

## ONYX-BE182

18.5" Bedside Terminal

Intel® Quad Core J1900 Processor

High Performance

Low Power Consumption

Wide LCD with Multimedia

ONYX-BE182 Manual 1st Edition

Apr. 2015

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## Packing List

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

- BE182 Healthcare Infotainment.
- VESA Mount Screws
- Utility CD-ROM (Please insert the ONYX-BE182 CD-ROM into external CD-ROM drive.) which contains User's Manual (in PDF format), Drivers and Utilities
- Medical power adapter 70W/24VDC or 60W/12VDC

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

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## Safety & Warranty

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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 arise, get the equipment checked by

service personnel:

- a. The power cord or plug is damaged.
  - b. Liquid has penetrated into the equipment.
  - c. The equipment has been exposed to moisture.
  - d. The equipment does not work well, or you cannot get it to work according to the user's manual.
  - e. The equipment has been dropped and damaged.
  - f. The equipment has obvious signs of breakage.
15. **DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C (-4°F) OR ABOVE 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 ANSI/AAMI ES60601-1 (2005, 3rd ed.); CAN/CSA-C22.2 No. 60601-1 (2008) / 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. Any person who connects external equipment to signal input , signal output, or other connectors has formed a system and is therefore responsible for the system to comply with the standard IEC 60601-1, safety requirements for medical

electrical systems.

17. Unplug the power cord from the power adapter jack to disconnect the device.
18. **WARNING:** To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth
19. **WARNING:** Do not modify this equipment without authorization of the manufacturer.

*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

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1. Degree of protection against electric shock: not classified
2. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
3. Mode of operation: Continuous
4. Type of protection against electric shock: Class I equipment
5. Class I: No Applied part, No AP / APG

## FCC

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*Warning!*



This device complies with Part 18 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

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 The logo consists of a central circle containing the letters 'UL'. Above the circle, the word 'CLASSIFIED' is written in an arc. To the left of the circle is the letter 'C' and to the right is 'US'.	<p><i>BE182 AC modules are developed to suitable for the Classification Mark requirement</i></p>
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## Safety Symbol Description

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

	<p><i>MEDICAL-GENERAL MEDICAL EQUIPMENT AS TO ELECTRICAL SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH ANSI/AAMI ES60601-1 (2005, 3rd ed.), CAN/CSA-C22.2 NO.60601-1 (2008)</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 ANSI/AAMI ES 60601-1, and CSA C22.2 NO 60601-1-08-CAN/CSA</i></p>
	<p><i>Stand-by</i></p>

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Chapter

1

**General  
Information**

## 1.1 Introduction

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***—A bedside terminal solution for ultimate patient services that boosts patient satisfaction and well-beings.***

ONYX-BE182 offers a highly scalable bedside infotainment solution to enhance patient experiences within the hospital. Packaged with renowned software solution partners, ONYX-BE182 bedside terminals provide patients with capabilities like Entertainment on Demand, Online Access, VoIP Phone, Nurse Notification, etc.

### **Clinical Applications**

- Ward, Nursing Station/Cart

### **Service Capabilities – BE182**

- **Hospital Information Access –**
  - Patient Record Access
  - Treatment Progress Reporting (i.e. Medical Charting)
  - Dietary/Meal Ordering Service
- **Monitoring/Communication –**
  - Doctor Consultation by Video Conference
  - Internet Access
  - VoIP Telephone Access
- **Entertainment on Demand**
  - Video-on-Demand

- TV/Radio Broadcasting

## 1.2 Feature

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- 18.5" Wide Color TFT LCD display
- Intel® Quad Core J1900 Processor
- Fanless & Compact Design
- VoIP phone, Web Camera, and High Quality Speaker
- Smart Card Reader
- Optional Features:
  - Magnetic Stripe reader
  - RFID / Barcode Scanner
  - Nurse Notification / HD Decoding Function
  - Bluetooth / WLAN b/g/n
- Multimedia Entertainment: Game, VoIP, Web Radio
- Plastic enclosures shall not contain molded-in or glued-on metal unless metal inserts are easy to remove by one person alone with commonly available tools.

