

OPS-1000 Series

Open Pluggable Specification (OPS) compliance for
Digital Signage with 4th Generation Intel® Haswell / 5th Generation
Intel® Broadwell 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.

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. We strongly encourage 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):

Safety Instructions

- 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 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 your dealer 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.

■ 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 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 OPS-1000 series is an OPS-Compliant media player for digital signage application. This embedded hardware platform features 4th Generation Intel® Haswell / 5th Generation Intel® Broadwell Core™ i Processors, Intel® QM87 / HM87 chipsets, and 2x DDR3L 1600 SO-DIMM up to 16GB. It comes with 1x HDMI, 1x DP, 4x USB 3.0, 2x GbE and HD Audio.

The OPS-1000 series provides high reliability for harsh environments, compact size, and high performance. It is highly suited to a wide range of industrial applications, especially for Digital Signage.

Checklist

- OPS-1000 series
- Driver CD
- Quick installation Guide

Features

- 4th Gen. Intel® Haswell / 5th Gen. Intel® Broadwell Core™ i Processor
- Intel® HM87 / QM87 Express Chipset
- Support Intel® AMT 9.0
- Support 4K x 2K Resolution
- Support 2 x DDR3/L 1333/1600 MT/S SO-DIMM up to 16 GB
- Support 1 x HDMI, 1 x DP, 2 x GbE, 4 x USB 3.0, 1x 2.5" Slim Type HDD / SSD
- Up to 2x Mini-PCIe slots supported
- Up to 2x mSATA slots supported

■ Product Specifications

Dimensions	200 x 119 x 30 mm / 7.87" x 4.69" x 1.18" (W x D x H)
Weight	1 Kg / 2.2 lb
CPU/ Chipset	OPS-1040: Intel® Haswell Core™ i7-4700HQ Processor + HM87 Chipset OPS-1050: Intel® Haswell Core™ i7-4700EQ Processor + QM87 Chipset OPS-1060: Intel® Haswell Core™ i5-4400E Processor + QM87 Chipset OPS-1070: Intel® Broadwell Core™ i7-5700EQ Processor + QM87 Chipset OPS-1080: Intel® Broadwell Core™ i7-5850EQ Processor + QM87 Chipset
Graphic	Intel® HD Graphics 4600/5600 / Intel® Iris Pro Graphics 6200 supports 4K x 2K Resolution
Memory	2x DDR3/L 1333/ 1600 MT/S SO-DIMM up to 16 GB
Storage	1 x SATA3 HDD/SSD (7mm) Up to 2x mSATA Slots
Front IO	1x HDD LED 1x Wireless LED 1x Power Button with Power LED 1x Reset Switch 1x DP Port 1x HDMI Port 4x USB 3.0 Ports 1x 2.5" Slim Type HDD Slot (Removable) 3x Antennas 2x RJ-45 Ports 1x Audio Jack for Line-out/Line-In/MIC-In
Rear I/O (Via JAE Plug Connector)	1x Display Port 1x HDMI/DVI 1x Stereo Line-out 2x USB3.0 2x USB2.0 1x UART Control Signal 1x DC IN

Expansion Slot	2 x mini PCIe sockets mixed with mSATA 1x SIM card slot
OS Support	Windows 7/ Windows 8/ Linux
Cooling	CPU Fan with Smart Fan Function System Fan Speed Control
Power Unit	ACPI 3.0 supported +12V or +19V through JAE Plug Connector DC Power Input +12V or +19V (Optional Adapter)
SM bus	Option CH7322B for HDMI CEC support
TPM bus	TPM support
BIOS	AMI uEFI BIOS 1x 128Mb SPI flash ROM onboard
Hardware Monitor	Voltages monitoring\ Temperature monitoring
Watchdog	Programmable WDT to generate System reset event
Real Time Clock	Chipset integrated RTC
Operation Temp	0°C ~ 45°C / 32°F ~ 113°F
Certifications	CE, FCC Class A

