procudure will enable the WDT counting.
     AaeonWDTEnable();
}
       ************
*****
*****
// Procedure : AaeonWDTEnable
VOID AaeonWDTEnable (){
     WDTEnableDisable(1);
}
// Procedure : AaeonWDTConfig
VOID AaeonWDTConfig (byte Counter, BOOLEAN Unit){
     // Disable WDT counting
     WDTEnableDisable(0);
     // Clear Watchdog Timeout Status
     WDTClearTimeoutStatus();
     // WDT relative parameter setting
     WDTParameterSetting(Timer, Unit);
}
VOID WDTEnableDisable(byte Value){
      |f(Va|ue == 1)
         WDTSetBit(TimerReg, EnableBit, 1);
      else
         WDTSetBit(TimerReg, EnableBit, 0);
}
VOID WDTParameterSetting(byte Counter, BOOLEAN Unit){
     // Watchdog Timer counter setting
     WDTWriteByte(CounterReg, Counter);
     // WDT counting unit setting
     WDTSetBit(TimerReg, UnitBit, Unit);
```

Appendix A Programming the Watchdog Timer A-4

AEC-6402

```
// WDT output mode set to pulse
     WDTSetBit(TimerReg, ModeBit, ModeVal);
     // WDT output mode set to active low
     WDTSetBit(TimerReg, PolarityBit, PolarityVal);
     // WDT output pulse width is 25ms
     WDTSetBit(TimerReg, PSWidthBit, PSWidthVal);
     // Watchdog WDTRST# Enable
     WDTSetBit(DevReg, WDTRstBit, WDTRstVal);
}
VOID WDTClearTimeoutStatus(){
     WDTSetBit(TimerReg. StatusBit. 1);
}
     **********************
*****
******
*****
VOID WDTWriteByte(byte Register, byte Value){
     IOWriteByte(WDTAddr+Register, Value);
}
byte WDTReadByte(byte Register){
     return IOReadByte(WDTAddr+Register);
}
VOID WDTSetBit(byte Register, byte Bit, byte Val){
     byte TmpValue;
     TmpValue = WDTReadByte(Register);
     TmpValue &= \sim(1 \ll Bit);
     TmpValue |= Val << Bit;
     WDTWriteBvte(Register. TmpValue);
}
  *****
```

Appendix

I/O Information

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D.1 I/O Address Map

4	Inp	ut/output (IO)
	-19	[00000000 - 0000001F] Direct memory access controller
	-1	[00000000 - 00000CF7] PCI bus
	-1	[00000010 - 0000001F] Motherboard resources
	-19	[00000020 - 00000021] Programmable interrupt controller
	-1	[00000022 - 0000003F] Motherboard resources
	-1-	[00000024 - 00000025] Programmable interrupt controller
	-1	[00000028 - 00000029] Programmable interrupt controller
	1	[0000002C - 0000002D] Programmable interrupt controller
	-1-	[0000002E - 0000002F] Motherboard resources
	1	[00000030 - 00000031] Programmable interrupt controller
	-1-	[00000034 - 00000035] Programmable interrupt controller
	12	[00000038 - 00000039] Programmable interrupt controller
	-1-	[0000003C - 0000003D] Programmable interrupt controller
		[00000040 - 00000043] System timer
	-1-2	[00000044 - 0000005F] Motherboard resources
		[0000004E - 0000004F] Motherboard resources
		[00000000 - 00000053] System timer
		[00000061 - 00000061] Motherboard resources
	1	[0000002 - 0000005] Motherboard resources
	12	[0000005 - 0000005] Motherboard resources
		[0000005 - 0000005] Motherboard resources
		[0000005 - 0000007] Motherboard resources
	1	[0000007] - 0000007] Motherboard resources
		[00000070 - 00000070] Wisting Sources
	1	[00000072 - 0000007F] Motherhoard resources
		[00000080 - 00000080] Motherboard resources
		[00000080 - 00000080] Motherboard resources
		[00000081 - 00000091] Direct memory access controller
		[00000084 - 00000086] Motherboard resources
		[00000088 - 00000088] Motherboard resources
1 4		[0000008C - 0000008E] Motherboard resources
		[00000090 - 0000009F] Motherboard resources
		[00000092 - 00000092] Motherboard resources
	-1	[00000093 - 0000009F] Direct memory access controller
	-1	[000000A0 - 000000A1] Programmable interrupt controller
	-19	[000000A2 - 000000BF] Motherboard resources
	-1	[000000A4 - 000000A5] Programmable interrupt controller
	-19	[000000A8 - 000000A9] Programmable interrupt controller
	-1	[000000AC - 000000AD] Programmable interrupt controller
	-1	[000000B0 - 000000B1] Programmable interrupt controller
	-1	[000000B2 - 000000B3] Motherboard resources
	-1-	[000000B4 - 000000B5] Programmable interrupt controller
	-1-	[000000B8 - 000000B9] Programmable interrupt controller
	-1-1-	[000000BC - 000000BD] Programmable interrupt controller
