# ONYX-154/174

Power Medical Station

15”/17” Intel® Pentium® M/ Celeron®M Processor

High Performance

Low Power Consumption

ONYX-154/174 Manual 1st Ed

June 2008

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## Packing List

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

- ONYX-154 or ONYX-174 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.

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## 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 60950-1 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: No applied part
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

| | |
|---|---|
| CLASSIFIED C UL US | *ONYX-154/174 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*<br>*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。

# Contents

## Appendix A Programming the Watchdog Timer



## Appendix B I/O Information



## Appendix C Miscellanea

Chapter

1

# General Information

## 1.1 Introduction

ONYX-154/174 is designed to match the medical modalities that require for sustaining power supply, especially in observation room, ICU, and OR. These critical applications cannot lose medical records due to the crash of power system. ONYX-154/174 provides high performance in power supply and has battery backup system.

ONYX-154/174 performs the health care record and patient vital-sign monitoring clearly since the power medical stations can provide electronic medical data and health data of patient's blood pressure, heart beat, and oxygen data to doctors by connecting the vital-sign monitoring device and Hospital Information System (HIS). The electronic medical data make medical therapy faster and more precise.

ONYX-154/174 integrates with Smart Card Reader for advanced medical security and safety control. The most significant feature of ONYX-154/174 is the battery backup system. It can provide 30-minute battery backup if the outside power failure accidentally. For the vitally medical applications, ONYX-154/174 is definitely the first choice.

## 1.2 Feature

- 15” True Color High Contrast 450 nits Medical LCD/ 17” True Color High contrast 300 nits Medical LCD
- Battery Backup
- Integrated Smart Card Reader Security
- Mini PCI Capture Card Supports Non-DICOM To DICOM CAM
- High Performance & Low Power System Solution
- 802.11a/b/g Wireless Antenna (Optional)
- UL60601-1, EN60601-1 and IEC60601-1 Certified

## 1.3 Specification

### System

- Display: 15” (1024 x 768) color TFT LCD/ 17” (1280 x 1024) color TFT LCD
- CPU Board: Intel® Pentium® M (up to 2.0GHz)/ Celeron® M processor
- Memory: 184-pin DDR SDRAM up to 1GB (DDR-266/ 333)
- Disk Drive Space: Anti-vibration 2.5” Hard Disk Drive (optional), Slim CD-ROM / Combo / DVD-ROM / DVD-RW(optional)
- Expansion: One 8-in-1 card reader
  One Smart Card Reader (Optional)
  One Mini-PCI Capture Card
  One PCI Expansion

### I/O

- Serial Port: 1 x RS-232, 1 x RS-232/422/485
- USB: 3 x USB 2.0 ports
- Parallel Port: 1 x parallel port (supports ECP/EPP)
- Speaker: 2 x Speaker (2W)
- Keyboard & Mouse: 1 x PS/2 keyboard, 1 x PS/2 mouse

- Audio: Mic-in, Line-in, Line-out
- Ethernet: Realtek 8100C 10/100Base-TX RJ-45 Connector x 1
- Front Panel: IP-65 Certified
- Others: Supports Mini PCI Wireless LAN with Antenna (Optional)
- Power Requirement: 100/240V AC
- OS support: Windows® 2000, Windows® XP, Windows® XP Embedded (Optional)