### 1.3 Specification

Model Number	
ONYX-BE182	
Model Description	
18.5" Intel® Quad Core High Performance Bedside Terminal with Multimedia	
Main Specification	
<b>CPU Processor</b>	Intel® Quad Core J1900 on board Processor
<b>System Memory</b>	Up to <b>4GB</b> DDRIII
<b>Display</b>	BE182: 18.5" Wide Color TFT LCD with LED Backlight
<b>OS Support</b>	Windows® 8.1 (32 bit & 64 bit ) Windows® 7 (32 bit & 64 bit ) Linux Fedora Core
<b>Expansion</b>	2 x Internal Mini Card Magnetic Stripe Reader (Optional) 1D / 2D Barcode Scanner (Optional) VoIP Phone / Web Camera
Main Specification (Cont.)	
<b>Storage Disk Drive</b>	1 x 2.5" HDD (SATA) 1 x Smart Card Reader / RFID Module (Optional)
<b>Button</b>	Power Brightness + Brightness - Volume +

	Volume – Touch on/off Reading Light on/off LCD backlight on/off
<b>Accessory (Optional)</b>	1 x Handset/Remote Control 1 x MSR 1 x Bottom Barcode Reader (TTL Interface) 1 x RFID (USB Interface shared with Smart Card Reader)
<b>Support Content</b>	Web Gaming, MPEG 2/3/4, Web Radio
<b>I/O</b>	
<b>Audio</b>	1 x Line out / MIC in / Internal MIC
<b>USB</b>	2 x External USB2.0 on bottom I/O
<b>Serial port</b>	Internal COM 1: 1 x RS-232 (Internal pin header) Internal COM 2: 1 x RS-232 (for Barcode Reader)
<b>Internal GPIO Pin</b>	1 x GPIO pins for LED light * Blue LED for phone ring 1 x GPIO pin for hook on/off 1 x GPIO pin for software triggered nursing call
<b>External GPIO Pin</b>	6 x Programmable GPIO pins
<b>RJ-45</b>	
<b>Ethernet (RJ-45 on Back I/O) &lt;Optional&gt;</b>	2 x Gigabit Ethernet (Support WOL)
<b>Membrane Function</b>	Audio control (Volume+, Volume -)

	LCD on/off Brightness control (Brightness+, Brightness-) Programmable function key
<b>I/O (Cont.)</b>	
<b>Video</b>	1 x Video-in (Optional via Mini Card/USB Dongle)
<b>Speaker</b>	2 x 2W High Quality Speakers
<b>VoIP/Analog Phone</b>	1 x RJ-11 connector for VoIP
<b>Support Content</b>	Web Gaming/Radio Video Streaming (MPEG2, 3, 4)
<b>LCD Specification</b>	
<b>Model</b>	BE182 Series
<b>Display Type</b>	18.5" Color TFT LCD with WLED Backlight
<b>Max. Resolution</b>	1366 x 768
<b>Max. Colors</b>	16.7M
<b>Dot Size (mm)</b>	0.3 x 0.3
<b>Luminance (cd/m<sup>2</sup>)</b>	250 nits
<b>View Angle</b>	85/85(H right/Left)
	80/80 (V upper/lower)
<b>Contrast Ratio</b>	1000:1
<b>Back Light MTBF</b>	30,000 Hrs
<b>Note:</b> All ONYX'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. ONYX 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.

### Touch Screen

<b>Type</b>	5 Wire Resistive
<b>Resolution</b>	2048 x 2048
<b>Light Transmission</b>	> 80%
<b>Lifetime</b>	35 million activities

### Mechanical Specifications

<b>Model</b>	BE182 Series
<b>Architecture</b>	Close-Frame Design
<b>Front Bezel</b>	Complete flat for easy cleaning
<b>Color</b>	White/Gray
<b>Mounting / Holder</b>	VESA 75/100mm, Desk Top, Wall Mount, Ceiling Mount
<b>Construction</b>	3mm ABS + PC Plastic Housing
<b>Dimension (WxHxD)</b>	510 x 385 x 60.9 (mm)
<b>Carton Dimension</b>	806 x 327 x 612 (mm)
<b>Net Weight</b>	6.055 kg(220V), 6.053 kg(110V)
<b>Packing Filler</b>	PE foam
<b>Buttons</b>	On front bezel, membrane key design
<b>Infection control design</b>	Anti-microbial design (Optional)

