#### **FSB-860B**

Intel® Pentium® 4 & Celeron® Processors Full-size CPU Card With DDR, Ethernet, CompactFlash<sup>™</sup>

FSB-860B Manual 1st Ed. Dec. 2004

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# Packing List

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

- 1 FSB-860B CPU Card
- 1 Floppy Cable
- 1 ATA-100 Cable
- 1 USB Cable
- 1 KB Cable
- 1 Serial + Parallel Cable
- 1 Serial Cable
- 1 ATX Cable
- 1 Quick Installation Guide
- 1 CD-ROM for manual (in PDF format) and drivers

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

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# Chapter

# General Information

#### **1.1 Introduction**

Introducing AAEON' s new FSB-860B, powered by Intel<sup>®</sup> Pentium<sup>®</sup>4 processor, full-size form factor single board computer (SBC) with an onboard CompactFlash Type II and five USB 2.0 ports.

FSB-860B successfully deployed Intel<sup>®</sup> most advanced 82845GV chipset, which supports high CPU frequency up to 3.06GHz Prescott with front side bus running at 400MHz/533MHz. FSB-860B supports Intel<sup>®</sup> Hyper-Threading Technology gives you the best overall Pentium<sup>®</sup> 4 processor performance available. FSB-860B also provides high memory capacity up to 2GB DDR DRAM (DDR266/333).

In addition to its powerful computing engine, the full functional design of the board includes features such as chipset integrated 2D/3D graphics engine with AGP 4x bandwidth, built-in USB2.0 and on board CompactFlash Type II socket. FSB-860B delivers super graphic performance without additional cost on integrated Intel<sup>®</sup> Extreme Graphics architecture to maximize VGA performance capability.

Five USB 2.0 ports provide an expandable, Plug and Play serial interface that ensures a standard low-cost connection for peripheral

devices. Industrial applications will benefit from the five USB 2.0 by two pin-headers, offering 480 Mbps high-speed efficiency and value without compromising performance.

Moreover, FSB-860B is also equipped with Dual Intel<sup>®</sup> Ethernet controllers. One of these provides superior 1Giga Mbps networking access ability for high speed networking applications such as gateway, VPN and Mini server. FSB-860B is a versatile Pentium<sup>®</sup>4 level compact board with the best cost-performance for CTI, networking and mini-server markets.

#### 1.2 Feature

- Supports Intel<sup>®</sup> Pentium<sup>®</sup> 4 CPU up to 3.06GHz (Prescott CPU supports)
- Integrated AC-97 Codec Audio (Daughter Board optional)
- Support Ultra ATA100 & CompactFlash™ Type II Storage
- Supports 5 USB 2.0 Ports
- Supports RS-232 x 1, RS-232/422/485 x 1
- Supports 1 parallel port
- Supports 1 IrDA port
- Integrated AGP 4X 2D/3D Graphics Accelerator, VGA output support
- Supports DDR333 Memory up to 2GB
- Watchdog Function 1~255 sec.
- Supports Dual 10/100Base-TX Ethernet (one 10/100/1000Base-T optional)
- ISA High-driver supports up to 20 slot 64mA fan-out

#### 1.3 Specification

System				
•	CPU:	Support Intel <sup>®</sup> Pentium <sup>®</sup>		
		and Celeron <sup>®</sup> Processors		
		up to 3.06 GHz		
		(400/533MHz FSB)		
•	Chipset:	$Intel^{^{(\!\!\!\!R)}}$ 845GV + $Intel^{^{(\!\!\!\!R)}}$		
		82801DB (ICH4)		
•	I/O Chipset:	ITE-8712. Fully 16-bit I/O		
		decoded		
•	Ethernet:	10/100Mb or10/100/1000Mb		
		LAN optional, RJ-45 x 2,		
		Intel <sup>®</sup> 82562ET/ 82551QM /		
		82541GI controller		
•	System Memory:	184 pins 2.5V DDR DIMM		
		Socket x 2, total up to 2GB		
		Support DDR333 memory		
		(DDR266/333)		
•	BIOS:	Award Plug & Play		
		Firmware Hub BIOS – 4Mb		
		ROM		
•	Watchdog Timer:	1~255 sec., 64 level and		
		can be set with software on		
		Super I/O		

Full-size CPU Card	F S B - 8 6 0 B
• SSD:	Type II CompactFlash™ slot
Expansion Interface:	PICMG
VGA Controller:	Integrated on Intel <sup>®</sup> 845GV,
	AGP, Core frequency up to
	266Mhz
Audio Daughter board:	Realtek ALC655 AC97
	Codec, MIC-in/ Line-in/
	Line-out/CD-in (Optional)
IDE Interface:	ATA-100 x 2 channels
	(Supports two ATAPI
	devices)
Floppy Drive Interface:	One standard FDD port,
	supports up to two floppy
	devices
Serial Port:	Two COM ports: (Internal
	Pin Header, External D-sub
	x 2)
	COM 1: RS-232
	COM 2: RS-232/422/485
Parallel Port:	Support SPP/EPP/ECP
	mode
K/B & Mouse:	One Mini-DIM PS/2 KB &
	Mouse Connector
	One internal keyboard pin
	header

