

The QNAP logo is displayed in white, bold, uppercase letters within a blue rounded rectangular box in the top-left corner of the page.

# TS-x77XU

TS-877XU

TS-877XU-RP

TS-1277XU-RP

## 用户指南

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# 1. 重要信息

## 原始包装

请保留原始包装和包装材料。如果要产品退货或寄回进行修理，请使用原始包装以免损坏。

对于因包装不当受损的产品，QNAP 保留不提供退款或保修服务的权利。

## 硬件缺陷

如果您的 QNAP 产品有硬件方面的缺陷，请将产品退回 QNAP 或 QNAP 授权的服务中心进行维修或更换。您本人或未经授权的第三方对产品进行的任何维修或维护流程均会使保修失效。

对于因未经授权进行的修改和安装不受支持的第三方应用程序而造成的任何损坏或数据丢失，QNAP 概不负责。

有关详细信息，请参见 [QNAP 产品保修服务条款](#)。

## 安全信息

以下说明有助于确保个人安全和环境安全。在执行任何操作之前，请仔细阅读这些说明。

### 一般说明

- 设备应存放在通过器具、锁和钥匙或任何安保措施限制进入的安全场所。
- 只有经过授权并掌握技能的合格人员才能实际接触设备，相关人员需了解所有限制措施、安全预防措施和安装维护流程。

### 警告



为避免潜在伤害或组件的损坏，请务必等硬盘和其他内部系统组件冷却后再触碰。



请执行静电放电 (ESD) 规程，以避免可能的人员受伤或组件受损。

## 电源

### 警告



为降低失火或触电风险，请确保只将电源线连接到接地良好的电源插座。



配备冗余电源的设备可能有一条或多条电源单元 (PSU) 线。为避免受到严重伤害，安装或更换系统组件前，经培训的维修技师必须先从设备拔下所有电源单元线。

## 运动的部件

### 警告



**转动的风扇叶片：** 在设备连接到电源时，使您的身体各部位远离任何正在转动的风扇叶片。



**运动的组件：** 使您的身体各部位远离任何正在运动的其他组件。

设备不适合在儿童可能会出现的使用场所使用。

## 系统电池

### 警告



#### 摄入危险

- 此产品配有纽扣电池。
- 请避免儿童接触电池。
- 如果被吞食，锂纽扣电池可能会在 2 小时内导致严重或致命伤害。
- 如果您认为可能电池已被吞食或部于身体的某个部位，请立即就医求助。

- 为避免潜在的电池爆炸、导致人员受伤或组件受损，请确保使用同型电池更换现有电池。
- 请按当地法规或电池制造商的指示正确处置使用过的电池。
- 即使是使用过的电池，也可能导致严重伤害或死亡。
- 有关诊疗信息，请致电当地中毒控制中心。

- 有关设备中纽扣电池类型和电压的信息，请参见硬件规格表。
- 非充电电池不可充电。
- 请勿强行放电、充电、拆卸、加热或焚烧。这样做可能会导致因通风、泄漏或爆炸造成的化学烧伤而导致的伤害。
- 确保电池按照极性（+ 和 -）正确安装。
- 请勿将新旧电池或不同品牌、不同类型的电池（如碱性电池、碳锌电池、充电电池等）混用。
- 对于长时间不使用的设备，请根据当地法规取出并立即回收或处理电池。
- 始终完全固定电池盒。如果电池盒无法牢固关闭，请停止使用本产品，取出电池，并将电池置于儿童接触不到的地方。

## 导轨套件

机架式型号可能需要导轨套件以便安装到服务器机架或机柜上。

为确保设备和人身安全，在安装导轨套件和安装设备之前，请仔细阅读导轨套件的安装说明。

要检查您的设备是否为机架式设备，请参见硬件规格表。

### 警告

- 当导轨套件安装在服务器机架上时，除安装或拆卸设备外，请勿将导轨完全展开或拔掉门锁。
- 如果导轨完全展开并拔掉门锁，可能会导致重型设备坠落。这可能会导致设备损坏，以及严重甚至致命的伤害。
- 在准备导轨以安装或拆卸设备前，请仔细阅读并确保理解安装说明。
- 安装或拆卸设备时，请勿在设备或导轨上放置任何物品或增加任何额外的负重。
- 安装设备时，请将设备完全推入服务器机架，使导轨完全锁住，并将设备固定在服务器机架上。

## 2. 产品概述

本章提供有关 QNAPTS-x77XU NAS 的基本信息。

### 关于 TS-x77XU

TS-x77XU NAS 配有 AMD Ryzen™ 处理器，是一款适用于存储、备份、共享和数据集中管理的强大解决方案。TS-x77XU 特别配备了最多可扩展到 64 GB 内存的四个内存插槽和四个 PCIe 扩展卡插槽，可满足您不断变化的业务需求。每台 TS-x77XU 还特有四个网络端口（两个 10GbE SFP+，两个 1GbE RJ45）可提高带宽和吞吐量。TS-x77XU 可以利用其 AES-NI 加密引擎来提高加密文件传输的性能。

### 硬件规格

#### 警告

如果您的 QNAP 产品有硬件方面的缺陷，请将产品退回 QNAP 或 QNAP 授权的服务中心进行维修或更换。您本人或未经授权的第三方对产品进行的任何维修或维护流程均会使保修失效。

对于因未经授权进行的修改和安装不受支持的第三方应用程序而造成的任何损坏或数据丢失，QNAP 概不负责。

有关详细信息，请参见 [QNAP 产品保修服务条款](#)。

#### 提示

型号规格如有更改，恕不另行通知。要查看最新规格，请转到 <https://www.qnap.com>。

订购部件号	CPU	内存	电源
TS-877XU-1200-4G	Ryzen 3 1200	4 GB	单一
TS-877XU-RP-1200-4G	Ryzen 3 1200	4 GB	冗余
TS-877XU-RP-2600-8G	Ryzen 5 2600	8 GB	冗余
TS-877XU-RP-3600-8G	Ryzen 5 3600	8 GB	冗余
TS-1277XU-RP-1200-4G	Ryzen 3 1200	4 GB	冗余
TS-1277XU-RP-2600-8G	Ryzen 5 2600	8 GB	冗余

组件	TS-877XU TS-877XU-RP	TS-1277XU-RP
处理器		

组件	TS-877XU TS-877XU-RP	TS-1277XU-RP
CPU	<ul style="list-style-type: none"> <li>• TS-877XU、TS-1277XU-RP-1200-4G: AMD Ryzen™ 3 1200 4 核/4 线程 3.1 GHz 基本/3.4 GHz 脉冲</li> <li>• TS-877XU-RP、TS-1277XU-RP-2600-8G: AMD Ryzen™ 5 2600 6 核/12 线程 3.4 GHz 基本/3.9 GHz 脉冲</li> <li>• TS-877XU-RP-3600-8G: AMD Ryzen™ 5 3600 6 核/12 线程 3.6 GHz 基本/4.2 GHz 脉冲</li> </ul>	
架构	x86 64 位	
加密引擎	AES-NI	
内存		
预安装内存	<ul style="list-style-type: none"> <li>• 4 GB RAM: 1 x 4 GB DDR4</li> <li>• 8 GB RAM: 2 x 4 GB DDR4</li> </ul>	
内存插槽	4 x LDIMM DDR4	
	<p><b>重要</b></p> <p>请仅使用 QNAP 内存模块，以保证系统性能和稳定性。对于有多个内存插槽的 NAS 设备，请使用规格相同的 QNAP 模块。使用不受支持的模块可能导致性能下降、引发错误或使操作系统无法启动。</p>	
最大内存	64 GB RAM: 4 x 16 GB	
闪存	4 GB	
存储		
硬盘架	8 x 3.5 英寸 SATA 6 Gbps	12 x 3.5 英寸 SATA 6 Gbps
硬盘兼容性	<ul style="list-style-type: none"> <li>• 3.5 英寸 SATA 机械硬盘</li> <li>• 2.5 英寸 SATA 机械硬盘</li> <li>• 2.5 英寸 SATA 固态硬盘</li> </ul> <p><b>重要</b></p> <p>2.5 英寸硬盘托盘仅支持最大高度为 9.5 mm 的硬盘。</p>	
网络		



组件	TS-877XU TS-877XU-RP	TS-1277XU-RP
10 Gb 以太网端口	2 x 10 GbE SFP+ SmartNIC	
千兆位以太网端口	2 x GbE RJ45	
外部 I/O 端口和扩展插槽		
PCIe 插槽	<ul style="list-style-type: none"> <li>• 2 x PCIe 3.0 x8</li> <li>• 2 x PCIe 3.0 x4</li> </ul> <p><b>提示</b> 有关兼容的硬盘型号和扩展卡的列表，请转到 <a href="https://www.qnap.com/compatibility">https://www.qnap.com/compatibility</a>。</p>	
USB 端口	<ul style="list-style-type: none"> <li>• 1 x USB 3.2 Gen 2 (10Gbps) 5V/1A A 型</li> <li>• 1 x USB 3.2 Gen 2 (10Gbps) 5V/3A C 型</li> <li>• 4 x USB 3.2 Gen 1 A 型</li> </ul>	
HDMI 端口	可选：PCIe 扩展卡	
界面		
按钮	<ul style="list-style-type: none"> <li>• 电源</li> <li>• 重置</li> </ul>	
尺寸		
外形规格	2U 机架式	2U 机架式
尺寸（高 x 宽 x 深）	88.3 x 482 x 562 mm (3.47 x 18.98 x 22.13 英寸)	88.3 x 482 x 562 mm (3.47 x 18.98 x 22.13 英寸)
净重	<ul style="list-style-type: none"> <li>• TS-877XU： 10.99 kg (24.23 磅)</li> <li>• TS-877XU-RP： 12.17 kg (26.83 磅)</li> </ul>	11.75 kg (25.9 磅)
其他		
导轨兼容性		

