



QNAP

TS-x77XU

TS-977XU
TS-977XU-RP

用户指南

内容

1. 前言	
关于本指南.....	3
受众.....	3
文档约定.....	3
2. 产品概述	
关于 TS-x77XU.....	4
硬件规格.....	4
包装内容.....	6
组件.....	7
前面板.....	7
后面板.....	8
系统主板.....	9
正面硬盘编号.....	10
安全信息.....	10
安装要求.....	11
设置 NAS.....	12
3. 安装和配置	
硬件安装.....	13
硬盘安装.....	13
更换内存模块.....	20
安装扩展卡.....	23
热插拔冗余电源单元.....	27
在 TS-977XU 和 TS-977XU-RP 上安装手柄.....	29
导轨套件.....	30
扩展单元安装.....	30
QTS 安装.....	33
使用 Qfinder Pro 安装 QTS.....	34
使用 Cloud Key 安装 QTS.....	35
4. 基本操作	
电源按钮.....	37
重置按钮.....	37
重置按钮.....	38
LED.....	38
警告音.....	40
5. 故障排除	
强制 Qfinder Pro 或 myQNAPcloud 定位 NAS.....	41
热插拔故障硬盘.....	41
支持和其他资源.....	42
6. 术语表	
Cloud Key.....	43
myQNAPcloud.....	43
myQNAPcloud Link.....	43
QNAP ID.....	43
Qfinder Pro.....	43
QTS.....	43

7. 声明

有限保修.....	44
免责声明.....	44
BSMI 公告.....	44
CE 声明.....	45
FCC 声明.....	45
GNU Public License.....	45
SJ/T 11364-2006.....	53

1. 前言





关于本指南

本指南提供有关 QNAP TS-x77XU NAS 的信息以及有关硬件安装的分步说明。此外，还提供了有关基本操作和故障排除信息的说明。

受众

本文档的目标读者为用户和存储管理员。本指南假定用户已对存储和备份概念有基本了解。

文档约定

符号	描述
	注释，提供默认配置设置和其他补充信息。
	重要注释，提供有关所需配置设置的信息以及其他关键信息。
	提示，提供有关执行任务或配置设置的建议或备选方法。
	警告，提供警告信息，如果忽略此信息，可能会导致潜在损失、伤害甚至死亡。

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 特别配备了一个多用 PCIe 扩展卡插槽，最多可扩展到 64 GB 内存，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-977XU-1200-4G	Ryzen 3 1200	4 GB	单一
TS-977XU-RP-1200-4G	Ryzen 3 1200	4 GB	冗余
TS-977XU-RP-2600-8G	Ryzen 5 2600	8 GB	冗余
TS-977XU-RP-3600-8G	Ryzen 5 3600	8 GB	冗余

组件	TS-977XU TS-977XU-RP
处理器	
CPU	<ul style="list-style-type: none"> TS-977XU: AMD Ryzen™ 3 1200 4 核/4 线程 3.1 GHz 基本/3.4 GHz 脉冲 TS-977XU-RP: AMD Ryzen™ 5 2600 6 核/12 线程 3.4 GHz 基本/3.9 GHz 脉冲 TS-977XU-RP-3600-8G: AMD Ryzen™ 5 3600 6 核/12 线程 3.6 GHz 基本/4.2 GHz 脉冲
架构	x86 64 位
加密引擎	AES-NI
内存	
预安装内存	<ul style="list-style-type: none"> 4 GB RAM: 1 x 4 GB DDR4 8 GB RAM: 2 x 4 GB DDR4

组件	TS-977XU TS-977XU-RP
内存插槽	4 x LDIMM DDR4  重要 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。
最大内存	64 GB RAM: 4 x 16 GB
闪存	5 GB (双重引导操作系统保护)
存储	
硬盘架	<ul style="list-style-type: none"> • 4 x 3.5 英寸 SATA 6 Gbps 硬盘架 • 5 x 2.5 英寸 SATA 6 Gbps 硬盘架
硬盘兼容性	<ul style="list-style-type: none"> • 3.5 英寸 SATA 机械硬盘 • 2.5 英寸 SATA 机械硬盘 • 2.5 英寸 SATA 固态硬盘  重要 2.5 英寸硬盘托盘仅支持最大高度为 9.5 mm 的硬盘。
网络	
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	1 x PCIe 3.0 x16  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 。
USB 端口	<ul style="list-style-type: none"> • 1 x USB 3.2 Gen 2 (10Gbps) 5V/1A A 型 • 4 x USB 3.2 Gen 1 A 型
HDMI 端口	可选: PCIe 扩展卡
界面	
按钮	<ul style="list-style-type: none"> • 电源 • 重置
尺寸	
外形规格	1U 机架式
尺寸 (高 x 宽 x 深)	<ul style="list-style-type: none"> • TS-977XU: 43.3 x 482.6 x 484.15 mm (1.70 x 19 x 19.06 英寸) • TS-977XU-RP: 43.3 x 482.6 x 505.54 mm (1.70 x 19 x 19.98 英寸)

组件	TS-977XU TS-977XU-RP
净重	<ul style="list-style-type: none"> TS-977XU: 7.44 kg (15.43 磅) TS-977XU-RP: 8.62 kg (19 磅)
其他	
导轨兼容性	RAIL-B02  注 <ul style="list-style-type: none"> 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。 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。
电源单元	<ul style="list-style-type: none"> TS-977XU: 250W, 100-240V AC, 50/60Hz TS-977XU-RP: 2 x 300W, 100-240V AC, 50/60Hz  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。
系统电池	CR2032 锂电池 (3V, 225 mAh)
噪声声级	<ul style="list-style-type: none"> TS-977XU: 39.2 dB(A) TS-977XU-RP: 43.8 dB(A)  注 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: 3 x 40 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"> 无冷凝相对湿度: 5% 至 95% 湿球温度: 27°C (80.6°F)

**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>。

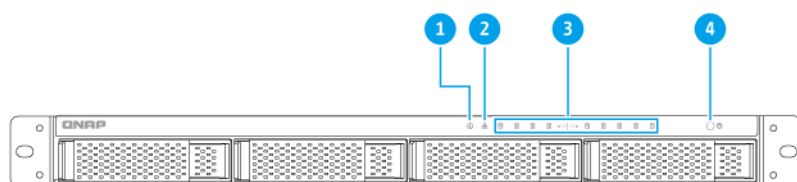
包装内容

项目	数量
TS-x77XU NAS	1
电源线	<ul style="list-style-type: none"> TS-977XU: 1 TS-977XU-RP: 2
以太网线	2
适用于 2.5 英寸硬盘的螺丝	TS-977XU、TS-977XU-RP: 32

项目	数量
适用于 3.5 英寸硬盘的螺丝	TS-977XU、TS-977XU-RP: 36
快速安装指南 (QIG)	1

组件

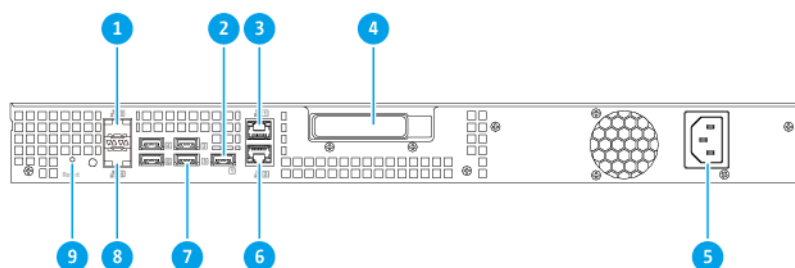
前面板



TS-977XU、TS-977XU-RP

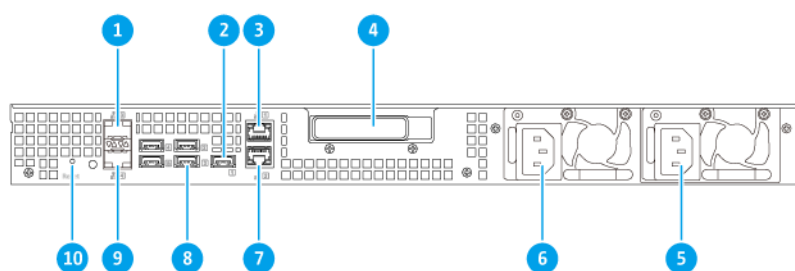
编号	组件	编号	组件
1	状态 LED	3	硬盘 LED
2	LAN LED	4	电源按钮