Full-s	ize CPU Card	F S B- 8 6 0 B
•	Universal Serial Bus:	USB 2.0 Port x 5
		5 x 2 pin header for internal
		x 2; Type-A connector
		onboard x 1
•	IR Interface:	Support IrDA header x 1
•	RTC:	Internal RTC
Displa	ау	
•	Chipset:	Intel <sup>®</sup> 82845GV
•	Display Memory:	Share up to 8MB with
		Dynamic Video Memory
		Technology
•	Display Type:	Supports non-interlaced
		CRT
•	Resolution:	Up to 1600 x 1200 @ 16.7M
		colors

#### **Mechanical and Environment**

- Dimension: 13.3"(L) x 4.8"(W)
- Weight: 1.2lb (0.5kg)
- Operation Temp: 0 ~60 (32~140 )
- Battery: Lithium battery
- Power Supply Voltage: ATX 12V, 5V



# Quick Installation Guide

#### Notice:

The Quick Installation Guide is derived from Chapter 2 of user manual. For other chapters and further installation instructions, please refer to the user manual CD-ROM that came with the product.



Part No. 2007860B10 Printed in Taiwan Dec. 2004

#### 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.

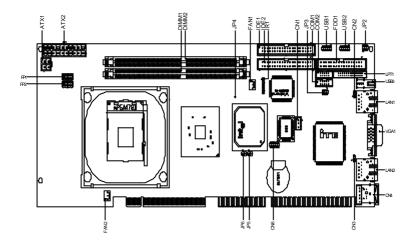
Caution!



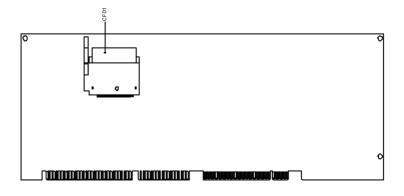
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

#### 2.2 Location of Connectors and Jumpers

#### **Component Side**



Solder Side

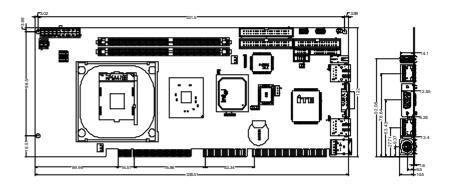


#### Chapter 2 Quick Installation Guide

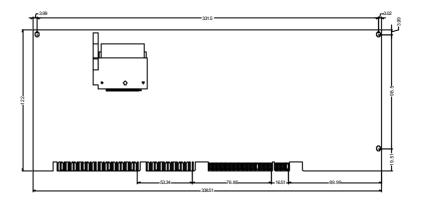
• (2000) •

#### 2.3 Mechanical Drawing

#### **Component Side**



Solder Side



#### Chapter 2 Quick Installation Guide

#### 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
JP3	COM Port Ext. Power Selection
JP4	Clear CMOS
JP5	CPU Frequency Selection
JP6	CPU Frequency Selection

#### Jumpers

#### 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
CN1	ATX Power Control Connector
CN2	LAN 1 Active LED Connector
CN3	LAN 2 Active LED Connector
CN4	PS/2 keyboard/Mouse Connector
CN5	Internal keyboard Connector
CN6	AC97 Connector
FP 1	Front Panel Connector 1
FP 2	Front Panel Connector 2
ATX 2	ATX Power Connector
ATX 1	ATX Power_12V Connector
VGA 1	VGA Display Connector
FDD 1	Floppy Connector
IDE 1~2	EIDE Connector
CFD 1	CompactFlash Slot
COM 1	RS-232 Serial Port Connector
COM 2	RS-232/422/485 Serial Port Connector
IR 1	IrDA Connector

#### Connectors

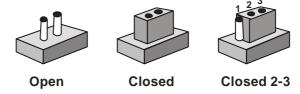
Chapter 2 Quick Installation Guide

LPT 1	LPT Port Connector
USB 1~2	USB Connector
USB 3	USB Connector
LAN 1	10/100M Base-Tx Ethernet Connector
LAN 2	10/100M or 100/1000Base-Tx Ethernet Connector
DIMM 1~2	DIMM Slot
FAN 1~2	Fan 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 COM Port Ext. Power Selection (JP3)

JP3	Function
1-2	12 V
3-4	5 V
5-6	RI (Default)

