ACP-5215

21.5" Fanless Multi-Touch
Panel PC
Intel® Core™ i7/i5/ P4500
Processor
High Brightness

Copyright Notice

Acknowledgments

- Intel$^®$, Core^{TM} are registered trademarks of Intel$^®$ Corporation.
- Microsoft$^®$ Windows is a registered trademark of Microsoft$^®$ Corporation.
- RTL is a trademark of Realtek Semi-Conductor Co., Ltd.
- C&T is a trademark of Chips and Technologies, Inc.
- UMC is a trademark of United Microelectronics Corporation.
- ITE is a trademark of Integrated Technology Express, Inc.

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

Packing List

Before you begin installing your Panel PC, please make sure

that the following items have been shipped:

- ACP-5215 Infotainment Multi-Touch Panel PC

- HDD screws

- Product DVD

    Contains User's Manual (in PDF format), Drivers and

    Utilities

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

Safety & Warranty

1. Read these safety instructions carefully.

2. Keep this user's manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.

4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.

5. Keep this equipment away from humidity.

6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.

7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.

8. **Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.**

9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

10. All cautions and warnings on the equipment should be noted.

11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.

12. Never pour any liquid into an opening. This could cause fire or electrical shock.

13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.

14. If any of the following situations arises, get the equipment

checked by service personnel:

> a. The power cord or plug is damaged.
>
> b. Liquid has penetrated into the equipment.
>
> c. The equipment has been exposed to moisture.
>
> d. The equipment does not work well, or you cannot get it to
>   work according to the user's manual.
>
> e. The equipment has been dropped and damaged.
>
> f. The equipment has obvious signs of breakage.

**15. DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED
ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS
BELOW -20° C (-4°F) OR ABOVE 70° C (158° F). IT MAY
DAMAGE THE EQUIPMENT.**

16. External equipment intended for connection to signal input/output
or other connectors, shall comply with relevant UL / IEC standard
(e.g. UL 1950 for IT equipment and UL 60601-1 / IEC 60601 series
for systems – shall comply with the standard IEC 60601-1-1,
Safety requirements for medical electrical systems.   Equipment
not complying with UL 60601-1 shall be kept outside the patient
environment, as defined in the standard.

17. When the temperature of CPU is higher than 35°C, the frequency
of CPU will be adjusted automatically.   For example, if the
temperature of Intel Core i7 is 40°C, the frequency of the CPU will
be between 1.8~1.3 GHz.

Caution:

> *It may cause the danger of explosion if battery is incorrectly
> replaced. Replace only with same or equivalent type
> recommended by the manufacturer.*

Classification

1. Degree of production against electric shock: not classified

2. Degree of protection against the ingress of water: IPX1

3. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

4. Mode of operation: Continuous

5. Type of protection against electric shock: Class I equipment

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.

UL Module Description

CLASSIFIED c(UL)US	*ACP-5215 AC modules are developed to suitable for the Classification Mark requirement*

Safety Symbol Description

The following safety symbols are further explanations for your

reference.

CLASSIFIED c(UL)us	*Medical equipment with respect to electric shock, fire and mechanical hazards only in accordance with UL 60601-1, and CAN/CSA C22.2 NO. 601.1*
⚠	*Attention, consult ACCOMPANYING DOCUMENTS.*
⏚	*Ground wire* *Protective Ground wire.*
c**RU**us	*Medical equipment with respect to electric shock, fire and mechanical hazards only in accordance with UL 60601-1, and CAN/CSA C22.2 NO. 601.1*

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

AAEON Panel PC/ Workstation

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	×	○	○	○	○	○
液晶模块	×	○	○	○	○	○
光驱	×	○	○	○	○	○
触控模块	×	○	○	○	○	○
电源	×	○	○	○	○	○

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

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

备注：
一、此产品所标示之环保使用期限，系指在一般正常使用状况下。
二、上述部件物质中央处理器、内存、硬盘、光驱、触控模块为选购品。

Contents

Appendix C Miscellanea

Chapter

1

General Information

1.1 Introduction

The ACP-5215 is a Multi-Touch Infotainment Panel PC with superior onboard Intel$^®$ Core™ i7/i5/P4500 processor-based computer. It is a PC-based system with 21.5" Full HD (1920x1080) Fanless TFT LCD display, integrated multimedia functions make them the perfect platforms to build comprehensive lifestyle computing applications.

The ACP-5215 includes all the features of a powerful computer into a slim and attractive chassis.　 The ACP-5215 has 250 nits TFT display with 1920x1080 resolution. This model equips two-point Multi-Touch Window design and is easy to clean.　 Moreover, it is IPX1 100% water-proof that can be installed in harsh environments. Its front bezel is IP-65/NEMA4 for auxiliary water-proof protection. In addition, the ACP-5215 deploys 7H hardness Anti-Scratch Surface to avoid accidental damage.

