Abstract
This document is for the person who installs, administers, and troubleshoots servers and storage systems. Hewlett Packard Enterprise assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.
Notices

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## Contents

### Component identification

<table>
<thead>
<tr>
<th>Component</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front panel components</td>
<td>6</td>
</tr>
<tr>
<td>Front panel LEDs and buttons</td>
<td>6</td>
</tr>
<tr>
<td>Rear panel components</td>
<td>7</td>
</tr>
<tr>
<td>Expansion board components</td>
<td>8</td>
</tr>
<tr>
<td>Antenna connector locations</td>
<td>8</td>
</tr>
<tr>
<td>Digital I/O connector pin assignments</td>
<td>9</td>
</tr>
</tbody>
</table>

### Operations

<table>
<thead>
<tr>
<th>Operation</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install the power supply</td>
<td>10</td>
</tr>
<tr>
<td>Power up the gateway</td>
<td>10</td>
</tr>
<tr>
<td>Power down the gateway</td>
<td>10</td>
</tr>
<tr>
<td>Install the antennas</td>
<td>10</td>
</tr>
<tr>
<td>Install the WiFi or LTE antenna</td>
<td>10</td>
</tr>
<tr>
<td>Install the WiFi and LTE combo antennas</td>
<td>11</td>
</tr>
<tr>
<td>Mount the gateway</td>
<td>11</td>
</tr>
<tr>
<td>Dismount the gateway</td>
<td>12</td>
</tr>
<tr>
<td>Install the antennas</td>
<td>13</td>
</tr>
<tr>
<td>Dismount the gateway</td>
<td>14</td>
</tr>
</tbody>
</table>

### Setup

<table>
<thead>
<tr>
<th>Service</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optional services</td>
<td>15</td>
</tr>
<tr>
<td>Optimum environment</td>
<td>15</td>
</tr>
<tr>
<td>Temperature requirements</td>
<td>15</td>
</tr>
<tr>
<td>Power requirements</td>
<td>15</td>
</tr>
<tr>
<td>Installing hardware options</td>
<td>15</td>
</tr>
<tr>
<td>Installing the operating system</td>
<td>15</td>
</tr>
<tr>
<td>Installing OS using a USB key</td>
<td>16</td>
</tr>
<tr>
<td>Create an ISO-imaged USB key</td>
<td>16</td>
</tr>
<tr>
<td>Install OS using the imaged USB</td>
<td>18</td>
</tr>
<tr>
<td>Installing OS using local media</td>
<td>21</td>
</tr>
<tr>
<td>Registering the product</td>
<td>21</td>
</tr>
</tbody>
</table>

### Hardware options installation

<table>
<thead>
<tr>
<th>Option</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing the 3G/LTE module</td>
<td>22</td>
</tr>
<tr>
<td>Installing the half-length WiFi/WLAN module</td>
<td>23</td>
</tr>
<tr>
<td>Installing the full-length WiFi/WLAN module</td>
<td>25</td>
</tr>
</tbody>
</table>

### Software and configuration utilities

<table>
<thead>
<tr>
<th>Utility</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product QuickSpecs</td>
<td>27</td>
</tr>
<tr>
<td>Supported operating systems and drivers matrix</td>
<td>27</td>
</tr>
<tr>
<td>System BIOS</td>
<td>27</td>
</tr>
<tr>
<td>Updating the system BIOS</td>
<td>27</td>
</tr>
<tr>
<td>Using the system BIOS to configure gateway and troubleshoot issues</td>
<td>34</td>
</tr>
<tr>
<td>Accessing the system BIOS</td>
<td>34</td>
</tr>
</tbody>
</table>
Setting up the system BIOS .......................................................... 34
    BIOS menu components ......................................................... 34
    Navigating and modifying menu options ................................ 35
Main tab ......................................................................................... 35
    Setting the System Date and System Time ............................ 36
Advanced tab .................................................................................. 36
    PCI Subsystem Settings.......................................................... 37
    ACPI Settings........................................................................... 38
    S5 RTC Wake Settings .............................................................. 38
    CPU Configuration ................................................................. 38
    SATA Configuration ................................................................. 39
    Intel(R) Rapid Start Technology ............................................. 39
    PCH-FW Configuration ............................................................ 39
    USB Configuration ................................................................. 39
    Embedded Controller Configuration ................................. 40
    IT8768 Super IO Configuration ............................................. 40
    Serial Port Console Redirection ......................................... 40
    Network Stack ........................................................................ 40
    Intel (R) Ethernet Connection .............................................. 40
Chipset tab ..................................................................................... 40
    PCH-I0 Configuration .............................................................. 41
    System Agent (SA) Configuration ........................................ 42
Boot tab ......................................................................................... 42
    CSM parameters ..................................................................... 43
Security tab ................................................................................... 43
    Secure Boot ........................................................................... 44
Save & Exit tab ............................................................................. 45

Troubleshooting ............................................................................. 46
    Troubleshooting resources .................................................... 46

Battery ......................................................................................... 47
    Battery specifications ............................................................. 47

Warranty and regulatory information ............................................. 48
    Warranty information .............................................................. 48
    Regulatory information .......................................................... 48
    Belarus Kazakhstan Russia marking .................................... 48
    Turkey RoHS material content declaration ......................... 50
    Ukraine RoHS material content declaration ....................... 50
    Japanese certification mark for 3G module ........................... 50
    Federal Communications Commission notice for Class A equipment ......................................................... 50
    European Union (CE) compliance ..................................... 50
    Canada, Industry Canada (IC) Notices ............................... 52

Specifications .............................................................................. 55
    Product QuickSpecs ............................................................... 55
    Environmental specifications ............................................... 55
    Mechanical specifications ..................................................... 55
    Power supply specifications .................................................. 55
    Power consumption specifications ....................................... 56
Component identification

Front panel components

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USB 2.0 connectors (2)</td>
</tr>
<tr>
<td>2</td>
<td>HDMI connector</td>
</tr>
<tr>
<td>3</td>
<td>Drive bay</td>
</tr>
<tr>
<td>4</td>
<td>VGA connector</td>
</tr>
<tr>
<td>5</td>
<td>LAN connectors (2)</td>
</tr>
<tr>
<td>6</td>
<td>Optional I/O serial connectors (RS-232 or RS-422/485) (2)</td>
</tr>
<tr>
<td>7</td>
<td>USB 3.0 connectors (2)</td>
</tr>
</tbody>
</table>

Front panel LEDs and buttons
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reset button</td>
<td>Press to reset the system†</td>
</tr>
<tr>
<td>2</td>
<td>Drive LED</td>
<td>Solid or flashing white = Drive active</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off = Drive not active</td>
</tr>
<tr>
<td>3</td>
<td>Power LED</td>
<td>Solid green = System on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off = System off</td>
</tr>
<tr>
<td>4</td>
<td>Power On/Off button</td>
<td>Solid white = System on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off = System off</td>
</tr>
</tbody>
</table>

† The reset button is indented and you might need a tool such as a pin to press it.