组件	TS-877XU TS-877XU-RP	TS-1277XU-RP
导轨兼容性	RAIL-B02  <b>注意</b> <ul style="list-style-type: none"> <li>导轨套件未随 NAS 提供，必须单独购买。有关详细信息，请联系授权经销商或转到 <a href="http://shop.qnap.com">http://shop.qnap.com</a>。</li> <li>有关导轨套件安装的信息，可在导轨套件包装随附的安装指南中找到。</li> </ul>	
电源单元	<ul style="list-style-type: none"> <li>TS-877XU： 350W，100-240V AC，50/60Hz</li> <li>TS-877XU-RP： 2 x 300W，100-240V AC，50/60Hz</li> </ul>	2 x 300W，100-240V AC，50/60Hz
系统电池	CR2032 锂电池 (3V，225 mAh)	
噪声声级	<ul style="list-style-type: none"> <li>TS-877XU： 35.2 dB(A)</li> <li>TS-877XU-RP： 37.7 dB(A)</li> </ul>	37.2 dB(A)
	<b>注意</b> 噪声声级在距 NAS 一米以内的旁观者位置测得。测试 NAS 安装了最大数量的硬盘以低速运行。	
风扇	系统：2 x 70 mm，12V DC 风扇	
工作温度	0°C 至 40°C (32 至 104°F)	
相对湿度	<ul style="list-style-type: none"> <li>无冷凝相对湿度：5% 至 95%</li> <li>湿球温度：27°C (80.6°F)</li> </ul>	

**提示**

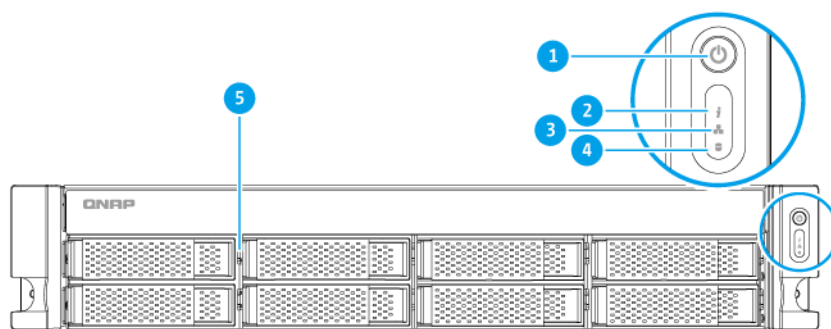
有关兼容的硬盘型号和扩展卡的列表，请转到 <https://www.qnap.com/compatibility>。

## 包装内容

项目	数量
TS-x77XU NAS	1
电源线	<ul style="list-style-type: none"> <li>• TS-877XU: 1</li> <li>• TS-877XU-RP: 2</li> <li>• TS-1277XU-RP: 2</li> </ul>
以太网线	2
适用于 2.5 英寸硬盘的螺丝	TS-877XU、TS-877XU-RP: 24 TS-1277XU-RP: 36
适用于 3.5 英寸硬盘的螺丝	TS-877XU、TS-877XU-RP: 32 TS-1277XU-RP: 48
快速安装指南 (QIG)	1

## 组件

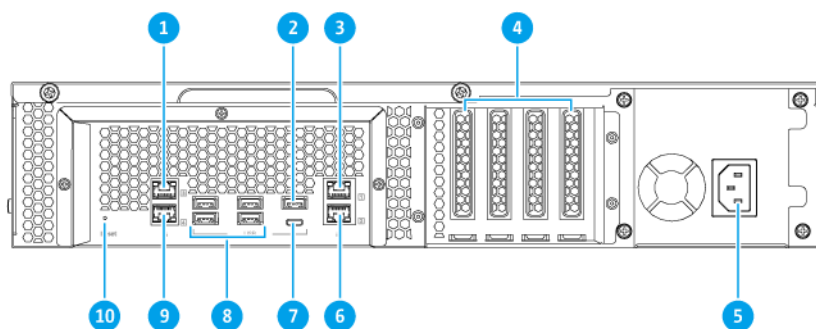
### 前面板



**TS-877XU、TS-877XU-RP、TS-1277XU-RP**

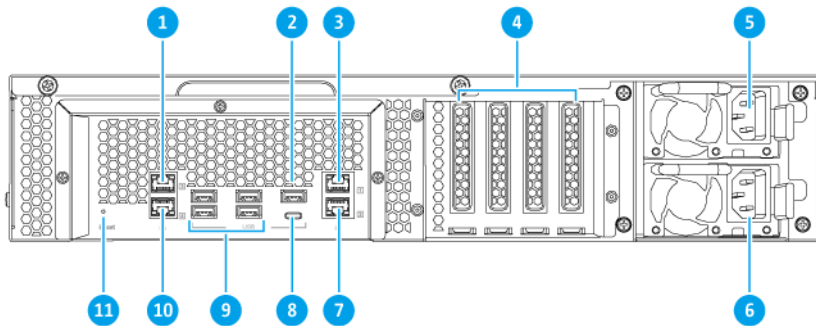
编号	组件	编号	组件
1	电源按钮	4	扩展单元 LED
2	状态 LED	5	硬盘 LED
3	LAN LED	-	-

## 后面板



### TS-877XU

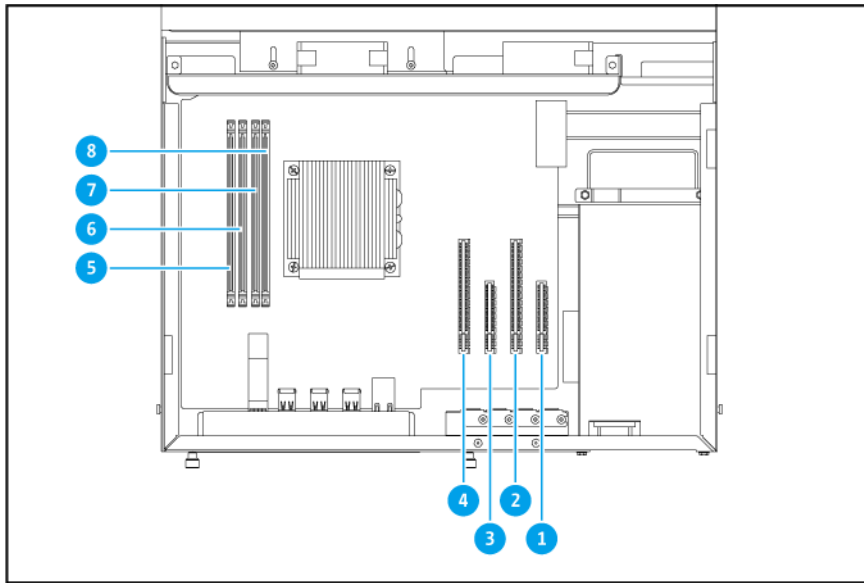
编号	组件	编号	组件
1	以太网端口 3 (10 GbE SFP+)	6	以太网端口 2 (GbE RJ45)
2	USB 3.2 Gen 2 A 型端口	7	USB 3.2 Gen 2 C 型端口
3	以太网端口 3 (10 GbE SFP+)	8	USB 3.2 Gen 1 A 型端口
4	PCIe 半高盖板	9	以太网端口 4 (10 GbE SFP+)
5	电源输入	10	重置按钮



### TS-877XU-RP、TS-1277XU-RP

编号	组件	编号	组件
1	以太网端口 3 (10 GbE SFP+)	7	以太网端口 2 (GbE RJ45)
2	USB 3.2 Gen 2 A 型端口	8	USB 3.2 Gen 2 C 型端口
3	以太网端口 1 (GbE RJ45)	9	USB 3.2 Gen 1 A 型端口
4	PCIe 半高盖板	10	以太网端口 4 (10 GbE SFP+)
5	电源单元 1	11	重置按钮
6	电源单元 2	-	-

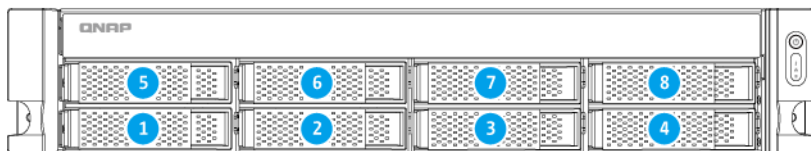
## 系统主板



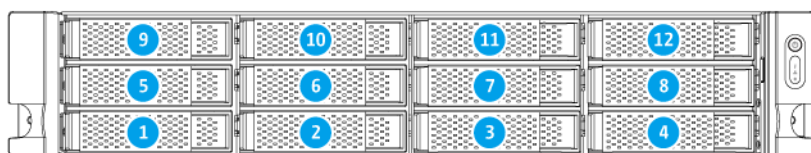
TS-877XU、TS-877XU-RP、TS-1277XU-RP

编号	组件	编号	组件
1	PCIe 插槽 1 (PCIe 3.0 x4)	5	内存插槽 4 (通道 B, DIMM 4)
2	PCIe 插槽 2 (PCIe 3.0 x8)	6	内存插槽 3 (通道 B, DIMM 3)
3	PCIe 插槽 3 (PCIe 3.0 x4)	7	内存插槽 2 (通道 A, DIMM 2)
4	PCIe 插槽 4 (PCIe 3.0 x8)	8	内存插槽 1 (通道 A, DIMM 1)

## 正面硬盘编号



### TS-877XU、TS-877XU-RP



### TS-1277XU-RP

## 安装要求

类别	项目
环境	<ul style="list-style-type: none"> <li>• 室温：0°C 至 40°C (32 至 104°F)</li> <li>• 无冷凝相对湿度：5% 至 95%</li> <li>• 湿球温度：27°C (80.6°F)</li> <li>• 平坦的防静电表面，无直射阳光、液体或化学药剂</li> </ul>
硬件和外围设备	<ul style="list-style-type: none"> <li>• 存储硬盘 有关兼容硬盘的详细信息，请转到 <a href="https://www.qnap.com/compatibility/">https://www.qnap.com/compatibility/</a>。</li> <li>• 网线</li> </ul>
工具	<ul style="list-style-type: none"> <li>• 1 号或 2 号十字螺丝刀</li> <li>• 防静电腕带</li> </ul>

## 设置 NAS

### 重要

在设置 NAS 或安装 NAS 组件之前，请仔细阅读所有安全要求和信息。

1. 将 NAS 设备置于符合要求的环境中。  
有关详细信息，请参见[安装要求](#)。
2. 安装硬盘。  
有关详细信息，请参见以下主题：
  - [在 3.5 英寸托盘上安装 3.5 英寸硬盘](#)
  - [在 3.5 英寸托盘上安装 2.5 英寸硬盘或固态硬盘](#)
3. 连接电源线和所有适用的线缆。
4. 启动 NAS 电源。
5. 安装 QTS。  
有关详细信息，请参见[QTS 安装](#)。
6. 登录 QTS。



