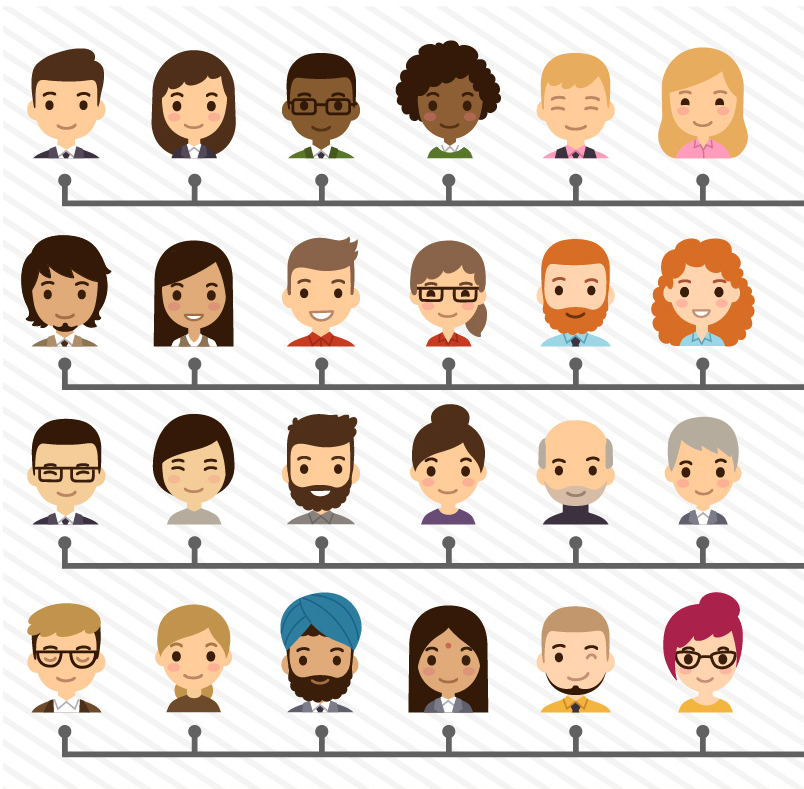
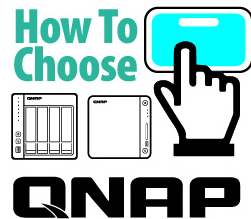


QNAP

An In-depth **QNAP NAS** selection guide for everyone

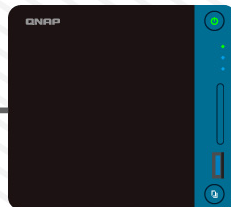


How many users?

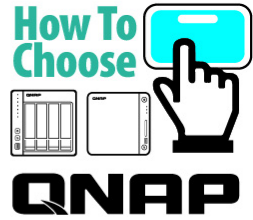


Maximum user account count

- NAS local user accounts: 600 to 4,096
- NAS domain (AD/LDAP) user accounts: unlimited. For more powerful NAS, more users can be supported.



How much capacity?

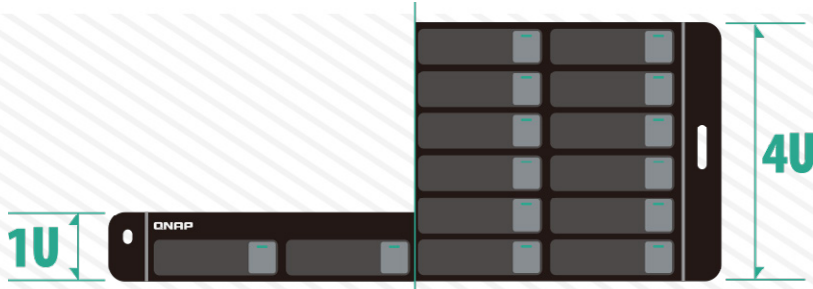
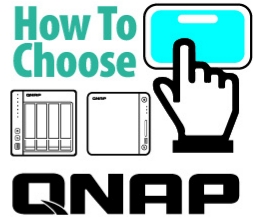


Capacity: GB? TB?

- Additional expansion unit needed?
- RAID configuration?
- =N-1 drive capacity: RAID 1/5
- =N-2 drive capacity: RAID 6
- >=N-2 drive capacity: RAID 10/50/60

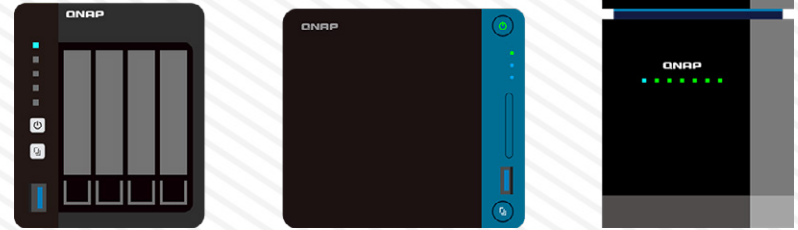


Which form factor?



