

QBOX-4000 Series

Fanless Box PC w/
Intel® Celeron Processor 827E /847E

User's Guide



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Quanmax reserves the right to make changes without notice in product or component design as warranted by evolution in user needs or progress in engineering or manufacturing technology.

Changes which affect the operation of the unit will be documented in the next revision of this user's guide.



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Safety Instructions

■ Before You Begin

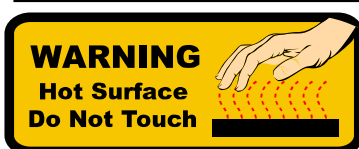
Before handling the product, read the instructions and safety guidelines on the following pages to prevent damage to the product and to ensure your own personal safety. Refer to the “Advisories” section in the Preface for advisory conventions used in this user’s guide, including the distinction between Warnings, Cautions, Important Notes, and Notes.

- Always use caution when handling/operating a computer. Only qualified, experienced, authorized electronics service personnel should access the interior of a computer. The power supplies produce high voltages and energy hazards, which can cause bodily harm.
- Use extreme caution when installing or removing components. Refer to the installation instructions in this user’s guide for precautions and procedures. If you have any questions, please contact Quanmax Post-Sales Technical Support.
- Access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken; and access is through the use of a tool or lock and key, or other means of security, and is controlled by authority responsible for the location.

WARNING



High voltages are present inside the chassis when the unit’s power cord is plugged into an electrical outlet. Turn off system power, turn off the power supply, and then disconnect the power cord from its source before removing the chassis cover. Turning off the system power switch does not remove power to components.



The product chassis may be hot when the system is working. Please do not touch the surface before turn off the system power and wait for about 5 minutes until the system cools down.

■ When Working Inside a Computer

Before taking covers off a computer, perform the following steps:

1. Turn off the computer and any peripherals.
2. Disconnect the computer and peripherals from their power sources or subsystems to prevent electric shock or system board damage. This does not apply when hot swapping parts.
3. Follow the guidelines provided in “Preventing Electrostatic Discharge” on the following page.
4. Disconnect any telephone or telecommunications lines from the computer.

In addition, take note of these safety guidelines when appropriate:

- To help avoid possible damage to system boards, wait five seconds after turning off the computer before removing a component, removing a system board, or disconnecting a peripheral device from the computer.
- When you disconnect a cable, pull on its connector or on its strain-relief loop, not on the cable itself. Some cables have a connector with locking tabs. If you are disconnecting this type of cable, press in on the locking tabs before disconnecting the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before connecting a cable, make sure both connectors are correctly oriented and aligned.

CAUTION



Do not attempt to service the system yourself except as explained in this user's guide. Follow installation and troubleshooting instructions closely.

■ Preventing Electrostatic Discharge

Static electricity can harm system boards. Perform service at an ESD workstation and follow proper ESD procedure to reduce the risk of damage to components. Quanmax strongly encourages you to follow proper ESD procedure, which can include wrist straps and smocks, when servicing equipment.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- When unpacking a static-sensitive component from its shipping carton, do not remove the component's antistatic packing material until you are ready to install the component in a computer. Just before unwrapping the antistatic packaging, be sure you are at an ESD workstation or grounded. This will discharge any static electricity that may have built up in your body.
- When transporting a sensitive component, first place it in an antistatic container or packaging.
- Handle all sensitive components at an ESD workstation. If possible, use antistatic floor pads and workbench pads.
- Handle components and boards with care. Don't touch the components or contacts on a board. Hold a board by its edges or by its metal mounting bracket.
- Do not handle or store system boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.

■ Instructions for Lithium Battery



WARNING

Danger of explosion when battery is replaced with incorrect type. Only replace with the same or equivalent type recommended by the manufacturer.

Do not dispose of lithium batteries in domestic waste. Dispose of the battery according to the local regulations dealing with the disposal of these special materials (e.g. to the collecting points for disposal of batteries)

Preface

■ How to Use This Guide

This guide is designed to be used as step-by-step instructions for installation, and as a reference for operation, troubleshooting, and upgrades.

NOTE



Driver downloads and additional information are available under Downloads on our web site: www.quanmax.com.

■ Unpacking

When unpacking, follow these steps:

1. After opening the box, save it and the packing material for possible future shipment.
2. Remove all items from the box. If any items listed on the purchase order are missing, notify Quanmax customer service immediately.
3. Inspect the product for damage. If there is damage, notify Quanmax customer service immediately. Refer to “Warranty Policy” for the return procedure.

■ Regulatory Compliance Statements

This section provides the FCC compliance statement for Class A devices.

FCC Compliance Statement for Class A Devices

The product(s) described in this user's guide has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential

area (domestic environment) is likely to cause harmful interference, in which case the user will be required to correct the interference (take adequate measures) at their own expense. The user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by Quanmax could void the user's authority to operate the equipment.

NOTE



The assembler of a personal computer system may be required to test the system and/or make necessary modifications if a system is found to cause harmful interference or to be noncompliant with the appropriate standards for its intended use.

■ Warranty Policy

Limited Warranty

Quanmax Inc.'s detailed Limited Warranty policy can be found under Support at www.quanmax.com. Please consult your distributor for warranty verification.

The limited warranty is void if the product has been subjected to alteration, neglect, misuse, or abuse; if any repairs have been attempted by anyone other than Quanmax or its authorized agent; or if the failure is caused by accident, acts of God, or other causes beyond the control of Quanmax or the manufacturer. Neglect, misuse, and abuse shall include any installation, operation, or maintenance of the product other than in accordance with the user's guide.

No agent, dealer, distributor, service company, or other party is authorized to change, modify, or extend the terms of this Limited Warranty in any manner whatsoever. Quanmax reserves the right to make changes or improvements in any product without incurring any obligation to similarly alter products previously purchased.

