

ONYX-150

15" Intel® Celeron®M

600MHz Processor

High Performance

Low Power Consumption

Point-of-Care Station

Copyright Notice

This document is copyrighted, 2007. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, nor for any infringements upon the rights of third parties, which may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEON, assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

AAEON reserves the right to make changes in the product design without notice to its users.

Acknowledgments

- Intel[®] and Core 2 Duo and Core Solo are registered trademarks of Intel[®] Corporation.
- IBM, PC/AT, PS/2 are trademarks of International Business Machines 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.
- SiS is a trademark of Silicon Integrated Systems Corp.
- VIA is a trademark of VIA Technology, Inc.

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

Packing List

Before you begin installing your Medical Station, please make sure that the following items have been shipped:

- Onyx-150 Medical Station
- 4 VESA mounting screws
- Transfer board for CD-ROM
- Utility CD-ROM
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:**
- The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment does not work well, or you cannot get it to work according to the users manual.
 - The equipment has been dropped and damaged.
 - 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 60° C (140° 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 protection against electric shock: not classified
2. Degree of protection against the ingress of water: IPX0
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 Safety

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



ONYX-150 AC modules are developed to suitable for the Classification Mark requirement

Safety Symbol Description

The following safety symbols are the further explanations for your reference.

	<p><i>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</i></p>
	<p><i>Attention, consult ACCOMPANYING DOCUMENTS.</i></p>
	<p><i>Ground wire Protective Ground wire.</i></p>
	<p><i>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</i></p>

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	×	○	○	○	○	○
<p>O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。</p> <p>X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。</p> <p>备注： 一、此产品所标示之环保使用期限，系指在一般正常使用状况下。 二、上述部件物质中央处理器、内存、硬盘、光驱、触控模块为选购品。</p>						

Contents

Chapter 1 General Information

1.1 Introduction.....	1-2
1.2 Feature	1-3
1.3 Specification	1-4
1.4 Dimension	1-8

Chapter 2 Hardware Installation

2.1 CD-ROM Installation	2-2
2.2 2.5" Hard Disk Drive (HDD) Installation	2-8
2.3 PCI Extension Kit Installation	2-11
2.4 RS-232 PORT: COM1/COM3/COM4, RS-232/422/485 PORT: COM2(MALE)	2-15
2.5 VGA PORT (FEMALE)	2-15
2.6 LAN PORT (FEMALE).....	2-16
2.7 USB2.0 PORT-USB0/1/2 (FEMALE)	2-16

Chapter 3 Award BIOS Setup

3.1 System Test and Initialization	3-2
3.2 Award BIOS Setup.	3-3

Chapter 4 Driver Installation

4.1 Installation	4-3
------------------------	-----

Appendix A Programming the Watchdog Timer

A.1 Programming	A-2
-----------------------	-----

A.2 IT8712 Watchdog Timer Initial Program.....	A-6
--	-----

Appendix B I/O Information

B.1 I/O Address Map.....	B-2
B.2 Memory Address Map.....	B-3
B.3 IRQ Mapping Chart	B-4
B.4 DMA Channel Assignments.....	B-4

Appendix C Miscellanea

C.1 General Cleaning Tips.....	C-2
C.2 Cleaning Tools.....	C-3
C.3 Scrap Computer Recycling	C-5

Chapter

1

**General
Information**

1.1 Introduction

ONYX-150 is designed to match the pace and unique needs of the highest acuity care environment, especially on BEDSIDE in ICU, OR, observation room and Ward. In addition to save time of treatment and prevent medical error, but also can provide entertainment function to patients, increase add-on value to hospital.

ONYX-150 Zero-noise Medical Terminal is a high performance solution features all-in-one SBC with Intel Celeron[®] M 600MHz processor.

For system integrators, this simple, complete, compact and highly integrated multimedia system let you easily build a panel PC into your applications. Common medical applications include nursing cart, bedside OR trolley and PACS systems. AAEON medical station is a reliable, cost-effective solution to your application's processing requirements.

