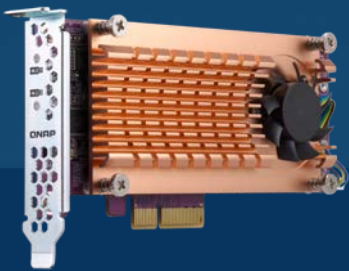
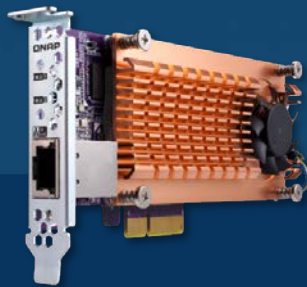


QNAP

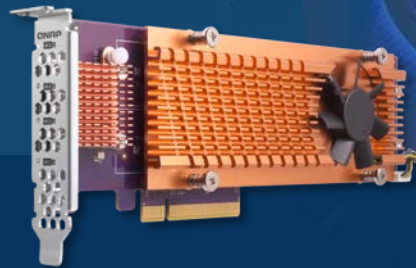
Unveiling the new QM2 M.2 SSD/10GbE PCIe Expansion cards



QM2-2S, QM2-2P
QM2-2S-220A, QM2-2P-244A
QM2-2P-344, QM2-2P-384



QM2-2S10G1T
QM2-2P10G1T



QM2-4S-240, QM2-4P-284
QM2-4P-342, QM2-4P-384A

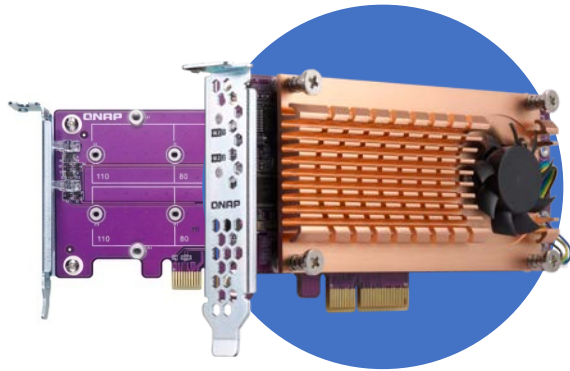
QM2 M.2 SSD/10GbE expansion cards

- **QM2-2S**

2 x M.2 22110 / 2280 **SATA** SSD ports

- **QM2-2P**

2 x M.2 22110 / 2280 **PCIe** NVMe SSD ports

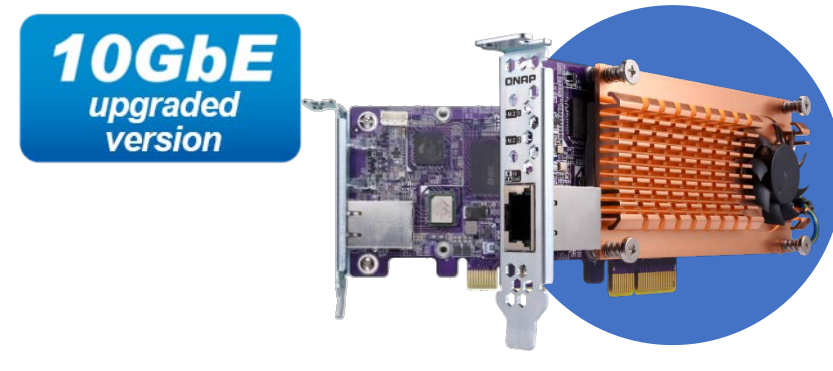


- **QM2-2S10G1T**

2 x M.2 2280 **SATA** SSD ports
1 x **10GBASE-T** 10GbE port

- **QM2-2P10G1T**

2 x M.2 2280 **PCIe** NVMe SSD ports
1 x **10GBASE-T** 10GbE port



Add SSD slots to NAS with a QM2 card

Without changing existing configurations

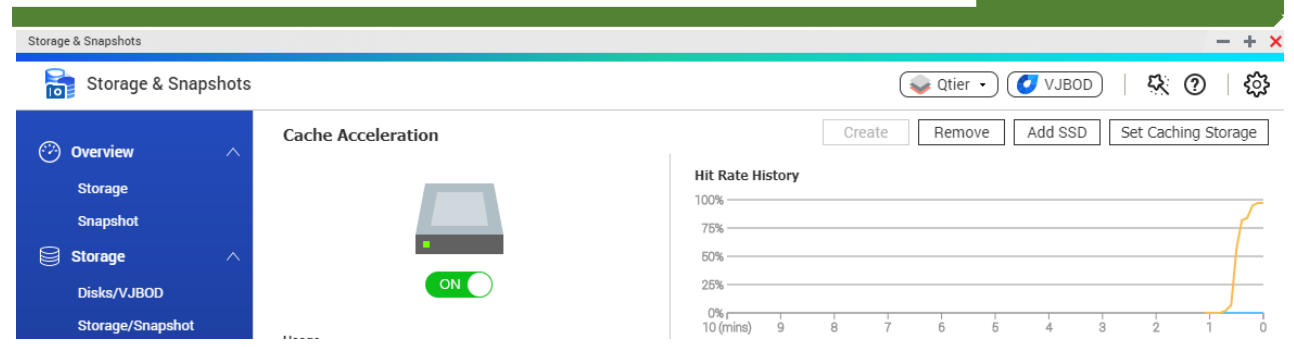
In **QTS 4.3.4**, you can freely upgrade a normal pool (configured after 4.2) to a **Qtier pool** without starting over