Return Procedure

For any Limited Warranty return, please contact Support at www.quanmax.com and login to obtain a Return Material Authorization (RMA) Number. If you do not have an account, send an email to support@quanmax.com to apply for one.

All product(s) returned to Quanmax for service or credit must be accompanied by a Return Material Authorization (RMA) Number. Freight on all returned items must be prepaid by the customer who is responsible for any loss or damage caused by common carrier in transit. Returns for Warranty must include a Failure Report for each unit, by serial number(s), as well as a copy of the original invoice showing the date of purchase.

To reduce risk of damage, returns of product must be in a Quanmax shipping container. If the original container has been lost or damaged, new shipping containers may be obtained from Quanmax Customer Service at a nominal cost. Quanmax owns all parts removed from repaired products. Quanmax uses new and reconditioned parts made by various manufacturers in performing warranty repairs and building replacement products. If Quanmax repairs or replaces a product, its warranty term is not extended.

Shipments not in compliance with this Limited Warranty Return Policy will not be accepted by Quanmax.

Limitation of Liability

In no event shall Quanmax be liable for any defect in hardware, software, loss, or inadequacy of data of any kind, or for any direct, indirect, incidental, or consequential damages in connection with or arising out of the performance or use of any product furnished hereunder. Quanmax's liability shall in no event exceed the purchase price of the product purchased hereunder. The foregoing limitation of liability shall be equally applicable to any service provided by Quanmax or its authorized agent.

■ Maintaining Your Computer

Environmental Factors

■ Temperature

The ambient temperature within an enclosure may be greater than room ambient temperature. Installation in an enclosure should be such that the amount of air flow required for safe operation is not compromised.

Consideration should be given to the maximum rated ambient temperature.

Overheating can cause a variety of problems, including premature aging and

failure of chips or mechanical failure of devices.

If the system has been exposed to abnormally cold temperatures, allow a two-hour warm-up period to bring it up to normal operating temperature before turning it on. Failure to do so may cause damage to internal components, particularly the hard disk drive.

■ **Humidity**

High-humidity can cause moisture to enter and accumulate in the system. This moisture can cause corrosion of internal components and degrade such properties as electrical resistance and thermal conductivity. Extreme moisture buildup inside the system can result in electrical shorts, which can cause serious damage to the system.

Buildings in which climate is controlled usually maintain an acceptable level of humidity for system equipment. However, if a system is located in an unusually humid location, a dehumidifier can be used to maintain the humidity within an acceptable range. Refer to the “Specifications” section of this user’s guide for the operating and storage humidity specifications.

Power Protection

The greatest threats to a system’s supply of power are power loss, power spikes, and power surges caused by electrical storms, which interrupt system operation and/or damage system components. To protect your system, always properly ground power cables and one of the following devices.

■ **Surge Protector**

Surge protectors are available in a variety of types and usually provide a level of protection proportional with the cost of the device. Surge protectors prevent voltage spikes from entering a system through the AC power cord. Surge protectors, however, do not offer protection against brownouts, which occur when the voltage drops more than 20 percent below the normal AC line voltage level.

■ **Line Conditioner**

Line conditioners go beyond the over voltage protection of surge protectors. Line conditioners keep a system’s AC power source voltage at a fairly constant level and, therefore, can handle brownouts. Because of this added protection, line conditioners cost more than surge protectors. However, line conditioners cannot protect against a complete loss of power.

■ **Uninterruptible Power Supply**

Uninterruptible power supply (UPS) systems offer the most complete protection against variations on power because they use battery power to keep the server running when AC power is lost. The battery is charged by the AC power while it is available, so when AC power is lost, the battery can provide power to the system for a limited amount of time, depending on the UPS system.

UPS systems range in price from a few hundred dollars to several thousand dollars, with the more expensive units allowing you to run larger systems for a longer period of time when AC power is lost. UPS systems that provide only 5 minutes of battery power let you conduct an orderly shutdown of the system, but are not intended to provide continued operation. Surge protectors should be used with all UPS systems, and the UPS system should be Underwriters Laboratories (UL) safety approved.

Chapter 1

Introduction

■ Overview

The QBOX-4000 Series is a fanless Box PC ideal for space critical applications. This embedded hardware platform features Intel® Celeron Processor 827E/847E, Intel® HM65 Express chipset, and DDR3 1066/1333 SO-DIMM. It comes with a 2.5" SATA hard drive or SSD, Compact Flash slot, HDMI, VGA, DP, 8x USB 2.0, 2x COM, 2x GbE LAN, DIO, and HD Audio. The QBOX-4000 Series provides high reliability rugged case not only for great protection from EMI, cold and heat, but also integrated with passive cooling design for quiet fanless operation such as Transportation, Surveillance and Automation.

Checklist

- QBOX-4000 Series
- Power Adapter
- Power Cord
- Driver CD
- Quick installation Guide
- Optional wireless LAN

Features

- Intel® Celeron® Processor 827E (QBOX-4000)
- Intel® Celeron® Processor 847E (QBOX-4001)
- Intel® HM65 Express chipset
- DDR3 1066/1333 MHz memory support up to 8 GB
- 1x HDMI, 1x DP, 1x VGA, 8x USB2.0, 2x COM, 1x DIO, 2x GbE LAN, Audio
- 1x 2.5" SATA HDD or SSD, 1x Mini-PCIe slot, 1x CF slot supported
- Fanless design