Rackmount

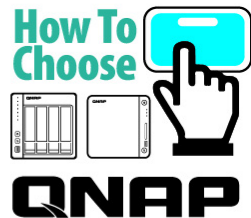
- 1U (1.75 inch/44 mm) to 4U height, 19 inch (480 mm) width
- Single & redundant power options



Desktop

- Low noise level with versatile exterior designs
- Multifunction & value

Which processor? It matters!

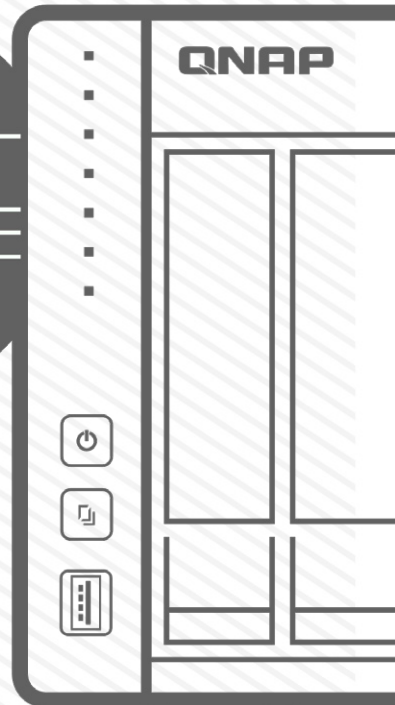
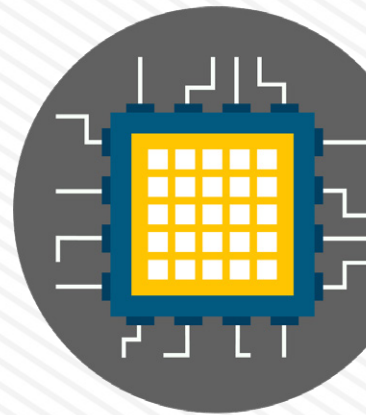


64-bit x86 processors

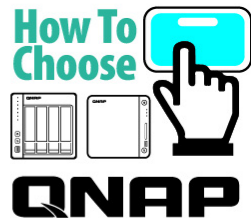
- Intel Xeon, Core i7/i5/i3, Celeron multi-core 1.5 GHz+
- AMD Ryzen, R-series, G-series multi-core 2.0 GHz+

64-bit & 32-bit ARM processors

- 64-bit Marvell 8040 quad-core 1.6 GHz
- 64-bit Annapurna Labs AL-324 quad-core 1.7 GHz
- 32-bit Annapurna Labs AL-314 quad-core 1.7 GHz / AL-212 dual-core 1.7 GHz
- 64-bit Realtek RTD1295/1296 quad-core 1.4 GHz



How much memory do I need?



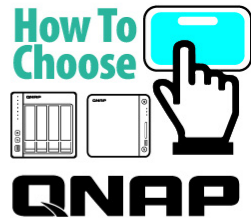
For every snapshot of an 1 TB volume/LUN, 0.5 MB of RAM is needed to mount each snapshot.

CPU	RAM size	Maximum snapshots (NAS overall)	Maximum snapshots (single volume/LUN)
AMD/Intel (x86)	4 GB or more	1,024	256
Annapurna Labs/ Marvell/Realtek (ARM)	4 GB or more	256	64
Any	2 GB	64	32
Any	1 GB	32	16

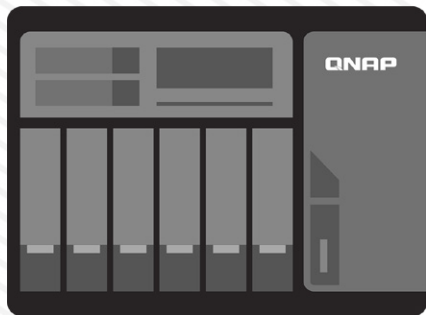


TS-x51/x51+ total snapshot count is 256 only instead of 1,024. For ARM models to use snapshots, you need to update to QTS 4.3.4 (and later) and re-create the storage pool.

Which kind of connection?



NAS

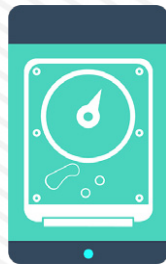


USB USB QuickAccess

THUNDERBOLT™
Thunderbolt 2 / Thunderbolt 3

10 Gigabit
1 Gigabit

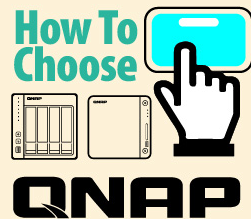
DAS (External Storage)



