



# QNAP Turbo NAS

## TS-1685 用户手册

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感谢您选择 QNAP 产品！此用户手册提供 Turbo NAS 的硬件说明及相关功能介绍，请仔细阅读并严格遵守本手册的各项说明。

本用户手册适用于以下 Turbo NAS 型号：

TS-1685

#### 注意

- “Turbo NAS” 以下简称为 “NAS”。
- 部分功能仅适用于特定型号，您所购买的产品可能不支持这些功能。
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### 注意：

- 请定期备份系统，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 NAS 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。

## 规范声明



### FCC B 类声明

TS-1685 符合 FCC 规则第 15 部分的规定。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。

注意：经测试，本设备符合 FCC 规则第 15 部分中针对 B 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，以防止在住宅区安装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，如果不按说明安装和使用，可能会对无线电通信产生有害干扰。但是，并不保证在特定安装中不会产生此类干扰。如果本设备确实对收音机或电视机接收造成有害干扰（可通过打开和关闭本设备来判定），建议用户尝试采取下列一项或多项措施来消除干扰：

- 改变接收天线的方向或位置。
- 增加本设备与接收设备之间的间距。
- 将本设备与接收设备分别接入不同回路的电源插座。
- 请咨询经销商或经验丰富的收音机/电视机技术人员以寻求帮助。

改装：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。





TS-1685 系列符合 CE 合规性 B 类标准。

#### 进出管制区域

本设备仅限放置于符合以下两项条件的区域：

- 只有取得授权且具备相关知识的人员才能取用本设备
- 只能通过钥匙或其他安全措施进入管制区域取用本设备，且进出受该区域负责人管控。

## 本文使用的符号

 警告	此图标表示必须严格遵守说明，否则可能导致身体伤害或死亡。
 小心	此图标表示该行为可能会导致磁盘数据遭到清除或丢失，或不按说明操作可能会导致数据、磁盘或产品损毁。

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## 安全须知

1. NAS 的使用环境温度应介于 0°C - 40°C (32°F - 104°F)，相对湿度为 5% - 95%。请确保环境通风良好。
2. 与 NAS 连接的电源线和设备必须能提供正确的电压 (100W, 90 - 264V)。
3. 切勿将 NAS 放置于阳光直射或靠近化学药剂的场所。请确保环境维持理想的温度与湿度。
4. 清洁本产品前，先拔下电源线及所有连接线。请用干布擦拭 NAS。切勿使用任何化学药剂或喷雾式清洁剂清洁 NAS。
5. 为确保服务器正常运行，以及避免过热问题，切勿将任何物品放置于 NAS 上。
6. 安装硬盘时，请使用产品包装内的平头螺丝将硬盘固定在 NAS 上，以确保其运行正常。
7. 切勿使 NAS 靠近任何液体。
8. 切勿将 NAS 放置在不平稳的表面上，以避免因滑落而损坏。
9. 请确保 NAS 安装场所的电压正确。请洽询经销商或当地电力公司了解相关信息。
10. 切勿在电源线上放置任何物品。
11. 任何情况下，切勿尝试自行维修 NAS。不当拆装本产品，可能导致用户触电或遭受其他危险。如有疑问，请洽询经销商。
12. NAS 仅应安装于服务器机房，并由获得授权的服务器或 IT 管理员来维护。服务器机房必须上锁，并只允许获得授权的人员使用钥匙或门卡进入。



### 警告：

- 如错误更换电池，则有爆炸危险。请务必使用相同电池或制造商建议的同等电池进行更换。请按制造商指示处置使用过的电池。
- 切勿触摸系统内的风扇，以免受到严重伤害。



## 第 1 章 产品概述



**小心：**对 QNAP 产品进行任何未授权的修改，将导致产品保修失效。对因此类修改导致的任何形式的毁损或数据丢失，QNAP 概不负责。未授权的修改包括但不限于更改默认系统固件、安装非官方的第三方应用程序，以及无授权技术人员对硬件所做的更改。

### 1.1 硬件规格

	<b>TS-1685</b>
<b>CPU</b>	Intel® Xeon® 处理器 D-1521 四核 2.4 GHz Intel® Xeon® 处理器 D-1531 六核 2.2 GHz
<b>系统内存</b>	16GB non-ECC RAM (8GB UDIMM*2) 32GB non-ECC RAM (16GB UDIMM*2) 64GB non-ECC RAM (16GB UDIMM*4) 64GB ECC RAM (16GB RDIMM*4) 128GB ECC RAM (32GB RDIMM*4)
<b>闪存</b>	512 MB (USB DOM)
<b>可否更换 CPU</b>	否
<b>可否更换内存</b>	是
<b>内存插槽</b>	4 个 Long-DIMM 插槽
<b>3.5 英寸硬盘插槽</b>	12 x SATA 6 Gb/s (3.5 英寸 HDD, 2.5 英寸 HDD& SSD)
<b>2.5 英寸硬盘插槽</b>	4 x SATA 6 Gb/s (2.5 英寸 SSD)
<b>M.2 SSD 插槽</b>	6 x M.2 2242/2260/2280/22110 SATA 6 Gb/s
<b>PCIe 插槽</b>	3: 插槽 1: PCIe Gen.3 x8 插槽 2: PCIe Gen.2 x4 插槽 3: PCIe Gen.3 x8
<b>10 GbE LAN 端口</b>	2 x 10GBASE-T
<b>GbE LAN 端口</b>	4
<b>LED 面板</b>	单色背光 LCD 显示屏 使用 Enter 和 Select 按钮进行配置
<b>USB 端口</b>	正面: 1 个 USB 3.0 端口 背面: 2 个 USB 3.0 端口
<b>音频输出</b>	1 个内置扬声器 1 个 3.5mm 线路输出插孔

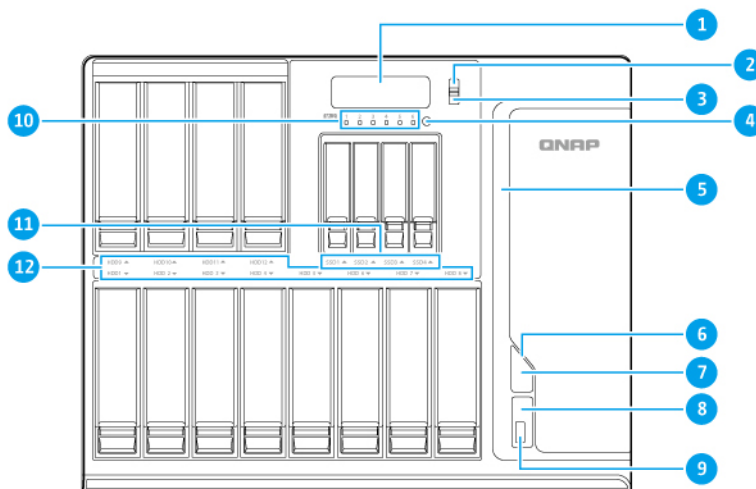
注意：以上音频输出端口不能同时工作。如果连接了扬声器，将通过扬声器输

	出声音。
<b>LED 指示灯</b>	状态、USB 一键复制、HDD 1-12、SSD 1-4、M.2 SSD 1-6
<b>按钮</b>	电源、USB 一键复制、重置
<b>红外传感器</b>	QNAP RM-IR004 遥控器 (兼容 MCE)
<b>安全机制</b>	Kensington 安全锁孔
<b>外形规格</b>	立式
<b>电源</b>	100-240V~, 3-1.5A, 60-50Hz, 250W PSU 100-240V~, 3-1.5A, 60-50Hz, 550W PSU
<b>系统风扇</b>	3 个 9.2cm 系统风扇 (12V DC)
<b>CPU 风扇</b>	2 个 9cm 风扇

