



QNAP

QBoat Sunny

User Guide



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1. Preface





About This Guide

This guide provides information on the QNAP QBoat Sunny and step-by-step instructions on installing the hardware. It also provides instructions on basic operations and troubleshooting information.

Audience

This document is intended for Internet of Things (IoT) makers. This guide assumes that the user has a basic understanding of storage and backup concepts.

Document Conventions

Symbol	Description
	Notes provide default configuration settings and other supplementary information.
	Important notes provide information on required configuration settings and other critical information.
	Tips provide recommendations or alternative methods of performing a task or configuring settings.
	Warnings provide information, that when ignored, may result to potential loss, injury, or even death.

2. Product Overview

This chapter provides basic information about the QNAP QBoat Sunny.

About QBoat Sunny

The QBoat Sunny is powered by an Annapurna Labs Alpine AL-314 quad-core 1.7 GHz processor and 2 GB DDR3L memory. The QBoat Sunny provides three Gigabit Ethernet ports, two M.2 SSD slots, one M.2 expansion slot, and a full set of I/O ports. Running QTS Lite, the QBoat Sunny functions as an application server and an IoT gateway, enabling makers to create their own custom platforms.



Hardware Specifications



Important

Modifying the hardware or software of your QNAP product invalidates the warranty. QNAP is not responsible for any damage or data loss caused by unauthorized modifications and installation of unsupported third-party applications.

Component	QBoat Sunny
Ordering P/N	QBoat Sunny
Processor	
CPU	Annapurna Labs Alpine AL-314 quad-core 1.7 GHz processor
Memory	
Pre-installed memory	2 GB DDR3L memory (on-board)
Storage	
M.2 SSD type	2 x SATA 6 Gbps (M key)
M.2 SSD form factor	<ul style="list-style-type: none"> • 2280 • 2260
Network	
Gigabit Ethernet ports	3 x RJ45
External I/O Ports & Expansion Slots	
M.2 slot	1 x M.2 expansion slot (A key)
USB ports	2 x USB 3.0
Audio	<ul style="list-style-type: none"> • 1 x 3.5 mm line-out jack • 1 x 3.5 mm microphone jack
Interface	
Maintenance port	1 x 3.5 mm
Fan connector	1 x 4-pin <div style="border-left: 2px solid #0070C0; padding-left: 10px; margin-top: 10px;"> <p>Note QBoat Sunny does not include a system fan. To purchase fan modules, go to http://shop.qnap.com/index.php?route=product/product&product_id=190. The QBoat may also support third-party 4-pin fan modules. However, QNAP cannot be held responsible for any damage that may occur due to the usage of untested devices.</p> </div>

Component	QBoat Sunny
RTC power port	1 x 2-pin
Dimensions	
Dimensions (H x W x D)	144.0 x 126.0 x 33.5 mm 5.67 x 4.96 x 1.32 in  Note The dimensions include the heatsink base.
Net weight	1.05 kg (2.32 lbs)  Note The net weight includes the heatsink base.
Other	
Power supply unit	36W, 100-240V AC, 50/60Hz
RTC battery	1 x 3V lithium battery
Operating temperature	0 to 35°C (32 to 95°F)
Relative humidity	<ul style="list-style-type: none"> • Non-condensing relative humidity: 5 to 95% • Wet-bulb temperature: 27°C (80.6°F)

**Note**

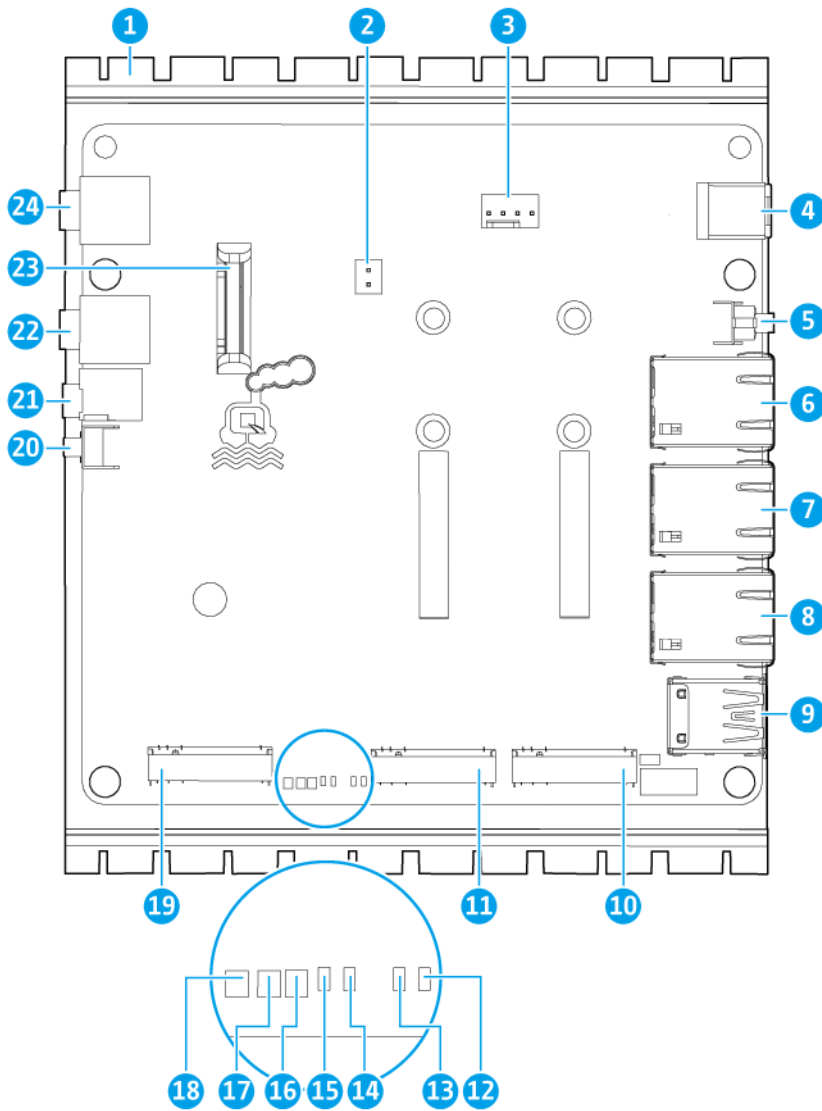
Model specifications are subject to change without prior notice. To see the latest specifications, go to <https://www.qnap.com>.