	1	[UUUUUUUU - UUUUUUDF] Direct memory access controller
	1	[UUUUUUEU - UUUUUUEF] Motherboard resources
		[000000F0 - 000000F0] Numeric data processor
	T	
	-	[000002P0_000002P1_Intel/P)_Crambias Madia Accelerates 2000 Center
3 F	-	[UUUUUSBU - UUUUUSBB] Intel(K) Graphics Media Accelerator 3000 Series

Appendix B I/O Information B-2

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[00000400 - 0000047F] Motherboard resources
[00000400 - 0000047F] Motherboard resources
[000004D0 - 000004D1] Programmable interrupt controller
[00000500 - 0000057F] Motherboard resources
[000006A0 - 000006AF] Motherboard resources
📲 [000006B0 - 000006EF] Motherboard resources
💭 👰 [00000718 - 0000071F] AAEON CAN DRIVER - A
💭 👰 [0000D000 - 0000D0FF] Realtek PCIe GBE Family Controller #2
🔤 [0000E000 - 0000E0FF] Realtek PCIe GBE Family Controller
📖 🏺 [0000F020 - 0000F03F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
🔤 🖟 🖟 [0000F040 - 0000F05F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
🔤 🖟 [0000F060 - 0000F07F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
📖 🏺 [0000F080 - 0000F09F] Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
[0000F0B0 - 0000F0B3] Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
[0000FFFF - 0000FFFF] Motherboard resources

D.2 Memory Address Map

🖌 📕 Mem	ory
[0]	0000000 - 00000FFF] Motherboard resources
0] 🜉 [0	0000000 - 00000FFF] Motherboard resources
j 🛄 [0	0000000 - 00003FFF] Motherboard resources
	00A0000 - 000BFFFF] Intel(R) Graphics Media Accelerator 3600 Series
0] 🜉 [0	00A0000 - 000BFFFF] PCI bus
	00C0000 - 000DFFFF] PCI bus
0] 🜉 [0	00E0000 - 000EFFFF] PCI bus
0] 🜉 [0	00F0000 - 000FFFFF] PCI bus
- [C	CF800000 - CFFFFFFF] PCI bus
[C	0000000 - FEBFFFFF] PCI bus
- 📲 (C	OFC00000 - DFCFFFFF] Intel(R) Graphics Media Accelerator 3600 Series
	0FD00000 - DFD03FFF] Realtek PCIe GBE Family Controller #2
	0FD00000 - DFDFFFFF] Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
- 💽 [C	0FD04000 - DFD04FFF] Realtek PCIe GBE Family Controller #2
(C	DFE00000 - DFE03FFF] Realtek PCIe GBE Family Controller
(C	OFE00000 - DFEFFFFF] Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
[C	DFE04000 - DFE04FFF] Realtek PCIe GBE Family Controller
- (E	OFF00000 - DFF03FFF] High Definition Audio Controller
	0FF04000 - DFF043FF] Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
🏺 (C	0FF05000 - DFF053FF] Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
	0000000 - EFFFFFFF] System board
	EC00000 - FEC00FFF] Motherboard resources
- 👰 (F	ED00000 - FED003FF] High precision event timer
	ED14000 - FED19FFF] System board
- 🖳 (F	ED1C000 - FED1FFFF] Motherboard resources
👰 (F	ED1C000 - FED1FFFF] Motherboard resources
- 🖳 (F	ED20000 - FED8FFFF] Motherboard resources
I [F	ED45000 - FED8FFFF] Motherboard resources
I [F	EE00000 - FEE00FFF] Motherboard resources
	F000000 - FFFFFFFF] Intel(R) 82802 Firmware Hub Device
🖳 (F	F000000 - FFFFFFFF] Intel(R) 82802 Firmware Hub Device
	FC00000 - FFFFFFFF] Motherboard resources

A E C - 6 4 0 2

D.3 IRQ Mapping Chart

Interrupt request (IRO)	
(ISA) 0x00000000 (00)	System timer
(ISA) 0x00000003 (03)	Communications Port (COM2)
(ISA) 0x00000004 (04)	Communications Port (COM1)
(ISA) 0x00000008 (08)	System CMOS/real time clock
(ISA) 0x0000000 (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) 0x000005B (91)	Microsoft ACPI-Compliant System
(ISA) 0x0000055 (92)	Microsoft ACPI-Compliant System
(ISA) 0x0000050 (92)	Microsoft ACPI-Compliant System
(ISA) 0x000005E (94)	Microsoft ACPI-Compliant System
(ISA) 0x000005E (95)	Microsoft ACPI-Compliant System
(ISA) 0x00000001 (SS)	Microsoft ACPI-Compliant System
(ISA) 0x0000000 (SC)	Microsoft ACPI-Compliant System
(ISA) 0x00000001 (37)	Microsoft ACPI-Compliant System
(ISA) 0x0000002 (SO)	Microsoft ACPI-Compliant System
(ISA) 0x00000005 (33)	Microsoft ACPI-Compliant System
(ISA) 0x0000004 (100)	Microsoft ACPI-Compliant System
(ISA) 0x0000005 (101)	Microsoft ACPI-Compliant System
(ISA) 0x0000000 (102)	Microsoft ACPI-Compliant System
(ISA) 0x00000007 (IO3)	Microsoft ACPI-Compliant System
(ISA) 0x0000000 (104)	Microsoft ACPI-Compliant System