## 1.2 订购信息

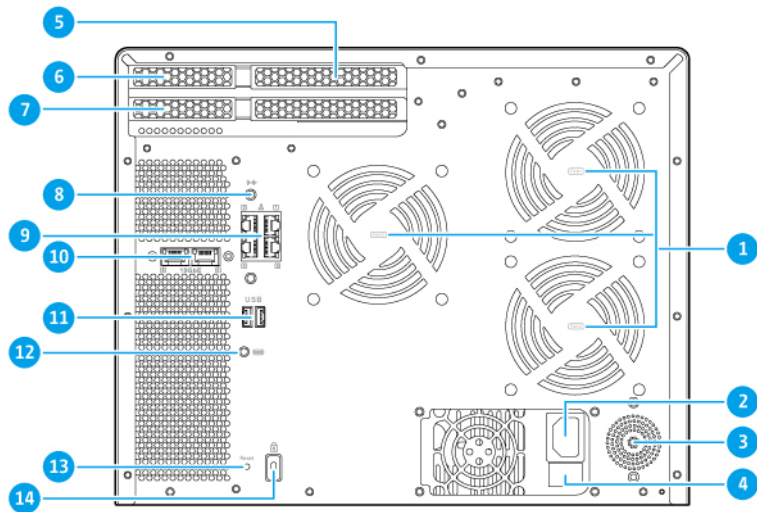
NAS	SKU
TS-1685-D1521-8G	Intel® Xeon® 处理器 D-1521, 8GB non-ECC RAM (4GB UDIMM*2), 250W PSU
TS-1685-D1521-16G	Intel® Xeon® 处理器 D-1521, 16GB non-ECC RAM (8GB UDIMM*2), 250W PSU
TS-1685-D1521-16G-550W	Intel® Xeon® 处理器 D-1521, 16GB non-ECC RAM (8GB UDIMM*2), 550W PSU
TS-1685-D1521-32G	Intel® Xeon® 处理器 D-1521, 32GB non-ECC RAM (16GB UDIMM*2), 250W PSU
TS-1685-D1521-32G-550W	Intel® Xeon® 处理器 D-1521, 32GB non-ECC RAM (16GB UDIMM*2), 550W PSU
TS-1685-D1531-16G	Intel® Xeon® 处理器 D-1531, 16GB non-ECC RAM (8GB UDIMM*2), 250W PSU
TS-1685-D1531-32G	Intel® Xeon® 处理器 D-1531, 32GB non-ECC RAM (16GB UDIMM*2), 250W PSU
TS-1685-D1531-32G-550W	Intel® Xeon® 处理器 D-1531, 32GB non-ECC RAM (16GB UDIMM*2), 550W PSU
TS-1685-D1531-64G	Intel® Xeon® 处理器 D-1531, 64GB non-ECC RAM (16GB UDIMM*4), 250W PSU
TS-1685-D1531-64GR	Intel® Xeon® 处理器 D-1531, 64GB ECC RAM (16GB RDIMM*4), 250W PSU
TS-1685-D1531-128GR	Intel® Xeon® 处理器 D-1531, 128GB ECC RAM (32GB RDIMM*4), 250W PSU
TS-1685-D1531-64GR-550W	Intel® Xeon® 处理器 D-1531, 64GB ECC RAM (16GB RDIMM*4), 550W PSU

### 1.3 组件



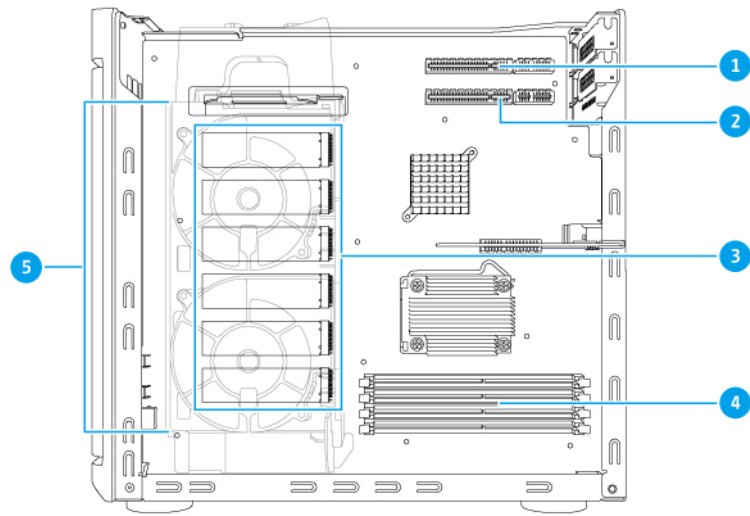
前视图

编号	组件
1	LCD 面板
2	Enter 按钮
3	Select 按钮
4	红外传感器
5	电源 LED (亮度可调)
6	电源按钮
7	状态 LED
8	USB 一键复制按钮
9	USB 3.0 一键复制端口
10	M.2 SSD LED
11	SSD LED
12	HDD LED



后视图

编号	组件
1	系统风扇 1 -3
2	电源输入
3	扬声器
4	电源开关
5	PCIe 插槽 1 (全高)
6	PCIe 插槽 2 (半高)
7	PCIe 插槽 3 (半高)
8	3.5 mm 扬声器插孔
9	千兆位端口
10	10 GbE 10GBASE-T 端口
11	USB 3.0 端口
12	控制台端口
13	重置按钮
14	Kensington 安全锁孔



侧视图

编号	组件
1	PCIe 插槽 2 socket (半高)
2	PCIe 插槽 3 socket (半高)
3	M.2 SSD 插槽
4	内存插槽
5	CPU 风扇

## 第 2 章 基本操作

### 2.1 电源按钮

- 电源按钮：按此按钮开机或关机。

系统	电源按钮（开机）	电源按钮（硬件关机）	电源按钮（强制关机）
所有型号	按一次	1.5 秒	5 秒

### 2.2 重置按钮

- 重置按钮：按此按钮重置系统设置。

系统	基本系统重置 （一声提示音）	高级系统重置 （两声提示音）
所有型号	3 秒	10 秒

#### 基本系统重置（按 3 秒）

持续按重置按钮 3 秒，会听到一声提示音。以下设置将重置为默认值：

- 系统管理员密码：admin
- TCP/IP 配置：通过 DHCP 自动获取 IP 地址设置
- TCP/IP 配置：禁用巨型帧
- TCP/IP 配置：如果启用端口中继（仅限双局域网型号），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 会被禁用。
- 服务绑定：所有 NAS 服务会在所有可用的网络接口上运行。

#### 高级系统重置（按 10 秒）

持续按重置按钮 10 秒，在第 3 秒及第 10 秒可听到两声提示音。NAS 会将所有系统设置重置为默认值，与使用 Web 进行系统重置相同（“控制台” > “系统设置” > “备份/恢复” > “恢复出厂默认设置”），但会保留所有数据。不过，有些设置将被清除，例如用户、用户组以及先前创建的网络共享文件夹等。要在高级系统重置后检索旧数据，请在 NAS 上创建相同的网络共享文件夹，便可再次访问数据。

## 2.3 USB 一键复制

系统	按键秒数（按下一键复制按钮以触发数据复制）
所有 NAS 型号	0.5 秒

### 通过前 USB 端口复制数据

NAS 支持使用前面的一键复制按钮，直接将数据从外部 USB 设备复制到 NAS，或从 NAS 备份到外部 USB 设备。要使用此功能，请按以下步骤操作：

1. 确保已在 NAS 安装好硬盘并完成格式化。已创建默认网络共享文件夹 Qusb 或 Usb。
2. 启动 NAS。
3. 以管理员身份登录 QTS。
4. 转到“主菜单” > “备份管理中心” > “USB 一键复制”。
5. 在外部设备的一键复制下方，选择“USB 一键复制”。
6. 配置“USB 一键复制”的行为。
7. 将 USB 存储设备连接到 NAS 前面的 USB 端口。
8. 按下“复制”按钮。USB LED 会闪烁。系统将根据 NAS 设置与 USB 设备之间进行数据复制。

#### 注意：

- 本功能采用增量备份。在首次数据备份后，NAS 只会复制上次备份后有更改的文件。
- 此功能只适用于特定 NAS 型号。详情请参考 [www.qnap.com](http://www.qnap.com) 上的产品规格表。

## 2.4 LED

NAS 的 LED 指示灯可指示系统状态与信息。当 NAS 启动时，可以检查以下项目以确定系统状态正常。请注意，只有用户已正确安装好硬盘、将 NAS 连接到网络和电源后，以下 LED 信息才适用。