1.2 Feature

- 15" XGA 400 nits True color Medical LCD
- Fanless Point-of-Care Station
- Slim and High Performance solution: All-in-one SBC with Celeron® M 600MHz processor
- Touchscreen (optional), Mini-PCI and 6-in-1 card reader support
- Windows® XP Embedded support (optional)
- 10/100Base-TX, Giga Ethernet (Optional) or Wireless LAN (Optional)
- Plastic construction with medical outlook color

1.3 Specification

System

- Display 15" XGA (1024 x 768) color TFT LCD
- CPU Board Intel® Celeron® M 600MHz processor
- Memory Onboard 256MB, supports 184-pin DDR SDRAM up to 1GB
- Disk Drive space Anti-vibration 2.5" Hard Disk Drive (optional), Slim CD-ROM / Combo / DVD-ROM / DVD-RW(optional)
- Expansion One 6-in-1 card reader
One Mini-PCI slot
One PCI slot (Optional)

I/O

- Serial Port 3 x RS-232, 1 x RS-232/422/485
2 x USB 2.0 ports
1 x parallel port (supports ECP/EPP)
1 x VGA port
1 x PS/2 keyboard, 1 x PS/2 mouse
- Audio Mic-in, Line-in, Line-out
- Ethernet Realtek 8100C 10/100Base-TX

- Front Panel RJ-45 Connector x 1 or Realtek 8110S 10/100/1000Base-TX RJ-45 Connector x 1 (optional)
- Other IP-65 Certified
Supports Mini PCI Wireless LAN with Antenna (Optional)
Supports Mini PCI Capture card (Optional)
- Power Requirement 15~24V DC
- OS support Windows® 2000, Windows® XP, Windows® XP Embedded (Optional)

LCD

- Display Type 15" XGA color TFT LCD
- Max. Resolution 1024 x 768
- Max. Colors 16.7M colors
- Dot Size 0.297mm x 0.297mm
- Luminance 400 nits
- Viewing Angle 140° (H) 125° (V)
- Back Light MTBF 50,000hrs

Touchscreen

- Type 5-wire, Analog resistive
- Light Transmission 85%
- Resolution 2048 x 2048

- Interface RS-232 (COM 6)
- Lifetime 10 million activations

Mechanical

Construction	Plastic chassis (IP-65 certified front panel)
Mounting	Panelmount, VESA 100mm, Desk Top Stand (Optional)
Dimension	15.35" (W) x 11.54" (H) x 2.72" (D) (390mm x 293mm x 69mm)
Gross Weight	14.3 lb (6.5 kg)

Environmental

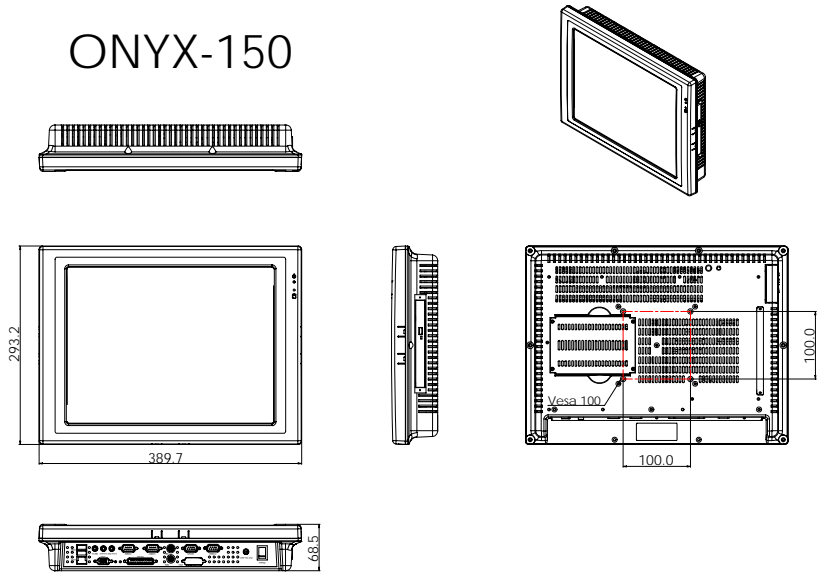
- Operating Temperature 32°F~104°F (0°C~40°C)
- Storage Temperature -4°F~140°F (-20°C~60°C)
- Storage Humidity 10%~90% @ 35°C, non-condensing
- Vibration Random operation 1G, 5~500Hz
- Shock 15G peak acceleration (11 msec. Duration)
- EMC CE/FCC Class B
- Safety UL60601-1, EN60601-1

Note: All AAEON's LCD products are manufactured with High precision technology. However, in all LCD panels there maybe a small number of defective pixels that do not change color. This is a

normal occurrence for all LCD displays from all manufacturers and should not be noticeable or objectionable under normal operation. AAEON qualify the LCD panel following industry standard: total 7 dead pixels on a screen or if there are 3 within 1 inch square area of each other on the display.

