ACP-5210

21.5" Fanless Multi-Touch
Panel PC
AMD G-Series T56N
Processor
2GB RAM Inside

Copyright Notice

Acknowledgments

- AMD is trademark of Advanced Micro Devices, Inc.

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Packing List

Before you begin installing your Panel PC, please make sure

that the following items have been shipped:

- ACP-5210 Infotainment Multi-Touch Panel PC

- Power Adapter x 1

- 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.

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

	ACP-5210 AC modules are developed to suitable for the Classification Mark requirement

Safety Symbol Description

The following safety symbols are further explanations for your reference.

	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.*
	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。

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Appendix D AHCI Setting

Chapter

1

General Information

1.1 Introduction

The ACP-5210 is a Multi-Touch Infotainment Panel PC with superior onboard AMD G-Series T56N 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-5210 includes all the features of a powerful computer into a slim and attractive chassis.   The ACP-5210 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 IP65/NEMA4 for auxiliary water-proof protection. In addition, the ACP-5210 deploys 7H hardness Anti-Scratch Surface to avoid accidental damage.

The ACP-5210 supports one 2.5" SATA Hard Disk Drive and one CFast™ slot for the storage functions, and one Mini PCIe 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)

- AMD G-Series T56N Processor, 1.6GHz

- IP65 Front Bezel & IPx1 Back Chassis

- Fanless Design

- Anti-Scratch Surface (7H Hardness)

- USB x 4 (Two on Front side, Two on I/O Button side), COM x 1, LAN x 2, Mini PCIe Card x 1

- Front Accessible LCD ON/OFF, Brightness UP/DOWN, Volume UP/DOWN

1.3 Specification

System

- Processor   AMD G-Series T56N Processor, 1.6GHz
- System Memory   DDR3 SODIMM x 1, Max. 4 GB (2 GB RAM inside)
- LCD / CRT Controller   AMD A50M
- Ethernet   Realtek 8111E 10/100/1000Base-TX, RJ-45 x 2
- I/O Port   USB x 4 (Two on Front side, Two on I/O Button side)

                           RS-232 x 1

                           Line-out x 1

                           VGA out x 1

                           Lockable Power Input x 1

                           Power Switch x 1
- Storage Disk Drive   2.5" SATA Hard Disk Drive Bay x 1/ CFast™ slot x 1 (Internal)
- Expansion   Mini PCIe Card x 1
- OS Support   Windows$^®$ XP (T/S: Single point), Linux Fedora (T/S: Multi-point), Windows$^®$7 (T/S: Multi-point)

Mechanical

- Construction   IP65/ NEMA4 for plastic front bezel,

		IPX1 for top plastic chassis
●	Mounting	VESA 100, Wallmount
●	Dimension	21.5"(W) x 13.7"(H) x 2.34"(D) (546mm x 348.1mm x 59.4mm)
●	Carton Dimension	26"(W) x 19.52"(H) x 7.87"(D) (661mm x 496mm x 200mm)
●	Gross Weight	18.3 lb (8.3 kg)

Environmental

●	Operating Temperature	$32^{o}F{\sim}104^{o}F$ $(0^{o}C{\sim}40^{o}C)$
●	Storage Temperature	$-4^{o}F{\sim}158^{o}F$ $(-20^{o}C{\sim}70^{o}C)$
●	Storage Humidity	10%~90% @ $40^{o}C$, non-condensing
●	Vibration	1 g rms/ 5-500Hz/ Random Operation (HDD)
●	Shock	20 G peak acceleration (11 msec. duration) (HDD)
●	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
- Contrast Ratio   1000:1
- Viewing Angle   170º (H), 160º (V)
- Backlight   LED
- Backlight MTBF (Hours)   30,000

Touchscreen

- Type   Projected Capacitive Multi-Touch (two points)
- Resolution   1920x1080
- Light Transmission   >88%

1.4 General Information

1.3M Camera

LCD On/Off

Volume+

Volume-

Brightness+

RFID

Brightness-

VESA 100

2W
Speaker

2W
Speaker

VGA

USB x 2

Line-out   Power connector

Smart Card
Reader

Power Switch

USB x 2

COM x 1

USB x 2

LAN x 2

.

Antenna

Antenna
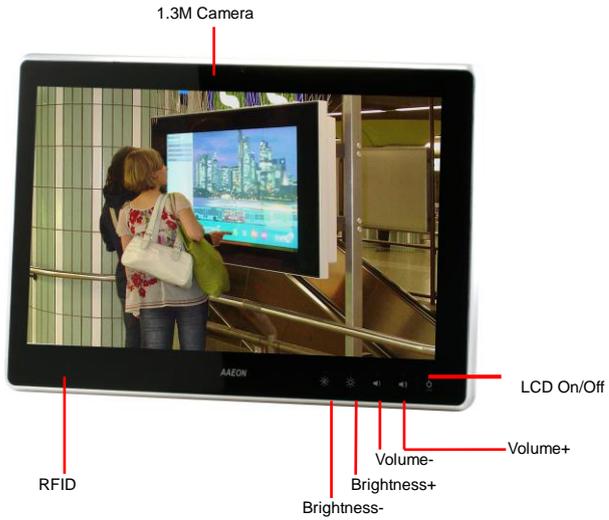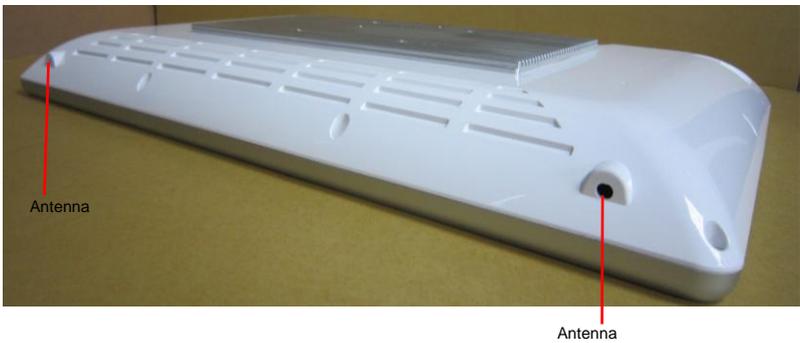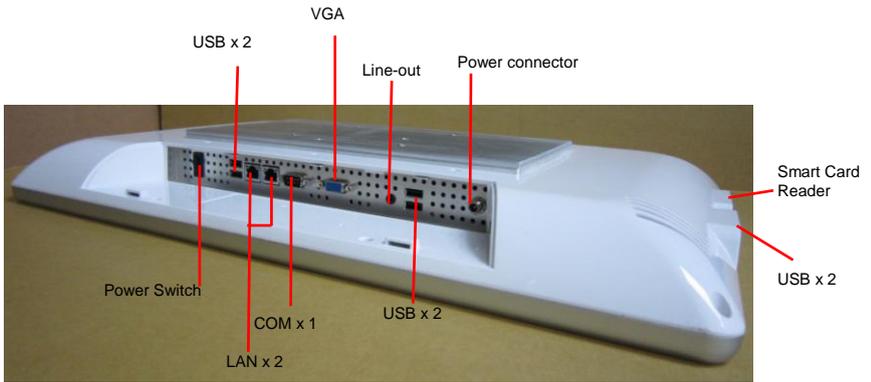
Chapter