LED	LED 状态	描述
系统状态	红绿交替闪烁，间隔 0.5 秒	1. NAS 上的硬盘正在格式化。 2. NAS 正在初始化。

		<p>3. 系统固件正在更新。</p> <p>4. RAID 正在重建。</p> <p>5. 正在进行在线 RAID 容量扩展。</p> <p>6. 正在进行在线 RAID 级别迁移。</p>
	红色	<p>1. 硬盘无效。</p> <p>2. 磁盘卷的容量已满。</p> <p>3. 磁盘卷的容量将满。</p> <p>4. 系统风扇故障。</p> <p>5. 访问（读/写）磁盘数据时出错。</p> <p>6. 在硬盘上检测到坏扇区。</p> <p>7. NAS 处于降级只读模式（RAID 5 或 RAID 6 配置中的 2 个成员硬盘出现故障，仍可读取磁盘数据）。</p> <p>8. 硬件自检错误。</p>
	闪烁红色，间隔 0.5 秒	NAS 处于降级模式（RAID 1、RAID 5 或 RAID 6 配置中的一个成员硬盘出现故障）。
	闪烁绿色，间隔 0.5 秒	<p>1. NAS 正在启动。</p> <p>2. NAS 未配置。</p> <p>3. 硬盘未格式化。</p>
	绿色	NAS 已准备就绪。
	剧烈闪烁橙色	NAS 处于睡眠模式。
	熄灭	NAS 的所有硬盘都处于待机模式。
LAN	橙色	正在从网络访问磁盘数据，但在此过程中发生读/写错误。
	闪烁橙色	NAS 已连接至网络。
HDD/SSD/M.2 SSD	闪烁红色	正在从网络访问 NAS。
	红色	发生硬盘读/写错误。
	闪烁绿色	正在访问磁盘数据。
	绿色	硬盘可供访问。
USB	闪烁蓝色，间隔 0.5 秒	<p>1. 检测到 USB 设备（已连接到前 USB 端口）。</p> <p>2. 正在从 NAS 移除 USB 设备（已连接到前 USB 端口）。</p> <p>3. 正在访问 USB 设备（已连接到 NAS 的前 USB 端口）。</p> <p>正在与外部 USB 设备间复制数据。</p>



	蓝色	检测到前面的 USB 设备（设备已装载后）。
	熄灭	未检测到 USB 设备。  NAS 已经完成与连接到前 USB 端口的 USB 设备间的数据复制。

## 2.5 提示音警报

可以在“控制台”>“系统设置”>“硬件”中禁用提示音警报。

提示音	次数	描述
短提示音（0.5 秒）	1	<ol style="list-style-type: none"> <li>1. NAS 正在启动。</li> <li>2. NAS 正在关闭（软件关闭）。</li> <li>3. 用户按下重置按钮以重置 NAS。</li> <li>4. 系统固件已更新。</li> </ol>
短提示音（0.5 秒）	3	无法将 NAS 数据从前 USB 端口复制到外部存储设备。
长提示音（1.5 秒）	3, 每 5 分钟	系统风扇故障。
长提示音（1.5 秒）	2	<ol style="list-style-type: none"> <li>1. 磁盘卷的容量将满。</li> <li>2. 磁盘卷的容量已满。</li> <li>3. NAS 的硬盘处于降级模式。</li> <li>4. 用户启动硬盘重建过程。</li> <li>5. 插入或抽出硬盘。</li> </ol>
	1	<ol style="list-style-type: none"> <li>1. NAS 已通过强制关闭关机（硬件关闭）。</li> <li>2. NAS 已开机并准备就绪。</li> </ol>

**警告：**

- 以下说明必须由授权或合格的技术人员执行。
- 安装 NAS 的 RAM 模块时，请严格遵守本节的说明，否则可能导致财物损坏、身体伤害甚至死亡。
- 开始前，请先确保已关闭 NAS、拔掉电源适配器、网线，并移除 NAS 连接的任何其他设备/连接线。
- 请务必全程戴上防静电腕带，防止静电放电。弹簧夹应接地。
- 安装一个以上的内存模块时，建议在每个内存插槽使用大小相同且类型/型号最好也一样的内存模块。

QNAP 为用户提供可升级 NAS 内存的 RAM 模块（可选购）。请按照以下步骤，为 NAS 加装内存模块以升级内存。

TS-1685 的用户可为其 QNAP NAS 设备升级内存。请先确认 RAM 类型与 NAS 兼容，再行安装。

**确认目前系统的内存用量：**

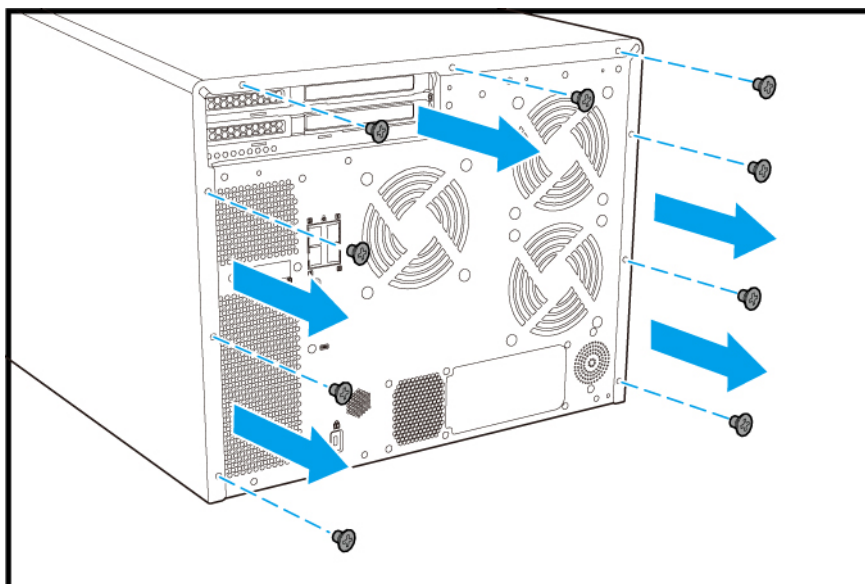
1. 以管理员身份登入 QTS。
2. 转到“控制台” > “系统设置” > “系统状态”，打开“系统状态”窗口。
3. 转到“系统信息”查看系统内存或总内存。

System Information	Network Status	System Service	Hardware Information	Resource Monitor
My NAS <input type="button" value="Refresh"/>				
CPU			Intel(R) Core(TM) i7-6700 CPU @ 3.40GHz	
CPU usage			2.2 %	
Total memory			8 GB (7941.5 MB usable)	
Free memory			7458.2 MB	
Memory slot 1 (Channel A, DIMM 1)			4 GB (Transcend Information)	
Memory slot 2 (Channel B, DIMM 2)			--	
Memory slot 3 (Channel A, DIMM 3)			4 GB (Transcend Information)	
Memory slot 4 (Channel B, DIMM 4)			--	