后面板



TS-977XU

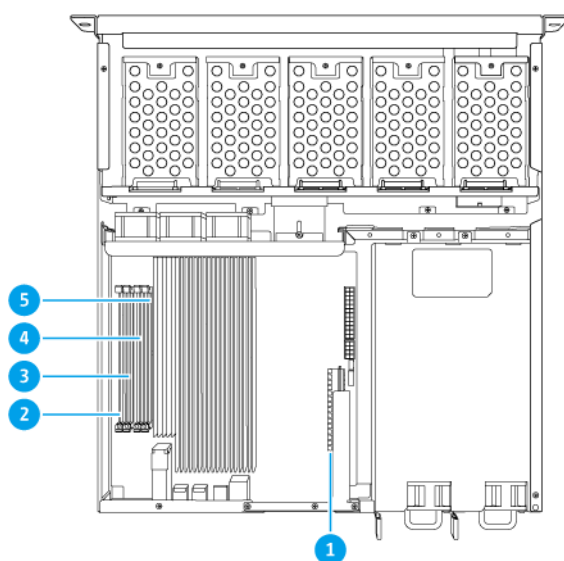
编号	组件	编号	组件
1	以太网端口 3 (10GbE SFP+)	6	以太网端口 2 (GbE RJ45)
2	USB 3.2 Gen 2 A 型端口	7	USB 3.2 Gen 1 A 型端口
3	以太网端口 1 (GbE RJ45)	8	以太网端口 4 (10GbE SFP+)
4	PCIe 半高盖板	9	重置按钮
5	电源输入	-	-



TS-977XU-RP

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

系统主板



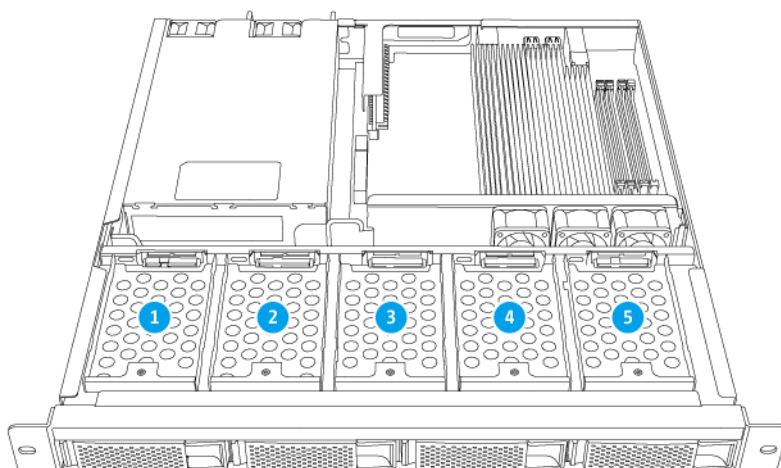
TS-977XU、TS-977XU-RP

编号	组件	编号	组件
1	PCIe 插槽 1 (PCIe 3.0 x16)	4	内存插槽 2 (通道 A, DIMM 2)
2	内存插槽 4 (通道 B, DIMM 4)	5	内存插槽 1 (通道 A, DIMM 1)
3	内存插槽 3 (通道 B, DIMM 3)	-	-

正面硬盘编号



TS-977XU、TS-977XU-RP 3.5 寸托盘



TS-977XU、TS-977XU-RP 2.5 寸托盘

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。
- 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

- 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，必须由经培训的维修技师从设备拔下所有 PSU 线。

系统电池

- 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。

运动的部件



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正在转动的风扇叶片。



运动的组件： 使您的身体各部位远离正在运动的其他组件。

安装要求

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

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](#)
 - [在 2.5 英寸托盘上安装 2.5 英寸固态硬盘](#)
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。

•



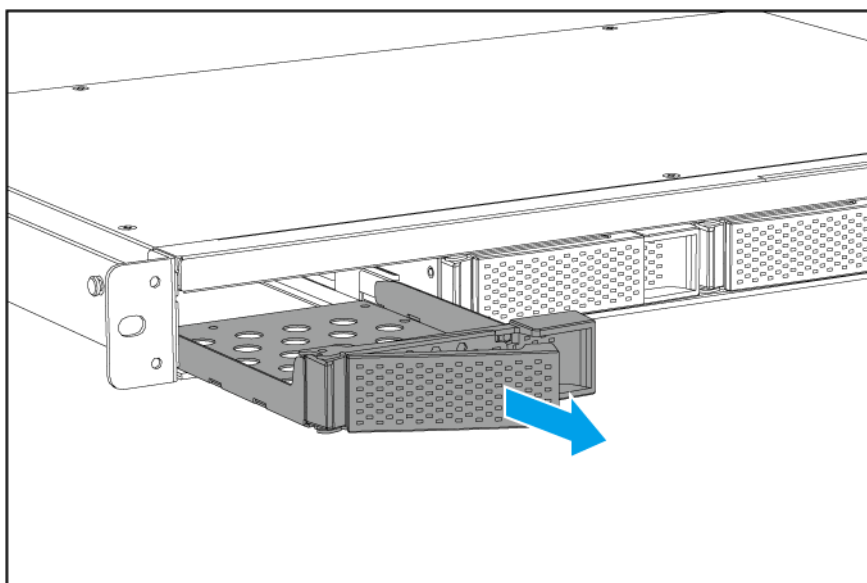
转动的风扇叶片：使您的双手和身体其他部位远离正在转动的风扇叶片。

•



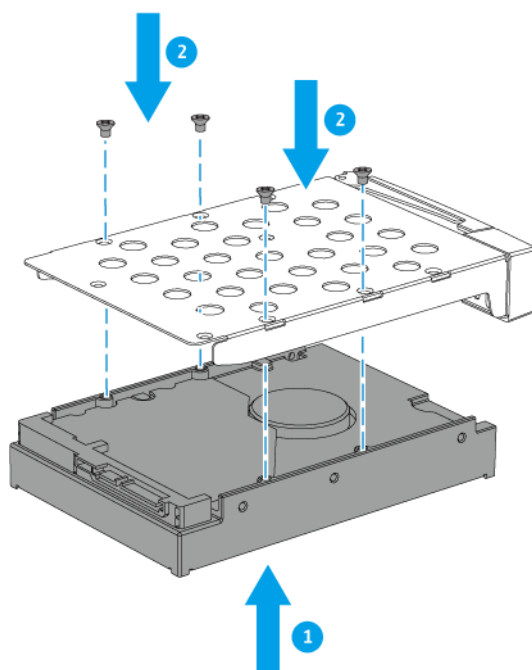
其他运动的组件：使您的双手和身体其他部位远离正在运动的其他组件。

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。

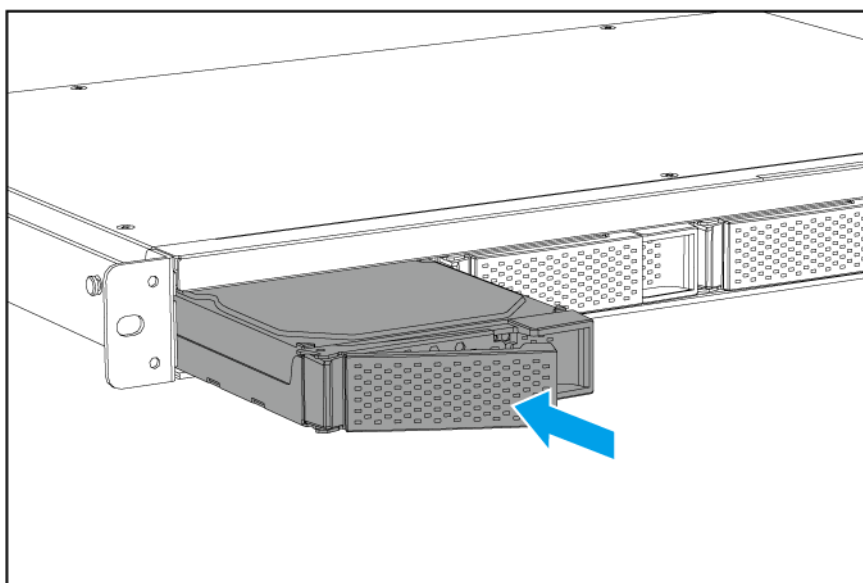
- a. 将硬盘放在托盘上，使硬盘底部的孔与托盘底部的孔对齐。
- b. 安装螺丝。