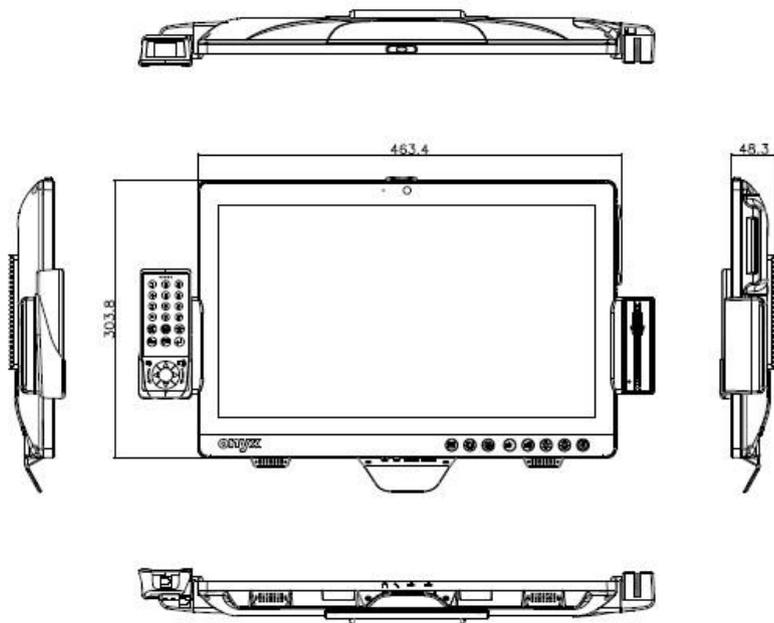
<b>Telephone</b>	Left side of Bedside Terminal
<b>Front I/O (2USB, Mic/Headset)</b>	Cover with plastic cover to avoid patient direct access
<b>Web Camera</b>	Top Center Position on the Bedside Terminal
<b>IP/Analog Phone Hand Set</b>	Mounted on the left side of the unit while facing the front bezel
<b>MSR</b>	Mounted on the right side of the unit while facing the front bezel
<b>RFID Scanner</b>	Bottom Center Position on the Bedside Terminal
<b>Smart Card Readers</b>	1 x Bottom Smart Card Reader 1 x 2nd Bottom Smart Card Readers (Optional)
<b>Accessory Bay</b>	N/A
<b>HDD Bay</b>	Internal
<b>Power Supply Requirement</b>	
<b>Model No.</b>	GMPU70A-6 ( <b>Eljintek Inc</b> ), ATM065-P120 ( <b>ADAPTER</b> )
<b>Input Voltage</b>	100 ~ 240 Vac, 50/60 Hz, 1.8~0.8A / 1.6-0.7A
<b>Output Voltages</b>	24VDC $\equiv$ 2.91A 70WMAX / 12VDC $\equiv$ 5A 60W
<b>MTBF</b>	61320 Calculated Hours (7 years)
<b>Environmental Specification</b>	
<b>Operating Temperature</b>	0°C ~40°C (32°F~104°F)
<b>Storage , Transport , Temperature</b>	-20°C ~60°C (-4°F~140°F)

<b>Pressure</b>	700~1060hPa(Operating) / 700~1060hPa(Transport / Storage)
<b>Operation Humidity</b>	30% to 75% RH, non-condensing
<b>Storage , Transport , Humidity</b>	10% to 90% RH, non-condensing
<b>Vibration</b>	Random Operation 0.5G, 5~500Hz
<b>Shock</b>	15G Peak Acceleration (11ms. Duration)
<b>Drop</b>	76cm (1 Corner, 3 Edge, 6 Surface)
<b>Noise</b>	Fanless
<b>EMC</b>	CE/FCC Class B, UL 60601-1, EN60601-1
<b>Infection Control</b>	Anti-microbial bezel material

## 1.4 Dimension

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Bedside Terminal BE182



Chapter

2

**Hardware  
Installation**

## 2.1 Safety Precautions

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### Warning!