1.4 Dimension

ONYX-150



Dimension Size: 390mm x 293mm x 68.5mm

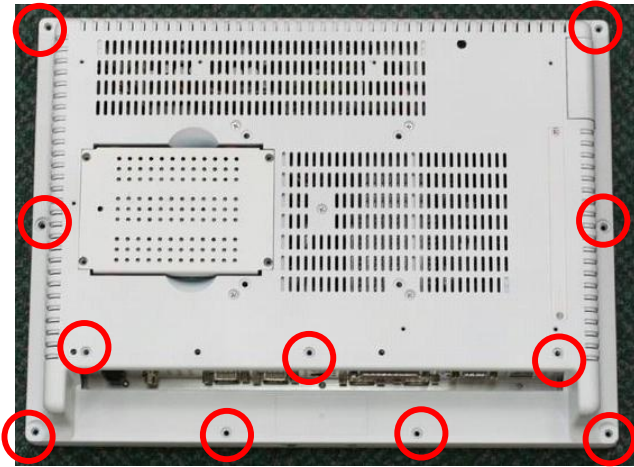
Chapter

2

**Hardware
Installation**

2.1 CD-ROM Installation

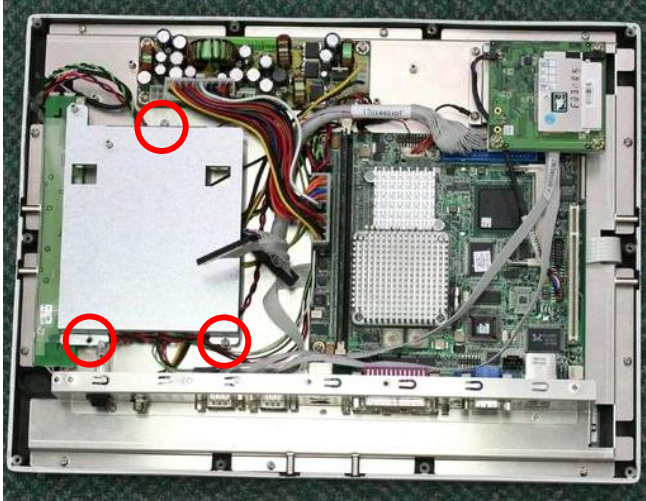
1. Disassemble the plastic cover of ONYX-150



2. Take the bracket off and open the rear side of ONYX-150



3. Unfasten the three screws



4. Get the CD-ROM and bracket Ready



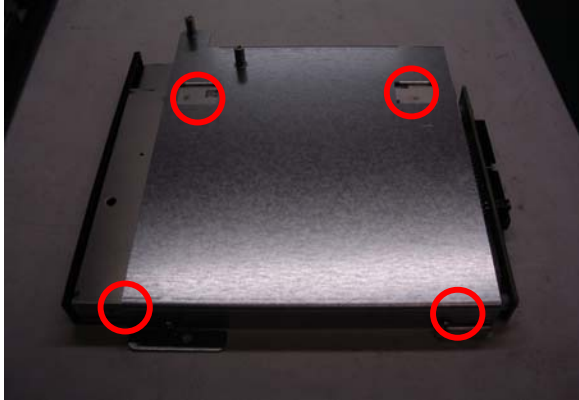
5. Fasten screws on bracket to adhere to the CD-ROM



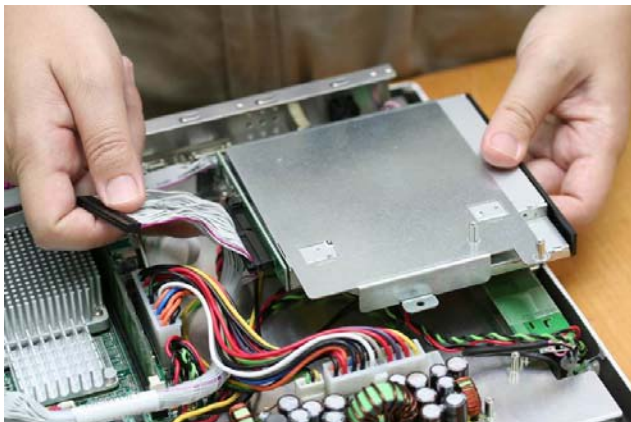
6. Get the CD-ROM cover ready and close the cover