Package Contents

Item	Quantity
QBoat Sunny with heatsink base	1
Power cord	1
Ethernet cable	1 x gigabit RJ45
AC power adapter	1
Screws for M.2 SSDs	<ul style="list-style-type: none"> • 3 x riser screws • 3 x flat-head screws
Heatsinks for M.2 SSDs	2
Wall mounting kit	<ul style="list-style-type: none"> • 2 x wall mounting brackets • 4 x M3 screws
Quick Installation Guide (QIG)	1

Components

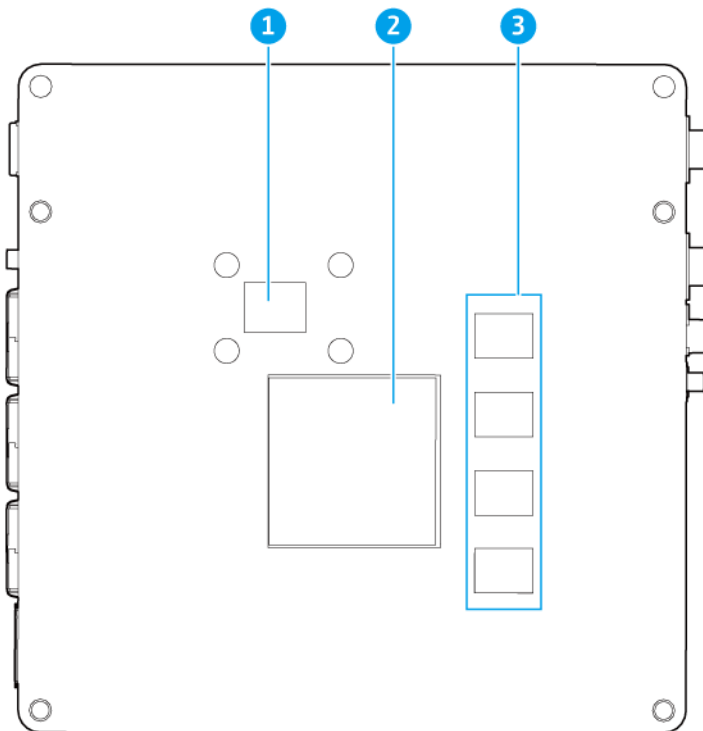
System Board - Top Side



No.	Component	No.	Component
1	Heatsink base	13	User-defined LED 1
2	RTC power port	14	Bluetooth LED
			 Note QBoat Sunny does not include a Bluetooth module.
3	Fan connector	15	Wireless LAN LED
			 Note QBoat Sunny does not include a wireless LAN module.

No.	Component	No.	Component
4	12V power port	16	M.2 SSD LED 2
5	Power button	17	M.2 SSD LED 1
6	Gigabit Ethernet port 1	18	Status LED
7	Gigabit Ethernet port 2	19	M.2 expansion slot
8	Gigabit Ethernet port 3	20	Reset button
9	USB 3.0 ports 1 and 2	21	Maintenance port
10	M.2 SSD slot 2	22	3.5 mm headphone jack
11	M.2 SSD slot 1	23	RTC battery
12	User-defined LED 2	24	3.5 mm microphone jack

System Board - Bottom Side



No.	Component	No.	Component
1	512 MB NAND flash memory	3	DDR3L memory
2	Annapurna Labs AL-314 processor	-	-

Heatsink Base

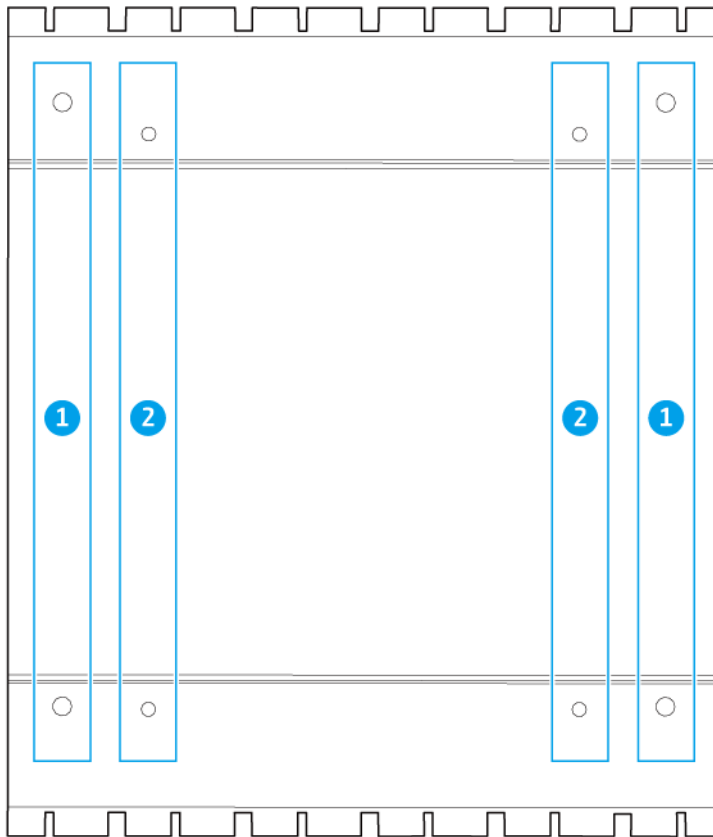
The screw holes on the heatsink base enable you to attach the QBoat to various surfaces or connect it to other devices.