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

### Caution!

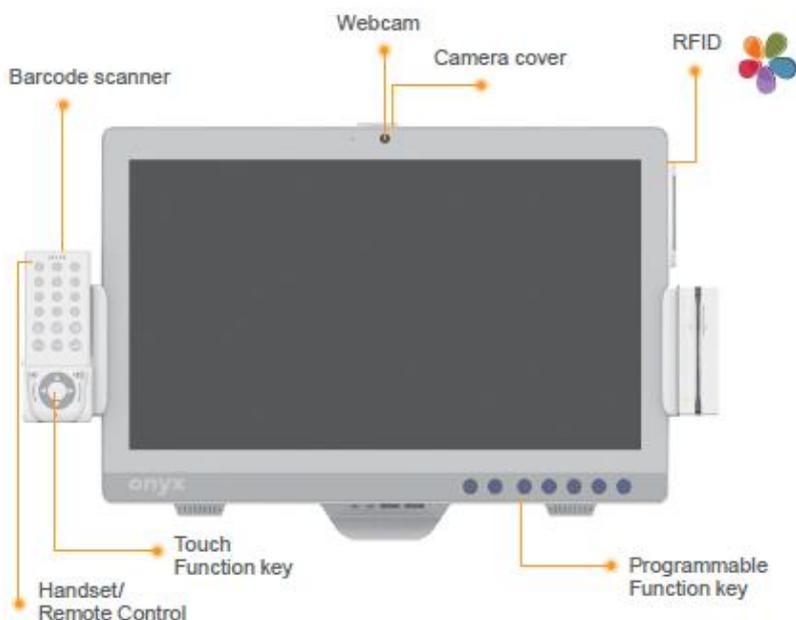


- *Always ground yourself to remove any static charge before touching the board.*
- *Modern electronic devices are very sensitive to static electric charges; please remember to use a grounding wrist strap at all times.*
- *Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis.*

## 2.2 A Quick Tour of the ONYX-BE182

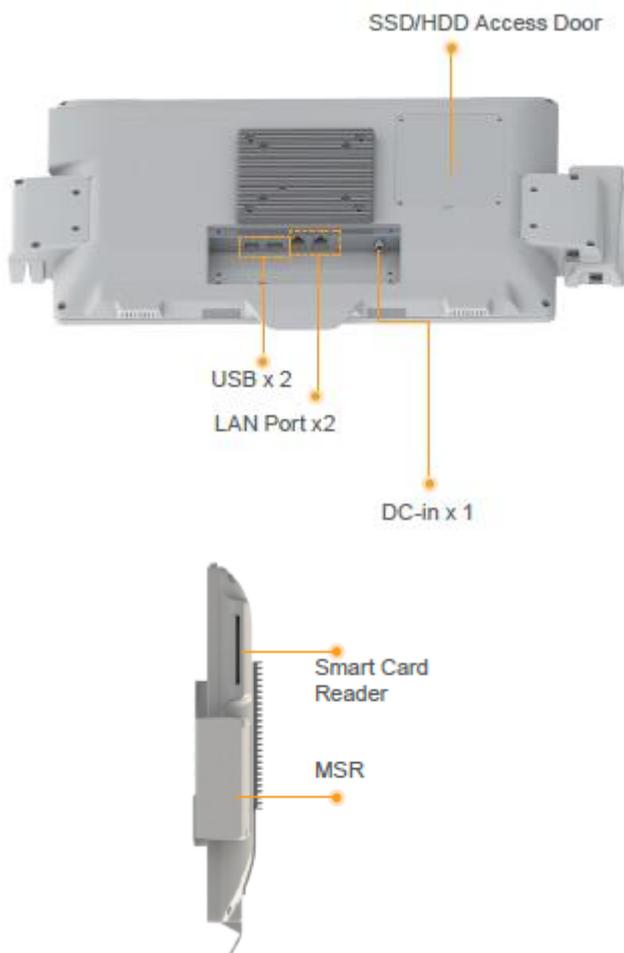
Before you start to set up the ONYX-BE182, please take a moment to familiarize yourself with the locations and purposes of the controls, drives, connections and ports. The following figures illustrate the fully loaded bedside terminal with all applicable options.

*Picture 2.1: ONYX-BE182 Bedside Terminal Front Panel View*



On the back of BE182 Bedside Terminal, the back I/O section (Digital IO, USB, LAN, and Power connector) is just below the VESA mounting area.

*Picture 224: Bedside Terminal Rear View*



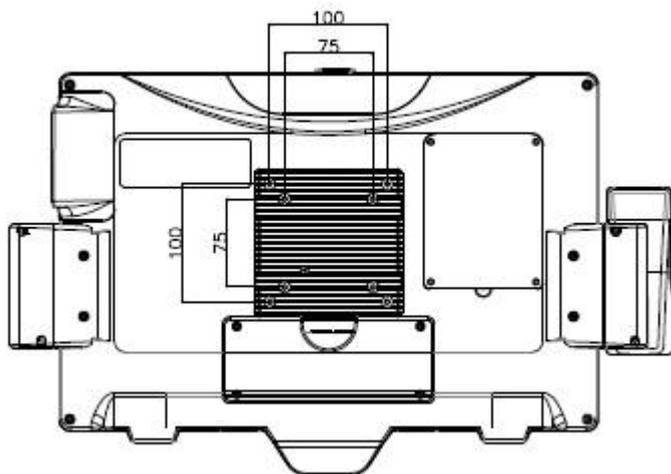


In addition, ONYX-BE182 offers a Magnetic Stripe Reader (MSR) option upon request. Please refer to the following figure for installation location on the ONYX-BE182 Bedside Terminal.

