

# OPC-1560

Fanless Open Frame Panel PC with Dual Core Intel®  
Atom™ Processor D2550

## User's Guide



**Contact Info:**                   **Quanmax Inc.**  
**5F, No. 415, Ti-Ding Blvd. Sec. 2, NeiHu District,**  
**Taipei, Taiwan 114**  
**Tel: +886-2-2799-2789**  
**Fax: +886-2-2799-7399**

**Visit our site at:**           **[www.quanmax.com](http://www.quanmax.com)**

© 2012 Quanmax Inc. All rights reserved.

The information in this user's guide is provided for reference only. Quanmax does not assume any liability arising out of the application or use of the information or products described herein. This user's guide may contain or reference information and products protected by copyrights or patents and does not convey any license under the patent rights of Quanmax, nor the rights of others. Quanmax is a registered trademark of Quanmax. All trademarks, registered trademarks, and trade names used in this user's guide are the property of their respective owners. All rights reserved. This user's guide contains information proprietary to Quanmax. Customers may reprint and use this user's guide in other publications. Customers may alter this user's guide and publish it only after they remove the Quanmax name, cover, and logo. 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.

Revision	Date	Edited by	Changes
1.0	2012/6/19	Betsy	Initial Release



# Content

Content.....	3
Figures & Tables.....	4
Safety Instructions.....	5
Before You Begin .....	5
When Working Inside a Computer .....	5
Preventing Electrostatic Discharge .....	6
Instructions for Lithium Battery .....	7
Preface.....	8
How to Use This Guide .....	8
Unpacking.....	8
Regulatory Compliance Statements.....	8
Warranty Policy.....	9
Maintaining Your Computer.....	10
Chapter 1 Introduction .....	13
Overview.....	13
Product Specifications .....	14
System tour.....	15
Mechanical Dimensions .....	17
Chapter 2 Getting Started .....	18
Setting up your PC.....	18
Chapter 3 AMI BIOS Setup.....	22
Overview.....	22
Main Menu .....	23
Advanced Menu .....	24
Boot Menu .....	31
Security Menu.....	32
Save & Exit Menu .....	32
Chapter 4 Driver Installation .....	34

## Figures & Tables

Figure 1 I/Os .....	15
Figure 2 Mechanical Dimensions .....	17
Figure 3 DP/ VGA/ HDMI .....	18
Figure 4 Connecting USB mouse & keyboard.....	19
Figure 5 RJ45 connector.....	19
Figure 6 COM port .....	20
Figure 7 Turning on the system .....	21

Table 1 OPC-1560 product specifications .....	14
Table 2 BIOS Main Menu .....	23
Table 3 Advanced Menu.....	24
Table 4 Advanced Menu – Display Configuration.....	25
Table 5 Advanced Menu –Power Management Configuration.....	26
Table 6 Advanced Menu –CPU Advanced Configuration .....	27
Table 7 Advanced Menu –SATA Configuration .....	28
Table 8 Advanced Menu –USB Configuration .....	28
Table 9 Advanced Menu – Super IO Configuration .....	29
Table 10 Advanced Menu – Super IO Configuration – Serial Port 1 Configuration .....	29
Table 11 Advanced Menu –H/W Monitor .....	30
Table 12 Boot Menu .....	31
Table 13 Security Menu .....	32
Table 14 Save & Exit Menu .....	32

# 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.

---

## ■ 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](http://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:**

This equipment has been tested and found to comply with 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 in residential installations. This equipment generates, uses, and can radiate radiofrequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause



interference to radio or television equipment reception, which can be determined by turning the equipment off and on, 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](http://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](http://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 overvoltage 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 OPC-1560 is a fanless open frame Panel PC w/ Dual Core based on Intel® Atom™ Processor D2550 with the high integration of the Intel® NM10 Express chipset. Featured are DDR3 800/1066 SO-DIMM up to 4GB, 15.6" LCD Display with 1366x768 resolution, 1x Display Port , HDMI, VGA, 2x Gigabit Ethernet, 1x SATA, 1x mini PCIe slot, 4x USB 2.0, 1x COM port, 1x Power button

The OPC series provide a compact, high performance human machine interface, with optimal shock, vibration and temperature resistance for tough industrial demands.