Rear panel components

![Rear panel components diagram]

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DC input connector</td>
</tr>
<tr>
<td>2</td>
<td>LAN connectors (10/100 Mbps) with PoE capability (4)</td>
</tr>
<tr>
<td>3</td>
<td>Digital I/O connector</td>
</tr>
<tr>
<td>4</td>
<td>Mic</td>
</tr>
<tr>
<td>5</td>
<td>Line in</td>
</tr>
<tr>
<td>6</td>
<td>Line out</td>
</tr>
</tbody>
</table>
Expansion board components

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SIM card holders</td>
</tr>
<tr>
<td>2</td>
<td>3G module slots</td>
</tr>
<tr>
<td>3</td>
<td>WiFi/WLAN module slots</td>
</tr>
</tbody>
</table>

Antenna connector locations

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WiFi/WLAN antenna</td>
</tr>
<tr>
<td>2</td>
<td>3G/LTE antenna</td>
</tr>
</tbody>
</table>
## Digital I/O connector pin assignments

<table>
<thead>
<tr>
<th>Pin</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 5</td>
<td>Digital input</td>
</tr>
<tr>
<td>6 and 7</td>
<td>Digital output</td>
</tr>
<tr>
<td>8 and 9</td>
<td>Ground</td>
</tr>
</tbody>
</table>
Operations

Install the power supply

Procedure

1. Connect the power cord to the power connector at the rear of the gateway.
2. Power up the gateway.

Power up the gateway

If the gateway is connected to a power source, it powers up automatically. It needs to be powered up only after a manual shutdown.

To power up the gateway, press the Power On/Standby button twice.

Power down the gateway

Before powering down the gateway for any upgrade or maintenance procedures, you must back up critical gateway data and programs.

Use one of the following methods to power down the gateway:

• Press and release the Power On/Standby button.
  This method initiates a controlled shutdown of applications and the OS before the gateway enters standby mode.
• Press and hold the Power On/Standby button for more than 4 seconds to force the gateway to power down.
  This method forces the gateway to power down without properly exiting applications and the OS. If an application stops responding, you can use this method to force a shutdown.

Before proceeding, you must ensure that the gateway is in standby mode by verifying that the system power LED is off.

Install the antennas

Depending on the type of antenna installed, perform one of the following procedures:

• Install the WiFi or LTE antenna on page 10
• Install the WiFi and LTE combo antennas on page 11

Install the WiFi or LTE antenna

Procedure

1. Power down the gateway on page 10.
2. Dismount the gateway on page 12.
3. Locate the correct antenna.
4. Install the antenna.
5. Mount the gateway on page 11.
6. Power up the gateway on page 10.

Install the WiFi and LTE combo antennas

You can connect WiFi antenna cables only, LTE antenna cables only, or the WiFi and LTE antenna cables together.

Procedure

1. Power down the gateway on page 10.
2. Dismount the gateway on page 12.
3. Locate the correct port for installing the antenna cables.
   For antenna connector locations, see Antenna connector locations on page 8.
4. Install the antenna cable.
5. Mount the gateway on page 11.
6. Power up the gateway on page 10.

Mount the gateway

Procedure

1. Install the wall-mount bracket on the gateway with the four Torx head screws.
2. Install the wall-mount bracket to the wall with the four Torx head screws.
Dismount the gateway

Procedure

1. Remove the four Torx head screws securing the wall-mount bracket to the wall.
2. Remove the four Torx head screws securing the wall-mount bracket to the gateway, and then remove the brackets.
3. Remove the wall-mount bracket from the gateway.
Remove the bottom access panel

Using a T-10 Torx head screwdriver, remove the six Torx head screws securing the access panel to the bottom of the gateway.
Remove the drive tray

Procedure

1. Locate the drive tray on the side of the gateway.

2. Loosen the two thumbscrews securing the drive tray to the gateway, and then remove the drive tray.
Setup

Optional services

For information on the optional services offered, see the product QuickSpecs on the Hewlett Packard Enterprise website (http://www.hpe.com/info/qs).

Optimum environment

When installing the gateway, select a location that meets the environmental standards.

- **Temperature requirements**
- **Power requirements**

Temperature requirements

To ensure continued safe and reliable equipment operation, install or position the gateway in a well-ventilated, climate-controlled environment.

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>System with no modules installed</td>
<td>Operating temperature of up to 60°C (140°F)</td>
</tr>
<tr>
<td>WiFi option without extended ambient temperature support</td>
<td>0°C to 45°C (32°F to 113°F)</td>
</tr>
<tr>
<td>WiFi option with extended ambient temperature support</td>
<td>-20°C to 60°C (-4°F to 140°F)</td>
</tr>
<tr>
<td>3G option</td>
<td>-20°C to 45°C (-4°F to 113°F)</td>
</tr>
</tbody>
</table>

Power requirements

Installation of this equipment must comply with local and regional electrical regulations governing the installation of information technology equipment by licensed electricians. This equipment is designed to operate in installations covered by NFPA 70, 1999 Edition (National Electric Code) and NFPA-75, 1992 (code for Protection of Electronic Computer/Data Processing Equipment). For electrical power ratings on options, see the product rating label or the user documentation supplied with that option.

For more information on power requirements, see "Power supply specifications."

Installing hardware options

Install any hardware options before initializing the gateway. For options installation information, see the option documentation. For gateway-specific information, see Hardware options installation on page 22.

Installing the operating system

The HPE IoT Gateways are standard, Intel-based PC server systems. However, the gateway does not include a CD or DVD-ROM device for installing the OS. To install a supported operating system in the gateway, you can use one of the following methods:
Installing OS using a USB key

To install an OS using a USB key, you must perform the following procedures:

- **Create an ISO-imaged USB key**
- **Install the OS using the imaged USB key**

Create an ISO-imaged USB key

**Procedure**

1. On a separate workstation, download the **RUFUS utility**.
2. Download the portable option of the RUFUS utility.
3. Run the RUFUS utility.
4. Insert a USB drive into the workstation. The RUFUS utility will automatically detect the USB drive and display the drive details.

5. Select **ISO image** from the **Create a bootable disk using** drop-down.

6. Click the disk icon, and select the ISO image of the required OS.

7. Confirm that **Standard Windows installation** is selected.
8. Click the **Start** button to begin the USB key imaging process. It will take approximately 15 minutes for the imaging process to complete.

9. Click the **Close** button to close the RUFUS utility.

10. Safely remove the imaged USB key from the workstation.

**Install OS using the imaged USB**

**Prerequisites**
The gateway must be powered off before starting this procedure.

**Procedure**

1. Insert the USB key into the gateway.
2. **Power up the gateway** on page 10.
3. Access the System BIOS settings (**Accessing the system BIOS** on page 34).
4. Navigate to the Boot tab.
For information on navigating the BIOS menu, see Navigating and modifying menu options on page 35.