## 2.3 Mounting Installing

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Onyx-BE182 is suitable for VESA75/100mm interface pads for desktop stand.



*Attention: When operating the Medical PC, please allow 15cm clearance area for optimal heat dissipation.*

## 2.4 Front Button Functions

	Button		User Mode	Menu Mode  Press both "Mode" and "Volume Down" at 1 second for entering menu mode
1		Power	Turn on/off monitor	
2		Brightness Up	Brightness increase	Enter
3		Brightness Down	Brightness decrease	ESC
4		Volume Up	Volume increase	Go up
5		Volume Down	Volume decrease	Go down
6		Touch On/Off	Turn on/off touch	
7		Reading Light On/Off	Turn on/off reading light	

8		LCD	backlight on/off	
---	---	-----	---------------------	--

Remark: "Menu" mode is reserving for IT members for adjusting engineering setting as color temperature, which is not recommended to release to end user.

## 2.5 Remote Control Functions



	Key Mapping (key on keyboard)	Default	Remark
	"1"		
	"2"		
	"3"		
	"4"		
	"5"		

	"6"		
	"7"		
	"8"		
	"9"		
	"0"		
	"shift" + "8"		
	"shift" + "3"		
	"Alt + Page Up"  "Ctrl + R"		Same as Skype
	"Alt + Page Down"		Same as Skype
	"Enter"		

	"ESC"		
	"F15"		
		1. Press  1 second 2. Press  3 seconds 3. Press  to trigger barcode	Turn off automatically if no press after 20 seconds
	"Up"		
	"Down"		
	"Left"		
	"Right"		
		Volume up	
		Volume down	

## 2.6 Turn On and Boot up into Windows OS

---

This section is for Windows operating system only. If you are installing a different operating system, please contact your vendor for installation details.

Before you start to install OS, you need to check the built-in battery level light to make sure the light is not purple color.

Your BE182 will begin loading Windows OS once you push the power button to turn power on. After less than one minute, Windows desktop screen will appear.

You can select the programs from the start menu in the left-down corner of the desktop screen.

## 2.7 Turn off

---

Turning off BE182 properly is important for system reliability. There are two ways to turn off the system.

1. On the start menu, click “Shut down” and select “OK”
2. Push the power button and then the system will shut down automatically

Chapter

3

# American Megatrends 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-BE182 SD 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 American Megatrends BIOS Setup

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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.

### Main Features

Use this menu for checking BIOS and build version. Basic system configuration can be done under this tab. (Date and Time.)

### Advanced Features

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

### Chipset Features

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

### Boot Features

Use this menu to specify your boot device

### Security

Use this menu to set Supervisor/User Passwords.

### Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

### 3.3 Main Features

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

### 3.4 Advanced Features

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Choosing the Advanced Features option from the INITIAL SETUP SCREEN menu, and you will see this screen contains the manufacturer's default values for the ONYX-BE182.

### 3.5 Chipset Features

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Choosing the Chipset Features option from the INITIAL SETUP SCREEN menu, and you will see the screen contains the manufacturer's default values for the ONYX-BE182.

### 3.6 Boot Features

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Choosing the Boot Features from the INITIAL SETUP SCREEN menu, and you will see the screen contains the boot device for the ONYX-BE182, which the user can configure

## 3.7 Security Features

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You can set either Administrator or USER PASSWORD, or both of them. The difference between the two is that the Administrator 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.*

## 3.8 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.

**For more detailed information, you can refer to the "ONYX 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 insert the BE-182 Utility CD-ROM into the UL approved external CD-ROM drive.