### Checklist

- OPC-1560
- Power Adapter
- Power Cord
- Driver CD
- Quick installation Guide
- Wireless LAN (optional)

### Features

- 15.6" LCD Display with 1366x768 resolution
- Intel® Atom™ Processor D2550 / Intel® NM10 Express chipset
- Intel® Graphics Media Accelerator 3650
- DDR3 800/1066 MHz memory support up to 4GB
- 1x HDMI, 1x DP, 1x VGA
- 4x USB2.0, 1x COM, 2x GbE LAN, 1xSATA, 1x Power button
- 1x Mini-PCIe slot supported
- Fanless design

## ■ Product Specifications

CPU Support	Intel® Atom™ Processor D2550 (1M Cache, 1.86 GHz)
Chipset	Intel® NM10 Express chipset
Memory	1x Single Channel DDR3 800/1066MHz SODIMM support (4GB max)
BIOS	AMI Plug & Play SPI BIOS
Graphic	Intel® Graphics Media Accelerator 3650
LCD Display	Size: 15.6inch, 16:9 Resolution: 1366 x 768 Backlight: LED Contrast Ratio: 500:1 (typical) Brightness: 220cd/m <sup>2</sup> (typical)
Touch Sensor	Optional 5-wire resistive touch sensor
External Display	1x HDMI 1x Display Port 1x VGA
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 space
USB	4x USB 2.0
COM	1x COM port with RS-232/422/485 selection supported
Expansion slot	1x Mini-PCIe slot (SIM Card socket supported)
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
Dimensions	Dimension: 389.9 x 240.1 x 29.25 (W x D x H)(mm)
Environment	Operation Temp: 0°C - 50°C Storage Temp.: -20°C - 60°C Humidity: 0% - 95%
Certification	CE, FCC Class A

