# QDSP-6000 Series

**Fanless Box PC with Intel® Haswell ULT Processor**

# 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 our 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.

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**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.

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## ■ 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.

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**CAUTION**

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

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## ■ 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. We 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.

## ■ 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 our customer service immediately.
3. Inspect the product for damage. If there is damage, notify our 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 reason able 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 your dealer could void the user's authority to operate the equipment.

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**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.

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# ■ 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.

■ **Altitude**

Operating a system at a high altitude (low pressure) can cause electrical problems related to arcing and corona effects. This condition can also cause sealed components with internal pressure, such as electrolytic capacitors, to fail or perform at reduced efficiency.

## 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 unit s 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 QDSP-6000 series is a fanless Box PC ideal for space critical applications. This embedded hardware platform features Intel® Haswell ULT Processor, and 2x DDR3L 1333/1600 SO-DIMM. It comes with mSATA, 2x Mini-PCIe slots, 2x HDMI, 2x USB2.0, 4x USB3.0, 2x COM, 2x GbE LAN, and Audio.
The QDSP-6000 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 Digital Signage.

### Checklist

- QDSP-6000 series
- Power Adapter
- Power Cord
- Driver CD
- Quick installation Guide
- Optional wireless LAN

### Features

- Intel® Haswell ULT Processor
- Support 2x DDR3L SO-DIMM up to 16GB
- Support 2xCOM, 2x HDMI
- Support 2xGbE, 4x USB3.0, 2x USB 2.0 and Audio
- Support 2x mPCIe sockets
- Support Dual storage
- Support TPM / iAMT
- Fanless design

# ■ Product Specifications

| | |
|---|---|
| **Dimensions** | 220 x 153.3 x 38 mm (W x D x H) |
| **CPU support** | QDSP-6000 : Intel® Haswell ULT Core™ i3-4010U Processor<br>QDSP-6001 : Intel® Haswell ULT Core™ i5-4300U Processor |
| **Memory** | 2x DDR3L SO-DIMM up to 16GB |
| **BIOS** | AMI Plug & Play SPI BIOS |
| **Storage** | 1x SATA connector for HDD/SSD support<br>1x eSATA connector with power supply<br>1x mSATA socket |
| **Front IO** | ■ Realtek ALC662 HD Codec w/ 2W Audio Amplifier, Mic-In, Line-In, Line-Out<br>■ 1x S/PDIF Output<br>■ 1x eSATA and USB 2.0 combo supported<br>■ 2x USB 3.0<br>■ 2x USB 2.0<br>■ 1x Power Button with Power LED<br>■ 1x Storage HDD status LED ( RED )<br>■ 1x Wifi /3G status LED ( Green )<br>■ 1x Reset Button |
| **Rear IO** | ■ 1x Lockable DC JACK<br>■ 2x HDMI<br>■ 2x USB3.0<br>■ 2x RJ-45 GbE ports (Realtek RTL8111E/ Intel 82579 ) PXE / WOL supported<br>■ 2x COM Ports support RS-232/422/485<br>■ 2x WiFi External Antennas ( optional )<br>■ 1x 3G External Antenna ( optional )<br>■ 1x External Power Button |
| **Expansion Slot** | 2x Mini-PCIe slots ( 1x SIM card holder supported) |
| **TPM / iAMT** | QDSP-6001 : TPM, iAMT supported |
| **OS Support** | Windows 7/Windows 8/ Linux |
| **Hardware Monitor** | Operating voltage, CPU temperature |
| **Watchdog Timer** | 1-255 step, can be set with software on Super I/O |
| **Power** | Input: 100-240 VAC, 50-60 Hz<br>Output: 90W, +19VDC/ 4.74A output |
| **Temperature / Humidity** | Operating: 0°C to 50°C, 0%-90%, non-condensing<br>Storage: -20°C to 80°C, 0%-90%, non-condensing |

| | |
|---|---|
| **Mounting** | VESA mount |
| **Certifications** | CE, FCC Class A |

