

**COM-945**

Intel® Core® 2 Duo/ Core® Duo/  
Celeron® M (Socket-M Based) Processors

One DDRII 400/533/677 SODIMM

High Definition Audio Interface

1 PATA/ 2 SATA/ 8 USB2.0

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## Packing List

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

- 5 M2.5 screws
- 1 COM-945 CPU Module
- 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

1

**General  
Information**

## 1.1 Introduction

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With more and more demands on small and rugged embedded industrial boards, a multi-functioned COM (Computer-on-Module) is the one system manufacturers strive for. AAEON, a professional industrial PC manufacturer devoted to the embedded market for 15 years, announces the advanced COM Express CPU Module - COM-945. This debut of COM-945 not only completes the product line of AAEON's COM Express CPU Module series, but also reveals the pioneered technology that adopts Intel® 945GME platform on the COM Express Module.

COM-945 adopts Intel® Core 2 Duo or Core Duo or Celeron® M (Socket-M based) processors and system memory supports DDR II 400/533/667 up to 2GB. Both parallel and serial ATA interfaces are featured, giving the user flexibility in storage choices. In addition, versatile expansion interfaces allow system manufacturers to expand their embedded systems without having to worry about purchasing other devices to build up necessary functions. For example, PCI-Express[x16], PCI-Express[x1], 32-bit PCI and LPC Bus. AAEON's COM-945 supports CRT/LCD, CRT/TV, LCD/TV simultaneous/ Dual independent display. The LCD interface also supports up to 18/36-bit dual channel LVDS TFT panels that bring high quality and performance in display support.



The COM Express module shows advantages of faster time to market, reduced product development cost and risk and easily adapts to various embedded applications. The target markets of COM-945 will focus on Medical, Test & Measurement, Gaming & Entertainment, Military & Government and Security. For those applications that demand multiple functions and high performance, COM-945 is the right choice.

## 1.2 Features

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- Intel® Core™ 2 Duo/ Core™ Duo/ Celeron® M (Socket-M based) Processors
- Intel® 945GME + ICH7M
- DDR2 400/533/667 Memory, Max. 2GB
- Gigabit Ethernet
- CRT/ 18-bit Dual-channel LVDS LCD/ TV
- High Definition Audio Interface
- PATA x 1/ SATA x 2
- USB2.0 x 8
- PCI-Express[x16] x 1/ PCI-Express[x1] x 3
- Wide DC Input Range, +8.5V to +19V
- COM Express Basic Module Pin-out Type II

### 1.3 Specifications

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#### System

- CPU Intel® Core™ 2 Duo/ Core™ Duo/  
Celeron® M (Socket-M based)  
Processors
- System Memory DDR2 SODIMM x 1, supports  
DDR2 400/533/667 up to 2GB
- Chipset Intel® 945GME + ICH7M
- Ethernet Intel® 82573L, Gigabit Ethernet
- BIOS Award BIOS v 6.0, SPI type, 2MB  
ROM
- H/W status monitoring CPU Temperature Monitoring
- RTC ICH7M
- Power Requirement Wide DC input range, +8.5V to  
+19V, 2-pin wafer for RTC battery
- Board Size 4.92"(L) x 3.75" (W) (125mm x  
95mm)
- Gross Weight 0.66 lb (0.3kg)
- Operating Temperature 32°F~140°F (0°C~60°C)

#### Display

- Chipset Intel® 945GME
- Memory Shared memory up to 224MB/  
DVMT 3.0

- Resolution Up to 2048 x 1536 (QXGA) for CRT; Up to 1600 x 1200 (UXGA) for LCD
- VGA/ LCD Interface Intel® 945GME integrated 18/36-bit dual channel LVDS, supports CRT/LCD, CRT/TV, LCD/TV, Dual View under Windows Operation System
- TV-Out Intel® 945GME integrated, supports NTSC/ PAL/ HDTV; HDTV supports: 480p/720p/1080i/1080p; Supports Composite Video, S-Video, Component Video (YPbPr) on carrier board

### **I/O**

- Audio High Definition Audio Interface
- USB USB2.0 x 8
- IDE Interface PATA x 1 (Two devices); SATA x 2
- Others PCI-Express[x16] x 1;  
PCI-Express[x1] x 3;  
32-bit PCI x 4;  
LPC bus x 1

Chapter

2

**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.*



## 2.1 Safety Precautions

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### **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.*