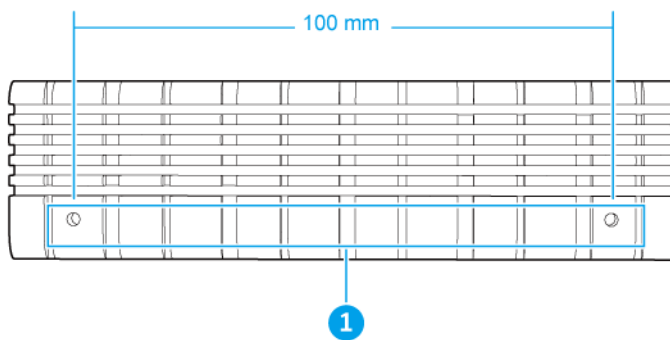
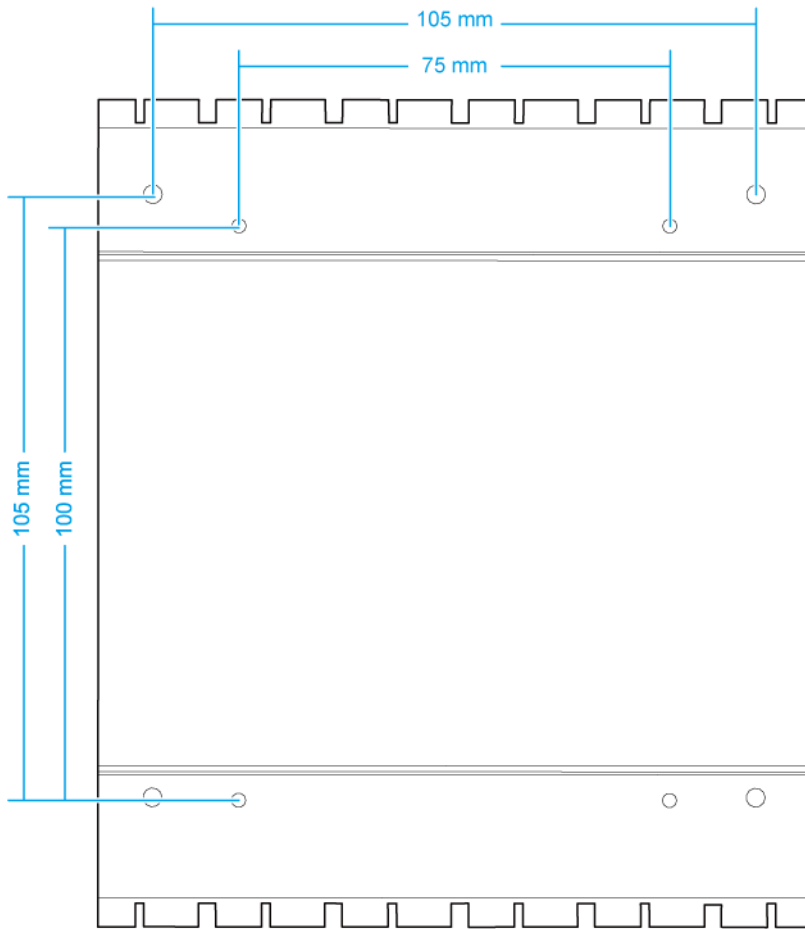
Important

Verify the following:

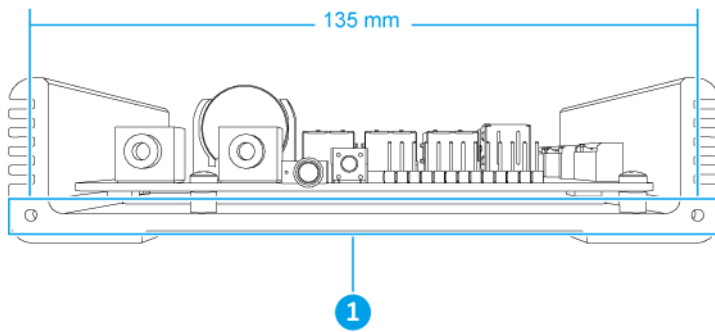
- You can securely attach and connect the QBoat to the selected surfaces and devices.
- The surfaces can support the weight of the QBoat.
- The sizes and positions of the screw holes on the devices match the screw holes on the heatsink base.



