COM-690T/ COM-690E

AMD Turion/ Sempron

(S1 Socket) Processors

Up to 24-bit Dual-channel LVDS

Two DDRII 667/ 800 SODIMM

High Definition Audio

COM-690T/ COM-690E Manual Rev.A 2nd Ed.

November 2008

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Packing List

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

- 1   COM-690T or COM-690E CPU module

- 1   CD-ROM for manual (in PDF format) and drivers

- 5   M2.5 x 4mm screws

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

Application Notes

1. AT power input:

COM-690T/ COM-690E support AT and ATX power input. However, COM-690T/ COM-690E only supports ACPI mode, but not APM mode due to the chipset limitation. So, if you use the AT power input, COM-690T/ COM-690E will run ACPI mode only. (AAEON uses a H/W method to emulate AT power input as ATX power input in Windows OS.)

2. DDRII SODIMM module:

AMD Turion and Sempron CPUs equip with the memory controller. However, they may have the compatible issue with some DDRII SODIMM modules.

AMD has provided the Available Vender List (AVL) of DDRII SODIMM module and AAEON strongly suggests the customer to choose the module from the AVL. For the AVL, please contact AAEON's Application Engineering department for more details.

Contents

Appendix B   I/O Information

Chapter

1

General Information

1.1 Introduction

To accommodate fast growing marketing segments, AAEON has developed a brand new COM (Computer-on-module) Express CPU Module. The COM-690T/ COM-690E, and its accompanying carrier board-ECB-916M, adopts AMD Turion/ Sempron (S1 socket) processor and AMD M690T/E + SB600 chipset, offering high speed PCI-Express bus interface and serial ATA for your high performance applications requiring high-speed and greater stability. The COM Express CPU Module offers flexibility and time-to-market advantages over a fully customized platform.

AAEON's COM-690T/ COM-690E supports up to 24-bit dual-channel LVDS interface and supports two DDRII 533/667 SODIMM memory modules up to 4GB. A high definition audio interface is available to connect to an audio codec on the carrier board.   Moreover, one IDE and four SATA interfaces are featured giving the user flexibility in storage choices.

To satisfy the requirements of leading-edge applications in gaming, entertainment, industrial automation, medical, and POS, etc, COM Express carrier boards can be designed with features and technologies specifically targeting the needs of the different market segments. AAEON can design your COM Express carrier board to meet your specific project requirements.

1.2 Features

- COM Express Basic Module Pin-out Type II
- AMD Turion/ Sempron (S1 Socket) Processors
- AMD M690T/E + SB600 Chipset
- Non-ECC Dual-channel DDRII 667/800 Memory, Up To 4GB
- CRT/ Up to 24-bit Dual-channel LVDS LCD/ TV (COM-690T)
- Gigabit Ethernet
- High Definition Audio Interface
- Wide DC Input Range, +8.5V DC to +19V DC

1.3 Specifications

System

- CPU   AMD Turion/ Sempron (S1 Socket) Processors
- System Memory   DDRII SODIMM x 2, supports non-ECC DDRII 667/800 up to 4GB
- Chipset   AMD M690T/E + SB600
- Ethernet   Intel 82573L for Gigabit Ethernet
- BIOS   Award PLCC Type BIOS—1MB ROM
- H/W status monitoring   CPU Temperature Monitoring
- Watchdog Timer   Fintek F75111
- Wake on LAN   Yes
- BBS (BIOS Boot Spec.) Yes
- Expansion Interface   PCI-Express〔x8〕x 1 (Shared with TMDS interface); PCI-Express 〔x1〕x 3 (One has been used by the GbE on the module); 32-bit PCI x 4; LPC bus x 1, SMBus x 1, I2C x 1
- Power Requirement   Wide DC input range, +8.5V DC to +19V DC
- Board Size   4.92" (L) x 3.74" (W)

(125mm x 95mm)

- Gross Weight   0.66 lb (0.3kg)
- Operating Temperature 32^oF~$140^oF(0^oC$~$60^oC)$
- Storage Temperature -40^oF~$176^oF(-40^oC$~$80^oC)$
- Operating Humidity   0%~90% relative humidity, non-condensing
- OS   Windows 64-bit Vista/ Windows 32-bit XP Pro/ Windows 64-bit XP Pro/ Windows XP Embedded/ WinCE 6.0/ Linux: 2.4 and 2.6 kernel

Display: Supports LCD/CRT, LCD/DVI, CRT/DVI (LCD/TV, TV/DVI: COM-690T only) Simultaneous/ Dual View Displays

- Chipset   AMD M690T/E integrated
- System Memory   Shared system memory (no limitation, depends on the capacity of memory module)
- Side Port   16-bit interface x 1, support up to 128MB DDRII 800 memory
- Resolution   Up to 2560 x 1440 @ 75Hz for CRT; Up to 2048 x 1536 (QXGA) for LCD
- LCD Interface   Up to 24-bit dual-channel LVDS
- TV-out   AMD M690T integrated only, supports NTSC/ PAL/ HDTV;