The ACP-5215 supports one 2.5" SATA Hard Disk Drive and one CompactFlash™ slot for the storage functions, and one Mini Card expansion. Moreover, it supports Smart Card Reader, RFID, MSR, Skype phone, and camera to fulfill the demands of versatile applications.

1.2 Features

● 21.5" Full HD (1920x1080) Fanless TFT LCD Display

● Easy-To-Clean: Multi-Touch Window Design (Two-Point)

● Superior Intel® Core™ i7/i5/P4500 Processor

● IP65 Front Bezel & IPx1 Back Chassis

● Anti-Scratch Surface (7H Hardness)

● Smart Card Reader/ RFID/ MSR/ Skype Phone/ Camera
  Support

1.3 Specification

System

- Processor   Intel® Core™ i7/i5/P4500 Processor,

  Core™ i7-620M, Core™i5-520M, P4500

- System Memory   DDR3 SODIMM x 1, Max. 4 GB

- LCD / CRT Controller   Integrated graphics in Intel® QM57

- Ethernet   10/100/1000Base-TX, RJ-45 x 2

- I/O Port   USB2.0 x 6 (2 on side; 4 on rear)

  RS-232 x 1

  Line-out x 1

  VGA x 1

- Storage Disk Drive   2.5" SATA Hard Disk Drive/

  CompactFlash™ slot (Internal)

- Expansion   Mini Card x 1

- OS Support   Windows® XP (T/S: Single point), Linux

  Fedora (T/S: Single point), Windows®7

  (T/S: Multi-point)

Mechanical

- Construction   IP65/ NEMA4 for plastic front bezel,

  IPX1 for plastic chassis

- Mounting   VESA 100

- Dimension   21.5"(W) x 13.7"(H) x 2.2"(D) (546mm x

348.1mm x 56mm)

- Net Weight   17.38 lb (7.9 kg)
- Gross Weight   22.44 lb (10.2 kg)

Environmental

- Operating Temperature $32^{o}F\sim104^{o}F$ ($0^{o}C\sim40^{o}C$)
- Storage Temperature $-4^{o}F\sim158^{o}F$ ($-20^{o}C\sim70^{o}C$)
- Storage Humidity   10%~95% @ $40^{o}C$, non-condensing
- Vibration   1 g rms/ 5-500Hz/ Random Operation (HDD)
- Shock   20 G peak acceleration (11 msec. duration)
- EMC   CE/FCC Class A

Power Supply

- DC Input 70W   DC 12V, with AC power adapter with lock in package

LCD

- Display Type   21.5" TFT-LCD, LED
- Max. Resolution   1920 x 1080
- Max. Colors   16.7 M colors (6/8-bit for R, G, B)
- Luminance (cd/m^2)   250 cd/m^2
- Viewing Angle   170º (H), 160º (V)
- Backlight   LED

● Backlight MTBF (Hours) 50,000

Touchscreen

● Type Projected Capacitive Multi-Touch

(Windows® 7)