No.	Component	No.	Component
1	M4 screw holes	2	M3 screw holes

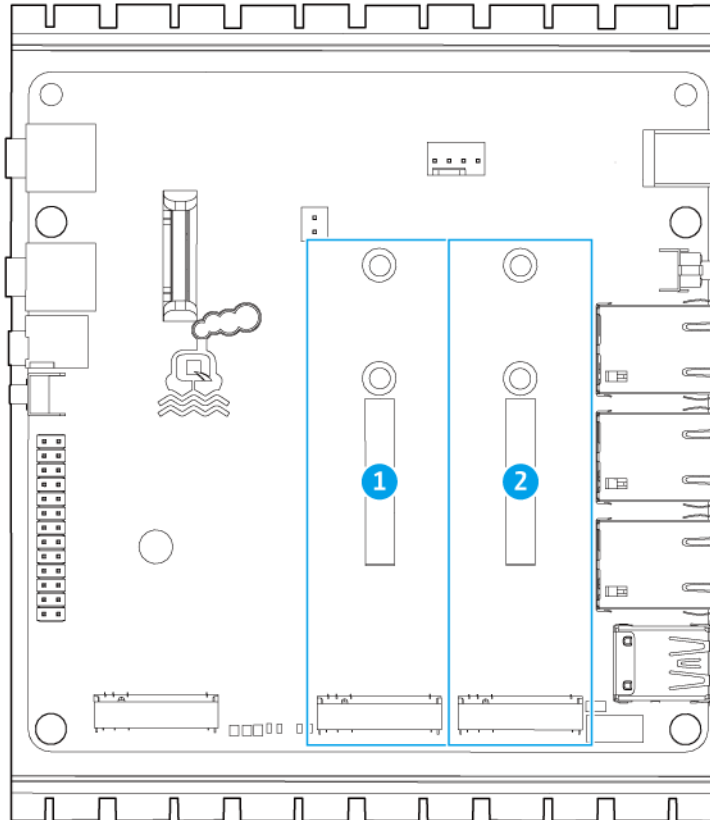


No.	Component	No.	Component
1	M3 screw holes	-	-



No.	Component	No.	Component
1	M3 screw holes	-	-

M.2 Solid State Drive Numbering



Installation Requirements

Category	Item
Environment	<ul style="list-style-type: none"> • Room temperature: 0 to 35°C (32 to 95°F) • Non-condensing relative humidity: 5 to 95% • Wet-bulb temperature: 27°C (80.6°F) • Flat, anti-static surface with no exposure to direct sunlight, liquids, and chemicals
Hardware and peripherals	<ul style="list-style-type: none"> • Storage drives For details on compatible drives, go to https://www.qnap.com/compatibility/. • Network cable • 12V DC system fan
Tools	<ul style="list-style-type: none"> • Phillips #1 or #2 screwdriver • Anti-static wrist strap

Setting Up the QBoat

1. Place the QBoat in an environment that meets the requirements.
For details, see [Installation Requirements](#).
2. Install a system fan.
The QBoat does not include a system fan. To purchase fan modules, go to http://shop.qnap.com/index.php?route=product/product&product_id=190.
3. Install the drives.
For details, see [Installing M.2 Solid State Drives](#).
4. Connect the power cord and all applicable cables.
5. Power on the QBoat.
6. Install QTS Lite.
For details, see [QTS Lite Installation](#).
7. Log on to QTS Lite.

3. Installation and Configuration

This chapter provides specific hardware and firmware installation and configuration steps.

Hardware Installation

This section provides information on installing drives, expansion cards, and wall mounting kits.

Installing M.2 Solid State Drives



Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.



Important

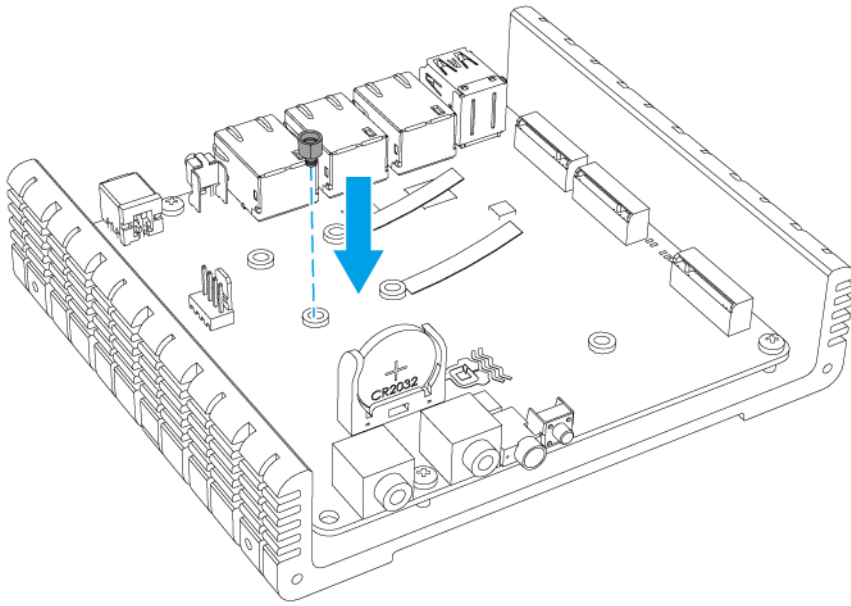
- The M.2 SSD slots on the QBoat support M.2 SSDs with M keys or B+M keys. Ensure that the M.2 SSDs that you install are of the correct types.
- QNAP recommends installing heatsinks on the M.2 SSD controllers to enhance cooling efficiency and to ensure consistent performance.

1. Power off the QBoat.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Install a heatsink on the M.2 SSD controller.
 - a. Locate the controller on the M.2 SSD.