## 3. 安装和配置

本章提供了具体的硬件和固件安装与配置步骤。

### 硬件安装

本节提供有关安装硬盘、内存模块和扩展卡的信息。

### 硬盘安装

TS-x77XU 兼容 3.5 英寸和 2.5 英寸硬盘以及 2.5 英寸固态硬盘。

### 在 3.5 英寸托盘上安装 3.5 英寸硬盘

#### 警告

- 安装硬盘和安装 QTS 将删除硬盘上的所有数据。
- 请执行静电放电 (ESD) 规程，以避免组件损坏。



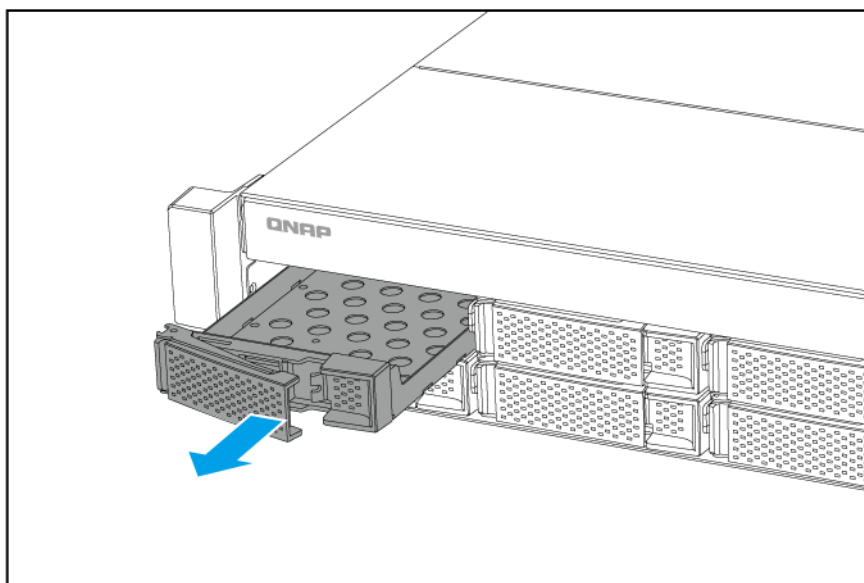
**转动的风扇叶片：**使您的双手和身体其他部位远离正在转动的风扇叶片。



**其他运动的组件：**使您的双手和身体其他部位远离正在运动的其他组件。

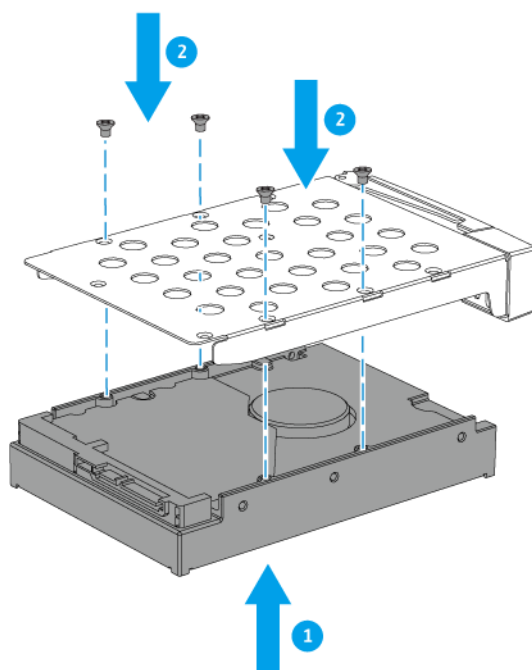
1. 关闭 NAS 电源。
2. 取下硬盘托盘。
  - a. 向外拉动托盘手柄。

**b. 拉出托盘。**



**3. 将硬盘安装到托盘上。**

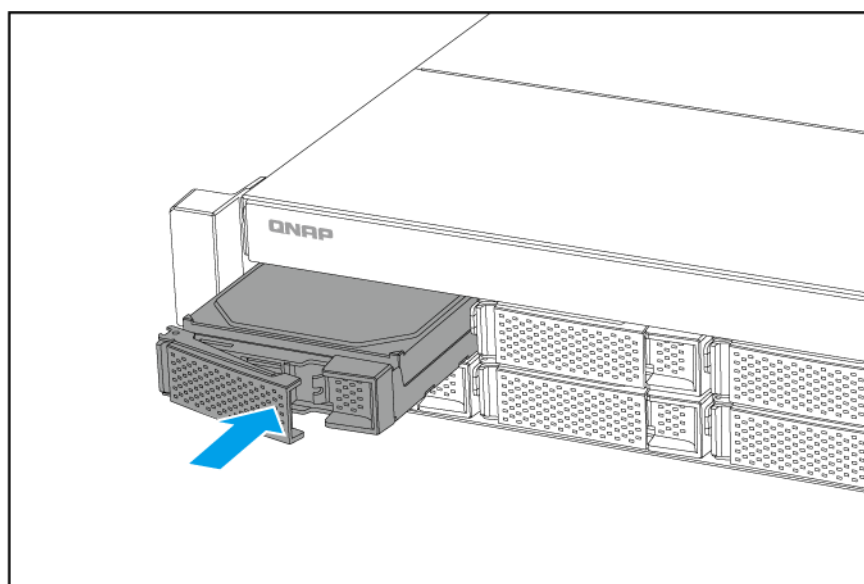
- a. 将硬盘放在托盘上，使硬盘底部的孔与托盘底部的孔对齐。**
- b. 安装螺丝。**



**4. 将托盘装入硬盘架。**

- a. 将托盘插入硬盘架。**

- b. 推动手柄。



5. 启动 NAS 电源。

## 在 3.5 英寸托盘上安装 2.5 英寸硬盘或固态硬盘

### 警告

- 安装硬盘和安装 QTS 将删除硬盘上的所有数据。
- 请执行静电放电 (ESD) 规程，以避免组件损坏。



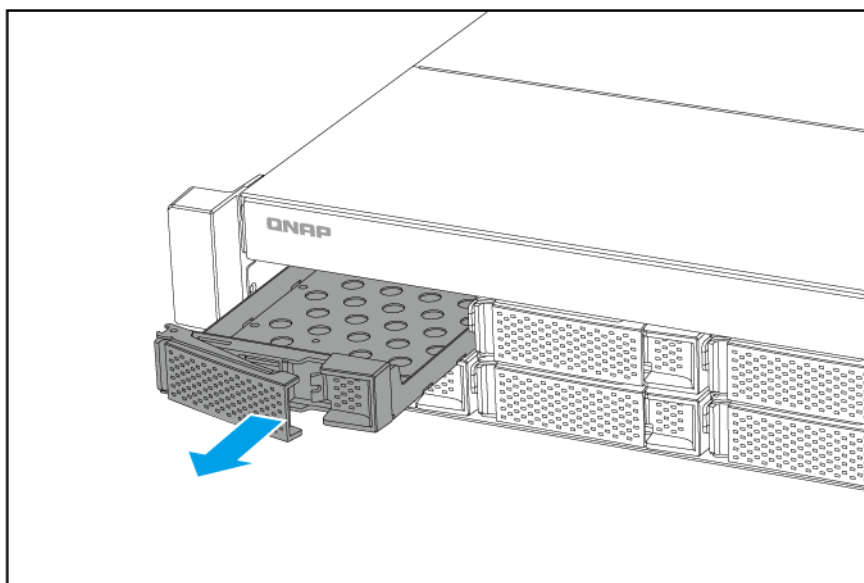
**转动的风扇叶片：**使您的双手和身体其他部位远离正在转动的风扇叶片。



**其他运动的组件：**使您的双手和身体其他部位远离正在运动的其他组件。

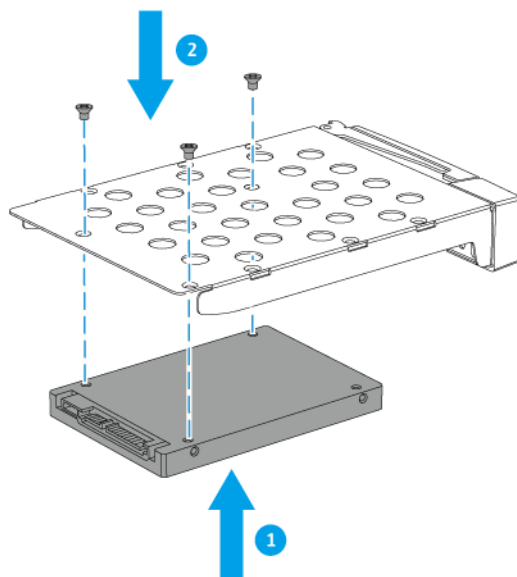
1. 关闭 NAS 电源。
2. 取下硬盘托盘。
  - a. 向外拉动托盘手柄。

**b. 拉出托盘。**



**3. 将硬盘安装到托盘上。**

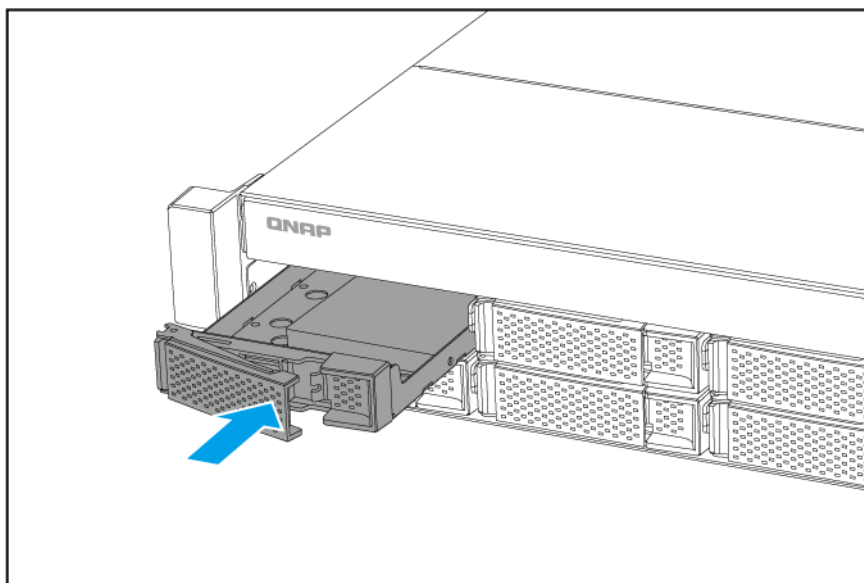
- a. 将硬盘放在托盘上，使硬盘底部的孔与托盘底部的孔对齐。**
- b. 安装螺丝。**