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-5210

Mechanical Drawings

ACP-5210
Unit:mm
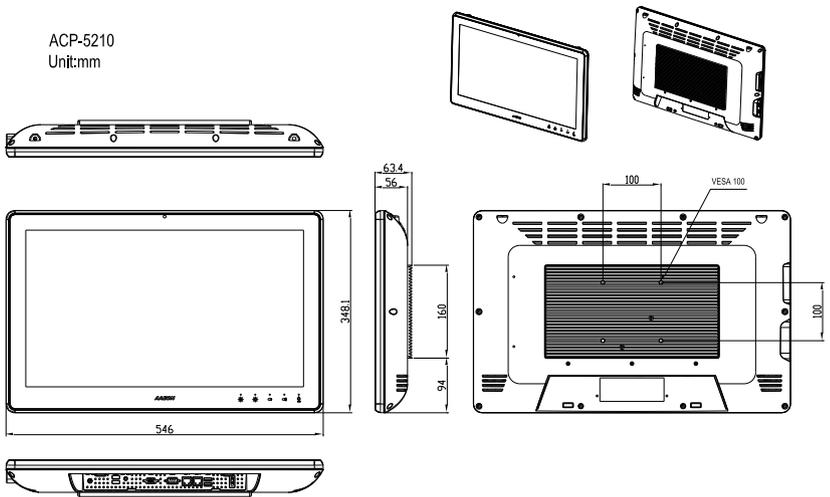
Cable Cover (Optional)

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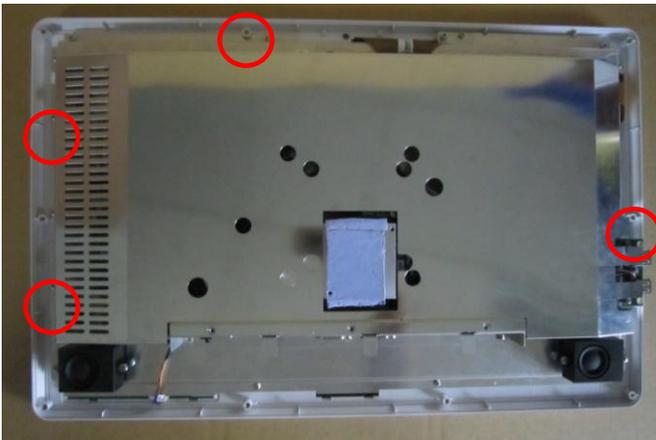
Step 3: Remove HDD Bracket (4 screws)
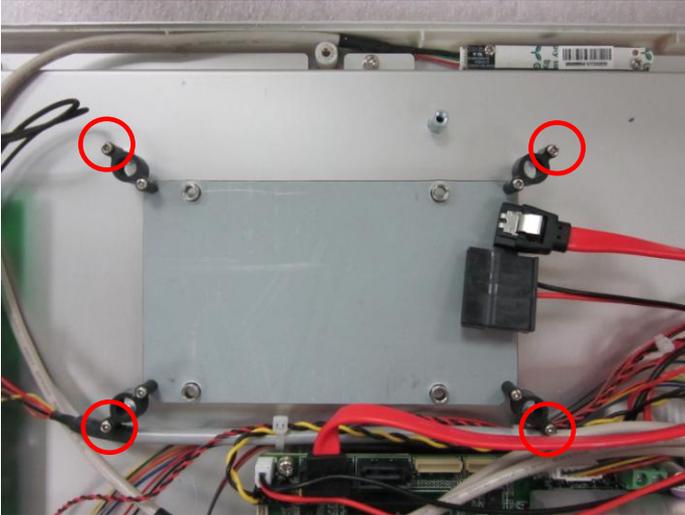
Step 4: Get the HDD and HDD Bracket ready

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-5210 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.

Setup Menu
Setup submenu: Main

Options summary: (*default setting*)

System Date	Day MM:DD:YYYY	
Change the month, year and century. The 'Day' is changed automatically.		
System Time	HH : MM : SS	
Change the clock of the system.		

Setup submenu: Advanced

```
                    Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
      Main  Advanced  Chipset  Boot  Security  Save & Exit

   ▶ ACPI Settings                                            System ACPI Parameters.
   ▶ Trusted Computing
   ▶ CPU Configuration
   ▶ SATA Configuration
   ▶ USB Configuration
   ▶ F81866 Super IO Configuration
   ▶ F81866 H/W Monitor

                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Reset
                                                              ESC: Exit


                    Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

Options summary: (***default setting***)

ACPI Settings		
System ACPI Parameters		
Trusted Computing		
Trusted Computing (TPM) Settings		
CPU Configuration		
CPU Configuration Parameters		
SATA Configuration		
SATA Device Options Settings		
USB Configuration		
USB Configuration Parameters		
F81866 Super IO Configuration		

System Super IO Chip Parameters		
F81866 H/W Monitor		
Monitor hardware status		

ACPI Settings

```
              Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
       Advanced

  ACPI Settings                                              Select the highest ACPI sleep
                                                             state the system will enter
  ACPI Sleep State              [S3 (Suspend to RAM)]        when the SUSPEND button is
                                                             pressed.




                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Reset
                                                             ESC: Exit




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```

Options summary: (*default setting*)

ACPI Sleep State	*S3 (Suspend to RAM)*	
Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.		