USB USB 3.0
USB 3.1 Gen 2

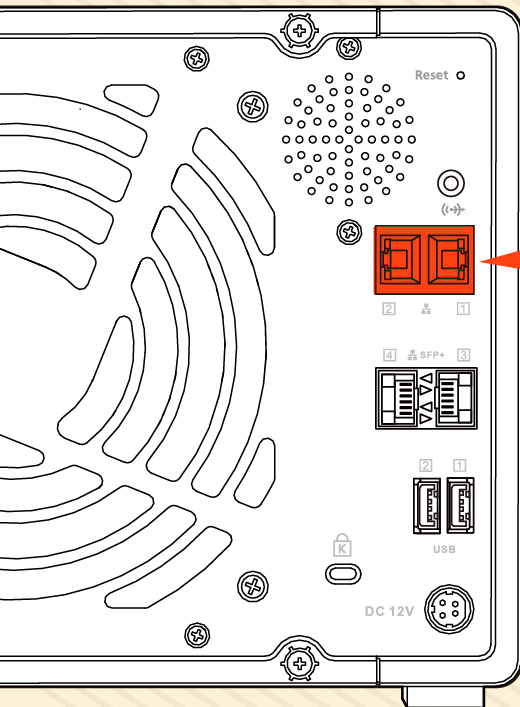
THUNDERBOLT™
Thunderbolt 2 / Thunderbolt 3

Go faster! Upgrade to 10GbE

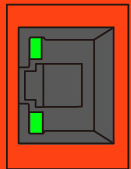


Use QNAP NAS with the QNAP QSW unmanaged 10GbE switch series (optional; sold separately) and upgrade your network infrastructure to enjoy faster transfer speeds and to accelerate bandwidth-demanding applications.

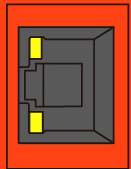
Multi-Gigabit 10GBASE-T



Multiple speeds



10G

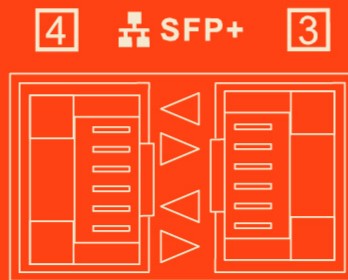
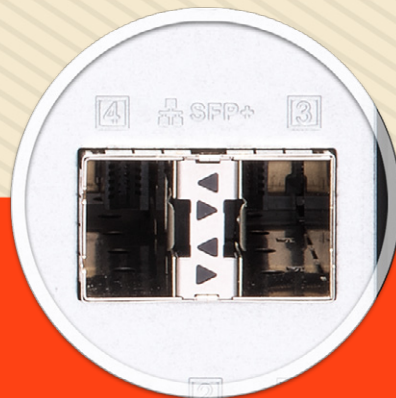
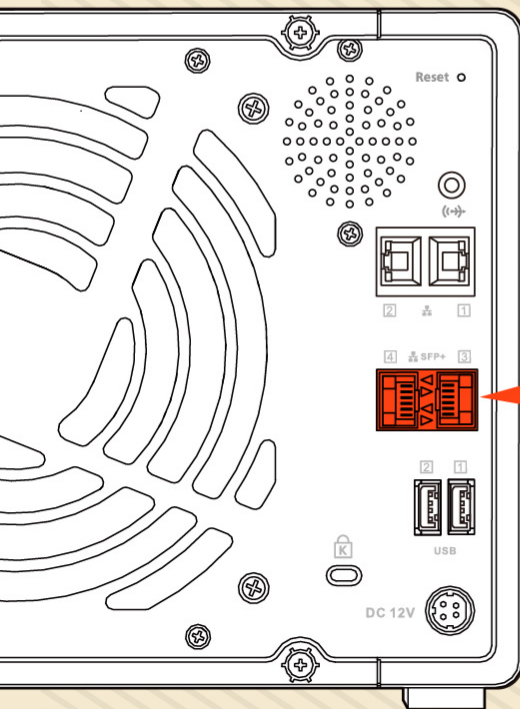


5G/2.5G/
1G/100M

	CAT 5e	CAT 6	CAT 6A & CAT 7
100M	✓	✓	✓
1G	✓	✓	✓
2.5G	✓	✓	✓
5G	✓	✓	✓
10G	✗	✓(55m)	✓

Enjoy faster speeds with existing cables with Multi-Gigabit NBASE-T standard support

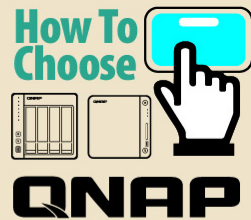
10GbE SFP+ ports



Supports 10GbE fiber-optic transceiver or use 1.5M/3M/5M SFP+ direct attached copper (DAC) cables



