

AEV-6312

Compact Embedded Controller

Intel® Atom™ D510 1.66GHz Processor

Dual LAN, 4 USB2.0, 2 COM

2 PCI-Express Mini Card

Copyright Notice

This document is copyrighted, 2015. 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™ is a trademark of the Compact Flash Association.
- Microsoft Windows® is a registered trademark of Microsoft Corp.
- Intel®, Atom™ are trademarks of Intel Corporation.
- PC/AT, PS/2, and VGA are trademarks of International Business Machines Corporation.

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

Packing List

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

- 1 AEV-6312 Embedded Controller
- 2 Wallmount Brackets
- 1 Screw Package
- 1 3-Pin Phoenix Connector
- 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.

Note: 3.5 G module is an optional accessory. For keeping normal operation of the system, we AAEON will install the 3.5G module in the AEV-6312 before shipping out if you have bought this optional accessory.

Safety & Warranty

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. Disconnect this device from any AC supply before cleaning.
2. While cleaning, use a damp cloth instead of liquid or spray detergents.
3. For any pluggable equipment, the power outlet must be installed near the device and easily accessible.
4. Keep this device away from humidity.
5. Place this device on a solid surface during installation. Dropping it or letting it fall could cause damage.
6. The openings on the device's enclosure are for dissipating heat. **DO NOT COVER THE OPENINGS.**
7. Watch out for high temperatures that may occur during system operation.
8. Make sure the voltage of the power source is correct before connecting the device 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 device should be noted.
11. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
12. Never pour any liquid into the openings. This could cause fire or electric shock.
13. As most electronic components are sensitive to static electrical

charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded devices.

14. **If any of the following situations arises, please the contact our service personnel:**
 - i. **Damaged power cord or plug**
 - ii. **Liquid intrusion to the device**
 - iii. **Exposure to moisture**
 - iv. **Device is not working as expected or in a manner as described in this manual**
 - v. **The device is dropped or damaged**
 - vi. **Any obvious signs of damage displayed on the device**

15. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -10° C (14°F) OR ABOVE 60° C (140° F) TO PREVENT DAMAGE.**

16. The VCC operating power supply has to connect to the ACC port to power up the system. This model does not support S3 sleep mode.

FCC

Warning!



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.

ENERGY STAR



This Product has been certified by ENERGY STAR®

The Regulation of ENERGY STAR®: ENERGY STAR® Requirements for Computer Version 5.2.

The Test Standard of ENERGY STAR®: IEC/EN 62301, ENERGY STAR® Program Requirements for Computer Version

ENERGY STAR® Compliance: Power Management features (Basic)

Using power-saving states

The system provides the two power-saving states: Sleep and Hibernation.

When Sleep is initiated, the power lights blink and the screen clears. Your working task is saved to memory. Exiting Sleep is faster than exiting Hibernation. If the system is in the Sleep state for an extra period or if the battery reaches a critical battery level while in the Sleep state, the system initiates Hibernation.

When Hibernation is initiated, your work is saved to a hibernation file on the hard drive and the system turns off.

Initiating and exiting Sleep

The system set the Sleep mode after 30 minutes of inactivity when running on external power. You can change to none Sleep mode if the system needs to be active at all time. The default power management settings have been selected for compliance with ENERGY STAR®, and are recommended by the ENERGY STAR® program for optimal energy savings.

Using power plans

You can choose your own power plan which is a collection of system settings that manages how the system uses power. Power plans can help you conserve power or maximize performance.

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

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
外壳	×	○	○	○	○	○
中央处理器 与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
电源	×	○	○	○	○	○
<p>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。</p> <p>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。</p> <p>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。</p>						

Chapter 1 General Information

1.1 Introduction..... 1-2
 1.2 Features 1-3
 1.3 Specifications 1-4
 1.4 Notes for Windows® 7 Users 1-6

Chapter 2 Hardware Installation

2.1 Dimension and I/O of AEV-6312..... 2-2
 2.2 Connectors and Jumpers of the Main Board 2-4
 2.3 List of Jumpers 2-6
 2.4 List of Connectors 2-7
 2.5 RS-232/422/485 Serial Port Connector (COM2)..... 2-9
 2.6 Hard Disk Drive Installation 2-10
 2.7 Memory Card Installation 2-12
 2.8 WiFi Card Installation 2-14
 2.9 Wallmount Kit Installation 2-17
 2.10 Power Management 2-18

Chapter 3 AMI BIOS Setup

3.1 System Test and Initialization. 3-2
 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-7

Chapter

1

**General
Information**

1.1 Introduction

AAEON introduces a new product line: In-vehicle Embedded Controller Solutions. The newest Boxer series AEV-6312 utilizes Intel® Atom™ processor and is designed for public transportation system that demands for anti-vibration and anti-shock protection.

Moreover, this model features 200-pin DDR2 SODIMM up to 2 GB. For the storages, the AEV-6312 equips one SATA 1.5 Gb/s HDD bay and one Type II CompactFlash™ slot. It offers low power consumption system that while operating in ambient temperatures ranging from -20° to 50°C (no airflow, SSD) and -20° to 60°C (airflow, SSD) .

The AEV-6312 is a standalone high performance controller designed for long-life operation and with high reliability. It also supports 12V and 24V DC input to meet the demands of transportation application. It can replace traditional methods and become the mainstream controller for the Vehicle Control and Fleet Management markets.