7. Fasten the four screws

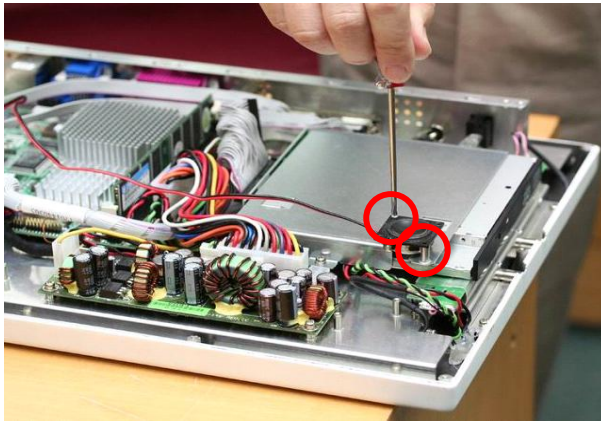


8. Insert IDE Cable into CD-ROM Module, fix CD-ROM Module into ONYX-150 and fasten the three screws

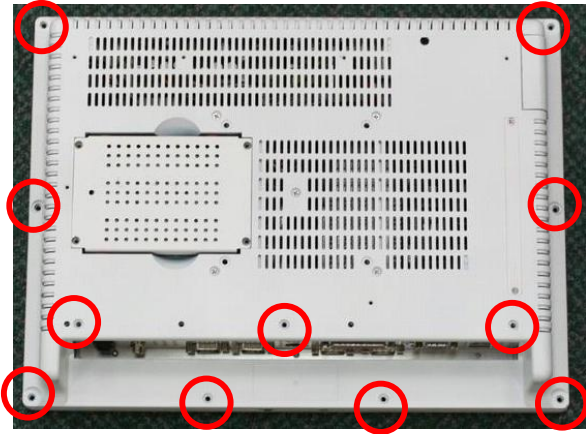




9. Fasten the two screws to lock the speaker



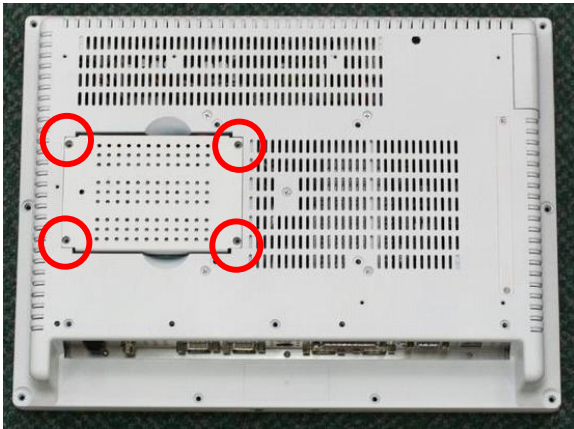
10. Lock the plastic cover of the ONYX-150 and complete the installation



2.2 2.5" Hard Disk Drive Installation

We'll show you how to install the Hard Disk Drive into the ONYX-150. When you prepare the following items at hand, you can start installation.

1. Unfasten the four screws and disassemble HDD cover



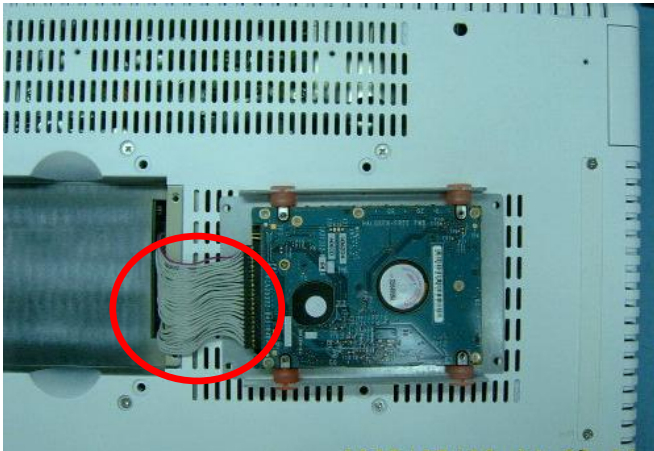
2. Get the 2.5" HDD ready and fasten the four screws on HDD and put the rubbers on screws



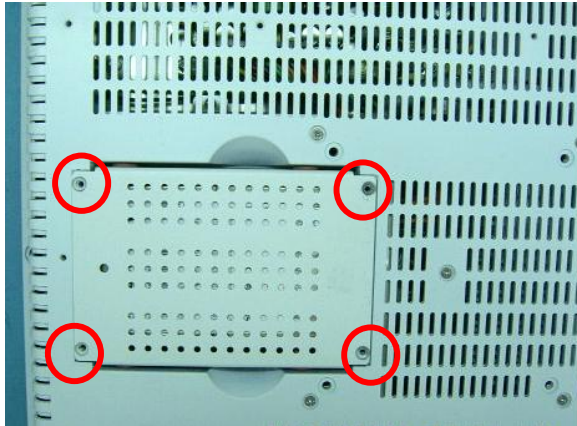
3. Adhere sponge on HDD bracket and place HDD into bracket