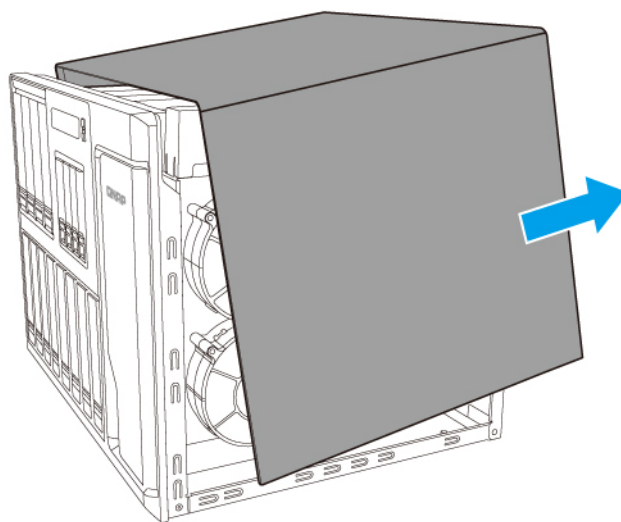
**安装或更换 RAM 模块：**

1. 按住电源按钮 1.5 秒或直到系统发出一声提示音，将系统电源关闭。等待系统前面的所有 LED 熄灭。

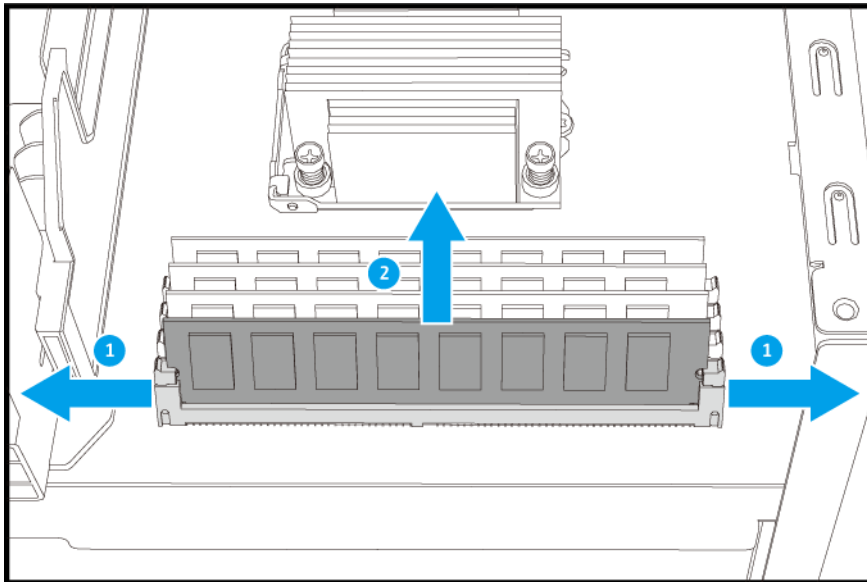
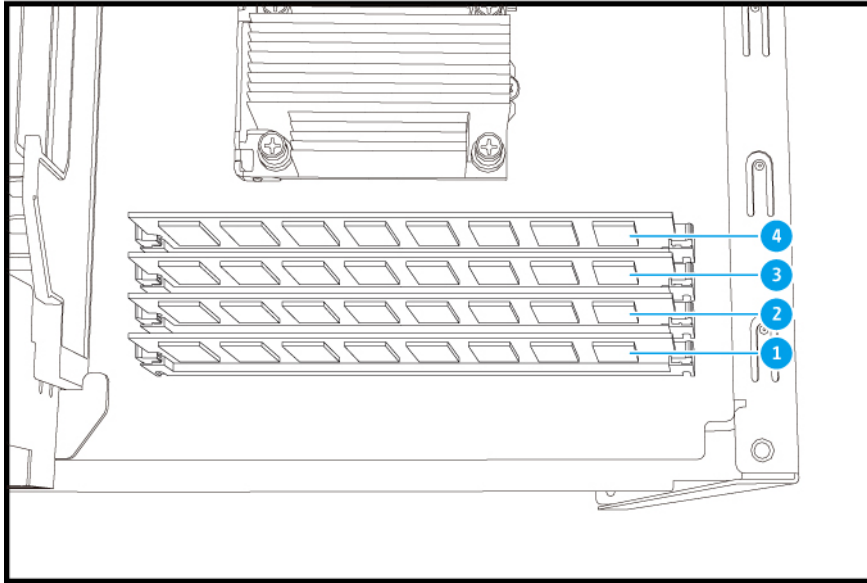
2. 拔掉电源线、网线及任何连接到设备的线路。
3. 打开 NAS 之前，请先戴上防静电腕带，并将弹簧夹接地，以预防静电放电损害设备。
4. 从 NAS 背面取下用于将外壳盖连接到机箱的螺丝。



5. 轻轻将外壳盖从外壳取下。

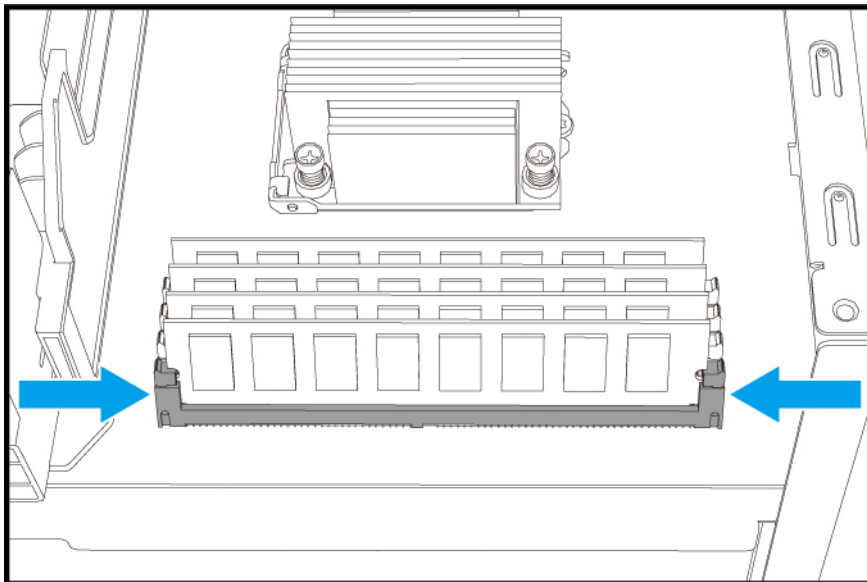
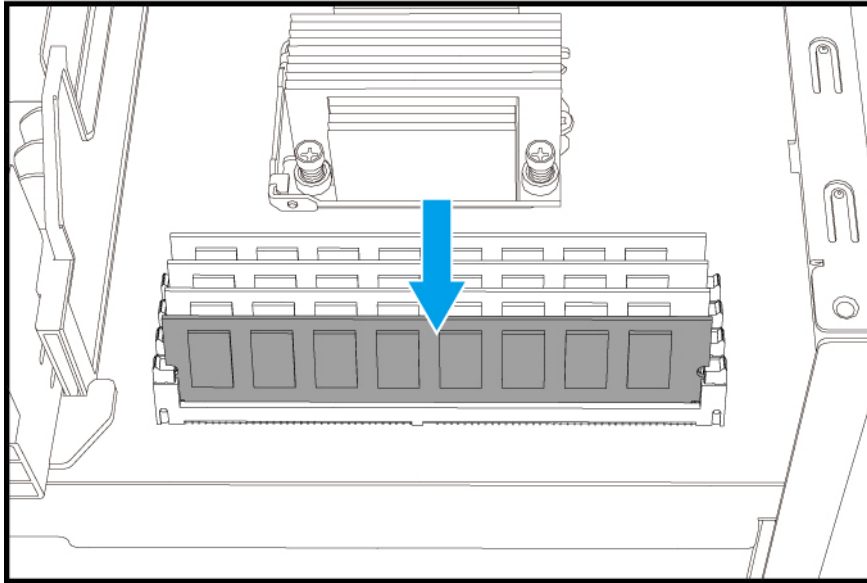


6. 按下 RAM 插槽两侧的固定夹以解除对 RAM 插槽的锁定。如果更换 RAM，请从插槽取下现有的模块。



7. 安装新的 RAM:

- i. 拿取新的 RAM 时, 请握其两侧, 避免触碰模块上的触点或电路。
- ii. 将 RAM 上的凹口与插槽内的凸起对齐。确保将第一个 RAM 模块插入插槽 1 (请见下图中的插槽布置)。
- iii. 将 RAM 模块插入插槽时, 以同等力度压下两端, 直到插槽两侧的固定夹完全锁住 RAM (发出喀嚓声)。