Table 1 OPS-1000 series Specification

■ System tour

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

■ Front / Rear IO

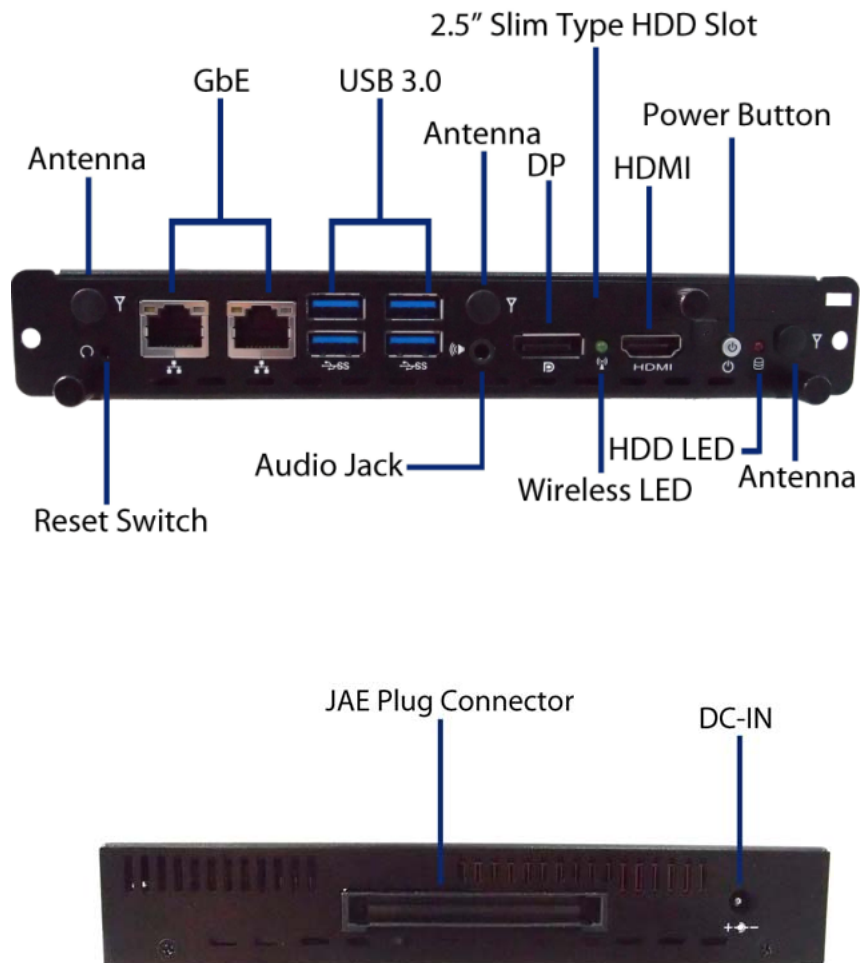


Figure 1 Front / Rear IO

Power button (with power LED-blue)

The power push button allows powering ON and OFF the system.
The power LED will light when the PC is power-on.

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 3.0

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.

Reset Switch

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

HDD Slot

2.5" Slim Type HDD Slot

Audio Jack

Audio Jack for Line-out/Line- In/MIC- In

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

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.