4. Connect the IDE Cable to HDD (Red wire is pin 1.)



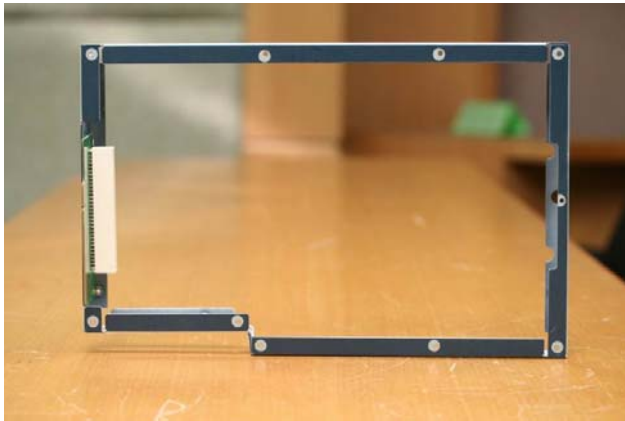
5. Fasten the four screws on rear side to lock the HDD bracket



2.3 PCI Extension Kit Installation

PCI extension kit will be attached along with the package. Please see the following steps for details.

1. Get the rack ready



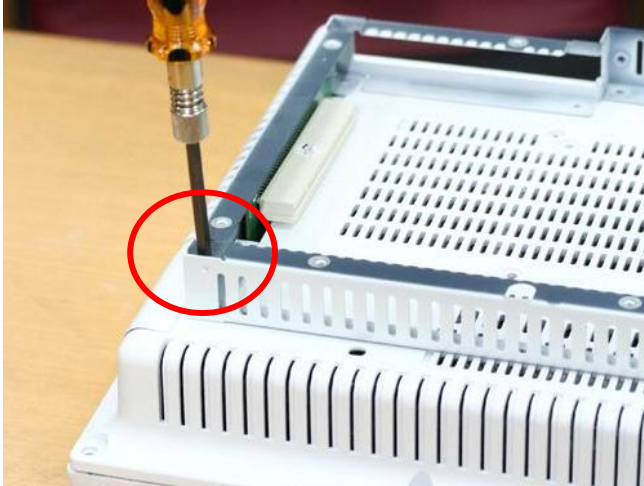
2. Unlock the bar indicated.



3. Plug Riser card into the socket beneath the bar, and plug the rack on the back of ONYX-150.



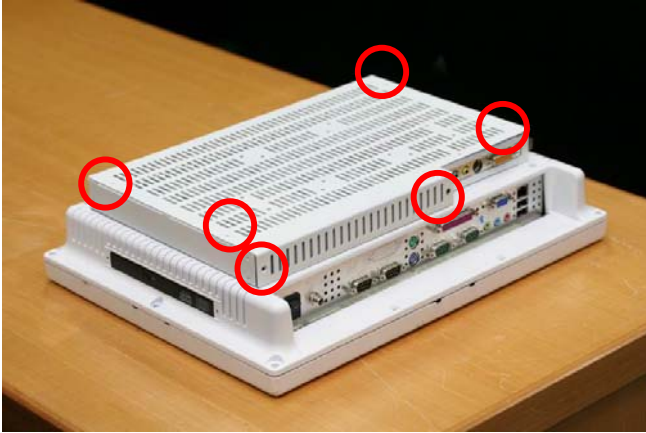
4. Fix the rack with the screws on the corners.



5. Plug your PCI card into the white slot indicated.



- Put the cover over the back of ONYX-150 and fasten the screws. You've finished PCI Extension Card Installation.



2.4 RS-232 PORT: COM1/ COM3/ COM4; RS-232/422/485 PORT: COM2 (MALE)

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

2.5 VGA PORT (FEMALE)

Pin	Signal	Pin	Signal
1	RED	2	GREEN
3	BLUE	4	N.C.
5	GND	6	GND
7	GND	8	GND
9	+5V	10	GND
11	N.C.	12	DDC DATA
13	HSYNC	14	VSYNC
15	DDC CLOCK		

2.6 LAN PORT (FEMALE)

Pin	Signal	Pin	Signal
1	TX+	2	TX-
3	RX+	4	BI_D3+ {GIGA}
5	BI_D3- {GIGA}	6	RX-
7	BI_D4+ {GIGA}	8	BI_D4- {GIGA}

2.7 USB2.0 PORT - USB 0/1/2 (FEMALE)

Pin	Signal	Pin	Signal
1	+5 VDC	2	D-
3	D+	4	GND

Chapter

3

**Award
BIOS Setup**

3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

Press <F1> to RESUME

Write down the message and press the F1 key to continue the boot up sequence.