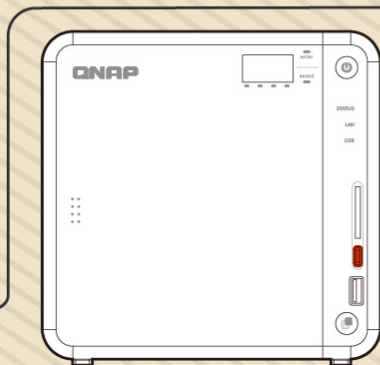
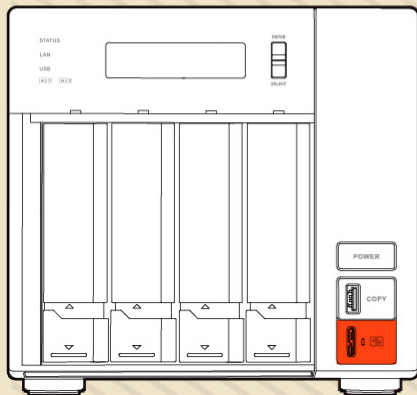
USB QuickAccess direct connection to your PC/Mac



1st time installation

Direct data access

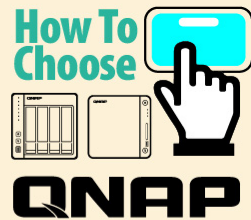
QNAP Qfinder Pro
for Windows & Mac
for quick connection



Dedicated USB cable
between **PC/Mac** & **NAS**

Max
100MB/s !

M.2 2280 & 2.5-inch SATA SSD ports



- SSD cache or storage space
- Qtier tiered storage solution

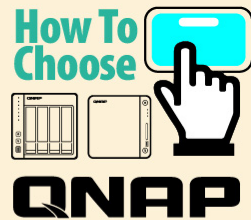
Multiple M.2 2280
/2260 SATA 6Gb/s
SSD slots



Multiple 2.5-inch SATA
6Gb/s SSD ports



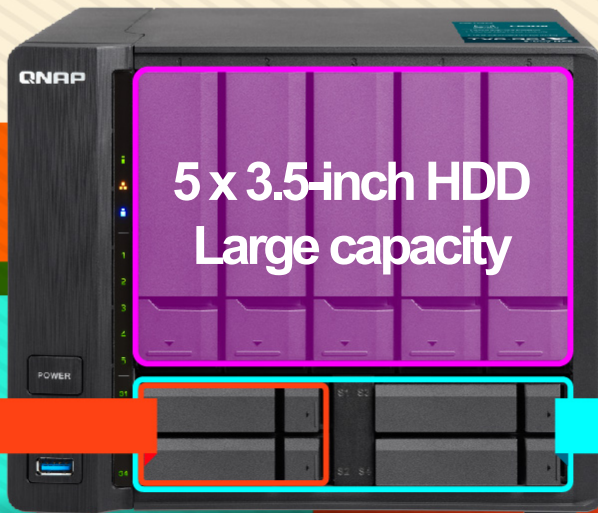
SSDs for auto-tiered hybrid architecture



Performance &
cost efficiency

All in one for SMB
2 x SSD for caching

Boost application's random IO
access performance!



5 x 3.5-inch HDD
Large capacity

Capacity &
performance

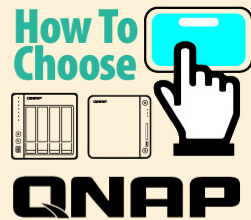
High capacity file and
media server

RAID1

RAID5

Boost both sequential and random
access performance!

Display 4K content via HDMI

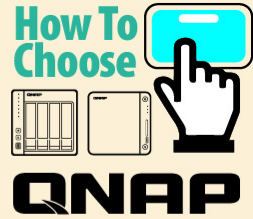


Supports QNAP RM-IR004
remote control with
QButton application!

The best compatibility with
HDMI certification

HDMITM
HIGH-DEFINITION MULTIMEDIA INTERFACE

4K video real-time transcoding



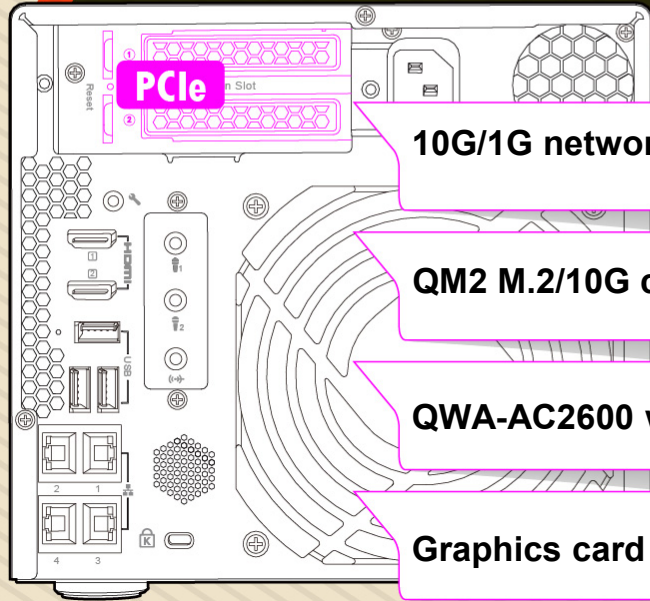
Provide multiple channels of H.264/H.265 video playback and transcoding via **integrated GPU** or a **PCIe graphics card***