8. 盖上外壳盖，锁紧螺丝。
9. 将电源适配器和连接线接至 NAS。启动 NAS 电源。
10. 可选：检查是否已正确安装内存。

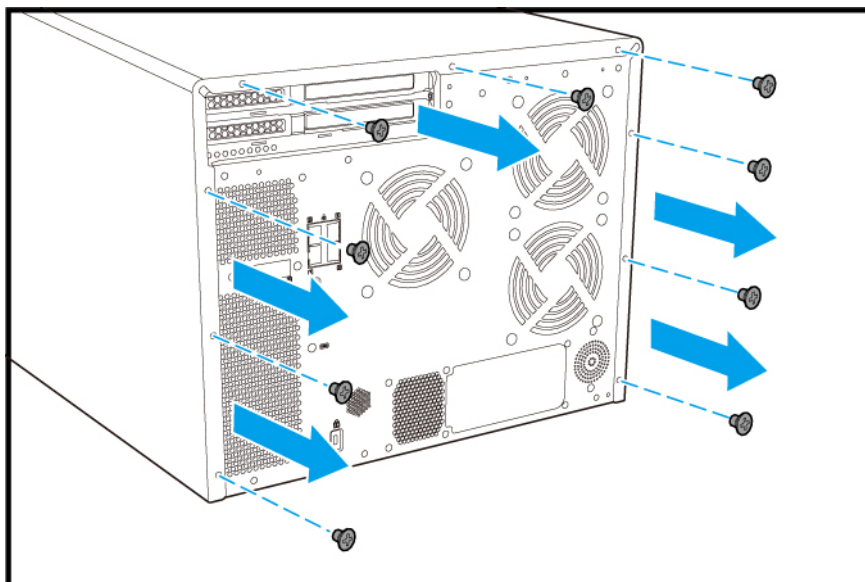
**警告：**

- 以下说明必须由授权或合格的技术人员执行。
- 在 NAS 中安装 PCIe 扩展卡时，请严格遵守本节的说明，否则可能导致财物损坏、身体伤害甚至死亡。

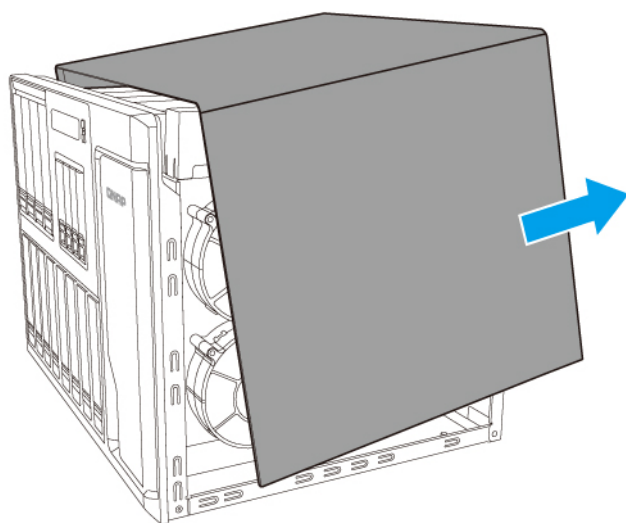
TS-1685 具备 2 个半高和 1 个全高 PCIe 扩展插槽，方便用户扩充 NAS 的功能。请参考位于 <http://qnap.com/compatibility> 的兼容性列表。

请按下列步骤安装 PCIe 卡：

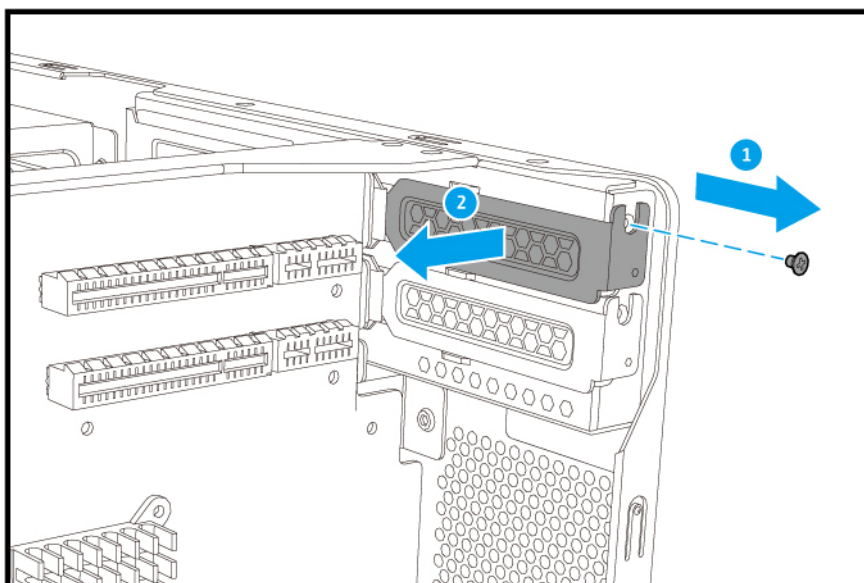
1. 按住电源按钮 1.5 秒或直到系统发出一声提示音，将系统电源关闭。等待前面的所有 LED 熄灭。
2. 拔掉电源线、网线及任何连接到设备的线路。
3. 打开 NAS 之前，请先戴上防静电腕带，并将弹簧夹接地，以预防静电放电损害设备。
4. 从 NAS 背面取下用于将外壳盖连接到机箱的螺丝。



5. 轻轻将外壳盖从外壳取下。

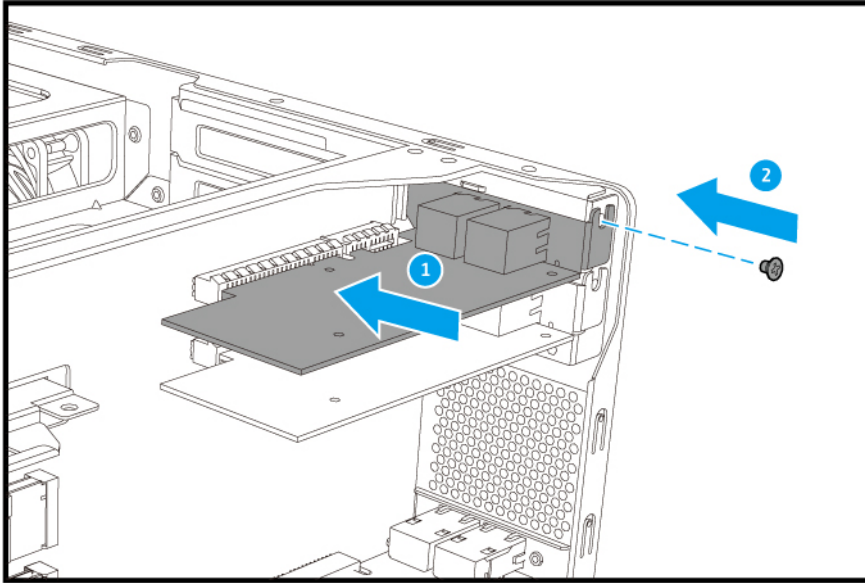


6. 取下 PCIe 盖的螺丝，然后取下盖子。



7. 握住网络扩展卡的边缘，将网络扩展卡上的凹口与 PCIe 插槽的凸起对齐。将网络扩展卡完全插入扩展插槽。

8. 锁紧螺丝将网络扩展卡锁定到位。



9. 盖上外壳盖，锁紧螺丝。

10. 将电源适配器和连接线接至 NAS。



## 第 5 章 安装 M.2 SSD

### 5.1 安装 M.2 SSD 散热片

M.2 散热模块与 TS-1685 包装在一起。为保证运行稳定，建议您在 M.2 SSD 上安装 M.2 散热模块。您也可以直接在 SSD 控制器上安装第三方散热片。

安装 M.2 散热模块：

1. 拆解 M.2 散热模块。
  - i. 滑动固定夹，使其离开托盘。
  - ii. 从托盘上取下散热片。
2. 从散热片上剥离蓝色的保护膜。
3. 将散热片安装到 M.2 SSD 上。
  - i. 将 M.2 SSD 插入 NAS 的 M.2 插槽，找到 M.2 SSD 朝上的一面。
  - ii. 将散热片装到 M.2 SSD 上。

注意：下图所示为不同尺寸 M.2 SSD 的散热片安装位置。

4. 将 M.2 SSD/散热片模块放到托盘上。
5. 可选：如果固定夹不牢固，可在 M.2 SSD 与托盘之间装上垫片。
6. 插入固定夹。
  - i. 将散热片和托盘轻轻捏在一起，以 35 度角插入固定夹。
  - ii. 滑入固定夹。