● Light Transmission 90%

1.4 General Information

1.3M Camera

LCD On/Off

Volume+

Volume-

Brightness+

RFID

Brightness-

VESA 100

2W
Speaker

2W
Speaker

COM x 1

Line-out

Power Input

Power Switch

VGA

USB x 4

Smart Card
Reader

LAN x 2

USB x 2

Antenna

Antenna
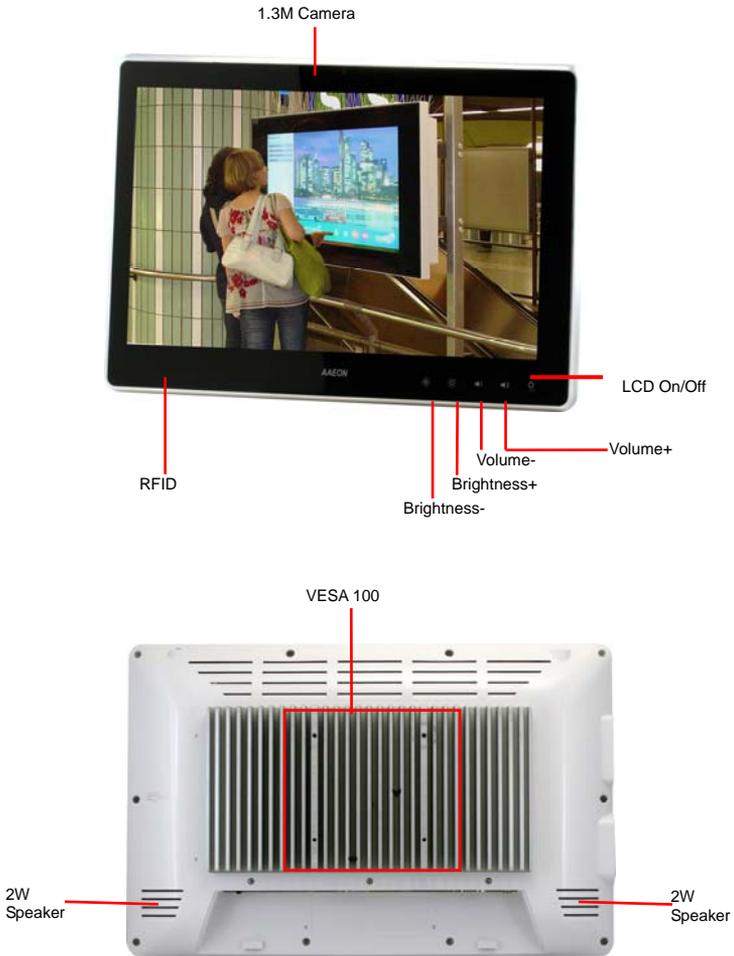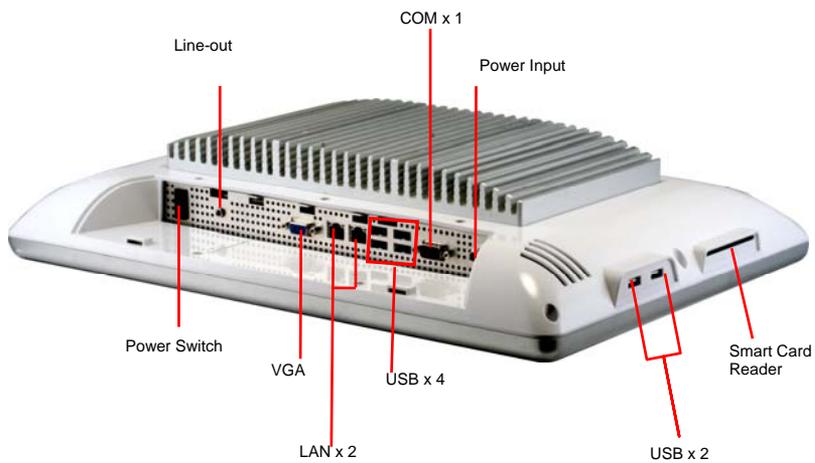
Chapter

2

Hardware Installation

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 A Quick Tour of the ACP-5215

Mechanical Drawings
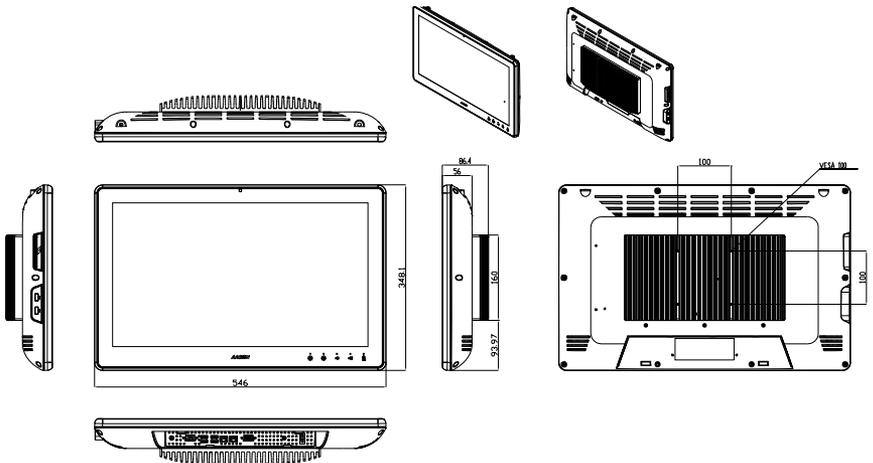
Front

Rear

I/O

Cable Cover (Optional)

Note 1: You may turn on the power by cutting and destroying the protective

cover as it shows below.

Note 2: The "Anti-Drop Kit" can help on preventing the cable drop from the

connector

2.3 2.5" Hard Disk Drive (HDD) Installation

Step 1: Unscrew the rear cover screws (15 screws)

Step 2: Remove EMI Cover (4 screws)

Step 3: Remove HDD Bracket (4 screws)
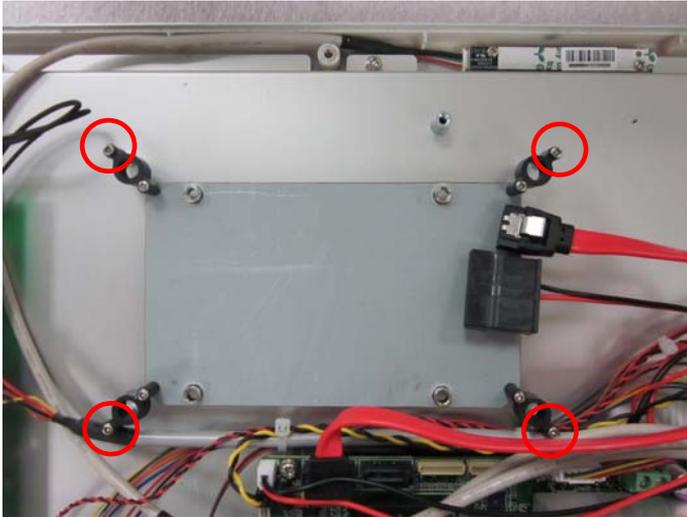
Step 4: Get the HDD and HDD Bracket ready