**4. 将托盘装入硬盘架。**

- a. 将托盘插入硬盘架。**

## b. 推动手柄。



## 5. 启动 NAS 电源。

## 更换内存模块

TS-x77XU 有四个内存插槽。您可以通过升级内存模块来增加 NAS 的内存容量。为了获得最优的双通道性能，请成对更换内存模块。

请仅使用 QNAP 内存模块，以保证系统性能和稳定性。可以从授权经销商处购买 QNAP 内存模块。

### 重要

QNAP 建议成对安装模块以运行双通道模式。  
更换内存模块时，请务必遵守以下规则：

- 确保每个内存通道都使用相同的模块。请参见下表了解详细信息：

通道名称	插槽编号
通道 A	插槽 1、2
通道 B	插槽 3、4

- 安装一个模块时，请使用离 CPU 最远的插槽（插槽 4）。
- 安装两个模块时，使用插槽 2 和 4。
- 安装四个模块时，前两个使用插槽 2 和 4，后两个使用插槽 1 和 3。

有关插槽编号的详细信息，请参见[系统主板](#)。

**警告**

- 只有合格人员才能执行以下步骤。不遵守说明可能会导致重伤或死亡。
- 请执行静电放电 (ESD) 规程，以避免组件损坏。

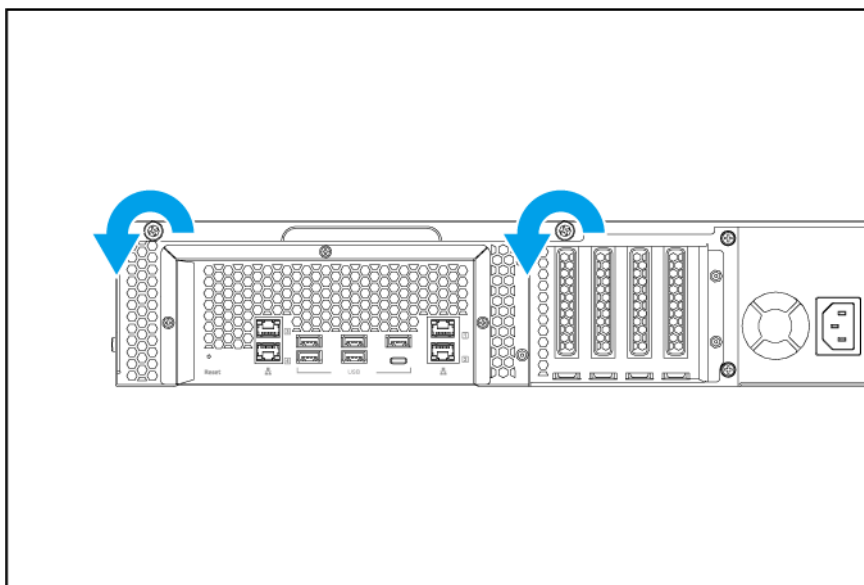


**转动的风扇叶片：**使您的双手和身体其他部位远离正在转动的风扇叶片。



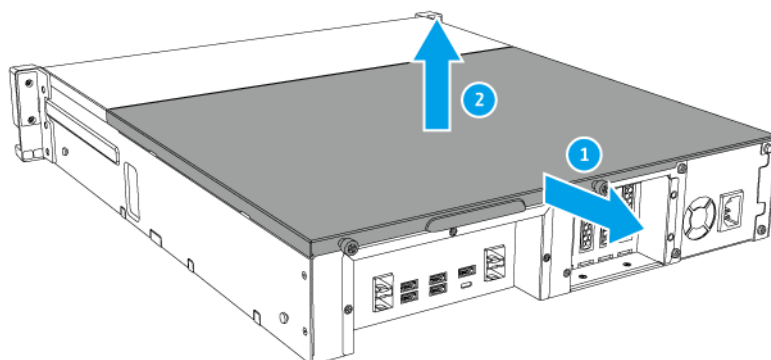
**其他运动的组件：**使您的双手和身体其他部位远离正在运动的其他组件。

1. 关闭设备。
2. 从插座上拔下电源线。
3. 拔掉所有线缆和外接部件。
4. 取下外壳盖。
  - a. 松开螺丝。



- b. 将盖板向后滑动。

- c. 从设备上提起盖板。



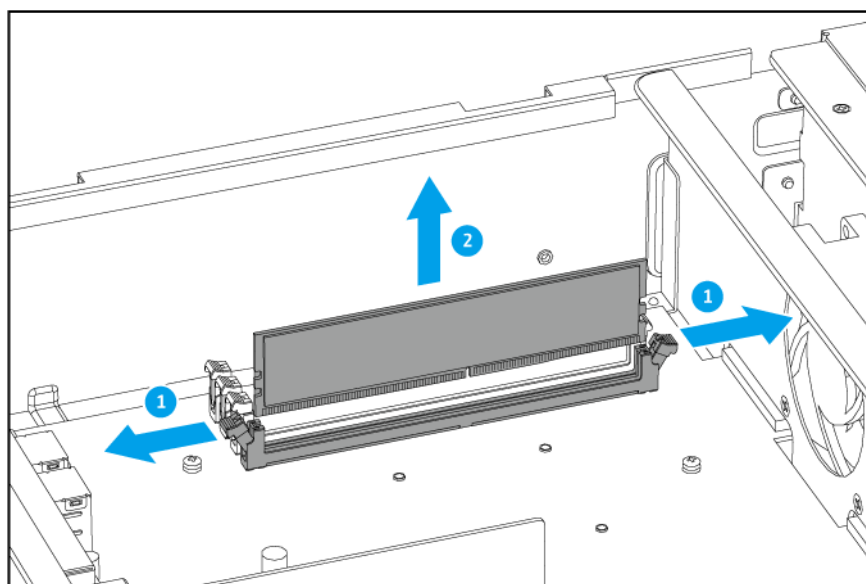
## 5. 取下现有模块。

- a. 同时向外推动固定夹以释放模块。

### 警告

如果尝试在模块尚未完全脱离时将其取出，可能会损坏模块和主板。

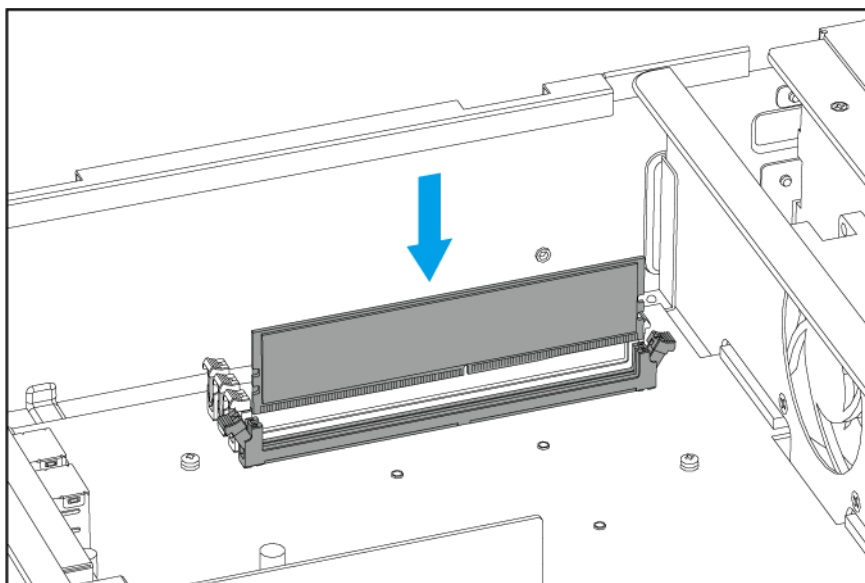
- b. 握住模块边缘。



## 6. 安装新模块。

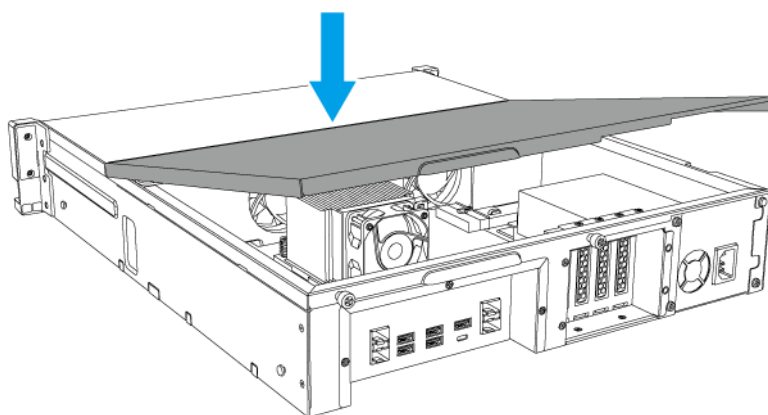
- a. 将凹口与插槽内的凸起对齐。
- b. 将模块插入插槽中。
- c. 确认金属接头已完全插入插槽中。