***Please follow the sequence below to install the drivers:***

Step 1 – Install INF Driver

Step 2 – Install VGA Driver

Step 3 – Install LAN Driver

Step 4 – Install AUDIO Driver

Step 5 – Install Touch Screen Driver

Step 6 – Install Smart Card Driver

Optional Features:

Step 7 – Install MSR Driver

Step 8 – Install Barcode Scanner Test Tool

Step 9 – Install HD Decoder Driver

Step 10 – Install WiFi & BT Combo Driver

USB 2.0 Drivers are available for download using Windows Update for Windows 7/8.1. For additional information regarding USB 2.0 support in Windows, please visit [www.microsoft.com/hwdev/usb/](http://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-BE182 CD-ROM into the CD-ROM drive and install the drivers from Step 1 to Step 11 in order. (Other drivers will be optional).

#### Step 1 – Install INF Driver

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

#### Step 2 – Install VGA Driver

1. Click on the **Step 2 –VGA driver** folder and select the corresponding folder for your operating system and double click on **Setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

#### Step 3 – Install Intel LAN Driver

1. Click on the **Step 3 – LAN driver** folder and select the **Winx32** folder and double click on **.exe** for x86 (32bit) OS; if the OS is Windows 64bit OS, please select the **Winx64** folder and double click on **.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

#### Step 4 – Install Audio Driver

1. Click on the **Step 4 –AUDIO driver** folder and select the corresponding folder for your operating system and double click on **Setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

#### Step 5 – Install Touch Driver

1. Click on the **PenMount Windows Universal Driver V2.2.0.283 ( Win7\_32\_64bit\_WHQL)** folder and double click on **Setup.exe** file
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

#### Step 6 – Install Smart Card Driver

1. Click on the **Step 6 –Smart Card driver** folder and select the corresponding folder for your operating system.
  - a. If you have one smart card, please choice OK-3121 folder and click on WinXP folder to click on **OMNIKEY3x21\_x86\_for\_R1\_2\_2\_8** file.
  - b. If you have 2nd smart cards, please also choice OK-5121 folder and click on WinXP folder to click on **OK-5121OMNIKEY5x2x\_x86\_for\_R1\_2\_0\_6** file
2. Follow the instructions that the window shows

3. The system will help you install the driver automatically

#### Step 7 – Install MSR Driver

1. Click on the **Step 7 – MSR driver** folder and select the corresponding folder for your operating system. Click on **MSRCfgSetup\_PSW00025** file.
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

#### Step 8 – Install Barcode Scanner Test Tool

1. Click on the **Step 9 – Barcode Scanner test tool** folder and select the corresponding folder for your operating system.
2. Click on Intermec folder and select intermec-setup file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

#### Step 9 – Install HD Decoder Driver

1. Click on the **Step 10 – HD Decoder driver** folder and select the corresponding folder for your operating system.
2. Select the **Winx32** folder and double click on **setup.exe** for x86 (32bit) OS; if the OS is Windows 64bit OS, please select the **Winx64** folder and double click on **setup.exe** file.
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

### Step 10 – Install WiFi\_BT Driver

1. Click on the **Step 11 – WiFi\_BT driver** folder and select the corresponding folder for your operating system.
2. Click on Install\_CD folder and select **setup.exe** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Appendix

A

## I/O Information

## A.1 I/O Address Map

Input/output (IO)	
[00000000 - 0000000F]	Direct memory access controller
[00000000 - 00000CF7]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[00000061 - 00000061]	System speaker
[00000062 - 00000063]	Motherboard resources
[00000065 - 0000006F]	Motherboard resources
[00000070 - 00000071]	System CMOS/real time clock
[00000072 - 0000007F]	Motherboard resources
[00000080 - 00000080]	Motherboard resources
[00000081 - 00000083]	Direct memory access controller
[00000084 - 00000086]	Motherboard resources
[00000087 - 00000087]	Direct memory access controller
[00000088 - 00000088]	Motherboard resources
[00000089 - 0000008B]	Direct memory access controller
[0000008C - 0000008E]	Motherboard resources
[0000008F - 0000008F]	Direct memory access controller
[00000090 - 0000009F]	Motherboard resources
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	Motherboard resources
[000000C0 - 000000DF]	Direct memory access controller
[000000E0 - 000000EF]	Motherboard resources
[000000F0 - 000000FF]	Numeric data processor
[00000170 - 00000177]	Secondary IDE Channel
[000001F0 - 000001F7]	Primary IDE Channel
[00000274 - 00000277]	ISAPNP Read Data Port
[00000279 - 00000279]	ISAPNP Read Data Port
[000002F8 - 000002FF]	Communications Port (COM2)
[00000376 - 00000376]	Secondary IDE Channel
[000003B0 - 000003BB]	Intel(R) Graphics Media Accelerator 3150
[000003C0 - 000003DF]	Intel(R) Graphics Media Accelerator 3150
[000003F6 - 000003F6]	Primary IDE Channel