HDTV supports: 480i/ 480p/
576i/ 576p/ 720p/ 1080i;
Supports Composite Video,
S-Video and Component Video
(YPbPr) on carrier board

I/O

- I/O Chip   SB600
- Storage   IDE x 1, SATA x 4
- USB Port   USB2.0 x 8
- Serial Port   From LPC interface on carrier Board
- Parallel Port   From LPC interface on carrier Board
- Keyboard and Mouse   From LPC interface on carrier board
- Audio   High Definition Audio
- IrDA   From LPC interface on carrier board
- GPIO   Up to 4 in or 4 out

Chapter

2

Quick
Installation
Guide

2.1 Safety Precautions

Warning!

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

Caution!

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

2.2 Location of Connectors/ Jumpers & Mechanical Drawings

Component Side
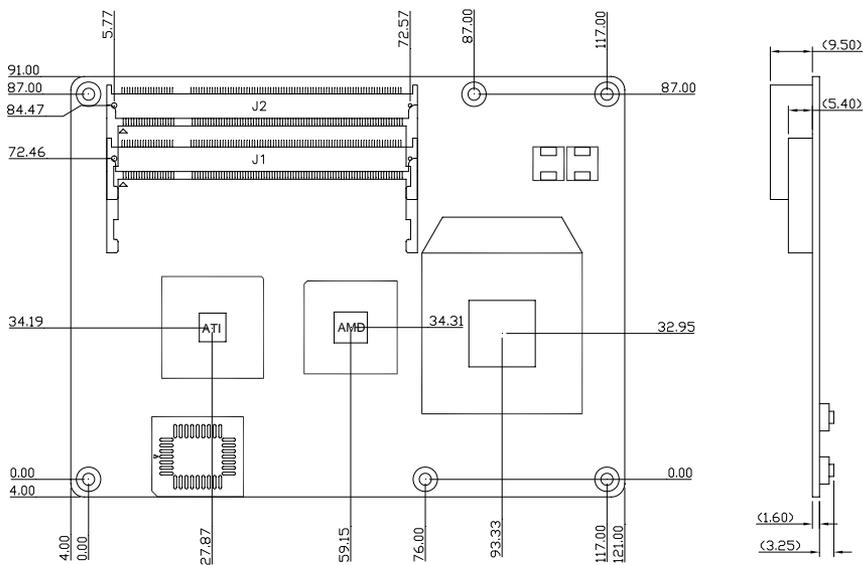
Solder Side
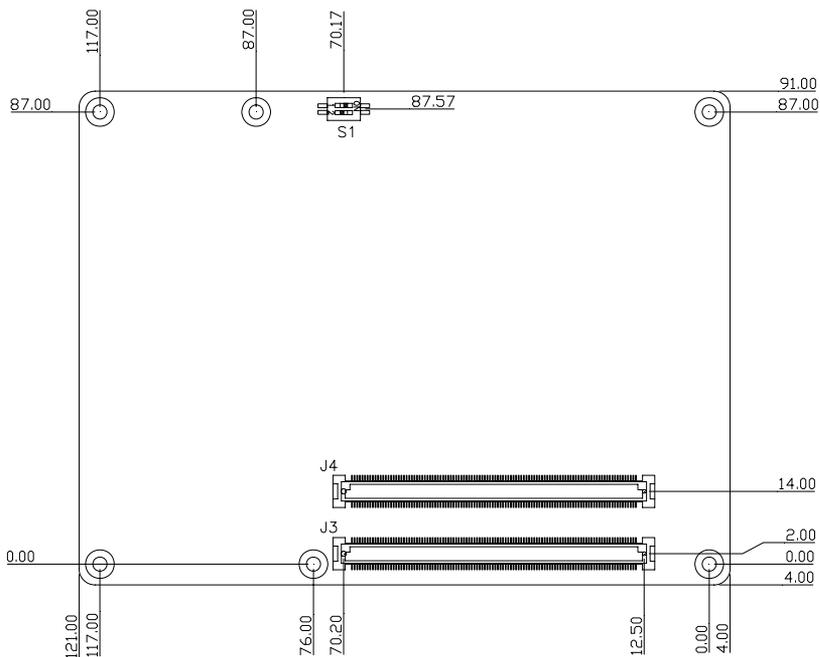
2.3 List of Connectors

There are a number of connectors in the board that allow you to configure your system to suit your application. The table below shows the function of each connector in the board:

Label	Function
J1	DDR2 DIMM B Slot
J2	DDR2 DIMM A Slot
J3	COM Express A/B Port Connector
J4	COM Express C/D Port Connector
S1	AT/ATX option

2.4 AT/ATX Selection (S1)
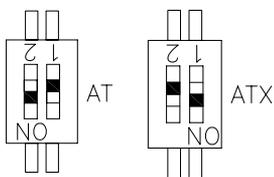
Lable	Function
1 (On), 2 (Off)	ATX (Default)
1 (Off), 2 (On)	AT