Table 1 QDSP-6000 Series Specification

# ■ System tour

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

## ■ Front Panel

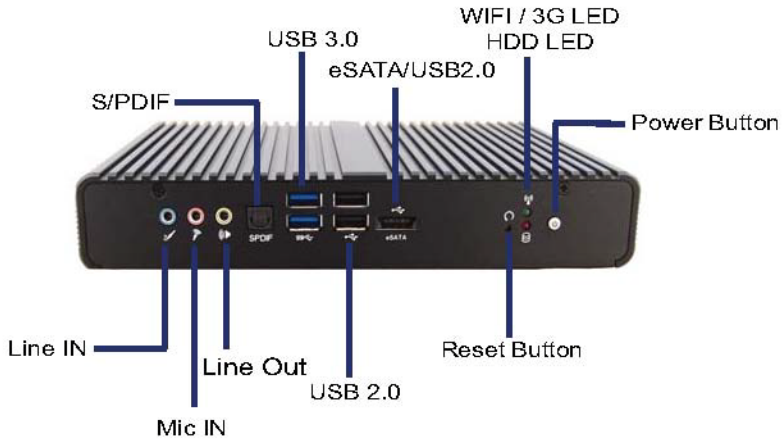


*Figure 1 Front Panel*

**Power Switch (with Power LED)**

The power push button allows powering ON and OFF the system.

**Clear CMOS Button**

To clear the CMOS, use the tip of a pen to press the button briefly (for less than three seconds).

**HDD LED ( Red )**

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

**WiFi LED ( Green )**

When the data is Transferring, the WiFi LED will blink.

**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.

**eSATA/USB (combo)**

This provides eSATA and USB connectivity as a combo con

**S/PDIF**

S/PDIF output for carrying digital audio signals out to the device.

**Phone Jack**

**Audio 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.

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**CAUTION**

This connector do not support hot-swapping. Users should not connect or disconnect their eSATA/USB devices from PC when the system is working.

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## ■ Rear Panel

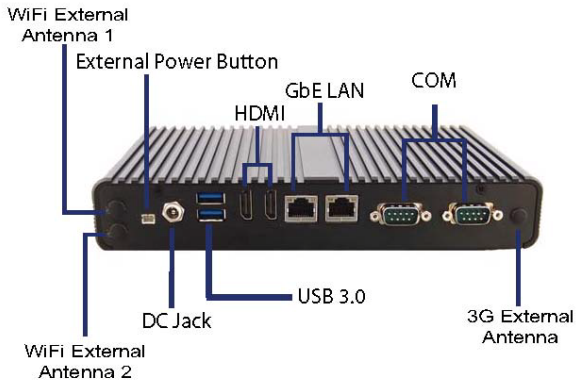



*Figure 2 Rear Panel*

**COM**

COM 1/COM 2 - D-Sub 9 pin connector for RS-232/422/485 connection

**Ethernet**

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

**External power switch**

The external power switch allows powering ON and OFF the system.