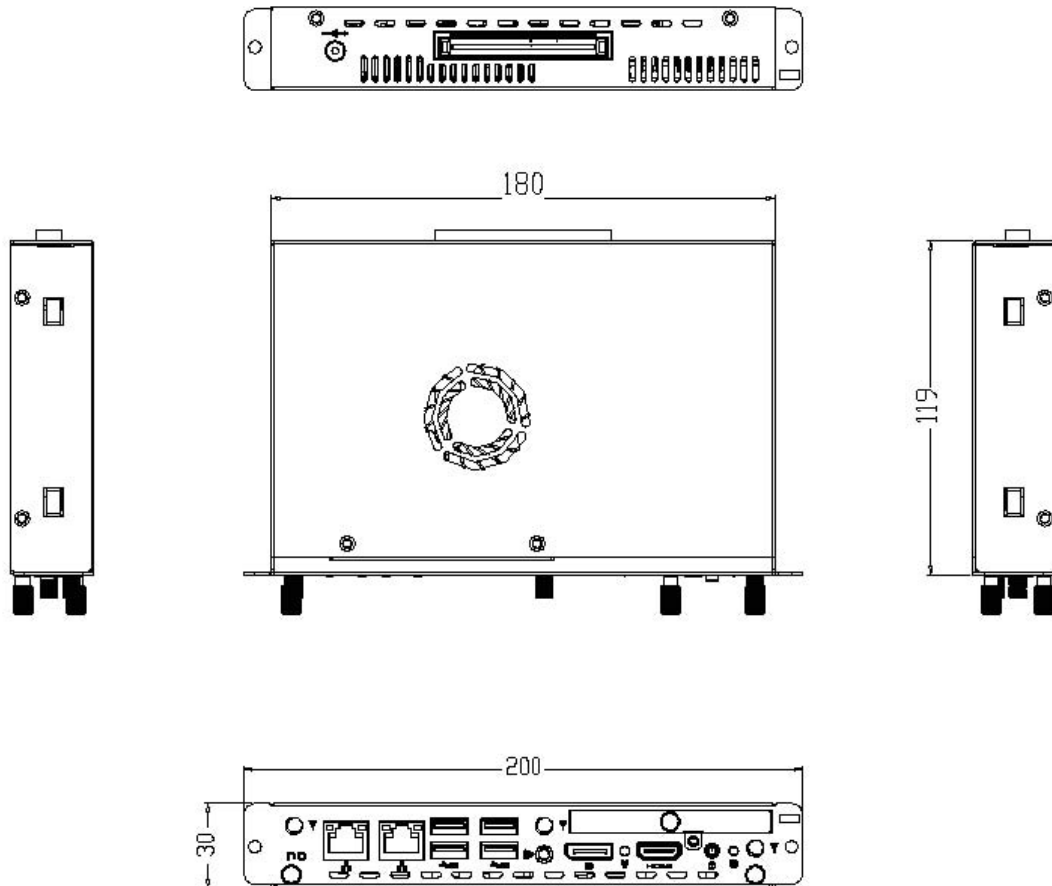
External Antenna

Spared hole on the casing for connecting an external antenna

JAE Plug Connector

A connector to connect Display Port, HDMI/DVI, Stereo Line-out, USB3.0 USB2.0, UART and Control Signal.

■ Mechanical Dimensions



Dimension: 200 x 30 x 119 mm (W x H x D)

Figure 2 Mechanical Dimensions

Chapter 2

Getting Started

■ Setting up your PC

■ Connect the monitor, mouse and keyboard

Connecting the monitor

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



Figure 3 Connect the DP/ HDMI cable

Connecting USB mouse & keyboard

Your OPS-1000 series 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 Network cable with RJ45 connector

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 OPS-1000 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information				
Product Name		OPS-1000		
BIOS Version		R0.0B (x64)		
BIOS Build Date		09/05/2013		
ME FW Version		9.0.13.1402		
CPU Information Intel® Core™ i7-4700EQ CPU @ 3.40GHz				
Microcode Revision		12		→ ← Select Screen
Processor Cores		4		↑↓ Select Item
Memory Information				Enter: Select
Total Size		4096 MB (DDR3)		+ - Change Opt.
Frequency		1333 MHz		F1: General Help
System date		[Fri 10/11/2013]		F2: Previous Values
System time		[13:43:19]		F3: Optimized Defaults
				F4 Save & Exit
				ESC Exit
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.				

Table 3 OPS-1010 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information				
Product Name		OPS-1010		
BIOS Version		R0.0B (x64)		
BIOS Build Date		09/05/2013		
ME FW Version		9.0.13.1402		
CPU Information		Intel® Core™ i7-4850HQ CPU @ 3.50GHz		
Microcode Revision		12		
Processor Cores		4		
Memory Information				
Total Size		4096 MB (DDR3)		
Frequency		1333 MHz		
System date		[Fri 10/11/2013]		
System time		[13:43:19]		
→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit				
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.				

Table 4 OPS-1020 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information				
Product Name		OPS-1020		
BIOS Version		R0.0B (x64)		
BIOS Build Date		09/05/2013		
ME FW Version		9.0.13.1402		
CPU Information		Intel® Core™ i5-4400E CPU @ 3.30GHz		
Microcode Revision		12		
Processor Cores		2		
Memory Information				
Total Size		4096 MB (DDR3)		
Frequency		1333 MHz		
System date		[Fri 10/11/2013]		
System time		[13:43:19]		
→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit				
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.				

Table 5 OPS-1030 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information				
Product Name		OPS-1030		
BIOS Version		R0.0B (x64)		
BIOS Build Date		09/05/2013		
ME FW Version		9.0.13.1402		
CPU Information		Intel® Core™ i7-4700HQ CPU @ 3.40GHz		
Microcode Revision		12		
Processor Cores		4		
Memory Information				
Total Size		4096 MB (DDR3)		
Frequency		1333 MHz		
System date		[Fri 10/11/2013]		
System time		[13:43:19]		
→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit				
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.				

Table 6 OPS-1040 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information				
Product Name		OPS-1040		
BIOS Version		R0.0B (x64)		
BIOS Build Date		09/05/2014		
ME FW Version		9.0.13.1402		
CPU Information		Intel® Core™ i7-4700HQ CPU @ 3.40GHz		
Microcode Revision		12		
Processor Cores		4		
Memory Information				
Total Size		4096 MB (DDR3)		
Frequency		1600 MHz		
System date		[Thu 01/01/2015]		
System time		[13:43:19]		
→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit				
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.				