2.5 COM Express A/B Port Connector (J3)

Row A		Row B	
A1	GND (FIXED)	B1	GND (FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#
A3	GBE0_MDI3+	B3	LPC_FRAME#
A4	GBE0_LINK100#	B4	LPC_AD0
A5	GBE0_LINK1000#	B5	LPC_AD1
A6	GBE0_MDI2-	B6	LPC_AD2
A7	GBE0_MDI2+	B7	LPC_AD3
A8	GBE0_LINK#	B8	LPC_DRQ0#
A9	GBE0_MDI1-	B9	LPC_DRQ1#
A10	GBE0_MDI1+	B10	LPC_CLK
A11	GND (FIXED)	B11	GND (FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#
A13	GBE0_MDI0+	B13	SMB_CK
A14	GBE0_CTREF	B14	SMB_DAT
A15	SUS_S3#	B15	SMB_ALERT#
A16	SATA0_TX+	B16	SATA1_TX+
A17	SATA0_TX-	B17	SATA1_TX-
A18	SUS_S4#	B18	SUS_STAT#
A19	SATA0_RX+	B19	SATA1_RX+
A20	SATA0_RX-	B20	SATA1_RX-
A21	GND (FIXED)	B21	GND (FIXED)

A22	SATA2_TX+	B22	SATA3_TX+
A23	SATA2_TX-	B23	SATA3_TX-
A24	SUS_S5#	B24	PWR_OK
A25	SATA2_RX+	B25	SATA3_RX+
A26	SATA2_RX-	B26	SATA3_RX-
A27	BATLOW#	B27	WDT
A28	ATA_ACT#	B28	AC_SDIN2
A29	AC_SYNC	B29	AC_SDIN1
A30	AC_RST#	B30	AC_SDIN0
A31	GND (FIXED)	B31	GND (FIXED)
A32	AC_BITCLK	B32	SPKR
A33	AC_SDOUT	B33	I2C_CK
A34	BIOS_DISABLE#	B34	I2C_DAT
A35	THRMTRIP#	B35	THRM#
A36	USB6-	B36	USB7-
A37	USB6+	B37	USB7+
A38	USB_6_7_OC#	B38	USB_4_5_OC#
A39	USB4-	B39	USB5-
A40	USB4+	B40	USB5+
A41	GND (FIXED)	B41	GND (FIXED)
A42	USB2-	B42	USB3-
A43	USB2+	B43	USB3+
A44	USB_2_3_OC#	B44	USB_0_1_OC#
A45	USB0-	B45	USB1-

A46	USB0+	B46	USB1+
A47	VCC_RTC	B47	EXCD1_PERST#
A48	EXCD0_PERST#	B48	EXCD1_CPPE#
A49	EXCD0_CPPE#	B49	SYS_RESET#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND (FIXED)	B51	GND (FIXED)
A52	N.C.	B52	N.C.
A53	N.C.	B53	N.C.
A54	GPI0	B54	GPO1
A55	N.C.	B55	N.C.
A56	N.C.	B56	N.C.
A57	GND	B57	GPO2
A58	N.C.	B58	N.C.
A59	N.C.	B59	N.C.
A60	GND (FIXED)	B60	GND (FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+
A62	PCIE_TX2-	B62	PCIE_RX2-
A63	GPI1	B63	GPO3
A64	PCIE_TX1+	B64	PCIE_RX1+
A65	PCIE_TX1-	B65	PCIE_RX1-
A66	GND	B66	WAKE0#
A67	GPI2	B67	WAKE1#
A68	PCIE_TX0+	B68	PCIE_RX0+
A69	PCIE_TX0-	B69	PCIE_RX0-

A70	GND (FIXED)	B70	GND (FIXED)
A71	LVDS_A0+	B71	LVDS_B0+
A72	LVDS_A0-	B72	LVDS_B0-
A73	LVDS_A1+	B73	LVDS_B1+
A74	LVDS_A1-	B74	LVDS_B1-
A75	LVDS_A2+	B75	LVDS_B2+
A76	LVDS_A2-	B76	LVDS_B2-
A77	LVDS_VDD_EN	B77	LVDS_B3+
A78	LVDS_A3+	B78	LVDS_B3-
A79	LVDS_A3-	B79	LVDS_BKLT_EN
A80	GND (FIXED)	B80	GND (FIXED)
A81	LVDS_A_CK+	B81	LVDS_B_CK+
A82	LVDS_A_CK-	B82	LVDS_B_CK-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL
A84	LVDS_I2C_DAT	B84	VCC_5V_SBY
A85	GPI3	B85	VCC_5V_SBY
A86	KBD_RST#	B86	VCC_5V_SBY
A87	KBD_A20GATE	B87	VCC_5V_SBY
A88	PCIE0_CK_REF+	B88	RSVD
A89	PCIE0_CK_REF-	B89	VGA_RED
A90	GND (FIXED)	B90	GND (FIXED)
A91	RSVD	B91	VGA_GRN
A92	RSVD	B92	VGA_BLU
A93	GPO0	B93	VGA_HSYNC