5. Select **Hard Drive BBS Priorities**.

6. Select **Boot Option #1** under Boot Option Priorities.
   
   A menu for selecting the Boot Option #1 is displayed.

7. Select the USB key as Boot Option #1.
8. Press the **Escape** key.

9. Navigate to the **Save & Exit** tab.

10. Select **Boot Override**.

11. Select the USB key option.
12. Press Enter.
13. Follow the OS installation prompts to complete the OS installation on the device.
   
   Wait for the OS installation to complete.
14. Remove the USB key from the gateway.

   The OS installation from the USB key is complete. The gateway boots from the new HDD at reboot.

**Installing OS using local media**

You can use local media such as a USB CD, DVD, or disk drive with installation media to install the OS.

To install the OS, access the System BIOS settings.

The last BIOS screen will enable you to select your installation media, temporarily overriding the default boot order.

**Registering the product**

To experience quicker service and more efficient support, register the product at the Hewlett Packard Enterprise Product Registration website.
Hardware options installation

Installing the 3G/LTE module

Procedure

1. **Power down the gateway** on page 10.
2. **Dismount the gateway** on page 12.

⚠️ **CAUTION:** DO NOT remove the top access panel under any circumstance. Removing the top access panel can harm the heatsink or void the warranty to the equipment.

3. **Remove the bottom access panel** on page 13.

**NOTE:** The 3G/LTE module can be installed in either of the two PCI slots. If there is only one 3G/LTE module installed, Hewlett Packard Enterprise recommends installing in the slot on the right.

**NOTE:** If you are installing a module that requires USB routing, install the module in the full-height PCIe slot. The half-height PCIe slot on the system board does not support USB signal.

4. Using a T-10 Torx screwdriver, install the module with the two screws.

5. Connect the two WAN antenna cables to the antenna connectors on the 3G/LTE module.
6. Install the bottom access panel.

7. **Mount the gateway** on page 11.

8. **Power up the gateway** on page 10.

**Installing the half-length WiFi/WLAN module**

You will need a half-length WiFi module adapter provided with the WiFi option kit to install this option.

**Procedure**

1. **Power down the gateway** on page 10.

2. **Dismount the gateway** on page 12.

   ⚠️ **CAUTION:** DO NOT remove the top access panel under any circumstance. Removing the top access panel can harm the heatsink or void the warranty to the equipment.

3. **Remove the bottom access panel** on page 13.

4. **Remove the drive tray** on page 14.

5. Install the WiFi module adapter using the two holes of the half-length WiFi module.
6. Insert the WiFi module connector into the full-length WiFi module slot.

7. Using a T-10 Torx screwdriver, install the half-length WiFi module and adapter assembly with the two screws.

8. Connect the two WLAN antenna cables to the antenna connectors on the half-length WiFi module.
9. Install the bottom access panel.

10. Mount the gateway on page 11.

11. Power up the gateway on page 10.

Installing the full-length WiFi/WLAN module

Procedure

1. Power down the gateway on page 10.

2. Dismount the gateway on page 12.

   CAUTION: DO NOT remove the top access panel under any circumstance. Removing the top access panel can harm the heatsink or void the warranty to the equipment.

3. Remove the bottom access panel on page 13.

4. Remove the drive tray on page 14.

5. Using a T-10 Torx screwdriver, install the full-length WiFi module with the two screws.
6. Connect the two WLAN antenna cables to the antenna connectors on the full-length WiFi module.

7. Install the bottom access panel.

8. **Mount the gateway** on page 11.

9. **Power up the gateway** on page 10.
Software and configuration utilities

Product QuickSpecs

For more information about product features, specifications, options, configurations, and compatibility, see the product QuickSpecs on the Hewlett Packard Enterprise website (http://www.hpe.com/info/qs).

Supported operating systems and drivers matrix

Operating system support

For more information on Hewlett Packard Enterprise Certified and Supported systems for the operating systems available for your system, see the Hewlett Packard Enterprise OS support website:

http://www.hpe.com/info/ossupport

ROM, BIOS, and driver support

For more information on Hewlett Packard Enterprise Certified and Supported systems for the latest software ROM, BIOS, and drivers available for your system, see the Hewlett Packard Enterprise Support Center website:

http://www.hpe.com/support/hpesc

System BIOS

Updating the system BIOS

You can download the latest system BIOS, whenever updates are available, from the Hewlett Packard Enterprise Support Center website (http://www.hpe.com/info/ossupport).

For more information on product entitlement, and accessing product updates, see Accessing updates on page 58.

Prerequisites

- You need an empty USB drive that is FAT32 formatted for saving the utility and bin files for updating the system BIOS.
- Product entitlement is required to perform updates.

Procedure

1. Go to the Hewlett Packard Enterprise Support Center website.
2. Download the afuefix64.efi utility and <xxxxx> BIOS bin files to the USB drive.
3. Remove the USB drive and connect it to the system.
4. Power up the gateway on page 10.
5. Access the system BIOS (Accessing the system BIOS on page 34).
6. Locate the BIOS version.
   If the Build Date is 12/16/2015, the BIOS must be updated.
7. Identify the current Management Engine version by using Advanced —> PCH-FW Configuration.

The old Management Engine Firmware version is 9.5.13.1706 and the updated version is 9.5.61.3012.
Alternatively, press the Ctrl+P keys while the device boots to identify the ME FW version.

8. Modify the following settings in the BIOS:
   b. Set UEFI: Built-in EFI Shell as Boot Option #1.
9. Select **Save Changes and Exit**.

The settings changes made so far will take effect only if you save and exit.

The system will now boot to the Shell. The following is a sample screen:
10. Identify the USB drive.

The following is a sample screen with fs1 as the USB drive.

```
fs0 :HardDisk - Alias hd30ce55535a1 blk0
   PciRoot(0x0)/Pci(0x1f,0x2)/Sata(0x2,0x0)/HD(1,GPT,7e40b416-05b8-44b7-b3a
   3-acaf699156be,0x800,0x1000000)

fs1 :Removable HardDisk - Alias hd26b0db blk1
   PciRoot(0x0)/Pci(0x1d,0x0)/USB(0x1,0x0)/USB(0x3,0x0)/HD(1,MBR,0x00000000
   0x80,0x775f80)

blk0 :HardDisk - Alias hd30ce55535a1 fs0
   PciRoot(0x0)/Pci(0x1f,0x2)/Sata(0x2,0x0)/HD(1,GPT,7e40b416-05b8-44b7-b3a
   3-acaf699156be,0x800,0x1000000)

blk1 :Removable HardDisk - Alias hd26b0db blk1
   PciRoot(0x0)/Pci(0x1d,0x0)/USB(0x1,0x0)/USB(0x3,0x0)/HD(1,MBR,0x00000000
   0x80,0x775f80)

blk2 :HardDisk - Alias (null)
   PciRoot(0x0)/Pci(0x1f,0x2)/Sata(0x2,0x0)/HD(2,GPT,bad580b5-0d06-4cb1-8c5
   f-2186a741eb5,0x100800,0x4000)

blk3 :HardDisk - Alias (null)
   PciRoot(0x0)/Pci(0x1f,0x2)/Sata(0x2,0x0)/HD(3,GPT,09f541ea-9634-442a-950
   f-0b75f33b6f54,0x1f4000,0x74512000)

blk4 :BlockDevice - Alias (null)
   PciRoot(0x0)/Pci(0x1f,0x2)/Sata(0x2,0x0)

blk5 :Removable BlockDevice - Alias (null)
   PciRoot(0x0)/Pci(0x1d,0x0)/USB(0x1,0x0)/USB(0x3,0x0)
```