1.2 Features

- Fanless Design
- Intel® Atom™ D510 Processor
- Supports GPS Inside
- Power On Ignition Delay Control
- Wireless Communication Support (Optional)

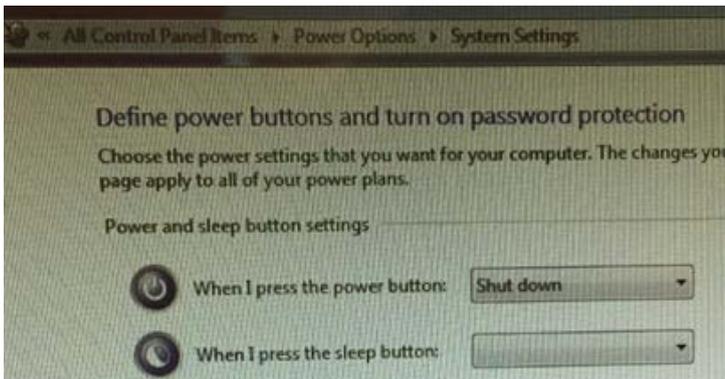
1.3 Specifications

● CPU		Intel® Atom™ D510 1.66 GHz Processor
● Chipset		Intel® ICH8M
● System Memory		200-pin DDR2 SODIMM x 1, Max. 2GB
● Display Interface	VGA	DB-15 x 1, shared system memory up to 384MB/DVMT 4.0
● Storage Device	SSD	Type 2 CompactFlash™ Slot x 1
	HDD	SATA 1.5 Gb/s HDD bay x 1
● Network	LAN	Gigabit Ethernet
	Wireless	Optional by Mini Card
● Front I/O	USB Host	2
	Serial Port	RS-232/422/485 x 1 (COM2)
	Audio	Line-out x 1
	Others	Power button x 1, SYS LED x 1, HDD LED x 1, SMA connector x 3
● Rear I/O	USB Host	USB2.0 x 2
	LAN	RJ-45 x 2
	Serial Port	RS-232 x 1 (COM1)
	Others	Power inlet x 1, VGA x 1
● Expansion	Mini Card	2
● Indicator	Front	System LED x 1, HDD LED x 1
● Power Requirement		12V DC, 24V DC

● System Cooling	Passive cooling
● Mounting	Wallmount
● Operating Temperature	-4°F ~ 122°F (-20°C ~ 50°C) (No Airflow, SSD) -4°F ~ 140°F (-20°C ~ 60°C) (Airflow, SSD)
● Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
● Anti-Vibration	Meets MIL-STD-810F-514.5C-1
● Anti-Shock	50 G peak acceleration (11 msec. duration) - SSD
● Certification	EMC CE/FCC Class B
● Dimension (W x H x D)	8.39"(W) x 7.68"(H) x 2.2"(D) (213 mm x 195 mm x 56 mm)
● Gross Weight	6.16 lb (2.8 Kg)

1.4 Notes for Windows® 7 Users

For Windows® 7 users, please set the power button from “Do Nothing” to “Shut down” when pressed to prevent problems during shut down or other errors (such as the Windows Error Recovery error message).



To perform this change, please following the steps below:

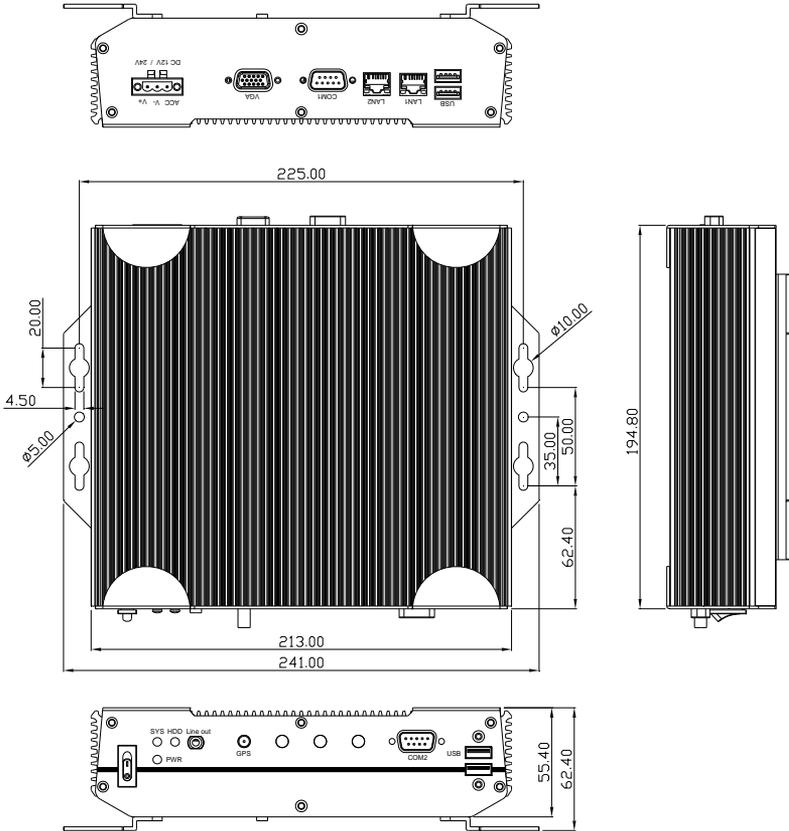
- 1) Go to Control Panel
- 2) Open Power Options and select “Change what the power buttons do” option
- 3) Select “Shut down” from the drop-down list for the power buttons
- 4) Save changes and exit