A94	RSVD	B94	VGA_VSYNC
A95	RSVD	B95	VGA_I2C_CK
A96	GND	B96	VGA_I2C_DAT
A97	VCC_12V	B97	TV_DAC_A
A98	VCC_12V	B98	TV_DAC_B
A99	VCC_12V	B99	TV_DAC_C
A100	GND (FIXED)	B100	GND (FIXED)
A101	VCC_12V	B101	VCC_12V
A102	VCC_12V	B102	VCC_12V
A103	VCC_12V	B103	VCC_12V
A104	VCC_12V	B104	VCC_12V
A105	VCC_12V	B105	VCC_12V
A106	VCC_12V	B106	VCC_12V
A107	VCC_12V	B107	VCC_12V
A108	VCC_12V	B108	VCC_12V
A109	VCC_12V	B109	VCC_12V
A110	GND (FIXED)	B110	GND (FIXED)

2.6 COM Express C/D Port Connector (J4)

Row C		Row D	
C1	GND (FIXED)	D1	GND (FIXED)
C2	IDE_D7	D2	IDE_D5
C3	IDE_D6	D3	IDE_D10
C4	IDE_D3	D4	IDE_D11

C5	IDE_D15	D5	IDE_D12
C6	IDE_D8	D6	IDE_D4
C7	IDE_D9	D7	IDE_D0
C8	IDE_D2	D8	IDE_REQ
C9	IDE_D13	D9	IDE_IOW#
C10	IDE_D1	D10	IDE_ACK#
C11	GND (FIXED)	D11	GND (FIXED)
C12	IDE_D14	D12	IDE_IRQ
C13	IDE_IORDY	D13	IDE_A0
C14	IDE_IOR#	D14	IDE_A1
C15	PCI_PME#	D15	IDE_A2
C16	PCI_GNT2#	D16	IDE_CS1#
C17	PCI_REQ2#	D17	IDE_CS3#
C18	PCI_GNT1#	D18	IDE_RESET#
C19	PCI_REQ1#	D19	PCI_GNT3#
C20	PCI_GNT0#	D20	PCI_REQ3#
C21	GND (FIXED)	D21	GND (FIXED)
C22	PCI_REQ0#	D22	PCI_AD1
C23	PCI_RESET#	D23	PCI_AD3
C24	PCI_AD0	D24	PCI_AD5
C25	PCI_AD2	D25	PCI_AD7
C26	PCI_AD4	D26	PCI_C/BE0#
C27	PCI_AD6	D27	PCI_AD9
C28	PCI_AD8	D28	PCI_AD11

C29	PCI_AD10	D29	PCI_AD13
C30	PCI_AD12	D30	PCI_AD15
C31	GND (FIXED)	D31	GND (FIXED)
C32	PCI_AD14	D32	PCI_PAR
C33	PCI_C/BE1#	D33	PCI_SERR#
C34	PCI_PERR#	D34	PCI_STOP#
C35	PCI_LOCK#	D35	PCI_TRDY#
C36	PCI_DEVSEL#	D36	PCI_FRAME#
C37	PCI_IRDY#	D37	PCI_AD16
C38	PCI_C/BE2#	D38	PCI_AD18
C39	PCI_AD17	D39	PCI_AD20
C40	PCI_AD19	D40	PCI_AD22
C41	GND (FIXED)	D41	GND (FIXED)
C42	PCI_AD21	D42	PCI_AD24
C43	PCI_AD23	D43	PCI_AD26
C44	PCI_C/BE3#	D44	PCI_AD28
C45	PCI_AD25	D45	PCI_AD30
C46	PCI_AD27	D46	PCI_IRQC#
C47	PCI_AD29	D47	PCI_IRQD#
C48	PCI_AD31	D48	PCI_CLKRUN#
C49	PCI_IRQA#	D49	PCI_M66EN
C50	PCI_IRQB#	D50	PCI_CLK
C51	GND (FIXED)	D51	GND (FIXED)
C52	PEG_RX0+	D52	PEG_TX0+

C53	PEG_RX0-	D53	PEG_TX0-
C54	TYPE0#	D54	PEG_LANE_RV#
C55	PEG_RX1+	D55	PEG_TX1+
C56	PEG_RX1-	D56	PEG_TX1-
C57	TYPE1#	D57	TYPE2#
C58	PEG_RX2+	D58	PEG_TX2+
C59	PEG_RX2-	D59	PEG_TX2-
C60	GND (FIXED)	D60	GND (FIXED)
C61	PEG_RX3+	D61	PEG_TX3+
C62	PEG_RX3-	D62	PEG_TX3-
C63	RSVD	D63	RSVD
C64	RSVD	D64	RSVD
C65	PEG_RX4+	D65	PEG_TX4+
C66	PEG_RX4-	D66	PEG_TX4-
C67	RSVD	D67	GND
C68	PEG_RX5+	D68	PEG_TX5+
C69	PEG_RX5-	D69	PEG_TX5-
C70	GND (FIXED)	D70	GND (FIXED)
C71	PEG_RX6+	D71	PEG_TX6+
C72	PEG_RX6-	D72	PEG_TX6-
C73	SDVO_DAT	D73	SDVO_CLK
C74	PEG_RX7+	D74	PEG_TX7+
C75	PEG_RX7-	D75	PEG_TX7-
C76	GND	D76	GND