#### 2.8 Clear CMOS (JP4)

JP4	Function
Open	Normal (Default)
Closed	Clear

#### 2.9 CPU Frequency Selection (JP5, JP6)

FSB Frequency	JP5	JP6
Auto	Close	Open

#### 2.10 Front Panel Connector (FP1)

Pin	Signal	Pin	Signal
1	Power On Button (+)	2	Reset Switch (+)
3	Power On Button (-)	4	Reset Switch (-)
5	IDE LED (+)	6	Power LED (+)
7	IDE LED (-)	8	Power LED (-)

#### 2.11 Front Panel Connector (FP2)

Pin	Signal	Pin	Signal
1	External Speaker (+)	2	Keyboard Lock (+)
3	N.C.	4	GND
5	Internal Buzzer (-)	6	I2C Bus SMB Clock
	Default		
7	External Speaker (-)	8	I2C Bus SMB Data
	Default		

\* Internal Buzzer enable: Close Pin 5, 7

#### 2.12 RS-232 Serial Port Connector (COM 1)

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	N.C.

#### 2.13 RS-232/422/485 Serial Port Connector (COM 2)

Signal	Pin	Signal
DCD	2	RXD (422RXD+)
(422TXD-/485DATA-)		
TXD	4	DTR (422RXD-)
(422TXD+/485DATA+)		
GND	6	DSR
	DCD (422TXD-/485DATA-) TXD (422TXD+/485DATA+)	DCD       2         (422TXD-/485DATA-)       4         TXD       4         (422TXD+/485DATA+)       4

F	Full-size CPU Card		F S B - 8 6 0 B	
7	RTS	8	CTS	
9	RI/+12V	10	N.C.	

#### 2.14 IrDA Connector (IR1)

Pin	Signal
1	+5V
2	N.C.
3	IRRX
4	GND
5	IRTX
6	N.C.

#### 2.15 LPT Port Connector (LPT1)

Pin	Signal	Pin	Signal
1	#STROBE	2	#AFD
3	DATA0	4	#ERROR
5	DATA1	6	#INIT
7	DATA2	8	#SLIN
9	DATA3	10	GND
11	DATA4	12	GND
13	DATA5	14	GND
15	DATA6	16	GND
17	DATA7	18	GND
19	#ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND

25 SELECT 20 N.C.		ELECT	26	N.C.
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#### 2.16 USB Connector (USB 1~2)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD1-	4	GND
5	USBD1+	6	USBD2+
7	GND	8	USBD2-
9	GND	10	+5V

#### 2.17 Fan Connector (FAN1, FAN2)

Pin	Signal
1	GND
2	+12V
3	Speed Sense

#### 2.18 ATX Power Control Connector (CN1)

Pin	Signal	
1	PS-ON	
2	+5V	
3	5VSB	

\* AT Power Use: Close Pin 2, 3

#### 2.19 LAN LED Connector (CN2~3)

Pin	Signal	Pin	Signal	
1	Link_LED(-)	2	Active_LED(+)	

#### 2.20 PS/2 Keyboard/Mouse Connector (CN4)

Pin	Signal
1	KB_DATA
2	MS-DATA
3	GND
4	+5V
5	KB_CLK
6	MS_CLK

#### 2.21 Internal Keyboard Connector (CN5)

Pin	Signal
1	KB_CLK
2	KB_DATA
3	N.C
4	GND
5	+5V

#### 2.22 AC97 Connector (CN6)

Pin	Signal	Pin	Signal
1	AC_RST-	2	AC_SYNC
3	AC_DAIN2	4	AC_DAOUT
5	GND	6	AC_BCLK
7	GND	8	+5V
9	Lock	10	+3.3V

#### 2.23 VGA Display Connector (VGA1)

Pin	Signal	Pin	Signal
1	RED	2	GREEN
3	BLUE	4	N.C
5	GND	6	GND
7	GND	8	GND
9	+5V	10	GND
11	N.C	12	DDCDAT
13	HSYNC	14	VSYNC
15	DDCCLK	16	GND

#### 2.24 Floppy Drive Connector (FDD1)

Pin	Signal	Pin	Signal	
1	GND	2	DRVDEN 0	
3	GND	4	NC	

	Full-size CPU Card		F S B- 8 6 0 B
5	GND	6	DRVDEN 1
7	GND	8	INDEX#
9	GND	10	MTR#0
11	GND	12	DS#1
13	GND	14	DS#0
15	GND	16	MTR#1
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WDATA#
23	GND	24	WGATE#
25	GND	26	TRAK#0
27	GND	28	WRTPRT#
29	GND	30	RDATA#
31	GND	32	HDSEL#
33	GND	34	DSKCHG#