Chapter

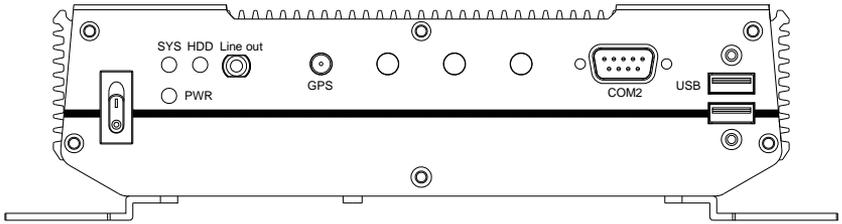
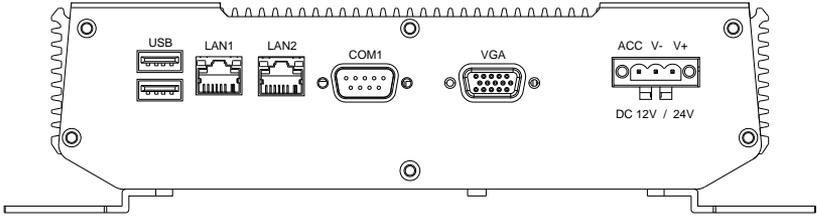
2

**Hardware
Installation**

2.1 Dimension and I/O of AEV-6312

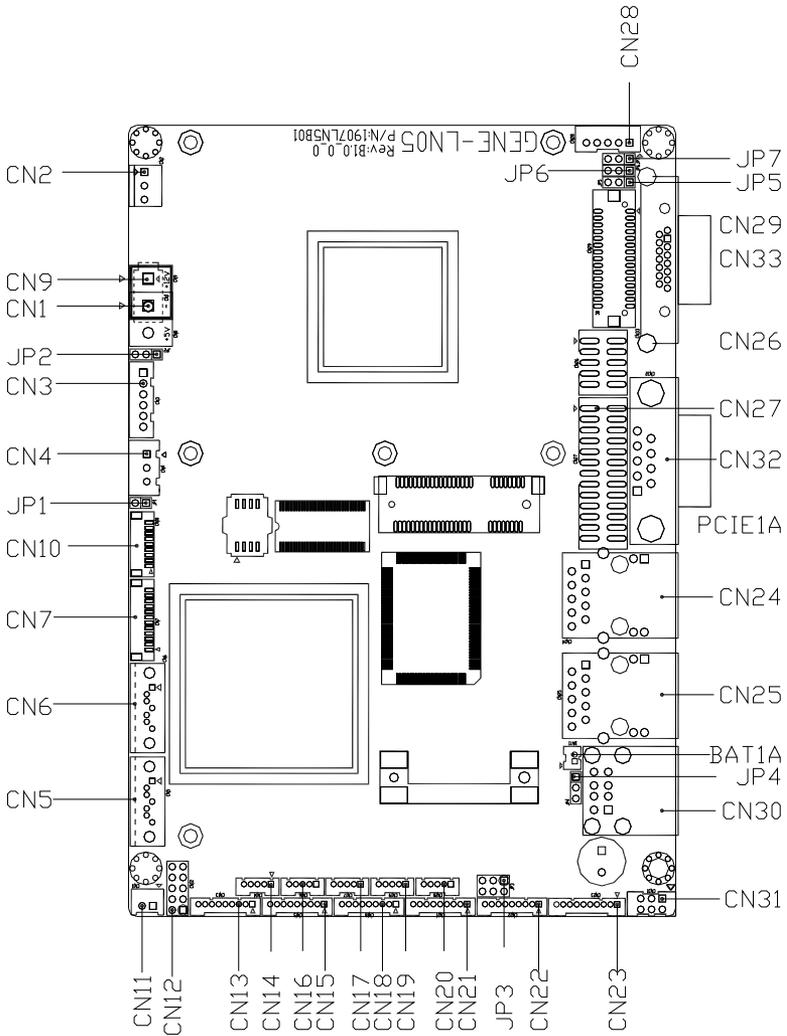


I/O

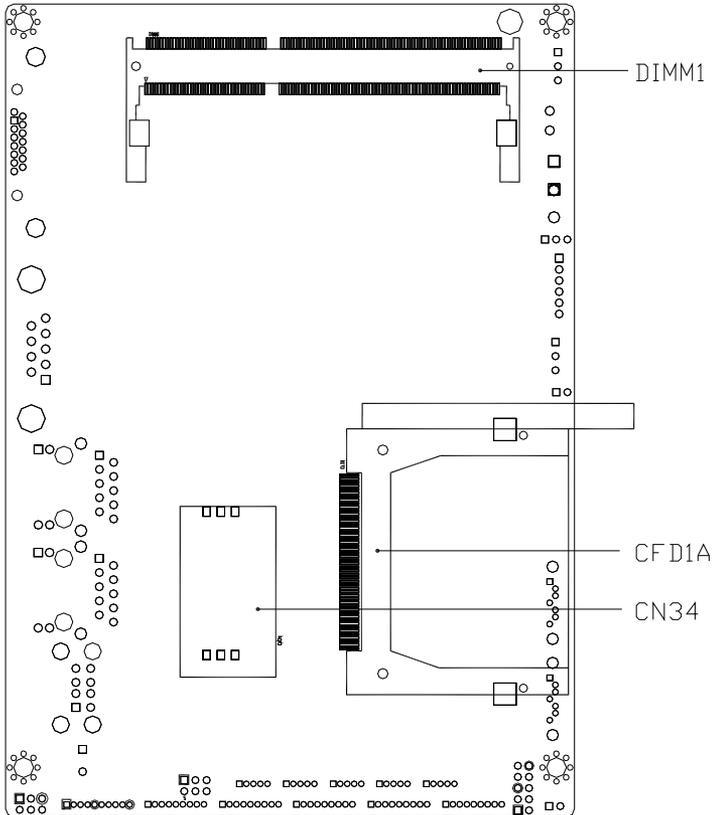


2.2 Connectors and Jumpers of The Main Board

Component Side



Solder Side



2.3 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	Touch Screen 4/5/8-wires Mode Selection
JP2	Auto Power Button Selection
JP3	COM2 RI/+5/+12V Selection
JP4	Clear CMOS
JP5	LVDS Backlight Bias/PWM Mode Selection
JP6	LVDS Operating Voltage Selection
JP7	LVDS Inverter Voltage Selection