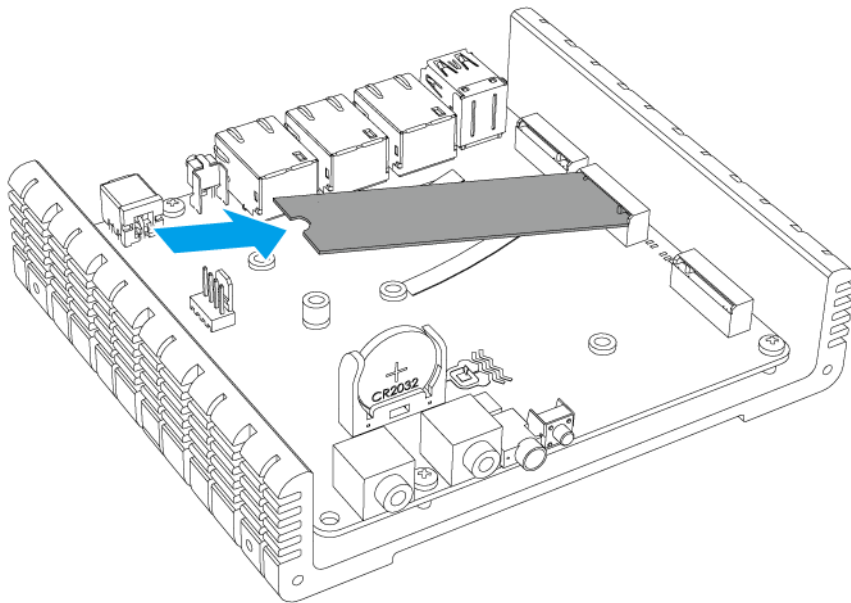


Note

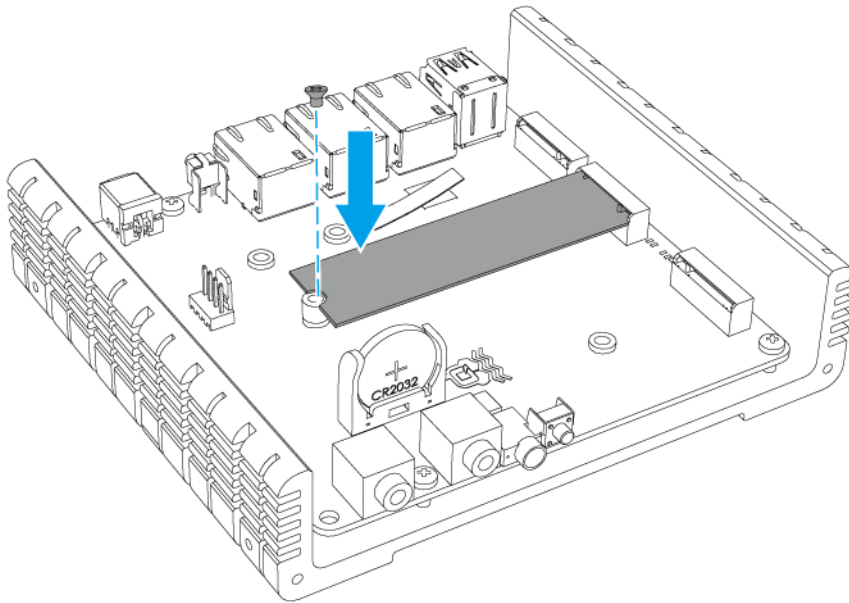
The controller location varies depending on the model and manufacturer of the M.2 SSD. For details, refer to the documentation or contact the manufacturer.



b. Insert the M.2 SSD into the slot.



c. Attach the flat head screw to the riser screw.



6. Connect all cables and external attachments.
7. Connect the power cord to the electrical outlet.
8. Power on the QBoat.

Installing M.2 Expansion Cards



Warning

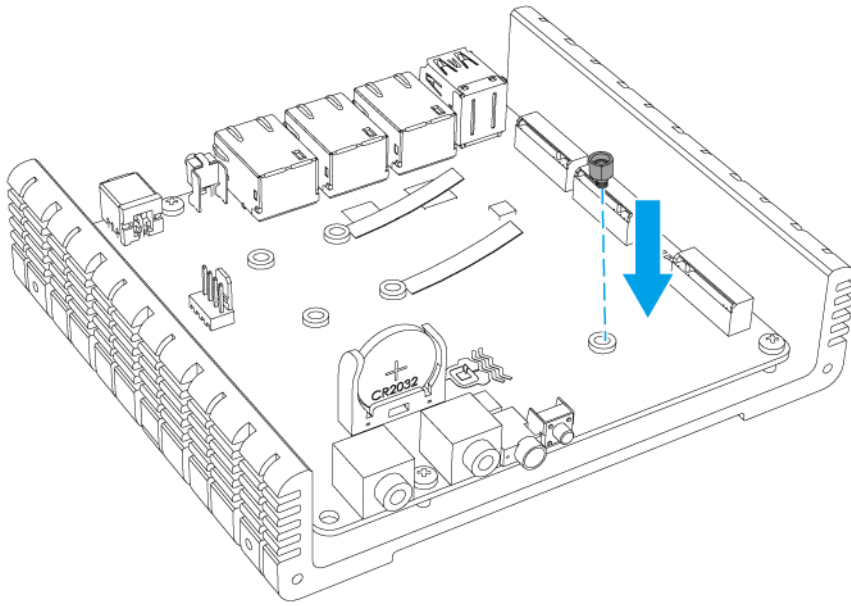
- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.



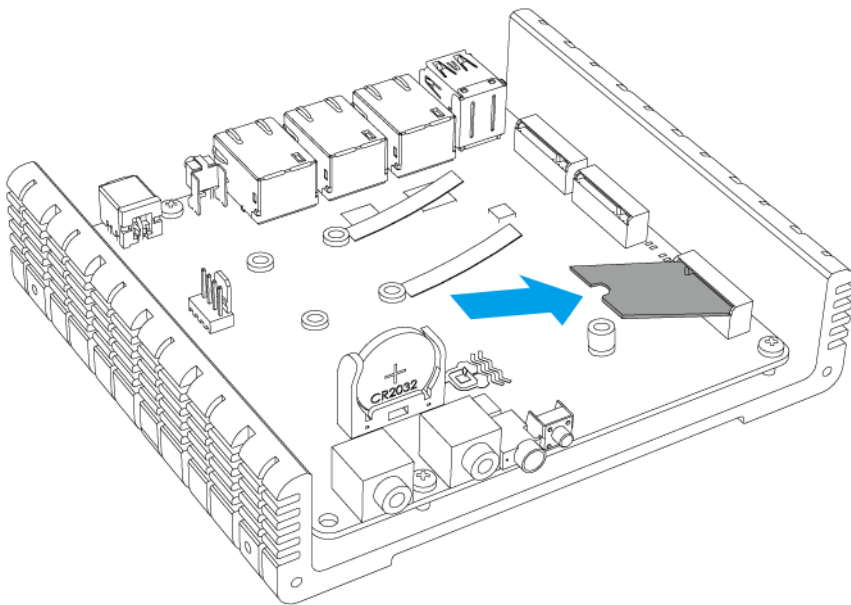
Important

The M.2 expansion slot on the QBoat supports M.2 expansion cards with A keys or A+E keys. Ensure that the M.2 expansion card that you install is of the correct type.