**HDMI**

HDMI connector for display output

**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.

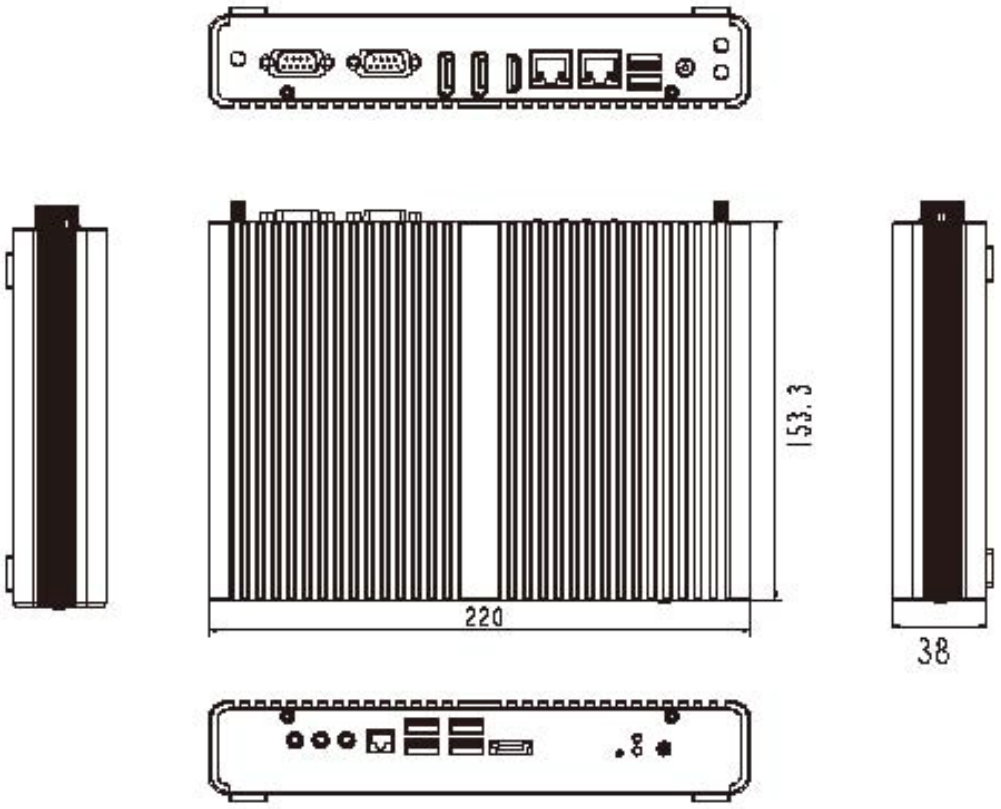
**WiFi /3G External Antenna (optional)**

Spared hole on the casing for connecting WiFi/ 3G external antenna

**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: 220 x 38 x 153.3 mm (W x H x D)

*Figure 3 Mechanical Dimensions*

# Chapter 2

# Getting Started

## ■ Setting up your PC

### ■ Connect the monitor, mouse and keyboard

**Connecting the monitor**

Connect the HDMI cable from your display to the HDMI port.

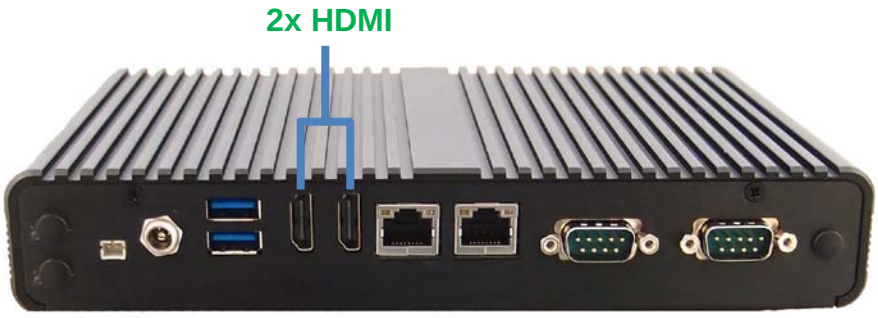



*Figure 4 Connect the HDMI cable*

### Connecting USB mouse & keyboard

Your QDSP-6000 series does not come with a keyboard and mouse, but you can use any USB keyboard or mouse with your computer.