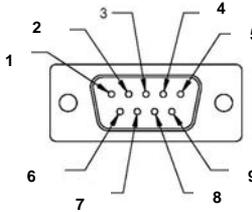
2.4 List of Connectors

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	2-Pin ATX Power Connector (Optional)
CN2	CPU FAN
CN3	+5VSB Output w/ SMBus
CN4	External +5VSB Input
CN5	SATA Port #2
CN6	SATA Port #1
CN7	LPC Expansion I/F
CN8	External +5V Input (depends on power input configuration)
CN9	External +12V Input (depends on power input configuration)
CN10	Touch Screen
CN11	+5V Output for SATA HDD using
CN12	Front Panel
CN13	COM Port #6
CN14	USB Port #7
CN15	COM Port #5
CN16	USB Port #6
CN17	USB Port #5
CN18	COM Port #4

CN19	USB Port #4
CN20	USB Port #3
CN21	COM Port #3
CN22	COM Port #2
CN23	Audio Line-In/Out and MIC Connector
CN24	RJ-45 Ethernet #2
CN25	RJ-45 Ethernet #1
CN26	Digital I/O
CN27	Parallel Port
CN28	LVDS Inverter Control
CN29	LVDS Output
CN30	USB Port #1 and #2
CN31	PS/2 Keyboard & Mouse
CN32	COM Port #1
CN33	Analog CRT Display
CN34	SIM Card Socket
CFD1	Compact Flash Disk
PCIE1	Mini-Card Slot #1
DIMM1	DDR2 SODIMM Slot

2.5 RS-232/422/485 Serial Port Connector (COM2)



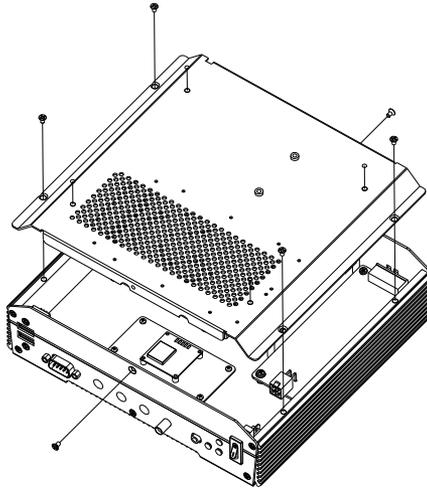
Pin	Signal	Pin	Signal
1	DCD (422TXD-/485DATA-)	2	RXD (422RXD+)
3	TXD (422TXD+/485DATA+)	4	DTR (422RXD-)
5	GND	6	DSR
7	RTS	8	CTS
9	RI/+5V/+12V Selection		

COM2 RI/+5V/+12V Selection (JP3)

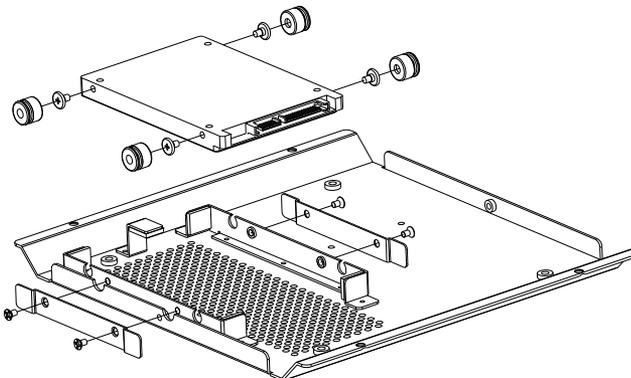
Pin	Signal
1-2	+12V
3-4	RI
5-6	+5V (Default)

2.6 Hard Disk Drive Installation

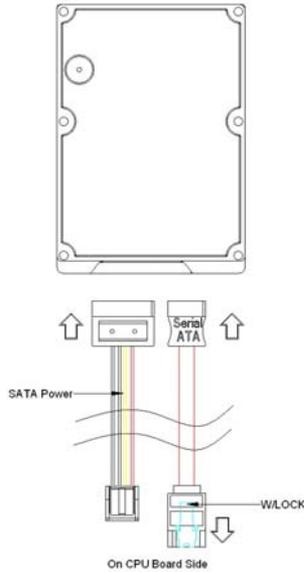
Step 1: Unfasten the four screws on the bottom lid and two screws on front and rear panel



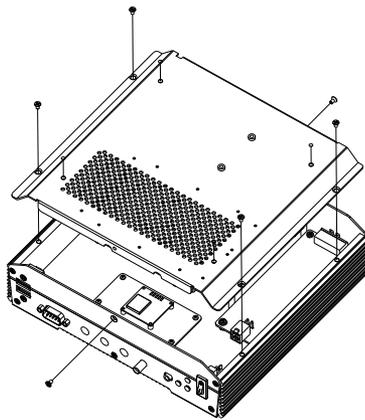
Step 2: Fasten the four HDD screws and cover with the four black dampers. Then, place the HDD to the holder and assembly the damper bracket.