Step 5: Fasten the four screws to fix HDD Bracket and HDD
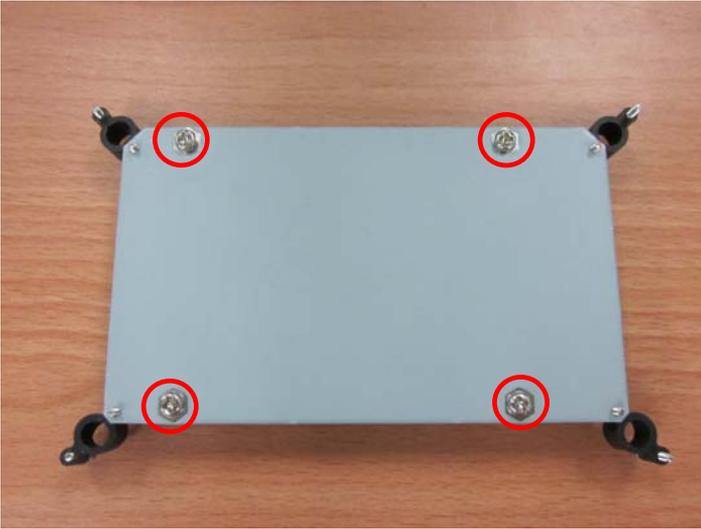
Step 6: Connect the SATA and power cables to the HDD and fasten the

four screws to fix the HDD Bracket
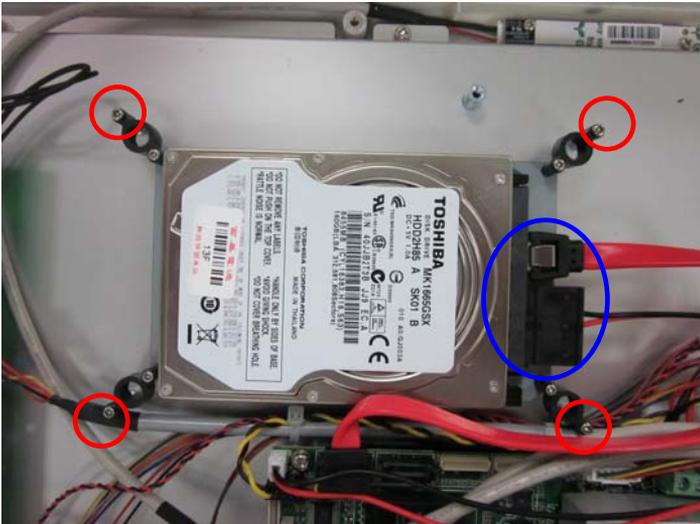
Chapter

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 ACP-5215 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 <Del> or <F2> immediately. This will allow you to enter Setup.

Main

Set the date, use tab to switch between date elements.

Advanced

Enable disable boot option for legacy network devices.

Chipset

host bridge parameters.

Boot

Enables/disable quiet boot option.

Security

Set setup administrator password.

Save&Exit

Exit system setup after saving the changes.

Chapter

4

Driver Installation

The ACP-5215 comes with an AutoRun DVD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver DVD, the driver DVD-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 ME Driver

      Step 5 – Install Audio Driver

      Step 6 – Install Touch Driver (For Windows$^®$ XP only)

      Step 7 – Install Smart Card Reader Driver (Optional)

      Step 8 – Install WiFi Driver (Optional)

Please read instructions below for further detailed installations.

4.1   Installation:

Insert the ACP-5215 DVD-ROM into the DVD-ROM drive. Then install the drivers from Step 1 to Step 8 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(9.1.1.1020).exe* file located in each OS folder

3.   Follow the instructions that the window shows

4.   The system will help you install the driver automatically

Step 2 – Install VGA Driver

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

Note: If the OS is Windows® XP, you have to install the driver of dotNet Framework first. Simply click on *dotnetfx35.exe* located in *dotNet Framwork* folder.