### 5.2 安装 M.2 SSD

注意：请勿弯曲或拆下 M.2 SSD 插槽附近的橙色温度传感器。

安装 M.2 SSD：

1. 按住电源按钮 1.5 秒或直到系统发出一声提示音，将系统电源关闭。等待前面的所有 LED 熄灭。
2. 拔掉电源线、网线及任何连接到设备的线路。

3. 打开 NAS 之前，请先戴上防静电腕带，并将弹簧夹接地，以预防静电放电损害设备。
4. 从 NAS 背面取下用于将外壳盖连接到机箱的螺丝。
5. 轻轻将外壳盖从外壳取下。
6. 取下风扇模块。
  - I. 从系统主板上拔下风扇电缆。
  - ii. 取下将风扇模块连接到机箱上的螺丝。
  - iii. 按下固定夹，取下风扇模块。
7. 安装 M.2 SSD。
  - I. 根据 M.2 SSD 尺寸装上支撑螺丝
  - ii. 将 M.2 SSD 插入 M.2 插槽。
  - iii. 将螺丝装到支撑螺丝上，将 M.2 SSD 固定到位。
8. 连接风扇模块。
  - i. 将风扇模块插入机箱。
  - ii. 装上风扇模块的螺丝。
  - iii. 连接风扇电缆。
9. 盖上外壳盖，锁紧螺丝。
10. 将电源适配器和连接线接至 NAS。

TS-1685 与 2.5 英寸/3.5 英寸 SATA 硬盘兼容。有关硬盘兼容性的列表，请转到 <http://www.qnap.com/compatibility>。

**小心：**

- 对于因硬盘安装或使用不当所导致的产品损坏、故障或数据丢失，QNAP 概不负责。
- 请注意，硬盘首次安装于 QNAP NAS 时将自动格式化，磁盘的所有数据会被清除。
- 有关 QTS NAS 迁移的信息，请转到 [docs.qnap.com](http://docs.qnap.com) 并查看“从旧版 NAS 迁移”一节。

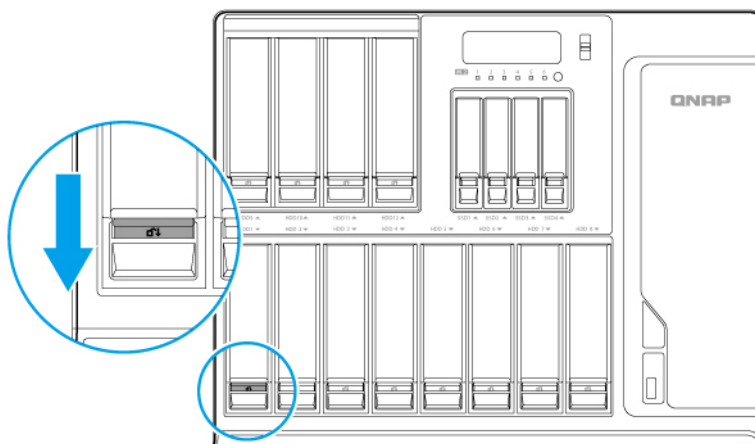
### 6.1 硬盘架编号

请在下图确认硬盘位置。

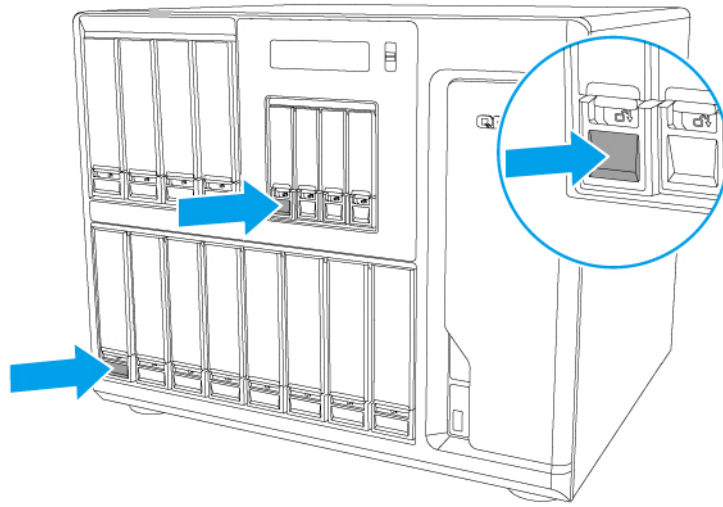
### 6.2 安装硬盘

要安装硬盘，请按以下步骤操作：

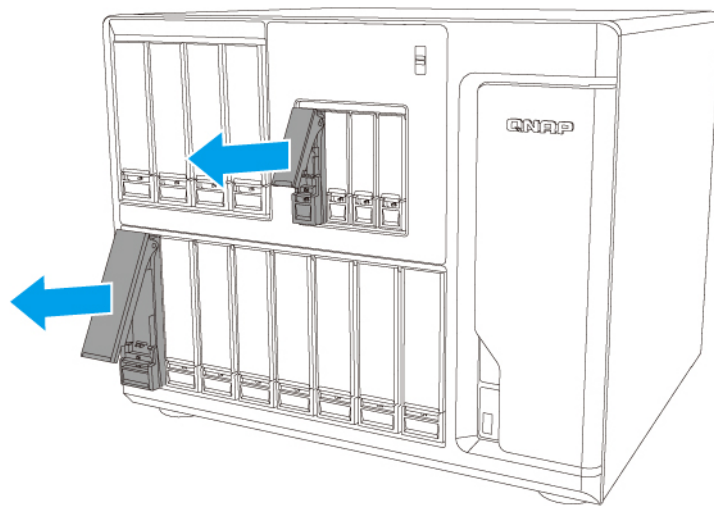
1. 从 NAS 取出硬盘托盘：
  - a. 将托盘上的蓝色锁定开关下推至解锁位置。



- b. 按下蓝色开关下方的按钮，即可松开退出杆。



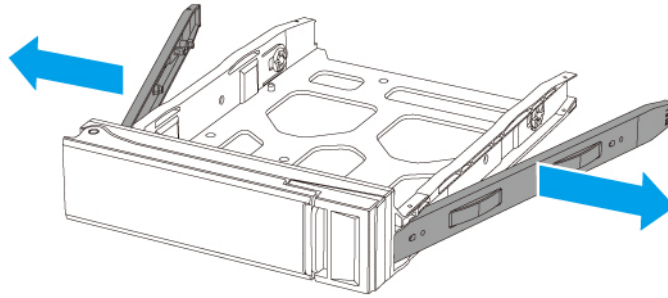
c. 使用退出杆拉出托盘。



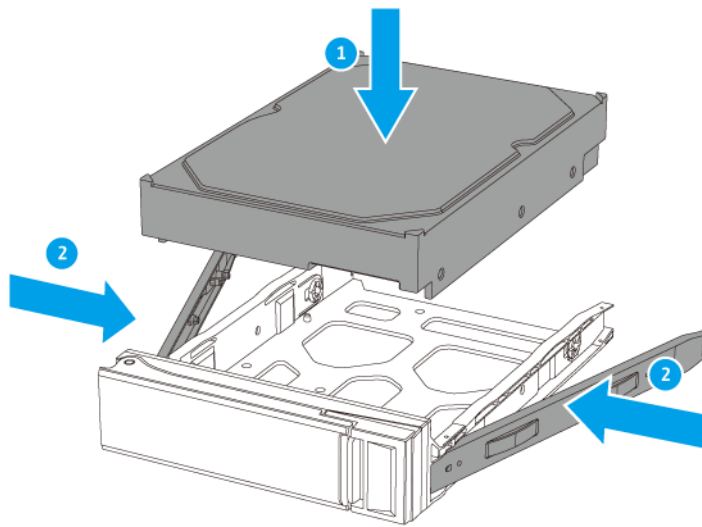
2. 将硬盘安装到托盘上。

a. 3.5 英寸 HDD :