Step 3: Connect the HDD cable

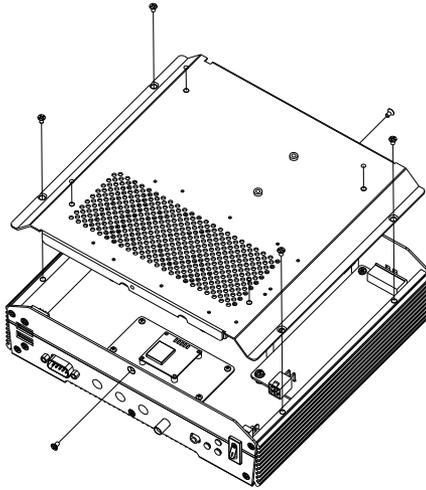


Step 4: Fasten the four screws on the bottom lid and two screws on front and rear panel

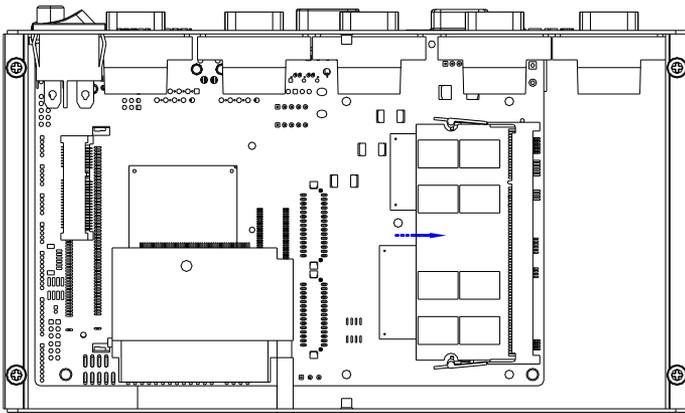


2.7 Memory Card Installation

Step 1: Unfasten the four screws on the bottom lid and two screws on front and rear panel



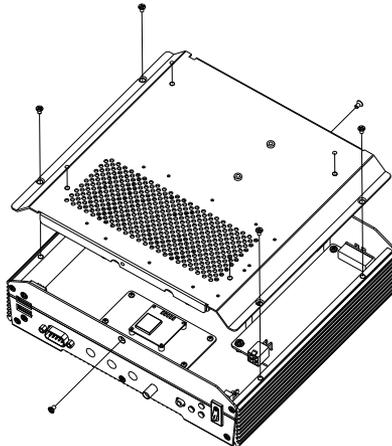
Step 2: Insert the RAM at 30-degree angle to the memory slot and press



Step 3: Adhere the heat spreading pad onto the RAM



Step 4: Close the bottom lid of AEV-6312 and fatten the four screws of the bottom lid and two screws on the front and rear panel



2.8 WiFi Card Installation

Step 1: Insert the WiFi Card at 30-degree angle to the WiFi Card Slot and press



Step 2: Connect the antenna cable to the connector on WiFi Card



Step 3: Get the protective screw cover out of the AEV-6312 chassis

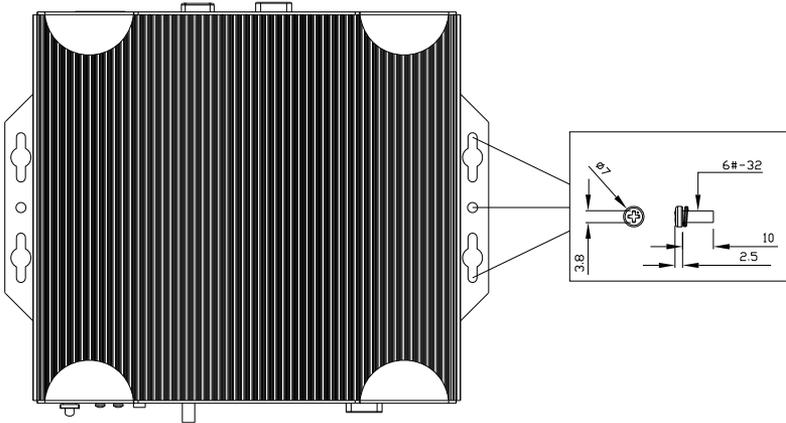


Step 4: Insert and fasten the Screw of Antenna to the hole



2.9 Wallmount Kit Installation

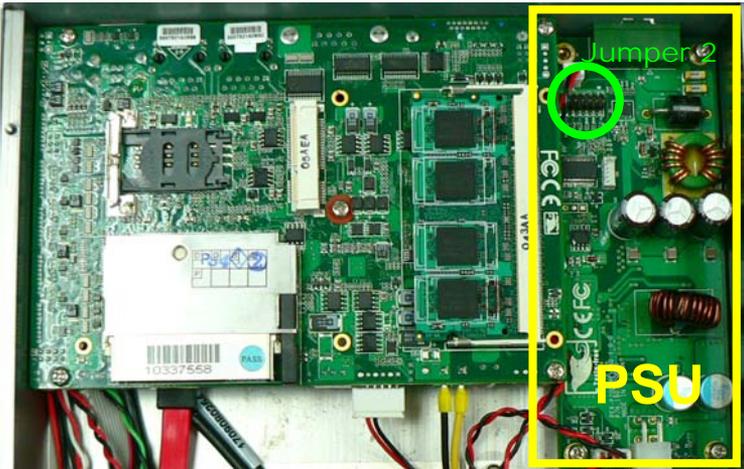
Get the brackets ready and fasten appropriate four screws on each bracket. After fastening the two brackets on the bottom lid of AEV-6312, the wallmount kit installation has been finished.



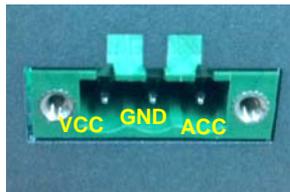
2.10 Power Management

AEV-6312 has special vehicle Power Supply Unit (PSU) that can provide power management functions below for vehicle applications.