Table 1 OPC-1560 product specifications

## ■ System tour

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

### ■ I/Os

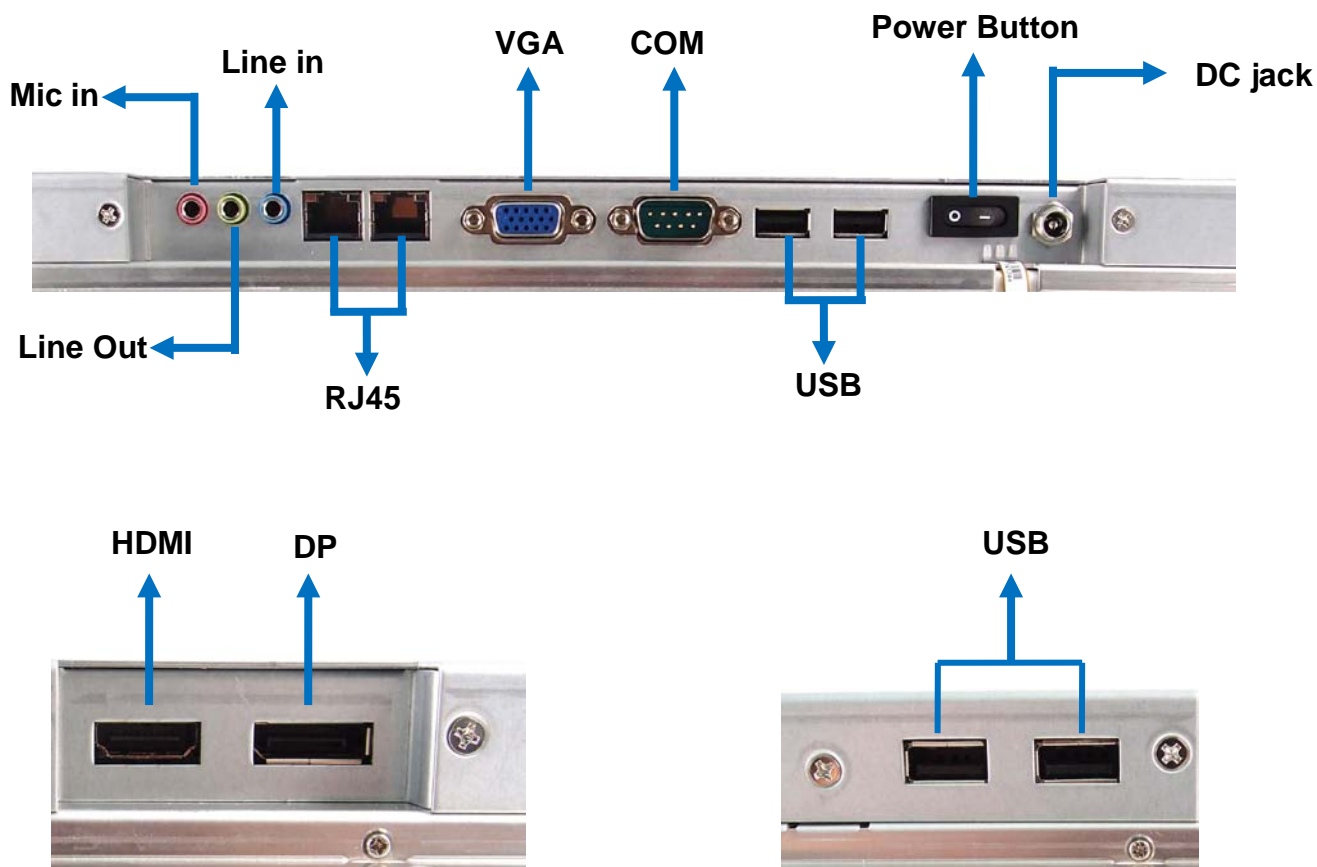


Figure 1 I/Os

### 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.

### Ethernet

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

### **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.

### **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.

### **HDMI**

HDMI connector for display output

### **VGA**

D-Sub 15 pin VGA connector for display output

### **COM**

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

### **Line Out**

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

### **MIC-IN**

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

### **Line-IN**

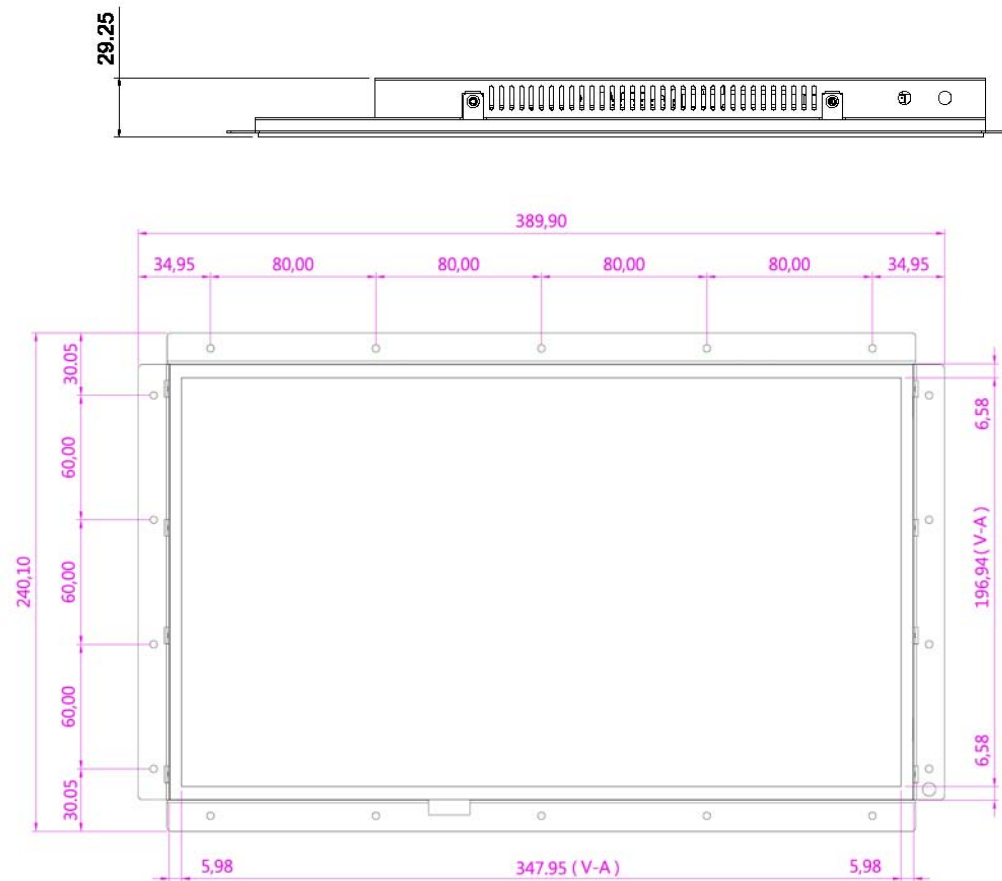
The Line-in jack is designed to take input from a higher-powered sound source.

