ONYX-175/195

17”/19” Intel® Core™ 2 Duo Processor

High Performance

Low Power Consumption

Medical Station

ONYX-175/195 Manual 2nd Ed

Feb. 2009

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Packing List

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

- ONYX-175 or ONYX-195 Medical Station
- HDD screws
- 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:

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 users 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 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 production 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

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-175/195 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.

	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

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Chapter

1

General Information

1.1 Introduction

The ONYX-175/195 Medical Stations are based on Intel® Core™ 2 Duo processor which deliver a performance improvement of more than 100 percent compared to systems running traditional single-core processors. With two cores, or computing engines, ONYX can simultaneously execute two computing tasks. It accommodates one 2.5" SATA hard disk drive and up to 2GB DDR SODIM.

The high brightness LCD, Low Noise solution, integrated multimedia functions and extensive expansion options make them the perfect platform upon which to build comprehensive lifestyle computing applications.

The ONYX-175/195 includes all the features of a powerful computer into a slim and attractive chassis. The ONYX-175 has a 17" 300 nits TFT display with 1280 x 1024 resolution. ONYX-195 has a 19" 400 nits TFT display with 1280 x 1024 resolutions. Integrating with high brightness LCD is easier to analyze DICOM image. This model owns sidemount slim 8 in1 card reader, slim DVD ROM, and smart card reader to support vivid storage read/write and ID check by smart card reader.

The ONYX-175/195 are compact, Gigabit LAN and selectable

WLAN network compatible PC with full safety and medical approval and features to control a dedicated system with a wide variety of applications. Combining the ONYX-175/195 into your system can achieve both cost-saving and efficient improvements.
Common applications include Surgical, Radiology, PACS (Picture Archiving Communication Systems), LIS (Lab Information Systems) and Electronic Medical Record. The ONYX-175/195 are definitely your perfect choices.

The Medical Station is for operator use only, and operator contacts with patient unlikely while accessing the equipment

1.2 Feature

- 17"/ 19" Intel® Core™ 2 Duo Solution
- 300 nits high brightness to X-ray films
- Latex-free
- Built-in RFID and Smart Card Security (Optional)
- Supports PCI Expansion
- Mini PCI Capture Card Supports Non-DICOM to DICOM CAM (optional)
- Highest performance and low power system solution
- 802.11 b/g and Bluetooth Wireless Solution (optional)

1.3 Specification

Hardware Specifications

Display	ONYX-175: 17” SXGA color TFT LCD ONYX-195: 19” SXGA color TFT LCD
CPU Board	Intel® Core™ 2 Duo 2.16GHz Processor
Disk Drive Space	2.5” Hard Disk Drive (Optional) Slim CD/DVD-ROM (optional) 8 in 1 Card Reader Smart Card Reader (optional)
Expansion	One Mini PCI slot; One PCI expansion
Button	Brightness: “+” / ”-“; Sound: “+” / ”-“; Power SW
I/O	3 RS-232 ports, 1 RS-232/422/485 port 8 USB 2.0 ports 1 x on up side for Web-CAM 3 x internal for card reader, smart card and RFID (optional) 4 x on rear bracket 1 parallel port 1 PS/2 keyboard and 1 PS/2 mouse 2 Gigabit LAN RJ-45 Connectors *Sound:* 1 x Line-in 1 x line-out 1 x Mic-in 2 x 2W Speakers on back side 1 x Video/ S-Video out 1 x Video/ S-Video in (optional by capture card)

LCD Specifications

Model Name	ONYX-175 series	ONYX-195 series
Display Type	17" color TFT LCD	19" color TFT LCD
Max. Resolution	1280 x 1024	1280 x 1024
Max. Colors	16.7M	16.7M
Dot Size (mm)	0.297 x 0.297	0.294 x 0.294
Luminance (cd/m2)	300 (TYP)	400 (TYP)
Viewing Angle	140°(H)	140°(H)
	135°(V)	135°(V)
Operating Temperature	0°C~ 40°C (32°F~104°F)	0°C~ 40°C (32°F~104°F)
Brightness Control	Yes	Yes
Back Light MTBF	50,000 Hrs	50,000 Hrs

Note:

All AAEON's LCD products are manufactured with High precision technology. However, there are a small number of defective pixels in all LCD panels that are not able to 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 LCD panels are qualified for industry standard conditions in the following: total 7 dead pixels on a screen or if there are 3 within 1 inch square area of each other on the display.