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。

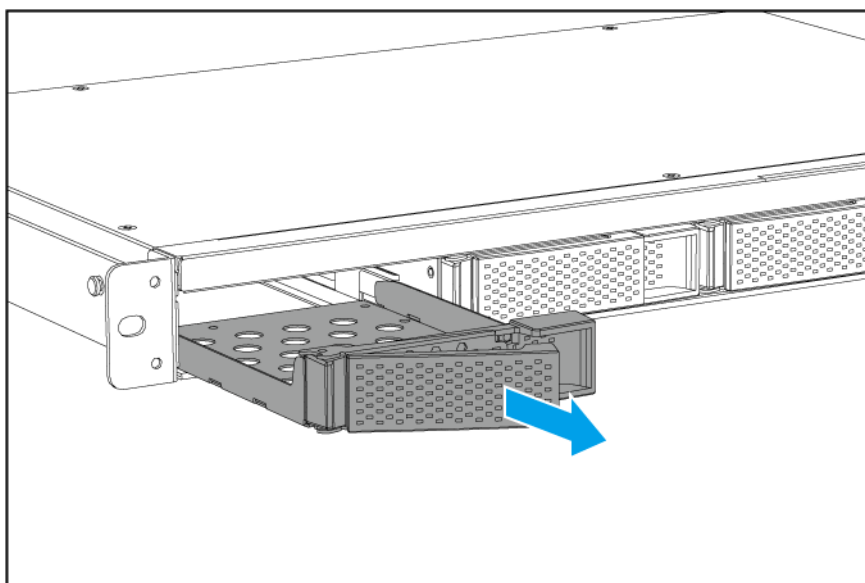


转动的风扇叶片：使您的双手和身体其他部位远离正在转动的风扇叶片。



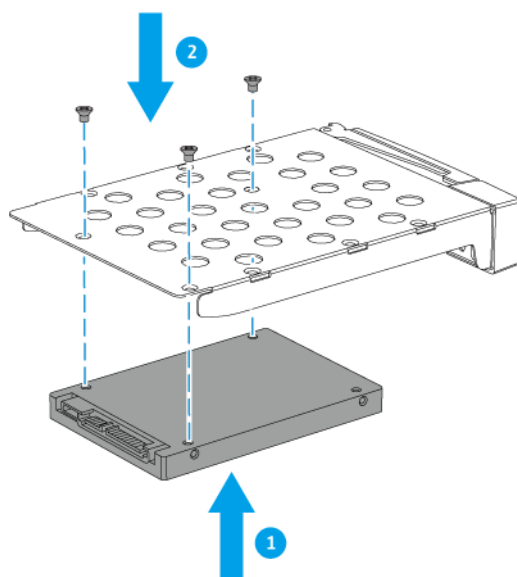
其他运动的组件：使您的双手和身体其他部位远离正在运动的其他组件。

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。

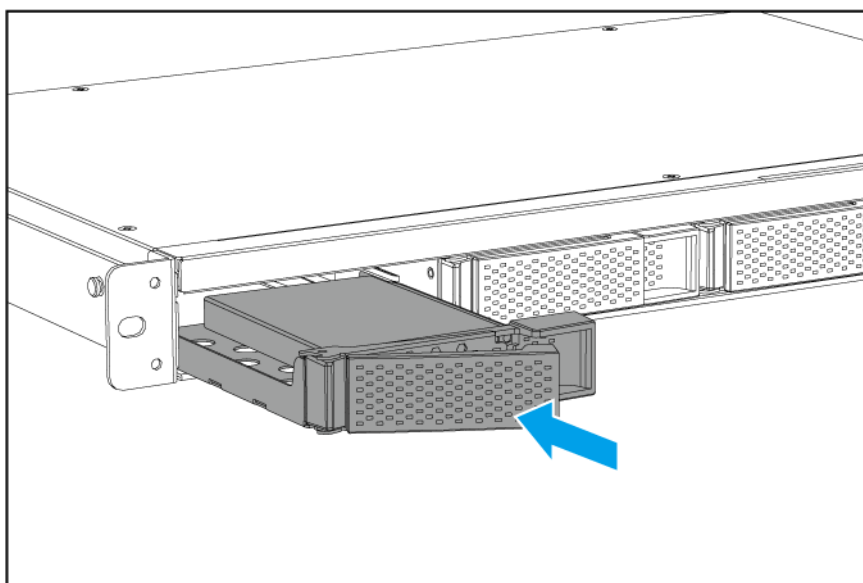
- a. 将硬盘放在托盘上，使硬盘底部的孔与托盘底部的孔对齐。
- b. 安装螺丝。