■ Product Specifications

CPU Support	QBOX-4000: Intel® Celeron Processor 827E (1.5M Cache, 1.40 GHz) QBOX-4001: Intel® Celeron Processor 847E (2M Cache, 1.10 GHz)
Chipset	Intel® HM65 Express Chipset
Memory	1x Single Channel DDR3 1066/1333 MHz SO-DIMM up (8 GB max)
BIOS	AMI Plug & Play SPI BIOS
External Display	1x HDMI 1x VGA 1x Display Port
LAN	2x Gigabit Ethernet (Realtek RTL8111E) PXE / WOL supported
Audio	Realtek ALC662 HD Codec w/ 2W Audio Amplifier Mic-In, Line-In, Line-Out Supported
Storage	1x 2.5" SATA HDD or SSD 1x CF
USB	8x USB 2.0
COM	2x COM [RS-232] ports with power selection on COM1~2 (1x COM port with RS-232/422/485 selection on COM1)
DIO	8-bits digital I/O supported(4-bit in and 4bit out) DIO signals with 5V or 12V level supported
Expansion slot	1x Mini-PCle slot
Hardware Monitor	Operating voltage, CPU temperature
Watchdog Timer	1-255 step, can be set with software on Super I/O
Power	DC 12V Input
OS Support	Windows 7, Windows 8, Linux
Dimensions	240 x 135 x 50mm (W x D x H)
Environment	Operating: 0°C to 50°C Storage: -20°C to 80°C Humidity: 0% to 90%
Certifications	CE, FCC Class A

Table 1 QBOX-4000 Series Specification

■ System Tour

Refer to the figure below to identify the components of the system.

■ Front IO

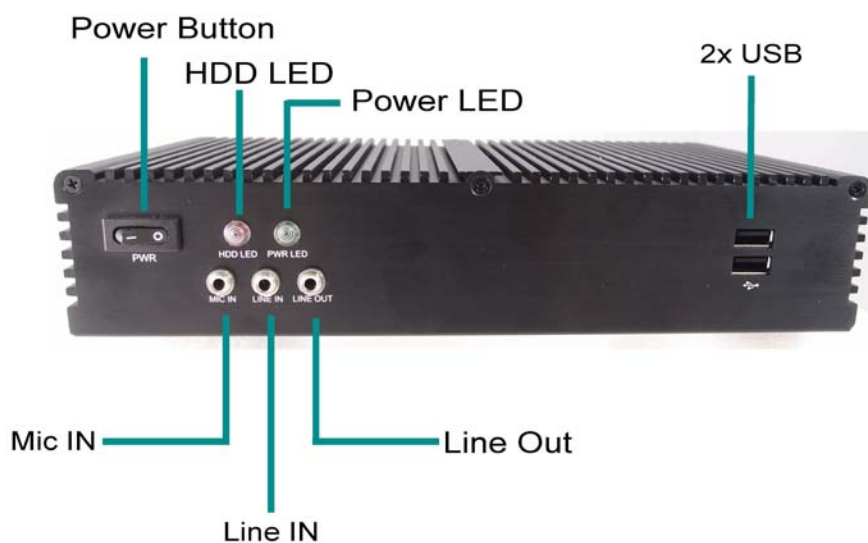


Figure 1 Front IO

Power Button

The power button allows powering ON and OFF the system.

Power LED (Green)

The Power LED will light when the power is on.

HDD LED (Red)

The hard disk LED blinks when data is being written into or read from the HDD.

Phone Jack

Audio Out

The green stereo headphone jack is used to connect the system's audio out signal to amplified speakers or headphones.

MIC-IN

The pink microphone jack is designed to connect the microphone used for video conferencing, voice narrations, or simple audio recordings.

Line-IN

The Line-in jack is designed to take input from a higher-powered sound source.

USB

The USB (Universal Serial Bus) port is compatible with USB devices such as keyboards, mouse devices, cameras, and hard disk drives. USB allows many devices to run simultaneously on a single computer, with some peripheral acting as additional plug-in sites or hubs.

■ Rear IO

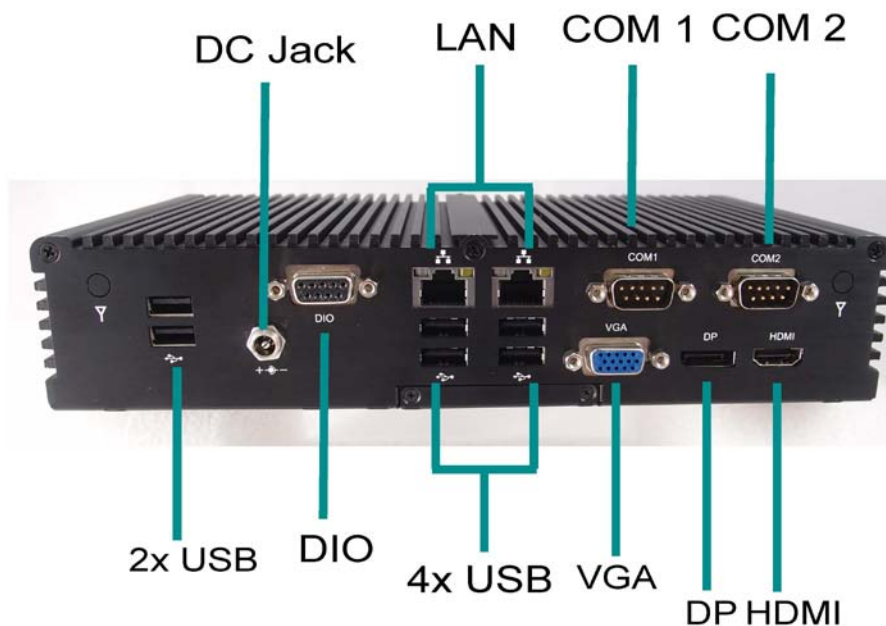


Figure 2 Rear Panel

DC Jack

The supplied power adapter converts AC power to DC for use with this jack. Power supplied through this jack supplies power to the PC. To prevent damage to the PC, always use the supplied power adapter.