Mechanical Specifications

Architecture	Close-frame
Front Bezel	Plastic bezel with resistive touch screen
Color	Blue-white (Sky series)
Mounting / Holder	VESA 75/100mm
Construction	3mm ABS + PC TYPE Plastic housing
Dimension (WxHxD)	18.1” x 97.8” x 3.8” (460mmx 385mm x 97 mm)
Carton Dimension	23.8”x 9.1”x 24” (605mmx 230mmx 610mm)
Net Weight	ONYX-175: 18.48 lb (8.4 kg) ONYX-195: 18.7 lb (8.5 kg)
Gross Weight	ONYX-175: 21.78 lb (9.9 kg) ONYX-195: 22 lb (10 kg)
Packing Filler	PE

Power Supply Specifications

Power	AC Model: ONYX-175HT(T):180W ONYX-195HT(T):180W
Input Voltage	AC Model: (input power rating) 100~240 V AC, 2A/1A max. @ 50 ~ 63 Hz
Output Voltages	AC Model: +5 V@12 A, +12 V@12 A, +3.3 V@16.8 A, +5 Vsb@ 2.0 A, -12V @ 0.8A
MTBF	100,000 hrs operation at 25˚C

Environmental Specifications

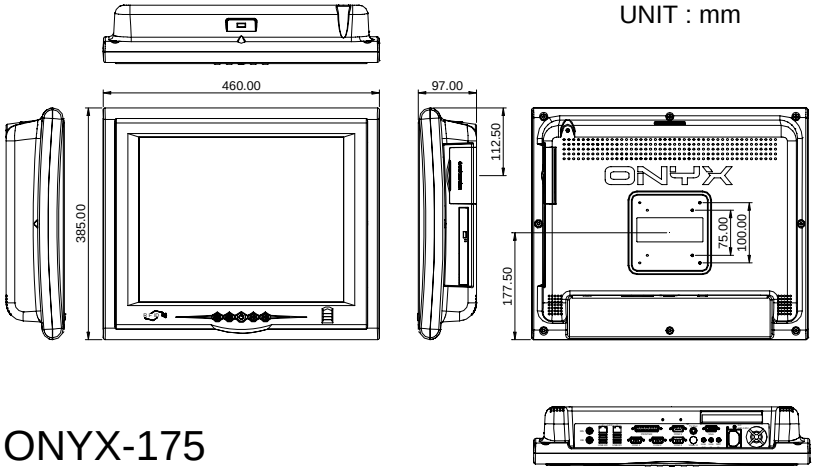
Operating Temperature	0˚C to 40˚C (32˚F ~104˚F)
Storage Temperature	-20˚C to 60˚C (-4˚F ~140˚F)
Storage Humidity	5% to 95%@ 40˚C, non-condensing
Vibration	0.5G / 5 ~ 500Hz (Random) / operation
Shock	15G peak acceleration (11 msec. duration) / operation
Drop	76cm (1 Corner, 3 Edge, 6 Surface)
EMI / Safety	CE / FCC Class B/UL 60601-1/EN 60601-1
IP	Front bezel, IP-65 Certified
Noise	35db (full operation)
Input Power Rating	100~240V/47~63Hz, 2A/1A
Power Consumption	103 W

TouchScreen (Optional)

Type	8-wire, Analog Resistive
Interface	RS-232 interface
Resolution	2048 x 2048
Light Transmission	> 75%
Life Time	1 million activations

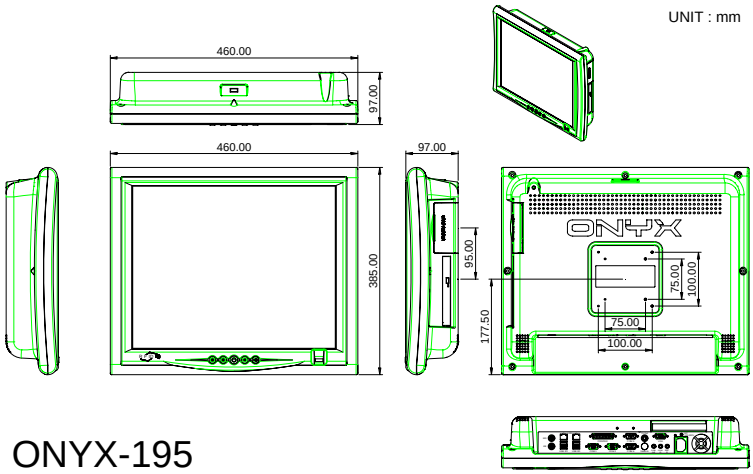
1.4 Dimension

UNIT : mm



ONYX-175

UNIT : mm



ONYX-195

Chapter

2

Hardware Installation

2.1 Safety Precautions

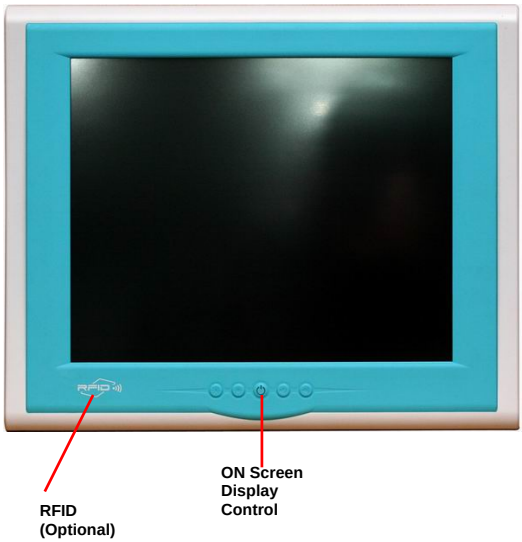
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