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。

在 2.5 英寸托盘上安装 2.5 英寸固态硬盘



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。

•



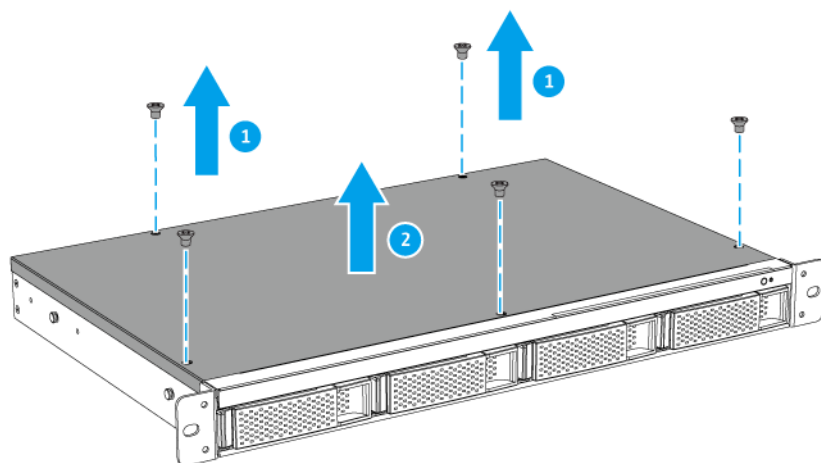
转动的风扇叶片：使您的双手和身体其他部位远离正在转动的风扇叶片。

•



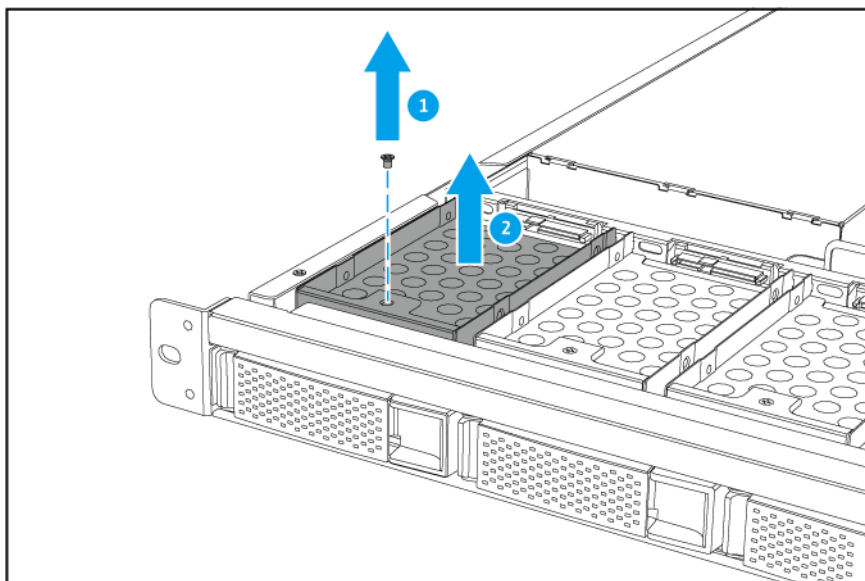
其他运动的组件：使您的双手和身体其他部位远离正在运动的其他组件。

1. 关闭 NAS 电源。
2. 取下顶盖。
 - a. 取下将顶盖连接到机箱上的螺丝。
 - b. 将顶盖提起。



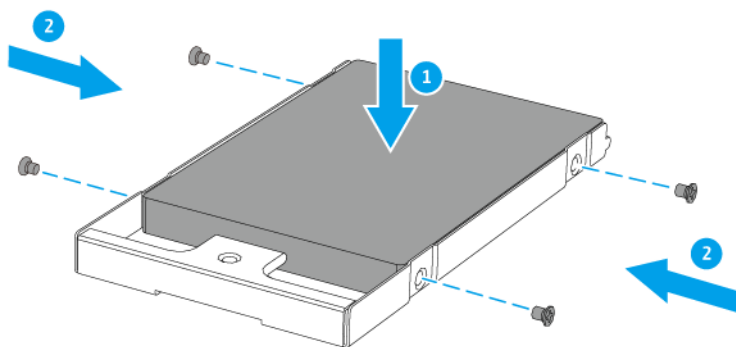
3. 取下硬盘托盘。

- a. 卸下用于将托盘固定到机箱的螺丝。
- b. 拉出托盘。



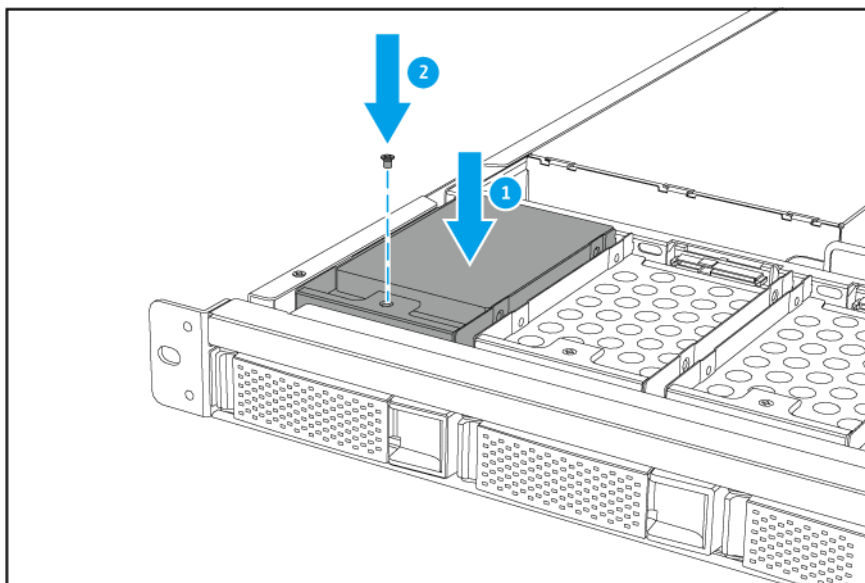
4. 将硬盘安装到托盘上。

- a. 将硬盘放在托盘上，使硬盘两侧的孔与托盘两侧的孔对齐。
- b. 装上螺丝，进一步固定硬盘。



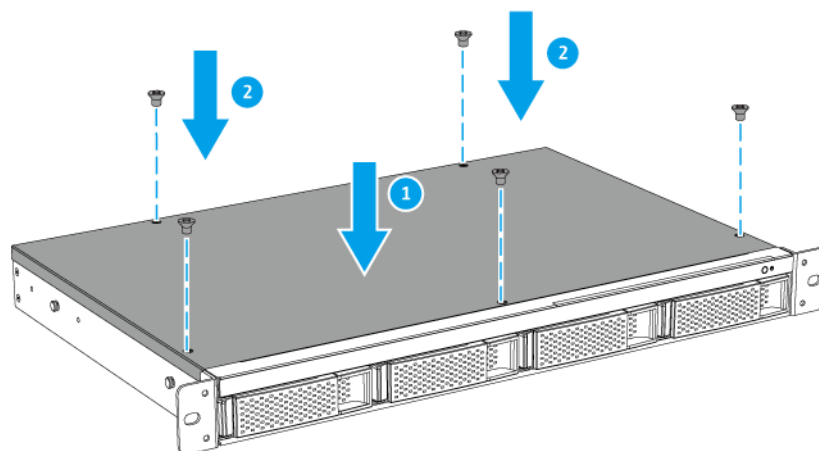
5. 将托盘装入硬盘架。

- a. 将托盘插入硬盘架。
- b. 装上将硬盘托盘固定到机箱上的螺丝。



6. 安装顶盖。

- a. 将盖板放在 NAS 上。
- b. 装上将顶盖连接到机箱上的螺丝。



7. 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。

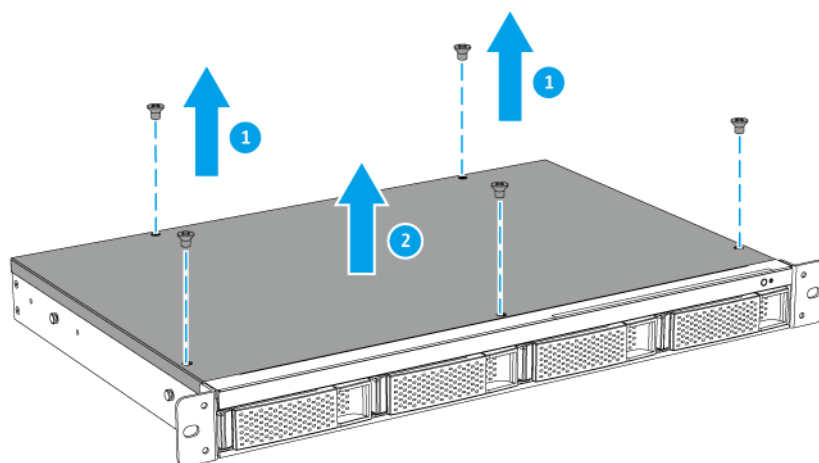


转动的风扇叶片：使您的双手和身体其他部位远离正在转动的风扇叶片。



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. 取下将顶盖连接到机箱上的螺丝。
 - b. 从设备上提起盖板。