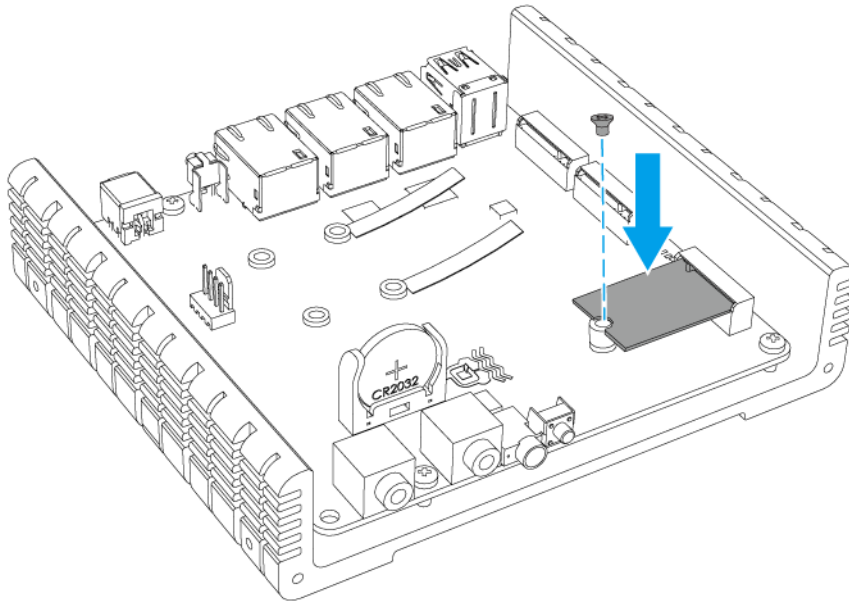
1. Power off the QBoat.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Install the M.2 expansion card.
 - a. Attach the riser screw.



b. Insert the M.2 expansion card into the slot.



c. Attach the flat head screw to the riser screw.



5. Connect all cables and external attachments.
6. Connect the power cord to the electrical outlet.
7. Power on the QBoat.

Installing the Wall Mounting Kit

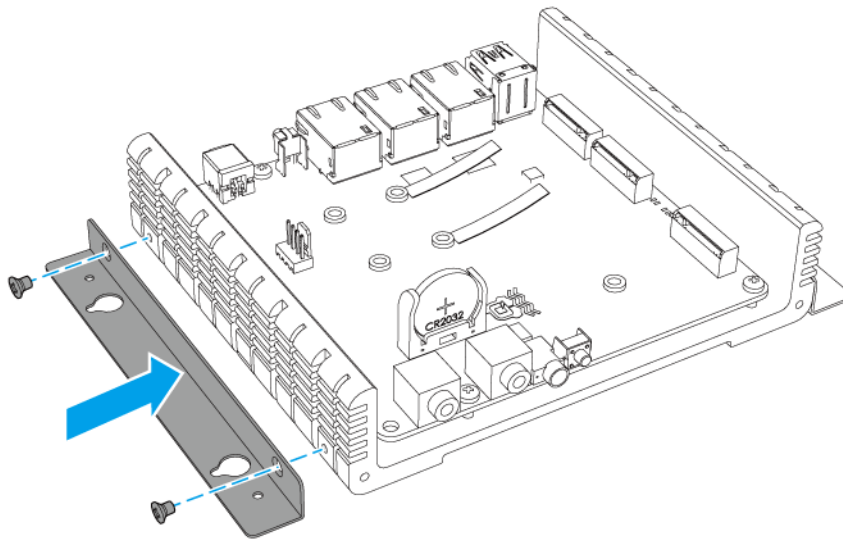
The wall mounting kit enables you to attach the QBoat to a wall.



Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

1. Power off the QBoat.
2. Disconnect the power cord from the electrical outlet.
3. Disconnect all cables and external attachments.
4. Align the two larger screw holes of a wall mounting bracket with the holes on a side of the heatsink base.
5. Attach the screws to secure the wall mounting bracket to the heatsink base.



6. Install the other bracket on the opposite side of the heatsink base.
7. Attach the QBoat to a wall using the openings and the screw holes on the brackets.
8. Connect all cables and external attachments.
9. Connect the power cord to the electrical outlet.
10. Power on the QBoat.

QTS Lite Installation

The QBoat uses the QNAP QTS Lite operating system. You can install QTS Lite using any of the following methods.

Method	Description	Requirements
Qfinder Pro installation (Recommended)	<p>If the QBoat is connected to your local area network, you can do the following:</p> <ul style="list-style-type: none"> • Locate the QBoat using Qfinder Pro. • Complete the steps in the Smart Installation Guide wizard. <p>For details, see Installing QTS Lite Using Qfinder Pro.</p>	<ul style="list-style-type: none"> • Computer • Network cable • Qfinder Pro installer

Method	Description	Requirements
Cloud installation	<p>If the QBoat is connected to the internet, you can do the following:</p> <ul style="list-style-type: none"> • Scan the QR code on the Quick Installation Guide. • Specify the Cloud Key. • Log into your myQNAPcloud account. • Complete the steps in the Smart Installation Guide wizard. <p>For details, see Installing QTS Lite Using the Cloud Key.</p>	<ul style="list-style-type: none"> • Computer or mobile device • Network cable • myQNAPcloud account • CloudKey

Installing QTS Lite Using Qfinder Pro



Warning

Installing QTS deletes all data on the drives. Back up your data before proceeding.