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 ONYX-175/195

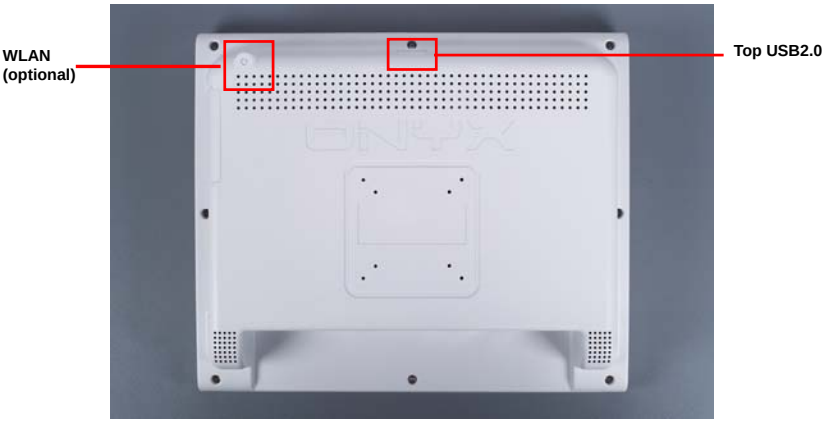
Before you start to set up the ONYX-175/195, take a moment to become familiar with the locations and purposes of the controls, drives, connections and ports, which are illustrated in the figures below.

When you place the ONYX-175/195 upright on the desktop, its front panel appears as shown in Picture 2-1.

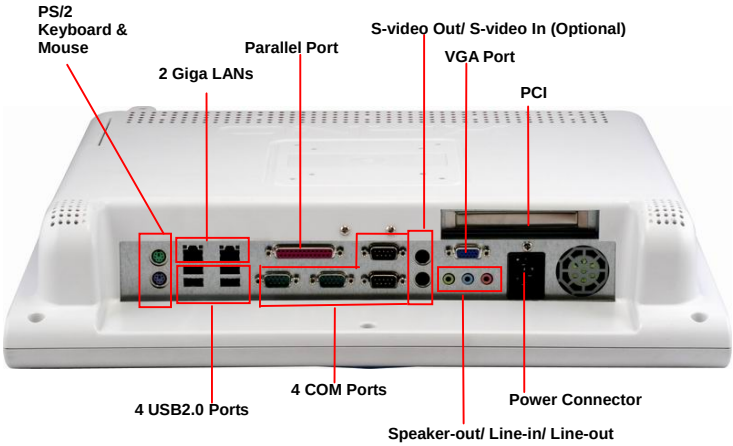


Picture 2.1: Front View of the Medical Station

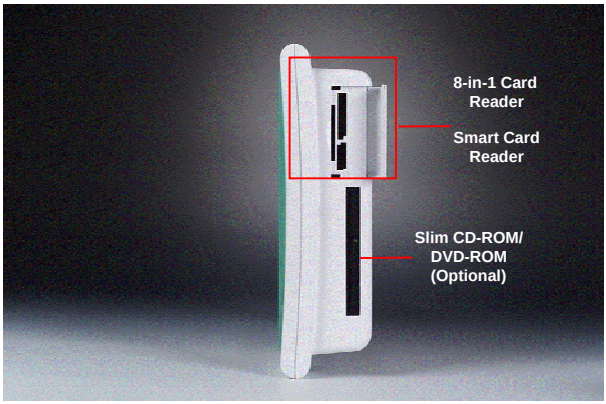
When you turn the Medical Station around and look at its rear cover, the sunken I/O section is at the bottom of the station, as shown in Picture 2-2. (The I/O section includes various I/O ports, including serial ports, VGA port, the Ethernet port, USB ports, the microphone jack, PCI slot, and so on.) The S-video in option function will need Mini PCI slot. Only assemble with the Mini PCI capture card; the S-Video in function will work. The medical Station integrates with WLAN function by using Mini PCI.



Picture 2.2: Rear view of the Medical Station



When you turn the Medical Station around and look at its left side, the smart card reader, all in one card reader, and DVD ROM are on the left side of the Medical Station as shown in Picture 2-3.



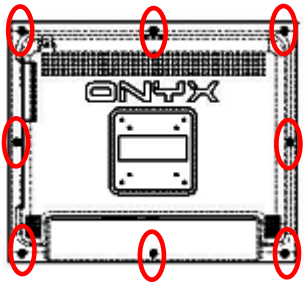
Picture 2.3: Left view of the Medical Station

2.3 Removing the rear maintenance cover

Pull USB cover; Unscrew the attachment screws used to hold the rear maintenance cover and remove rear cover.