System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The CMOS memory has lost power and the configuration information has been erased.

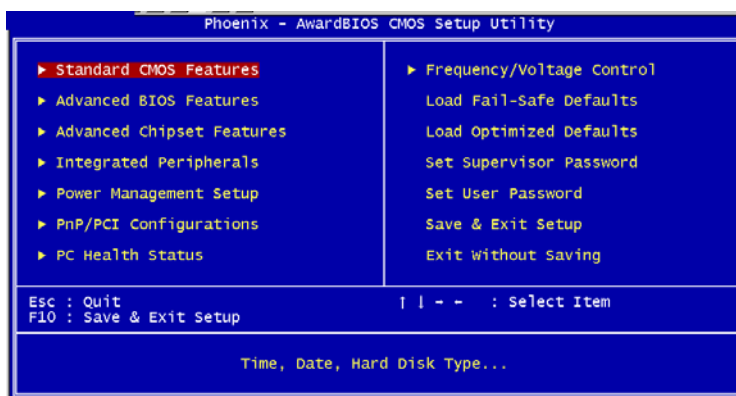
The ONYX-150 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 Award BIOS Setup

Awards BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press immediately. This will allow you to enter Setup.



Standard CMOS Features

Use this menu for basic system configuration. (Date, time, IDE, etc.)

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

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

Integrated Peripherals

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

Power Management Setup

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

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

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

Frequency/Voltage Control

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

Load Fail-Safe Defaults

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

Load Optimized Defaults

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

Set Supervisor/User Password

Use this menu to set Supervisor/User Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

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

Chapter

4

**Driver
Installation**

The ONYX-150 comes with a AutoRun CD-ROM that contains all drivers and utilities that can help you to install the driver automatically. Insert the driver CD, the driver CD-title will auto start and show the installation guide. If not, please follow the sequence below to install the drivers.

Follow the sequence below to install the drivers:

Step 1 - Install Intel INF Update for Windows 9X-2003

Step 2 - Install Intel Extreme Graphics 2 Driver

Step 3 - Install LAN Driver

Step 4 - Install Realtek AC97 codec Driver

Step 5 - Install Card Reader Driver

Touch panel installation (optional)

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

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the ONYX-150 CD-ROM into the CD-ROM drive. And install the drivers from Step 1 to Step 5 in order.

Step 1-Install Intel INF Update for Windows 9x-2003

1. Click on the **Step 1-Intel INF Update for Windows 9x-2003** folder and then double click on the **setup.exe**
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically
4. Please re-start your computer

Step 2-Install Intel Extreme Graphics 2 Driver

1. Click on the **Step 2-Intel Extreme Graphics 2 Driver** folder and select the OS your system
2. Double click on the **Setup.exe** and follow the instructions that the window shows
3. The system will help you install the driver automatically
4. Please re-start your computer

Remark: You can choose the different display ways by pressing below hot key,

Ctrl+Alt+F1=CRT, Ctrl+Alt+F2=LCD, Ctrl+Alt+F3=TV,
Ctrl+Alt+F4=DVI, Ctrl+Alt+F12=Graphic Control Panel

Step 3-Install LAN Driver

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

Step 4-Install Realtek AC97 codec Driver

1. Click on the **Step 4-Realtek AC97 codec Driver** folder and then double click on the **wdm_a361.exe**
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 5-Install Card Reader Driver

1. Click on the **Step 5-Card Reader Driver** folder and then double click on the **Setup.exe**
2. Follow the instructions that the window shows you
3. The system will help you install the driver automatically

Touch Panel Installation (optional)

If the OS is Windows 2000-XP or Windows 98-Me, the Autorun program will help you to install the driver automatically. For detailed information, please refer to the "PenMount Installation Guide" in the folder of **Touch Panel**.

Note:

Under the Window OS environment, if the CRT connector is connected to display monitor by the data switch device, the user need to set the color and resolution from Intel Graphic utility (VGA driver) instead of setting from the control panel in case of the wrong display appearance.