COM 1

D-Sub 9 pin connector for RS-232/422/485 connection

COM 2

D-Sub 9 pin connector for RS-232 connection

Ethernet

The eight-pin RJ-45 LAN port supports a standard Ethernet cable for connection to a local network.

HDMI

HDMI connector for display output

VGA

D-Sub 15 pin VGA connector for display output

DP

DP is a display interface used to connect a video source to a display device such as a computer monitor or a television set.

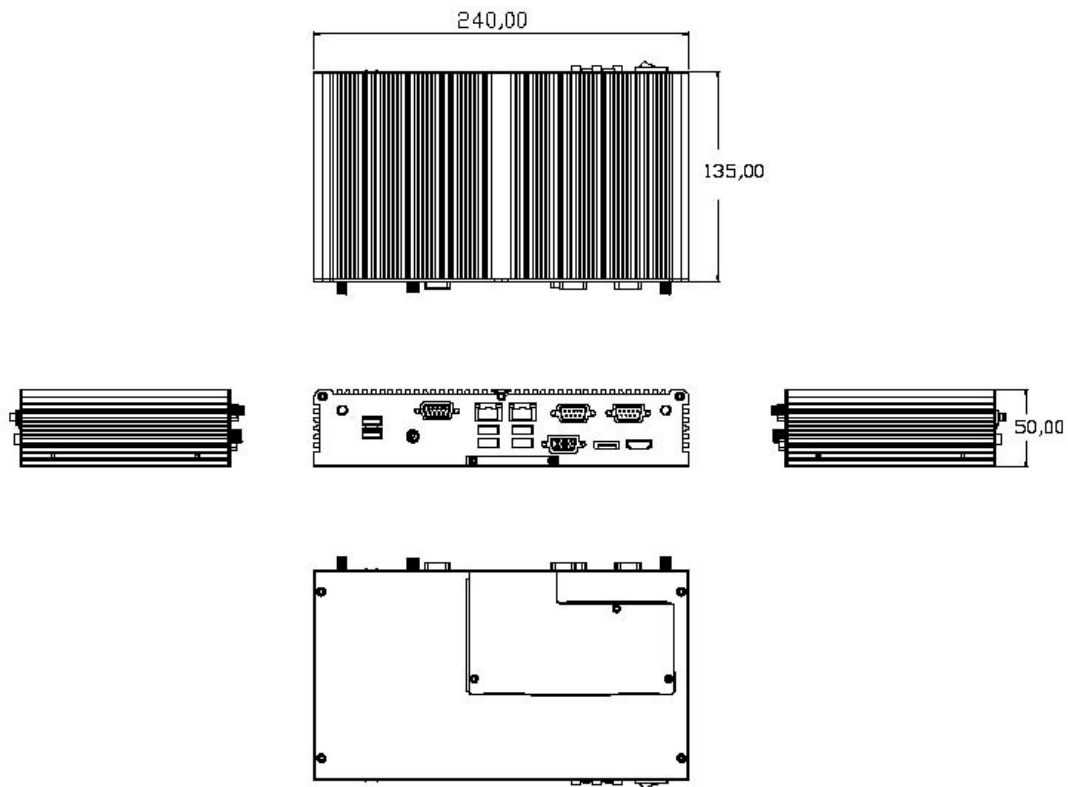
Digital I/O

This interface used to connect digital signals for input and output purposes.

USB

The USB (Universal Serial Bus) port is compatible with USB devices such as keyboards, mouse devices, cameras, and hard disk drives. USB allows many devices to run simultaneously on a single computer, with some peripheral acting as additional plug-in sites or hubs.

Mechanical Dimensions



Dimension: 240 x 135 x 50 mm (W x D x H)

Figure 3 Mechanical Dimensions

Chapter 2

Getting Started

■ Setting up your PC

Connect the DP/ VGA/ HDMI cable from your display to the DP/ VGA/ HDMI port.

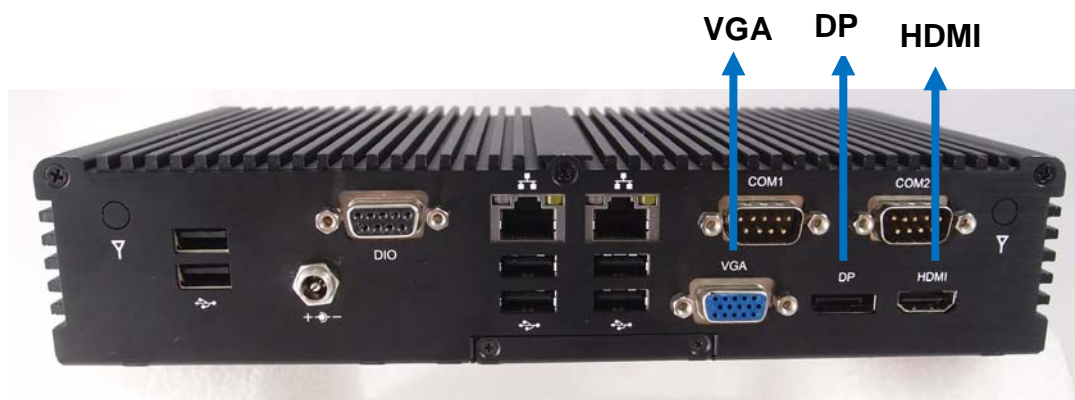


Figure 4 DP/ VGA/ HDMI

NOTE



When the system reboots without connecting the DP/VGA/HDMI, there might be no image on screen when you insert the DP/VGA/HDMI cable. Please pressing <Ctrl>+<Alt>+<F4> simultaneously to show the image on screen.

■ Connect USB mouse & keyboard

Your QBOX-4000 Series does not come with a keyboard and mouse connector, but you can use any USB keyboard or mouse to connect with your computer.