Trusted Computing

```
                Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
        Advanced

    TPM Configuration                                          Enables or Disables TPM
      TPM SUPPORT                     [Disable]                support. O.S. will not show
                                                               TPM. Reset of platform is
                                                               required.
    Current TPM Status Information
      NO TPM Hardware




                                                               →←: Select Screen
                                                               ↑↓: Select Item
                                                               Enter: Select
                                                               +/-: Change Opt.
                                                               F1: General Help
                                                               F2: Previous Values
                                                               F3: Optimized Defaults
                                                               F4: Save & Reset
                                                               ESC: Exit


                Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

Options summary: (*default setting*)

TPM SUPPORT	*Disabled*	
	Enabled	
En/Disable TPM support. O.S. will not show TPM. Reset of platform is required.		

CPU Configuration

```
           Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
   Advanced

   Node0: AMD G-T40E Processor
   Dual Core Running @ 1012 MHz   1037 mV
   Max Speed:1000 MHZ    Intended Speed:1000 MHZ
   Min Speed:615 MHZ
   Microcode Patch Level: 5000101

   --------- Cache per Core ---------
   L1 Instruction Cache: 32 KB/8-way
        L1 Data Cache: 32 KB/2-way
             L2 Cache: 512 KB/16-way
   No L3 Cache Present
                                                   →←: Select Screen
                                                   ↑↓: Select Item
                                                   Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
                                                   F3: Optimized Defaults
                                                   F4: Save & Reset
                                                   ESC: Exit


           Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

SATA Configuration

```
            Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
        Advanced

OnChip SATA Channel              [Enabled]              Enable Or Disable Serial ATA
OnChip SATA Type                 [Legacy IDE]

SATA Port0                       Not Present




                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/−: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Reset
                                                        ESC: Exit



            Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

Options summary: (***default setting***)

OnChip SATA Channel	Disabled	
	Enabled	
En/Disable Serial ATA		
OnChip SATA Type	ACHI	
	Legacy IDE	
Configure SATA controller operating as Legacy IDE/AHCI mode.		

USB Configuration

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
      Advanced

  USB Configuration                                     Enables Legacy USB support.
                                                        AUTO option disables legacy
  USB Devices:                                          support if no USB devices are
        1 Drive, 1 Mouse                                connected. DISABLE option will
                                                        keep USB devices available
  Legacy USB Support               [Enabled]            only for EFI applications.

  Mass Storage Devices:
  KingstonDT 101 II 1.00           [Auto]


                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Reset
                                                        ESC: Exit


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```
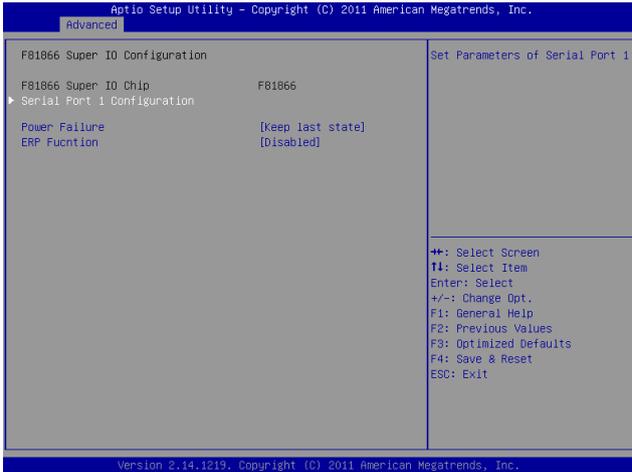
Options summary: (*default setting*)

Legacy USB Support	*Enabled*	
	Disabled	
	Auto	
Enables Legacy USB Support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications		
Device Name (Emulation Type)	**Auto**	
	Floppy	
	Forced FDD	
	Hard Disk	
	CD-ROM	

If Auto. USB devices less than 530MB will be emulated as Floppy and remaining as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD(Ex. ZIP drive)

F81866 Super IO Configuration

```
          Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
   Advanced

   F81866 Super IO Configuration                             Set Parameters of Serial Port 1

   F81866 Super IO Chip              F81866
 ▶ Serial Port 1 Configuration

   Power Failure                   [Keep last state]
   ERP Fucntion                    [Disabled]




                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Reset
                                                            ESC: Exit

          Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
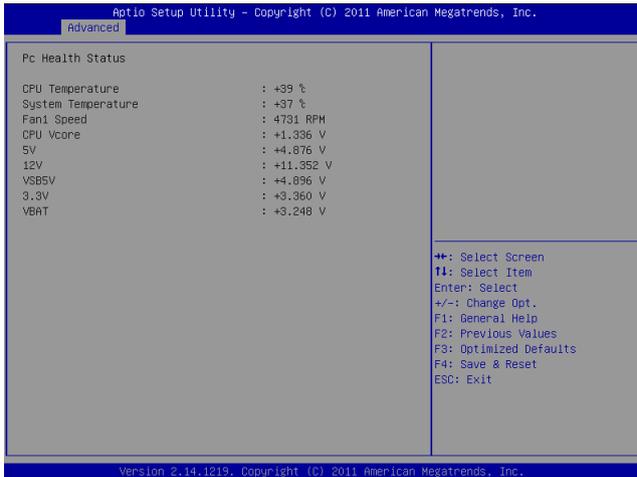
Options summary: (*default setting*)

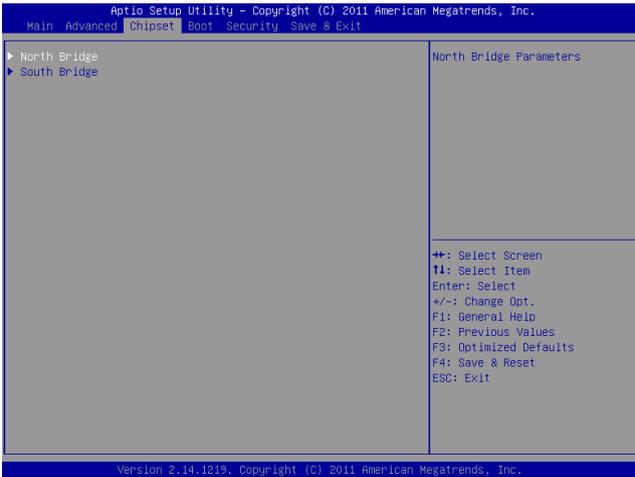| Serial Port 1 Configuration		
Set Parameters of Serial Port 1		
Power Failure	*Keep last state*	
	Always on	
	Always off	
Select AC power state when power is re-applied after a power failure.		
ERP Function	*Disabled*	
	Enabled	
ERP Function En/Disable		