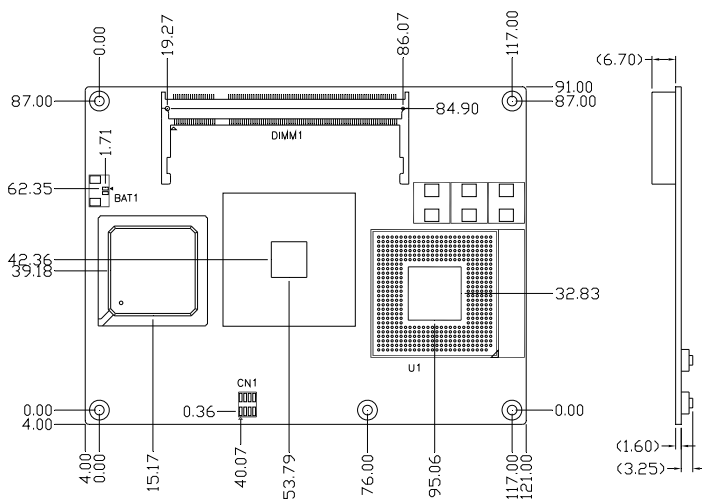
### **Caution!**



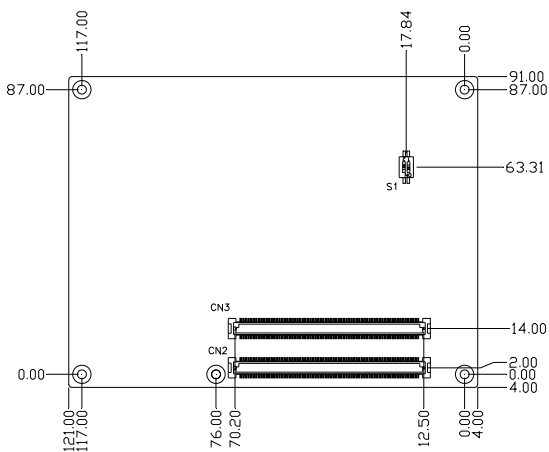
*Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

## 2.2 Location of Connectors and Jumpers with Mechanical Drawing

### Component Side



### Solder Side



## 2.3 List of Connectors

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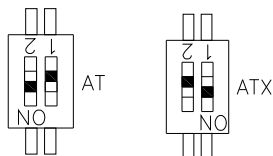
There are a number of connectors in the board that allow you to configure your system to suit your application. The table below shows the function of each connector in the board:

### Connectors

Label	Function
CN1	SPI Programming Header
CN2	COM Express Connector (Row A & B)
CN3	COM Express Connector (Row C & D)
BAT1	RTC Battery Connector
DIMM1	DDRII SODIMM



## 2.4 AT/ATX Selection (S1)



Label	Function
1 (On), 2 (Off)	ATX (Default)
1 (Off), 2 (On)	AT

## 2.5 SPI Programming Header

1	VCC3.3V	2	GND
3	SPI_CS	4	SPI_clk
5	SPI_SO	6	SPI_SI
7	NC	8	NC

## 2.6 COM Express Connector (Row A & B) (CN2)

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	NC	B22	NC
A23	NC	B23	NC
A24	SUS_S5#	B24	PWR_OK
A25	NC	B25	NC
A26	NC	B26	NC
A27	BATLOW#	B27	WDT
A28	SATALED#	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	PCIE2_RST#
A48	PCIE1_RST#	B48	EXCD1_CPPE#
A49	EXCD0_CPPE#	B49	SYS_RESET#
A50	LPC_SERIRQ	B50	CB_RESET#
A51	GND (FIXED)	B51	GND (FIXED)
A52	NC	B52	NC
A53	NC	B53	NC
A54	GPI0	B54	GPO1
A55	NC	B55	NC
A56	NC	B56	NC

A57	GND	B57	GPO2
A58	NC	B58	NC
A59	NC	B59	NC
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	PCIE_WAKE#
A67	GPI2	B67	LPC_PME#
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	NC
A78	NC	B78	NC
A79	NC	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	PCIESLOT1_CLK	B88	RSVD
A89	PCIESLOT1_CLK#	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)

## 2.7 COM Express Connector (Row C & D) (CN3)

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	NC
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_RXP1	D55	PEG_TXP1
C56	PEG_RXN1	D56	PEG_TXN1
C57	TYPE1#	D57	TYPE2#
C58	PEG_RXP2	D58	PEG_TXP2
C59	PEG_RXN2	D59	PEG_TXN2
C60	GND (FIXED)	D60	GND (FIXED)
C61	PEG_RXP3	D61	PEG_TXP3
C62	PEG_RXN3	D62	PEG_TXN3
C63	RSVD	D63	RSVD