#### 2.25 IDE Hard Drive Connector (IDE1~2)

Pin	Signal	Pin	Signal
1	IDERST#	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA9	10	DATA11

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	Full-size CPU Card		F S B- 8 6 0 B
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	NC
21	REQ	22	GND
23	Disk I/O Write	24	GND
25	Disk I/O Read	26	GND
27	I/O Channel Ready	28	CABLE SELECT
29	DMA Acknowledge:	30	GND
31	Interrupt Request	32	NC
33	Device Address1	34	PD_80P
35	Device Address0	36	Device Address2
37	Chip Selects for 100 Range:	38	Chip Select for 300 Range:
39	HDD DLED#	40	GND

#### 2.26 Compact Flash Connector (CFD1)

Pin	Signal	Pin	Signal
1	GND	26	GND
2	SDD3	27	SDD11
3	SDD4	28	SDD12
4	SDD5	29	SDD13
5	SDD6	30	SDD14

	Full-size CPU Card		F S B-860B
6	SDD7	31	SDD15
7	SDCS#1	32	SDCS#3
8	GND	33	GND
9	GND	34	SDIOR#
10	GND	35	SDIOW#
11	GND	36	VCC
12	GND	37	IRQ15
13	VCC	38	VCC
14	GND	39	CSEL#
15	GND	40	N/C
16	GND	41	IDERST#
17	GND	42	SDRDY
18	SDA2	43	NC
19	SDA1	44	VCC
20	SDA0	45	DASP#
21	SDD0	46	PDIAG#
22	SDD1	47	SDD8
23	SDD2	48	SDD9
24	N/A	49	SDD10
25	GND	50	GND

#### 2.27 LAN Connector (LAN1)

Pin	Signal	Pin	Signal
1	TRD2+ (Gigabit)	13	YLED-
2	TRD0+	14	YLED+
3	TRD0-	15	CGND
4	VCC	16	CGND
5	TRD2- (Gigabit)	12	GLED-
6	TRD3+ (Gigabit)	11	GLED+
7	VCC	10	TRD3- (Gigabit)
8	TRD1+	9	TRD1-

#### 2.28 LAN Connector (LAN2)

Pin	Signal	Pin	Signal
1	NC	13	YLED-
2	TRD0+	14	YLED+
3	TRD0-	15	CGND
4	VCC	16	CGND
5	NC	12	GLED-
6	NC	11	GLED+
7	VCC	10	NC
8	TRD1+	9	TRD1-

# Chapter 3

# Award BIOS Setup

#### 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. Non-fatal error messages usually appear on the screen along with the following instructions:

Press <F1> to RESUME

Write down the message and press the F1 key to continue the boot up sequence.

#### 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 FSB-860B 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 Award BIOS Setup

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

#### **Entering setup**

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

#### **Standard CMOS Features**

Use this menu for basic system configuration. (Date, time, IDE, etc.)

#### **Advanced BIOS Features**

Use this menu to set available advanced features of the system.

#### **Advanced Chipset Features**

Use this menu to change the values in the chipset registers and optimize the system performance.

#### **Integrated Peripherals**

Use this menu to specify the settings for integrated peripherals. (Primary slave, secondary slave, keyboard, mouse etc.)

#### **Power Management Setup**

Use this menu to specify the settings for power management. (HDD power down, power on by ring etc.)

#### **PnP/PCI** Configurations

This entry appears if the system supports PnP/PCI.

#### **PC Health Status**

This menu shows you the status of PC.

#### Frequency/Voltage Control

This menu shows you the display of Frequency/Voltage Control.

#### Load Optimized Defaults

Use this menu to load the BIOS factory defaults that are for optimal performance system operations. While AWARD has designated the custom BIOS to maximize performance, the factory has the rights to change these defaults to meet their needs.

#### Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

#### **Exit Without Saving**

Abandon all CMOS value changes and exit setup.

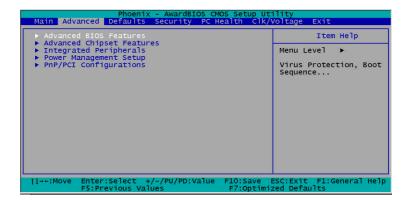
#### 3.3 Standard CMOS Features

When you choose the Standard CMOS Features option from the INITIAL SETUP SCREEN menu, the screen shown below is displayed. This standard Setup Menu allows users to configure system, such as date, time, hard disk drive, floppy drive and display. Once a field is highlighted, on-line help information is displayed in the right box of the Menu screen.