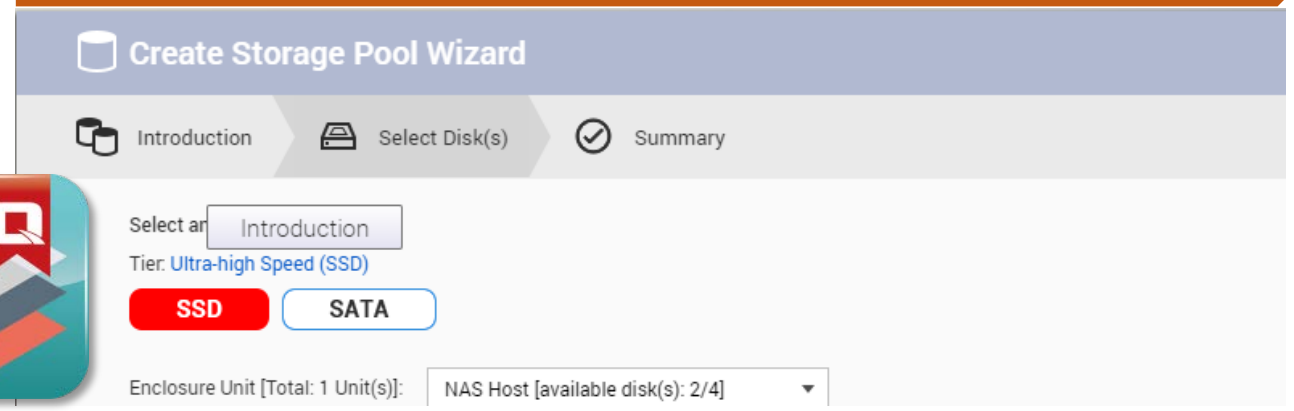
TVS-463



Accelerates random IOPS **SSD cache**



SSD tier Performance and storage capacity



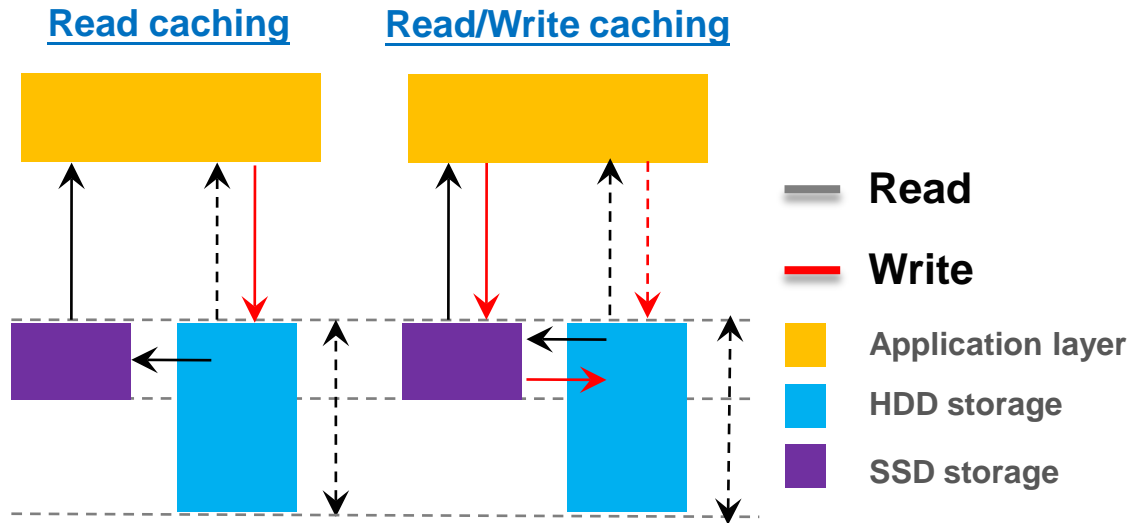
QTS Supports M.2 SSD Cache Acceleration

Reduce I/O latency

Global read-write cache

Accelerates IOPS performance

Applies SSD cache to all volumes and LUNs with a single setup process, or specified volumes only



The screenshot shows the QTS Storage & Snapshots interface. The Cache Acceleration service is enabled (ON). The Hit Rate History graph shows a sharp increase in hit rate starting around 10 minutes ago. The table below lists the storage volumes and their status.

Name/Alias	Capacity	Status
DataVol1	245.44 GB	Ready
DataVol2	688.37 GB	Ready
DataVol3	688.37 GB	Ready
DataVol4	693.84 GB	Ready
DataVol5	688.37 GB	Ready
DataVol6	325.27 GB	Ready

Expand high-speed M.2 SSD tier with Qtier

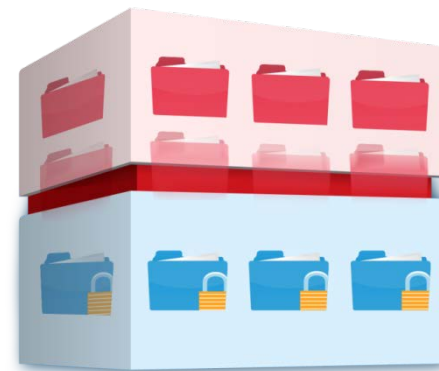
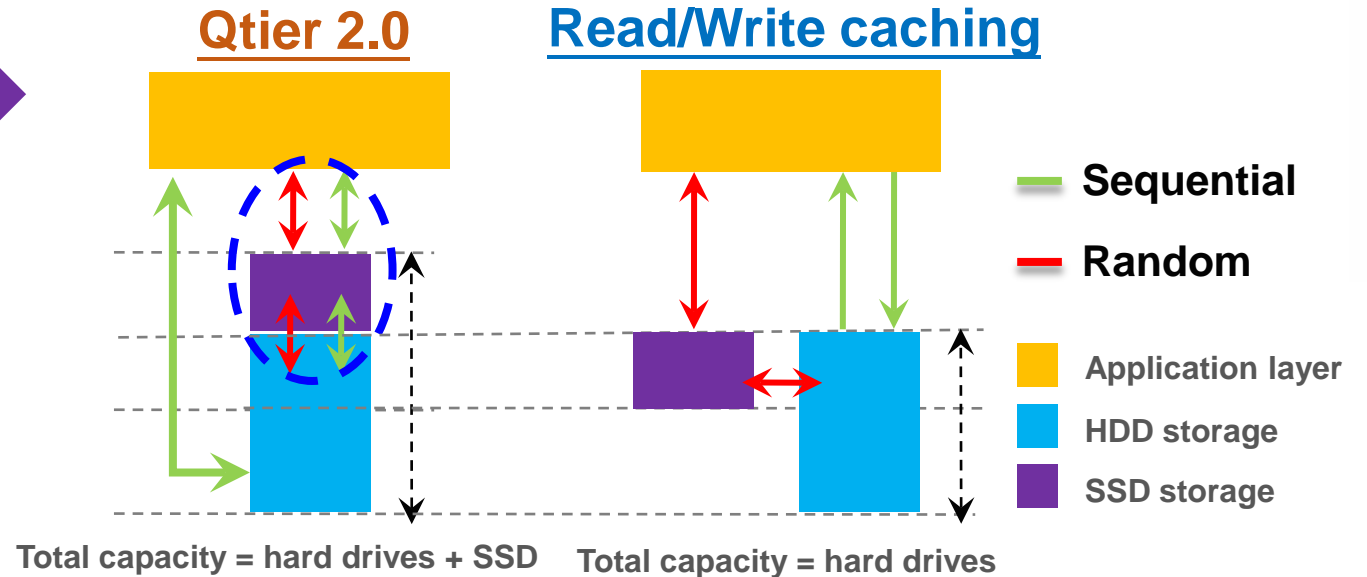
Storage space and SSD caching