C77	RSVD	D77	IDE_CBLID#
C78	N.C.	D78	N.C.
C79	N.C.	D79	N.C.
C80	GND (FIXED)	D80	GND (FIXED)
C81	N.C.	D81	N.C.
C82	N.C.	D82	N.C.
C83	RSVD	D83	RSVD
C84	GND	D84	GND
C85	N.C.	D85	N.C.
C86	N.C.	D86	N.C.
C87	GND	D87	GND
C88	N.C.	D88	N.C.
C89	N.C.	D89	N.C.
C90	GND (FIXED)	D90	GND (FIXED)
C91	N.C.	D91	N.C.
C92	N.C.	D92	N.C.
C93	GND	D93	GND
C94	N.C.	D94	N.C.
C95	N.C.	D95	N.C.
C96	GND	D96	GND
C97	RSVD	D97	PEG_ENABLE#
C98	N.C.	D98	N.C.
C99	N.C.	D99	N.C.
C100	GND (FIXED)	D100	GND (FIXED)

C101	N.C.	D101	N.C.
C102	N.C.	D102	N.C.
C103	GND	D103	GND
C104	VCC_12V	D104	VCC_12V
C105	VCC_12V	D105	VCC_12V
C106	VCC_12V	D106	VCC_12V
C107	VCC_12V	D107	VCC_12V
C108	VCC_12V	D108	VCC_12V
C109	VCC_12V	D109	VCC_12V
C110	GND (FIXED)	D110	GND (FIXED)

Below Table for China RoHS Requirements
产品中有毒有害物质或元素名称及含量
AAEON Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○

O：表示该有毒有害物质在该部件所有均质材料中的含量均在
  SJ/T 11363-2006 标准规定的限量要求以下。

X：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出
  SJ/T 11363-2006 标准规定的限量要求。

备注：此产品所标示之环保使用期限，系指在一般正常使用状况下。

Chapter

3

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.

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 battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press <Del> 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 the advanced features available on your system.

Advanced Chipset Features

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

Integrated Peripherals

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

Power Management Setup

Use this menu to specify your settings for power management. (HDD power down, power on by ring, KB wake up, etc.)

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This menu allows you to set the shutdown temperature for your system.

Frequency/Voltage Control

Use this menu to specify your settings for auto detect DIMM/PCI clock and spread spectrum.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

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

Set Supervisor/User Password

Use this menu to set Supervisor/User Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

You can refer to the "AAEON BIOS Item Description.pdf" file in the CD for the meaning of each setting in this chapter.

Chapter

4

Driver
Installation

.

The COM-690T/ COM-690E 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 LAN Driver

Step 3 – Install ATI HDMI Audio Device

Step 4 – Install Audio Driver

Step 5 – Install Touch Panel Driver

Step 6 – Install RAID Driver

Step 7 – Install TPM Driver

USB 2.0 Drivers are available for download using Windows® Update for both Windows® XP and Windows® 2000. For additional information regarding USB 2.0 support in Windows® XP and Windows® 2000, please visit www.microsoft.com/hwdev/usb/.

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the COM-690T/ COM-690E 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 ***Step 1 – Chipset Driver*** folder and select the

   OS folder your system is

Note:

If your system is Windows XP, please select ***WIN XP 32-Bit*** or ***WIN XP 64-Bit*** folder located in ***WinXP*** folder. After entering the ***WIN XP 32-Bit*** or ***WIN XP 64-Bit*** folder, click on the folder of ***Step 1-Microsoft .NET Framework 2.0*** or ***Step 1-Microsoft .NET Framework 2.0 (x64)***.   You have to click on the ***dotnetfx*** or ***NetFx64*** located in the folders above to install the driver first before going to the next step.

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 2 – Install LAN Driver

1. Click on the ***Step 2 – Lan Driver*** folder and select the OS

   folder your system is

2. Double click on the ***.exe*** file located in each OS folder

3. Follow the instructions that the window shows

4. The system will help you install the driver automatically

Step 3 –Install ATI HDMI Audio Device

1. Click on the *Step 3 – ATI HDMI Audio Device* folder and double click on the *HDMI_R168.exe* file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 4 –Install Audio Driver

1. Click on the *Step 4 –Audio Driver* 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 5 –Install Touch Panel Driver

1. Click on the *Step 5 –Touch Panel Driver* folder and double click on the *setup.exe*
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 6 –Install RAID Driver

Place the Driver CD-ROM into your CD-ROM drive and follow the following steps to install.