*model dependent

PCIe slot for versatile expansion

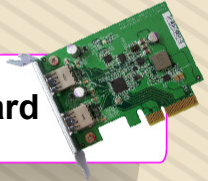
With 1 or more **PCIe** slots for various expansion cards



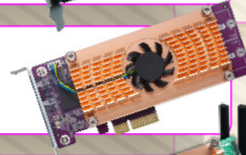
10G/1G network card



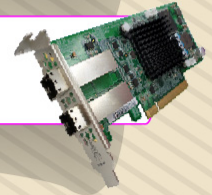
USB 3.1 Gen2 10G card



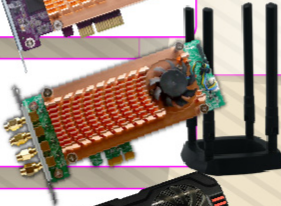
QM2 M.2/10G card



SAS 12G card



QWA-AC2600 wireless card



Graphics card



Enterprise 16-bay NAS

Hugh capacity

2 x 10GbE

3 x PCIe slots

4 x
SAS expansion
units

- Multi-core for running many virtual machines
- Optional PCIe graphics card for Virtual Machine GPU passthrough or QTS HDMI output & transcoding



TS-1677X

- AMD Ryzen 1200/1600/1700 up to 8 cores, 3GHz+
- **2 x 10GbE 10GBASE-T**
- Up to 64 GB (4 x DDR4) RAM
- 4 x 2.5" SATA SSD bays
- 12 x 3.5" SATA HDD bays
- 3 x PCIe slots



TS-1685

- Intel® Xeon® D-1531/D-1521 up to 6 cores, 2.2~2.4GHz
- **2 x 10GbE 10GBASE-T**
- Up to 128 GB (4 x DDR4) RAM
- 6 x M.2 SATA SSD slots + 4 x 2.5" SATA SSD bays
- 12 x 3.5" SATA HDD bays
- 3 PCIe slots



SMB 6~12-bay NAS

Optional
10GbE

2 or 3 x PCIe

4 x SAS
expansion
units

- Multi-core for running many virtual machines
- Optional PCIe graphics card for Virtual Machine GPU passthrough or QTS HDMI output & transcoding



TS-x77

- AMD Ryzen 1600/1700 up to 8 cores, 3.0 ~ 3.7 GHz
- **Optional PCIe 10GbE card**
- Up to 64 GB (4 x DDR4 2400) RAM
- 2 x M.2 SATA SSD slots + 2/4 2.5" SSD slots
- Up to 3 PCIe slots



TVS-x82

- Intel® Core™ i3/i5/i7 up to 4 cores, 3.4 ~ 4.2 GHz
- **Optional PCIe 10GbE card**
- Up to 64 GB (4 x DDR4 2400) RAM
- 2 x M.2 SATA SSD slots + 2/4 2.5" SSD slots
- Intel® HD Graphics (3 x HDMI)
- Up to 3 PCIe slots



SMB 6~12-bay NAS

10GbE exp.

Quad cores

2 x PCIe

SAS/USB
Expansion



TS-1635AX

- Marvell® ARMADA® 8040 ARMv8 Cortex-A72 4-core 1.6 GHz
- 2 x 10GbE SFP+
- Up to 16 GB (1 x DDR4) RAM
- 2 x M.2 SATA SSD ports
- 2 x PCIe Gen.3 x2/x1 slots



TVS-x73e

- AMD RX-421BD 4-core 2.1GHz, up to 3.4GHz
- Optional PCIe 10GbE card
- Up to 64 GB (4 x DDR4) RAM
- 2 x M.2 SATA SSD ports
- 2 x PCIe Gen.3 x4 slots
- AMD Radeon™ R7 Graphics (2 x HDMI)



TS-x73

- AMD RX-421ND 4-core 2.1GHz, up to 3.4GHz
- Optional PCIe 10GbE card
- 2 x M.2 SATA SSD ports
- Up to 64 GB (4 x DDR4 2400) RAM
- 2 x PCIe Gen.3 x4 slots

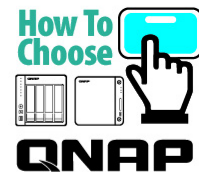


- Large capacity with 2 x 10GbE SFP+ at an affordable price

- Integrated GPU with dual HDMI outputs

- Optional PCIe graphics card for QTS HDMI output & transcoding

SMB 9-bay NAS



10GbE

5 x 3.5" HDD
plus
4 x 2.5" SSD
hybrid design

Ready to use
Qtier & SSD
cache



TVS-951X

- Intel Kaby Lake Celeron 3865U 2-core 1.8GHz
- **1 x 10GbE 10GBASE-T**
- Up to 32 GB (2 x DDR4 2133) RAM
- 4 x 2.5" SSD Slots + 5 x 3.5" HDD/SDD Slots
- 1 x 4K HDMI v1.4b