Appendix

A

Programming the Watchdog Timer

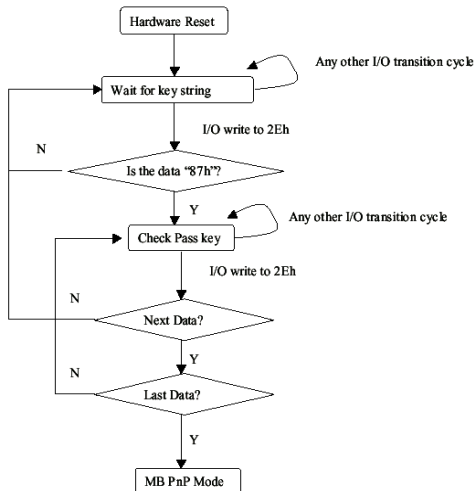
A.1 Programming

ONYX-150 utilizes ITE 8712 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 ITE 8712 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 operations 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	N/A	Configure Control
07H	71H	R/W	00H	WatchDog Timer Control Register
07H	72H	R/W	00H	WatchDog Timer Configuration Register
07H	73H	R/W	00H	WatchDog Timer Time-out Value 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.

WatchDog Timer Control Register (Index=71h, Default=00h)

Bit	Description
7	WDT is reset upon a CIR interrupt
6	WDT is reset upon a KBC (mouse) interrupt
5	WDT is reset upon a KBC (keyboard) interrupt
4	WDT is reset upon a read or a write to the Game Port base address
3-2	Reserved
1	Force Time-out. This bit is self-clearing
0	WDT Status
	1: WDT value reaches 0.
	0: WDT value is not 0

WatchDog Timer Configuration Register (Index=72h,**Default=00h)**

Bit	Description
7	WDT Time-out value select
	1: Second
	0: Minute
6	WDT output through KRST (pulse) enable
5-4	Reserved
3-0	Select the interrupt level ^{Note} for WDT