### **Power Button**

The power switch allows powering ON and OFF the system.



## Mechanical Dimensions



Dimension: 389.9 x 240.1 x 29.25 mm (W x H x D)

Figure 2 Mechanical Dimensions

## Chapter 2

# Getting Started

### ■ Setting up your PC

#### ■ Connecting the monitor

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

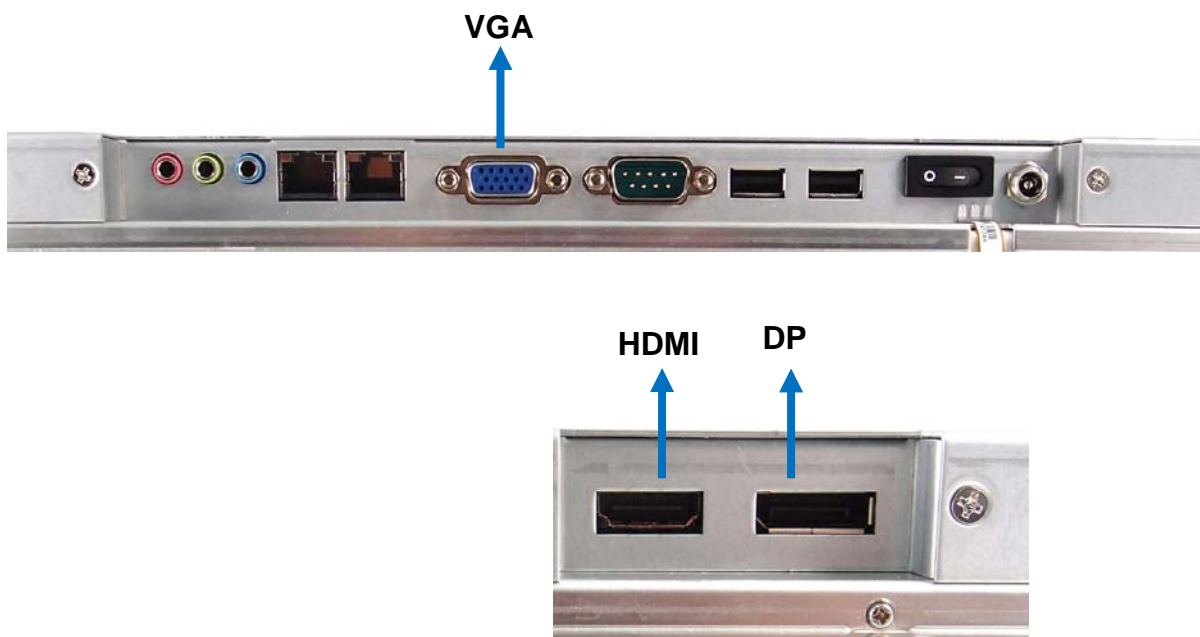


Figure 3 DP/ VGA/ HDMI

### ■ Connecting USB mouse & keyboard

Your OPC-1560 does not come with a keyboard and mouse, but you can use any USB keyboard or mouse with your computer.