Step 3 – Install LAN Driver

1.   Click on the *STEP3–LAN* folder and select the OS folder your system is

2.   Double click on the *Autorun.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 ME Driver

1.   Click on the *STEP4–ME* 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 Audio Driver

1.   Click on the *STEP5–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 6 – Install Touch Driver (For Windows® XP only)

1.   Click on the *STEP6–TOUCH* folder and double click on the *ModifyDBArea* file

2.   Follow the instructions that the window shows

3. The system will help you install the driver automatically

Step 7 – Install Smart Card Reader Driver (Optional)

1. Click on the ***STEP7–SMART CARD READER*** 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 8 – Install WiFi Driver (Optional)

1. Click on the ***STEP8–WIFI*** 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

Appendix

A

Programming the

Watchdog Timer

A.1 Programming

ACP-5215 utilizes ITE 8781 chipset as its watchdog timer controller. Below are the procedures to complete its configuration and the AAEON initial watchdog timer program is also attached based on which you can develop customized programs to fit your application.

Configuring Sequence Description

After the hardware reset or power-on reset, the ITE 8781 enters the normal mode with all logical devices disabled except KBC.   The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.
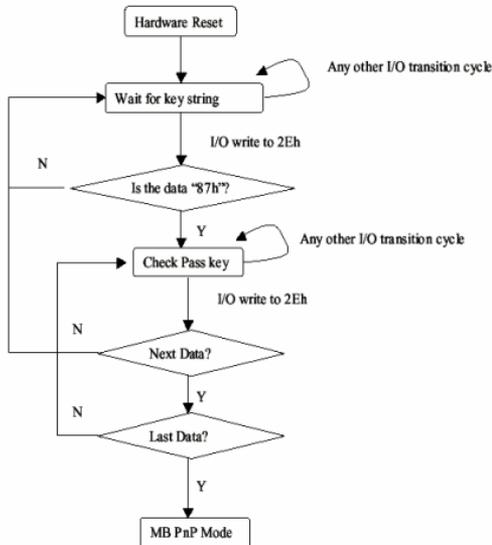
There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

To enter the MB PnP Mode, four 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 four write opera-tions to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP 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 MB PnP Mode

Set bit 1 of the configure control register (Index=02h) to 1 to exit the MB PnP Mode.

WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02h	W	NA	Configure Control

07h	71h	R/W	00h	Watch Dog Timer Control Register
07h	72h	R/W	001s0000b	Watch Dog Timer Configuration Register
07h	73h	R/W	38h	Watch Dog Timer Time-out Value (LSB) Register
07h	74h	R/W	00h	Watch Dog Timer Time-out Value (MSB) Register

Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

Bit	Description
7-2	Reserved
1	Returns to the "Wait for Key" state. This bit is used when the configuration sequence is completed.
0	Resets all logical devices and restores configuration registers to their power-on states.

Watch Dog Timer 1, 2, 3 Control Register (Index=71h,81h,91h Default=00h)

Bit	Description
7	**WDT Timeout Enable(WTE)** 1: Disable. 0: Enable.
6	**WDT Reset upon Mouse Interrupt(WRKMI)** 0: Disable. 1: Enable.
5	**WDT Reset upon Keyboard Interrupt(WRKBI)** 0: Disable. 1: Enable.
4	Reserved
3-2	Reserved
1	**Force Time-out(FTO)** This bit is self-clearing.
0	**WDT Status(WS)** 1: WDT value reaches 0. 0: WDT value is not 0.

Watch Dog Timer 1, 2, 3 Configuration Register (Index=72h, 82h, 92h Default=001s0000b)

Bit	Description
7	**WDT Time-out Value Select 1 (WTVS)** 1: Second 0: Minute
6	**WDT Output through KRST (Pulse) Enable(WOKE)** 1: Enable 0: Disable
5	**WDT Time-out value Extra select(WTVES)** 1: 64ms x WDT Timer-out value (default = 4s) 0: Determined by WDT Time-out value select 1 (bit 7 of this register)
4	**WDT Output through PWROK (Pulse) Enable(WOPE)** 1: Enable 0: Disable During LRESET#, this bit is selected by JP7 power-on strapping option
3-0	**Select interrupt level** [Note1] **for WDT(SIL)**

Watch Dog Timer 1,2,3 Time-Out Value (LSB) Register (Index=73h,83h,93h, Default=38h)

Bit	Description
7-0	**WDT Time-out Value 7-0(WTV)**

Watch Dog Timer 1,2,3 Time-Out Value (MSB) Register (Index=74h,84h,94h Default=00h)