WatchDog Timer Time-out Value Register (Index=73h,**Default=00h)**

Bit	Description
7-0	WDT Time-out value 7-0

A.2 IT8712 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,12h

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

```
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

Address Range	Device Name
AA-6DA46CFE5FC9	
+ Direct memory access (DMA)	
- Input/output (I/O)	
[00000000 - 0000000F]	Direct memory access controller
[00000000 - 00000CF7]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[00000060 - 00000060]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000061 - 00000061]	System speaker
[00000062 - 00000063]	Motherboard resources
[00000064 - 00000064]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000065 - 0000006F]	Motherboard resources
[00000070 - 00000073]	System CMOS/real time clock
[00000074 - 0000007F]	Motherboard resources
[00000080 - 00000090]	Direct memory access controller
[00000091 - 00000093]	Motherboard resources
[00000094 - 0000009F]	Direct memory access controller
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	Motherboard resources
[000000C0 - 000000DF]	Direct memory access controller
[000000E0 - 000000EF]	Motherboard resources
[000000F0 - 000000FF]	Numeric data processor
[000001F0 - 000001F7]	Primary IDE Channel
[00000274 - 00000277]	ISAPNP Read Data Port
[00000279 - 00000279]	ISAPNP Read Data Port
[00000290 - 0000029F]	Motherboard resources
[000002E0 - 000002E7]	Communications Port (COM5)
[000002E8 - 000002EF]	Communications Port (COM4)
[000002F0 - 000002F7]	Communications Port (COM6)
[000002F8 - 000002FF]	Communications Port (COM2)
[00000378 - 0000037F]	Printer Port (LPT1)
[00000380 - 0000038B]	Mobile Intel(R) 945GM Express Chipset Family
[000003C0 - 000003DF]	Mobile Intel(R) 945GM Express Chipset Family
[000003E8 - 000003EF]	Communications Port (COM3)
[000003F6 - 000003F6]	Primary IDE Channel
[000003F8 - 000003FF]	Communications Port (COM1)
[00000400 - 000004BF]	Motherboard resources
[000004D0 - 000004D1]	Motherboard resources
[00000500 - 0000051F]	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
[00000800 - 0000087F]	Motherboard resources
[00000A79 - 00000A79]	ISAPNP Read Data Port
[00000D00 - 0000FFFF]	PCI bus
[00009000 - 00009FFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[00009F00 - 00009F1F]	Intel(R) PRO/1000 PL Network Connection #2
[00008000 - 00008FFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
[0000C000 - 0000CFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
[0000D000 - 0000DFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[0000DF00 - 0000DF1F]	Intel(R) PRO/1000 PL Network Connection
[0000F000 - 0000F0FF]	Realtek AC'97 Audio
[0000F300 - 0000F30F]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F400 - 0000F403]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F500 - 0000F507]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F600 - 0000F603]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F700 - 0000F707]	Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
[0000F800 - 0000F80F]	Intel(R) 82801G (ICH7 Family) Ultra ATA Storage Controllers - 27DF
[0000FA00 - 0000FA3F]	Realtek AC'97 Audio
[0000FB00 - 0000FB1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
[0000FC00 - 0000FC1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
[0000FD00 - 0000FD1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
[0000FE00 - 0000FE1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
[0000FF00 - 0000FF07]	Mobile Intel(R) 945GM Express Chipset Family
+ Interrupt request (IRQ)	
+ Memory	

B.2 Memory Address Map

AA-6DA46CFE5FC9	
+	Direct memory access (DMA)
+	Input/output (IO)
+	Interrupt request (IRQ)
+	Memory
	[00000000 - 0009FFFF] System board
	[000A0000 - 000BFFFF] Mobile Intel(R) 945GM Express Chipset Family
	[000A0000 - 000BFFFF] PCI bus
	[000C0000 - 000DFFFF] PCI bus
	[000CE600 - 000CFFFF] System board
	[000E0000 - 000EFFFF] System board
	[000F0000 - 000F7FFF] System board
	[000F8000 - 000FBFFF] System board
	[000FC000 - 000FFFFF] System board
	[00100000 - 1F6DFFFF] System board
	[1F6E0000 - 1F6FFFFF] System board
	[1F700000 - FEBFFFFF] PCI bus
	[D0000000 - DFFFFFFF] Mobile Intel(R) 945GM Express Chipset Family
	[E0000000 - EFFFFFFF] Motherboard resources
	[FD400000 - FD4FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
	[FD500000 - FD5FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
	[FD5E0000 - FD5FFFFF] Intel(R) PRO/1000 PL Network Connection
	[FD600000 - FD6FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
	[FD900000 - FD9FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
	[FD9E0000 - FD9FFFFF] Intel(R) PRO/1000 PL Network Connection #2
	[FDA00000 - FDAFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
	[FDB00000 - FDBFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
	[FDC00000 - FDCFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
	[FDD00000 - FDDFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
	[FDE80000 - FDEFFFFF] Mobile Intel(R) 945GM Express Chipset Family
	[FDF00000 - FDF7FFFF] Mobile Intel(R) 945GM Express Chipset Family
	[FDF80000 - FDFBFFFF] Mobile Intel(R) 945GM Express Chipset Family
	[FDFFC000 - FDFFC3FF] Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
	[FDFFD000 - FDFFD0FF] Realtek AC'97 Audio
	[FDFFE000 - FDFFE1FF] Realtek AC'97 Audio
	[FDFFF000 - FDFFF3FF] Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
	[FEC00000 - FEC0FFFF] System board
	[FED13000 - FED1DFFF] System board
	[FED20000 - FED8FFFF] System board
	[FEE00000 - FEE0FFFF] System board
	[FFB00000 - FFB7FFFF] System board
	[FFB80000 - FFBFFFFF] Intel(R) 82802 Firmware Hub Device
	[FFF00000 - FFFFFFFF] System board

B.3 IRQ Mapping Chart

- AA-6DA46CFE5FC9
 - Direct memory access (DMA)
 - Input/output (IO)
 - 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) 10 Communications Port (COM5)
 - (ISA) 11 Communications Port (COM4)
 - (ISA) 11 Communications Port (COM6)
 - (ISA) 13 Numeric data processor
 - (ISA) 14 Primary IDE Channel
 - (PCI) 15 Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
 - (PCI) 16 Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
 - (PCI) 16 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
 - (PCI) 16 Intel(R) PRO/1000 PL Network Connection #2
 - (PCI) 16 Mobile Intel(R) 945GM Express Chipset Family
 - (PCI) 17 Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
 - (PCI) 17 Intel(R) PRO/1000 PL Network Connection
 - (PCI) 17 Realtek AC'97 Audio
 - (PCI) 18 Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
 - (PCI) 18 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
 - (PCI) 19 Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
 - (PCI) 19 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
 - (PCI) 19 Intel(R) 82801GBM/GHM (ICH7-M Family) Serial ATA Storage Controller - 27C4
 - (PCI) 23 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
 - (PCI) 23 Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
 - Memory

B.4 DMA Channel Assignments

- AA-6DA46CFE5FC9
 - Direct memory access (DMA)
 - 4 Direct memory access controller
 - Input/output (IO)
 - Interrupt request (IRQ)
 - Memory

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, drink or cigarette 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 swabs 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 requirement to dispose unit