- d. 小心地向下按压模块，直到固定夹将模块锁定到位。



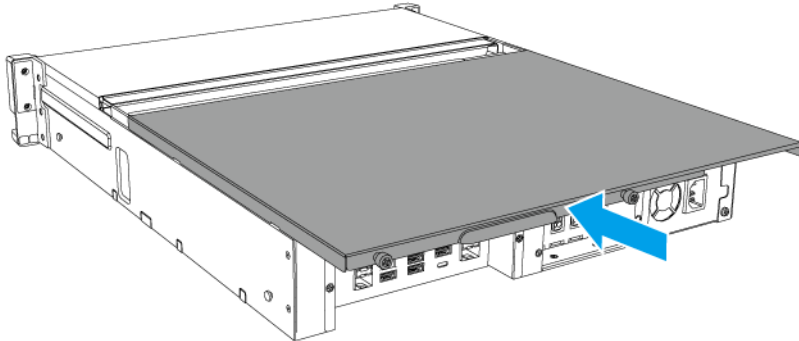
7. 安装外壳盖。

- a. 将盖板放在设备上。

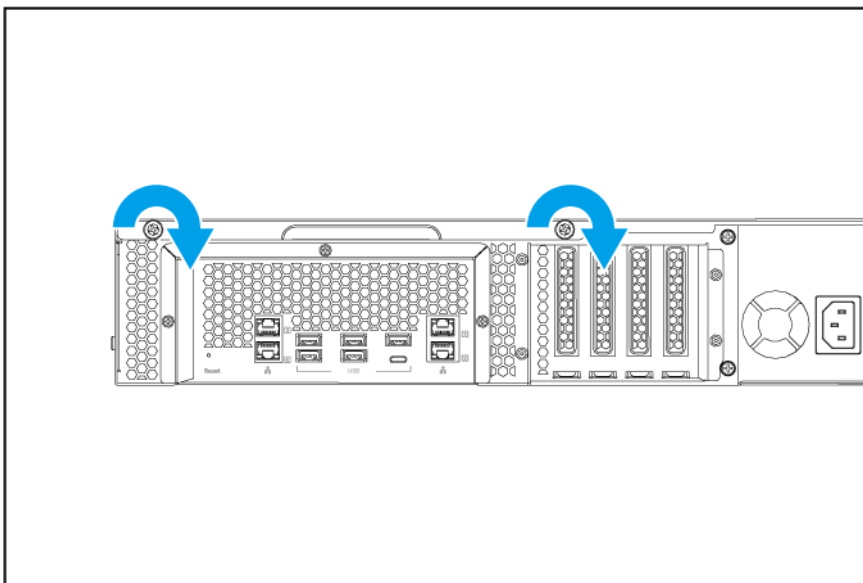




- b. 将盖板向前滑动。



- c. 拧紧螺丝。



8. 连接所有线缆和外接部件。
9. 启动设备。
10. 确认设备能够识别该模块。
  - a. 以管理员身份登录 QTS。
  - b. 转到控制台 > 系统 > 系统状态 > 硬件信息。
  - c. 检查内存总容量值。

## 安装扩展卡

该设备支持精选的扩展卡，其中一些需要 QNAP PCIe 支架。从公司网站购买的 QNAP 品牌扩展卡随附有适合该设备的支架。

### 注意

- 如果有扩展卡安装在插槽 1 中，插槽 2 的速度会从 x8 下降到 x4。
- 如果有扩展卡安装在插槽 3 中，插槽 4 的速度会从 x8 下降到 x4。

有关插槽编号的详细信息，请参见[系统主板](#)。

### 警告

- 只有合格人员才能执行以下步骤。不遵守说明可能会导致重伤或死亡。
- 请执行静电放电 (ESD) 规程，以避免组件损坏。

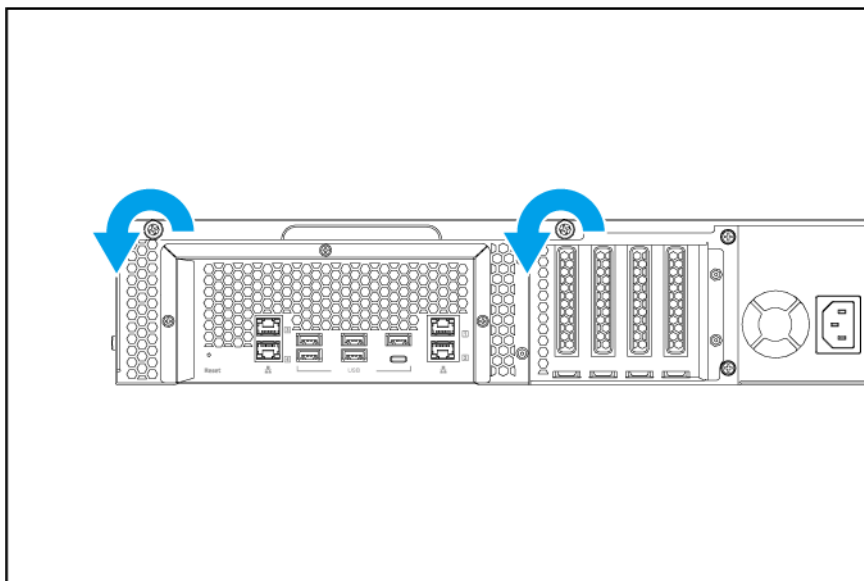
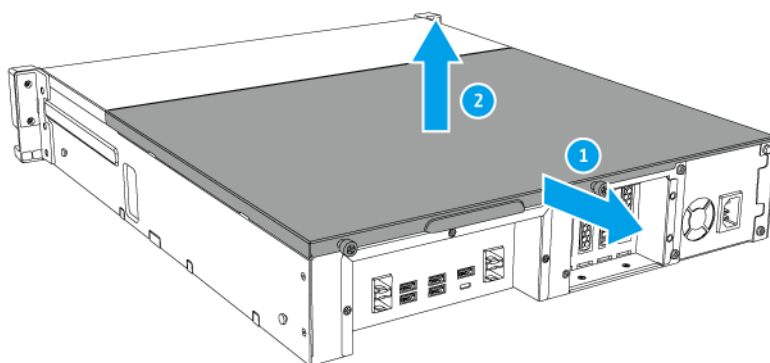


**转动的风扇叶片：**使您的双手和身体其他部位远离正在转动的风扇叶片。



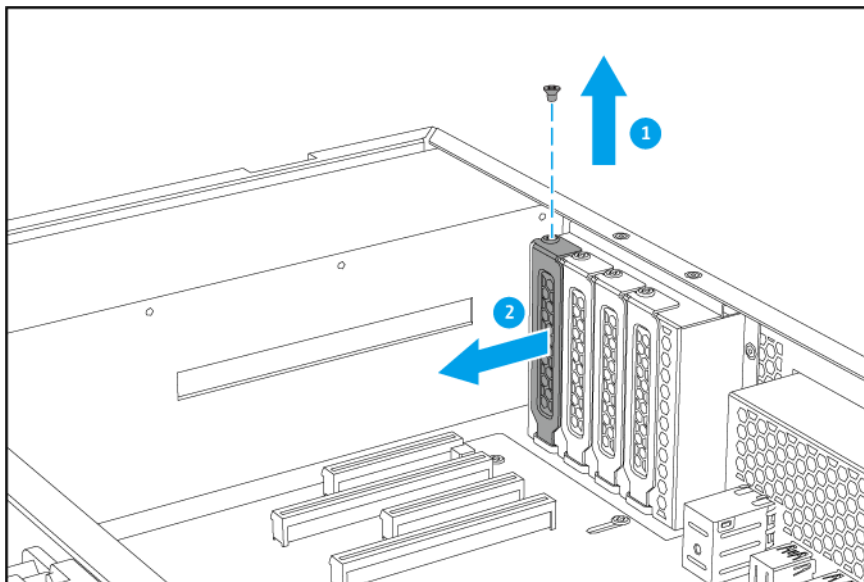
**其他运动的组件：**使您的双手和身体其他部位远离正在运动的其他组件。

1. 在 QNAP 网站上查看您的型号支持的扩展卡和支架。
  - a. 转到 [www.qnap.com/compatibility](http://www.qnap.com/compatibility)。
  - b. 单击**依 NAS 检索**。
  - c. 指定 NAS 的硬盘架数量和具体型号。
  - d. 在**装置类型**下，选择组件或设备类型。
  - e. 在列表中找到具体的组件或设备机型。
  - f. 可选: 单击相应的**备注**图标可查看更多信息。
2. 关闭设备。
3. 从插座上拔下电源线。
4. 拔掉所有线缆和外接部件。