C64	RSVD	D64	RSVD
C65	PEG_RXP4	D65	PEG_TXP4
C66	PEG_RXN4	D66	PEG_TXN4
C67	RSVD	D67	GND
C68	PEG_RXP5	D68	PEG_TXP5
C69	PEG_RXN5	D69	PEG_TXN5
C70	GND (FIXED)	D70	GND (FIXED)
C71	PEG_RXP6	D71	PEG_TXP6
C72	PEG_RXN6	D72	PEG_TXN6
C73	SDVO_DAT	D73	SDVO_CLK
C74	PEG_RXP7	D74	PEG_TXP7
C75	PEG_RXN7	D75	PEG_TXN7
C76	GND	D76	GND
C77	RSVD	D77	IDE_CBLID#
C78	PEG_RXP8	D78	PEG_TXP8
C79	PEG_RXN8	D79	PEG_TXN8
C80	GND (FIXED)	D80	GND (FIXED)
C81	PEG_RXP9	D81	PEG_TXP9
C82	PEG_RXN9	D82	PEG_TXN9
C83	RSVD	D83	RSVD
C84	GND	D84	GND
C85	PEG_RXP10	D85	PEG_TXP10
C86	PEG_RXN10	D86	PEG_TXN10
C87	GND	D87	GND

C88	PEG_RXP11	D88	PEG_TXP11
C89	PEG_RXN11	D89	PEG_TXN11
C90	GND (FIXED)	D90	GND (FIXED)
C91	PEG_RXP12	D91	PEG_TXP12
C92	PEG_RXN12	D92	PEG_TXN12
C93	GND	D93	GND
C94	PEG_RXP13	D94	PEG_TXP13
C95	PEG_RXN13	D95	PEG_TXN13
C96	GND	D96	GND
C97	RSVD	D97	PEG_ENABLE#
C98	PEG_RXP14	D98	PEG_TXP14
C99	PEG_RXN14	D99	PEG_TXN14
C100	GND (FIXED)	D100	GND (FIXED)
C101	PEG_RXP15	D101	PEG_TXP15
C102	PEG_RXN15	D102	PEG_TXN15
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)

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-945 comes with an AutoRun CD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

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

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

Step 1 – Install Chipset Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install Audio Driver

Step 5 – Install Touch Driver (for ECB-916M)

USB 2.0 Drivers are available for download using Windows<sup>®</sup> Update for both Windows<sup>®</sup> XP and Windows<sup>®</sup> 2000. For additional information regarding USB 2.0 support in Windows<sup>®</sup> XP and Windows<sup>®</sup> 2000, please visit [www.microsoft.com/hwdev/usb/](http://www.microsoft.com/hwdev/usb/).

Please read instructions below for further detailed installations.



## 4.1 Installation:

---

Insert the COM-945 CD-ROM into the CD-ROM drive. And install the drivers from Step 1 to Step 5 in order.

### Step 1 – Install Chipset Driver

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

### Step 2 – Install VGA Driver

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

### Step 3 – Install LAN Driver

1. Click on the **Step 3 – LAN** 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 4 – Install Audio Driver

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

#### Step 5 – Install Touch Driver (for ECB-916M)

1. Click on the **Step 5 –Touch** folder and double click on the **setup.exe** file
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-945 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_POWER _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_POWER_ 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, 9ch          ;(Serial Bus address 0x9C)
call  Ct_I2CWriteByte
mov   al, 01h          ;Indicate WDTOUT10 is occurred
mov   cl, 34h          ;F75111 register index
mov   ch, 9ch          ;9ch (Serial Bus address 0x9C)
call  Ct_I2CWriteByte

mov   al, 83h          ;Enable WDTOUT10 Output Timer:3 seconds
mov   cl, 35h          ;F75111 register index
mov   ch, 9ch          ;9ch (Serial Bus address 0x9C)
call  Ct_I2CWriteByte
pop   cx
ret

```

Ct\_I2CWriteByte Proc Near