**LCD**

| | | |
|---|---|---|
| Model No.: | ONYX-154 | ONYX-174 |
| Size | 15” XGA color TFT LCD | 17” UXGA color TFT LCD |
| Max. Resolution: | 1024 x 768 | 1280 x 1024 |
| Max. Colors: | 16.7M colors | 16.7M colors |
| Contrast Ratio: | 500:1 | 500:1 |
| Dot Size: | 0.297 x 0.297 | 0.297 x 0.297 |
| Luminance: | 450 nits | 300 nits |
| Viewing Angle: | $140^{o}$ (H)/$125^{o}$(V) | $140^{o}$ (H)/$135^{o}$(V) |
| Back Light MTBF: | 50,000hrs | 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: | VESA 75/100mm (ONYX-154 uses VESA 75mm only), Desk Top Stand (Optional) |
| Dimension: | ONYX-154<br>15.67” (W) x 12.99” (H) x 3.64” (D)<br>(398mm x 330mm x 92.5mm)<br>ONYX-174<br>18.11” (W) x 15.16” (H) x 3.82” (D)<br>(460mm x 385mm x 97mm) |
| Gross Weight: | ONYX-154: 17.6 lb (8 kg)<br>ONYX-174: 21.56 lb (9.8 kg) |
| Net Weight: | ONYX-154: 15.5 lb (7 Kg)<br>ONYX-174: 18.26 lb (8.3 Kg) |

**Environmental**

- Operating Temperature: 50$^{o}$F~104$^{o}$F (10$^{o}$C~40$^{o}$C)
- Operating Humidity: 30%~75%
- Operating Atmospheric Pressure: 850hPa~1000hPa

- Transport and Storage Temperature: -4°F~140°F (-20°C~60°C)
- Transport and Storage Humidity: 10%~90% @ 35 °C, non-condensing
- Transport and Storage Atmospheric Pressure: 850hPa~1000hPa
- Vibration: Random operation 0.5G, 5~500Hz
- Shock: 15G peak acceleration (11 msec. Duration)
- EMC: CE/FCC Class B
- Safety: UL60601-1, EN60601-1

**Power Supply Specifications**

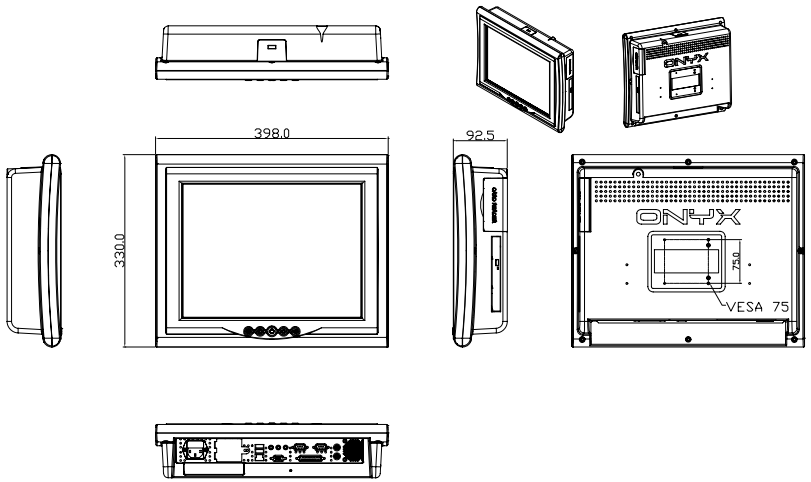
- Power: Astrodyne
  Model No.: ASM150-24
- Input Rating: 100~240V AC, 2A@ 50/60Hz
  Output Rating: +24V @ 6.6A max.