Press ESC in 3 seconds to skip startup.nsh, any other key to continue. $Shell>

11. Initiate the BIOS update:

   a. To select the USB drive, enter the `fs1:` command.

   b. To ensure that both the utility and bin files are visible, enter the `dir` command.
c. To initiate the update, enter the `AfuEfix64.efi XXXX.bin /P /B /N /X /ME` command.

In the following sample screen, the command is: `AfuEfix64.efi L510K112.BIN /P /B /N /X /ME`

You will see a screen similar to the following while the update is in progress:

```
02/25/16 11:41a  390,256  AfuEfix64.efi
06/28/17 01:37p  16,777,216 L510K112.BIN
2 File(s)  17,167,472 bytes
0 Dir(s)
```

After the update, one of the following screens appear:
• An error screen showing that the BIOS does not support ME Entire Firmware update. The following is a sample screen:

```
fs1:/> AfulEfix64.efi L510K112.BIN /P /B /N /X /ME
AMI Firmware Update Utility v5.08.01.1167
Copyright (C)2016 American Megatrends Inc. All Rights Reserved.
Reading flash ................. done
- ME Data Size checking . ok
- FFS checksums .......... ok
Erasing Boot Block .......... done
Updating Boot Block ......... done
Verifying Boot Block ........ done
Erasing Main Block .......... done
Updating Main Block .......... done
Verifying Main Block .......... done
Erasing NVRAM Block ......... done
Updating NVRAM Block ....... done
Verifying NVRAM Block ....... done
- Error : No Memory Allocated!!
a1 - Error: BIOS does not support ME Entire Firmware update.
```

To fix this error, repeat the steps from accessing the BIOS to save changes and exit, and then run the update again.

• A screen showing that the BIOS update was successful. The following is a sample screen:

```
fs1:/> AfulEfix64.efi L510K112.BIN /P /B /N /X /ME
AMI Firmware Update Utility v5.08.01.1167
Copyright (C)2016 American Megatrends Inc. All Rights Reserved.
Reading flash ................. done
- ME Data Size checking . ok
- FFS checksums .......... ok
Erasing Boot Block .......... done
Updating Boot Block ......... done
Verifying Boot Block ........ done
Erasing Main Block .......... done
Updating Main Block .......... done
Verifying Main Block .......... done
Erasing NVRAM Block ......... done
Updating NVRAM Block ....... done
Verifying NVRAM Block ....... done
- update success for /OPT!
- update success for /MDE
WARNING: System must power-off to have the changes take effect!
```

12. **Power down the gateway** on page 10 for the changes to take effect.

All BIOS options are restored to the default values and the Management Engine password is set back to the default password.

The Build Date now appears updated to 06/13/2017 on the BIOS Main tab. The ME FW version is now 9.5.61.3012.
Using the system BIOS to configure gateway and troubleshoot issues

The gateway can be set up and configured through the system BIOS. The system BIOS also has options for restoring default configurations and resetting the system. The setup information is stored in the battery-backed CMOS, therefore it retains the setup information even when the power is turned off.

For more information, see "Setting up the system BIOS."

Accessing the system BIOS

Procedure

1. Connect KVM to the gateway.
2. Power up the gateway.
3. Press the Delete key or the F2 key.

The BIOS Main tab is displayed.

Setting up the system BIOS

BIOS menu components

The BIOS menu has the following frames:
Navigating and modifying menu options

Procedure

1. Access the system BIOS.
2. Press the right arrow key to navigate to the tab to modify.
3. Press the up and down arrow keys to navigate to the sub-menu options on the left frame.
4. When you reach a sub-menu option to modify, press the Enter key.
5. Press the + key or the - key to modify the setting selected.
6. Do one of the following:
   • Press the F4 key to save the new setting and exit.
   • Press the Esc key to exit without saving.

Main tab
Setting the System Date and System Time

Procedure

1. Access the system BIOS Main tab.
2. Press the up and down arrow keys to navigate to the sub-menu options on the left frame.
3. When you reach a sub-menu option to modify, press the Enter key.
4. Press the Tab key or the arrow keys to navigate the fields.
5. Enter the new values.
   The date must be entered in the MM/DD/YY format. The time must be entered in the HH:MM:SS format.
6. Do one of the following:
   • Press the F4 key to save the new values and exit.
   • Press the Esc key to exit without saving.

Advanced tab

The Advanced tab has the following menu options:

• PCI Subsystem Settings
• ACPI Settings
• S5 RTC Wake Settings
• CPU Configuration
• SATA Configuration
• Intel(R) Rapid Start Technology
• PCH-FW Configuration
• AMT Configuration (not active)
• USB Configuration
• Embedded Controller Configuration
• IT8768 Super IO Configuration
• Serial Port Console Redirection
• Network Stack
• Intel(R) Ethernet Connection
PCI Subsystem Settings

The PCI Bus driver version and common settings are displayed, including:

- **PCI Latency Timer**—Displays value programmed into the PCI Latency Timer Registry
- **VGA Palette Snoop**—Enables or disables VGA palette register snooping
- **PERR# Generation**—Enables or disables the PCI device to generate PERR#
- **SERR# Generation**—Enables or disables the PCI device to generate SERR#

**PCI Express Settings:**
- **Relaxed Ordering**—Enables or disables PCI Express device relaxed ordering
- **Extended Tag**—Enables user to set the PCI Express device to use an 8-bit tag field as a requester
- **No Snoop**—Enables or disables PCI Express device No Snoop option
- **Maximum Payload**—Enables user to set maximum payload of PCI Express device, or allow the system BIOS to select the value (Auto)
- **Maximum Read Request**—Enables user to set maximum read request size of PCI Express device or allow the system BIOS to select the value (Auto)
- **ASPM Support**—Enables user to set the ASPM level
- **Extended Synch**—Enables user to allow the generation of extended synchronization patterns.
- **Link Training Retry**—Enables user to define the number of retry attempts the software will make to retrain the link if previous training attempt was unsuccessful
- **Link Training Timeout (uS)**—Enables user to define the number of microseconds the software will wait before polling 'Link Training' bit in Link Status register. Values range from 10 to 10,000.