Table 7 OPS-1050 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information				
Product Name		OPS-1050		
BIOS Version		R0.0B (x64)		
BIOS Build Date		09/05/2015		
ME FW Version		9.0.13.1402		
CPU Information		Intel® Core™ i7-4700EQ CPU @ 3.40GHz		
Microcode Revision		12		
Processor Cores		4		
Memory Information				
Total Size		4096 MB (DDR3)		
Frequency		1600 MHz		
System date		[Thu 01/01/2015]		
System time		[13:43:19]		
→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit				
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.				

Table 8 OPS-1060 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information				
Product Name		OPS-1060		
BIOS Version		R0.0B (x64)		
BIOS Build Date		09/05/2015		
ME FW Version		9.0.13.1402		
CPU Information		Intel® Core™ i5-4400E CPU @ 3.30GHz		
Microcode Revision		12		
Processor Cores		2		
Memory Information				
Total Size		4096 MB (DDR3)		
Frequency		1600 MHz		
System date		[Thu 01/01/2015]		
System time		[13:43:19]		
→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit				
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.				

Table 9 OPS-1070 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information				
Product Name		OPS-1070		
BIOS Version		R0.0B (x64)		
BIOS Build Date		10/12/2015		
ME FW Version		9.0.13.1402		
CPU Information		Intel® Core™ i7-5700EQ CPU @ 3.40GHz		
Microcode Revision		12		
Processor Cores		4		
Memory Information				
Total Size		4096 MB (DDR3)		
Frequency		1600 MHz		
System date		[Thu 01/01/2015]		
System time		[13:43:19]		
→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit				
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.				

Table 10 OPS-1080 BIOS Main Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Product Information				
Product Name		OPS-1080		
BIOS Version		R0.0B (x64)		
BIOS Build Date		10/12/2015		
ME FW Version		9.0.13.1402		
CPU Information		Intel® Core™ i7-5850EQ CPU @ 3.40GHz		
Microcode Revision		12		
Processor Cores		4		
Memory Information				
Total Size		4096 MB (DDR3)		
Frequency		1600 MHz		
System date		[Thu 01/01/2015]		
System time		[13:43:19]		
→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit				
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.				

■ Advanced Menu

Table 11 Advanced Menu

BIOS SETUP UTILITY		
Main	Advanced	Boot Security Server Mgmt Save & Exit
Onboard LAN1 Controller	[Enabled]	→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit
Onboard LAN1 Boot	[Disabled]	
Onboard LAN2 Controller	[Enabled]	
Onboard LAN2 Boot	[Disabled]	
Audio Controller	[Enabled]	
> Display Configuration		
> Super IO Configuration		
> CPU Chipset Configuration		
> SATA Configuration		
> USB Configuration		
> AMT Configuration		
> TPM Configuration		
> H/W Monitor		
Version 2.15.1236. 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 12 Advanced Menu – Display Configuration (OPS-1040/1050/1060)

BIOS SETUP UTILITY		
Main	Advanced	Boot Security Server Mgmt Save & Exit
Display Configuration		→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit
Primary Display	[Auto]	
UMA Frame Buffer Size	[256 MB]	
DVMT Pre-Allocated	[64M]	
DVMT Total Gfx Mem	[256 M]	
Primary IGFX Boot Display	[VBIOS Default]	
OPS DDI Setting	[HDMI/DVI First]	
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.		

Primary Display

Options: Auto, IGFX, PEG, PCIE

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, CRT, DVI, HDMI1, DP1, DP2 / HDMI2

OPS DDI Setting

Options: Display Port Enabled, HDMI /DVI Enabled, HDMI / DVI First

Table 13 Advanced Menu – Display Configuration (OPS-10470/1080)

BIOS SETUP UTILITY		
Main	Advanced	Boot Security Server Mgmt Save & Exit
Display Configuration		→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit
Primary Display	[Auto]	
UMA Frame Buffer Size	[256 MB]	
DVMT Pre-Allocated	[64M]	
DVMT Total Gfx Mem	[256 M]	
Primary IGFX Boot Display	[VBIOS Default]	
OPS DDI Setting	[HDMI/DVI Only]	
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Primary Display

Options: Auto, IGFX, PEG, PCIE

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, CRT, DVI, HDMI1, DP1, DP2 / HDMI2

OPS DDI Setting

Options: Display Port Only, HDMI /DVI Only

Table 14 Advanced Menu – Super IO Configuration

BIOS SETUP UTILITY						
Main	Advanced	Boot	Security	Server Mgmt	Save & Exit	
Super IO Configuration						
>Serial Port 1 Configuration						
>Serial Port 2 Configuration						
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Table 15 Advanced Menu –Super IO Configuration – Serial Port 1 Configuration