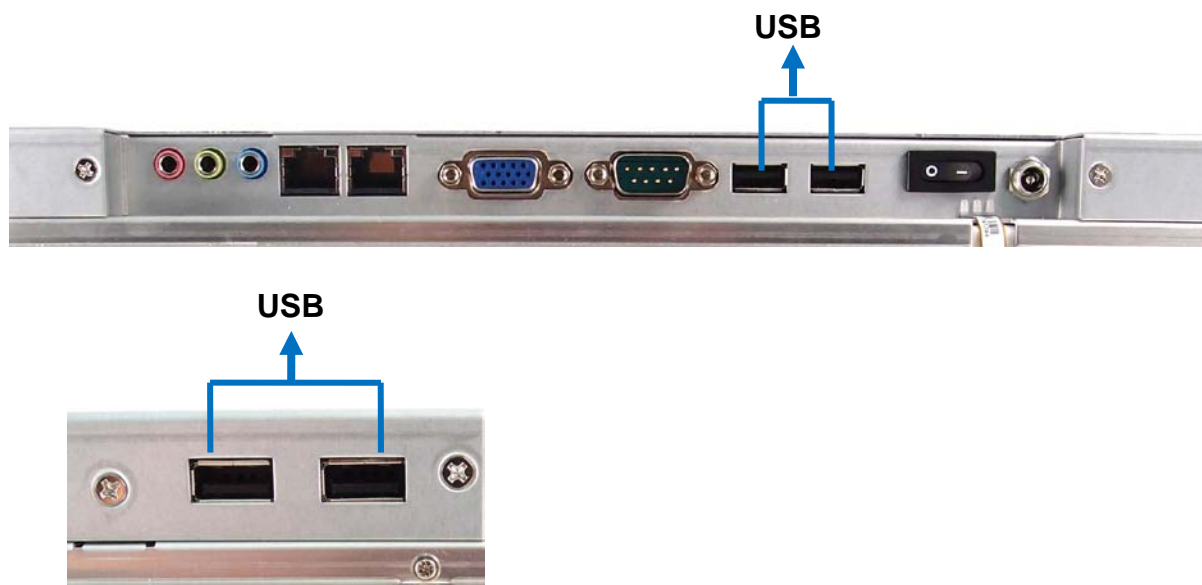


Figure 4 Connecting USB mouse & keyboard

#### NOTE



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

### ■ Connecting to a network device

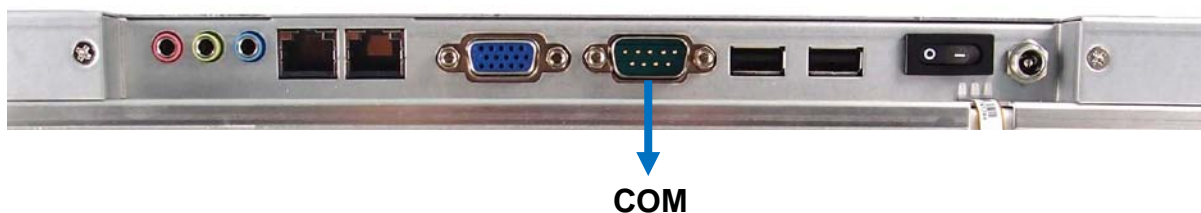
Connect one end of a network cable to the LAN port on the system rear panel and the other end to a hub or switch.