	- AwardBIOS CMOS Setup Ut Security PC Health Clk/	
Date (mm:dd:yy) Time (hh:mm:ss)	Mon, Aug 23 2004 17 : 59 : 52	Item Help
<ul> <li>IDE Primary Master</li> <li>IDE Primary Slave</li> <li>IDE Secondary Master</li> <li>IDE Secondary Slave</li> </ul>	17 : 59 : 52	Menu Level ► Change the day, month, year and century
Drive A Drive B	[1.44M, 3.5 in.] [None]	
Video Halt On	[EGA/VGA] [All , But Keyboard]	
Base Memory Extended Memory Total Memory	640K 64512K 65536K	
†↓→←:Move Enter:Select + F5:Previous Val	/-/PU/PD:Value F10:Save ues F7:Optimi	ESC:Exit F1:General Help zed Defaults

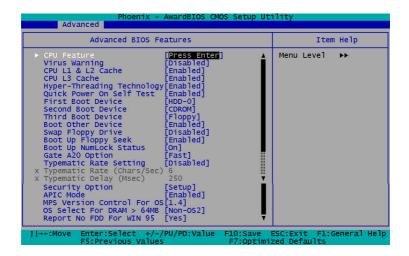
#### **3.4 Advanced BIOS Features**

By choosing the Advanced BIOS Features option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the factory defaults of the FSB-860B.



#### Full size CPU Card

#### FSB-860B



#### CPU Feature

Advanced Phoe	nix – AwardBIOS CM	IOS Setup Uti	ility	
CPU F	CPU Feature		It	em Help
Thermal Management TM2 Bus Ratio TM2 Bus VID Limit CPUID MaxVal NX BIOS Control	[ <mark>Thermal Mor</mark> [ 0 X] [0.8375y] [Disabled] [Enabled]	itor 1)	die thrott Thermal Mo	nitor 1 (On ing)
↑↓→+:Move Enter:Select F5:Previous	+/-/PU/PD:Value Values		SC:Exit F1 ed Defaults	

#### **3.5 Advanced Chipset Features**

By choosing the Advanced Chipset Features option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the factory defaults of the FSB-860B.

Advanced Chipset Features	Item Help
DRAM Timing Selectable       [BY SPD]         CAS Latency Time       [1,5]         Active to Precharge Delay       [3]         DRAM RAS# to CAS# Delay       [3]         DRAM RAS# to CAS# Delay       [3]         DRAM RAS# precharge       [3]         Turbo Mode       [Disabled]         Memory Frequency For       [Auto]         System BIOS Cacheable       [Disabled]         Wemory Hole At 15M-16M       [Enabled]         Delayed Transaction       [Enabled]         Delay Prior to Thermal       [16 Min]         AGP Aperture Size (MB)       [64]         ** On-Chip VGA Setting **       [Enabled]         On-Chip Frame Buffer Size       [8MB]	Menu Level ►►

#### **3.6 Integrated Peripherals**

By choosing the Integrated Peripherals from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the factory defaults of the FSB-860B.

Phoenix -	AwardBIOS CMOS	Setup Uti	lity	
Integrated Perip	herals		Item	не1р
IDE Primary Matter PIO IDE Primary Slave PIO IDE Primary Slave PIO IDE Primary Matter UDMA On-Chip Secondary Matter IDE IDE Secondary Matter PIO IDE Secondary Matter UDMA IDE Secondary Slave UDMA USB Controller USB Controller USB Keyboard Support USB Keyboard Support USB Keyboard Support USB Keyboard Support USB Mouse Support AC97 Audio Onboard LAN 1 Onboard LAN 1 Onboard LAN 2 Init Display First IDE HDD Block Mode POWER ON FUNCTION Onboard Serial Port 1 Onboard Serial Port 2 UART Mode Select UR2 Duplex Mode Onboard Parallel Port Parallel Port Mode ECP Mode USE DMA PWRON After PWR-Fail	[Auto] [Auto] [Auto] [Auto] [Enabled] [Enabled] [Disabled] [Disabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [ButTON ONLY [Enabled] [3F8/IRQ4] [3F8/IRQ5] [Norma1] [Half] [378/IRQ7] [SPP] [3] [Jff]]	↓ ▼ ▼	Menu Level	**
[↓→←:Move Enter:Select +/-/ F5:Previous Values			SC:Exit F1:G ed Defaults	eneral Help

#### 3.7 Power management Setup

By choosing the Power Management Setup from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the factory defaults of the FSB-860B.