Serial Port 1 Configuration

```
              Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
      Advanced

   Serial Port 1 Configuration                               Enable or Disable Serial Port
                                                             (COM)
   Serial Port                        [Enabled]
   Device Settings                    IO=3F8h; IRQ=4;

   Change Settings                    [Auto]




                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Reset
                                                             ESC: Exit


              Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

Options summary: (***default setting***)

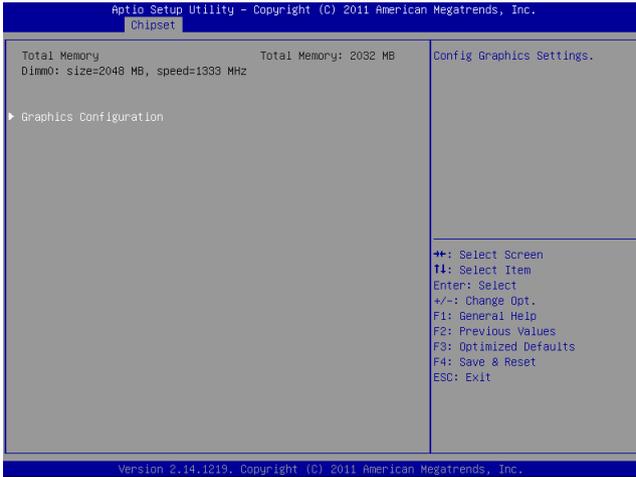| Serial Port	Disabled	
	Enabled	
En/Disable specified serial port.		
Change Settings	***Auto***	
	IO=3F8h; IRQ=4;	
	IO=3F8h; IRQ=3,4;	
	IO=2F8h; IRQ=3,4;	
Select an optimal setting for Super IO device.		

F81866 H/W Monitor

```
              Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
     Advanced

   Pc Health Status

   CPU Temperature                    : +39 %
   System Temperature                 : +37 %
   Fan1 Speed                         : 4731 RPM
   CPU Vcore                          : +1.336 V
   5V                                 : +4.876 V
   12V                                : +11.352 V
   VSB5V                              : +4.896 V
   3.3V                               : +3.360 V
   VBAT                               : +3.248 V

                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/–: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Reset
                                                      ESC: Exit

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```

Setup submenu: Chipset

```
              Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
        Main  Advanced  Chipset  Boot  Security  Save & Exit

    ▶ North Bridge                                    North Bridge Parameters
    ▶ South Bridge




                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/−: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Reset
                                                      ESC: Exit



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```

Options summary: (*default setting*)

North Bridge		
South Bridge Parameters		
South Bridge		
South Bridge Parameters		

North Bridge

```
Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
  Chipset

  Total Memory                    Total Memory: 2032 MB        Config Graphics Settings.
  Dimm0: size=2048 MB, speed=1333 MHz

▶ Graphics Configuration



                                                               →←: Select Screen
                                                               ↑↓: Select Item
                                                               Enter: Select
                                                               +/−: Change Opt.
                                                               F1: General Help
                                                               F2: Previous Values
                                                               F3: Optimized Defaults
                                                               F4: Save & Reset
                                                               ESC: Exit



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```

Options summary: (*default setting*)

Graphics Configuration		
Configure Graphics Settings.		

Graphics Configuration

```
            Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
             Chipset

   DP1 Output Mode                      [Disabled]              NB PCIE Connect Type (Display
                                                                device)









                                                                →←: Select Screen
                                                                ↑↓: Select Item
                                                                Enter: Select
                                                                +/-: Change Opt.
                                                                F1: General Help
                                                                F2: Previous Values
                                                                F3: Optimized Defaults
                                                                F4: Save & Reset
                                                                ESC: Exit


            Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
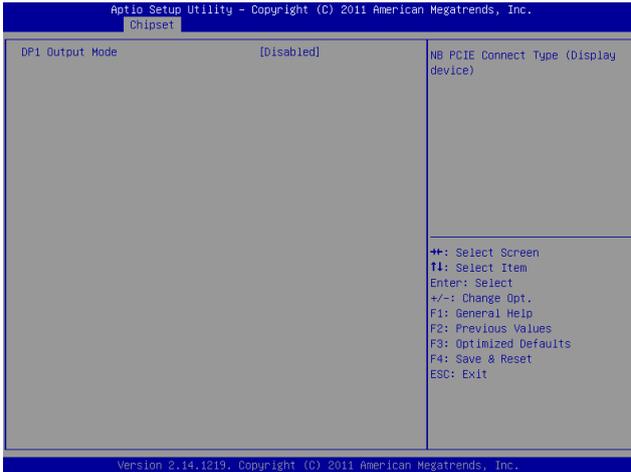
Options summary: (***default setting***)

DP1 Output	LVDS	
	Disabled	
NB PCIE Connect Type (Display device)		

South Bridge

```
                    Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
                      Chipset

   Power Mode                          [ATX Type]                Select power supply mode.
   MiniCard & mSATA Configuration      [MiniCard]
 ▶ SB HD Azalia Configuration



                                                                →←: Select Screen
                                                                ↑↓: Select Item
                                                                Enter: Select
                                                                +/-: Change Opt.
                                                                F1: General Help
                                                                F2: Previous Values
                                                                F3: Optimized Defaults
                                                                F4: Save & Reset
                                                                ESC: Exit



                    Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

Options summary: (*default setting*)

Power Mode	*ATX Type*	
	AT Type	
Select power supply mode.		
MiniCard & msata Configuration	*Minicard*	
	mSATA	
Support MiniCard & msata Device		
SB HD Azalia Configuration		
Options for SB HD Azalia.		