- x86 performance with HDMI and integrated GPU for transcoding



TS-963X

- AMD GX-420MC 4-core 2.0GHz
- **1 x 10GbE 10GBASE-T**
- Up to 16 GB (2 x DDR3L 1600) RAM
- 4 x 2.5" SSD Slots + 5 x 3.5" HDD/SDD Slots



- 4-core performance with a x86 CPU for more apps



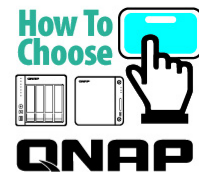
TS-932X

- Annapurna Labs AL-324 4-core 1.7GHz
- **2 x 10GbE SFP+**
- Up to 16 GB (1 x DDR4 2133) RAM
- 4 x 2.5" SSD Slots + 5 x 3.5" HDD/SDD Slots



- Affordability with 2 x 10GbE SFP+ and 4-core performance

SMB 2~6-bay NAS



X86 Intel
Quad cores
Transcoding
HDMI



TS-x53B

- Intel Celeron J3455 4-core 1.5GHz, up to 2.3GHz
- Up to 8 GB (2 x DDR3L 1866) RAM
- 1 x PCIe Gen.2 x2 slot (10GbE)
- 1 x 4K HDMI v1.4b
- OLED, USB QuickAccess, SD card slot, remote



- Fully loaded and highly upgradeable with a PCIe slot



TS-x53Be

- Intel Celeron J3455 4-core 1.5GHz, up to 2.3GHz
- Up to 8 GB (2 x DDR3L 1866) RAM
- 1 x PCIe Gen.2 x2 slot (10GbE)
- 1 x 4K HDMI v1.4b



- Highly upgradeable with a PCIe slot with affordability



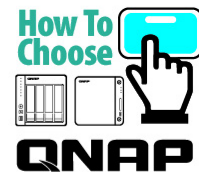
TBS-453A

- Intel Celeron N3150 4-core 1.6GHz, up to 2.08GHz
- Up to 8 GB (2 x DDR3L 1600) RAM
- 4 x M.2 SATA SSD slots
- 1 x GbE + 4 port GbE switch
- 2 x 4K HDMI v1.4b



- Compact B5-sized NASbook with a 4-port GbE LAN switch.

SMB 3~8-bay NAS



Performance

Affordability

ARM CPU

10GbE



TS-832X

- Annapurna Labs 64-bit AL-324 4-core 1.7GHz
- **2 x 10GbE SFP+**
- Up to 16 GB (1 x DDR4) RAM
- **2 x PCIe Gen.2 x2/x1 slots**



TS-431X2

- Annapurna Labs 32-bit AL-314 4-core 1.7GHz
- **1 x 10GbE SFP+**
- Up to 8 GB (1 x DDR3) RAM



TS-332X

- Annapurna Labs 64-bit AL-324 4-core 1.7GHz
- **1 x 10GbE SFP+**
- Up to 16 GB (1 x DDR4) RAM
- 3 x 3.5"/2.5" HDD/SSD + **3 x M.2 SATA SSD slots**



TS-431X

- Annapurna Labs 32-bit AL-212 2-core 1.7GHz
- **1 x 10GbE SFP+**
- Up to 8 GB (1 x DDR3) RAM



- 10GbE quad-core ARM NAS with PCIe slots

- 10GbE quad-core ARM NAS

- 10GbE quad-core ARM NAS with triple M.2 SATA SSD acceleration

- 10GbE dual-core ARM NAS

SOHO 2~4-bay NAS



X86 Intel
Transcoding
HDMI



TS-251+/451+

- Intel Celeron J1900 4-core 2.0GHz, up to 2.42GHz
- Up to 8 GB (2 x DDR3L 1600) RAM
- 2 x GbE
- 1x 1080p HDMI



- x86 NAS with 1080p HDMI & transcoding



HS-251+

- Intel Celeron J1900 4-core 2.0GHz, up to 2.42GHz
- 2GB fixed DDR3L RAM
- 2 x GbE
- 1x 1080p HDMI



- Silent x86 fanless NAS with 1080p HDMI & transcoding



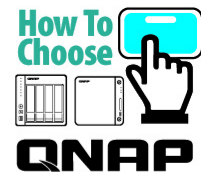
TS-251A

- Intel Celeron N3060 2-core 1.6GHz, up to 2.48GHz
- Up to 8 GB (2 x DDR3L 1600) RAM
- 2 x GbE
- 1x 4K HDMI, **USB QuickAccess**, SD card slot