Bit	Description
7-0	**WDT Time-out Value 15-8(WTV)**

A.2 ITE8781 Watchdog Timer Initial Program

```
.MODEL SMALL
.CODE
Main:
CALL Enter_Configuration_mode
CALL Check_Chip
mov cl, 7
call Set_Logic_Device
;time setting
mov cl, 10 ; 10 Sec
dec al
Watch_Dog_Setting:
;Timer setting
mov al, cl
mov cl, 73h
call Superio_Set_Reg
;Clear by keyboard or mouse interrupt
mov al, 0f0h
mov cl, 71h
call Superio_Set_Reg
;unit is second.
mov al, 0C0H
mov cl, 72h
call Superio_Set_Reg
```

```
; game port enable
mov cl, 9
call Set_Logic_Device


Initial_OK:
CALL Exit_Configuration_mode
MOV AH,4Ch
INT 21h


Enter_Configuration_Mode PROC NEAR
MOV SI,WORD PTR CS:[Offset Cfg_Port]


MOV DX,02Eh
MOV CX,04h
Init_1:
MOV AL,BYTE PTR CS:[SI]
OUT DX,AL
INC SI
LOOP Init_1
RET
Enter_Configuration_Mode ENDP


Exit_Configuration_Mode PROC NEAR
MOV AX,0202h
CALL Write_Configuration_Data
```

RET

Exit_Configuration_Mode ENDP

Check_Chip PROC NEAR

MOV AL,20h

CALL Read_Configuration_Data

CMP AL,87h

JNE Not_Initial

MOV AL,21h

CALL Read_Configuration_Data

CMP AL,81h

JNE Not_Initial

Need_Initial:

STC

RET

Not_Initial:

CLC

RET

Check_Chip ENDP

Read_Configuration_Data PROC NEAR

MOV DX,WORD PTR CS:[Cfg_Port+04h]

OUT DX,AL

Appendix A Programming the Watchdog Timer   A-8

```
MOV DX,WORD PTR CS:[Cfg_Port+06h]
IN AL,DX
RET
Read_Configuration_Data ENDP


Write_Configuration_Data PROC NEAR
MOV DX,WORD PTR CS:[Cfg_Port+04h]
OUT DX,AL
XCHG AL,AH
MOV DX,WORD PTR CS:[Cfg_Port+06h]
OUT DX,AL
RET
Write_Configuration_Data ENDP


Superio_Set_Reg proc near
push ax
MOV DX,WORD PTR CS:[Cfg_Port+04h]
mov al,cl
out dx,al
pop ax
inc dx
out dx,al
ret
Superio_Set_Reg endp.Set_Logic_Device proc near
Set_Logic_Device    proc    near
```

```
push ax
push cx
xchg al,cl
mov cl,07h
call Superio_Set_Reg
pop cx
pop ax
ret
Set_Logic_Device endp

;Select 02Eh->Index Port, 02Fh->Data Port
Cfg_Port DB 087h,001h,055h,055h
DW 02Eh,02Fh
```

END Main

Note: Interrupt level mapping

0Fh-Dh: not valid

0Ch: IRQ12

.

.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected

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 - 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 - 00000071] System CMOS/real time clock
    [00000072 - 0000007F] Motherboard resources
    [00000080 - 00000080] Motherboard resources
    [00000081 - 00000083] Direct memory access controller
    [00000084 - 00000086] Motherboard resources
    [00000087 - 00000087] Direct memory access controller
    [00000088 - 00000088] Motherboard resources
    [00000089 - 0000008B] Direct memory access controller
    [0000008C - 0000008E] Motherboard resources
    [0000008F - 0000008F] Direct memory access controller
    [00000090 - 0000009F] Motherboard resources
    [000000A0 - 000000A1] Programmable interrupt controller
    [000000A2 - 000000BF] Motherboard resources
    [000000C0 - 000000DF] Direct memory access controller
    [000000E0 - 000000EF] Motherboard resources
    [000000F0 - 000000FF] Numeric data processor
    [00000274 - 00000277] ISAPNP Read Data Port
    [00000279 - 00000279] ISAPNP Read Data Port
    [000002E8 - 000002EF] Communications Port (COM4)
    [000002F8 - 000002FF] Communications Port (COM2)
    [00000378 - 0000037F] Printer Port (LPT1)
    [000003B0 - 000003BB] Intel(R) HD Graphics
    [000003C0 - 000003DF] Intel(R) HD Graphics
    [000003E8 - 000003EF] Communications Port (COM3)
```

[000003F8 - 000003FF] Communications Port (COM1)
[00000400 - 0000047F] System board
[000004D0 - 000004D1] Motherboard resources
[00000500 - 0000057F] System board
[00000778 - 0000077F] Motherboard resources
[00000A00 - 00000A1F] Motherboard resources
[00000A79 - 00000A79] ISAPNP Read Data Port
[00000D00 - 0000FFFF] PCI bus
[00001180 - 0000119F] System board
[0000D000 - 0000D00F] Standard Dual Channel PCI IDE Controller
[0000D000 - 0000DFFF] Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 8 - 3B50
[0000D010 - 0000D013] Standard Dual Channel PCI IDE Controller
[0000D020 - 0000D027] Standard Dual Channel PCI IDE Controller
[0000D030 - 0000D033] Standard Dual Channel PCI IDE Controller
[0000D040 - 0000D047] Standard Dual Channel PCI IDE Controller
[0000E000 - 0000E01F] Intel(R) 82574L Gigabit Network Connection
[0000E000 - 0000EFFF] Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 6 - 3B4C
[0000F000 - 0000F01F] Intel(R) 5 Series/3400 Series Chipset Family SMBus Controller - 3B30
[0000F020 - 0000F03F] Intel(R) 82577LM Gigabit Network Connection
[0000F040 - 0000F04F] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B2D
[0000F050 - 0000F05F] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B2D
[0000F060 - 0000F063] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B2D
[0000F070 - 0000F077] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B2D
[0000F080 - 0000F083] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B2D
[0000F090 - 0000F097] Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B2D
[0000F0A0 - 0000F0AF] Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B2E
[0000F0B0 - 0000F0BF] Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B2E
[0000F0C0 - 0000F0C3] Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B2E
[0000F0D0 - 0000F0D7] Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B2E
[0000F0E0 - 0000F0E3] Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B2E
[0000F0F0 - 0000F0F7] Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B2E
[0000F100 - 0000F107] Intel(R) Active Management Technology - SOL (COM5)
[0000F110 - 0000F11F] Standard Dual Channel PCI IDE Controller
[0000F120 - 0000F123] Standard Dual Channel PCI IDE Controller
[0000F130 - 0000F137] Standard Dual Channel PCI IDE Controller
[0000F140 - 0000F143] Standard Dual Channel PCI IDE Controller
[0000F150 - 0000F157] Standard Dual Channel PCI IDE Controller
[0000F160 - 0000F167] Intel(R) HD Graphics

B.2 1st MB Memory Address Map