SB HD Azalia Configuration

```
                Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                Chipset

 HD Audio Azalia Device              [Enabled]          Enable Or Disable HD Audio
                                                        Azalia Device









                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/−: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Reset
                                                        ESC: Exit



                Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```
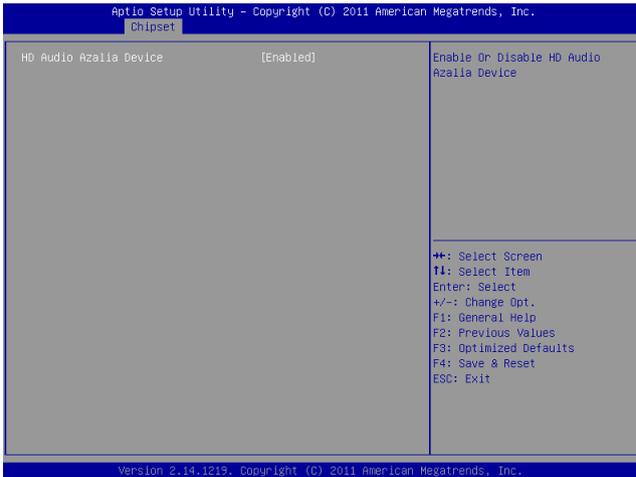
Options summary: (*default setting*)

HD Audio Azalia	Auto	
Device	Disabled	
	Enabled	
Enable Or Disable HD Audio Azalia Device		

Setup submenu: Boot

```
              Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
       Main  Advanced  Chipset  Boot  Security  Save & Exit

      Boot Configuration                                        Enables or disables Quiet Boot
                                                                option
      Quiet Boot                          [Enabled]
      Launch RTL8111E PXE OpROM           [Disabled]

      Boot Option Priorities
      Boot Option #1                      [UEFI: Built-in EFI...]
      Boot Option #2                      [KingstonDT 101 II ...]

      Hard Drive BBS Priorities

                                                                →←: Select Screen
                                                                ↑↓: Select Item
                                                                Enter: Select
                                                                +/-: Change Opt.
                                                                F1: General Help
                                                                F2: Previous Values
                                                                F3: Optimized Defaults
                                                                F4: Save & Reset
                                                                ESC: Exit

              Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

Options summary: (***default setting***)

Quiet Boot	Disabled	
	Enabled	
En/Disable showing boot logo.		
Launch RTL8111E	***Disabled***	
PXE OpROM.	Enabled	
En/Disable PXE boot for RTL8111E LAN		
Boot Option #x		
Set the system boot order.		
Hard Drive BBS Priorities		
Set the order of the legacy devices in this group		

Setup submenu: Security

```
              Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
     Main  Advanced  Chipset  Boot  Security  Save & Exit

     Password Description                                    Set Administrator Password

     If ONLY the Administrator's password is set,
     then this only limits access to Setup and is
     only asked for when entering Setup.
     If ONLY the User's password is set, then this
     is a power on password and must be entered to
     boot or enter Setup. In Setup the User will
     have Administrator rights.
     The password must be 3 to 20 characters long.


     Administrator Password                                  →←: Select Screen
     User Password                                           ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Reset
                                                             ESC: Exit

              Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

Options summary: (***default setting***)

Administrator Password/ User Password	***Not set***	
You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility. *Install the Password:* Press Enter on this item, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility. *Removing the Password:* Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.		

Setup submenu: Save & Exit
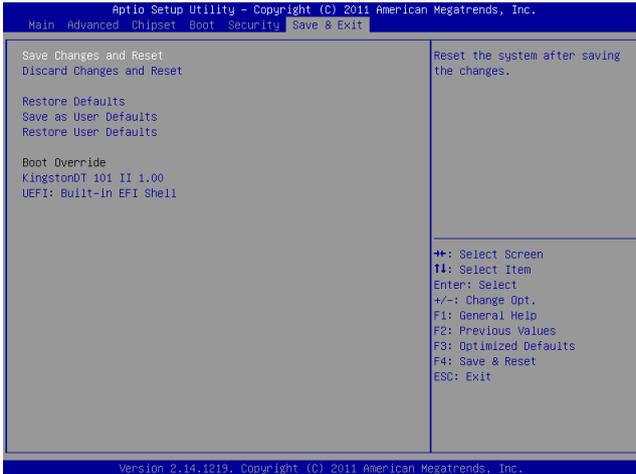
Options summary: (***default setting***)

Save Changes and Reset		
Reset the system after saving the changes		
Discard Changes and Reset		
Reset system setup without saving any changes		
Restore Defaults		
Restore/Load Default values for all the setup options.		
Save as User Defaults		
Save the changes done so far as User Defaults		
Restore User Defaults		
Restore the User Defaults to all the setup options		

Chapter

4

Driver Installation

The ACP-5210 comes with a DVD-ROM that contains all drivers and utilities that meet your needs.

Follow the sequence below to install the drivers:

Step 1 – Install Chipset Driver

Step 2 – Install LAN Driver

Step 3 – Install Audio Driver

Step 4 – Install AHCI Driver

Step 5 – Install Touch Driver

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the ACP-5210 DVD-ROM into the DVD-ROM Drive. And install the drivers from Step 1 to Step 5 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 ***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 ***STEP2-LAN*** folder and select the OS folder your system is

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

3. Follow the instructions that the window shows

4. The system will help you install the driver automatically

Step 3 – Install Audio Driver

1. Click on the ***STEP3-AUDIO*** folder and select the OS folder your system is

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

3. Follow the instructions that the window shows

4. The system will help you install the driver automatically

Step 4 – Install AHCI Driver

Please refer to the Appendix D AHCI Setting

Step 5 – Install Touch Driver

1. Click on the **STEP5-TOUCH** folder and select the **WINXP_32** folder

2. Double click on **ModifyDBArea**

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-5210 utilizes FINTEK 81866 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 program to fit your application.

Configuring Sequence Description

After the hardware reset or power-on reset, the FINTEK 81866 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.
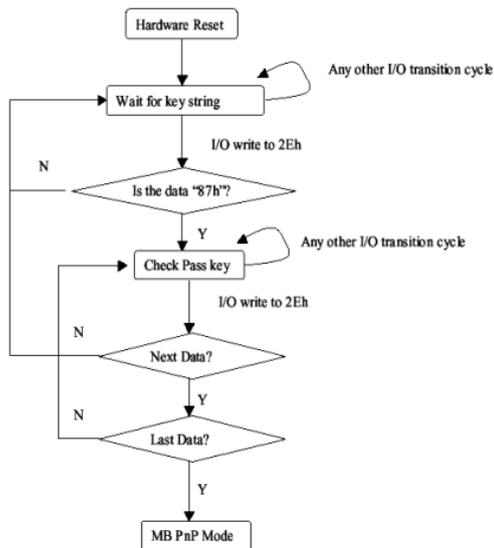
There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(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.

```
-o 4e 87

-o 4e 87                    ( enable configuration )
```

(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

Write exit key 0xAA to the index port.