**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

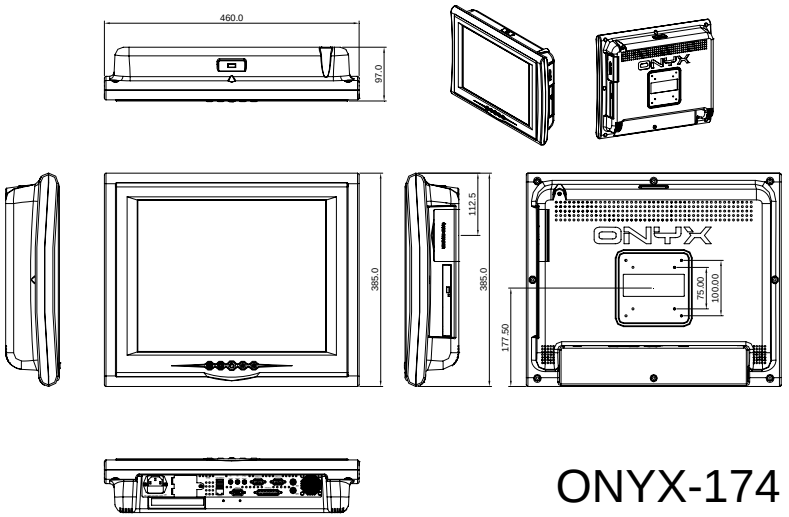
ONYX-154

Unit : mm




ONYX-174

UNIT : mm




ONYX-174

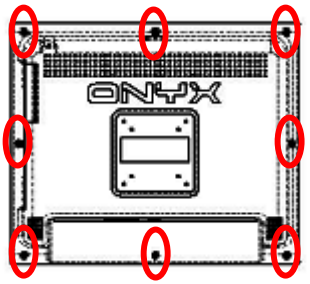
Chapter

2

# Hardware Installation

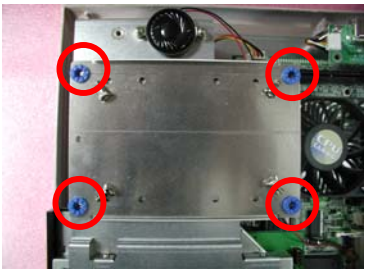
## 2.1 2.5” Hard Disk Drive (HDD) Installation

1. Unscrew the rear cover screws.

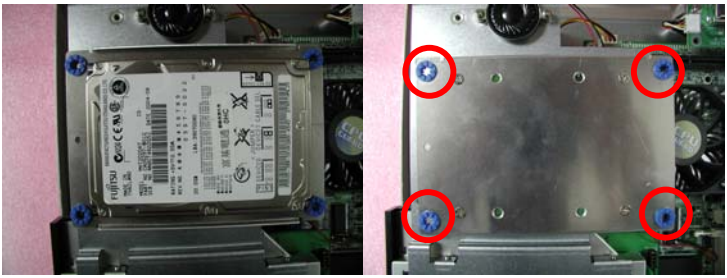



2. Unscrew the rear screws.

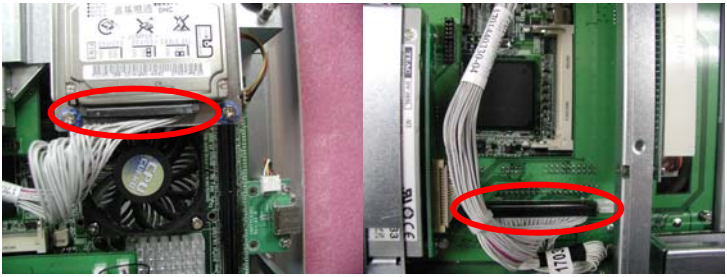
3. Remove rear cover and unscrew the disk module screws.



4. Assemble 2.5”HDD into disk module.



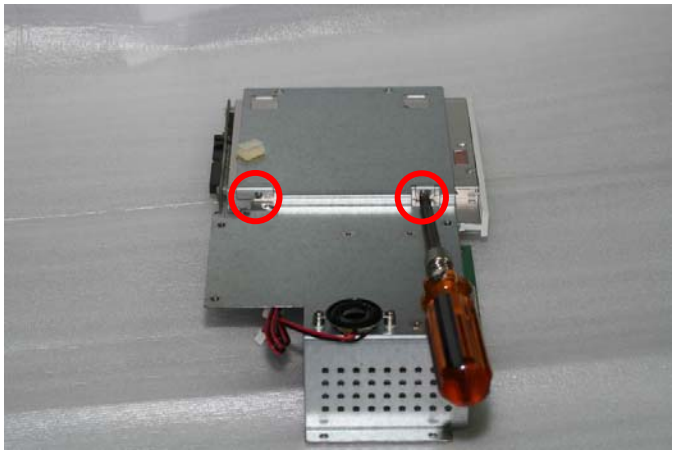
5. Connect HDD cable to 2.5”HDD and IDE connector