- **Unpopulated Links**—Enables user to set to 'Disable Link' in order to save power by unpopulating the PCI Express links

- **Restore PCIE Registers**—Enables user to restore PCI Express device configurations. Enabling might cause issues with other hardware components.

### ACPI Settings

- **Enable ACPI Auto Configuration**—Enables or disables BIOS ACPI auto configuration
- **Enable Hibernation**—Enables or disables the system's ability to hibernate
- **ACPI Sleep State**—Enables user to set the ACPI sleep state
- **Lock Legacy Resources**—Enables or disables the lock of legacy devices' resources
- **S3 Video Repost**—Enables or disables S3 video repost
- **ACPI Low Power S0 Idle**—Enables or disables system wake on alarm event by items settings

### S5 RTC Wake Settings

*Wake system with fixed time*—Enables or disables system wake on alarm event

### CPU Configuration

General CPU configuration values and settings are displayed, including:

- **Hyper Threading**—Enables or disables Intel Hyper Threading technology
- **Active Processor Cores**—Enables user to set the number of processor cores that should be active
- **Limit CPUID Maximum**—Enables user to limit the maximum value of CPUID
- **Execute Disable Bit**—Enables or disables the No-Execution page protection technology
- **Intel Virtualization Technology**—Enables or disables Intel's virtualization technology
- **Hardware Prefetcher**—Enables or disables the hardware pre-fetcher feature
- **Adjacent Cache Line Prefetch**—Enables or disables the adjacent cache line pre-fetch feature
- **CPU AES**—Enables or disables CPU Advanced Encryption Standard instructions
- **Boot performance mode**—Enables user to select the performance state that the BIOS will set before OS handoff
- **EIST**—Enables or disables Intel SpeedStep
- **Turbo Mode**—Enables or disables Turbo mode
- **Energy Performance**—Enables user to optimize performance and power savings
- **CPU C-states**—Enables or disables CPU C-states
- **ACPI CTDP BIOS**—Enables or disables the ACPI CTDP BIOS support
• **Configurable TDP Level**—Enables user to allow reconfiguration of TDP levels based on current power and thermal delivery capabilities of the system

• **Config TDP LOCK**—Enables user to lock the Config TDP Control register

**SATA Configuration**

• **SATA Controller(s)**—Enables or disables the SATA controllers

• **SATA Mode Selection**—Enables user to select the mode of SATA controllers

• **Aggressive LPM Support**—Enables or disables the aggressive LPM support

• **SATA Controller Speed**—Enables user to select the mode of SATA controller speed

• **Software Feature Mask Configuration**—Enables or disables storage features

Each SATA port is displayed with the following information and options:

• **Software Preserve**

• **Port #**—Enables or disables the SATA port

• **Hot Plug**—Enables or disables the hot plug

• **External SATA**—Enables or disables the external SATA

• **SATA Device type**—Enables user to select the mode of SATA device type

**Intel(R) Rapid Start Technology**

Intel(R) Rapid Start Technology—Enables or disables Rapid Start Technology, if supported

**PCH-FW Configuration**

The ME technology parameters are displayed, including:

• **ME Firmware Version**—Displays the current firmware version

• **ME Firmware Mode**—Displays the current firmware mode

• **ME Firmware Type**—Displays the current firmware type

• **ME Firmware SKU**—Displays the current firmware SKU

• **PTT Capability/State**—Displays the PTT capability and state

• **Firmware Update Configuration**—Enables or disables ME firmware image re-flash function

**USB Configuration**

The USB configuration and device options are displayed, including:

• **Legacy USB Support**—Enables user to set support for legacy USB. Auto option disables legacy support if no USB devices are connected.

• **USB 3.0 Support**—Enables or disables USB 3.0 support

• **XHCI Hand-Off**—Offers user a workaround for the OS without XHCI hand-off support. The XHCI ownership change should be claimed by the XHCI driver.
• **EHCI Hand-Off**—Offers user a workaround for the OS without EHCI hand-off support. The EHCI ownership change should be claimed by the EHCI driver.

• **USB Mass Storage Driver Support**—Enables or disables mass storage support

• **USB transfer time-out**—Enables user to set the time-out value for control, bulk, and interrupt transfers

• **Device reset time-out**—Enables user to set the USB mass storage device start unit command time-out value

• **Device power-up delay**—Enables user to set the maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100 ms: for a Hub port the delay is taken from Hub descriptor.

**Embedded Controller Configuration**

The EC firmware version and general functions are displayed, including:

• **EC Power Saving Mode**—Enables user to set the EC power saving mode

• **EC Watchdog Function**—Enables user to set the EC watchdog timer

**IT8768 Super IO Configuration**

The Super Chip configuration details are displayed, including:

• **Serial Port 1 Configuration**—Enables user to configure serial port 1

• **Serial Port 2 Configuration**—Enables user to configure serial port 2

**Serial Port Console Redirection**

The COM1 settings and console redirection settings are displayed, including:

• **Console Redirection**—Enables or disables console redirection for Microsoft Windows EMS

• **Console Redirection Settings**—Enables user to set configuration console redirection detail settings

**Network Stack**

**Network Stack**—Enables or disables the UEFI network stack

**Intel (R) Ethernet Connection**

The Port Configuration Menu information is displayed, including:

• **NIC Configuration**—Enables user to configure the boot protocol, wake on LAN, link speed, and VLAN details

• **Blink LEDs**—Enables user to identify the physical network port by flashing the associated LED

• **Link Status**—Displays the link status (connected or disconnected)

**Chipset tab**

The Chipset tab has the following sub-menu options:
PCH-IO Configuration

- **PCI Express Configuration**—Displays PCIE1~PCIE8 root port detail configuration settings:
  - **PCI Express Clock Gating**—Enables or disables PCI Express Clock Gating for each root port
  - **DMI Link ASPM Control**—Enables or disables the DMI Link ASPM Control
  - **DMI Link Extended Synch Control**—Enables user to configure the Mini PCI Express setting
  - **PCIe-USB Glitch W/A**—Enables or disables PCIe-USB Glitch workaround for bad USB devices connected behind the PCIE/PEG Port.
  - **PCI Root Port Function Swapping**—Enables or disables PCI Express root port function swapping
  - **Subtractive Decode**—Enables or disables subtractive decode
  - **PCI Express Root Port 1/2/3/6**—Enables user to configure PCI express root port 1/2/3/6 setting