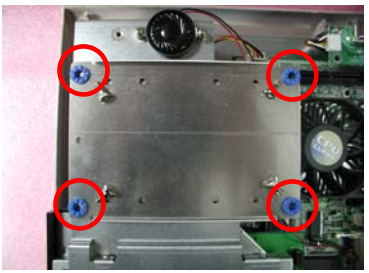
2.4 2.5" Hard Disk Drive (HDD) Installation

1. Unscrew the rear cover screws.

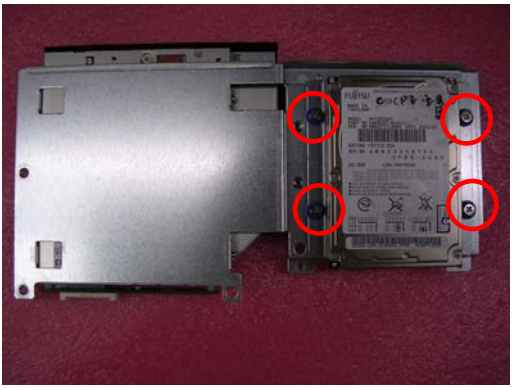


2. Unscrew the rear screws.

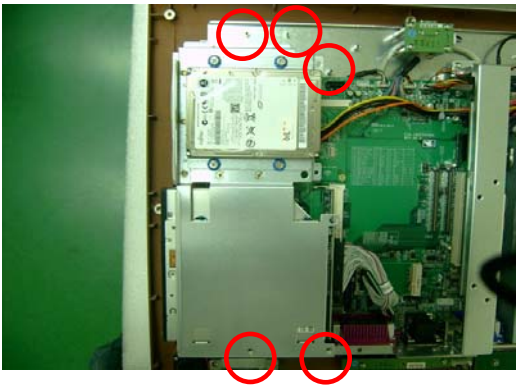
3. Remove rear cover and unscrew the disk module screws.



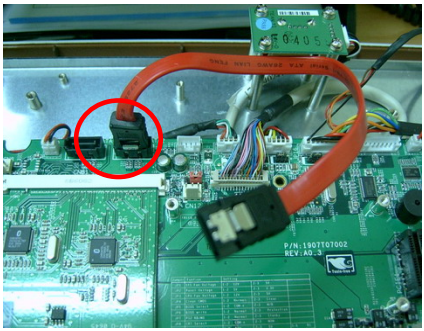
4. Lay the HDD over the HDD bracket and fasten the four screws



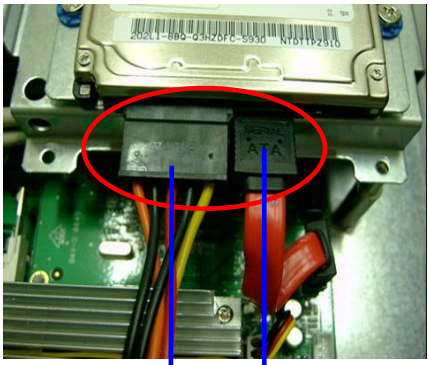
5. Fasten the five screws to fix the HDD



6. Insert one side connector of SATA Cable to the SATA socket on main board



7. Insert the other side connector of SATA cable to the SATA port on HDD. In addition to connect the SATA cable, the power cable has to be connected to the HDD power socket as well.

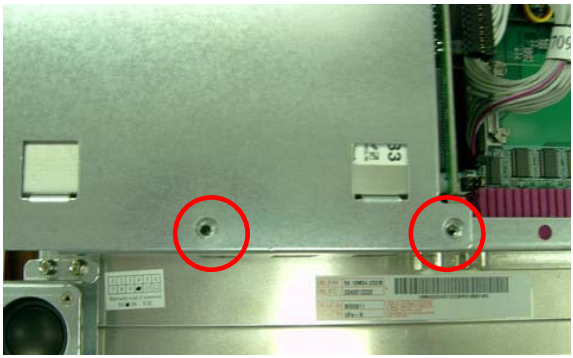


2.5 Slim CD/DVD-ROM Installation

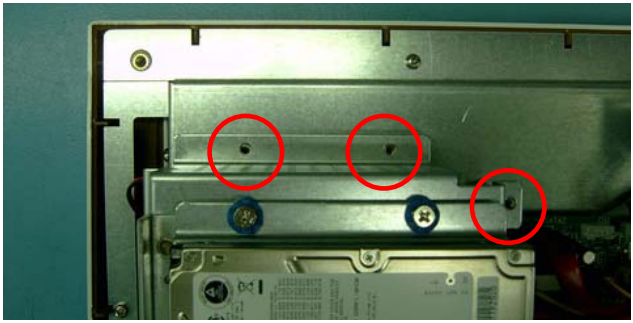
1. Get the CD/DVD-ROM Converter Kit from the Accessory kit.

2. Unscrew the screws on the back of ONYX-175/195 and open the rear cover. There are 9 black screws, 2 silver screws, and one USB cover that have to be unscrewed.

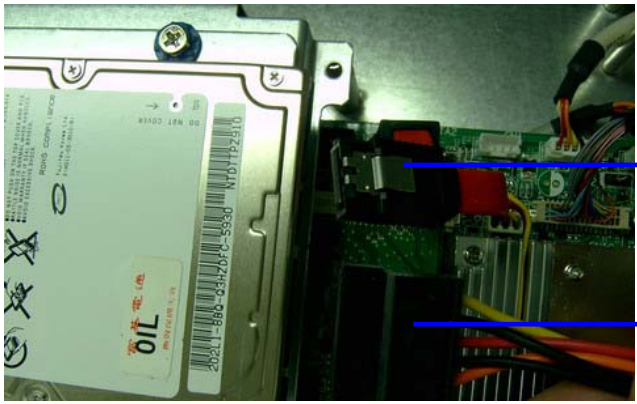
3. Unscrew the two screws on the CD/DVD-ROM bracket located on the left hand side.