```
    push ax
    push cx

    mov dx,SMBus_Port +04h      ;SMBus_Port(500h)
    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 (I/O)	
[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 - 0000005F]	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
[000001F0 - 000001F7]	Primary IDE Channel
[00000274 - 00000277]	ISAPNP Read Data Port
[00000279 - 00000279]	ISAPNP Read Data Port
[00000290 - 0000029F]	Motherboard resources
[000002E8 - 000002EF]	Communications Port (COM4)
[000002F8 - 000002FF]	Communications Port (COM2)
[00000378 - 0000037F]	Printer Port (LPT1)
[000003B0 - 000003BB]	Mobile Intel(R) 945GM Express Chipset Family
[000003C0 - 000003DF]	Mobile Intel(R) 945GM Express Chipset Family
[000003E8 - 000003EF]	Communications Port (COM3)
[000003F0 - 000003F5]	Standard floppy disk controller
[000003F6 - 000003F6]	Primary IDE Channel
[000003F7 - 000003F7]	Standard floppy disk controller
[000003F8 - 000003FF]	Communications Port (COM1)
[00000400 - 000004BF]	Motherboard resources
[000004D0 - 000004D1]	Motherboard resources
[00000500 - 0000051F]	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
[00000800 - 0000087F]	Motherboard resources
[00000A79 - 00000A79]	ISAPNP Read Data Port
[00000D00 - 0000FFFF]	PCI bus
[00009000 - 00009FFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[0000B000 - 0000BFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
[0000C000 - 0000CFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
[0000D000 - 0000DFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[0000DF00 - 0000DFFF]	Marvell Yukon 88E8053 PCI-E Gigabit Ethernet Controller
[0000F000 - 0000F0FF]	Realtek AC'97 Audio
[0000F300 - 0000F30F]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F400 - 0000F403]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F500 - 0000F507]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F600 - 0000F603]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F700 - 0000F707]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F800 - 0000F80F]	Intel(R) 82801G (ICH7 Family) Ultra ATA Storage Controllers - 27DF
[0000FA00 - 0000FA3F]	Realtek AC'97 Audio
[0000FB00 - 0000FB1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
[0000FC00 - 0000FC1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
[0000FD00 - 0000FD1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
[0000FE00 - 0000FE1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
[0000FF00 - 0000FF07]	Mobile Intel(R) 945GM Express Chipset Family

## B.2 Memory Address Map

+		Input/output (IO)
+		Interrupt request (IRQ)
-		Memory
		[00000000 - 0009FFFF] System board
		[000A0000 - 000BFFFF] Mobile Intel(R) 945GM Express Chipset Family
		[000A0000 - 000BFFFF] PCI bus
		[000C0000 - 000DFFFF] PCI bus
		[000CE600 - 000CFFFF] System board
		[000E0000 - 000EFFFF] System board
		[000F0000 - 000F7FFF] System board
		[000F8000 - 000FBFFF] System board
		[000FC000 - 000FFFFF] System board
		[00100000 - 0F6DFFFF] System board
		[0F6E0000 - 0F6FFFFF] System board
		[0F700000 - FEBFFFFF] PCI bus
		[D0000000 - DFFFFFFF] Mobile Intel(R) 945GM Express Chipset Family
		[E0000000 - EFFFFFFF] Motherboard resources
		[FD500000 - FD5FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
		[FD600000 - FD6FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
		[FD6FC000 - FD6FFFFF] Marvell Yukon 88E8053 PCI-E Gigabit Ethernet Controller
		[FD700000 - FD7FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
		[FDA00000 - FDAFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
		[FDB00000 - FDBFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
		[FDC00000 - FDCFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
		[FDD00000 - FDDFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
		[FDE00000 - FDEFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
		[FDF00000 - FDF7FFFF] Mobile Intel(R) 945GM Express Chipset Family
		[FDF80000 - FDFBFFFF] Mobile Intel(R) 945GM Express Chipset Family
		[FDFFC000 - FDFFC3FF] Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
		[FDFFD000 - FDFFD0FF] Realtek AC'97 Audio
		[FDFFE000 - FDFFE1FF] Realtek AC'97 Audio
		[FDFFF000 - FDFFF3FF] Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC

### B.3 IRQ Mapping Chart

Interrupt request (IRQ)	
(ISA) 0	System 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	System CMOS/real time clock
(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
(PCI) 15	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
(PCI) 16	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
(PCI) 16	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
(PCI) 16	Mobile Intel(R) 945GM Express Chipset Family
(PCI) 17	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
(PCI) 17	Marvell Yukon 88E8053 PCI-E Gigabit Ethernet Controller
(PCI) 17	Realtek AC'97 Audio
(PCI) 18	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
(PCI) 18	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
(PCI) 19	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
(PCI) 19	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
(PCI) 19	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
(PCI) 23	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
(PCI) 23	Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC

### B.4 DMA Channel Assignments

Direct memory access (DMA)	
2	Standard floppy disk controller
4	Direct memory access controller