1. Create a floppy and copy all the files from **Step 6 - RAID Driver\ Windows\ Windows XP 3264-Bit RAID Drivers** or **Step 6 - RAID Driver\Windows\Windows Vista**

3264-Bit RAID Driver in terms of the operating system to floppy root directory

2. At the beginning of the operating system installation, press **F6** to install a third party SCSI or RAID driver

3. When prompted, select "**S**" to specify **Additional Device**

4. When prompted, insert the floppy disk you created in first step and press **Enter**

5. Now select one of the following platforms in terms of your hardware version and configuration:

   - ATI AHCI Compatible RAID Controller-x86 platform

   - ATI AHCI Compatible RAID Controller-x64 platform

6. Highlight the selection that is appropriate for the hardware in your system and press **Enter**

7. Press **Enter** again to continue. Leave the floppy disk in the system until the next reboot. The software will need to be copied from the floppy disk again when setup is copying files.

Step 7 –Install TPM Driver

1. Click on the *Step 7 – TPM Driver* folder and double click

   on the *setup.exe*

2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

Appendix

A

Programming the Watchdog Timer

A.1 General Information

The COM-690T/COM-690E utilizes Fintek F75111 chipset as its watchdog timer Controller.

The other Watchdog timer is set to second or minute and the range is 0 to 256 seconds or minutes.

When the timeout has occurred, that will generate a status bit to indicate it and write one will be clear.

A.2 Access Interface

The F75111 provides one serial access interface, I2C Bus, to read/write internal registers. The address of Serial Bus is configurable by using power-on trapping of standby power VBS3V. The pin 3 (GPIO13/I2C _ADDR) is multi-function pin. During the VSB3V power-on, this pin serves as input detection of logic high or logic low. This pin is default pull-down resistor with 100K ohms mapping the Serial Bus address 0x9C (1001_1100). Another Serial Bus address 0x6E (0110_1110) is set when external pull-up resistor with 10K ohms is connected in this pin.

A.3 Registers Description

Configuration and Control Register – Index 01h

Power-on default [7:0] =0000_1000b

Bit	Name	Description
7	INIT	Software reset for all registers including Test Mode registers. Users use only.
6	Reserved	
5	EN_WDT10	Enable Reset Out. If set to 1, enable WDTOUT10# output. Default is disable.
4	Reserved	
3	Reserved	
2	Reserved	
1	SMART_POWR _MANAGEMENT	Set this bit to 1 will enable auto power down mode, when all function are idle then 20ms the chip will auto power down, it will wakeup when GPIO state change or read write register
0	SOFT_POWR_ DOWN	Set this bit to 1 will power down all of the analog block and stop internalclock, write 0 to clear this bit or when GPIO state change will auto clear this bit to 0.

WDTOUT Control Register – Index 34h

Power-on default [7:0] =0000_0000b

Bit	Name	Description
7-3	Reserved	
2	SEL_RST_2S	When set this bit to 1, the WDTOUT10 low pulse width is 2 Sec, if set to 0 the low pulse width is 100ms.

1	WDTOUT10_OINV	WDTOUT10# output level inverting. When write 1, the output pin will be inverted. Default is low active when time is out
0	STS_WDTOUT10	Indicate WDTOUT10 is occurred. Write 1 to clear this bit. Writing 0 is invalid.

WDTOUT Control Register – Index 35h

Power-on default [7:0] =0000_0000b

Bit	Name	Description
7	WDT10_ENABLE	Enable WDTOUT10 Output Timer. If set to 1, the WDTOUT10 timer will be started. When WDTOUT10# is asserted, low pulse is occurred.
6-0	WD1_PTIME	WDTOUT10 Pre-counter time in second. 000_0000b – 0 second (Default) 000_0001b – 1 second 000_0010b – 2 seconds : 111_1111b – 127 seconds

A.4 F75111 Watchdog Timer Initial Program

. .MODEL SMALL

.CODE

Main:

```
        push  cx
        mov   al, 20h            ;Enable WDT(Value to write)
        mov   cl, 01h            ;F75111 register index
        mov   ch, 6eh               ;(Serial Bus address 0x6E)
        call  Ct_I2CWriteByte
        mov   al, 01h            ;Indicate WDTOUT10 is occurred
        mov   cl, 34h            ;F75111 register index
        mov   ch, 6eh               ;6eh   (Serial Bus address 0x6E)
        call  Ct_I2CWriteByte

        mov   al, 83h            ;Enable WDTOUT10 Output Timer:3 seconds
        mov   cl, 35h               ;F75111 register index
        mov   ch, 6eh               ;6eh   (Serial Bus address 0x6E)
        call  Ct_I2CWriteByte
        pop   cx
            ret


Ct_I2CWriteByte    Proc   Near
```

```
push   ax
push   cx


mov    dx,SMBus_Port +04h        ;SMBus_Port(0B00h)
mov    al,ch                     ;ID cmd(Write)
out    dx,al
call   Delay5ms
call   Delay5ms


pop    ax
mov    dl,03h
out    dx,al                     ;Index
call   Delay5ms
call   Delay5ms


pop    ax
mov    dl,05
out    dx,al                     ;Data0
call   Delay5ms
call   Delay5ms


mov    dl,02h
mov    al,48h
out    dx,al                     ;write data
call   Delay5ms
```

```
        call    Delay5ms


        mov     cx, 100h
    @@:
        newiodelay
        loop    short @B


        ret
Ct_I2CWriteByte    Endp CALL Check_Chip
```