- Over voltage protection
- Under voltage protection
- Reverse protection
- Load dump protection
- Programmable ACC power on/off delay time



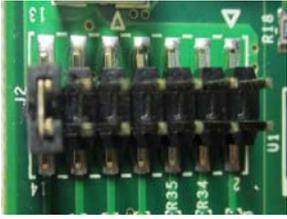
AEV-6312 PSU & jumper 2



PSU power connector pinout

Setting DC input mode

DC Input Mode Options

Location	J2 PIN13 and pin14	Mode	Operating Voltage	Start Voltage <small>(Please refer to the note below)</small>
	OPEN	12V	9V~18V	11V +/- 0.2V
	SHORT	24V	18V~36V	22V +/- 0.4V

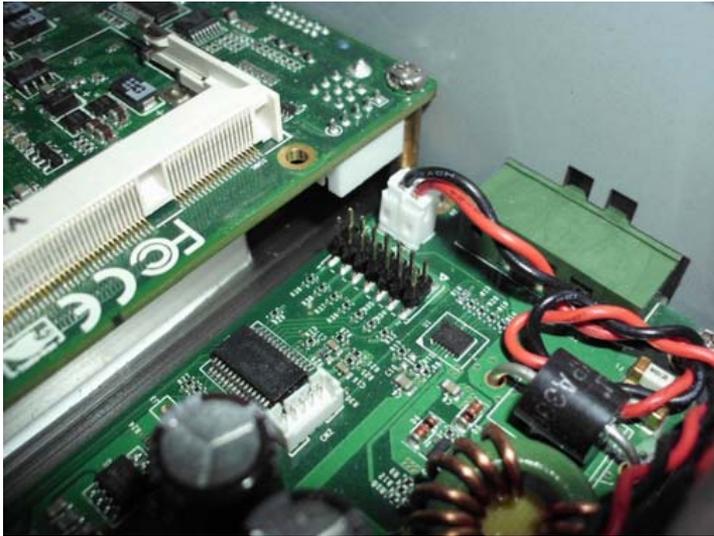
Note:

Usually, the voltage of car battery stays at 13.5V~15V (@ 12V Mode), or at 27V~30V (@ 24V Mode) while the car engine is running. Thus, the voltage of the car battery can provide enough energy to prevent a cold crank from starting a car engine when it is higher than 11V (@ 12V Mode) or 22V (@ 24V Mode).

The cold crank will cause the voltage of car battery to drop to 6V (@ 12V mode) or even lower. It is difficult to maintain a stable +12V power output to the AEV-6312 and it will cause a cold boot of the AEV-6312.

For the Initial Start Voltage, the input voltage will offer over 11V (@12V mode) or 22V (@ 24V mode) to the PSU. The PSU will operate at 9V~18V (@12V mode) or 18V~36V (@24V mode) after the ACC ON.

For +12V DC input, there is no jumper on the pin header of power



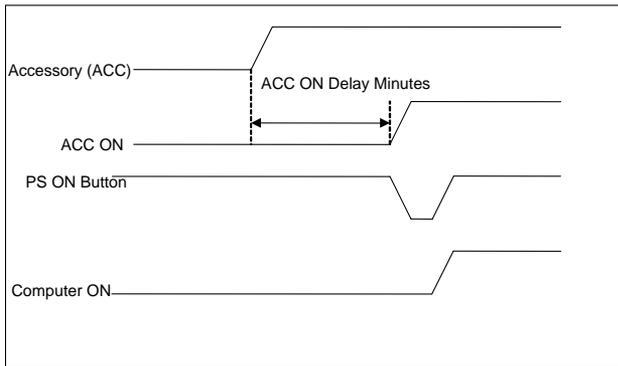
For +24V DC input, there are jumpers on the pin header of the power



USetting ACC ON/OFF Delay Time Mode

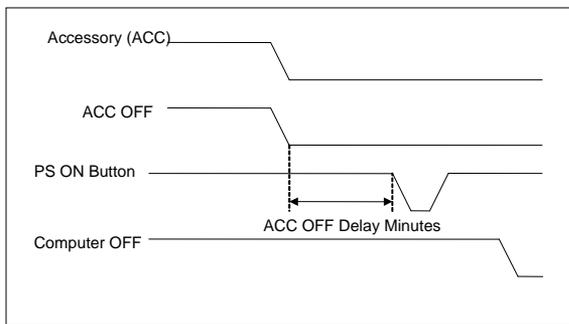
ACC ON/OFF Delay Minutes

The function of “ACC ON Delay Time” means that the PSU will wait for 1~30 seconds (depends on the timing you set) to turn on the AEV-6312 by sending a signal to the motherboard's ON/OFF switch. This function is set to avoid the car's voltage failure by energizing the starter-motor circuits of the internal combustion engine (cold crank)



AEV-6312 power on after “ACC ON Delay Minutes”

The function of “ACC OFF Delay Time” means that the PSU will wait for 0~120 minutes (depends on the timing you set) to turn off the AEV-6312 by sending a signal to the motherboard's ON/OFF switch. You are also able to shut down the AEV-6312 manually during the “ACC OFF Delay Time” since the power is still on during this time.

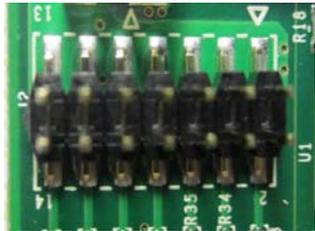


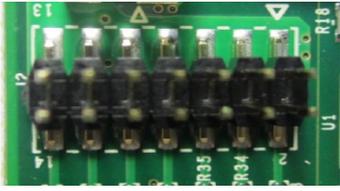
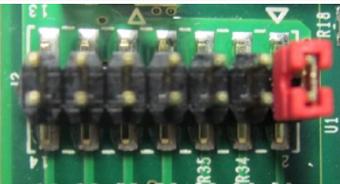
ACC OFF Delay Minutes Required Timing