Keep flexibility for accelerating performance of key data and increase cost/performance ratio

I/O aware



Tiering on Demand

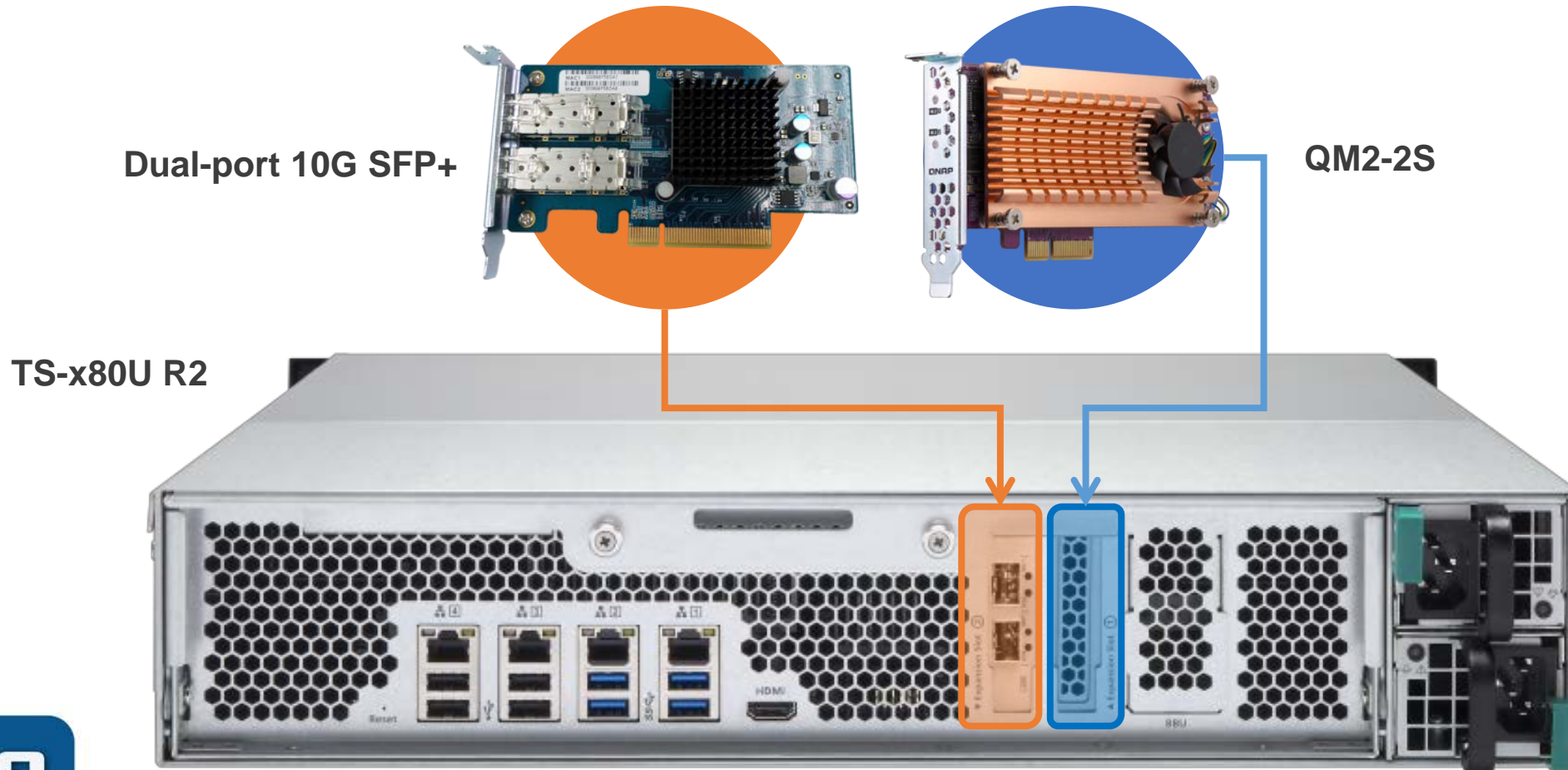


Hot data & reserved block

Cold and archived data

Create a RAID 0/1 M.2 SSD tier

Configure a **RAID 0/RAID 1** M.2 SSD ultra high speed tier with a 10GbE NIC and QM2 card installed together in a NAS that has two PCIe slots.