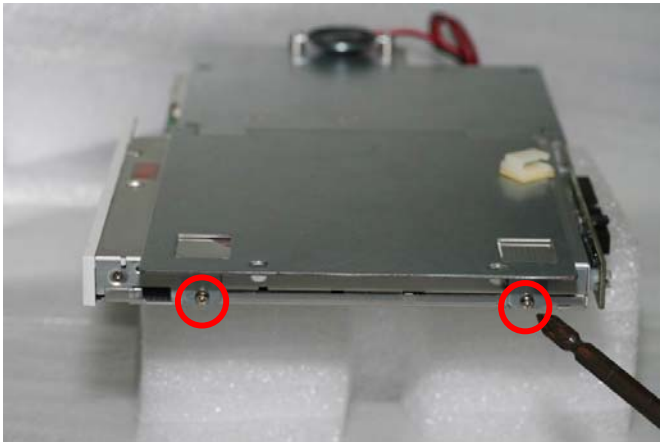


## 2.2 CD-ROM Installation

1. Fasten the conversion card by using two M2 screws

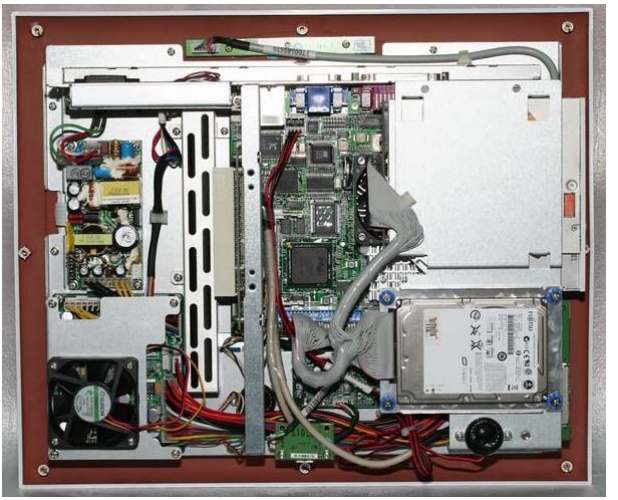
2. Fasten the bracket by four M2 screws





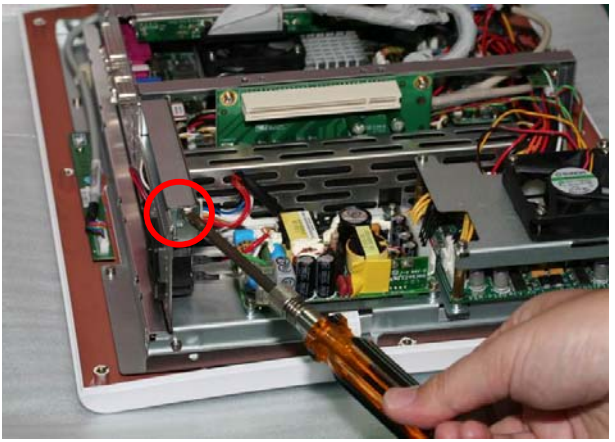
3. Insert the flat cable

4. Install the CD-ROM to ONYX-154/ONYX-174



## 2.3 PCI Card Installation

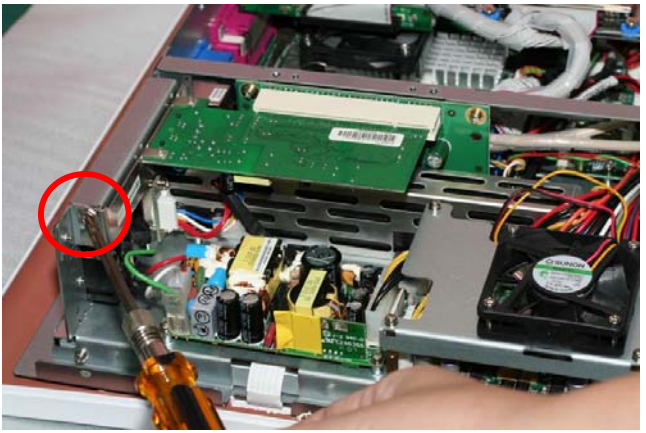
1. Unfasten the screws on the PCI slot



2. Take the anti-dust sheet out

3. Insert the PCI card

4. Fasten the PCI card

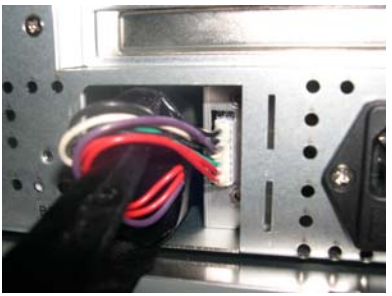


## 2.4 Procedure of Changing Battery

1. Unfasten the screws of the cover of battery socket

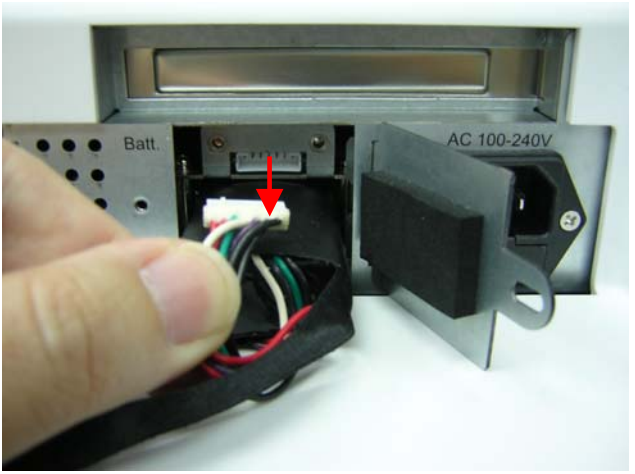

2. You will see the inside of ONYX-154 and ONYX-174


ONYX-174

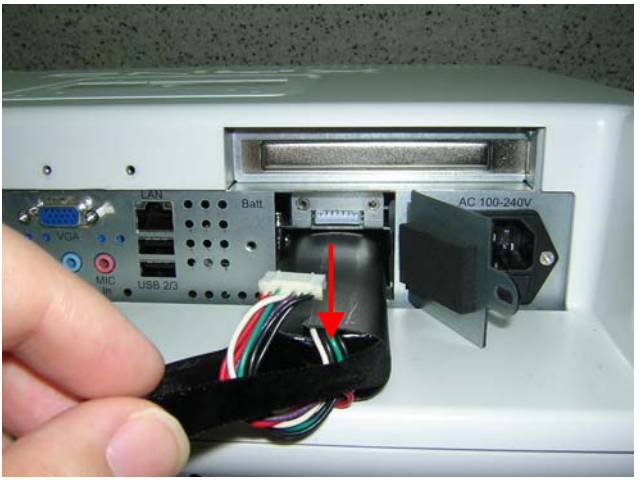


ONYX-154

3. Disconnect the connector of battery




4. Pull the battery out of the ONYX-154/ ONYX-174



## 2.5 RS-232 PORT: COM1; 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 | | |

## 2.6 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 | | |

## 2.7 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} |

## 2.8 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.

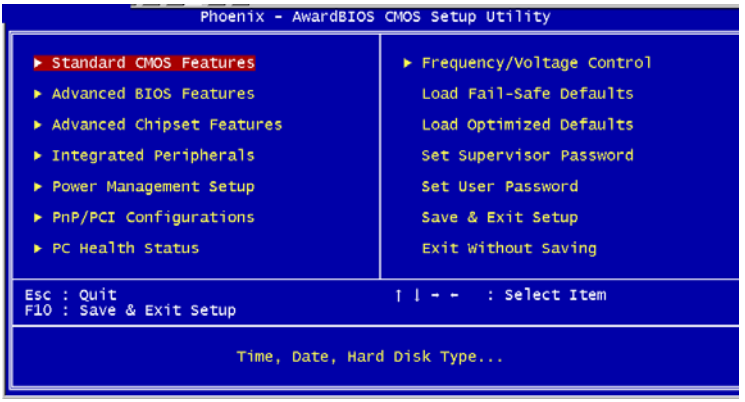
The ONYX-154/174 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

## 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, 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-154/174 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

Step 6 - Install Touch Panel Driver

Step 7 - Install Smart Card Driver (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-154/174 CD-ROM into the CD-ROM drive. And install the drivers from Step 1 to Step 7 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*** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

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 is
2. Double click on the ***Setup*** file and follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 3-Install LAN Driver

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

Step 6-Install Touch Panel Driver

1. Click on the ***Step 6-touch panel*** folder and select the OS your system is
2. Double click on the ***Setup*** file and follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 7-Install Smart Card Driver (Optional)

1. Click on the ***Step 7-Smart card*** folder and then double click on the ***Setup*** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