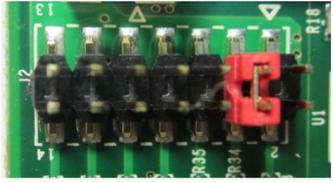
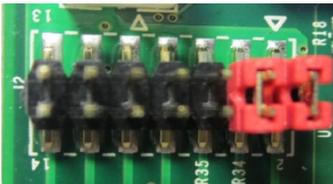
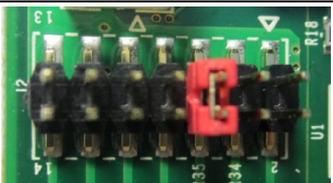
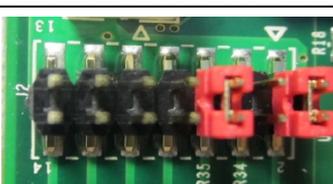
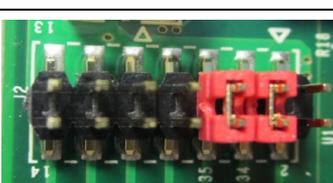
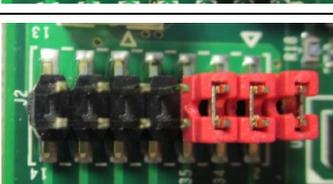
USetting the ACC ON/OFF Delay Time

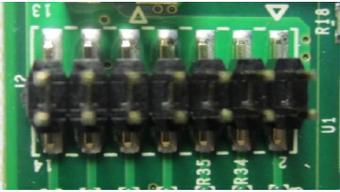
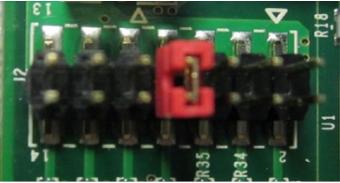
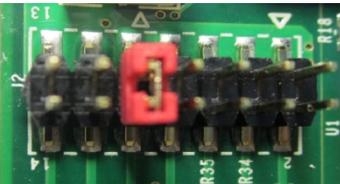
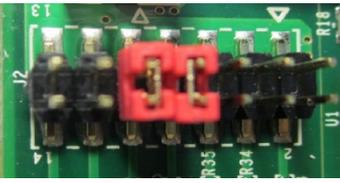
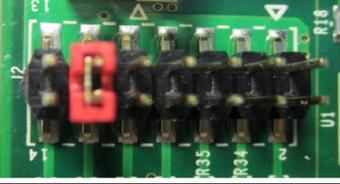
The inner PSU of AEV-6312 provides 8 different “ACC ON Delay Time” settings (1, 3, 5, 10, 15 20, 25, 30 seconds) and 8 different “ACC OFF Delay Time” settings (1, 3, 5, 10, 30, 60, 120, 0 minutes). If you set the “ACC ON Delay Time Setting” for “1 sec,” it means to power on the AEV-6312 in 1 second. If you set “ACC OFF Delay Time Setting” for “0 min,” it means to power off the AEV-6312 immediately.

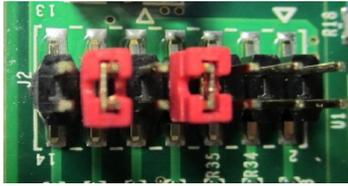
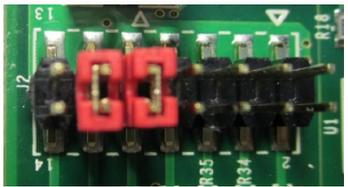
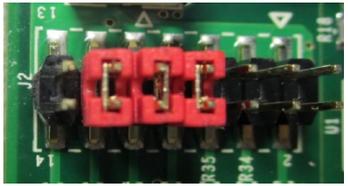
The following is the JP2 setting for ACC Power ON/OFF:

Location	JP2 Setting for	Specification
J2	ACC ON	
	PIN 1-6	1sec~30sec
	ACC OFF	
	PIN 7-12	0min~120min

Function	JP2 Location	PIN Number	Set Time
ACC ON Delay Time setting		1, 2	1 sec
		3, 4	
5, 6			
ACC ON Delay Time setting		1, 2	3 sec
		SHORT	

	3, 4	5 sec
	SHORT	
	1, 2 3, 4	10 sec
	SHORT	
	5, 6	15 sec
	SHORT	
	1, 2 5, 6	20 sec
	SHORT	
	3, 4 5, 6	25 sec
	SHORT	
	1, 2 3, 4 5, 6	30 sec
	SHORT	

Function	JP2 Location	PIN Number	Set Time
ACC OFF Delay Time setting		7, 8 9, 10 11, 12	1 min
		OPEN	
		7, 8	3 min
		SHORT	
		9, 10	5 min
		SHORT	
		7, 8 9, 10	10 min
		SHORT	
		11, 12	30 min
		SHORT	

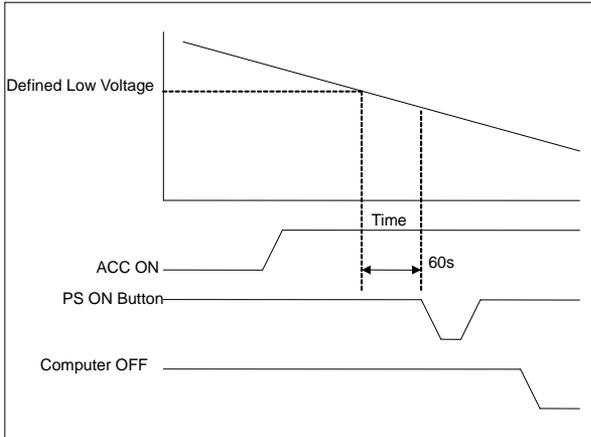
	7, 8 11, 12	60 min
	SHORT	
	9, 10 11, 12	120 min
	SHORT	
	7, 8 9, 10 11, 12	0 min
	SHORT	

Input Low Voltage Protection

If the input voltage is lower than the “defined input low voltage (10.3V ~10.7V @ 12V mode, 20.6V~21.4V @ 24V mode)” after 60 seconds, the inner PSU will convey a signal to imitate to imitate to press the power button to turn off the computer. Conversely, the ACC ignition will restart the computer if the input voltage is over 12/24 volt.