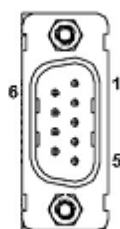
Figure 5 RJ45 connector

## ■ COM port

COM port with the pin definition.



COM RS-232 / 422 / 485 Port DB-9



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

Figure 6 COM port

## ■ Turning on the system

1. Connect the power adapter cable to the DC jack (DC IN) of the OPC-1560
2. Connect the power cable to the power adapter
3. Connect the power cable to a power outlet
4. Press the power button to turn on the system



Figure 7 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 BIOS Main Menu

BIOS SETUP UTILITY				
M a i n	A d v a n c e d	B o o t	S e c u r i t y	S a v e & E x i t
Product Information				
Product Name		OPC-1560		
BIOS Version		0.07		
BIOS Build Date		02/10/2012		
CPU Information				
Intel® Atom™ CPU D2550@1.86GHz				
Microcode Revision		10C		
Processor Cores		2		
Memory Information				
Total Size		2048 MB		
Frequency		1067 MHz (DDR3)		
System date		[Mon 08/01/2011]		
System time		[00:13:19]		
				→ ← 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.				

## ■ Advanced Menu

Table 3 Advanced Menu

BIOS SETUP UTILITY		
Main	<b>Advanced</b>	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 > Power Management Configuration > CPU Advanced Configuration > SATA Configuration > USB Configuration > Super IO Configuration > H/W Monitor		→ ← 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.		

### 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 4 Advanced Menu – Display Configuration

BIOS SETUP UTILITY		
Main	<b>Advanced</b>	Boot    Security    Server Mgmt    Save & Exit
Display Configuration Fixed Graphics Memory Size [128 MB] IGFX – Boot Type [VBIOS Default] Active LFP [ Int-LVDS] LCD Panel Color [18 Bit] LCD Panel Type [1366X768 24Bit 1CH] LVDS Backlight Control – Voltage [2.5V]		→ ← 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.		

**Fixed Graphics Memory Size**

Options: 128MB, 256MB

**IGFX – Boot Type**

Options: VBIOS Default, CRT, DP, HDMI

**LVDS Backlight Control – Voltage**

Options: 0.0V, 0.5V, 1.0V, 1.5V, 2.0V, 2.5V, 3.0V, 3.5V, 4.0V, 4.5V, 5.0V

Table 5 Advanced Menu –Power Management Configuration

BIOS SETUP UTILITY	
Main	<b>Advanced</b> Boot Security Server Mgmt Save & Exit
Power Management Configuration	
ACPI Sleep State	[S3 (Suspend to RAM)]
Restore AC Power Loss	[Power Off]
Resume By PCIE Device	[Disabled]
Resume By RTC Alarm	[Disabled]
EUP Power Saving Mode	[Disabled]
>Watchdog Timer Configuration	
→ ← 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.	

**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 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**

Options: Disabled, Enabled

Table 6 Advanced Menu –CPU Advanced Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
CPU Advanced 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 &amp; Exit</div> <div>ESC Exit</div>	
Hyper-Treading		[Enabled]		
Execute Disable Bit		[Enabled]		
Limit CPUID Maximum		[Disabled]		
EIST		[Enabled]		
Version 2.14.1219. Copyright (C) 2011, American Megatrends, Inc.				

**Hyper-Treading**

Options: Disabled, Enabled

**Execute Disable Bit**

Options: Disabled, Enabled

**Limit CPUID Maximum**

Options: Disabled, Enabled

**EIST**

Options: Disabled, Enabled

Table 7 Advanced Menu –SATA Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Configure SATA as		[ AHCI ]		
SATA Port 1		TOSHIBA MK8046 (80.0G)		
SATA Port 2		Not Present		
				→ ← 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.				