(ISA) 0x00000003 (105)	Microsoft ACPI-Compliant System
(ISA) 0x000000A (100)	Microsoft ACPI-Compliant System
(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
(201) 20000000 (A2I)	Microsoft ACPI-Compliant System
(ISA) 0x0000000 (IOS)	Microsoft ACPI-Compliant System
(ISA) 0x0000000E (110)	Microsoft ACPI-Compliant System
(ISA) 0x0000000 (III)	Microsoft ACPI-Compliant System
(ISA) 0x00000070 (II2)	Microsoft ACPI-Compliant System
(ISA) 0x00000071 (IIS)	Microsoft ACPI-Compliant System
(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
(ISA) 0x00000073 (IIS)	Microsoft ACPI-Compliant System
(ISA) 0x00000074 (II0)	Microsoft ACPI-Compliant System
(ISA) 0x00000075 (II7)	Microsoft ACPI-Compliant System
(118) 0/0000000 (ACI)	Microsoft ACPI-Compliant System
(ISA) 0x00000077 (II9)	Microsoft ACPI-Compliant System
(ISA) 0x00000076 (I20)	Microsoft ACPI-Compliant System
(ISA) 0X00000079 (IZI)	Microsoft ACPI-Compliant System
(ISA) 0X0000007A (IZZ)	Microsoft ACPI-Compliant System
(ISA) 0x0000007B (I23)	Microsoft ACPI-Compliant System
(ISA) 0x000007C (I24)	Microsoft ACPI-Compliant System
(ISA) 0x0000007D (I2S)	Misseeft ACRI Compliant System
(ISA) 0X000007E (I26)	witcrosoft ACPI-Compliant System

AEC-6402

	Microsoft ACPI-Compliant System
(ISA) 0x0000080 (128)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
(ISA) 0x0000082 (130)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
(ISA) 0x0000084 (132)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
(ISA) 0x0000087 (135)	Microsoft ACPI-Compliant System
(ISA) 0x0000088 (136)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
ISA) 0x000008A (138)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
(ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
	Microsoft ACPI-Compliant System
	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 (I68)	Microsoft ACPI-Compliant System
(ISA) 0x000000A9 (IS9)	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) 0x00000000 (173)	Missesseft ACPI-Compliant System
(ISA) 0X000000AE (174)	Microsoft ACPI-Compliant System
(ISA) 0x000000AF (I75)	Misrosoft ACPI-Compliant System
(ISA) 0x00000B1 (176)	Microsoft ACPI-Compliant System
	witcrosoft ACPI-Compliant System

Appendix B I/O Information B-6

A E C - 6 4 0 2

	(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
1	(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) 0x0000000A (10)	Intel(R) N10/ICH7 Family SMBus Controller - 27DA
	(PCI) 0x00000010 (16)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D0
···· 🏺	(PCI) 0x00000010 (16)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CB
	(PCI) 0x00000011 (17)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D2
	(PCI) 0x00000012 (18)	AAEON CAN DRIVER - B
	(PCI) 0x00000012 (18)	Intel(R) N10/ICH7 Family PCI Express Root Port - 27D4
···· 🏺	(PCI) 0x00000012 (18)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27CA
	(PCI) 0x00000013 (19)	Intel(R) N10/ICH7 Family Serial ATA Storage Controller - 27C0
···· -	(PCI) 0x00000013 (19)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C9
	(PCI) 0x00000016 (22)	High Definition Audio Controller
Q	(PCI) 0x00000017 (23)	Intel(R) N10/ICH7 Family USB Universal Host Controller - 27C8
	(PCI) 0x00000017 (23)	Intel(R) N10/ICH7 Family USB2 Enhanced Host Controller - 27CC
	(PCI) 0xFFFFFFC (-4)	Realtek PCIe GBE Family Controller #2
	(PCI) 0xFFFFFFD (-3)	Realtek PCIe GBE Family Controller
	(PCI) 0xFFFFFFFE (-2)	Intel(R) Graphics Media Accelerator 3600 Series

D.4 DMA Channel Assignments

- Direct memory access (DMA)
 - 4 Direct memory access controller
- > Input/output (IO)
- ▷ 📕 Interrupt request (IRQ)
- b Memory



AHCI Setting

Appendix CAHCI Setting C-1

A E C - 6 4 0 2

C.1 Setting AHCI

OS installation to setup AHCI Mode.

Step 1: Copy the files below from "Driver CD -> STEP5-AHCI\WIN7_32\F6

Install Floppy Create for 32 and 64 bit Windows" to Disk





TXTSETUP.OEM OEM 檔案 2 KB





Step 2: Setup OS



Appendix CAHCI Setting C-2

Step 3: Press "F6"



Step 4: Choose "S"



Appendix CAHCI Setting C-3





Step 6: It will show the model number you select and then press "ENTER

Step 7: Setup is loading files