1. Power on the QBoat.
2. Connect the QBoat to your local area network.
3. Run Qfinder Pro on a computer that is connected to the same local area network. To download Qfinder Pro, go to <https://www.qnap.com/utilities>.
4. Locate the QBoat in the list and then double-click the name or IP address. The **Smart Installation Guide** opens in the default web browser.
5. Click **Start Smart Installation Guide**.
6. Specify the following information.
 - **NAS name:** Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
 - **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.
7. Click **Next**.
8. Specify the time zone, date, and time.



Tip

QNAP recommends connecting to an NTP server to ensure that the QBoat follows the Coordinated Universal Time (UTC) standard.

9. Click **Next**.
10. Select **Obtain an IP address automatically (DHCP)**.
11. Click **Next**.
12. Select the types of devices that you will use to access shared folders on the QBoat.

13. Click **Next**.
14. Configure the disk settings.
 - a. Select the disks that you want to use to create a RAID group.
 - b. Optional: Select a RAID type.
The **Smart Installation Guide** automatically selects the optimal RAID type based on the number of the selected disks.
 - c. Optional: Select **Encrypted Disk Volume** and **Bad Block Scan**.
15. Click **Next**.
16. Review the settings.
17. Click **Apply**.
A confirmation message appears.

**Warning**

Clicking **Confirm** deletes all data on the drive before installing QTS.

18. Click **Confirm**.
QTS Lite is installed.

Installing QTS Lite Using the Cloud Key

**Warning**

Installing QTS deletes all data on the drives. Back up your data before proceeding.

1. Power on the QBoat.
2. Connect the QBoat to the Internet.
3. Go to the QNAP Cloud Installation page using one of the following methods:
 - On your computer, go to <http://install.qnap.com/>.
 - Scan the QR code on the Quick Installation Guide using a mobile device.

The web page lists all the uninitialized QNAP devices on the local network.

4. Locate your NAS in the list and then click **Initialize**.

**Tip**

If your QBoat is not listed, follow the instructions on the web page to specify the Cloud Key on the Quick Installation Guide.

The installation wizard opens in the default web browser.

5. Create an account or sign in to myQNAPcloud.

**Important**

You must return to this page to complete the installation after creating an account.

6. Specify the myQNAPcloud device name for the QBoat.
The myQNAPcloud device name is used when remotely accessing the QBoat.
7. Optional: Select **CloudLink**.

CloudLink allows you to remotely access the QBoat without having to configure port forwarding on your router. You can remotely access the QBoat by logging into QTS Lite or by using mobile apps. You can also enable CloudLink by installing the CloudLink app on QTS Lite.

8. Click **Next**.

The **Smart Installation Guide** opens in the default web browser.

9. Click **Start Smart Installation Guide**.

10. Specify the following information.

- **NAS name:** Specify a name with 1 to 14 characters. The name supports letters (A to Z, a to z), numbers (0 to 9), and hyphens (-), but cannot end with a hyphen.
- **Password:** Specify an administrator password with 1 to 64 characters. The password supports all ASCII characters.

11. Click **Next**.

12. Specify the time zone, date, and time.



Tip

QNAP recommends connecting to an NTP server to ensure that the QBoat follows the Coordinated Universal Time (UTC) standard

13. Click **Next**.

14. Select **Obtain an IP address automatically (DHCP)**.

15. Click **Next**.

16. Select the types of devices that you will use to access shared folders on the QBoat.

17. Click **Next**.

18. Configure the disk settings.

- a. Select the disks that you want to use to create a RAID group.
- b. Optional: Select a RAID type.
The **Smart Installation Guide** automatically selects the optimal RAID type based on the number of the selected disks.
- c. Optional: Select **Encrypted Disk Volume** and **Bad Block Scan**.

19. Click **Next**.

20. Review the settings.

21. Click **Apply**.

A confirmation message appears.



Warning

Clicking **Confirm** deletes all data on the drive before installing QTS.


22. Click **Confirm**.

QTS Lite is installed.

4. Basic Operations

This chapter describes basic QBoat operations.

Power Button

Operation	User Action	Result
Power on	Press the button once.	The QBoat powers on.
Power off	Press and hold the button for 1.5 seconds.	The QBoat powers off.
Force power off	Press and hold the button for 5 seconds.	The QBoat shuts down.  Important Use this method only when the QBoat is unresponsive.

Reset Button

Operation	User Action	Result
Basic system reset	Press and hold the button for 3 seconds.	The following settings are reset to default: <ul style="list-style-type: none"> • System administrator password: admin • TCP/IP configuration: <ul style="list-style-type: none"> • Obtain IP address settings automatically via DHCP • Disable jumbo frames • If port trunking is enabled (multi-LAN models only), the port trunking mode is reset to “Active Backup (Failover)”. • System port: 8080 (system service port) • Security level: Low (Allow all connections) • VLAN: Disabled
Advanced system reset	Press and hold the button for 15 seconds.	The default factory settings are restored. <ul style="list-style-type: none"> • To retrieve old data after an advanced system reset, recreate the previous folder structure on the QBoat.

LEDs

LEDs indicate system status and related information when the QBoat is powered on. The following LED information applies only when the drive is correctly installed and when the QBoat is connected to the network.