**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

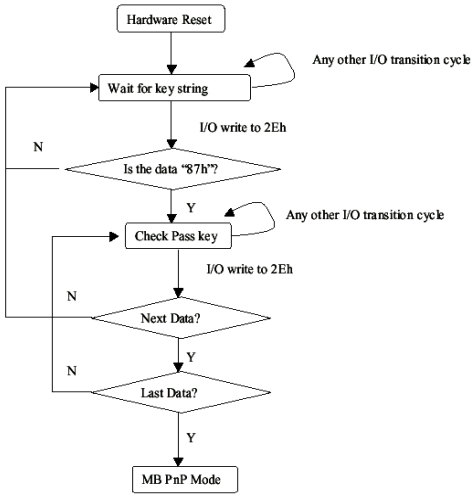
## A.1 Programming

ONYX-154/174 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

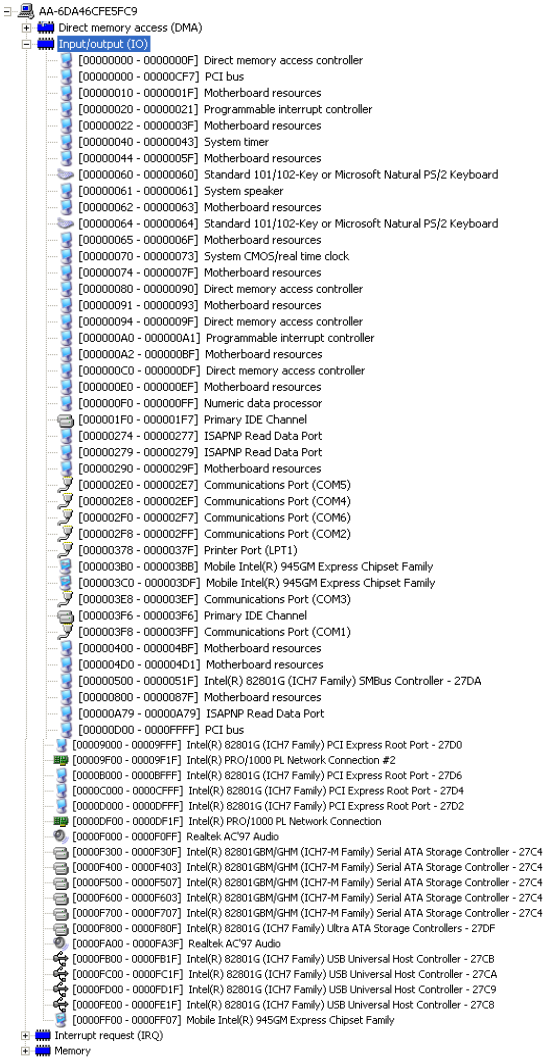
00h: no interrupt selected

Appendix

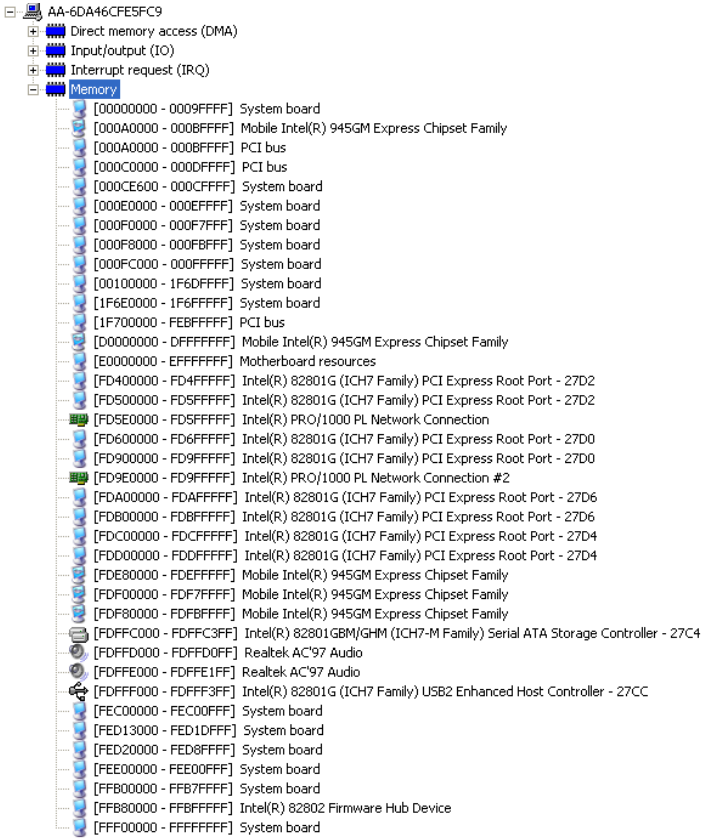
# B

# I/O Information

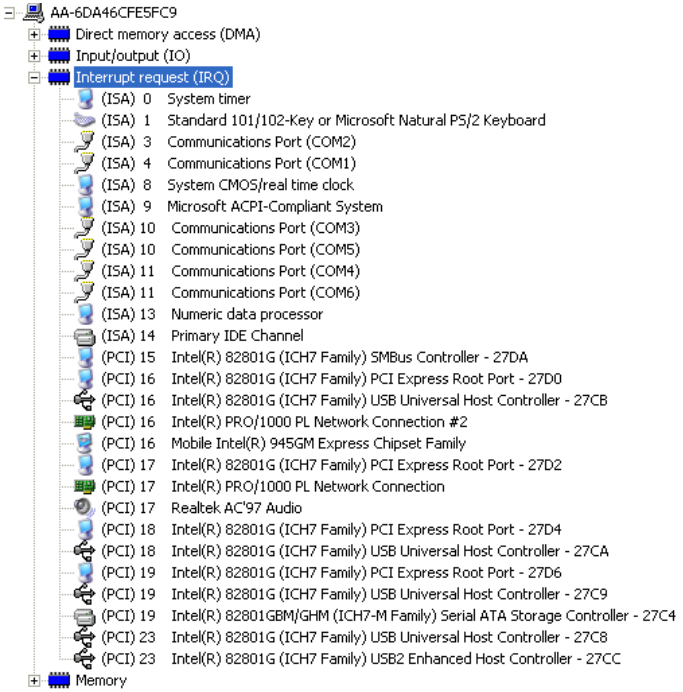
## B.1 I/O Address Map



## B.2 Memory Address Map



## 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.

## 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 you to shut down the system before start cleaning any single components and clean the equipment once a week.

**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