```
-o 4e aa                    ( disable configuration )
```

Watch Dog Timer 1, 2, 3 Control Register (Index=F5h,F6h,FAh Default=00h)

7.8.4 Watchdog Control Configuration Register 1 — Index F5h

Bit	Name	R/W	Reset	Default	Description
7	Reserved	R	-	0	Reserved
6	WDTMOUT_STS	R/W	5VSB	0	If watchdog timeout event occurred, this bit will be set to 1. Write a 1 to this bit will clear it to 0.
5	WD_EN	R/W	5VSB	0	If this bit is set to 1, the counting of watchdog time is enabled.
4	WD_PULSE	R/W	5VSB	0	Select output mode (0: level, 1: pulse) of RSTOUT# by setting this bit.
3	WD_UNIT	R/W	5VSB	0	Select time unit (0: 1sec, 1: 60 sec) of watchdog timer by setting this bit.
2	WD_HACTIVE	R/W	5VSB	0	Select output polarity of RSTOUT# (1: high active, 0: low active) by setting this bit.
1-0	WD_PSWIDTH	R/W	5VSB	0	Select output pulse width of RSTOUT# 0: 1 ms 1: 25 ms 2: 125 ms 3: 5 sec

7.8.5 Watchdog Timer Configuration Register 2 — Index F6h

Bit	Name	R/W	Reset	Default	Description
7-0	WD_TIME	R/W	5VSB	0	Time of watchdog timer (0~255)

7.8.6 Watchdog PME Enable Configuration Register 2 — Index FAh

Bit	Name	R/W	Reset	Default	Description
7	WDT_PME	R	5VSB	0	0: No WDT PME occurred. 1: WDT PME occurred. The WDT PME is occurred one unit before WDT timeout.
6	WDT_PME_EN	R/W	5VSB	0	0: Disable Watchdog PME. 1: enable Watchdog PME.
5	Reserved	R	-	0	Reserved
4	WDT_CLK_SEL	R/W	5VSB	1	WDT Clock Source Select 0: Internal 1KHz clock. 1: 1KHZ clock driven by CLKIN.
3-1	Reserved	R	-	0	Reserved
0	WDOUT_EN	R/W	5VSB	0	0: disable Watchdog time out output via WDTRST#. 1: enable Watchdog time out output via WDTRST#.

A.2 F81866 Watchdog Timer Initial Program

Main(){

aaeonSuperIOOpen();

aaeonWdtSetCountMode(BOOL bMinute); // Set wdt count mode

aaeonWdtSetTimeoutCount(BYTE tTimeout); // Set wdt timer

aaeonWdtSetEnable(BOOL bEnable); // Enable wdt

aaeonSuperIOClose();

}

Void aaeonSuperIOOpen(){　　// Config F81866 Entry key

　　　　aaeonioWritePortByte(F81866_INDEX, 0x87);

　　　　aaeonioWritePortByte(F81866_INDEX, 0x87);

}

Void aaeonWdtSetCountMode(BOOL bMinute){

　　BYTE WDT_CONTROL = f81866ReadByte(F81866_WDT_CONTROL_REG);

　　if(bMinute)

　　　　f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_CONTROL | 0x08);

　　else

　　　　f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_CONTROL & 0xF7);

}

```
Void aaeonWdtSetTimeoutCount(BYTE tTimeout){

    f81866SetLdn(0x07);

    f81866WriteByte(F81866_WDT_TIME_REG, tTimeout);

}


Void aaeonWdtSetEnable(BOOL bEnable){

    f81866SetLdn(0x07);

    if(bEnable){

        f81866WriteByte(0x30, 0x01);

        WDT_BASE_ADDR =

        (f81866ReadByte(F81866_WDT_BASEADDR_REG_MSB) << 8)

        | f81866ReadByte(F81866_WDT_BASEADDR_REG_LSB);

        WDT_STATUS = f81866ReadByte(F81866_WDT_CONTROL_REG);

        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_STATUS | 0x20);

        WDT_STATUS = f81866ReadByte(F81866_WDT_PME_REG);

        f81866WriteByte(F81866_WDT_PME_REG, WDT_STATUS | 0x01);

    }else{

        f81866WriteByte(0x30, 0x00);

        WDT_BASE_ADDR = 0;

        WDT_STATUS = f81866ReadByte(F81866_WDT_CONTROL_REG);

        f81866WriteByte(F81866_WDT_CONTROL_REG, WDT_STATUS & 0xDF);

        WDT_STATUS = f81866ReadByte(F81866_WDT_PME_REG);

        f81866WriteByte(F81866_WDT_PME_REG, WDT_STATUS & 0xFE);

    }

}
```

```
Void aaeonSuperIOClose(){
        aaeonioWritePortByte(F81866_INDEX, 0xaa);
}
```

Appendix

B

I/O Information

B.1 I/O Address Map

```
Input/output (IO)
    [00000000 - 0000000F] Direct memory access controller
    [00000000 - 0000000F] Motherboard resources
    [00000000 - 000003AF] 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
    [00000170 - 00000177] Secondary IDE Channel
    [000001F0 - 000001F7] Primary IDE Channel
    [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] AMD Radeon HD 6320 Graphics
[000003B0 - 000003DF] PCI bus
[000003C0 - 000003DF] AMD Radeon HD 6320 Graphics
[000003E0 - 00000CF7] PCI bus
[000003E8 - 000003EF] Communications Port (COM3)
[000003F6 - 000003F6] Primary IDE Channel
[000003F8 - 000003FF] Communications Port (COM1)
[0000040B - 0000040B] Motherboard resources
[000004D0 - 000004D1] Motherboard resources
[000004D6 - 000004D6] Motherboard resources
[00000500 - 0000050F] Motherboard resources
[00000510 - 0000051F] Motherboard resources
[00000520 - 0000052F] Motherboard resources
[00000800 - 0000089F] Motherboard resources
[00000900 - 0000090F] Motherboard resources
[00000910 - 0000091F] Motherboard resources
[00000A79 - 00000A79] ISAPNP Read Data Port
[00000B20 - 00000B3F] Motherboard resources
[00000C00 - 00000C01] Motherboard resources
[00000C14 - 00000C14] Motherboard resources
[00000C50 - 00000C51] Motherboard resources
[00000C52 - 00000C52] Motherboard resources
[00000C6C - 00000C6C] Motherboard resources
[00000C6F - 00000C6F] Motherboard resources
[00000CD0 - 00000CD1] Motherboard resources
[00000CD2 - 00000CD3] Motherboard resources
[00000CD4 - 00000CD5] Motherboard resources
[00000CD6 - 00000CD7] Motherboard resources
[00000CD8 - 00000CDF] Motherboard resources
[00000D00 - 0000FFFF] PCI bus
[0000D000 - 0000D0FF] Realtek PCIe GBE Family Controller #2
[0000D000 - 0000DFFF] PCI standard PCI-to-PCI bridge
[0000E000 - 0000E0FF] Realtek PCIe GBE Family Controller
[0000E000 - 0000EFFF] PCI standard PCI-to-PCI bridge
[0000F000 - 0000F0FF] AMD Radeon HD 6320 Graphics
[0000F100 - 0000F10F] Standard Dual Channel PCI IDE Controller
[0000F110 - 0000F113] Standard Dual Channel PCI IDE Controller
[0000F120 - 0000F127] Standard Dual Channel PCI IDE Controller
[0000F130 - 0000F133] Standard Dual Channel PCI IDE Controller
[0000F140 - 0000F147] Standard Dual Channel PCI IDE Controller
[0000F150 - 0000F15F] Standard Dual Channel PCI IDE Controller
[0000FE00 - 0000FEFE] Motherboard resources