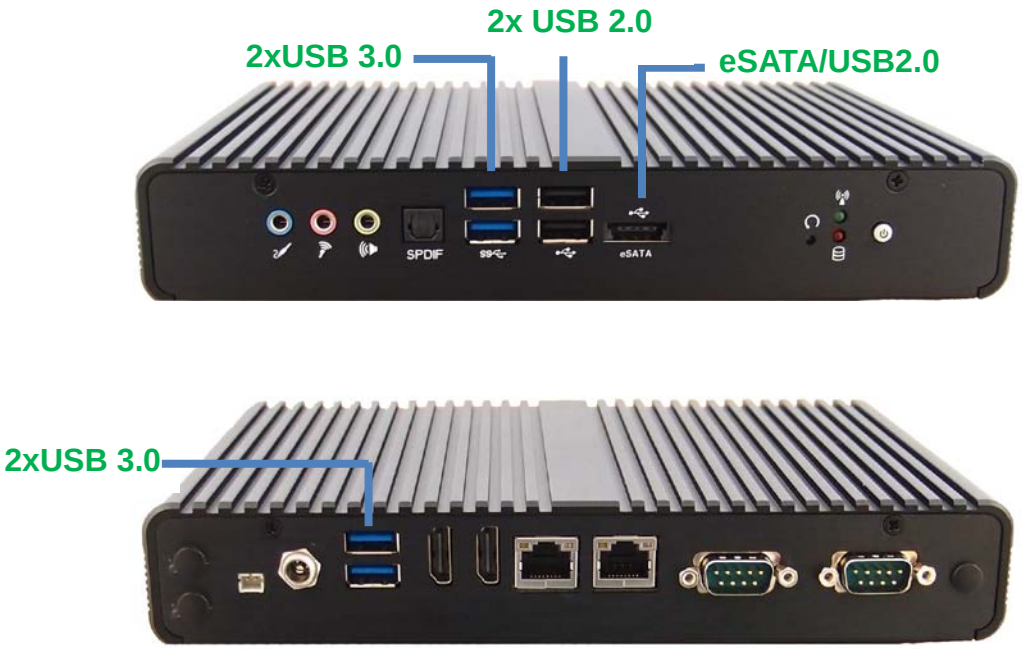



*Figure 5* Connecting USB mouse & keyboard

**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.

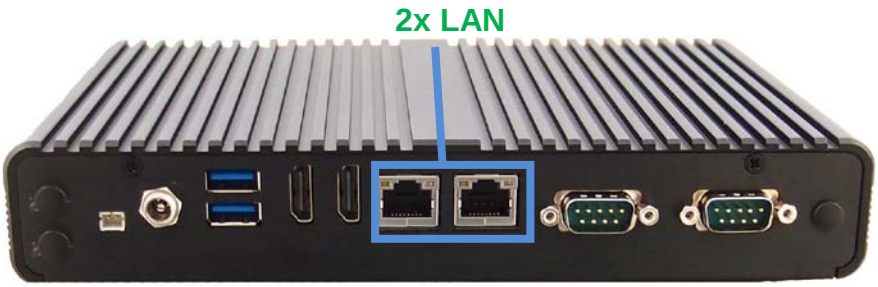


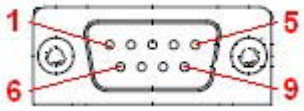

*Figure 6 Network cable with RJ45 connector*

## ■ COM ports

COM ports with the pin definitions.

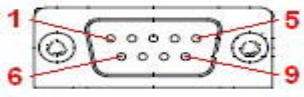
*Figure 7* COM Ports

COM1 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 / +5V* | NA / +5V* | NA / +5V* | NA / +5V* |
| *:Pin-9 can be set for +5V output in BIOS setup. | | | | |

COM2 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 / +5V* | NA / +5V* | NA / +5V* | NA / +5V* |
| *:Pin-9 can be set for +5V output in BIOS setup. | | | | |

## ■ Turning on the system

1. Connect the power adapter cable to the DC jack (DC IN) of the QDSP-6000 series
2. Connect the power cable to the power adapter
3. Connect the power cable to a power outlet
4. Press the power button on the front panel to turn on the system

*Figure 8 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 with your dealer.