- **USB Configuration**—Displays configuration of USB functions:
  - **USB Precondition**—Enables or disables USB precondition. Precondition work on the USB host controller and root ports for faster enumeration.
  - **XHCI Mode**—Enables user to select the mode of operation of XHCI mode
  - **XHCI Idle L1**—Enables or disables XHCI Idle L1. The XHCIIDLE L1 can be set to disabled for LPT-LP Ax stepping to work around USB 3.0 hot plug failure after 1 hot-plug removal.
- **BTCG**—Enables or disables trunk clock gating
- **USB Ports Per-Port Disable Control**—Enables or disables USB ports per-port disable control
- **PCH Azalia Configuration**—Displays configuration of azalia functions
- **LAN 1/2 controller**—Enables or disables the LAN 1/2 controller:
  - **LAN 1/2 PXE Rom**—Enables or disables PXE Rom for LAN 1/2
  - **Wake on LAN**—Enables or disables LAN1 wake up from sleep state
- **PCIE Wake from S5**—Enables or disables PCIE device wake up from S5
- **USB Wake From S4 Support**—Enables or disables USB to wake the system from S4
- **SLP_S4 Assertion Width**—Enables user to set a delay
- **Restore AC Power Loss**—Enables user to set off, on, and last state

### System Agent (SA) Configuration

- **VT-d**—Enables or disables VT-d
- **Graphics Configuration:**
  - **Graphics Turbo IMON Current**—Enables user to select the graphics turbo IMON current
  - **Primary Display**—Enables user to select primary display
  - **Internal Graphics**—Enables or disables IGD
  - **Aperture Size**—Enables user to select aperture size
  - **DVMT Pre-Allocated**—Enables user to select DVMT pre-allocated memory size
  - **DVMT Total Gfx Mem**—Enables user to select DVMT total memory size
  - **Gfx Lower Power Mode**—Available for SFF only. Enables user to lower the graphics power mode.
  - **LCD Control:**
    - **Primary IGFX Boot Display**—Enables user to select boot display device at post stage
- **Memory Configuration:**
  - **Memory Information**—Displays memory configuration parameters

### Boot tab

The Boot tab has the following sub-menu options:

- **Setup Prompt Timeout**—Displays the number of seconds to wait for setup activation key
- **Bootup NumLock State**—Enables to select the keyboard NumLock state
- **Quiet Boot**—Enables or disables the Quiet Boot option
- **UEFI Boot**—Enables or disables the ability to boot from UEFI devices
- **Boot Option Priorities**—Enables user to set the system boot priority order
- **Hard Drive BBS Priorities**—Enables user to set the order of legacy devices
- **CSM parameters**—Enables user to set the order of legacy devices
CSM parameters

- **Launch CSM**—Enables or disables CSM launch
- **Boot option filter**—Enables user to select which devices the system can boot to
- **Launch PXE OpROM policy**—Enables user to control the execution of UEFI and legacy PXE Option ROM
- **Launch Storage OpROM policy**—Enables user to control the execution of UEFI and legacy Storage Option ROM
- **Launch Video OpROM policy**—Enables user to control the execution of UEFI and legacy Video EFI Option ROM
- **Other PCI device ROM priority**—Enables user to define which Option ROM to launch for PCI devices other than network, mass storage, or video

Security tab

The Security tab has the following sub-menu options:

- **Administrator password**—Enables user to set the administrator password
- **User password**—Enables user to set the user password
- **HDD Security configuration**—Enables user to set the HDD password
- **Secure Boot menu**—Enables user to customize the secure boot settings
Secure Boot

The system mode and secure boot configuration is displayed, including the following:

- **Secure Boot**—Enables or disables Secure Boot
- **Secure Boot Mode**—Secure Boot mode selector. Enables user to change the image execution policy and manage secure boot keys
- **Key Management**—Enables experienced users to modify secure boot variables:
  - **Default Key Provision**—Enables user to install factory default secure boot keys when the system is in Setup mode
  - **Enroll All Factory Default Keys**—Enables user to force system into User mode after reboot
  - **Save All Secure Boot Variables**—Enables user to store the content of each secure boot variable to file system root folder
  - **Platform Key**—Enables user to delete or set new Platform Key
  - **Key Exchange Key**—Enables user to delete, set, or append Key Exchange Key
  - **Authorized Signatures**—Enables user to delete, set, or append DB
  - **Authorized Timestamps**—Enables user to delete, set, or append DBT
  - **Forbidden Signatures**—Enables user to delete, set, or append DBX
Save & Exit tab

The Save & Exit menu tab includes the following menu options:

- **Save Changes and Exit**—Enables user to exit system setup after saving changes
- **Discard Changes and Exit**—Enables user to exit system setup without saving any changes
- **Save Changes and Reset**—Enables user to reset the system after saving the changes
- **Discard Changes and Reset**—Enables user to reset the system without saving the changes
- **Save Changes**—Enables user to save changes made so far to any of the options
- **Discard Changes**—Enables user to discard changes made so far to any of the options
- **Restore Defaults**—Enables user to restore/load default values for all the options
- **Save as User Defaults**—Enables user to save the changes made so far as user defaults
- **Restore User Defaults**—Enables user to restore the user defaults to all the options
- **Boot Override**—Enables user to override your boot priority
Troubleshooting

Troubleshooting resources

The *HPE GL20 IoT Gateway Maintenance and Service Guide* includes additional troubleshooting resources, and is available on the Hewlett Packard Enterprise website ([http://www.hpe.com/info/edgeline-docs](http://www.hpe.com/info/edgeline-docs)).
## Battery

### Battery specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>CR2032 RTC batteries with a rating of 210 mAh</td>
</tr>
<tr>
<td>Power</td>
<td>Battery RTC circuitry draws 2μA when in use (system off)</td>
</tr>
<tr>
<td>Maximum Battery Life Cycle</td>
<td>210 mAh/2 μAh = 10,5000 hours</td>
</tr>
</tbody>
</table>

Maximum Battery Life Cycle under Storage Mode

105000 hours/(365 x 24) = 11.98 years
(Battery in Storage Mode - System Powered Off all day, RTC battery is in use)

Maximum Battery Life Cycle under Operation Mode

105000 hours/(365 x (24-8)) = 17.97 years
(Battery in Operation Mode - System Power On, 8 hours/day, RTC circuitry does not use battery power when system is on)
Warranty and regulatory information

Warranty information

To view the warranty for your product or to view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products reference document, go to the Enterprise Safety and Compliance website:

www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional warranty information
HPE ProLiant and x86 Servers and Options
www.hpe.com/support/ProLiantServers-Warranties
HPE Enterprise Servers
www.hpe.com/support/EnterpriseServers-Warranties
HPE Storage Products
www.hpe.com/support/Storage-Warranties
HPE Networking Products
www.hpe.com/support/Networking-Warranties

Regulatory information

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:

www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional regulatory information
Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

www.hpe.com/info/reach

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

www.hpe.com/info/ecodata

For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

www.hpe.com/info/environment

Belarus Kazakhstan Russia marking

EAC

Manufacturer and Local Representative Information
Manufacturer information:

Hewlett Packard Enterprise Company, 3000 Hanover Street, Palo Alto, CA 94304 U.S.