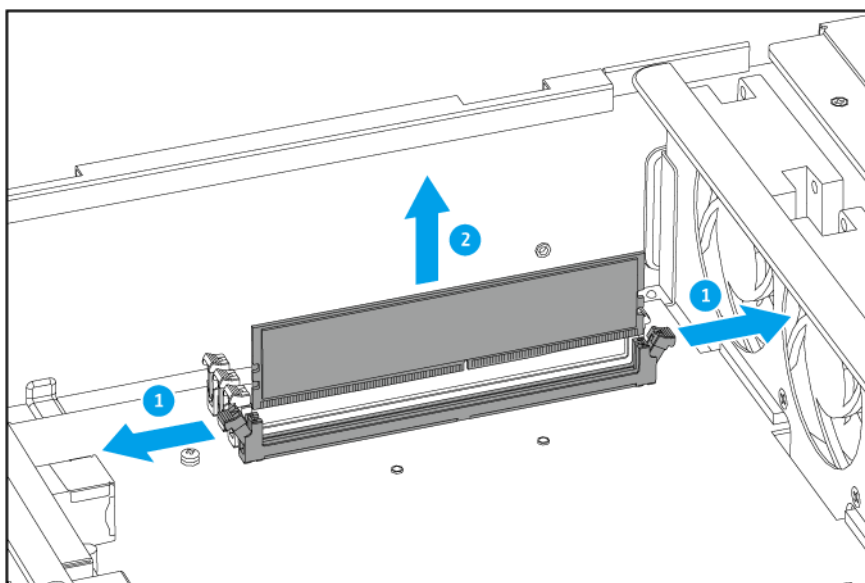
5. 取下现有模块。
 - a. 同时向外推动固定夹以释放模块。



警告

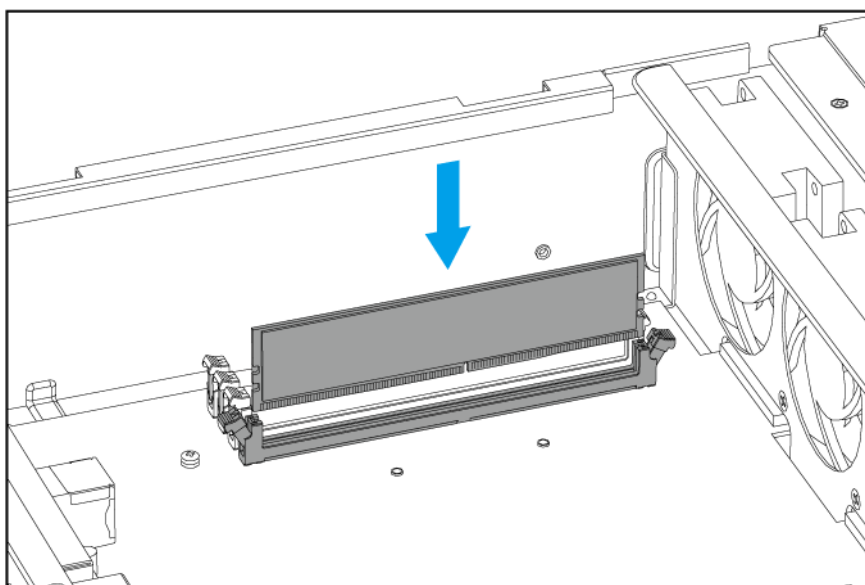
如果尝试在模块尚未完全脱离时将其取出，可能会损坏模块和主板。

- b. 握住模块边缘。



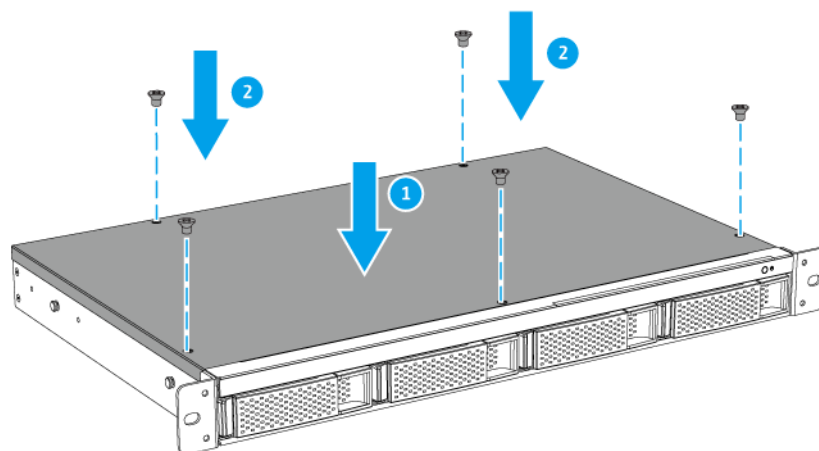
6. 安装新模块。

- 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. 装上将顶盖连接到机箱上的螺丝。



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。



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。



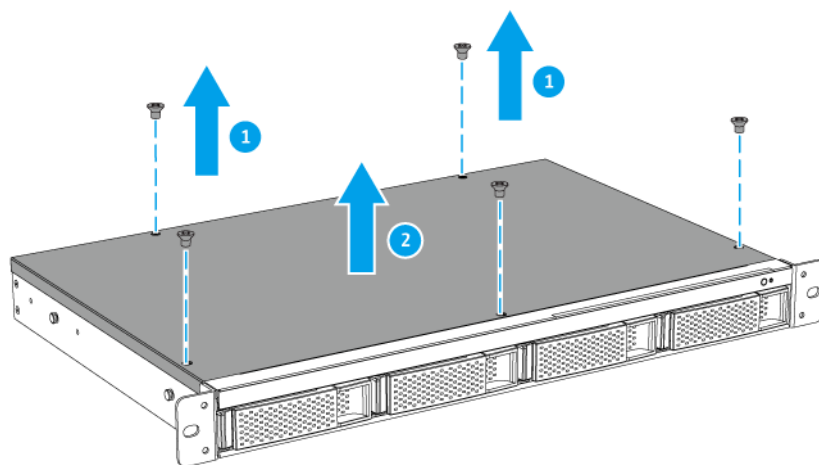
转动的风扇叶片：使您的双手和身体其他部位远离正在转动的风扇叶片。



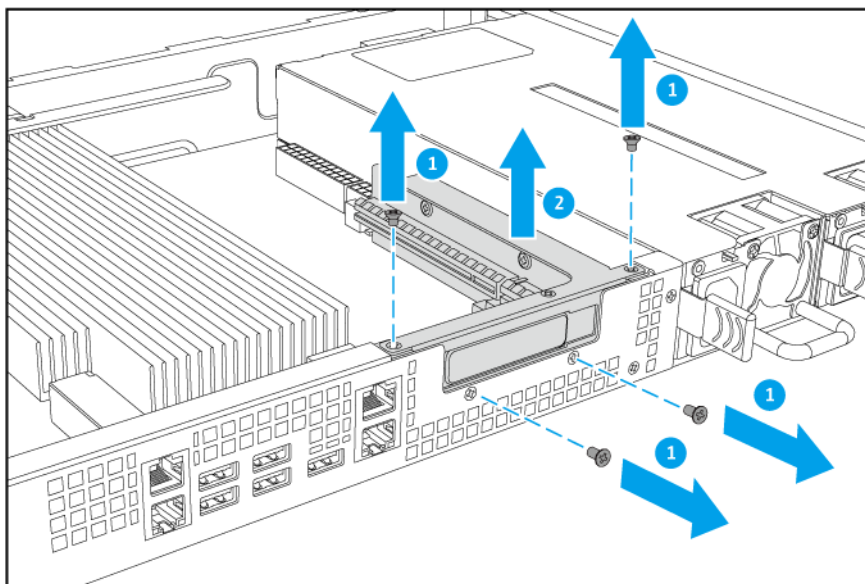
其他运动的组件：使您的双手和身体其他部位远离正在运动的其他组件。

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。
 - 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. 卸下用于将盖板固定到机箱的螺丝。
 - b. 从设备上提起盖板。

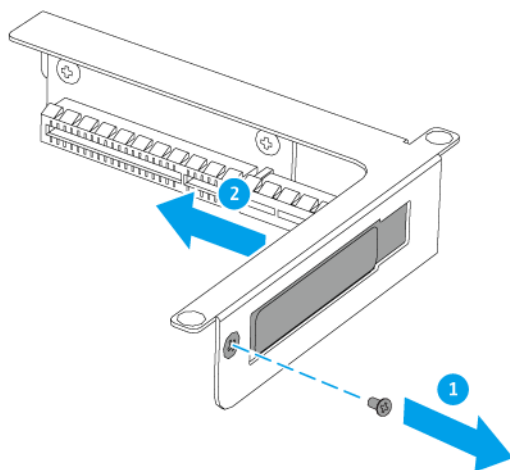


6. 取下 PCIe 盖板。
 - a. 取下用于将盖板固定到支架的螺丝。
 - b. 小心地从扩展卡取下支架。



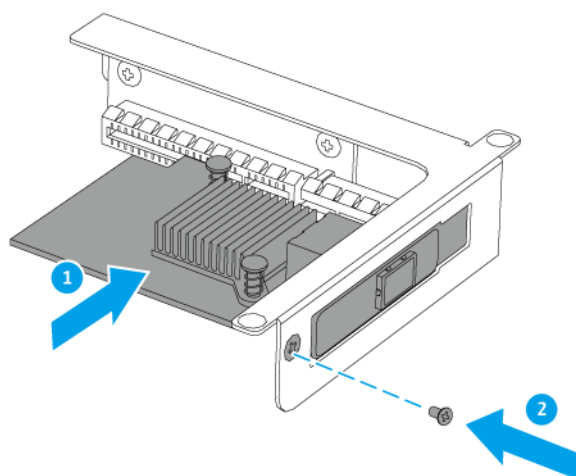
7. 取下 PCIe 盖板。

- 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。



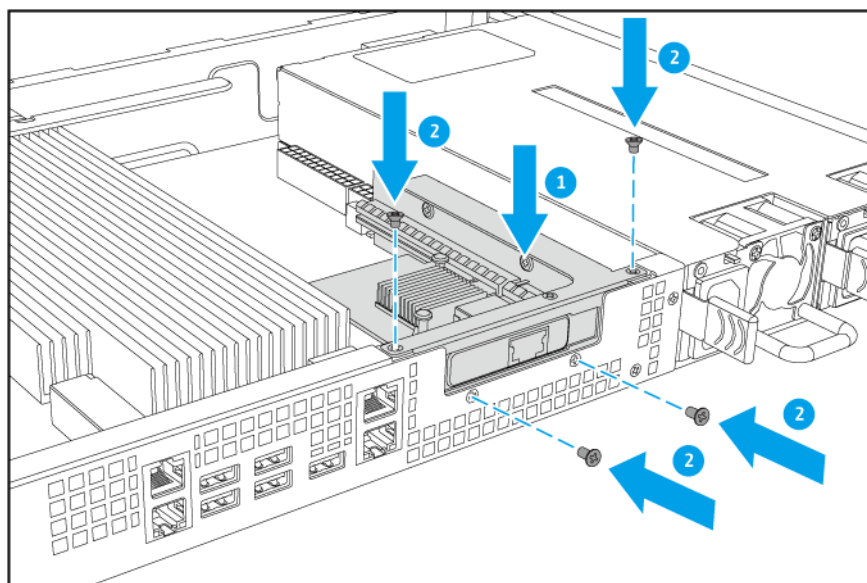
8. 安装扩展卡。

- a. 将卡插入支架上的 PCIe 插槽。
- b. 安装螺丝。



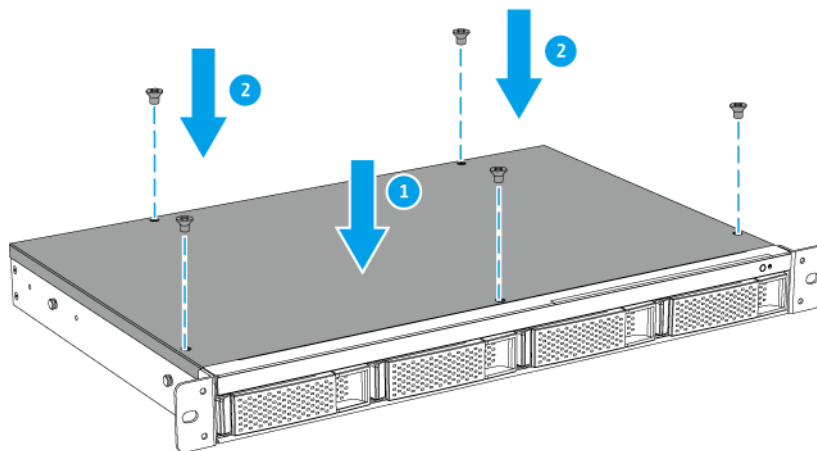
9. 插入 PCIe 支架。

- a. 将支架上的 PCIe 连接器插入系统主板上的 PCIe 插槽。
- b. 装上将支架固定到机箱的螺丝。



10. 安装外壳盖。

- a. 将盖板放在设备上。
- b. 装上将顶盖连接到机箱上的螺丝。



11. 连接所有线缆和外接部件。
12. 将电源线连接到插座。
13. 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。