Phoenix - Advanced	AwardBIOS CMOS Setup Ut	ility
Power Management	Setup	Item Help
ACPI Function Run VGABIOS if S3 Resume Power Management Video Off Method Video Off In Suspend Suspend Type MODEM Use IRQ Suspend Mode HDD Power Down Soft-Off by PWR-BTTN Wake-Up by PCI card Power On by Ring Resume by Alarm X Date(of Month) Alarm X Time(hh:mm:ss) Alarm	[Enabled] [Auto] [User Define] [PMKs] [Yes] [Stop Grant] [3] [Disabled] [Disabled] [Instant-Off] [Enabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled]	Menu Level ►►
** Reload Global Timer Ev Primary IDE 0 Primary IDE 1 Secondary IDE 1 Secondary IDE 1 FDD,COM,LPT Port PCI PIRQ[A-D]#	ents ** [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled]	
<pre> fi++:Move Enter:Select +/- F5:Previous Value </pre>	/PU/PD:Value F10:Save E s F7:Optimiz	SC:Exit F1:General Help ed Defaults

#### 3.8 PnP/PCI configuration

By choosing the PnP/PCI configurations from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the factory defaults of the FSB-860B.

PnP/PCI Configu	rations	Item Help
PNP OS Installed Reset Configuration Data Resources Controlled By X IRQ Resources X DMA Resources PCI/VGA Palette Snoop	[NO] [Disabled] [Auto(ESCD)] [Disabled]	Menu Level →→ Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices

#### 3.9 PC Health Status

By choosing the PC Health Status from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the factory defaults of the FSB-860B.

Phoenix - AwardBIOS CMOS Setup Ut	
Main Advanced Defaults Security PC Health Clk/V	/oltage Exit
Shutdown Temperature [Disabled]	Item Help
VDDQ 1.5V Vcore Vcc 3.3V Vcc 5V Vcc(-) 12V Vcc(-) 12V Vcc(-) 5V Voltage Battery System temperature 1 System temperature 2 CPU temperature CPU fan speed System fan speed	Menu Level ►
<pre> f↓→+:Move Enter:Select +/-/PU/PD:Value F10:Save E F5:Previous Values F7:Optimiz </pre>	ESC:Exit F1:General Help zed Defaults

Full size CPU Card

#### 3.10 Frequency / Voltage control

By choosing the Frequency/Voltage Control from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the factory defaults of the FSB-860B.

			x – AwardB:					
Main	Advanced	Defaults	Security	PC Hea	lth Clk/	Voltage E>	cit 👘	
	Clock Ra		[ <u>8</u> X] [Enab]			1	tem H	lelp
Spre	clock		[Disab [100MH:	led]		Menu Leve	:] ▶	•
†↓→←∶M		r:Select	+/-/PU/PD: lues			ESC:Exit F		neral Help

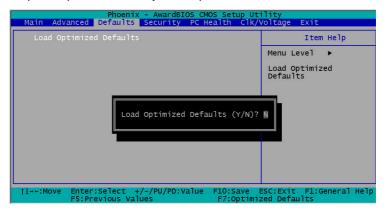
Full size CPU Card

#### 3.11 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)?

Pressing "Y" loads the defaults that are factory settings for optimal performance system operations.



#### 3.12 Save & Exit Setup

If you select this option and press <Enter>, the values entered in the setup utilities will be recorded in the chipset's CMOS memory. The microprocessor will check this every time you turn on your system and compare this to what it finds as it checks the system. This record is required for the system to operate.



Main Advanced Defaults Security PC Health Clk/Vo		
*	Ttage Exit	
Save & Exit Setup Exit Without Saving	Item H	lelp
	MenuLevel 🕨	
	Save Data to C	MOS
SAVE to CMOS and EXIT (Y/N)? M		
	•	
11→+:Move Enter:Select +/-/PU/PD:Value F10:Save ES	C:Exit F1:Gen	eral Help

#### 3.13 Exit without saving

Selecting this option and pressing <Enter> allows you to exit the Setup program without recording any new value or changing old one.

Phoenix - AwardBIOS CMOS Setup Ut	
Main Advanced Defaults Security PC Health Clk/N	/oltage Exit
Save & Exit Setup Exit Without Saving	Item Help
Externatione saving	Menu Level 🕨
	Save Data to CMOS
SAVE to CMOS and EXIT (Y/N)? ¥	
	ESC:Exit F1:General Help

# Chapter

### Driver Installation

The FSB-860B comes with a CD-ROM that contains all drivers your need.

#### Follow the sequence below to install the drivers:

- Step 1 Install Intel INF Update
- Step 2 –Install Intel Application Accelerator 2.3
- Step 3 Install Graphic Driver
- Step 4 Install Ethernet Driver
- Step 5 Install AC97 Audio Driver

Please read following instructions for detailed installations.

#### 4.1 Installation:

Insert the FSB-860B CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 5 in order.

Step 1 – Install Intel INF Update

- 1. Click on the *Intel INF Update* folder and then double click on the *Setup.*
- 2. Follow the instructions that the window shows.
- 3. The system will help you install the driver automatically.
- 4. Please re-start your computer.

Step 2 - Install Application Accelerator driver

- 1. Click on the Application Accelerator folder
- 2. Double click on Setup file
- 3. Follow the instructions that the window shows.
- 4. The system will help you install the driver automatically.
- 5. Please re-start your computer.