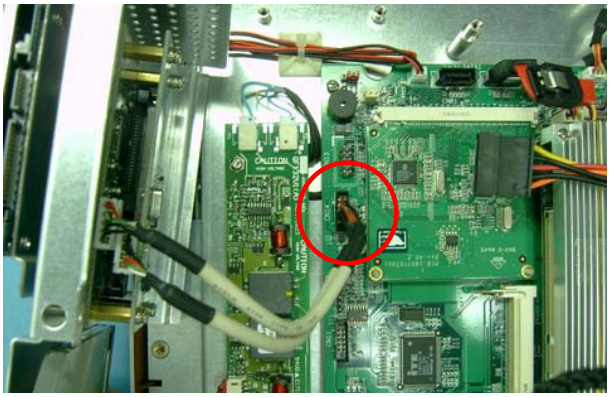
4. Unscrew three screws on the other side of the CD/DVD-ROM bracket



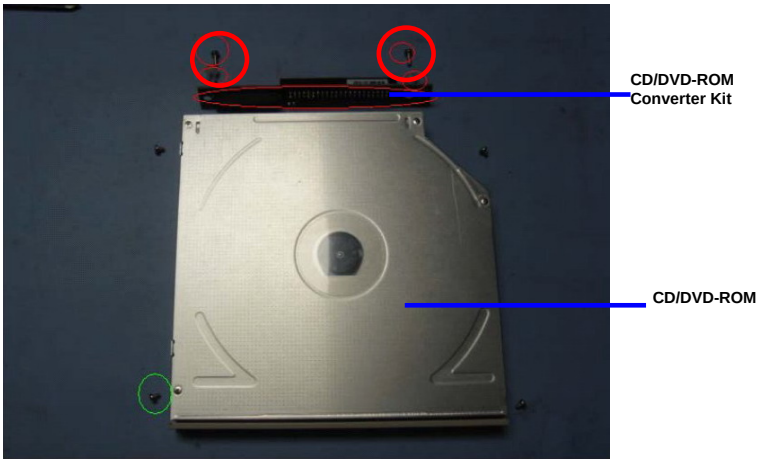
5. Pull out the SATA cable and Power cable connectors



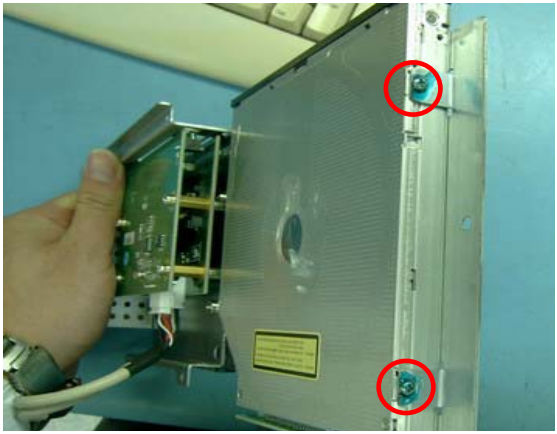
6. Pull out the USB cable

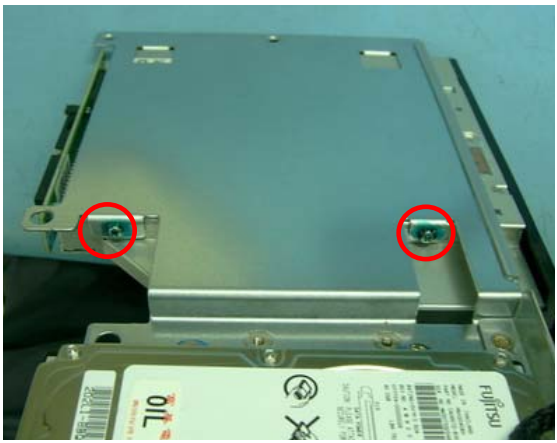


7. Release the CD/DVD-ROM bracket from the main board and get it ready for the CD/DVD-ROM Converter Kit and CD/DVD-ROM
8. Fasten the CD/DVD-ROM Converter Kit by using two screws to the CD/DVD-ROM



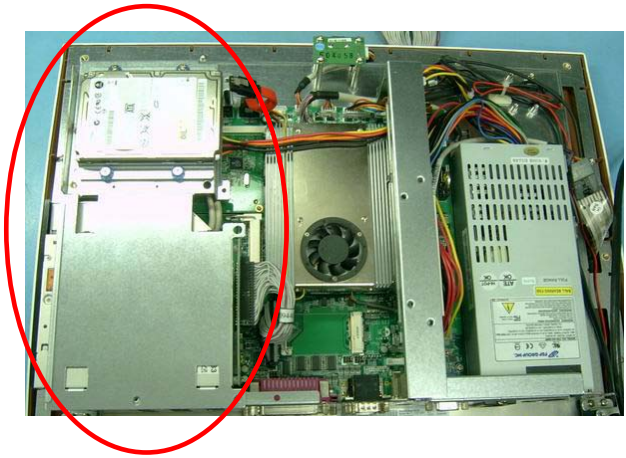
9. Put the CD/DVD-ROM to the CD/DVD-ROM Bracket and fasten the CD/DVD-ROM by using the four screws