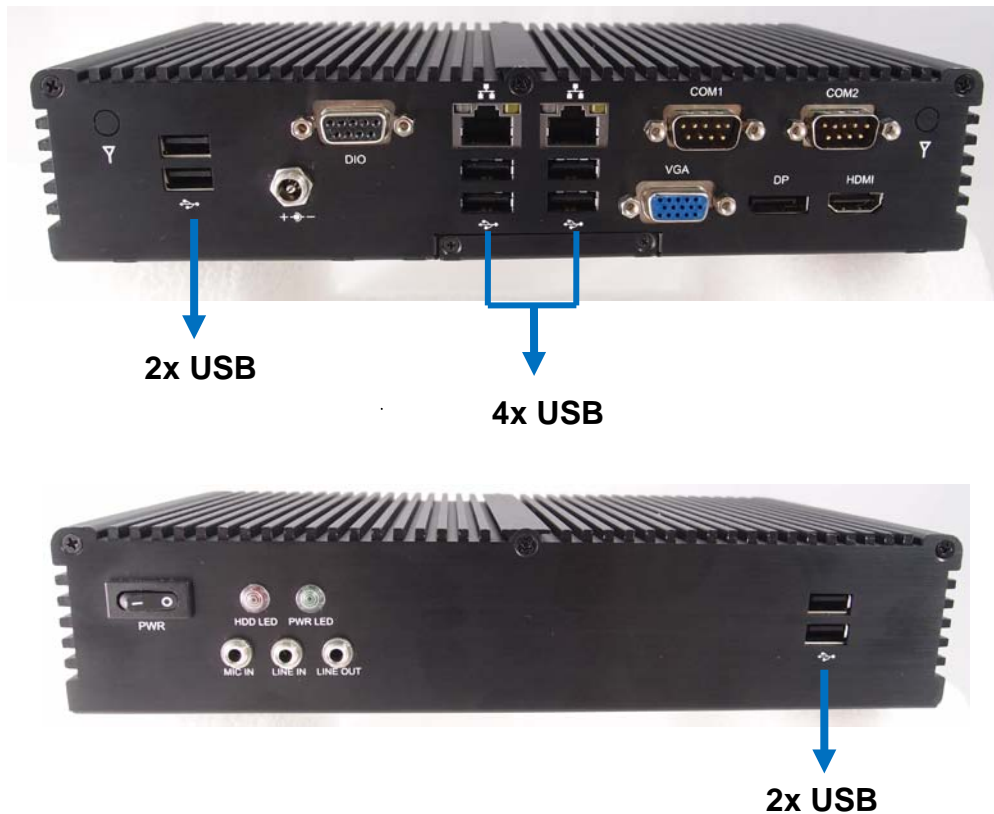


Figure 5 Connect USB mouse & keyboard

NOTE



Using a third-party USB mouse or keyboard may require software drivers. Check the manufacturer's website for the latest software drivers.

■ Connect LAN port

Connect one end of a network cable to the LAN port on the system rear panel and the other end to a hub or switch.

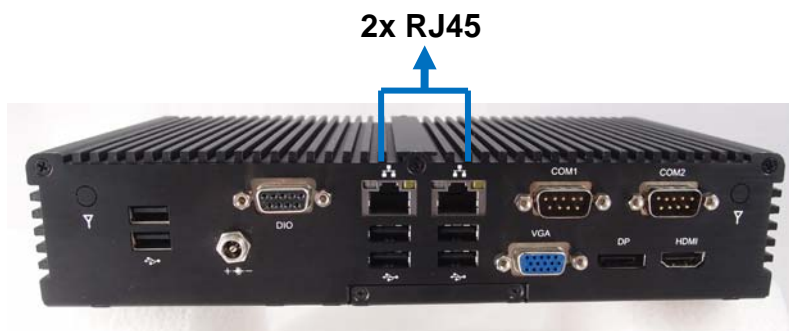


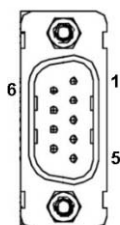
Figure 6 RJ45 connector

■ COM Ports

COM ports with the pin definitions.

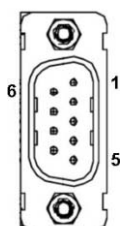


COM1 RS-232/422/485 Port 1 Wafer



Pin	RS-232	RS-422	Half Duplex RS-485	Full Duplex RS-485
1	DCD	TX-	DATA-	TX-
2	RXD	RX+	N/A	RX+
3	TXD	TX+	DATA+	TX+
4	DTR	RX-	N/A	RX-
5	GND	GND	GND	GND
6	DSR	N/A	N/A	N/A
7	RTS	N/A	N/A	N/A
8	CTS	N/A	N/A	N/A
9	+5V	+5V	+5V	+5V

COM2 RS-232 Port 2 D-SUB 9P

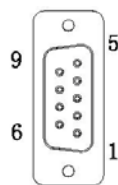
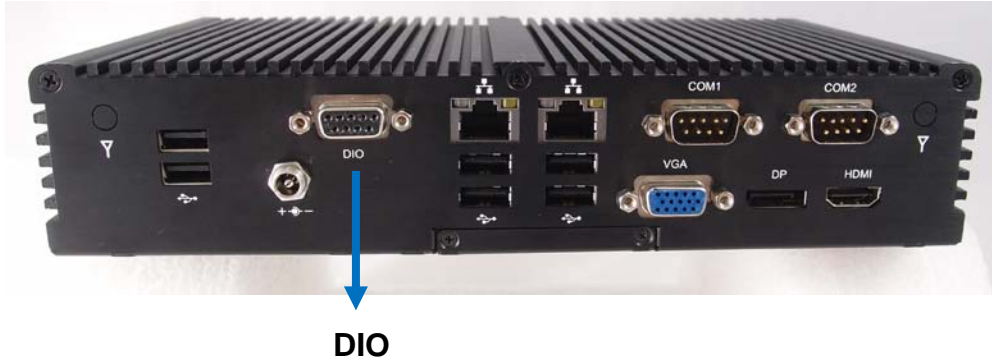


Pin	Signal Name
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	+5V

Figure 7 Com ports

■ Digital Input / Output

DIO port with the pin definition.