[000003B0 - 000003BB]	Intel(R) Graphics Media Accelerator 3150
[000003C0 - 000003DF]	Intel(R) Graphics Media Accelerator 3150
[000003F6 - 000003F6]	Primary IDE Channel
[000003F8 - 000003FF]	Communications Port (COM1)
[00000480 - 000004BF]	Motherboard resources
[000004D0 - 000004D1]	Motherboard resources
[00000500 - 0000057F]	Motherboard resources
[00000A00 - 00000A1F]	Motherboard resources
[00000A79 - 00000A79]	ISAPNP Read Data Port
[00000D00 - 0000FFFF]	PCI bus
[0000E000 - 0000E01F]	Intel(R) 82574L Gigabit Network Connection
[0000E000 - 0000EFFF]	Intel(R) ICH8 Family PCI Express Root Port 2 - 2841
[0000F000 - 0000F01F]	Intel(R) ICH8 Family SMBus Controller - 283E
[0000F020 - 0000F03F]	Intel(R) ICH8 Family USB Universal Host Controller - 2832
[0000F040 - 0000F05F]	Intel(R) ICH8 Family USB Universal Host Controller - 2831
[0000F060 - 0000F07F]	Intel(R) ICH8 Family USB Universal Host Controller - 2830
[0000F080 - 0000F09F]	Intel(R) ICH8 Family USB Universal Host Controller - 2835
[0000F0A0 - 0000F0BF]	Intel(R) ICH8 Family USB Universal Host Controller - 2834
[0000F0C0 - 0000F0DF]	Intel(R) 82567V-3 Gigabit Network Connection
[0000F0E0 - 0000F0EF]	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
[0000F0F0 - 0000F0FF]	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
[0000F140 - 0000F147]	Intel(R) Graphics Media Accelerator 3150

## A.2 Memory Address Map

Memory	
[000A0000 - 000BFFFF]	Intel(R) Graphics Media Accelerator 3150
[000A0000 - 000BFFFF]	PCI bus
[DF700000 - FFFFFFFF]	PCI bus
[E0000000 - EFFFFFFF]	Intel(R) Graphics Media Accelerator 3150
[F0000000 - F3FFFFFF]	System board
[FE800000 - FE8FFFFFF]	Intel(R) Graphics Media Accelerator 3150
[FE900000 - FE91FFFF]	Intel(R) 82574L Gigabit Network Connection
[FE900000 - FE99FFFF]	Intel(R) ICH8 Family PCI Express Root Port 2 - 2841
[FE920000 - FE923FFF]	Intel(R) 82574L Gigabit Network Connection
[FEA00000 - FEA7FFFF]	Intel(R) Graphics Media Accelerator 3150
[FEA80000 - FEAFFFFFF]	Intel(R) Graphics Media Accelerator 3150
[FEB00000 - FEB1FFFF]	Intel(R) 82567V-3 Gigabit Network Connection
[FEB20000 - FEB23FFF]	Microsoft UAA Bus Driver for High Definition Audio
[FEB24000 - FEB240FF]	Intel(R) ICH8 Family SMBus Controller - 283E
[FEB25000 - FEB253FF]	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2836
[FEB26000 - FEB263FF]	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A
[FEB27000 - FEB27FFF]	Intel(R) 82567V-3 Gigabit Network Connection
[FEC00000 - FEC00FFF]	Motherboard resources
[FED00000 - FED003FF]	High precision event timer
[FED14000 - FED19FFF]	System board
[FED1C000 - FED1FFFF]	Motherboard resources
[FED20000 - FED8FFFF]	Motherboard resources
[FEE00000 - FEE00FFF]	Motherboard resources
[FFE00000 - FFFFFFFF]	Motherboard resources