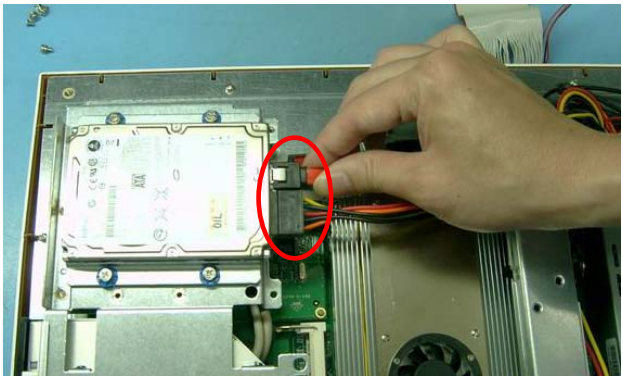


10. Connect the USB Cable to the main board

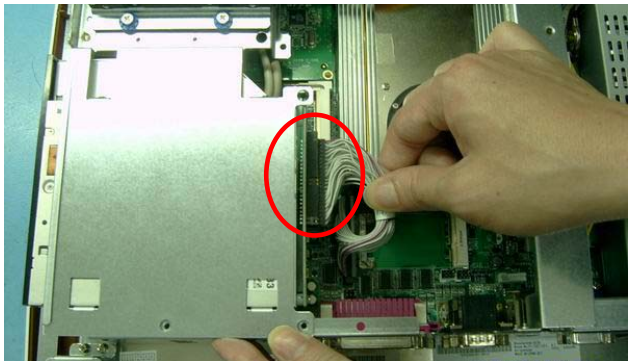
11. Place the CD/DVD-ROM Bracket with CD/DVD-ROM back to the ONYX-175/195



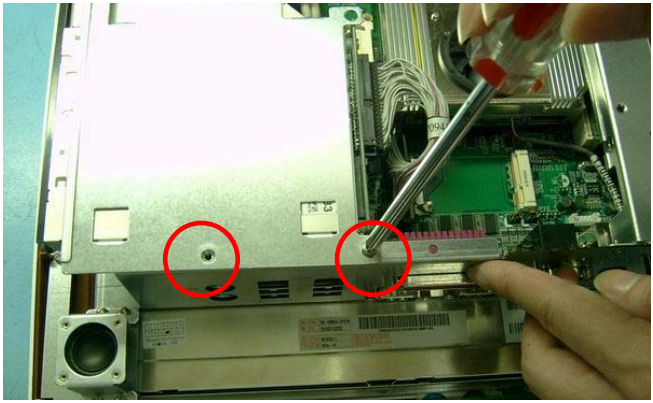
12. Insert the SATA Cable and Power Cable Connectors to the Hard Disk Drive

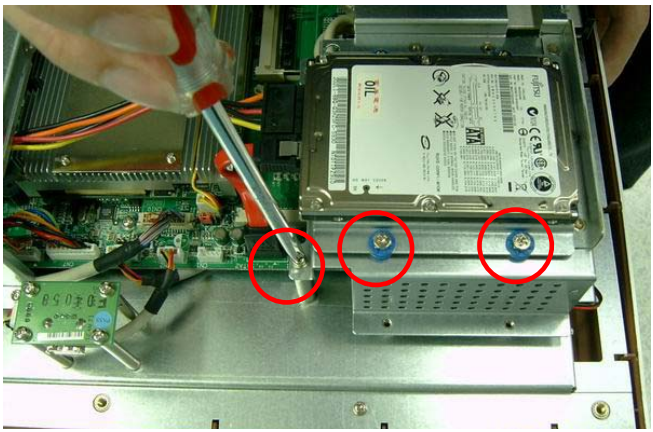


13. Connect the IDE Cable to the CD/DVD-ROM Converter Kit



14. Fasten the CD/DVD-ROM bracket with CD/DVD-ROM to the main board of ONYX-175/195 by using five screws. And you've done installing the CD/DVD-ROM to the ONYX-175/195.





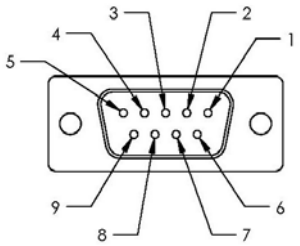
2.6 COM2 RS-232/422/485 Selection

COM2 RS-232/422/485 selection is set in BIOS setting as following.

Entering BIOS Setting Menu: Choose "Integrated Peripherals → Super IO device→ COM2 select". (Default setting at "RS-232")

2.7 RS-232/422/485 Serial Port Connector

Different devices implement the RS-232/422/485 standard in different ways. If you are having problems with a serial device, be sure to check the pin assignments below for the connector.