B.2 1st MB Memory Address Map

```
Memory
    [000A0000 - 000BFFFF] AMD Radeon HD 6320 Graphics
    [000A0000 - 000BFFFF] PCI bus
    [000C0000 - 000DFFFF] PCI bus
    [2F000000 - 3EFFFFFF] Motherboard resources
    [3F000000 - FFFFFFFF] PCI bus
    [C0000000 - CFFFFFFF] AMD Radeon HD 6320 Graphics
    [D0000000 - D0003FFF] Realtek PCIe GBE Family Controller #2
    [D0000000 - D00FFFFF] PCI standard PCI-to-PCI bridge
    [D0100000 - D0103FFF] Realtek PCIe GBE Family Controller
    [D0100000 - D01FFFFF] PCI standard PCI-to-PCI bridge
    [E0000000 - EFFFFFFF] System board
    [FE900000 - FE900FFF] Realtek PCIe GBE Family Controller #2
    [FE900000 - FE9FFFFF] PCI standard PCI-to-PCI bridge
    [FEA00000 - FEA00FFF] Realtek PCIe GBE Family Controller
    [FEA00000 - FEAFFFFF] PCI standard PCI-to-PCI bridge
    [FEB00000 - FEB3FFFF] AMD Radeon HD 6320 Graphics
    [FEB40000 - FEB43FFF] Microsoft UAA Bus Driver for High Definition Audio
    [FEB44000 - FEB47FFF] Microsoft UAA Bus Driver for High Definition Audio
    [FEB48000 - FEB480FF] Standard Enhanced PCI to USB Host Controller
    [FEB49000 - FEB49FFF] Standard OpenHCD USB Host Controller
    [FEB4A000 - FEB4AFFF] Standard OpenHCD USB Host Controller
    [FEB4B000 - FEB4B0FF] Standard Enhanced PCI to USB Host Controller
    [FEB4C000 - FEB4CFFF] Standard OpenHCD USB Host Controller
    [FEB4D000 - FEB4D0FF] Standard Enhanced PCI to USB Host Controller
    [FEB4E000 - FEB4EFFF] Standard OpenHCD USB Host Controller
    [FEB4F000 - FEB4F3FF] Standard Dual Channel PCI IDE Controller
    [FEC00000 - FEC00FFF] Motherboard resources
    [FEC10000 - FEC10FFF] Motherboard resources
    [FED00000 - FED003FF] High precision event timer
    [FED00000 - FED00FFF] Motherboard resources
    [FED61000 - FED70FFF] Motherboard resources
    [FED80000 - FED8FFFF] Motherboard resources
    [FEE00000 - FEE00FFF] Motherboard resources
    [FFC00000 - FFFFFFFF] Motherboard resources
```

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
    (ISA) 14   Primary IDE Channel
    (PCI) 16   Microsoft UAA Bus Driver for High Definition Audio
    (PCI) 16   PCI standard PCI-to-PCI bridge
    (PCI) 16   Realtek PCIe GBE Family Controller
    (PCI) 17   PCI standard PCI-to-PCI bridge
    (PCI) 17   Realtek PCIe GBE Family Controller #2
    (PCI) 17   Standard Dual Channel PCI IDE Controller
    (PCI) 17   Standard Enhanced PCI to USB Host Controller
    (PCI) 17   Standard Enhanced PCI to USB Host Controller
    (PCI) 17   Standard Enhanced PCI to USB Host Controller
    (PCI) 18   AMD Radeon HD 6320 Graphics
    (PCI) 18   Standard OpenHCD USB Host Controller
    (PCI) 18   Standard OpenHCD USB Host Controller
    (PCI) 18   Standard OpenHCD USB Host Controller
    (PCI) 18   Standard OpenHCD USB Host Controller
    (PCI) 19   Microsoft UAA Bus Driver for High Definition Audio
```

B.4 DMA Channel Assignments

```
Direct memory access (DMA)
    3    Printer Port (LPT1)
    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.

Note:
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-5210
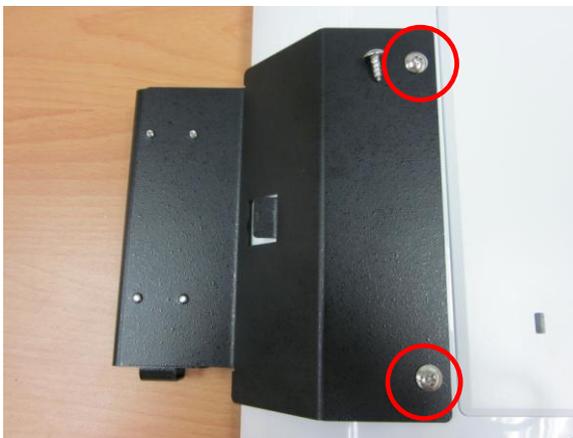
MSR Installation