```
Memory
    [000A0000 - 000BFFFF]  Intel(R) HD Graphics
    [000A0000 - 000BFFFF]  PCI bus
    [7C000000 - FFFFFFFF]  PCI bus
    [D0000000 - DFFFFFFF]  Intel(R) HD Graphics
    [E0000000 - EFFFFFFF]  System board
    [FE000000 - FE3FFFFF]  Intel(R) HD Graphics
    [FE400000 - FE4FFFFF]  Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 8 - 3B50
    [FE500000 - FE51FFFF]  Intel(R) 82574L Gigabit Network Connection
    [FE500000 - FE5FFFFF]  Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 6 - 3B4C
    [FE520000 - FE523FFF]  Intel(R) 82574L Gigabit Network Connection
    [FE600000 - FE61FFFF]  Intel(R) 82577LM Gigabit Network Connection
    [FE620000 - FE623FFF]  Microsoft UAA Bus Driver for High Definition Audio
    [FE624000 - FE624FFF]  Intel(R) Turbo Boost Technology Driver
    [FE625000 - FE6250FF]  Intel(R) 5 Series/3400 Series Chipset Family SMBus Controller - 3B30
    [FE626000 - FE6263FF]  Intel(R) 5 Series/3400 Series Chipset Family USB Enhanced Host Controller - 3B34
    [FE627000 - FE6273FF]  Intel(R) 5 Series/3400 Series Chipset Family USB Enhanced Host Controller - 3B3C
    [FE628000 - FE628FFF]  Intel(R) 82577LM Gigabit Network Connection
    [FE629000 - FE629FFF]  Intel(R) Active Management Technology - SOL (COM5)
    [FE62A000 - FE62A00F]  Intel(R) Management Engine Interface
    [FEC00000 - FECFFFFF]  System board
    [FED00000 - FED003FF]  High precision event timer
    [FED08000 - FED08FFF]  System board
    [FED14000 - FED19FFF]  System board
    [FED1C000 - FED1FFFF]  System board
    [FED20000 - FED3FFFF]  System board
    [FED90000 - FED93FFF]  System board
    [FEE00000 - FEE0FFFF]  System board
    [FF000000 - FFFFFFFF]  System board
```

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)  8    System CMOS/real time clock
    (ISA)  9    Microsoft ACPI-Compliant System
    (ISA) 10    Communications Port (COM3)
    (ISA) 11    Communications Port (COM4)
    (ISA) 12    Microsoft PS/2 Mouse
    (ISA) 13    Numeric data processor
    (PCI) 10    Intel(R) 5 Series/3400 Series Chipset Family SMBus Controller - 3B30
    (PCI) 16    Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 6 - 3B4C
    (PCI) 16    Intel(R) 5 Series/3400 Series Chipset Family USB Enhanced Host Controller - 3B3C
    (PCI) 16    Intel(R) HD Graphics
    (PCI) 16    Intel(R) Management Engine Interface
    (PCI) 17    Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 1 - 3B42
    (PCI) 17    Intel(R) 82574L Gigabit Network Connection
    (PCI) 17    Intel(R) Active Management Technology - SOL (COM5)
    (PCI) 18    Intel(R) Turbo Boost Technology Driver
    (PCI) 18    Standard Dual Channel PCI IDE Controller
    (PCI) 19    Intel(R) 5 Series/3400 Series Chipset Family 2 port Serial ATA Storage Controller - 3B2D
    (PCI) 19    Intel(R) 5 Series/3400 Series Chipset Family 4 port Serial ATA Storage Controller - 3B2E
    (PCI) 19    Intel(R) 5 Series/3400 Series Chipset Family PCI Express Root Port 8 - 3B50
    (PCI) 19    Standard Dual Channel PCI IDE Controller
    (PCI) 20    Intel(R) 82577LM Gigabit Network Connection
    (PCI) 22    Microsoft UAA Bus Driver for High Definition Audio
    (PCI) 23    Intel(R) 5 Series/3400 Series Chipset Family USB Enhanced Host Controller - 3B34
```