- Dual-core x86 NAS with USB access, 4K HDMI & transcoding

Home & SOHO 1~4-bay NAS



Power saving
Affordable



TS-231P2/431P2

- Annapurna Labs 32-bit AL-314 4-core 1.7GHz
- **2 x GbE**
- Up to 8 GB (1 x DDR3) RAM



- Quad-core personal cloud for containerized apps



TS-328

- Realtek 64-bit RTD1296 4-core 1.4GHz
- **2 x GbE**
- Fixed 2 GB DDR4 RAM
- **4K video transcoding**



- 3-bay personal cloud with 4K transcoding



TS-131P/231P/431P

- Annapurna Labs 32-bit AL-212 2-core 1.7GHz
- **2 x GbE**
- Up to 8 GB (1 x DDR3) RAM



- Up to 220MB/s performance



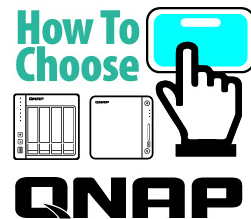
TS-128A/228A

- Realtek 64-bit RTD1295 4-core 1.4GHz
- **1x GbE**
- Fixed 1 GB DDR4 RAM



- Up to 110MB/s performance

Thunderbolt NAS line up



TVS-1582TU



TVS-882ST3



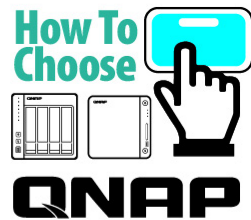
TVS-1282T3 & TVS-x82T series



TS-453BT3



Cross-platform collaboration



Thunderbolt



Ethernet

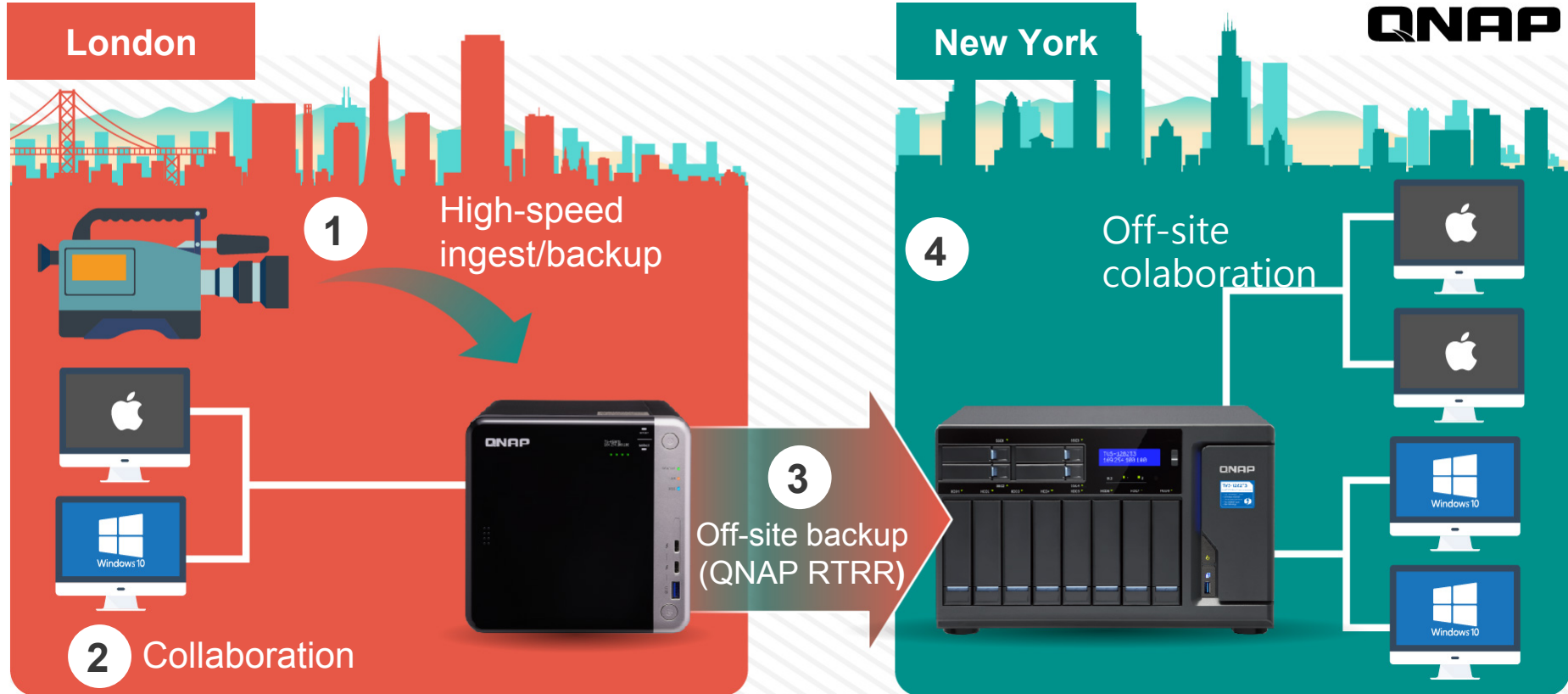
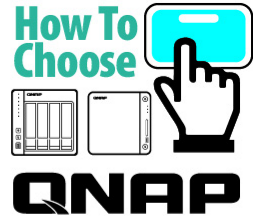