Digital Input / Output D-SUB 9P

Pin	Signal	Pin	Signal
1	Digital Output 0	2	Digital Input 0
3	Digital Output 1	4	Digital Input 1
5	Digital Output 2	6	Digital Input 2
7	Digital Output 3	8	Digital Input 3
9	+5V		

Figure 8 DIO port

■ Turning on the system

1. Connect the power adapter cable to the DC Jack (DC IN) of the QBOX-4000 Series
2. Connect the power cable to the power adapter
3. Connect the power cable to a power outlet
4. Press the power switch on the front panel to turn on the system

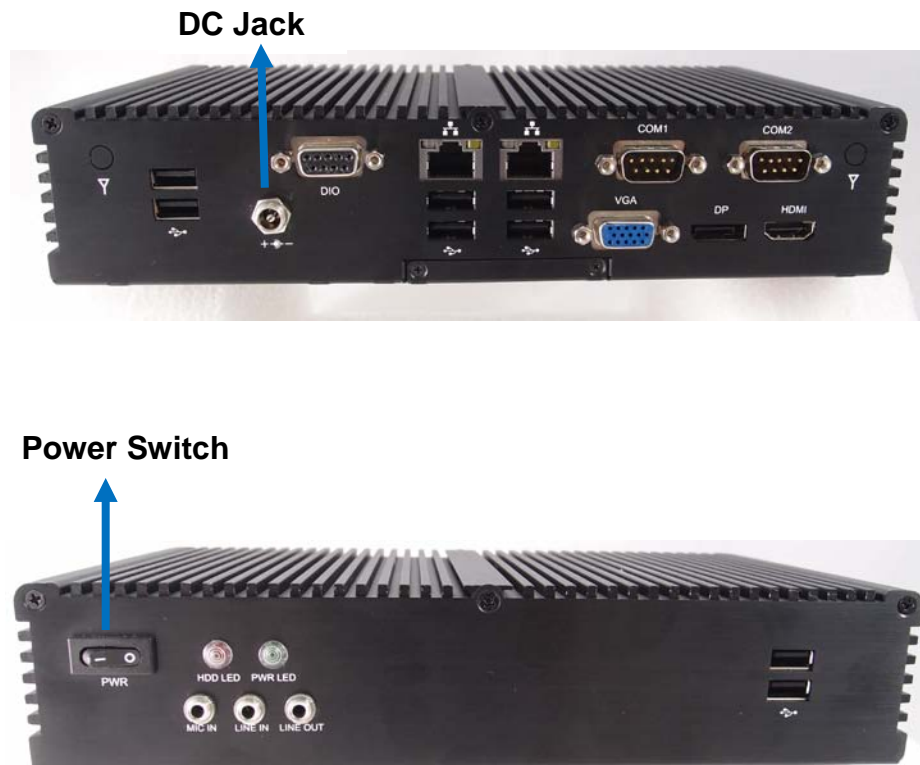


Figure 9 Turning on the system

Chapter 3

AMI BIOS Setup

■ Overview

This chapter provides a description of the AMI BIOS. The BIOS setup menus and available selections may vary from those of your product. For specific information on the BIOS for your product, please contact Quanmax.



NOTE: The BIOS menus and selections for your product may vary from those in this chapter. For the BIOS manual specific to your product, please contact Quanmax

AMI's ROM BIOS provides a built-in Setup program, which allows the user to modify the basic system configuration and hardware parameters. The modified data will be stored in a battery-backed CMOS, so that data will be retained even when the power is turned off. In general, the information saved in the CMOS RAM will not need to be changed unless there is a configuration change in the system, such as a hard drive replacement or when a device is added.

It is possible for the CMOS battery to fail, which will cause data loss in the CMOS only. If this happens you will need to reconfigure your BIOS settings.

■ Main Menu

The BIOS Setup is accessed by pressing the DEL key after the Power-On Self-Test (POST) memory test begins and before the operating system boot begins. Once you enter the BIOS Setup Utility, the Main Menu will appear on the screen. The Main Menu provides System Overview information and allows you to set the System Time and Date. Use the “<” and “>” cursor keys to navigate between menu screens.

Table 2 QBOX-4000 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information			→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit	
Product Name		QBOX-4000		
BIOS Version		1.00		
BIOS Build Date		09/12/2012		
CPU Information				
Intel® Celeron® CPU 827E @1.40GHz				
Microcode Revision		25		
Processor Cores		2		
Memory Information				
Total Size		4096 MB (DDR3)		
Frequency		1333 MHz		
System date		[Sun 04/01/2012]		
System time		[05:44:49]		
Version 2.14.1219. Copyright (C) 2011, American Megatrends, Inc.				

Table 3 QBOX-4001 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information			→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit	
Product Name		QBOX-4001		
BIOS Version		1.00		
BIOS Build Date		09/12/2012		
CPU Information				
Intel® Celeron® CPU 847E @1.10GHz				
Microcode Revision		25		
Processor Cores		2		
Memory Information				
Total Size		4096 MB (DDR3)		
Frequency		1333 MHz		
System date		[Sun 04/01/2012]		
System time		[05:44:49]		
Version 2.14.1219. Copyright (C) 2011, American Megatrends, Inc.				