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

MSR Bracket with the ACP-5210
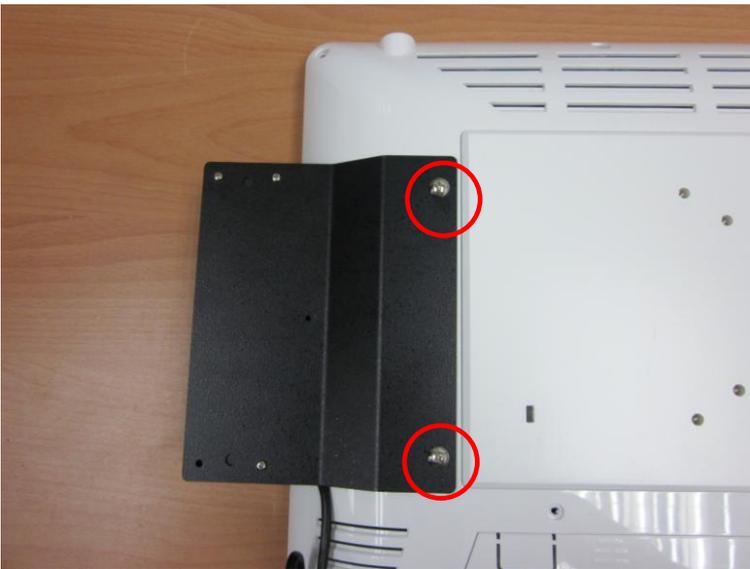
Bar Code Scanner Installation

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

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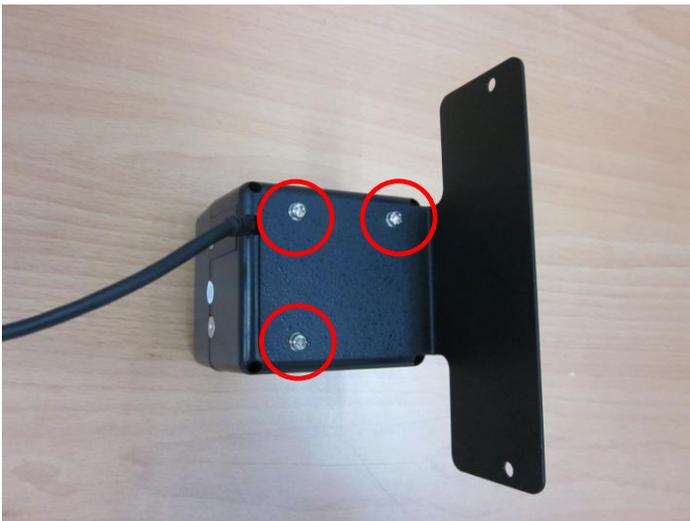
Step 2: Fasten the two screws (2-SELF TAPPING SCREWS) to fix the Bar

Code Scanner with the ACP-5210

Appendix

D

AHCI Setting

D.1 Setting AHCI

OS installation to setup AHCI Mode.

Step 1: Copy the files below from "Driver DVD -> STEP4 -
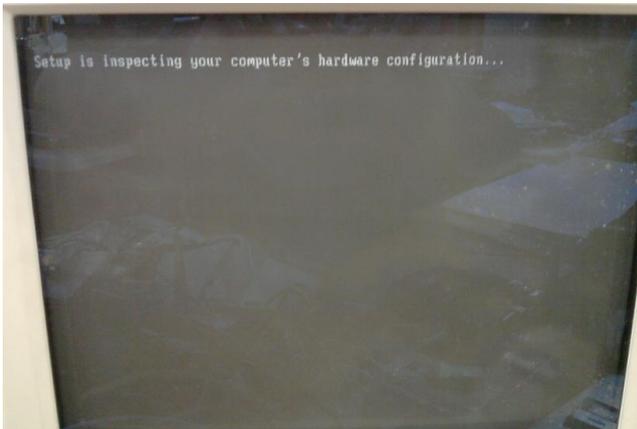
AHCI\WinXP\SB8xx_RAID_XP_3.2.1540.92" to Disk

x64

x86

ahcix64
檔案
1 KB

ahcix86
檔案
1 KB

readme
文字文件
2 KB

txtsetup.oem
OEM 檔案
2 KB

Step 2: Connect the USB Floppy to the board (The board on the photo is

just for reference)

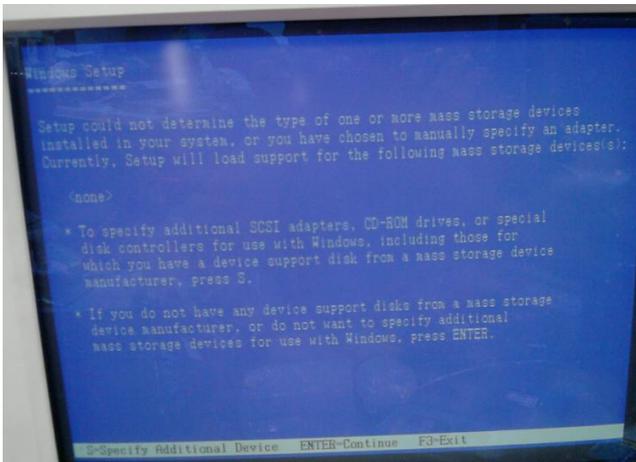Step 3: BIOS Setup menu select "Advanced\OnChip SATA Type -> AHCI"
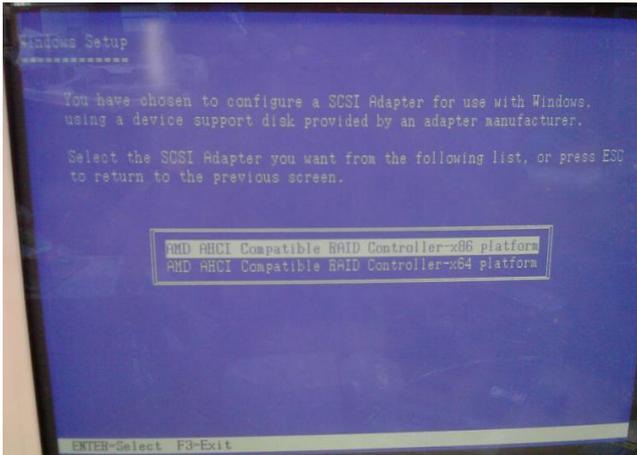

Step 4: Setup OS

Step 5: Press "F6"

Step 6: Choose "S"

Step 7: Choose "AMD® A50M"

Step 8: It will show the model number you select and then press "ENTER"

Step 9: Setup is loading files