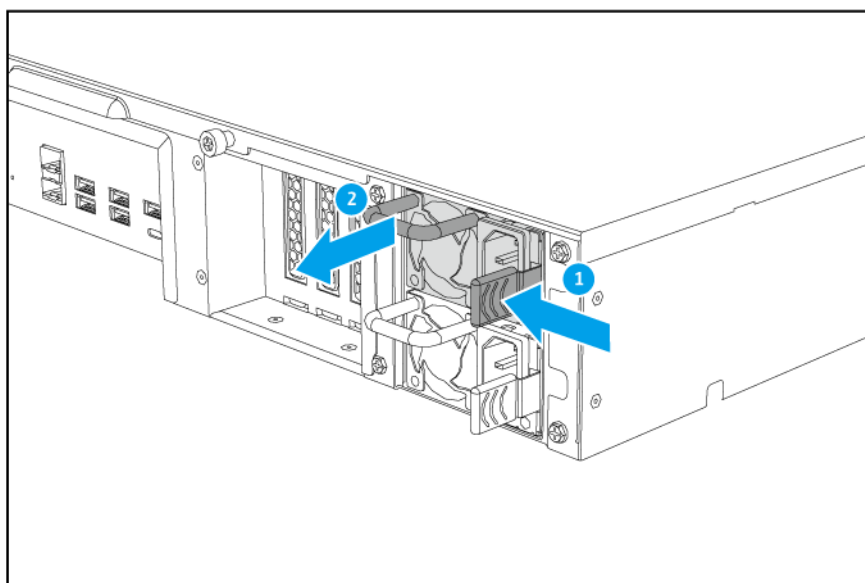


警告

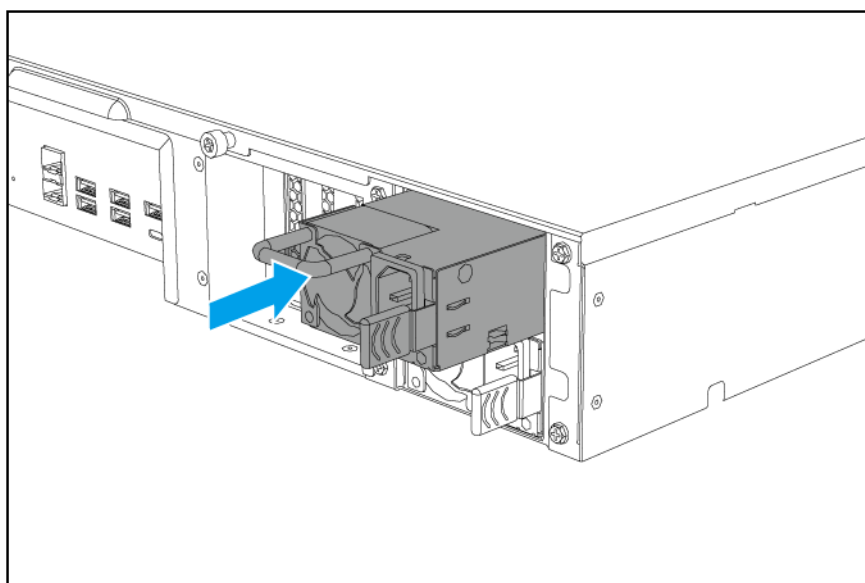


NAS 可能有一条或多条冗余电源单元 (PSU) 线。为避免受到严重伤害，安装或更换系统组件前，必须由经培训的维修技师拔下所有 PSU 线。

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. 向手柄方向紧按闩锁并拉出 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。

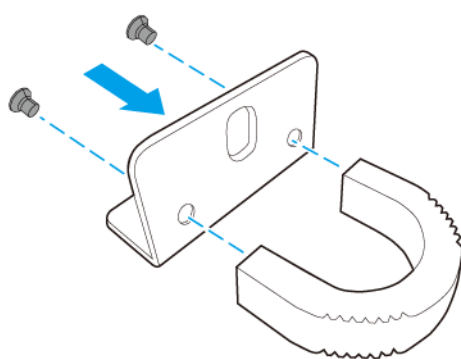
- a. 以管理员身份登录 QTS。
- b. 转到**控制台 > 系统 > 硬件 > 常规**。
- c. 选择**启用冗余电源模式**。
- d. 单击**全部应用**。

在 TS-977XU 和 TS-977XU-RP 上安装手柄

安装手柄可以便于拿取和固定 NAS。

TS-977XU 和 TS-977XU-RP 的手柄需要人工安装。

1. 关闭 NAS 电源。
2. 将手柄安装到角码上。
 - a. 将手柄上的开孔对准角码上的两个圆螺丝孔。
 - b. 装上螺丝，将手柄固定在角码上。

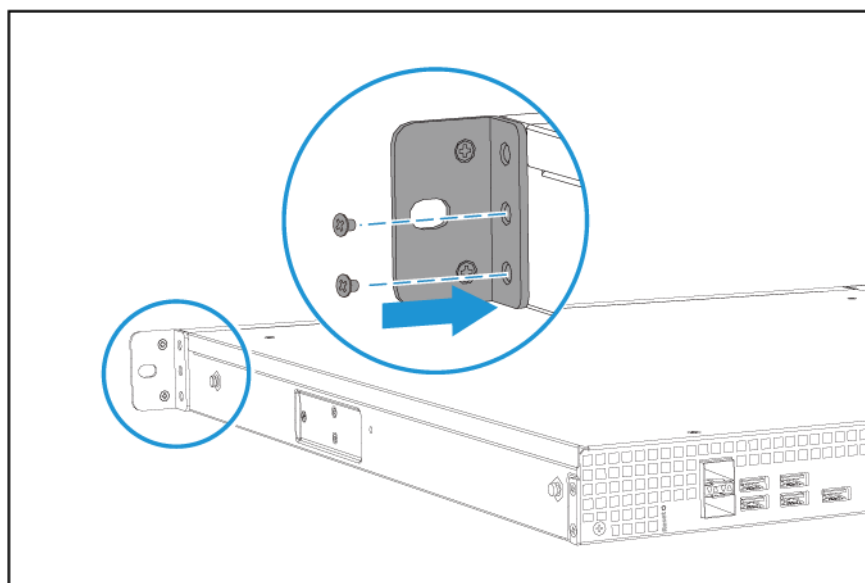


3. 将角码安装到设备上。
 - a. 将角码上的孔对准机箱上的孔。



注
确保手柄与前面板朝向一致。

- b. 安装螺丝。



4. 将第二个手柄安装到机箱的另一侧。
5. 启动 NAS 电源。

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"> • TS-977XU • TS-977XU-RP 	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"> • 使用 SAS 6 Gbps (SFF-8088) 接口 • 支持 SATA/HDD/SSD 	<ul style="list-style-type: none"> • SAS-6G2E 存储扩展卡 • mini-SAS SFF-8088 线缆
TL-D800C	<ul style="list-style-type: none"> • 使用 USB 3.2 Gen 2 C 型接口 • 支持 SATA 硬盘 	<ul style="list-style-type: none"> • USB 3.2 Gen 2 A 型至 C 型线缆 • USB 3.2 Gen 2 C 型至 C 型线缆
TL-D400S	<ul style="list-style-type: none"> • 使用 SATA 6 Gbps (SFF-8088) 接口 • 支持 SATA/HDD/SSD 	<ul style="list-style-type: none"> • 1 x SFF-8088 连接器线缆 • QXP-400eS-A1164 主机总线适配器
TL-D800S	<ul style="list-style-type: none"> • 使用 SATA 6 Gbps (SFF-8088) 接口 • 支持 SATA/HDD/SSD 	<ul style="list-style-type: none"> • 2 x SFF-8088 连接器线缆 • QXP-800eS-A1164 主机总线适配器