Local representative information Russian:

• Russia:
  ООО «Хьюлетт Паккард Энтерпрайз», Российская Федерация, 125171, г. Москва, Ленинградское шоссе, 16А, стр.3, Телефон/факс: +7 495 797 35 00

• Belarus:
  ИООО «Хьюлетт-Паккард Бел», Республика Беларусь, 220030, г. Минск, ул. Интернациональная, 36-1, Телефон/факс: +375 17 392 28 20

• Kazakhstan:
  ТОО «Хьюлетт-Паккард (К)», Республика Казахстан, 050040, г. Алматы, Бостандыкский район, проспект Аль-Фараби, 77/7, Телефон/факс: +7 727 355 35 52

Local representative information Kazakh:

• Russia:
  ЖШС "Хьюлетт Паккард Энтерпрайз", Расей Федерациисы, 125171, Мескеу, Ленинград тас жолы, 16А блок 3, Телефон/факс: +7 495 797 35 00

• Belarus:
  «HEWLETT-PACKARD Бел» ЖШС, Беларусь Республикасы, 220030, Минск Қ., Интернациональная кешесі, 36/1, Телефон/факс: +375 17 392 28 20

• Kazakhstan:
  ЖШС «Хьюлетт-Паккард (К)», Қазақстан Республикасы, 050040, Алматы Қ., Бостандық ауданы, Әл-Фараби данғылы, 77/7, Телефон/факс: +7 727 355 35 52

Manufacturing date:

The manufacturing date is defined by the serial number.

CCSYWWZZZZ (serial number format for this product)

Valid date formats include:

• YWW, where Y indicates the year counting from within each new decade, with 2000 as the starting point; for example, 238: 2 for 2002 and 38 for the week of September 9. In addition, 2010 is indicated by 0, 2011 by 1, 2012 by 2, 2013 by 3, and so forth.

• YYWW, where YY indicates the year, using a base year of 2000; for example, 0238: 02 for 2002 and 38 for the week of September 9.
Turkey RoHS material content declaration
Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

Ukraine RoHS material content declaration
Обліднання відповідає вимогам Технічного регламенту щодо обмеження використання деяких небезпечних речовин в електричному та електронному обладнанні, затвердженого постановою Кабінету Міністрів України від 3 грудня 2008 № 1057

Japanese certification mark for 3G module

Federal Communications Commission notice for Class A equipment

This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions:

• This device may not cause harmful interference.
• This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

This equipment complies with radio frequency (RF) exposure limits adopted by the Federal Communications Commission for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Changes or modifications not expressly approved by the party responsible for compliance could void the authority of the user to operate the equipment.

European Union (CE) compliance

Table 1: 7260 module (optional)

<table>
<thead>
<tr>
<th>Operating frequency band</th>
<th>Maximum radio frequency (RF) power transmitted (dBm, EIRP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bluetooth</td>
<td>8</td>
</tr>
<tr>
<td>BLE</td>
<td>6.5</td>
</tr>
<tr>
<td>WLAN 2.4 GHz</td>
<td>20</td>
</tr>
<tr>
<td>WLAN 5 GHz</td>
<td>17</td>
</tr>
</tbody>
</table>
### Table 2: MC7430 module (optional)

<table>
<thead>
<tr>
<th>Operating frequency band</th>
<th>Maximum radio frequency (RF) power transmitted (dBm, conducted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMTS band 1</td>
<td>23.5</td>
</tr>
<tr>
<td>UMTS band 8</td>
<td>23.5</td>
</tr>
<tr>
<td>LTE band 1</td>
<td>23</td>
</tr>
<tr>
<td>LTE band 3</td>
<td>23.5</td>
</tr>
<tr>
<td>LTE band 7</td>
<td>22</td>
</tr>
<tr>
<td>LTE band 8</td>
<td>23.5</td>
</tr>
<tr>
<td>LTE band 28</td>
<td>23.5</td>
</tr>
<tr>
<td>LTE band 38</td>
<td>21.5</td>
</tr>
<tr>
<td>LTE band 39</td>
<td>23</td>
</tr>
<tr>
<td>LTE band 40</td>
<td>22</td>
</tr>
<tr>
<td>LTE band 41</td>
<td>22</td>
</tr>
</tbody>
</table>

### Table 3: MC7455 module (optional)

<table>
<thead>
<tr>
<th>Operating frequency band</th>
<th>Maximum radio frequency (RF) power transmitted (dBm, conducted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMTS band 1</td>
<td>23.5</td>
</tr>
<tr>
<td>UMTS band 3</td>
<td>23.5</td>
</tr>
<tr>
<td>UMTS band 8</td>
<td>23</td>
</tr>
<tr>
<td>LTE band 1</td>
<td>23.5</td>
</tr>
<tr>
<td>LTE band 3</td>
<td>23.5</td>
</tr>
<tr>
<td>LTE band 7</td>
<td>22</td>
</tr>
<tr>
<td>LTE band 8</td>
<td>23</td>
</tr>
<tr>
<td>LTE band 20</td>
<td>23</td>
</tr>
</tbody>
</table>

The device is restricted to indoor use only when operating in the 5150 to 5350 MHz frequency range.

⚠️ **WARNING:** Risk of explosion if a battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

**RF exposure information (MPE)**

This device meets the EU requirements and the International Commission on Non-Ionizing Radiation Protection (ICNIRP) on the limitation of exposure of the general public to electromagnetic fields by way of...
health protection. This equipment should be installed and operated to ensure a minimum of 20 cm spacing to any person at all times.

Hereby, Hewlett Packard Enterprise declares that the radio equipment type used in the gateway is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address:

www.address.com/DoC.pdf


Waste Electrical and Electronic Equipment (WEEE)

This symbol means that according to local laws and regulations your product and/or its battery shall be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. Proper recycling of your product will protect human health and the environment.

Canada, Industry Canada (IC) Notices

Class A digital circuitry of this device complies with Canadian ICES-003.

This device complies with Industry Canada license-exempt RSS standards. Operation is subject to the following conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Under Industry Canada regulations, the radio transmitters in this device may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than what is necessary for successful communication.

WARNING:

1. The device for operation in the band 5150 MHz to 5250 MHz is only for indoor use to reduce the potential for harmful interference to cochannel mobile satellite systems.
2. The maximum antenna gain permitted for devices in the bands 5250 MHz to 5350 MHz and 5470 MHz to 5725 MHz shall comply with the e.i.r.p. limit.
3. The maximum antenna gain permitted for devices in the band 5725 MHz to 5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.
4. Users should also be advised that high-power radars are allocated as primary users (that is, priority users) of the bands 5250 MHz to 5350 MHz and 5650-5850 MHz and that these radars could cause interference and damage to LE-LAN devices, or both.