**Configure SATA as**

Options: IDE, AHCI

Table 8 Advanced Menu –USB Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
USB Configuration				
USB Devices:				
1 Drive, 1 Keyboard, 1 Mouse				
Legacy USB Support		[Enabled]		
EHCI Hand-off		[Disabled]		
Mass Storage Devices:				
San Disk		[Auto]		
				→ ← 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.				

**Legacy USB Support**

Options: Disabled, Enabled, Auto

**EHCI hand-off**

Options: Disabled, Enabled

**Mass Storage Device**

Options: Auto, Floppy, Forced FDD, Hard Disk, CD-ROM

Table 9 Advanced Menu – Super IO Configuration

BIOS SETUP UTILITY	
Main	Advanced
Super IO Configuration	→ ← Select Screen
>Serial Port 1 Configuration	↑↓ 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.	

Table 10 Advanced Menu – Super IO Configuration – Serial Port 1 Configuration

BIOS SETUP UTILITY	
Main	Advanced
Serial Port 1 Configuration	→←: Select Screen
	↑↓: Select Item
Serial Port	Enter: Select
Device Settings	+/-: Change Opt.
	F1: General Help
Change Settings	F2: Previous Values
Serial Port 1 Type	F3: Optimized Defaults
	F4: Save and Exit
	ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.	

**Serial Port**

Options: Disabled, Enabled

**Change Settings**

Options: Auto,

IO=3F8h; IRQ=4;

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

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

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

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

**Serial Port Type**

Options: RS232, RS422, RS485

Table 11 Advanced Menu –H/W Monitor

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
PC Health Status				
CPU Warning Temperature		[Disabled]		
CPU Temperature			: +41 C	
SYS Temperature		: +36 C		
+3.3V			: +3.344 V	→ ← Select Screen
+VCORE		: +1.192 V		
+VGFX		: +1.008 V		
+1.05V		: +1.064 V		
+1.5V		: +1.517V		
+5VDUAL		: +5.120V		
+VIN		: +12.144 V		
+3.3VSB		: +3.360 V		
			↑↓ 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.				

### CPU Warning Temperature

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

## ■ Boot Menu

Table 12 Boot Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
<div>Boot Configuration</div> <div>Full Screen LOGO Display [Disabled]</div> <div>Setup Prompt Timeout 1</div> <div>Bootup NumLock State [On]</div> <div>Boot Option Priorities</div> <div>Boot Option #1 [UEFI: SanDisk]</div> <div>Boot Option#2 [SATA PM: TOSHIBA...]</div> <div>Hard Drive BBS Priorities</div>			<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 &amp; Exit</div> <div>ESC Exit</div>	
Version 2.14.1219. Copyright (C) 2011, American Megatrends, Inc.				

### Full Screen LOGO Display

Options: Disabled, Enabled

### Bootup Numlock State

Options: On, Off

### Boot Option #1

Options: UEFI, SATA PM: Disabled

### Boot Option #2

Options: UEFI, SATA PM: Disabled

### Hard Drive BBS Priorities

#### ■ Boot Option #1

Options: UEFI, SATA PM: Disabled

#### ■ Boot Option #2

Options: UEFI, SATA PM: Disabled

## ■ Security Menu

Table 13 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</p> <p>Maximum length</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 &amp; Exit</p> <p>ESC Exit</p>	
Version 2.14.1219. Copyright (C) 2011, American Megatrends, Inc.				

## ■ Save & Exit Menu

Table 14 Save &amp; Exit Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
<div>Save Changes and Reset</div> <div>Discard Changes and Reset</div> <div>Save Options</div> <div>Save Changes</div> <div>Discard Changes</div> <div>Restore Defaults</div>			<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 &amp; Exit</div> <div>ESC Exit</div>	
Version 2.14.1219. Copyright (C) 2011, American Megatrends, Inc.				



**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 OPC-1560 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 OPC-1560 from the Quanmax website at [www.quanmax.com](http://www.quanmax.com) and install as instructed there. For other operating systems, please contact Quanmax.