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

Table 16 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 ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit
Serial Port	[Enabled]	
Device Settings	IO=2F8h; IRQ=3	
Change Settings	[Auto]	
Serial Port 2 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 2 Type

Options: RS232, RS422, RS485

Table 17 Advanced Menu –CPU Chipset Configuration

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

Options: Disabled, Enabled

Turbo Mode

Options: Disabled, Enabled

Hyper Threading

Options: Disabled, Enabled

VT-d

Options: Disabled, Enabled

Active Processor Cores

Options: All, 1, 2, 3

Limit CPUID Maximum

Options: Disabled, Enabled

Execute Disable Bit

Options: Disabled, Enabled

Intel® Virtualization Tech

Options: Disabled, Enabled

Table 18 Advanced Menu –SATA Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
SATA Controller(s)		[Enabled]		→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit
SATA Mode Selection		[AHCI]		
SATA Controller Speed		[Default]		
Serial ATA Port 0 Port 0		Empty [Enabled]		
Serial ATA Port 1 Port 4		Empty [Enabled]		
Serial ATA Port 2 Port 5		Empty [Enabled]		
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SATA Controller(s)

Options: Disabled, Enabled

SATA Mode Selection

Options: IDE, AHCI, RAID

SATA Controller Speed

Options: Gen 1, Gen 2, Gen 3

Port 0, 4, 5

Options: Disabled, Enabled

Table 19 Advanced Menu –USB Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
USB Configuration USB Devices: 1 Keyboard, 1 Mouse, 2 Hubs LegacyUSB Support [Enabled] USB 3.0 Support [Enabled] XHCI hand-off [Enabled] EHCI Hand-off [Disabled] USB Mass Storage Driver Support [Enabled]			→ ← 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

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 20 Advanced Menu –AMT Configuration

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Intel AMT		[Enabled]		→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit
Un-Configure ME		[Disabled]		
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Intel AMT

Options: Disabled, Enabled

Un-Configure ME

Options: Disabled, Enabled

Table 21 Advanced Menu –TPM Configuration

BIOS SETUP UTILITY						
Main	Advanced	Boot	Security	Server Mgmt	Save & Exit	
TPM Configuration					→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit	
Security Device Support			[Disabled]			
Current Status Information						
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Security Device Support

Options: Disabled, Enabled

Table 22 Advanced Menu –H/W Monitor

BIOS SETUP UTILITY	
Main	Advanced
PC Health Status Smart FAN Configuration CPU Temperature : +76 C Memory Temperature : +37 C System Temperature : +41 C CPU FAN Speed : +4731RPM +V CORE : +1.784 V +VIN : +11.520 V +5V : +5.114 V +3.3V : +3.372 V	→ ← 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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Smart FAN Configuration

CPU FAN Setting [Manual]

Options: Manual , Smart

Manual Duty 255

System FAN Setting [Manual Mode]

Options: Manual , Smart

Manual Duty 255

Table 23 Power Configuration

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

EUP Power Saving Mode

Options: Disabled, Enabled

DeepSx Power Policies

Options: Disabled, EUP Enabled, DeepSx in S5,
DeepSx in S4-S5, DeepSx in S3-S4-S5

Resume By PCIE Device

Options: Disabled, Enabled

Resume By RTC Alarm

Options: Disabled, Enabled

Watchdog Timer Configuration

■ **WDT Function** [Disabled]

Options: Disabled, Enabled

■ Boot Menu

Table 24 Boot Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Boot Configuration Full Screen LOGO Display [Disabled] Setup Prompt Timeout 1 Bootup NumLock State [On] UEFI Boot [Disabled] Boot Option Priorities			→ ← 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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Full Screen LOGO Display

Options: Disabled, Enabled

Bootup Numlock State

Options: On, Off

UEFI Boot

Options: Disabled, Enabled

■ Security Menu

Table 25 Security Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Password Description If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup 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 The password length must be in the following range: Minimum Length 3 Maximum length 20 Administrator Password User Password			→ ← Select Screen ↑↓ Select Item Enter: Select +- Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4 Save & Exit ESC Exit	
Version 2.15.1236. Copyright (C) 2012, American Megatrends, Inc.				

■ Save & Exit Menu

Table 26 Save & Exit Menu

BIOS SETUP UTILITY				
Main	Advanced	Boot	Security	Save & Exit
Discard 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 OPS-1000 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.