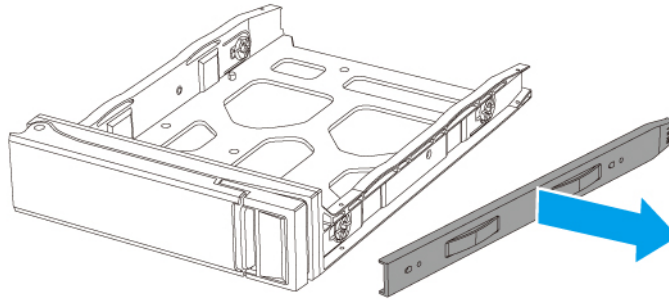
i. 取下 3.5 英寸硬盘托盘两侧的固定面板。



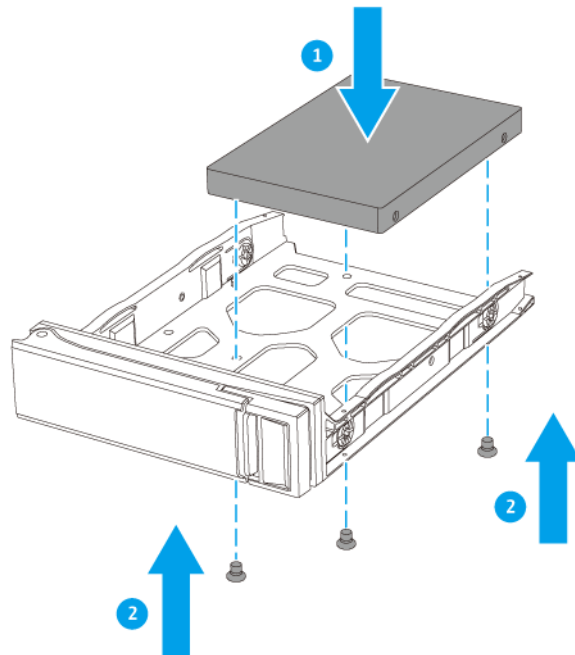
- ii. 将硬盘放在托盘上，使硬盘两侧的孔与托盘两侧的孔对齐。
- iii. 装上固定面板，将硬盘锁定在托盘上。  
注意：可以插入螺丝以增强稳定性。



- b. 2.5 英寸 HDD：
  - i. 取下 3.5 英寸硬盘托盘右侧的固定面板。

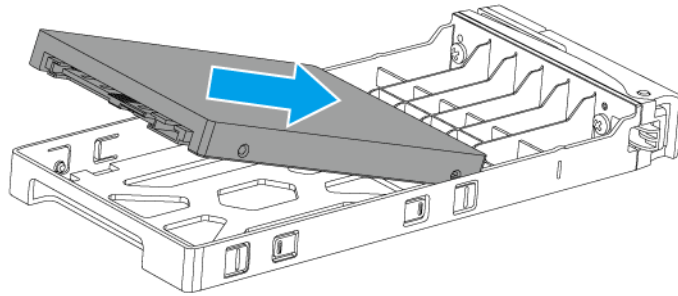


- ii. 将 2.5 英寸硬盘放在托盘上，使 SATA 连接器朝向外侧，硬盘底部的三个孔与托盘底部的三个孔对齐。
- iii. 装上螺丝，将硬盘锁定在托盘上。



c. SSD :

- i. 将 SSD 插入 SSD 托盘，使 SATA 连接器对准托盘末端的开口。

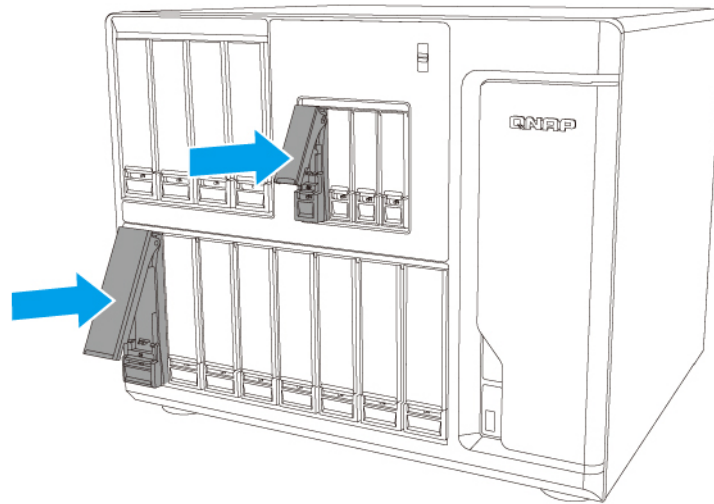


或者

按照步骤 2b 的方式，将 SSD 插入 3.5 英寸硬盘托盘。

3. 将托盘装入硬盘架。

- i. 将硬盘托盘插入 NAS。确认托盘方向正确（HDD 顶部朝右）且完全推入。
- ii. 扣上闩锁并锁上开关。



4. 要确认硬盘是否安装正确并被操作系统识别，请以管理员身份登录 QTS，然后转到“存储空间总管”>“存储”>“磁盘/VJOB”，确认磁盘出现在“系统组件”或“NAS 主机”部分。

### 6.3 RAID 恢复 - 热插拔硬盘

QNAP NAS 支持热插拔硬盘。如果 RAID 1 或 RAID 5 中有一个硬盘发生故障，或者 RAID 6 或

RAID 10\* 中最多有两个硬盘发生故障，用正常硬盘更换故障硬盘后，QTS 将自动重建 RAID。RAID 配置中发生硬盘故障时，请按以下步骤热插拔硬盘。如需安装新硬盘的详细说明，请参见第 6.2 节。

\*一对 RAID 1 各有一个硬盘故障

请按下列说明进行热插拔：

1. 以管理员身份登录 QTS，然后在“存储空间总管” > “存储” > “存储空间”查看存储池状态。系统将显示一份列出所有可用存储池的清单。
2. 如果 RAID 1 或 RAID 5 中有一个硬盘发生故障，或者 RAID 6 或 RAID 10\* 中最多有两个硬盘发生故障，存储池状态将标示为“降级”，而卷/RAID 组状态则标示为“警告”。
3. 转到“存储空间总管” > “存储” > “磁盘/VJBOD”以确定需要更换的磁盘。
4. 从 NAS 机箱取出故障硬盘，然后取下托盘上的硬盘。
5. 在托盘上安装更换硬盘。  
注意：新硬盘容量不能小于旧硬盘容量。
7. 将装好硬盘的托盘插入 NAS。  
重要：取出故障硬盘之后，请先等系统发出两声提示音，再将更换硬盘插入 NAS。安装好更换硬盘后，NAS 也会发出两声提示音。
8. 卷应该会自动重建。转到“存储空间总管” > “存储” > “存储空间”进行确认。

#### 6.4 RAID 恢复 - 意外取出正常硬盘

如果热插拔过程或在 QTS 的 RAID 0/JBOD 配置期间，不小心从 RAID 1/5/6 取出了功能正常的硬盘，QNAP NAS 支持 RAID 恢复。请注意，RAID 10 不支持此功能。

从 RAID 组意外取出了功能正常的硬盘时，RAID 的状态将变成“非活动”。要从“非活动”状态进行恢复，请按以下步骤操作：

1. 按原来顺序，将所有硬盘重新插回 NAS，其中包括恢复后需要更换的故障硬盘。
2. 以管理员身份登录 QTS，然后转到“存储空间总管” > “存储” > “存储空间”。
3. 双击受影响的存储池，打开“存储池管理”窗口。
4. 在“存储池管理”窗口中，单击“管理”按钮并选择“恢复”。



QTS 完成此过程约需 60 秒。完成恢复时，RAID 组应该恢复到初始状态。

请参见下表了解此过程中的 RAID 状态。

	初始状态	取出正常硬盘后的状态	重新插入硬盘并恢复存储池后的状态
<b>RAID 0/JBOD</b>	就绪	非活动	就绪
<b>RAID 1/5/6</b>	就绪	降级	正在重建
<b>RAID 1/5/6</b>	降级	非活动	降级