**5. 取下顶盖。****a. 松开螺丝。****b. 将盖板向后滑动。****c. 从设备上提起盖板。**

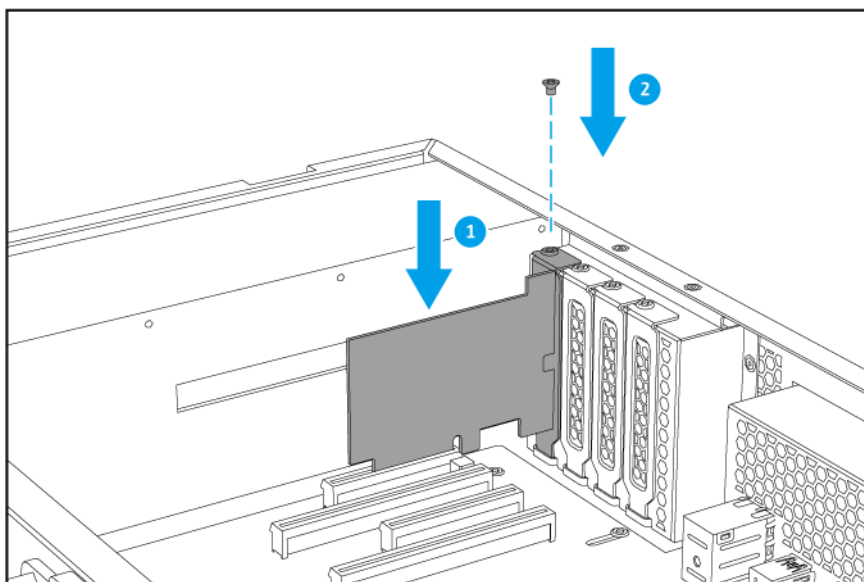
## 6. 取下 PCIe 盖板。

- a. 取下用于将盖板固定到支架的螺丝。
- b. 将盖板从插槽中拉出。



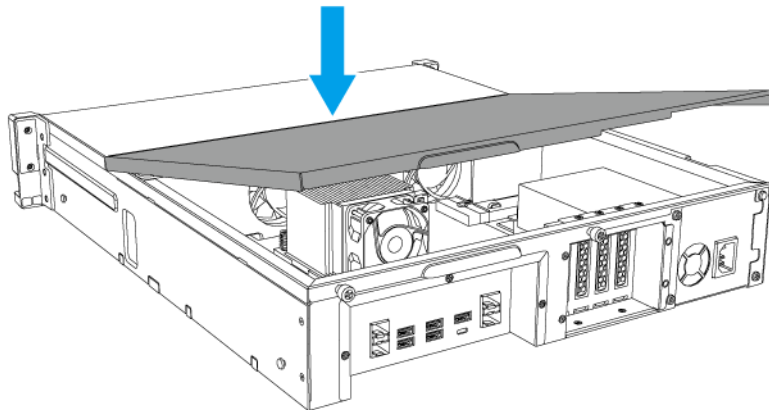
## 7. 安装扩展卡。

- a. 握住卡片边缘。
- b. 将其插入插槽中。
- c. 安装螺丝。

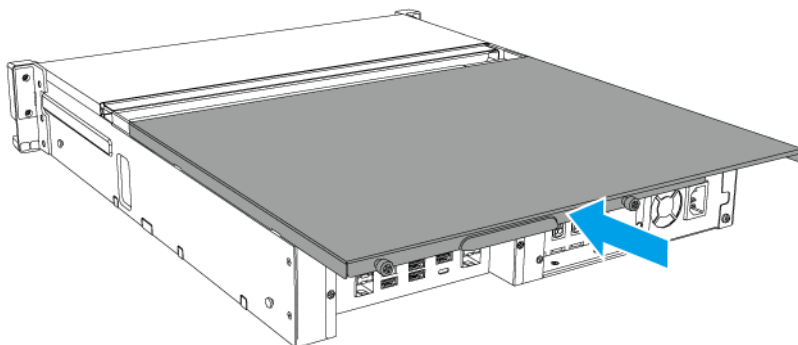


**8. 安装外壳盖。**

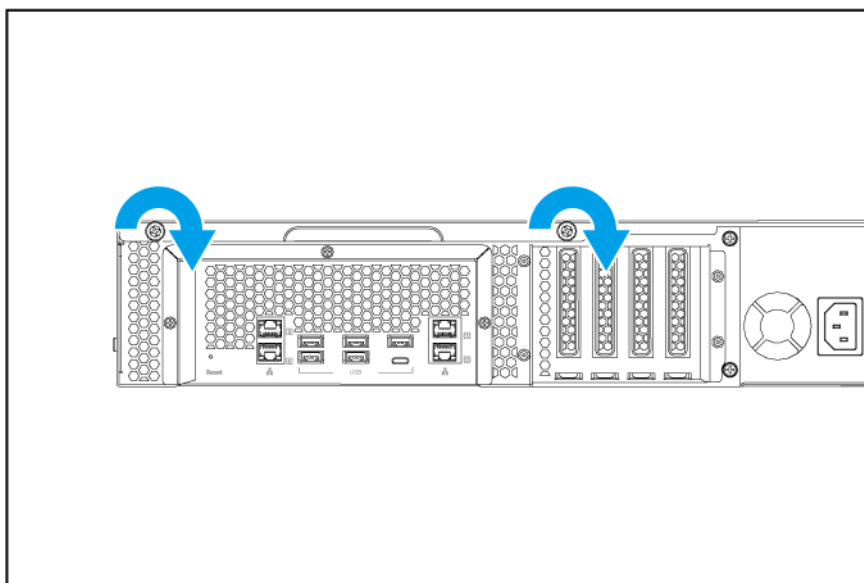
- a.** 将盖板放在设备上。



- b.** 将盖板向前滑动。



c. 拧紧螺丝。



9. 连接所有线缆和外接部件。
10. 将电源线连接到插座。
11. 启动设备。

## 热插拔冗余电源单元

配有冗余电源单元 (PSU) 的 NAS 设备支持热插拔。

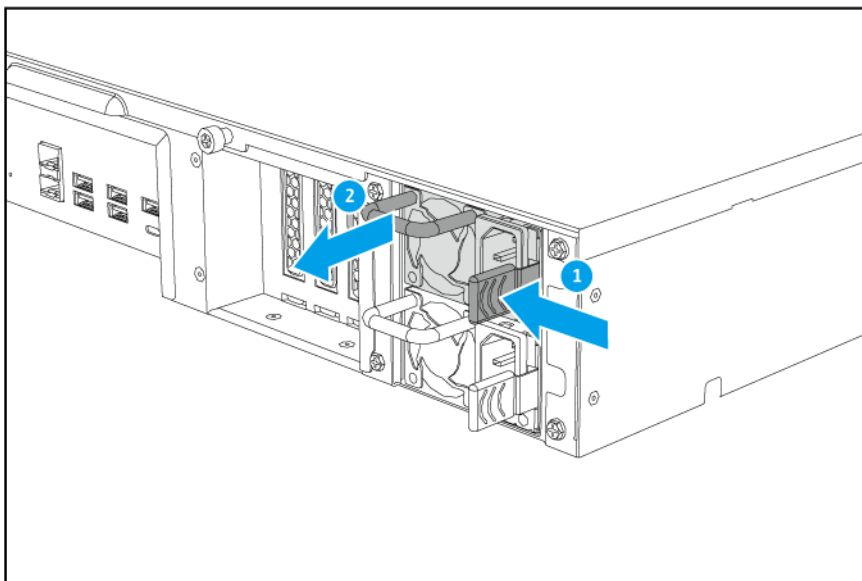
### 警告



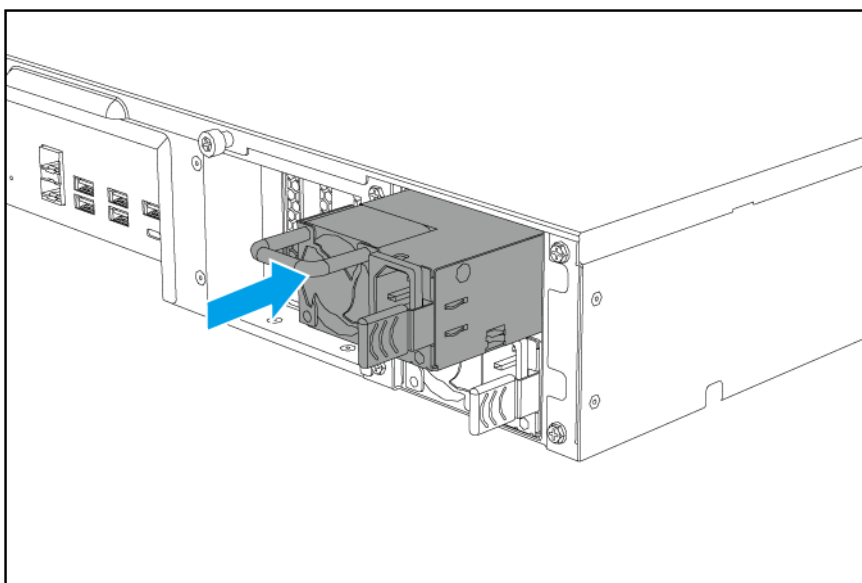
NAS 可能有一条或多条冗余电源单元 (PSU) 线。为避免受到严重伤害，安装或更换系统组件前，经培训的维修技师必须先拔下所有 PSU 线。

1. 关闭 NAS 电源。
2. 从插座和要更换的电源单元 (PSU) 上拔下电源线。

3. 向手柄方向紧按门锁并拉出 PSU。



4. 插入新 PSU。



5. 将电源线连接到 PSU 和插座。
6. 启动设备。
7. 启用 PSU 故障警报。
  - a. 以管理员身份登录 QTS。
  - b. 转到控制台 > 系统 > 硬件 > 常规。
  - c. 选择启用冗余电源模式。
  - d. 单击全部应用。

## 导轨套件

导轨套件未随 NAS 提供，必须单独购买。有关详细信息，请联系授权经销商或转到 <http://shop.qnap.com>。

TS-x77XU 兼容以下导轨型号：

型号	兼容的导轨套件
<ul style="list-style-type: none"> <li>• TS-877XU</li> <li>• TS-877XU-RP</li> <li>• TS-1277XU-RP</li> </ul>	RAIL-B02

安装信息位于导轨套件包中。

## 扩展单元安装

TS-x77XU 支持 SAS 和 USB 扩展单元。

扩展单元型号	描述	所需配件
REXP-1000 Pro	<ul style="list-style-type: none"> <li>• 使用 SAS 6 Gbps (SFF-8088) 接口</li> <li>• 支持 SATA/HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• SAS-6G2E 存储扩展卡</li> <li>• mini-SAS SFF-8088 线缆</li> </ul>
TL-D800C	<ul style="list-style-type: none"> <li>• 使用 USB 3.2 Gen 2 C 型接口</li> <li>• 支持 SATA 硬盘</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 2 A 型至 C 型线缆</li> <li>• USB 3.2 Gen 2 C 型至 C 型线缆</li> </ul>
TL-D400S	<ul style="list-style-type: none"> <li>• 使用 SATA 6 Gbps (SFF-8088) 接口</li> <li>• 支持 SATA/HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 1 x SFF-8088 连接器线缆</li> <li>• QXP-400eS-A1164 主机总线适配器</li> </ul>
TL-D800S	<ul style="list-style-type: none"> <li>• 使用 SATA 6 Gbps (SFF-8088) 接口</li> <li>• 支持 SATA/HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 2 x SFF-8088 连接器线缆</li> <li>• QXP-800eS-A1164 主机总线适配器</li> </ul>
TL-D1600S	<ul style="list-style-type: none"> <li>• 使用 SATA 6 Gbps (SFF-8088) 接口</li> <li>• 支持 SATA/HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 4 x SFF-8088 至 SFF-8644 连接器线缆</li> <li>• QXP-1600eS 主机总线适配器</li> </ul>
TR-002	<ul style="list-style-type: none"> <li>• 使用 USB 3.2 Gen 2 C 型接口</li> <li>• 支持 SATA 硬盘</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 2 A 型至 C 型线缆</li> <li>• USB 3.2 Gen 2 C 型至 C 型线缆</li> </ul>



扩展单元型号	描述	所需配件
TR-004	<ul style="list-style-type: none"> <li>• 使用 USB 3.2 Gen 1 C 型接口</li> <li>• 支持 SATA 硬盘</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 2 A 型至 C 型线缆</li> <li>• USB 3.2 Gen 2 C 型至 C 型线缆</li> </ul>
TR-004U	<ul style="list-style-type: none"> <li>• 使用 USB 3.2 Gen 1 C 型接口</li> <li>• 支持 SATA 硬盘</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 1 A 型至 C 型线缆</li> <li>• USB 3.2 Gen 2 C 型至 C 型线缆</li> <li>• RAIL-B02</li> </ul>
TL-R400S	<ul style="list-style-type: none"> <li>• 使用 SATA 6 Gbps (SFF-8088) 接口</li> <li>• 支持 SATA/HDD/SSD</li> </ul>	<ul style="list-style-type: none"> <li>• 1 x SFF-8088 连接器线缆</li> <li>• QXP-400eS-A1164 主机总线适配器</li> <li>• RAIL-B02</li> </ul>
TL-R1200C-RP	<ul style="list-style-type: none"> <li>• 使用 USB 3.2 Gen 2 C 型接口</li> <li>• 支持 SATA 硬盘</li> </ul>	<ul style="list-style-type: none"> <li>• USB 3.2 Gen 2 A 型至 C 型线缆</li> <li>• USB 3.2 Gen 2 C 型至 C 型线缆</li> <li>• RAIL-B02</li> </ul>