For details on the location of the LEDs, see [Components](#).

LED	LED Color	Status	Description
Status	Dual Color (Red and Green)	Flashes green and red alternately 2 times per second	<ul style="list-style-type: none"> • A drive on the QBoat is being formatted. • The QBoat is being initialized. • The operating system is being updated. • RAID rebuild is in process. • Online RAID Capacity Expansion is in process. • Online RAID Level Migration is in process.
		Green	The QBoat is ready.
		Flashes green 2 times per second	<ul style="list-style-type: none"> • The QBoat is not configured. • A drive on the QBoat is not formatted.
		Red	<ul style="list-style-type: none"> • The drive is invalid. • A disk volume has reached its full capacity. • A disk volume is about to reach its full capacity. • An error occurred when accessing (read/write) the data. • A bad sector is detected on a drive. • Hardware self-test error.
		Flashes Red 2 times per second	The QBoat is in degraded mode (one member drive failed in RAID 1).
		Off	All drives are in standby mode.
Gigabit LAN	Dual Color (Green and Amber)	Left Green	The Ethernet port is connected to a 1 gigabit network.
		Left Amber	The Ethernet port is connect to a 100 megabit network.
		Left Off	The QBoat is not connected to a network.
		Right Green	The Ethernet port is connected to a network.
		Right flashes Green	The QBoat is being accessed on this Ethernet port.
		Right Off	The Ethernet port is not connected to a network.
Solid State Drive	Dual Color (Green and Red)	Green	The drive is ready.
		Flashes Green	The drive is being accessed.
		Red	The drive has encountered an error.
		Flashes Red 5 times per second	The drive is being located in the operating system.
		Off	No drive is detected.

LED	LED Color	Status	Description
Wireless LAN	Green	Depending on the module	This indicator receives the signal from the M. 2 expansion card.
Bluetooth	Green	Depending on the module	This indicator receives the signal from the M. 2 expansion card.
User-defined	Green	User-defined	The behavior of this indicator is defined by QBoat users.

5. Troubleshooting

This chapter describes basic troubleshooting information.

Forcing Qfinder Pro or myQNAPcloud to Locate the QBoat

If Qfinder Pro or myQNAPCloud is unable to locate the QBoat during QTS Lite installation, the drives or data may be faulty.



Warning

Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.

1. Power off the QBoat.
2. Remove all drives.
3. Power on the QBoat.
4. Locate the QBoat using Qfinder Pro or myQNAPCloud.
5. Reinsert the M.2 SSDs into drive slots.



Warning

- Ensure that the M.2 SSDs and other components do not touch their neighboring parts. Faulty contacts can cause short circuits and damage the M.2 SSDs and the QBoat.
- Do not touch the power supply unit. Touching the power supply unit can cause electric shock.
- Drives and the heatsink base can be hot to the touch when the QBoat is operating.

6. Continue with QTS Lite installation.

Replacing Failed Drives

The QBoat supports replacing drives in the following situation:

- RAID 1: One member drive fails



Warning

- Only qualified personnel should perform the following steps. Failure to follow instructions can result in serious injury or death.
- Observe electrostatic discharge (ESD) procedures to avoid damage to components.

1. Log on to QTS Lite.
2. Go to **Main Menu > Storage Manager > Storage > Disks** .
3. Locate the failed drive.
4. Prepare a new hard drive with a capacity that is the same as or larger than the failed hard drive.
5. Power off the QBoat.

6. Remove the failed drive from the drive slot.
7. Insert the new drive into the drive slot.
8. Power on the QBoat.
9. Log on to QTS Lite.
10. Go to **Main Menu > Storage Manager > Storage Space** .
11. Locate the volume that contains the new drive and then verify that the status is `Rebuilding`.

Recovering Unintentionally Removed Healthy Drives

The QBoat supports exclusive RAID recovery technology to recover failed RAID disk volumes from unintentional disconnection or removal of drives. Users can recover an inactive RAID to degraded mode, or an inactive RAID 0 configuration to normal.

Disk Volume	RAID Recovery Support	Maximum Number of Removed Drives
Single	No	N/A
RAID 0	Yes	1
RAID 1	Yes	1

Support and Other Resources

QNAP provides the following resources:

Resource	URL
Documentation	http://docs.qnap.com
Help Desk	http://helpdesk.qnap.com
Downloads	http://download.qnap.com
Community Forum	http://forum.qnap.com

6. Glossary

CloudKey

Unique 8-digit code assigned to each QBoat device

myQNAPcloud

Provides various remote access services such as DDNS and CloudLink

Qfinder Pro

Enables you to locate and access the QNAP QBoat and NAS devices in your local area network

QTS Lite

QNAP operating system for QBoat

7. Notices

This chapter provides information about warranty, disclaimers, licensing, and federal regulations.

Limited Warranty

QNAP offers limited warranty service on our products. Your QNAP-branded hardware product is warranted against defects in materials and workmanship for a period of one (1) year or more from the date printed on the invoice. ("Warranty Period"). Please review your statutory rights at www.qnap.com/warranty, which may be amended from time to time by QNAP in its discretion.

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Back up the system periodically to avoid any potential data loss is recommended. QNAP disclaims any responsibility of all sorts of data loss or recovery.

Should you return any components of the package of QNAP products such as NAS (Network Attached Storage) for refund or maintenance, make sure they are carefully packed for shipping. Any form of damages due to improper packaging will not be compensated.

All the features, functionality, and other product specifications are subject to change without prior notice or obligation. Information contained herein is subject to change without notice.

Further, the ® or ™ symbols are not used in the text.

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Version 3, 29 June 2007

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Preamble

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END OF TERMS AND CONDITIONS

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FCC Class A Notice



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SJ/T 11364-2006



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