下表说明使用 RAID 5 时的错误事件。

	<b>RAID 5 (至少 3 个磁盘)</b>	
	QTS	标准
一个硬盘故障	降级模式 (可能仍可读写)。	降级模式 (可能仍可读写)。
一个硬盘故障, 其他硬盘出现坏扇区	只读保护模式 (供实时数据备份与硬盘更换)。	RAID 崩溃。
2 个硬盘故障	RAID 崩溃。	RAID 崩溃。

下表说明使用 RAID 6 时的错误事件。

	<b>RAID 6 (至少 4 个磁盘)</b>	
	QTS	标准
一或两个硬盘故障	降级模式。(可能仍可读写)。	降级模式。(可能仍可读写)。
两个硬盘故障, 其他硬盘出现坏扇区	只读保护模式 (供实时数据备份与硬盘更换)。	RAID 崩溃。
3 个硬盘故障	RAID 崩溃。	RAID 崩溃。

## 第 7 章 使用 LCD 面板

NAS 提供了方便的 LCD 面板，供用户执行磁盘配置和查看系统信息。

NAS 已启动时，会显示服务器名称及 IP 地址。

N	A	S	5	F	4	D	E	3								
4	.	3	.	0	(	2	0	1	7	0	2	1	4	)		

面板会在几秒后自动关闭。然后，您便可以开始配置设置或查看系统信息。

N	A	S	5	F	4	D	E	3								
1	6	9	.	2	5	4	.	1	0	0	.	1	0	0		

### 查看和配置系统设置

当 NAS 的名称和固件版本出现在面板上时，按“ENTER”（确认）两秒可查看主菜单，如果十秒内没有进一步执行操作，主菜单会自动消失。

主菜单上有八个选项：

- 1.TCP/IP
- 2.Physical disk（物理磁盘）
- 3.Volume（卷）
- 4.系统
- 5.Shut down（关闭）
- 6.Reboot（重启）
- 7.Password（密码）
- 8.Back（返回）

#### 1. TCP/IP

在“TCP/IP”中，您可以看到以下信息：

- LAN1 IP Address（LAN1 IP 地址）
- LAN1 Subnet Mask（LAN1 子网掩码）
- LAN1 Gateway（LAN1 网关）
- LAN 1 PRI.DNS（LAN 1 辅助 DNS）
- LAN 1 SEC.DNS（LAN 1 辅助 DNS）  
（您可以针对每个接口配置以上设置。）
- Enter Network Settings（输入网络设置）
  - ✓ Network Settings - DHCP（网络设置 - DHCP）
  - ✓ Network Settings - Static IP\*（网络设置 - 静态 IP\*）
  - ✓ Network Settings - BACK（网络设置 - 返回）
- Back to Main Menu（返回主菜单）

\* 在“Network Settings - Static IP”（网络设置 - 静态 IP）中，用户可以配置 LAN 1 与 LAN 2 的 IP 地址、子网掩码、网关以及 DNS。

## 2. Physical disk（物理磁盘）

在“Physical disk”（物理磁盘）中，您可以看到以下选项：

- Disk Info（磁盘信息）
- Back to Main Menu（返回主菜单）

“Disk Info”（磁盘信息）显示硬盘的温度及容量。

D	i	s	k	:	1		T	e	m	p	:	5	0	°	C
S	i	z	e	:		2	3	2		G	B				

## 3. Volume（卷）

此区域显示卷和 LUN 的容量。您可以查看卷/LUN 的名称和容量。如果有多个卷/LUN，按“Select”（选择）可查看特定卷/LUN 的信息。

D	a	t	a	V	o	l	1								
7	5	0	G	B											

L	U	N	_	0											
7	5	0	G	B											

## 4. 系统

此区域显示系统温度及系统风扇转速。

C	P	U		T	e	m	p	:		5	0	°	C		
S	y	s		T	e	m	p	:		5	5	°	C		

S	y	s		F	a	n	:	8	6	5	R	P	M		

## 5. Shut down（关闭）

您可以使用此选项关闭 NAS。按“SELECT”（选择）、选择“Yes”（是），然后按“ENTER”（确认）进行确认。

## 6. Reboot（重启）

您可以使用此选项重新启动 NAS。按“SELECT”（选择）、选择“Yes”（是），然后按“ENTER”（确认）进行确认。

## 7. Password（密码）

LCD 面板的默认密码为空白。如果要更改密码，请选择“Yes”（是）后继续操作。

C h a n g e P a s s w o r d  
 Y e s → N o

您只能输入最多 8 位数的密码。

按“SELECT”（选择）可使数字递增，按“ENTER”（确认）可添加新数字。

输入所需的密码后，按“ENTER”（确认）。

当光标移到“OK”（确定）旁时，按“ENTER”（确认）可确认密码。

N e w P a s s w o r d :  
 2 3 4 → O K

V e r i f y P a s s w o r d :  
 2 3 4 → O K

## 8. Back（返回）

选择此选项可回到主菜单。

### 系统消息

发生错误时，LCD 面板会显示消息。按“ENTER”（确认）可查看消息，再次按“ENTER”（确认）可转到下一条消息。

S y s t e m E r r o r !  
 P l s C h e c k L o g s

系统消息	描述
Sys.Fan Failed（系统风扇故障）	系统风扇发生故障
Sys.Overheat（系统过热）	系统过热
HDD Overheat（硬盘过热）	硬盘过热
CPU Overheat（CPU 过热）	CPU 过热
Network Lost（网络丢失）	LAN 1 及 LAN 2 在故障转移或负载平衡模式下断开连接
LAN1 Lost（LAN1 丢失）	LAN 1 断开连接
LAN2 Lost（LAN2 丢失）	LAN 2 断开连接
HDD Failure（硬盘故障）	硬盘故障
Vol1 Full（Vol1 已满）	卷已满
HDD Ejected（硬盘弹出）	弹出硬盘

RX#3 HDD Ejected	弹出扩展单元 3 中的硬盘。
M.2 SSD Ejected	弹出 M.2 SSD，并且可能因 M.2 硬盘不支持热插入而导致故障。
PCIe SSD Ejected	弹出 PCIe SSD，并且可能因 PCIe 设备不支持热插入而导致故障。
Vol1 Degraded (Vol1 已降级)	卷处于降级模式
Vol1 Unmounted (Vol1 已卸载)	卷被卸载
Vol1 Nonactivate (Vol1 未激活)	卷未被激活

### 系统启动

```

SYSTEM          B O O T I N G
> > >

```

系统启动过程包含多个阶段：

- System Booting( 系统启动 ): BIOS 和硬件初始化，以及系统启动( 无需执行任何操作 )
- Loading Driver ( 加载驱动程序 ): 加载 QTS 及其驱动程序 ( 无需执行任何操作 )
- Mount Volume ( 装载卷 ): 准备卷 ( 无需执行任何操作 )
- Starting Service ( 启动服务 ): 启动 NAS 系统服务 ( 无需执行任何操作 )。请注意，只有系统完成启动后才会启动应用程序。

对于 TS-1685，LCD 面板会在启动 NAS 电源后显示其他启动信息：

```

BIOS  XXXXX  X X X X X X X
C h e c k i n g   M e m o r y

```

- BIOS XXXXXX – XXXXXX 是 BIOS 版本，可协助技术支持找出问题并加以解决。
- 启动阶段：
  - Checking Memory ( 检查内存 ) – 系统检查安装的内存。

- Powering up all disks ( 启动所有磁盘 ) – 按顺序启动所有磁盘。
  - Hardware initialization ( 硬件初始化 ) – 初始化其他硬件组件，如 PCIe SSD、显卡、Thunderbolt 适配器等。
  - Booting( 启动 )- 从 DOM 启动。如果启动阶段在此步骤停止，可能是因为 DOM 故障。请联络技术支持。
  - Starting System ( 启动系统 ) – 启动 QTS。如果启动阶段在此步骤停止，QTS 安装可能发生问题。请联络技术支持。
- 启动阶段的其余部分与其他 NAS 型号相同

## 技术支持

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在线支持: [helpdesk.qnap.com](http://helpdesk.qnap.com)

论坛: <http://forum.qnap.com>

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Version 3, 29 June 2007

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