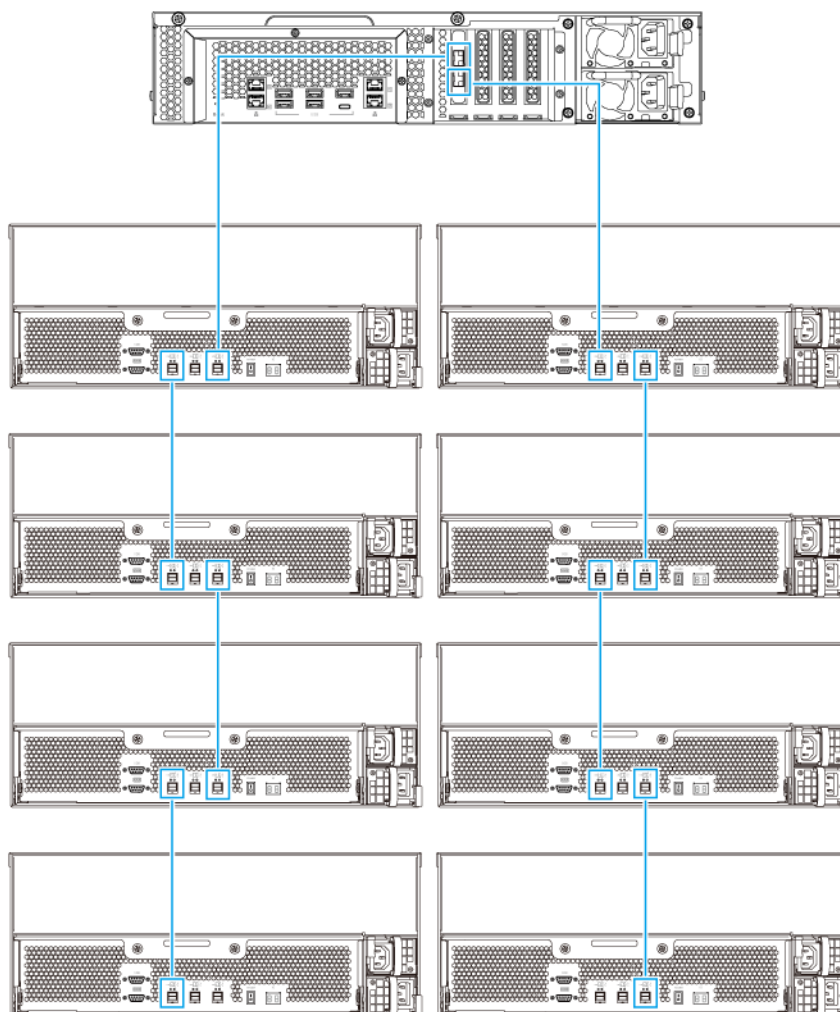
## 连接 SAS 扩展单元

要将设备连接到 SAS 扩展单元，必须在设备中安装存储扩展卡。

有关所需配件的详细信息，请参见[扩展单元安装](#)。

1. 在 PCIe 插槽上安装存储扩展卡。  
有关详细信息，请参见 [安装扩展卡](#)

2. 按以下拓扑将扩展单元连接到设备。



3. 为扩展单元接通电源。

4. 确认设备能够识别扩展单元。

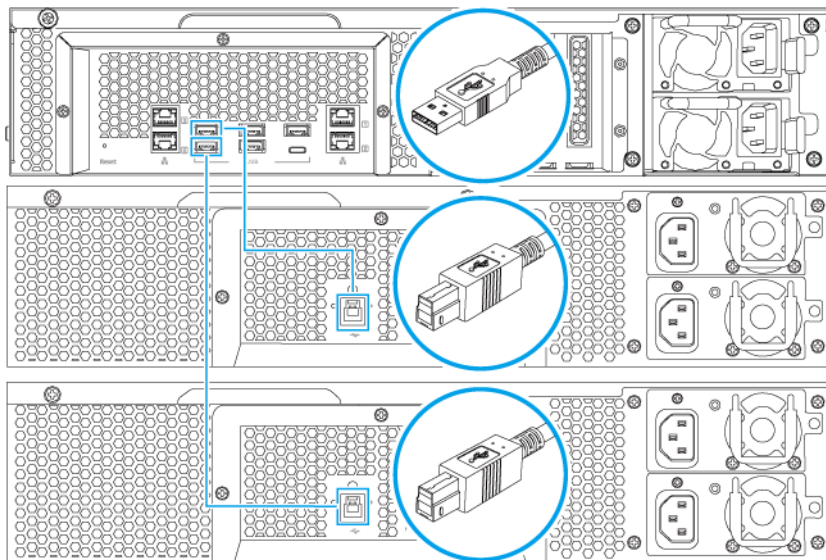
- a. 以管理员身份登录 QTS。
- b. 转到主菜单 > 存储与快照总管 > 概述 > 系统。
- c. 确认扩展单元已列出。

## 连接 USB 扩展单元

要将设备连接到 USB 扩展单元，需要 USB A 型至 USB C 型线缆或 USB C 型至 USB C 型线缆。

有关所需配件的详细信息，请参见[扩展单元安装](#)。

1. 确认 NAS 已关机。
2. 将扩展单元连接到 NAS。
  - a. 将 USB 线缆连接到 NAS 上的 USB 3.2 Gen 2 A 型端口。
  - b. 将 USB 线缆连接到 NAS 上的 USB A 型端口。



3. 为扩展单元接通电源。
4. 确认 NAS 能够识别扩展单元。
  - a. 以管理员身份登录 QTS。
  - b. 转到主菜单 > 存储与快照总管 > 概述 > 系统。
  - c. 确认扩展单元已列出。

## QTS 安装

TS-x77XU 使用 QNAPQTS 操作系统。可以使用以下任一方法安装 QTS。

方法	描述	要求
Qfinder Pro 安装 (推荐)	<p>如果 NAS 已连接到您的局域网，可以执行以下操作：</p> <ul style="list-style-type: none"> <li>• 使用 Qfinder Pro 定位 NAS。</li> <li>• 完成“智能安装指南”向导中的步骤。</li> </ul> <p>有关详细信息，请参见<a href="#">使用 Qfinder Pro 安装 QTS</a>。</p>	<ul style="list-style-type: none"> <li>• 计算机</li> <li>• 网线</li> <li>• Qfinder Pro 安装程序</li> </ul>

方法	描述	要求
云安装	<p>如果 NAS 已连接到 Internet，可以执行以下操作：</p> <ul style="list-style-type: none"> <li>• 扫描 NAS 上的二维码。</li> <li>• 登录您的 myQNAPcloud 帐户。</li> <li>• 使用 myQNAPcloud Link 远程访问 NAS。</li> <li>• 完成“智能安装指南”向导中的步骤。</li> </ul> <p>有关详细信息，请参见<a href="#">使用 Cloud Key 安装 QTS</a>。</p>	<ul style="list-style-type: none"> <li>• 计算机或移动设备</li> <li>• 网线</li> <li>• myQNAPcloud 帐户</li> <li>• Cloud Key</li> </ul>

## 使用 Qfinder Pro 安装 QTS

### 警告

安装 QTS 将删除硬盘上的所有数据。请先备份您的数据，然后再继续。

1. 启动 NAS 电源。
2. 将 NAS 连接到您的局域网中。
3. 在已连接到同一局域网的计算机上运行 Qfinder Pro。

### 注意

要下载 Qfinder Pro，请转到 <https://www.qnap.com/utilities>。

4. 在列表中找到 NAS，然后双击名称或 IP 地址。  
**智能安装指南**将在默认 Web 浏览器中打开。
5. 单击**启动智能安装指南**。  
此时会出现**输入 NAS 名称和管理员密码**屏幕。
6. 指定以下信息。
  - **NAS 名称**：指定 1 至 14 个字符的名称。名称支持字母（A 到 Z、a 到 z）、数字（0 到 9）和连字符 (-)，但不能以连字符结尾。
  - **密码**：指定 1 至 64 个字符的管理员密码。密码支持所有 ASCII 字符。
7. 单击**下一步**。  
此时会出现**设置日期和时间**屏幕。
8. 指定时区、日期和时间。

### 提示

QNAP 建议连接到 NTP 服务器，以确保 NAS 遵循协调世界时 (UTC) 标准。

9. 单击**下一步**。  
此时会出现**配置网络设置**屏幕。
10. 选择**自动获取 IP 地址(DHCP)**。
11. 单击**下一步**。  
此时会出现**跨平台文件传输服务**屏幕。
12. 选择将用于访问 NAS 上共享文件夹的设备类型。
13. 单击**下一步**。  
此时会出现**摘要**屏幕。
14. 检查设置。
15. 单击**应用**。  
此时会出现**确认**消息。

**警告**

单击**确认**后，将先删除硬盘上的所有数据，然后再安装 QTS。

16. 单击**确认**。  
QTS 即安装完毕。

## 使用 Cloud Key 安装 QTS

**警告**

安装 QTS 将删除硬盘上的所有数据。请先备份您的数据，然后再继续。

1. 启动 NAS 电源。
2. 将 NAS 连接到 Internet。
3. 使用以下方法之一转到“QNAP Cloud 安装”页面：
  - 在您的计算机上，转到 <http://install.qnap.com/>。
  - 使用移动设备扫描 NAS 上的二维码。

网页中会列出本地网络上所有尚未初始化的 QNAP NAS 设备。

4. 从列表中找到您的 NAS，然后单击**初始化**。

**注意**

如果未列出您的 NAS，请按网页上的说明指定 NAS 上的 Cloud Key。

安装向导将在默认 Web 浏览器中打开。

5. 创建帐户或登录 myQNAPcloud。

**注意**

创建帐户后，您必须返回此页面才能完成安装。

6. 为 NAS 指定 myQNAPcloud 设备名称。

**注意**

- myQNAPcloud 设备名称用于远程访问 NAS。
- 因安全原因，在您的 NAS 上初始化 myQNAPcloud Link 远程连接服务后，会将其禁用。通过 LAN 连接到 QTS，然后安装 myQNAPcloud Link 可启用此服务。