**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 with us.

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 QDSP-6000 BIOS Main Menu

| BIOS SETUP UTILITY | | | | | |
|---|---|---|---|---|---|
| **Main** | Advanced | Boot | Security | Save & Exit | |
| Product Information | | | | | |
| Product Name | | QDSP-6000 | | | |
| BIOS Version | | R0.06 (x64 ) | | | |
| BIOS Build Date | | 03/06/2014 | | | |
| ME FW Version | | 9.5.20.1742 | | | |
| CPU Information | | | | | |
| Intel® Core ™ i3-4010U CPU @ 1.70GHz | | | | | |
| Microcode Revision | | 17 | | → ← Select Screen | |
| Processor Cores | | 2 | | ↑↓ Select Item | |
| | | | | Enter: Select | |
| Memory Information | | | | +- Change Opt. | |
| | | | | F1: General Help | |
| Total Size | | 2048 MB (DDR3) | | F2: Previous Values | |
| Frequency | | 1333 MHz | | F3: Optimized Defaults | |
| System date | | [Wen 04/02/2014] | | F4 Save & Exit | |
| System time | | [13:22:19] | | ESC Exit | |
| Version 2.15.1234. Copyright (C) 2012, American Megatrends, Inc. | | | | | |

Table 3 QDSP-6001 BIOS Main Menu

| BIOS SETUP UTILITY | | | | |
|---|---|---|---|---|
| **Main** | Advanced | Boot | Security | Save & Exit |
| Product Information | | | | |
| Product Name | | QDSP-6001 | | |
| BIOS Version | | R0.06 (x64 ) | | |
| BIOS Build Date | | 03/06/2014 | | |
| ME FW Version | | 9.5.20.1742 | | |
| CPU Information | | | | |
| Intel® Core ™ i5-4300U CPU @ 2.90GHz | | | | |
| Microcode Revision | | 17 | | → ← Select Screen |
| Processor Cores | | 2 | | ↑↓ Select Item |
| | | | | Enter: Select |
| Memory Information | | | | +- Change Opt. |
| | | | | F1: General Help |
| Total Size | | 2048 MB (DDR3) | | F2: Previous Values |
| Frequency | | 1333 MHz | | F3: Optimized Defaults |
| System date | | [Wen 04/02/2014] | | F4 Save & Exit |
| System time | | [13:22:19] | | ESC Exit |
| Version 2.15.1234. Copyright (C) 2012, American Megatrends, Inc. | | | | |

# ■ Advanced Menu

Table 4 Advanced Menu

| BIOS SETUP UTILITY | | |
|---|---|---|
| Main **Advanced** Boot Security Server Mgmt Save & Exit | | |
| Onboard LAN1 Controller | [Enabled] | → ← Select Screen |
| Onboard LAN1 Boot | [Disabled] | ↑↓ Select Item |
| Onboard LAN2 Controller | [Enabled] | Enter: Select |
| Onboard LAN2 Boot | [Disabled] | +- Change Opt. |
| Audio Controller | [Enabled] | F1: General Help |
| | | F2: Previous Values |
| > Display Configuration | | F3: Optimized Defaults |
| > Super IO Configuration | | F4 Save & Exit |
| > CPU Advanced Configuration | | ESC Exit |
| > SATA Configuration | | |
| > USB Configuration | | |
| > Intel(R) Rapid Start Technology | | |
| > H/W Monitor | | |
| Version 2.15.1234. Copyright (C) 2012, 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 | | → ← Select Screen<br>↑↓ Select Item<br>Enter: Select<br>+- Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4 Save & Exit<br>ESC Exit |
| UMA Frame Buffer Size | [256 MB] | |
| DVMT Pre-Allocated | [64M] | |
| DVMT Total Gfx Mem | [256 M] | |
| Primary IGFX Boot Display | [ VBIOS Default ] | |
| Version 2.15.1234. Copyright (C) 2012, American Megatrends, Inc. | | |

**UMA Frame Buffer Size**

Options: 128MB, 256MB, 512MB

**DVMT Pre-Allocated**

Options:32M, 64M, 96M, 128M, 160M, 192M, 224M, 256M, 288M, 320M, 352M, 384M, 416M, 448M, 480M, 512M, 1024M