Step 3 – Install Graphic Driver

- 1. Click on the *Graphic Driver* folder.
- 2. Choose the OS your system is.
- 3. Double click on the *Setup* located in each OS folder.
- 4. Follow the instructions that the window shows.
- 5. The system will help you install the driver automatically.
- 6. Please re-start your computer.

Step 4 - Install Ethernet Driver

- 1. Click on the *Ethernet Driver* folder
- 2. Choose the OS your system is.

For the OS of Win 98:

- a. Go to 'My Computer' and click on right button.
- b. Select 'Device Manager' and click on 'PCI Ethernet Controller.'
- c. Go to 'Properties' and select 'Reinstall Driver.'
- d. Follow the installation instructions and select the driver located at.
- e. Select 'Pro 1000' and 'Win\_98me'
- f. Click on 'Next' and 'Finish.' You have installed the driver successfully.

#### Note: Same procedures for installing 'Pro 100.'

For the OS of Win 2000/XP:

- a. Double click on the Setup.
- b. Follow the instructions that the window shows.
- c. The system will help you install the driver automatically.
- 3. Please re-start computer.

Step 5 - Install AC97 Audio Driver

1. Click on the AC97 Audio Driver folder.

- 2. Choose the OS your system is.
- 3. Double click on the *Setup* located in each OS folder.
- 4. Follow the instructions that the window shows.
- 5. The system will help you install the driver automatically.
- 6. Please re-start your computer.

#### Note:

Under the Window OS environment, if the CRT connector is connected to display monitor by the data switch device, the user need to set the color and resolution from Intel Graphic utility (VGA driver) instead of setting from the control panel in case of the wrong display appearance.

# Appendix

### I/O Information

#### FSB-860B

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

e Manager	
yew  ] ← →   前 12    23	
ST-28273F9180	
Direct memory access (DMA)	
Input/output (IO)	
- 📕 [00000000 - 0000000F] Direct memory access controller	
- 8 [0000000 - 00000CF7] PCI bus	
B [0000010 - 0000001F] Motherboard resources	
-B [0000020 - 00000021] Programmable interrupt controller	
- 2 [00000060 - 00000060] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard	
- ൽ [00000064 - 00000064] Standard 101/102-Key or Microsoft Natural P5/2 Keyboard 	
[00000065 - 00000067] Motherboard resources     [00000070 - 00000073] System CMOS/real time clock	
[0000074 - 0000075] System Cricos/real time dock	
[0000000 - 0000009] Direct memory access controller	
[00000091 - 00000093] Motherboard resources	
[000000A2 - 000000BF] Motherboard resources	
000000E0 - 000000EF] Motherboard resources	
- 📜 [000000F0 - 000000FF] Numeric data processor	
5 [00000170 - 00000177] Secondary IDE Channel	
-G [000001F0 - 000001F7] Primary IDE Channel	
- [1] [00000274 - 00000277] ISAPNP Read Data Port	
- 🖉 [000002F8 - 000002FF] Communications Port (COM2)	
G00000376 - 00000376] Secondary IDE Channel	
- 2 [00000378 - 0000037F] Printer Port (LPT1)	
🜉 [00000380 - 00000388] Intel(R) 82845G/GL/GE/PE/GV Graphics Controller	
- 🔜 [000003C0 - 000003DF] Intel(R) 82845G/GL/GE/PE/GV Graphics Controller	
G000003F0 - 000003F5] Standard floppy disk controller	
[000003F7 - 000003F7] Standard floppy disk controller	
[000003F8 - 000003FF] Communications Port (COM1)	
B [00000400 - 0000048F] Motherboard resources	
[000004D0 - 000004D1] Motherboard resources	
[00000500 - 0000051F] Intel(R) 82801DB/DBM SMBus Controller - 24C3	
[00000800 - 00000805] Motherboard resources     [00000800 - 00000805] Motherboard resources	
- [] [00000A79 - 00000A79] ISAPNP Read Data Port [] [00000D00 - 0000FFFF] PCI bus	
[0000000 - 0000PPP] PCI bus     [00000000 - 0000003F] Intel(R) PRO/1000 MT Network Connection	
CONDECTOR - CONDECTSF I Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4	
[0000E100 - 0000E11F] Intel(R) 82801D8/DBM USB Universal Host Controller - 24C7	
C000E200 - 0000E21F] Intel(R) 82801D8/DBM US8 Universal Host Controller - 24C2	
- [0000F000 - 0000F00F] Intel(R) 82801DB Ultra ATA Controller	
Interrupt request (IRQ)	
Memory	