Add four M.2 SSDs with a single card

QM2-4S-240

4 x M.2 2280 **SATA** SSD ports

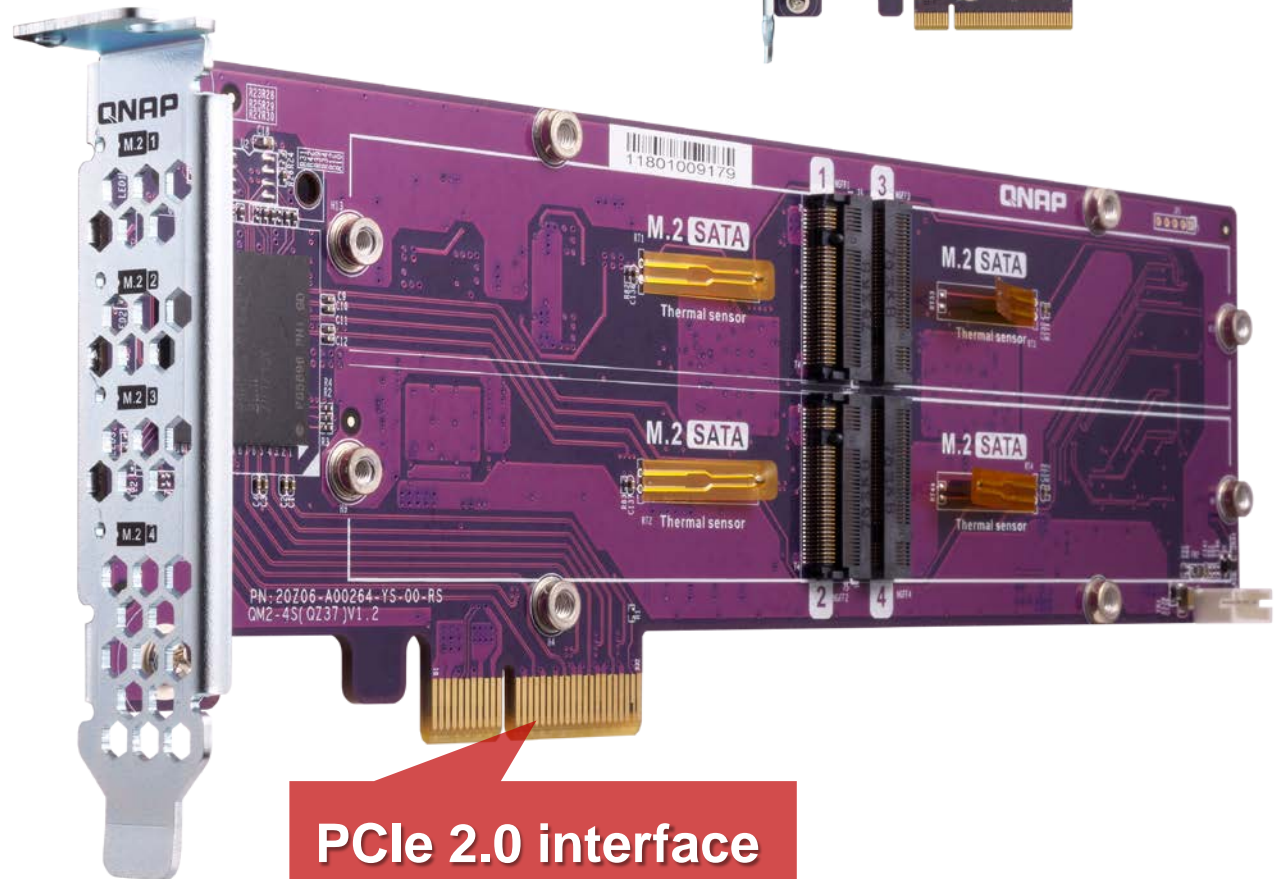
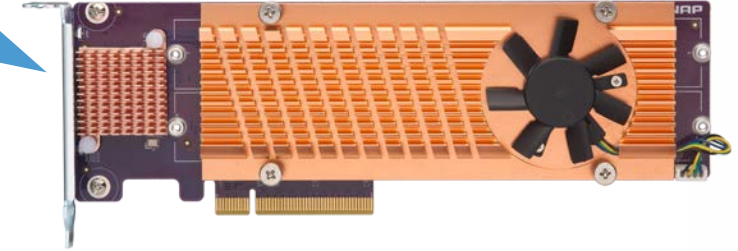