Input Low Voltage Protection for 12V / 24V

Input Mode	Input low voltage definition
12V Mode	10.5V ± 0.2V
24V Mode	21V ± 0.4V



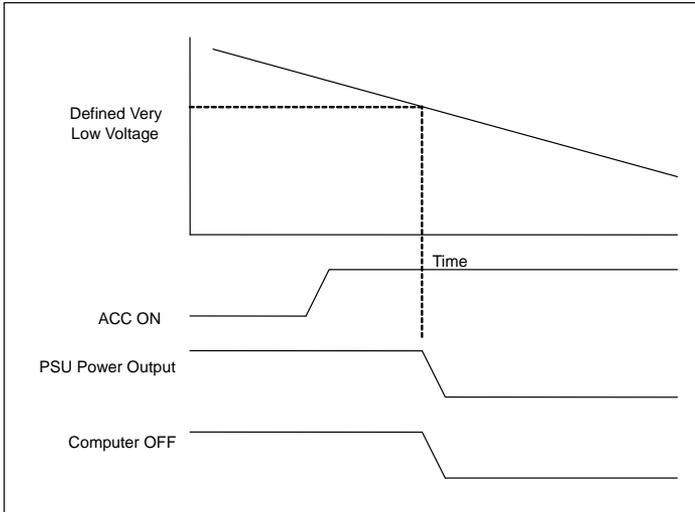
Input Low Voltage Protection working mode

Input Very Low Voltage Protection

If the input voltage is lower than the “defined input very low voltage (8.8V ~9.2V @ 12V mode, 17.6V~18.4V @ 24V mode),” the computer will be shut down immediately. Conversely, the ACC ignition will restart the computer if the input voltage is over 12/24 volt.

Input Very Low Voltage Protection for 12V / 24V

Input Mode	Input very low voltage definition
12V Mode	9V ± 0.2V
24V Mode	18V ± 0.4V



Input Very Low Voltage Protection working mode

Chapter

3

**AMI
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.

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 AEV-6312 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 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/disables quiet boot option.

Security

Set setup administrator password.

Save&Exit

Exit system setup after saving the changes.

Chapter

4

**Driver
Installation**

The AEV-6312 comes with a CD-ROM that contains all drivers and utilities that meet your needs.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset Driver

Step 2 – Install VGA Driver

Step 3 – Install Audio Driver

Step 4 – Install LAN Driver

Step 5 – Install GPS Driver

Step 6 – Install WPER_116GN Driver (Optional)

Step 7 – Install Sierra_MC8790 Driver (Optional)

4.1 Installation:

Insert the AEV-6312 CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 7 in order.

Step 1 – Install Chipset Driver

1. Click on the **STEP1-CHIPSET** folder and select the OS folder your system is
2. Double click on the **infinst_autol.exe** 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

1. Click on the **STEP2-VGA** folder and select the OS folder your system is
2. Double click on the **Setup.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 3 – Install Audio Driver

1. Click on the **STEP3-AUDIO** folder and select the OS folder your system is
2. Double click on the **Setup.exe** 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 LAN Driver

1. Click on the **STEP4-LAN** folder and select the OS folder your system is
2. Double click on the **PROWin32.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 5 – Install GPS Driver

1. Click on the **STEP5-GPS** folder and double click on **PL2303_Prolific_GPS_AllInOne_1013.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 6 – Install WPER_116GN Driver (Optional)

1. Click on the **STEP6-WPER_116GN (Option)** folder and select the OS folder your system is
2. Double click on the **.exe** 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 Sierra_MC8790 Driver (Optional)

1. Click on the **STEP7-Sierra_MC8790(Option)** folder and select the OS folder your system is
2. Double click on the **Watcher_Generic Build_2258** file 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

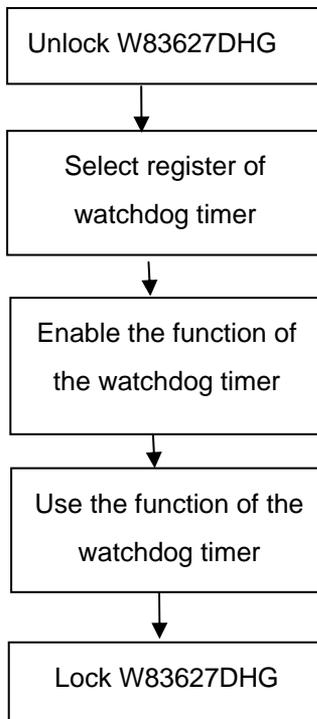
Programming the Watchdog Timer

A.1 Programming

AEV-6312 utilizes W83627DHG-P chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEMON initial 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.

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

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the config Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the W83627DHG config Mode

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

	Address Port	Data Port
0aah:	2Eh	2Fh

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.

= 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)

- Bit 7-0** = 0 x 00 Time-out Disable
- = 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** : Force Watchdog Timer Time-out. Write Only

- = 1 Force Watchdog Timer time-out event: this bit is self-clearing
- Bit 4** : Watchdog Timer Status. R/W
- = 1 Watchdog Timer time-out occurred
- = 0 Watchdog Timer counting
- Bit 3-0** : These bits select IRQ resource for Watchdog. 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

```

```
;/////////////////////////////////////////////////////////////////
Dec dx
Mov al,0f5h            ;CRF5 (PLED mode register)
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
Mov al,0aah            (out 0aah to 2eh once)
Out dx,al
;/////////////////////////////////////////////////////////////////
```