#### A.2 1<sup>st</sup> MB Memory Address Map

Device Manager	
ction ¥ew   ← →   📾 配 😰   🗷	
E TEST-28273F9180	
Direct memory access (DMA)	
Input/output (IO)	
Interrupt request (IRQ)	
🖻 🛲 Memory	
- 🔜 [0000000 - 0009FFFF] System board	
- 📕 (000A0000 - 0008FFFF) PCI bus	
IF7F0000 - 1F7FFFFF System board	
IF800000 - FEBFFFFF] PCI bus	
🖳 💭 [E0000000 - E7FFFFF] Intel(R) 82845G/GL/GE/PE/GV Graphics Controller	
EC000000 - EC01FFFF] Intel(R) PRO/1000 MT Network Connection	
EC020000 - EC03FFFF] Intel(R) PRO/1000 MT Network Connection	
EC060000 - EC060FFF] Intel(R) PRO/100 VE Network Connection	
- 💻 [EC100000 - EC17FFFF] Intel(R) 82845G/GL/GE/PE/GV Graphics Controller	
EC180000 - EC1803FF] Intel (r) 82801DB/DBM USB Enhanced Host Controller	
[FEBFFC00 - FEBFFFFF] Intel(R) 82801DB Ultra ATA Controller	
IFEC00000 - FEC00FFF] System board	
EFB00000 - FFBFFFFF System board	
IFFF00000 - FFFFFFFF] System board	

#### A.3 IRQ Mapping Chart

🛃 Device Manager	S Device Manager				
Action View	- →   @ ፼   😫   🧶				
EST-28273F918					
🕀 🧰 Direct memor					
🕑 🛄 Input/output					
E Interrupt red					
	System timer				
	Standard 101/102-Key or Microsoft Natural P5/2 Keyboard				
	Communications Port (COM2)				
	Communications Port (COM1)				
	Standard floppy disk controller				
	System CMOS/real time clock				
	Microsoft ACPI-Compliant System				
	PS/2 Compatible Mouse				
	Numeric data processor				
	Primary IDE Channel				
	Secondary IDE Channel				
	Intel(R) 82801DB/DBM SMBus Controller - 24C3				
	Intel(R) 62801DB/DBM USB Universal Host Controller - 24C2				
	Intel(R) 82845G/GL/GE/PE/GV Graphics Controller				
	Intel(R) PRO/1000 MT Network Connection				
	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C7				
	Intel(R) 82801DB/DBM USB Universal Host Controller - 24C4				
	Intel(R) PRO/100 VE Network Connection				
	Intel (r) 82801DB/DBM USB Enhanced Host Controller				
😥 🛄 Memory					

#### A.4 DMA Channel Assignments

🗮 Device Manager	
<u>A</u> ction <u>V</u> iew   ← →   @	
Acton very access (DMA) Acton very access (DMA) Actor memory access controller A Direct memory access controller A Direct memory access controller Actor memory Actor actor memory Actor actor actor actor Actor actor actor actor Actor actor actor actor Actor actor actor Actor actor actor actor Actor actor actor Actor actor Actor actor actor Actor actor actor Actor actor Actor actor actor Actor actor Actor Actor Actor Actor actor Actor actor Actor act	

# Appendix B

## Programming the Watchdog Timer

#### B.1 How to program the watchdog timer

FSB-860B utilizes ITE 8712 chipset as its watchdog timer controller.

Please follow the procedures below to complete its configuration.

- 1. Enter the MB PnP mode
- 2. Select logical device
- 3. Configure the watchdog timer controller registers
- 4. Exit the MB PnP mode

To enter the MB PnP mode is to write value 87h, 1h, 55h, 55h to configuration port - 2Eh.

To exit the MB PnP mode is to set bit 1 of configure control register (index 02h) to 1.

The AAEON initial watchdog timer program is illustrated below. This program is applied only to DOS and Win 9x.

Full	size CPU (	Card	F S B - 8 6 0 B
	mov	al, 1	
	out	2eh, al	
	mov	al, 55h	
	out	2eh, al	
	mov	al, 55h	
	out	2eh, al	
;===			====== ======
	ect logical d		===========
,	mov	al, 7	;index 7 for logical device
	out	2eh, al	
	mov	al, 7	
	out	2fh, al	
; Cor	nfigure the w	vatchdog time	====== ===============================
	mov	al, 73h	
	out	2eh, al	
	mov	al, 0ah	;index 73h for watchdog timer time-out value (01~0ff)
	out	2fh, al	
	mov	al, 72h	
	out	2eh, al	
	mov	al, 0c0h	;time-out value use second & enable WDT output

Appendix B Programming the Watchdog Timer

through KRST

out 2fh, al

; Exit the MB PnP mode

mov	al, 2
out	2eh, al
mov	al, 01h
out	2fh, al