Adapter for Thunderbolt 2 Mac/PC



Apple Thunderbolt 3 to Thunderbolt 2 adapter

A flawless workflow



Thunderbolt 3 NAS



Thunderbolt 3

2 x 10GBASE-T

6 x TX
expansion



TVS-882BRT3

- Intel Core i5/i7 4 core, 3.4~4.2GHz
- Max 64GB (4 x DDR4) RAM, 2 x M.2 SATA SSD
- 8 x 3.5" HDD + 4 x 2.5" SSD
- **4 x Thunderbolt 3, 2 x 10GBASE-T, 3 x 4K HDMI**
- **Optional 5.25" LG Blu-ray drive or RDX drive**



- Blu-ray disc drive or RDX drive backup



TVS-1282T3

- Intel Core i5/i7 4 core, 3.4~4.2GHz
- Max 64GB (4 x DDR4) RAM, 2 x M.2 SATA SSD
- 8 x 3.5 吋 HDD + 4 x 2.5 吋 SSD
- **4 x Thunderbolt 3, 2 x 10GBASE-T, 3 x 4K HDMI**



- 1500MB/s, for 4 Thunderbolt concurrent clients



TVS-882ST3

- Intel Core i5/i7 4 core, 1.9 ~ 2.6GHz
- 32GB (2 x DDR4) RAM
- **8 x 2.5" SATA SSDs/HDDs, 2 x Thunderbolt 3**
- **2 x 10GBASE-T, 1 x 4K HDMI**



- Compact yet powerful



TS-453BT3

- Intel Celeron J3455 4 core 1.5GHz, up to 2.3GHz,
- 8GB DDR3L RAM, **2 x M.2 SATA SSD 埠,**
- **2 x Thunderbolt 3**
- **1 x 10GBASE-T, 2 x 4K HDMI**



- Affordability with Thunderbolt convenience

Thunderbolt 2 NAS

Thunderbolt 2

2 x 10GBASE-T

6 x TX expansion



TVS-1282T



TVS-882T



TVS-682T

- Intel Core i3/i5/i7, 4 core 3.4~4.2GHz
- Max 64GB (4 x DDR4) RAM
- 2 x M.2 SATA SSD
- 3.5" SATA HDD + 2.5" SATA SSD hybrid design
- 2 x Thunderbolt 2
- 2 x 10GBASE-T
- 3 x 4K HDMI



Blu-ray & RDX NAS



Optional
Blu-ray
writer or
RDX drive

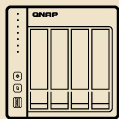


TVS-882BR
TVS-882BRT3

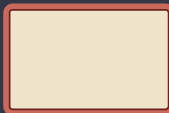
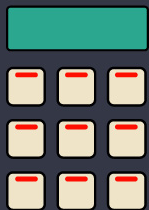
- Intel Core i5/i7 quad-core up to 3.6 GHz
- Max. 64 GB (4 x DDR4) RAM, 2 x M.2 SATA SSD
- 8 x 3.5" HDD + 1 x 5.25" drive slots
- 5.25" SATA port for optional **Blu-ray** or **RDX** support
- 3 x 4K HDMI
- **3 x PCIe Gen.3 slots**
- 4 x Thunderbolt 3 (TVS-882BRT3)



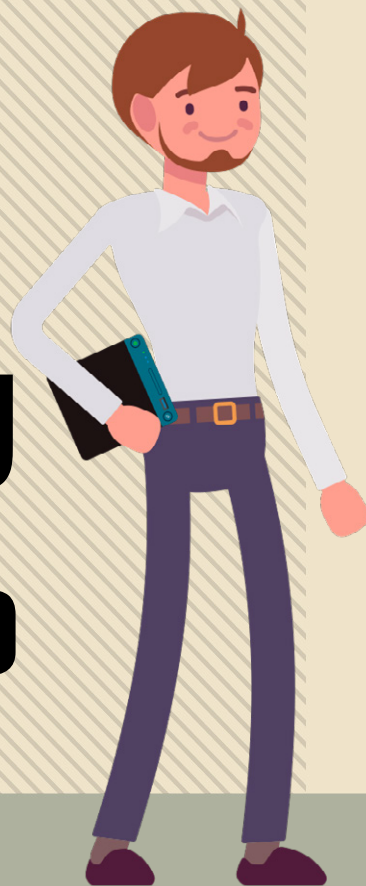
QNAP NAS Selection Guide



**How To
Choose**



Thank you for choosing **QNAP**



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