## A.3 IRQ Mapping Chart

### Interrupt request (IRQ)

(ISA) 0	High precision event timer
(ISA) 3	Communications Port (COM2)
(ISA) 4	Communications Port (COM1)
(ISA) 8	High precision event timer
(ISA) 9	Microsoft ACPI-Compliant System
(ISA) 13	Numeric data processor
(ISA) 14	Primary IDE Channel
(ISA) 15	Secondary IDE Channel
(PCI) 7	Intel(R) ICH8 Family SMBus Controller - 283E
(PCI) 16	Intel(R) Graphics Media Accelerator 3150
(PCI) 16	Intel(R) ICH8 Family USB Universal Host Controller - 2834
(PCI) 17	Intel(R) 82574L Gigabit Network Connection
(PCI) 18	Intel(R) ICH8 Family USB Universal Host Controller - 2832
(PCI) 18	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A
(PCI) 19	Intel(R) ICH8 Family USB Universal Host Controller - 2831
(PCI) 21	Intel(R) ICH8 Family USB Universal Host Controller - 2835

(PCI) 7	Intel(R) ICH8 Family SMBus Controller - 283E
(PCI) 16	Intel(R) Graphics Media Accelerator 3150
(PCI) 16	Intel(R) ICH8 Family USB Universal Host Controller - 2834
(PCI) 17	Intel(R) 82574L Gigabit Network Connection
(PCI) 18	Intel(R) ICH8 Family USB Universal Host Controller - 2832
(PCI) 18	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A
(PCI) 19	Intel(R) ICH8 Family USB Universal Host Controller - 2831
(PCI) 21	Intel(R) ICH8 Family USB Universal Host Controller - 2835
(PCI) 21	Microsoft UAA Bus Driver for High Definition Audio
(PCI) 22	Intel(R) ICH8 Family PCI Express Root Port 1 - 283F
(PCI) 23	Intel(R) 82567V-3 Gigabit Network Connection
(PCI) 23	Intel(R) ICH8 Family PCI Express Root Port 2 - 2841
(PCI) 23	Intel(R) ICH8 Family USB Universal Host Controller - 2830
(PCI) 23	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2836

Appendix

**B**

## Miscellaneous

## B.1 General Cleaning Tips

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Please refer to the following precautions and fully understand the warning details prior to cleaning the device.

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 that are used to clean the unit. Some individuals may be allergic to the ingredients.
6. Try not to put any food, drink or cigarettes around the computer.
7. Please remember to clean up the computer by weekly.
8. ONYX Healthcare Inc. has tested and verified these cleaning disinfectants, CIDEX, Viraguard, Control III Disinfectant Germicide, Caviwipes, Dispatch Disinfectant Cleaner CLH69101, Puregreen 24 Disinfectant, as safe to be used with the BE182. Use of any other disinfectants will void the warranty.

## B.2 Cleaning Tools

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Although many companies have created products to help improve the process of cleaning your computer and peripherals users can also use household items for cleaning purposes. Below is a list 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, using a piece of cloth is still recommend.
- **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** – Using a force to remove the dust, dirt, hair and other particles from a computer can be one of the best methods of cleaning. 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:**

- 1. We strongly recommended that you should shut down the system before you start to clean any components.*
- 2. It is recommended that the computer is cleaned daily.*

**Please follow the steps below before cleaning the device.**

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

## B.3 Scrap Computer Recycling

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If any computer equipments needs maintenance or is beyond repair, we strongly recommended that we are informed as soon as possible, enabling us to find a suitable solution. For computers that are no longer useful, please contact worldwide distributors for recycling.

The worldwide distributors are shown on the following website:

<http://www.onyx-healthcare.com.tw/Contact.php>

**Note:**

Please follow the national requirement for unit disposal.

Appendix

C

SDK

## C.1 SDK Mapping Table

	BE182
enable/disable SDK	✓
set/get WLAN enable	✓
set/get Touch enable	✓
set/get Speaker Volume	✓
set/get LAN1 enable	✓
set/get LAN2 enable	✓
set/get Power Button backlight value	✓
set/get Reading light value	✓
set/get LCD brightness value	✓
get brightness up/down button action	✓
get EC version	✓
get SDK version	✓
get Product Name	✓
get Manufacturer	✓
get Serial Number	✓
set/get outside button status	✓
set Volume up/down/mute	✓
Detect Power Supply	
Detect Battery	
get Remaining Capacity (mAh)	
get Battery Present Voltage (mV)	

get Battery Manufacture Date	
get Battery Count times	
get Battery Temperature	
get Battery Current Detect	
get Battery Design Voltage	
get Battery Serial Number	
get Battery Remaining Capacity Percent	
get Battery Design Capacity	