B.4 DMA Channel Assignments

```
□ ■ Direct memory access (DMA)
        4    Direct memory access controller
```

Appendix

C

Miscellanea

C.1 General Cleaning Tips

You may need the following precautions before you begin to clean the computer. When you clean any single part or component for the computer, please read and understand the details below fully.

1. Never spray or squirt the liquids directly onto any computer component. If you need to clean the device, please rub it with a piece of dry cloth.

2. Be cautious of the tiny removable components when you use a vacuum cleaner to absorb the dirt on the floor.

3. Turn the system off before you start to clean up the component or computer.

4. Never drop the components inside the computer or get circuit board damp or wet.

5. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.

6. Try not to put any food, drinks or cigarettes around the computer.

C.2 Cleaning tools

Although many companies have created products to help improve the process of cleaning your computer and peripherals users can also use household items to clean their computers and peripherals. Below is a listing of items you may need or want to use while cleaning your computer or computer peripherals.

Keep in mind that some components in your computer may only be able to be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning tips.

- **Cloth** - A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, we still recommend you to rub it with a piece of cloth.
- **Water or rubbing alcohol** – You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer. Unknown solvents may be harmful to the plastics parts.
- **Vacuum cleaner** - Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.

- **Cotton swabs** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in your keyboard, mouse, and other locations.
- **Foam swabs** - Whenever possible it is better to use lint free swabs such as foam swabs.

<u>Note:</u>
We strongly recommended that you should shut down the system before you start to clean any single components.

Please follow the steps below.

1. Close all application programs
2. Close operating software
3. Turn off power switch
4. Remove all device
5. Pull out power cable

C.3 Scrap Computer Recycling

If the computer equipments need the maintenance or are beyond repair, we strongly recommended that you should inform us as soon as possible for the suitable solution. For the computers that are no longer useful or work well, please contact with worldwide distributors for recycling.

The worldwide distributors show on the following website:

http://www.aaeon.com/?TabIndex=Contact&TabID=Distributors

Note:

Follow the national requirements to dispose unit

C.4 Installing Accessories

Skype Phone Installation

Step 1: Fasten the two screws(2-SELF TAPPING SCREWS) to fix the

Skype Bracket with the ACP-5215

MSR Installation

Step 1: Fasten the two screws (2-SELF TAPPING SCREWS) to fix the

MSR Bracket with the ACP-5215
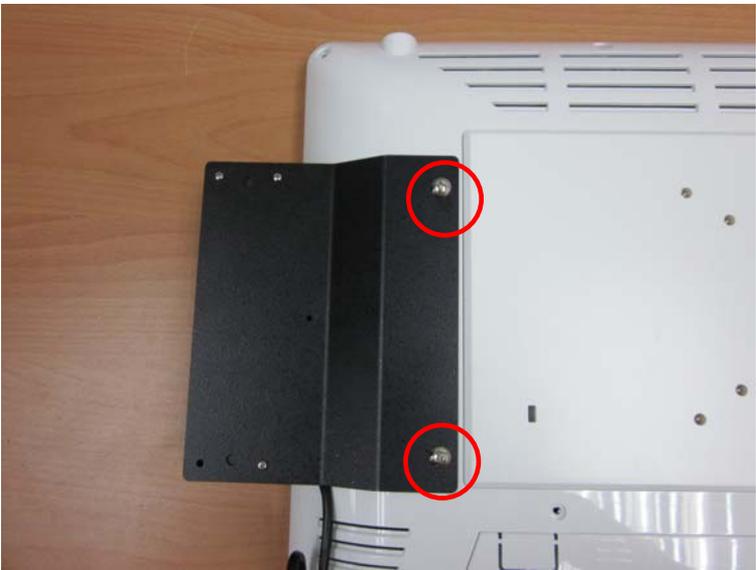
Bar Code Scanner Installation

Step 1: Fasten the three screws to fix the Bar Code Scanner with the

backet

Step 2: Fasten the two screws (2-SELF TAPPING SCREWS) to fix the Bar

Code Scanner with the ACP-5215