Radio Frequency (RF) Exposure Information

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.
This device and its antennas must not be colocated or operating in conjunction with any other antenna or transmitter.

This device has been certified for use in Canada. Status of the listing in the Industry Canada REL (Radio Equipment List) can be found at the following website:


Additional Canadian information on RF exposure can also be found at the following web site:


Canada, avis d'Industry Canada (IC)

La circuiterie numérique de Classe A cet appareil est conforme à la norme canadienne ICES-003.

Cet appareil est conforme aux normes d'exemption de licence RSS d'Industry Canada.

Son fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne doit pas causer d'interférence.
2. Cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

Conformément aux réglementations d'Industry Canada, les émetteurs radio de cet appareil ne peuvent fonctionner qu'à l'aide d'une antenne dont le type et le gain maximal (ou minimal) pour ces émetteurs-transmetteurs sont approuvés par Industry Canada. Pour réduire le risque d'interférence éventuelle pour les autres utilisateurs, le type et le gain de l'antenne doivent être choisis de manière à ce que la puissance isotrope rayonnée équivalente (p.i.r.e.) minimale nécessaire à une bonne communication soit fournie.

⚠️ WARNING:

1. Les dispositifs fonctionnant dans la bande 5 150 MHz - 5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux

2. Le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5 250 MHz - 5 350 MHz et 5 470-5 725 MHz doit se conformer à la limite de p.i.r.e.

3. Le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5 725 MHz -5 825 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

4. Les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5 250-5 350 MHz et 5 650-5 850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

Informations sur l'exposition à la fréquence radio (FR)

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Cet appareil est homologué pour l'utilisation au Canada. Pour consulter l'entrée correspondant à l'appareil dans la liste d'équipement radio (REL - Radio Equipment List) d'Industry Canada, rendez-vous sur:

Pour des informations canadiennes supplémentaires sur l'exposition FR, rendez-vous sur:
Specifications

Product QuickSpecs

For more information about product features, specifications, options, configurations, and compatibility, see the product QuickSpecs on the Hewlett Packard Enterprise website (http://www.hpe.com/info/qspec).

Environmental specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range¹</td>
<td>—</td>
</tr>
<tr>
<td>Operating</td>
<td>-20°C to 60°C (-4°F to 140°F) with 0.7 m/s air flow with extended temperature peripherals</td>
</tr>
<tr>
<td></td>
<td>0°C to 45°C (32°F to 113°F) with 0.7 m/s air flow with extended temperature peripherals</td>
</tr>
<tr>
<td>Non-operating</td>
<td>-40°C to 85°C (-40°F to 185°F)</td>
</tr>
<tr>
<td>Relative humidity (noncondensing)</td>
<td>95% relative humidity at 40°C</td>
</tr>
</tbody>
</table>

¹ All temperature ratings shown are for sea level. An altitude derating of 1.0°C per 304.8 m (1.8°F per 1000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. Maximum rate of change is 20°C per hour (36°F per hour).

Mechanical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>26.45 cm (10.41 in)</td>
</tr>
<tr>
<td>Width</td>
<td>13.30 cm (5.24 in)</td>
</tr>
<tr>
<td>Depth</td>
<td>7.51 cm (2.96 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>2.72 kg (6.0 lb)</td>
</tr>
</tbody>
</table>

Power supply specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC input to power supply requirements</td>
<td></td>
</tr>
<tr>
<td>Rated input voltage</td>
<td>100 to 240 VAC</td>
</tr>
<tr>
<td>Rated input frequency</td>
<td>50 Hz to 60 Hz</td>
</tr>
<tr>
<td>Rated input current</td>
<td>2.0 A</td>
</tr>
<tr>
<td>DC direct input requirements</td>
<td></td>
</tr>
<tr>
<td>Rated input voltage</td>
<td>9 to 36 VDC (1.5 KV isolated)</td>
</tr>
<tr>
<td>Rated input frequency</td>
<td>&gt;10.9V for full power</td>
</tr>
<tr>
<td>Rated input current</td>
<td>~12.5 A (@ 12 VDC)</td>
</tr>
</tbody>
</table>

Table Continued
### Power supply output

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated output voltage</td>
<td>19.0 V</td>
</tr>
<tr>
<td>Rated output current</td>
<td>7.89 A</td>
</tr>
</tbody>
</table>

### Power consumption specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical</td>
<td>70 W with full load on PoE(^1)</td>
</tr>
<tr>
<td>Maximum</td>
<td>35 W</td>
</tr>
</tbody>
</table>

\(^1\) The four-port PoE power budget is 30 W in total. Each PoE port supports up to <15 W at 802.3af Class 3.
Websites

General websites
Hewlett Packard Enterprise Information Library
   www.hpe.com/info/EIL
Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix
   www.hpe.com/storage/spock
Storage white papers and analyst reports
   www.hpe.com/storage/whitepapers

For additional websites, see Support and other resources.
Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:
  http://www.hpe.com/assistance
- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:
  http://www.hpe.com/support/hpesc

Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates:
  Hewlett Packard Enterprise Support Center
  www.hpe.com/support/hpesc
  Hewlett Packard Enterprise Support Center: Software downloads
  www.hpe.com/support/downloads
  Software Depot
  www.hpe.com/support/softwaredepot

- To subscribe to eNewsletters and alerts:
  www.hpe.com/support/e-updates

- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center More Information on Access to Support Materials page:
  www.hpe.com/support/AccessToSupportMaterials
Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider or go to the CSR website:

http://www.hpe.com/support/selfrepair
Acronyms and abbreviations

ACPI
Advanced Configuration and Power Interface
AES
Advanced Encryption Standard
AMT
Active Management Technology
ASPM
active state power management
Azalia
Intel high-definition audio
BBS
BIOS Boot Specification
CPUID
CPU identification
CSM
Compatibility Support Module
cTDP
configurable Thermal Design Power
DMI
Desktop Management Interface
DVMT
dynamic video memory technology
EHCI
Enhanced Host Controller Interface
EIST
Enhanced Intel SpeedStep Technology
EMS
Emergency Management Services
GFX
graphics
IGD
Integrated Graphics Device
IGFX
integrated graphics
IMON
Load Current Monitor
LPM
Link Power Management
LTE
long-term evolution
ME
Management Engine
PCH
Platform Controller Hub
PCI
peripheral component interconnect
PCI Express
Peripheral Component Interconnect Express
PCIe
Peripheral Component Interconnect Express
PoE
Power over Ethernet
PTT
Push-to-Talk
PXE
preboot execution environment
RTC
real-time clock
TDP
Thermal Design Power
UEFI
Unified Extensible Firmware Interface
VT-d
Intel Virtualization Technology for Directed I/O
xHCI
Extensible Host Controller Interface
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