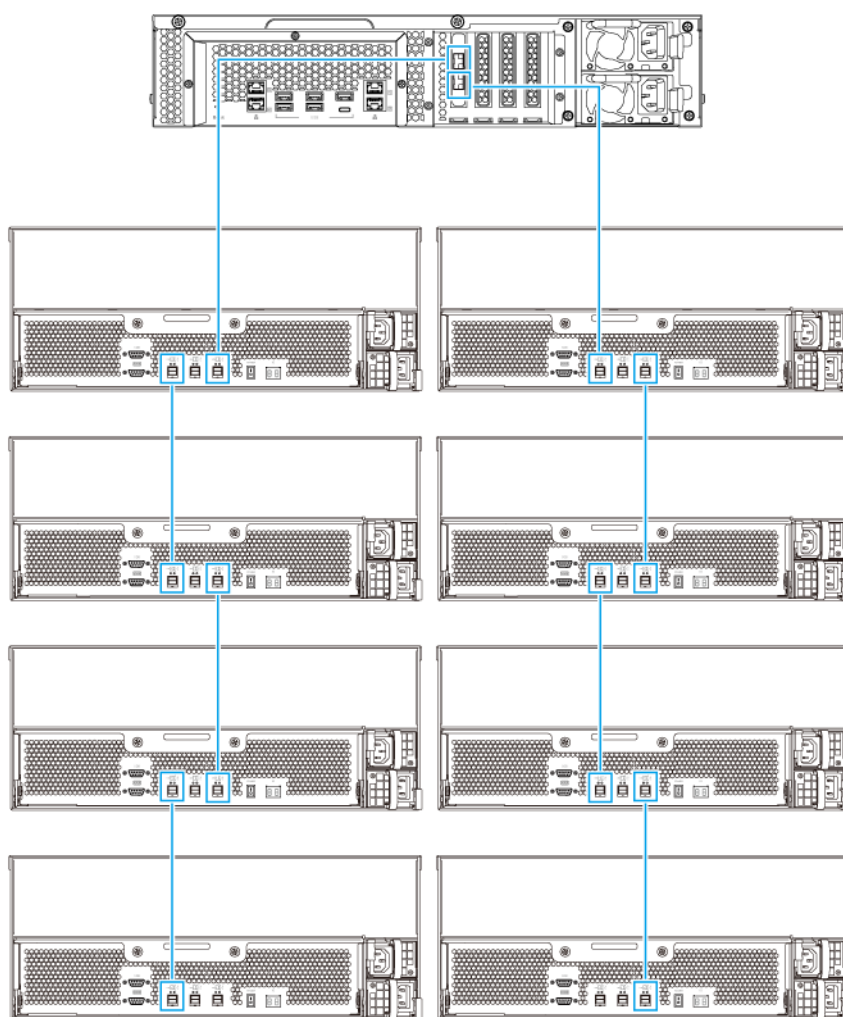
扩展单元型号	描述	所需配件
TL-D1600S	<ul style="list-style-type: none"> 使用 SATA 6 Gbps (SFF-8088) 接口 支持 SATA/HDD/SSD 	<ul style="list-style-type: none"> 4 x SFF-8088 至 SFF-8644 连接器线缆 QXP-1600eS 主机总线适配器
TR-002	<ul style="list-style-type: none"> 使用 USB 3.2 Gen 2 C 型接口 支持 SATA 硬盘 	<ul style="list-style-type: none"> USB 3.2 Gen 2 A 型至 C 型线缆 USB 3.2 Gen 2 C 型至 C 型线缆
TR-004	<ul style="list-style-type: none"> 使用 USB 3.2 Gen 1 C 型接口 支持 SATA 硬盘 	<ul style="list-style-type: none"> USB 3.2 Gen 2 A 型至 C 型线缆 USB 3.2 Gen 2 C 型至 C 型线缆
TR-004U	<ul style="list-style-type: none"> 使用 USB 3.2 Gen 1 C 型接口 支持 SATA 硬盘 	<ul style="list-style-type: none"> USB 3.2 Gen 1 A 型至 C 型线缆 USB 3.2 Gen 2 C 型至 C 型线缆 RAIL-B02
TL-R400S	<ul style="list-style-type: none"> 使用 SATA 6 Gbps (SFF-8088) 接口 支持 SATA/HDD/SSD 	<ul style="list-style-type: none"> 1 x SFF-8088 连接器线缆 QXP-400eS-A1164 主机总线适配器 RAIL-B02
TL-R1200C-RP	<ul style="list-style-type: none"> 使用 USB 3.2 Gen 2 C 型接口 支持 SATA 硬盘 	<ul style="list-style-type: none"> USB 3.2 Gen 2 A 型至 C 型线缆 USB 3.2 Gen 2 C 型至 C 型线缆 RAIL-B02

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。

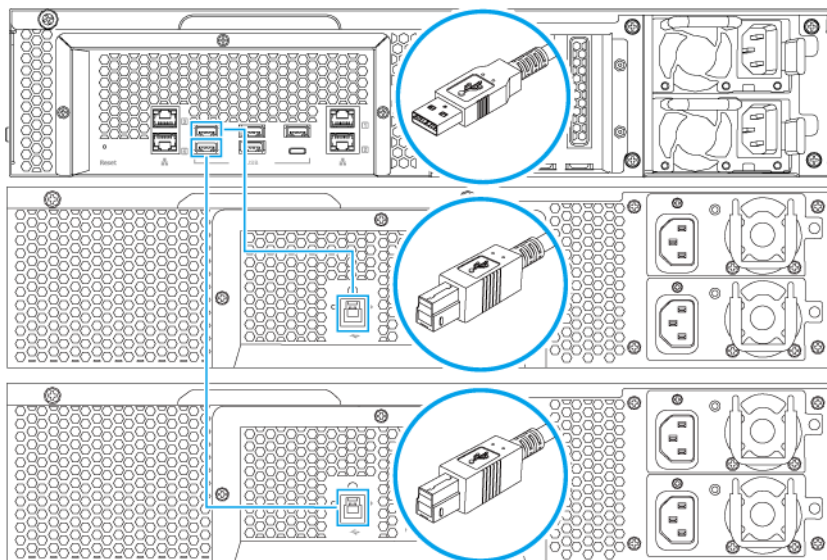
连接 USB 扩展单元

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"> • 使用 Qfinder Pro 定位 NAS。 • 完成“智能安装指南”向导中的步骤。 <p>有关详细信息，请参见使用 Qfinder Pro 安装 QTS。</p>	<ul style="list-style-type: none"> • 计算机 • 网线 • Qfinder Pro 安装程序

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"> • 扫描 NAS 上的二维码。 • 登录您的 myQNAPcloud 帐户。 • 使用 myQNAPcloud Link 远程访问 NAS。 • 完成“智能安装指南”向导中的步骤。 <p>有关详细信息，请参见使用 Cloud Key 安装 QTS。</p>	<ul style="list-style-type: none"> • 计算机或移动设备 • 网线 • myQNAPcloud 帐户 • Cloud Key

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

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

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

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

- 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"> 系统管理员密码：默认密码为第一个 MAC 地址（去掉特殊字符），以大写字母表示。例如，如果第一个 MAC 地址为 00-08-9B-F6-15-75，则管理员密码将为 00089BF61575。 <p> 提示 您可以使用 Qfinder Pro 找到第一个 MAC 地址。设备上粘贴的标签也会在 MAC1 下列出此地址。</p> <ul style="list-style-type: none"> TCP/IP 配置： <ul style="list-style-type: none"> 通过 DHCP 自动获取 IP 地址设置 禁用巨型帧 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)”。 系统端口：8080（系统服务端口） 安全等级：低（允许所有连接） LCD 面板密码：（空白） VLAN：禁用
高级系统重置	按住此按钮 10 秒钟。	<p>恢复默认出厂设置。</p> <ul style="list-style-type: none"> 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。

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"> 系统管理员密码：默认密码为第一个 MAC 地址（去掉特殊字符），以大写字母表示。例如，如果第一个 MAC 地址为 00-08-9B-F6-15-75，则管理员密码将为 00089BF61575。 <p> 提示 您可以使用 Qfinder Pro 找到第一个 MAC 地址。设备上粘贴的标签也会在 MAC1 下列出此地址。</p> <ul style="list-style-type: none"> admin 帐户将自动启用。 TCP/IP 配置： <ul style="list-style-type: none"> 通过 DHCP 自动获取 IP 地址设置 禁用巨型帧 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)”。 系统端口：8080（系统服务端口） 安全等级：低（允许所有连接） LCD 面板密码：（空白） VLAN：禁用
高级系统重置	按住此按钮 15 秒钟。 按住此按钮 10 秒钟。	<p>恢复默认出厂设置。</p> <ul style="list-style-type: none"> 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。