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	10	N.C.

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-175/195 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 <Del> immediately. This will allow you to enter Setup.

Standard CMOS Features

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

Advanced BIOS Features

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

Advanced Chipset Features

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

Integrated Peripherals

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

Power Management Setup

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

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This menu shows you the status of PC.

Frequency/Voltage Control

This menu shows you the display of frequency/Voltage Control.

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.

3.3 Standard CMOS Features

Choosing the Standard CMOS Features option from the INITIAL SETUP SCREEN menu, and the standard Setup Menu allows users to configure system components such as date, time, hard disk drive, floppy drive and display. Once a field is highlighted, on-line help information is displayed in the right box of the Menu screen.

3.4 Advanced BIOS Features

Choosing the Advanced BIOS Features option from the INITIAL SETUP SCREEN menu, and you will see this screen contains the manufacturer's default values for the ONYX-175/195.

3.5 Advanced Chipset Features

Choosing the Advanced Chipset Features option from the INITIAL SETUP SCREEN menu, and you will see the screen contains the manufacturer's default values for the ONYX-175/195.

3.6 Integrated Peripherals

Choosing the Integrated Peripherals from the INITIAL SETUP SCREEN menu, and you will see the screen contains the manufacturer's default values for the ONYX-175/195.

3.7 Power management Setup

Choosing the Power Management Setup from the INITIAL SETUP SCREEN menu, and the screen contains the manufacturer's default values for the ONYX-175/195.

3.8 PnP/PCI configuration

Choosing the PnP/PCI configurations from the Initial Setup Screen menu, and you will see the screen contains the manufacturer's default values for the ONYX-175/195.

3.9 PC Health Status

Choosing the PC Health Status from the Initial Setup Screen menu, and you will see the screen contains the manufacturer's default values for the ONYX-175/195.

3.10 Frequency/Voltage control

Choosing the Frequency/Voltage Control from the Initial Setup Screen menu, and you will see the screen contains the manufacturer's default values for the ONYX-175/195.

3.11 Load Fail-Safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

> Load Fail-Safe Default (Y/N)?
>
> Pressing "Y" loads the BIOS default values for the most stable, minimal performance system operations.

3.12 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)?

Pressing "Y" loads the default values that are manufacturer's settings for optimal performance system operations.

3.13 Set Supervisor/User Password

You can set either SUPERVISOR or USER PASSWORD, or both of them. The difference between the two is that the supervisor password allows unrestricted access to enter and change the options of the setup menus, while the user password only allows entry to the program, but not modify options.

To abort the process at any time, press Esc.

In the Security Option item in the BIOS Features Setup screen, select System or Setup:

System Enter a password each time the system boots and whenever you enter Setup.

Setup Enter a password whenever you enter Setup.

NOTE: To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.

3.14 Save & Exit Setup

If you select this option and press <Enter>, the values entered in the setup utilities will be recorded in the chipset's CMOS memory. The microprocessor will check this every time you turn on your system and compare this to what it finds as it checks the system. This record is required for the system to operate.

3.15 Exit without saving

Selecting this option and pressing <Enter> allows you to exit the Setup program without recording any new value or changing old one.

For more detailed information, 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

There are several installation ways depending on the driver package under different Operating System application.

Please follow the sequence below to install the drivers:

Step 1 – Install INF Driver

Step 2 – Install VGA Driver

Step 3 – Install Audio Driver

Step 4 – Install Intel LAN Driver

Card Reader Driver Installation

Touch Screen Driver Installation

Smart Card Driver Installation

RFID Driver Installation

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/.

For installation procedures of each driver, you may see the details in the following.

4.1 Installation

Insert the ONYX-175/195 CD-ROM into the CD-ROM drive and install the drivers from Step 1 to Step 4 in order. (Other drivers will be optional).

Step 1 – Install INF Driver

1. Click on the ***Step 1-INF*** folder
2. Double click on ***infinst_autol.exe***
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 2 – Install VGA Driver

1. Click on the ***Step 2 –VGA*** folder
2. Double click on ***win2k_xp1425.exe***
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 ***Step 3 –Audio*** folder
2. Double click on ***WDM_A395.exe***
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 4 – Install Intel LAN Driver

1. Click on the ***Step 4 –Intel_LAN*** folder
2. Double click on ***PRO2KXP.exe***
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

4.2 Card Reader Driver Installation

1. Click on the ***Card_Reader*** 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

4.3 Touch Screen Driver Installation

1. Click on the ***Touch*** 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

4.4 Smart Card Driver Installation

1. Click on the ***Smart_Card*** 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

4.5 RFID Driver Installation

1. Click on the ***RFID*** folder and then double click on the ***ISO15693.exe***
2. Follow the instructions that the window shows you
3. The system will help you install the driver automatically