7. 单击下一步。

智能安装指南将在默认 Web 浏览器中打开。

8. 单击启动智能安装指南。

9. 指定以下信息。

- **NAS 名称**：指定 1 至 14 个字符的名称。名称支持字母（A 到 Z、a 到 z）、数字（0 到 9）和连字符 (-)，但不能以连字符结尾。
- **密码**：指定 1 至 64 个字符的管理员密码。密码支持所有 ASCII 字符。

10. 单击下一步。

此时会出现设置日期和时间屏幕。

11. 指定时区、日期和时间。

**提示**

QNAP 建议连接到 NTP 服务器，以确保 NAS 遵循协调世界时 (UTC) 标准。

12. 单击下一步。

此时会出现配置网络设置屏幕。

13. 选择自动获取 IP 地址(DHCP)。

14. 单击下一步。

此时会出现跨平台文件传输服务屏幕。

15. 选择将用于访问 NAS 上共享文件夹的设备类型。

16. 单击下一步。

此时会出现摘要屏幕。

17. 检查设置。

18. 单击应用。

此时会出现确认消息。

**警告**

单击**确认**后，将先删除硬盘上的所有数据，然后再安装 QTS。

19. 单击**确认**。  
QTS 即安装完毕。

## 4. 基本操作

本章介绍 NAS 的基本操作。

### 电源按钮

操作	用户操作	结果
启动电源	按下此按钮一次。	设备开机。
关闭电源	按住此按钮 1.5 秒钟。	设备关机。
强制关机	按住此按钮 5 秒钟。	设备关机。

**重要**  
仅当设备无响应时才能使用此方法。

### 重置按钮

操作	用户操作	结果
基本系统重置	按住此按钮 3 秒钟。	<p>以下设置将重置为默认值：</p> <ul style="list-style-type: none"> <li>• admin 帐户将自动启用。</li> <li>• 系统管理员密码：有关默认密码的详细信息，请参见此<a href="#">常见问题</a>。</li> <li>• TCP/IP 配置： <ul style="list-style-type: none"> <li>• 通过 DHCP 自动获取 IP 地址设置</li> <li>• 禁用巨型帧</li> <li>• 如果启用端口中继（仅限多局域网型号），则端口中继模式将重置为“主动备份(故障转移)”。</li> </ul> </li> <li>• 系统端口：8080（系统服务端口）</li> <li>• 安全等级：低（允许所有连接）</li> <li>• LCD 面板密码：（空白）</li> <li>• VLAN：禁用</li> </ul>



操作	用户操作	结果
高级系统重置	按住此按钮 10 秒钟。	恢复默认出厂设置。 <ul style="list-style-type: none"> <li>要在高级系统重置后检索旧数据，请在 NAS 上重新创建先前的文件夹结构。</li> </ul>

## LED

开启 NAS 电源后，LED 指示灯会指示系统状态和相关信息。以下 LED 信息仅适用于硬盘已正确安装并且 NAS 已连接到网络的情况。

有关 LED 位置的详细信息，请参见[组件](#)。

LED	状态	描述
系统状态	红绿交替闪烁，间隔 0.5 秒	<ul style="list-style-type: none"> <li>硬盘正在格式化。</li> <li>NAS 正在初始化。</li> <li>操作系统正在更新。</li> <li>RAID 正在重建。</li> <li>正在进行在线 RAID 容量扩展。</li> <li>正在进行在线 RAID 级别迁移。</li> </ul>
	红色	<ul style="list-style-type: none"> <li>硬盘无效。</li> <li>磁盘卷的容量已满。</li> <li>磁盘卷的容量即将被占满。</li> <li>系统风扇故障。</li> <li>访问（读/写）数据时出错。</li> <li>在硬盘上检测到坏扇区。</li> <li>NAS 处于降级只读模式（RAID 5 或 RAID 6 中的两个成员硬盘出现故障，但仍可读取数据）。</li> <li>硬件自检发生错误。</li> </ul>
	闪烁红色，间隔 0.5 秒	NAS 处于降级模式（RAID 1、RAID 5 或 RAID 6 中的一个成员硬盘出现故障）。

LED	状态	描述
系统状态	闪烁绿色，间隔 0.5 秒	<ul style="list-style-type: none"> <li>• NAS 正在启动。</li> <li>• NAS 未配置。</li> <li>• 硬盘未格式化。</li> </ul>
	绿色	NAS 已准备就绪。
	熄灭	所有硬盘都处于待机模式。
LAN	橙色	另一台设备访问数据期间发生了读/写错误。
	闪烁橙色	正在从网络访问 NAS。
硬盘	闪烁红色	正在访问驱动器，但在此过程中发生读/写错误。
	红色	发生硬盘读/写错误。
	闪烁绿色	正在访问数据。
	绿色	硬盘可供访问。
扩展	橙色	<ul style="list-style-type: none"> <li>• 未检测到 USB JBOD 扩展单元。</li> <li>• 检测到 SAS JBOD 扩展单元。</li> <li>• 检测到 REXP 扩展单元。</li> </ul>
	熄灭	未检测到扩展单元。

## 警告音

时长	频率	描述
短提示音 (0.5 秒)	1	<ul style="list-style-type: none"> <li>• NAS 正在启动。</li> <li>• 按下重置按钮 3 秒钟后，NAS 将重置配置。</li> <li>• 按下重置按钮 10 秒钟后，NAS 将重置配置并重新启动。</li> <li>• 操作系统已更新。</li> <li>• 设备正在启动 USB 一键复制。</li> </ul>
	2	USB 设备已移除 (USB 一键复制按钮)。

时长	频率	描述
短提示音 (0.5 秒)	3	<ul style="list-style-type: none"> <li>无法检测到已安装的磁盘。</li> <li>固件已更新。</li> </ul>
长提示音 (1.5 秒)	3 (每 5 分钟)	<ul style="list-style-type: none"> <li>电源发生错误。</li> <li>系统风扇故障。</li> <li>风扇模块已移除。</li> <li>无法将 NAS 数据复制到连接到前 USB 端口的外部存储设备。</li> </ul>
	2	<ul style="list-style-type: none"> <li>存储池的容量即将被占满。</li> <li>存储池的容量已满。</li> <li>发生存储池状态错误。</li> <li>共享文件夹即将被占满。</li> <li>共享文件夹容量已满。</li> <li>硬盘处于降级模式。</li> <li>硬盘正在重建。</li> <li>正在移除 USB 设备 (USB 一键复制按钮)。</li> <li>发生共享文件夹状态错误。</li> <li>插入或抽出硬盘。</li> <li>iSCSI 的容量即将被占满。</li> </ul>
	1	<ul style="list-style-type: none"> <li>NAS 已通过强制关闭关机 (硬件关闭)。</li> <li>NAS 已成功开机并准备就绪。</li> </ul>
长提示音和短提示音	一长两短	JBOD 扩展单元已移除。

## 5. 故障排除

本章介绍基本故障排除信息。

### 强制 Qfinder Pro 或 myQNAPcloud 定位 NAS

如果在 QTS 安装过程中 Qfinder Pro 或 myQNAPcloud 无法定位 NAS，则硬盘或数据可能有故障。

1. 关闭 NAS 电源。
2. 取下所有硬盘。
3. 启动 NAS 电源。
4. 使用 Qfinder Pro 或 myQNAPcloud 定位 NAS。
5. 重新插入硬盘。
6. 继续安装 QTS。

### 热插拔故障硬盘

在以下情况下，NAS 支持热插拔硬盘：

RAID 类型	磁盘数量	情形
RAID 1	2	一个成员硬盘有故障。
RAID 5	≥ 3	一个成员硬盘有故障。
RAID 6	≥ 4	一个或两个成员硬盘有故障。
RAID 10	≥ 4 (必须为偶数)	处于两个不同对中的一个或两个成员硬盘有故障。
RAID 50	≥ 6	每个子组的一个磁盘有故障。
RAID 60	≥ 8	每个子组的两个磁盘有故障。

1. 登录 QTS。
2. 转到**主菜单 > 存储与快照总管 > 存储 > 磁盘/VJBOD**。
3. 找到发生故障的硬盘。
4. 准备一个与故障硬盘具有相同或更大容量的新硬盘。
5. 从设备中取下故障硬盘。
6. 等待 20 秒或设备发出两声提示音。
7. 从硬盘托盘中取下故障硬盘。

8. 将新硬盘插入硬盘托盘中。
9. 安装新硬盘。  
此时 NAS 会发出两声提示音。
10. 转到主菜单 > 存储与快照总管 > 存储。
11. 找到包含新硬盘的卷，然后确认状态为正在重建。

## 支持和其他资源

QNAP 提供了以下资源：

资源	URL
文档	<a href="https://download.qnap.com">https://download.qnap.com</a>
兼容性列表	<a href="https://www.qnap.com/compatibility">https://www.qnap.com/compatibility</a>
NAS 迁移兼容性	<a href="https://www.qnap.com/en/nas-migration">https://www.qnap.com/en/nas-migration</a>
扩展单元兼容性	<a href="http://www.qnap.com/go/compatibility-expansion">http://www.qnap.com/go/compatibility-expansion</a>
服务门户	<a href="https://service.qnap.com">https://service.qnap.com</a>
产品支持状态	<a href="https://www.qnap.com/en/product/eol.php">https://www.qnap.com/en/product/eol.php</a>
下载	<a href="https://download.qnap.com">https://download.qnap.com</a>
社区论坛	<a href="https://forum.qnap.com">https://forum.qnap.com</a>
QNAP 配件商店	<a href="https://shop.qnap.com">https://shop.qnap.com</a>

## 6. 术语表

### Cloud Key

分配给每个 NAS 设备的唯一 8 位数代码

### myQNAPcloud

提供各种远程访问服务，如 DDNS 和 myQNAPcloud Link

### myQNAPcloud Link

可用于通过 Internet 访问 QNAP 设备，而且不必配置复杂的端口转发设置

### QNAP ID

用户帐户，可用于使用 myQNAPcloud 远程访问和其他 QNAP 服务

### Qfinder Pro

一种 QNAP 实用工具，可用于查找和访问局域网中的 QNAP NAS 设备

### QTS

QNAP NAS 操作系统

## 7. 声明

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Version 3, 29 June 2007

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### 2. Source Code.

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The “Corresponding Source” for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work’s System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example,

Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

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