Appendix

B

I/O Information

B.1 I/O Address Map

```
Input/output (IO)
  [00000000 - 0000000F] Direct memory access controller
  [00000000 - 00000CF7] PCI bus
  [00000010 - 0000001F] Motherboard resources
  [00000020 - 00000021] Programmable interrupt controller
  [00000022 - 0000003F] Motherboard resources
  [00000040 - 00000043] System timer
  [00000044 - 0000004D] Motherboard resources
  [00000050 - 0000005E] Motherboard resources
  [00000060 - 00000060] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
  [00000061 - 00000061] System speaker
  [00000062 - 00000063] Motherboard resources
  [00000064 - 00000064] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
  [00000065 - 0000006F] Motherboard resources
  [00000070 - 00000073] System CMOS/real time clock
  [00000074 - 0000007F] Motherboard resources
  [00000080 - 00000090] Direct memory access controller
  [00000091 - 00000093] Motherboard resources
  [00000094 - 0000009F] Direct memory access controller
  [000000A0 - 000000A1] Programmable interrupt controller
  [000000A2 - 000000BF] Motherboard resources
  [000000C0 - 000000DF] Direct memory access controller
  [000000E0 - 000000EF] Motherboard resources
  [000000F0 - 000000FF] Numeric data processor
  [00000170 - 00000177] Secondary IDE Channel
  [000001F0 - 000001F7] Primary IDE Channel
  [00000228 - 0000022F] Motherboard resources
  [00000274 - 00000277] ISAPNP Read Data Port
  [00000279 - 00000279] ISAPNP Read Data Port
  [000002E8 - 000002EF] Communications Port (COM4)
  [000002F8 - 000002FF] Communications Port (COM2)
  [00000376 - 00000376] Secondary IDE Channel
  [00000378 - 0000037F] Printer Port (LPT1)
  [000003B0 - 000003BB] ATI Radeon X1270
  [000003B0 - 000003BB] PCI standard PCI-to-PCI bridge
  [000003C0 - 000003DF] ATI Radeon X1270
  [000003C0 - 000003DF] PCI standard PCI-to-PCI bridge
  [000003E8 - 000003EF] Communications Port (COM3)
  [000003F0 - 000003F5] Standard floppy disk controller
  [000003F8 - 000003FF] Communications Port (COM1)
  [0000040B - 0000040B] Motherboard resources
  [000004D0 - 000004D1] Motherboard resources
  [000004D6 - 000004D6] Motherboard resources
  [00000A79 - 00000A79] ISAPNP Read Data Port
  [00000B00 - 00000B0F] ATI SMBus
  [00000B10 - 00000B1F] Motherboard resources
  [00000C00 - 00000C01] Motherboard resources
  [00000C14 - 00000C14] Motherboard resources
  [00000C50 - 00000C52] Motherboard resources
  [00000C6C - 00000C6D] Motherboard resources
  [00000C6F - 00000C6F] Motherboard resources
  [00000CD0 - 00000CD1] Motherboard resources
  [00000CD2 - 00000CD3] Motherboard resources
  [00000CD4 - 00000CDF] Motherboard resources
  [00000D00 - 0000FFFF] PCI bus
  [00004000 - 000040FE] Motherboard resources
  [00004100 - 0000411F] Motherboard resources
  [00004210 - 00004217] Motherboard resources
  [0000C000 - 0000CFFF] PCI standard PCI-to-PCI bridge
  [0000CE00 - 0000CEFF] ATI Radeon X1270
  [0000D000 - 0000DFFF] PCI standard PCI-to-PCI bridge
  [0000DCE0 - 0000DCFF] Intel(R) PRO/1000 PL Network Connection #2
  [0000E000 - 0000EFFF] PCI standard PCI-to-PCI bridge
  [0000ECE0 - 0000ECFF] Intel(R) PRO/1000 PL Network Connection
  [0000F900 - 0000F90F] AMD PCI IDE Controller
  [0000FB00 - 0000FB0F] AMD SATA Controller(Native IDE Mode)
  [0000FC00 - 0000FC03] AMD SATA Controller(Native IDE Mode)
  [0000FD00 - 0000FD07] AMD SATA Controller(Native IDE Mode)
  [0000FE00 - 0000FE03] AMD SATA Controller(Native IDE Mode)
  [0000FF00 - 0000FF07] AMD SATA Controller(Native IDE Mode)
```