**DVMT Total Gfx Mem**

Options: 128M, 256M, MAX

**Primary IGFX Boot Display**

Options: VBIOS Default, HDMI 1, HDMI 2

Table 6 Advanced Menu – Super IO Configuration

| BIOS SETUP UTILITY | | | | | | |
|---|---|---|---|---|---|---|
| Main | **Advanced** | Boot | Security | Server Mgmt | Save & Exit | |
| Super IO Configuration<br><br>>Serial Port 1 Configuration<br>>Serial Port 2 Configuration | | | | | | |
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Table 7 Advanced Menu –Super IO Configuration – Serial Port 1 Configuration

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

Options: RS232, RS422, RS485

Table 8 Advanced Menu –Super IO Configuration – Serial Port 2 Configuration

| BIOS SETUP UTILITY | | |
|---|---|---|
| Main **Advanced** Boot Security Server Mgmt Save & Exit | | |
| Serial Port 2 Configuration | | → ← Select Screen<br>↑↓ Select Item<br>Enter: Select<br>+- Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4 Save & Exit<br>ESC Exit |
| Serial Port | [Enabled] | |
| Device Settings | IO=2F8h; IRQ=3 | |
| Change Settings | [Auto] | |
| Serial Port Type | [RS232] | |
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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, 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 9 Advanced Menu –CPU Advanced Configuration

| BIOS SETUP UTILITY | | | | |
|---|---|---|---|---|
| Main | **Advanced** | Boot | Security | Save & Exit |
| CPU Advanced Configuration | | | | |
| EIST | | [Enabled] | | → ← Select Screen |
| Hyper Treading | | [Enabled] | | ↑↓ Select Item |
| VT-d | | [Enabled] | | Enter: Select |
| | | | | +- Change Opt. |
| | | | | F1: General Help |
| | | | | F2: Previous Values |
| Active Processor Cores | | [All] | | F3: Optimized Defaults |
| | | | | F4 Save & Exit |
| Limit CPUID Maximum | | [Disabled] | | ESC Exit |
| Execute Disable Bit | | [Enabled] | | |
| Intel ® Virtualization Technology | | [Disabled] | | |
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**EIST**

Options: Disabled, Enabled

**Hyper Threading**

Options: Disabled, Enabled

**VT-d**

Options: Disabled, Enabled

**Active Processor Cores**

Options: All, 1

**Limit CPUID Maximum**

Options: Disabled, Enabled

**Execute Disable Bit**

Options: Disabled, Enabled

**Intel ® Virtualization Technology**

Options: Disabled, Enabled

Table 10 Advanced Menu –SATA Configuration

| BIOS SETUP UTILITY | | |
|---|---|---|
| Main **Advanced** Boot Security Save & Exit | | |
| SATA Controller(s) | [Enabled] | → ← Select Screen<br>↑↓ Select Item<br>Enter: Select<br>+- Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4 Save & Exit<br>ESC Exit |
| SATA Mode Selection | [ AHCI] | |
| SATA Controller Speed | [ Default ] | |
| Serial ATA Port 1 | Empty | |
| Port 1 | [ Enabled ] | |
| Serial ATA Port 2 | Empty | |
| Port 2 | [ Enabled ] | |
| mSATA Port 1 | Empty | |
| Port 1 | [ Enabled ] | |
| mSATA Port 2 | Empty | |
| Port 2 | [ Enabled ] | |
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**SATA Controller(s)**