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](#)。



提示

扩展 LED 不适用于有 9 个硬盘架的型号。

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"> • 硬盘正在格式化。 • NAS 正在初始化。 • 操作系统正在更新。 • RAID 正在重建。 • 正在进行在线 RAID 容量扩展。 • 正在进行在线 RAID 级别迁移。
	红色	<ul style="list-style-type: none"> • 硬盘无效。 • 磁盘卷的容量已满。 • 磁盘卷的容量即将被占满。 • 系统风扇故障。 • 访问（读/写）数据时出错。 • 在硬盘上检测到坏扇区。 • 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）。 • 硬件自检发生错误。
	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）。
	闪烁绿色，间隔 0.5 秒	<ul style="list-style-type: none"> • NAS 正在启动。 • NAS 未配置。 • 硬盘未格式化。
	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"> • 未检测到 USB JBOD 扩展单元。 • 检测到 SAS JBOD 扩展单元。 • 检测到 REXP 扩展单元。
	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"> • NAS 正在启动。 • 按下重置按钮 3 秒钟后，NAS 将重置配置。 • 按下重置按钮 10 秒钟后，NAS 将重置配置并重新启动。 • 操作系统已更新。 • 设备正在启动 USB 一键复制。
	2	USB 设备已移除（USB 一键复制按钮）。
	3	<ul style="list-style-type: none"> • 无法检测到已安装的磁盘。 • 固件已更新。
长提示音（1.5 秒）	3（每 5 分钟）	<ul style="list-style-type: none"> • 电源发生错误。 • 系统风扇故障。 • 风扇模块已移除。 • 无法将 NAS 数据复制到连接到前 USB 端口的外部存储设备。
	2	<ul style="list-style-type: none"> • 存储池的容量即将被占满。 • 存储池的容量已满。 • 发生存储池状态错误。 • 共享文件夹即将被占满。 • 共享文件夹容量已满。 • 硬盘处于降级模式。 • 硬盘正在重建。 • 正在移除 USB 设备（USB 一键复制按钮）。 • 发生共享文件夹状态错误。 • 插入或抽出硬盘。 • iSCSI 的容量即将被占满。
	1	<ul style="list-style-type: none"> • NAS 已通过强制关闭关机（硬件关闭）。 • NAS 已成功开机并准备就绪。
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 > 存储空间。
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	https://download.qnap.com
兼容性列表	https://www.qnap.com/compatibility
NAS 迁移兼容性	https://www.qnap.com/en/nas-migration
扩展单元兼容性	http://www.qnap.com/go/compatibility-expansion
服务门户	https://service.qnap.com
产品支持状态	https://www.qnap.com/en/product/eol.php
下载	https://download.qnap.com
社区论坛	https://forum.qnap.com
QNAP 配件商店	https://shop.qnap.com

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

本章提供有关保修、免责声明、许可和联邦法规的信息。

有限保修

QNAP 为本公司产品提供有限保修服务。自发票注明日期起一 (1) 年或更长期限内，QNAP 品牌的硬件产品享受材料和工艺缺陷的保修服务。("保修期")。请访问 www.qnap.com/warranty 查看您的法定权利 (QNAP 可不时自行修改这些权利)。

免责声明

本档中提供的信息与 QNAP Systems, Inc. (即 "QNAP") 的产品有关。本档未通过禁止反言或其他方式授予对任何知识产权的明示或暗示许可。除非在 QNAP 针对此类产品的销售条款和条件中明确注明，QNAP 不承担任何责任，并且 QNAP 不提供任何与 QNAP 产品的销售和/或使用有关的明示或暗示的担保，包括与特定用途的适用性、适销性或者侵犯任何专利、版权或其他知识产权有关的责任或担保。

QNAP 产品不适用于医疗、救生、生命维持、关键控制、安全系统或核设施应用。

在任何情况下，对于因使用本产品、其随附软件或文档而导致的直接、间接、特殊、偶发或继发损失，QNAP 的赔偿责任均不超出产品售价。QNAP 对其产品或本文档的内容或使用以及所有随附软件，不做任何明示、暗示或法定的保证或表述，并特别声明，不保证其质量、性能、适销性或适用于任何特定用途。QNAP 保留修改或更新其产品、软件或文档的权利，无需通知任何个人或实体。

建议定期备份系统，以避免任何潜在的数据丢失。QNAP 对所有类型的数据丢失或恢复不承担任何责任。

如果退回 QNAP 产品 (例如 NAS, 网络连接存储) 包装中的任何组件进行退款或维修，请务必妥善包装以便运输。对于因包装不当而造成的任何形式的损坏，QNAP 将不予赔偿。

所有特性、功能和其他产品规格如有更改，恕不另行通知，亦不承担任何责任。本文所包含的信息如有更改，恕不另行通知。

此外，文中未使用 ® 或 ™ 符号。

BSMI 公告



D33B77
RoHS

警告使用者：這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

CE 声明



本设备符合 CE 合规性 A 类标准。

FCC 声明

FCC A 类声明



经测试，本设备符合 FCC 规则第 15 部分的限制标准。其运行需满足下面两个条件：

1. 本设备不会产生有害干扰。
2. 本设备必须承受受到的干扰，包括可能导致运行异常的干扰。



注

经测试，本设备符合 FCC 规则第 15 部分中针对 A 类数字设备的限制标准。这些限制标准旨在提供合理的保护，以防止在商业环境中运行设备时产生有害干扰。本设备会产生、使用并可发出射频能量，如果不按说明手册安装和使用，可能会对无线电通信产生有害干扰。在住宅区运行本设备可能会造成有害干扰，用户需自付费用消除干扰。



重要

若未经 QNAP Systems, Inc. 批准对本设备进行改动，可能会导致用户失去 FCC 授予的操作本设备的资格。

GNU Public License

Version 3, 29 June 2007

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copy left license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

Terms and Conditions

1. Definitions.

“This License” refers to version 3 of the GNU General Public License.

“Copyright” also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

“The Program” refers to any copyrightable work licensed under this License. Each licensee is addressed as “you”. “Licensees” and “recipients” may be individuals or organizations.

To “modify” a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a “modified version” of the earlier work or a work “based on” the earlier work.

A “covered work” means either the unmodified Program or a work based on the Program.

To “propagate” a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To “convey” a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays “Appropriate Legal Notices” to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

2. Source Code.

The “source code” for a work means the preferred form of the work for making modifications to it.
 “Object code” means any non-source form of a work.

A “Standard Interface” means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The “System Libraries” of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A “Major Component”, in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

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.

The Corresponding Source for a work in source code form is that same work.

3. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below.

Sublicensing is not allowed; section 10 makes it unnecessary.

4. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work’s users, your or third parties’ legal rights to forbid circumvention of technological measures.

5. Conveying Verbatim Copies.

You may convey verbatim copies of the Program’s source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

6. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a. The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b. The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to “keep intact all notices” .
- c. You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
- d. If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.
A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an “aggregate” if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

7. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a. Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.
- b. Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c. Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.
- d. Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

- e. Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A “User Product” is either (1) a “consumer product”, which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, “normally used” refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

“Installation Information” for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

8. Additional Terms.

“Additional permissions” are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

- a. Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b. Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c. Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or

- d. Limiting the use for publicity purposes of names of licensors or authors of the material; or
- e. Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or
- f. Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors. All other non-permissive additional terms are considered “further restrictions” within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying. If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms. Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

9. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

10. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

11. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An “entity transaction” is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party’s predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in

a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

12. Patents.

A “contributor” is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's “contributor version” .

A contributor's “essential patent claims” are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, “control” includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a “patent license” is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To “grant” such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. “Knowingly relying” means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is “discriminatory” if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

13. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

14. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

15. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License “or any later version” applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

16. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

17. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

18. Interpretation of Sections 16 and 17.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS

SJ/T 11364-2006



本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有“环境友好使用期限”的标签，此期限是估算这些物质“不会有泄漏或突变”的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	0	0	0	0	0	0
显示	0	0	0	0	0	0
印刷电路板	0	0	0	0	0	0
金属螺帽	0	0	0	0	0	0
电缆组装	0	0	0	0	0	0
风扇组装	0	0	0	0	0	0
电力供应组装	0	0	0	0	0	0
电池	0	0	0	0	0	0

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。