B.2 Memory Address Map

```
□ ▓▓▓ Memory
      [00000000 - 00000FFF] Motherboard resources
      [00000000 - 0009FFFF] System board
      [000A0000 - 000BFFFF] ATI Radeon X1270
      [000A0000 - 000BFFFF] PCI bus
      [000A0000 - 000BFFFF] PCI standard PCI-to-PCI bridge
      [000C0000 - 000DFFFF] PCI bus
      [000F0000 - 000FFFFF] System board
      [00100000 - 1BEDFFFF] System board
      [1BEE0000 - 1BEFFFFF] System board
      [1BF00000 - 1BFFFFFF] System board
      [1C000000 - 1FFFFFFF] System board
      [1FFF0000 - FFFFFFFF] PCI bus
      [F8000000 - FBFFFFFF] ATI Radeon X1270
      [F8000000 - FBFFFFFF] PCI standard PCI-to-PCI bridge
      [FD000000 - FD3FFFFF] Intel(R) PRO/1000 PL Network Connection #2
      [FD000000 - FD7FFFFF] PCI standard PCI-to-PCI bridge
      [FD7E0000 - FD7FFFFF] Intel(R) PRO/1000 PL Network Connection #2
      [FD900000 - FD9FFFFF] PCI standard PCI-to-PCI bridge
      [FDA00000 - FDAFFFFF] PCI standard PCI-to-PCI bridge
      [FDAE0000 - FDAFFFFF] Intel(R) PRO/1000 PL Network Connection
      [FDD00000 - FDDFFFFF] ATI Radeon X1270
      [FDD00000 - FDEFFFFF] PCI standard PCI-to-PCI bridge
      [FDEE0000 - FDEEFFFF] ATI Radeon X1270
      [FDEFC000 - FDEFFFFF] Microsoft UAA Bus Driver for High Definition Audio
      [FDF00000 - FDFFFFFF] PCI standard PCI-to-PCI bridge
      [FE020000 - FE023FFF] Microsoft UAA Bus Driver for High Definition Audio
      [FE029000 - FE0290FF] Standard Enhanced PCI to USB Host Controller
      [FE02A000 - FE02AFFF] Standard OpenHCD USB Host Controller
      [FE02B000 - FE02BFFF] Standard OpenHCD USB Host Controller
      [FE02C000 - FE02CFFF] Standard OpenHCD USB Host Controller
      [FE02D000 - FE02DFFF] Standard OpenHCD USB Host Controller
      [FE02E000 - FE02EFFF] Standard OpenHCD USB Host Controller
      [FE02F000 - FE02F3FF] AMD SATA Controller(Native IDE Mode)
      [FEC00000 - FEC00FFF] System board
      [FED00000 - FED000FF] System board
      [FED00000 - FED003FF] High precision event timer
      [FEE00000 - FEE00FFF] System board
      [FEE00400 - FEE00FFF] Motherboard resources
      [FFF80000 - FFFEFFFF] System board
      [FFFF0000 - FFFFFFFF] System board
```

B.3 IRQ Mapping Chart

```
Interrupt request (IRQ)
     (ISA) 0    High precision event timer
     (ISA) 1    Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
     (ISA) 3    Communications Port (COM2)
     (ISA) 4    Communications Port (COM1)
     (ISA) 6    Standard floppy disk controller
     (ISA) 8    High precision event timer
     (ISA) 9    Microsoft ACPI-Compliant System
     (ISA) 10   Communications Port (COM3)
     (ISA) 11   Communications Port (COM4)
     (ISA) 12   PS/2 Compatible Mouse
     (ISA) 13   Numeric data processor
     (ISA) 14   Primary IDE Channel
     (ISA) 15   Secondary IDE Channel
     (PCI) 16   Microsoft UAA Bus Driver for High Definition Audio
     (PCI) 16   Standard OpenHCD USB Host Controller
     (PCI) 17   Standard OpenHCD USB Host Controller
     (PCI) 17   Standard OpenHCD USB Host Controller
     (PCI) 18   ATI Radeon X1270
     (PCI) 18   Intel(R) PRO/1000 PL Network Connection
     (PCI) 18   Standard OpenHCD USB Host Controller
     (PCI) 18   Standard OpenHCD USB Host Controller
     (PCI) 19   Intel(R) PRO/1000 PL Network Connection #2
     (PCI) 19   Microsoft UAA Bus Driver for High Definition Audio
     (PCI) 19   Standard Enhanced PCI to USB Host Controller
     (PCI) 22   AMD SATA Controller(Native IDE Mode)
```

B.4 DMA Channel Assignments

```
AAEON-3C6D1AB15
    Direct memory access (DMA)
         2    Standard floppy disk controller
         4    Direct memory access controller
    Input/output (IO)
    Interrupt request (IRQ)
    Memory
```