Appendix

A

Programming the Watchdog Timer

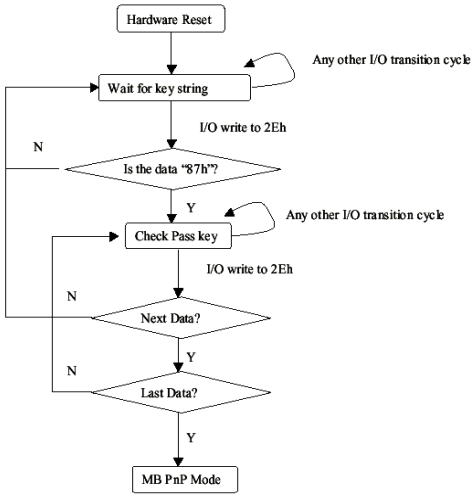
A.1 Programming

ONYX-175/195 utilizes ITE 8712 chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEON intial 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 opera-tions to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

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

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the MB PnP Mode

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

WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02H	W	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

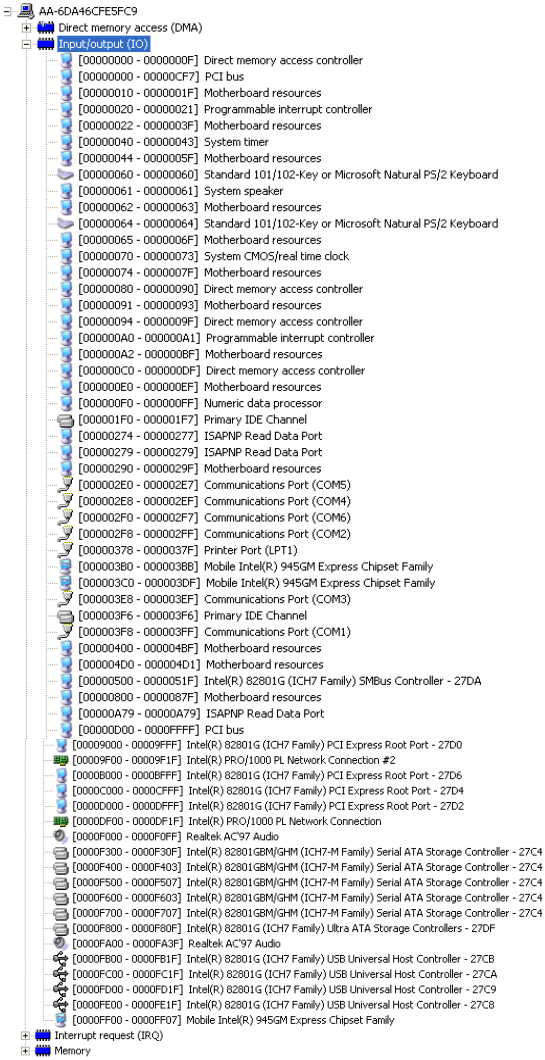
00h: no interrupt selected

Appendix

B

I/O Information

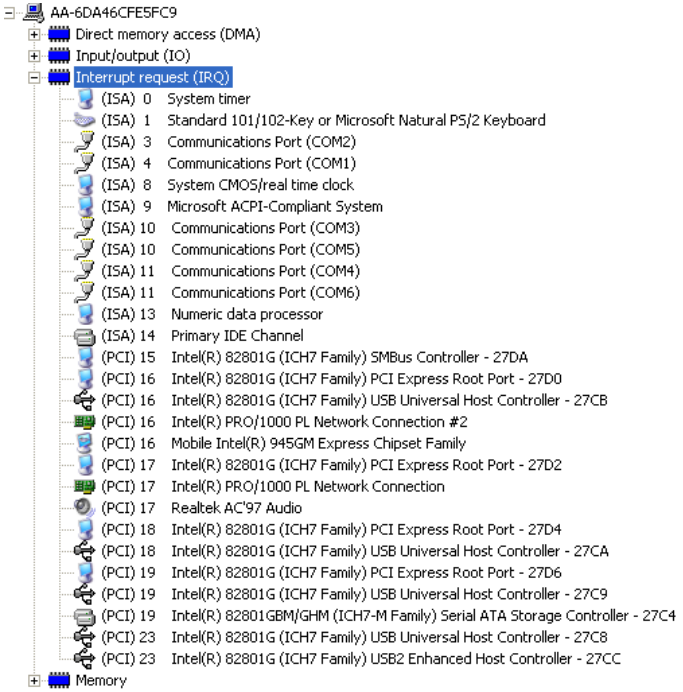
B.1 I/O Address Map



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 - FEC00FFF] System board
    - [FED13000 - FED1DFFF] System board
    - [FED20000 - FED8FFFF] System board
    - [FEE00000 - FEE00FFF] System board
    - [FFB00000 - FFB7FFFF] System board
    - [FFB80000 - FFBFFFFF] Intel(R) 82802 Firmware Hub Device
    - [FFF00000 - FFFFFFFF] System board

B.3 IRQ Mapping Chart



B.4 DMA Channel Assignments

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.
7. AAEON has tested and verified these cleaning disinfectants, CIDEX, Viraguard, Control III Disinfectant Germicide, Caviwipes, Dispatch Disinfectant Cleaner CLH69101, Puregreen 24 Disinfectant, can be used with the ONYX-175/195. Use of any other disinfectants will void the warranty.

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 requirement to dispose unit