Options: Disabled, Enabled

**SATA Mode Selection**

Options: AHCI

**SATA Controller Speed**

Options: Default, Gen 1, Gen 2, Gen 3

**Serial ATA / mSATA Port 1, 2**

Options: Disabled, Enabled

Table 11 Advanced Menu –USB Configuration

| BIOS SETUP UTILITY | | | | | |
|---|---|---|---|---|---|
| Main | **Advanced** | Boot | Security | Save & Exit | |
| USB Configuration | | | | → ← Select Screen<br>↑↓ Select Item<br>Enter: Select<br>+- Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4 Save & Exit<br>ESC Exit | |
| USB Devices:<br>1 Keyboard, 1 Hubs | | | | | |
| Legacy USB Support | | [Enabled] | | | |
| USB 3.0 Support | | [Enabled] | | | |
| XHCI hand-off | | [Enabled] | | | |
| EHCI Hand-off | | [Disabled] | | | |
| USB Mass Storage Driver Support | | [Enabled] | | | |
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**Legacy USB Support**

Options: Disabled, Enabled, Auto

**USB 3.0 Support**

Options: Disabled, Enabled

**XHCI hand-off**

Options: Disabled, Enabled

**EHCI hand-off**

Options: Disabled, Enabled

**USB Mass Storage Driver Support**

Options: Disabled, Enabled

Table 12 Advanced Menu – Intel Rapid Start Technology

| BIOS SETUP UTILITY | | |
|---|---|---|
| Main **Advanced** Boot Security Server Mgmt Save & Exit | | |
| Intel® Rapid Start Technology | [Disabled] | → ← Select Screen<br>↑↓ Select Item<br>Enter: Select<br>+- Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4 Save & Exit<br>ESC Exit |
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## Intel® Rapid Start Technology

Options: Disabled, Enabled

Table 13 Advanced Menu –H/W Monitor

| BIOS SETUP UTILITY | | |
|---|---|---|
| Main **Advanced** Boot Security Save & Exit | | |
| PC Health Status | | → ← Select Screen<br>↑↓ Select Item<br>Enter: Select<br>+- Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4 Save & Exit<br>ESC Exit |
| CPU Temperature | : +37 C | |
| Memory Temperature | : +38 C | |
| System Temperature | : +31 C | |
| +VCORE | : +1.720 V | |
| +VIN | : +19.104 V | |
| +5V | : +5.089 V | |
| +3.3V | : +3.356 V | |
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Table 14 Advanced Menu –Power Management Configuration

| BIOS SETUP UTILITY | | |
|---|---|---|
| Main **Advanced** Boot Security Server Mgmt Save & Exit | | |
| Power Management Configuration | | |
| ACPI Sleep State | [S3 only (Suspend to RAM)] | |
| Restore AC Power Loss | [Power Off] | |
| Power Saving Mode | [Disabled] | → ← Select Screen |
| Resume Event Control | | ↑↓ 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 only (CPU Stop Clock), S3 only (Suspend to RAM)

**Restore AC Power Loss**

Options: Power Off, Power On, Last State

**Power Saving Mode**

Options: Disabled, EUP Enabled, DeepSx 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

# ■ Boot Menu

Table 15 Boot Menu

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

Options: Disabled, Enabled

**Bootup Numlock State**

Options: On, Off

**CSM Support**

Options: Disabled, Enabled

**Option Boot Filter**

Options: UEFI and Legacy, Legacy only, UEFI only

# ■ Security Menu

Table 16 Security Menu

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

System Mode Setup

Secure Boot Not Active

Secure Boot [Enabled] Option : Disabled, Enabled

Secure Boot Mode [Standard] Option :Standard, Custom

# ■ Save & Exit Menu

Table 17 Save & Exit Menu

| BIOS SETUP UTILITY | | | | |
|---|---|---|---|---|
| Main | Advanced | Boot | Security | **Save & Exit** |
| Discard Changes and Reset<br>Discard Changes and Reset<br>Save Options<br>Save Changes<br>Discard Changes<br>Restore Defaults | | | | → ← Select Screen<br>↑↓ Select Item<br>Enter: Select<br>+- Change Opt.<br>F1: General Help<br>F2: Previous Values<br>F3: Optimized Defaults<br>F4 Save & Exit<br>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 QDSP-6000 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. For other operating systems, please contact us.