■ Advanced Menu

Table 4 Advanced Menu

BIOS SETUP UTILITY		
Main	Advanced	Boot Security Server Mgmt Save & Exit
Onboard LAN1 Controller	[Enabled]	
Onboard LAN1 Boot	[Disabled]	
Onboard LAN2 Controller	[Enabled]	
Onboard LAN2 Boot	[Disabled]	
Audio Controller	[Enabled]	
> Display Configuration		→ ← Select Screen
> Power Management Configuration		↑↓ Select Item
> CPU Advanced Configuration		Enter: Select
> SATA Configuration		+ - Change Opt.
> USB Configuration		F1: General Help
> DIO Configuration		F2: Previous Values
> Super IO Configuration		F3: Optimized Defaults
> H/W Monitor		F4 Save & Exit
		ESC Exit
Version 2.14.1219. Copyright (C) 2011, American Megatrends, Inc.		

Onboard LAN 1 Controller

Options: Disabled, Enabled

Onboard LAN 1 Boot

Options: Disabled, Enabled

Onboard LAN 2 Controller

Options: Disabled, Enabled

Onboard LAN 2 Boot

Options: Disabled, Enabled

Audio Controller

Options: Disabled, Enabled

Table 5 Advanced Menu – Display Configuration

BIOS SETUP UTILITY						
Main	Advanced	Boot	Security	Server Mgmt	Save & Exit	
Display Configuration Primary Display [Auto] Internal Graphics [Auto] Aperture Size [256 MB] DVMT Pre-Allocated [64 MB] DVMT Total Gfx Mem [256 MB] IGFX – Boot Type [VBIOS Default] Secondary IGFX Boot Display [Disabled]						→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit
Version 2.14.1219. Copyright (C) 2011, American Megatrends, Inc.						

Aperture Size

Options: 128MB, 256MB, 512MB

DVMT Pre-Allocated

Options: 0MB, 32MB, 64MB, 96MB, 128MB, 160MB, 192MB, 224MB, 256MB, 288MB, 320MB, 352MB, 384MB, 416MB, 448MB, 480MB, 512MB

DVMT Total Gfx Mem

Options: 128MB, 256MB, MAX

IGFX – Boot Type

Options: VBIOS Default, CRT, HDMI, DP

Secondary IGFX Boot Display

Options: Disabled, CRT, HDMI, DP

Table 6 Advanced Menu –Power Management Configuration

BIOS SETUP UTILITY		
Main	Advanced	Boot Security Server Mgmt Save & Exit
Power Management Configuration		
ACPI Sleep State	[S3 (Suspend to RAM)]	
Restore AC Power Loss	[Power Off]	
Resume From S3 By PS/2 Keyboard	[Disabled]	→ ← Select Screen
Resume From S3 By PS/2 Mouse	[Disabled]	↑↓ Select Item
Resume By PCIE Device	[Disabled]	Enter: Select
Resume By RTC Alarm	[Disabled]	+ - Change Opt.
EUP Power Saving Mode	[Disabled]	F1: General Help
>Watchdog Timer Configuration		F2: Previous Values
		F3: Optimized Defaults
		F4 Save & Exit
		ESC Exit
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ACPI Sleep State

Options: Suspend Disabled, S1 (CPU Stop Clock), S3 (Suspend to RAM)

Restore AC Power Loss

Options: Power Off, Power On, Last State

Resume From S3 By PS/2 Keyboard

Options: Disabled, Enabled

Resume From S3 By PS/2 Mouse

Options: Disabled, Enabled

Resume By PCIE Device

Options: Disabled, Enabled

Resume By RTC Alarm

Options: Disabled, Enabled

EUP Power Saving Mode

Options: Disabled, Enabled

Watchdog Timer Configuration■ **WDT Function** [Disabled]

Options: Disabled, Enabled

Table 7 Advanced Menu –CPU Advanced Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
CPU Advanced Configuration			<div>→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit</div>	
EIST		[Enabled]		
Inter Virtualization Technology		[Enabled]		
Limit CPUID Maximum		[Disabled]		
Execute Disable Bit		[Enabled]		
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EIST

Options: Disabled, Enabled

Inter Virtualization Technology

Options: Disabled, Enabled

Limit CPUID Maximum

Options: Disabled, Enabled

Execute Disable Bit

Options: Disabled, Enabled

Table 8 Advanced Menu –SATA Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
SATA Controllers		[Enabled]		
SATA Mode Selection		[AHCI]		→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit
Serial ATA Port 1		Empty		
Software Preserve		Unknown		
Port 1		[Enabled]		
Hot Plug		[Disabled]		
External SATA		[Disabled]		
SATA Device Type		[Hard Disk Driver]		
Spin up Device		[Disabled]		
Serial ATA Port 2		Empty		
Software Preserve		Unknown		
Port 2		[Enabled]		
Hot Plug		[Disabled]		
External SATA		[Disabled]		
SATA Device Type		[Hard Disk Driver]		
Spin up Device		[Disabled]		
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SATA Mode Selection

Options: Disabled, Enabled

SATA Mode Selection

Options: IDE, AHCI

Port 1, Port 2

Options: Disabled, Enabled

Hot Plug

Options: Disabled, Enabled

External SATA

Options: Disabled, Enabled

SATA Device Type

Options: Hard Disk Driver , Solid State Drive

Spin up Device

Options: Disabled, Enabled

Table 9 Advanced Menu –USB Configuration

BIOS SETUP UTILITY					
Main	Advanced	Boot	Security	Save & Exit	
USB Configuration					
USB Devices:					
1 Mouse, 1 Keyboard, 2 Hubs					
Legacy USB Support		[Enabled]			
EHCI Hand-off		[Disabled]			
			.→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit		
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Legacy USB Support

Options: Disabled, Enabled, Auto

EHCI hand-off

Options: Disabled, Enabled

Table 10 Advanced Menu –DIO Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
DIO Configuration			<div>→ ← Select Screen</div> <div>↑↓ Select Item</div> <div>Enter: Select</div> <div>+ - Change Opt.</div> <div>F1: General Help</div> <div>F2: Previous Values</div> <div>F3: Optimized Defaults</div> <div>F4 Save & Exit</div> <div>ESC Exit</div>	
User Configuration		[Enabled]		
DO-1		[Output Low]		
DO-2		[Output Low]		
DO-3		[Output Low]		
DO-4		[Output Low]		
DI-1		1		
DI-2		1		
DI-3		1		
DI-4		1		
DO-1		0		
DO-2		0		
DO-3		0		
DO-4		0		
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DO-1

Options: Output Low, Output High

DO-2

Options: Output Low, Output High

DO-3

Options: Output Low, Output High

DO-4

Options: Output Low, Output High

User Configuration

Options: Disabled, Enabled

Table 11 Advanced Menu – Super IO Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Super IO Configuration >Serial Port 1 Configuration >Serial Port 2 Configuration			→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit	
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Table 12 Advanced Menu – Super IO Configuration – Serial Port 1 Configuration

BIOS SETUP UTILITY						
Main	Advanced	Boot	Chipset	Power	Security	Exit
Serial Port 1 Configuration				<div>→←: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save and Exit ESC: Exit</div>		
Serial Port Device Settings		[Enabled] IO=3F8h ; IRQ=4;				
Change Settings		[Auto]				
Serial Port 1 Type		[RS232]				
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Serial Port

Options: Disabled, Enabled

Change Settings

Options: Auto,

IO=3F8h; IRQ=4;

IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

Serial Port Type

Options: RS232, RS422, RS485

Table 13 Advanced Menu – Super IO Configuration – Serial Port 2 Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Serial Port 2 Configuration			→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit	
Serial Port Device Settings		[Enabled] IO=2F8h; IRQ=3;		
Change Settings Device Mode		[AUTO] [Standard serial po....]		
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Serial Port

Options: Disabled, Enabled

Change Settings

Options: Auto,

IO=2F8h; IRQ=3;

IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12

Device Mode

Options: Standard Serial Port Mode

IrDA Function, active pulse is 1.6us

IrDA Function, active pulse is 3/16 bit time

Table 14 Advanced Menu –H/W Monitor

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
PC Health Status				
CPU Warning Temperature		[Disabled]		
>CPU FAN Configuration				
CPU Temperature		+63		
Memory Temperature		+45		
SYS Temperature		+43		
+ 3.3V			: +3.344 V	→ ← Select Screen
+ VCORE			: +0.936 V	↑↓ Select Item
+ VGFx			: +0.440 V	Enter: Select
+ 1.05V			: +1.056 V	+ - Change Opt.
+ 1.5V			: +1.517 V	F1: General Help
+ 5VDUAL			: +5.200 V	F2: Previous Values
+ VIN			: +11.968 V	F3: Optimized Defaults
+ 3.3VSB			: +3.376 V	F4 Save & Exit
ESC Exit				
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CPU Warning Temperature

Options: Disabled, 80 °C , 85 °C, 90 °C, 95 °C

■ Boot Menu

Table 15 Boot Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Boot Configuration			→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit	
Full Screen LOGO Display		[Disabled]		
Setup Prompt Timeout		1		
Bootup NumLock State		[On]		
Boot Option Priorities				
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Full Screen LOGO Display

Options: Disabled, Enabled

Bootup Numlock State

Options: On, Off

■ Security Menu

Table 16 Security Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
<p>Password Description</p> <p>If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup</p> <p>If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights</p> <p>The password length must be in the following range:</p> <p>Minimum Length 3</p> <p>Maximum length 20</p> <p>Administrator Password</p> <p>User Password</p>			<p>→ ← Select Screen</p> <p>↑↓ Select Item</p> <p>Enter: Select</p> <p>+- Change Opt.</p> <p>F1: General Help</p> <p>F2: Previous Values</p> <p>F3: Optimized Defaults</p> <p>F4 Save & Exit</p> <p>ESC Exit</p>	
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■ Save & Exit Menu

Table 17 Save & Exit Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Save Changes and Reset Discard Changes and Reset Save Options Save Changes Discard Changes Restore Defaults			→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit	
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Save Changes and Exit

Exit system setup after saving the changes. Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to the CMOS RAM. The CMOS RAM is sustained by an onboard backup battery and stays on even when the PC is turned off. When you select this option, a confirmation window appears. Select [Yes] to save changes and exit.

Discard Changes and Exit

Exit system setup without saving any changes. Select this option only if you do not want to save the changes that you made to the Setup program. If you made changes to fields other than system date, system time, and password, the BIOS asks for a confirmation before exiting.

Discard Changes

Discards changes done so far to any of the setup values. This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select [Yes] to discard any changes and load the previously saved values.

Load Optimal Defaults

Load Optimal Default values for all the setup values. This option allows you to load optimal default values for each of the parameters on the Setup menus, which will provide the best performance settings for your system. The F9 key can be used for this operation.

Load Failsafe Defaults

Load Optimal Default values for all the setup values. This option allows you to load failsafe default values for each of the parameters on the Setup menus, which will provide the most stable performance settings. The F8 key can be used for this operation.

Chapter 4

Driver Installation

If your QBOX-4000 Series does not come with an operating system pre-installed, you will need to install an operating system and the necessary drivers to operate it. After you have finished assembling your system and connected the appropriate power source, power it up using the power supply and install the desired operating system.

You can download the drivers for the QBOX-4000 Series from the Quanmax website at www.quanmax.com and install as instructed there. For other operating systems, please contact Quanmax.