QM2-4P-240

4 x M.2 2280 **PCIe** NVMe SSD ports

Create a RAID protection
RAID 5/RAID 6/RAID 10

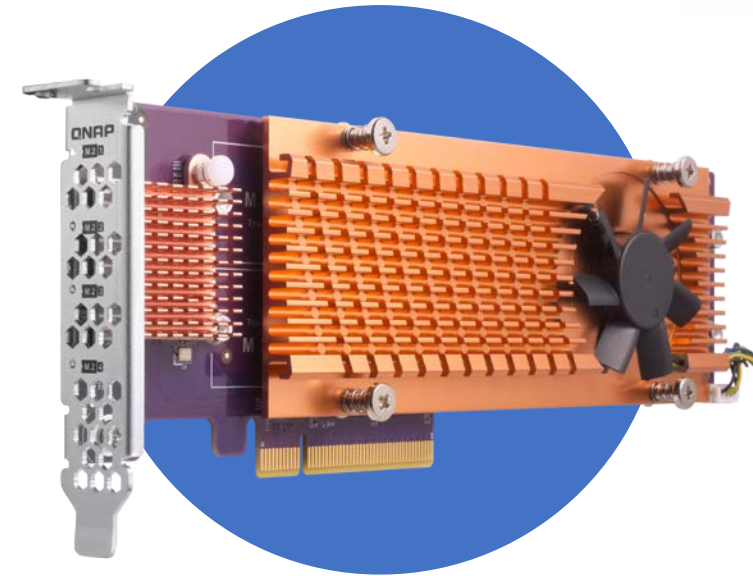
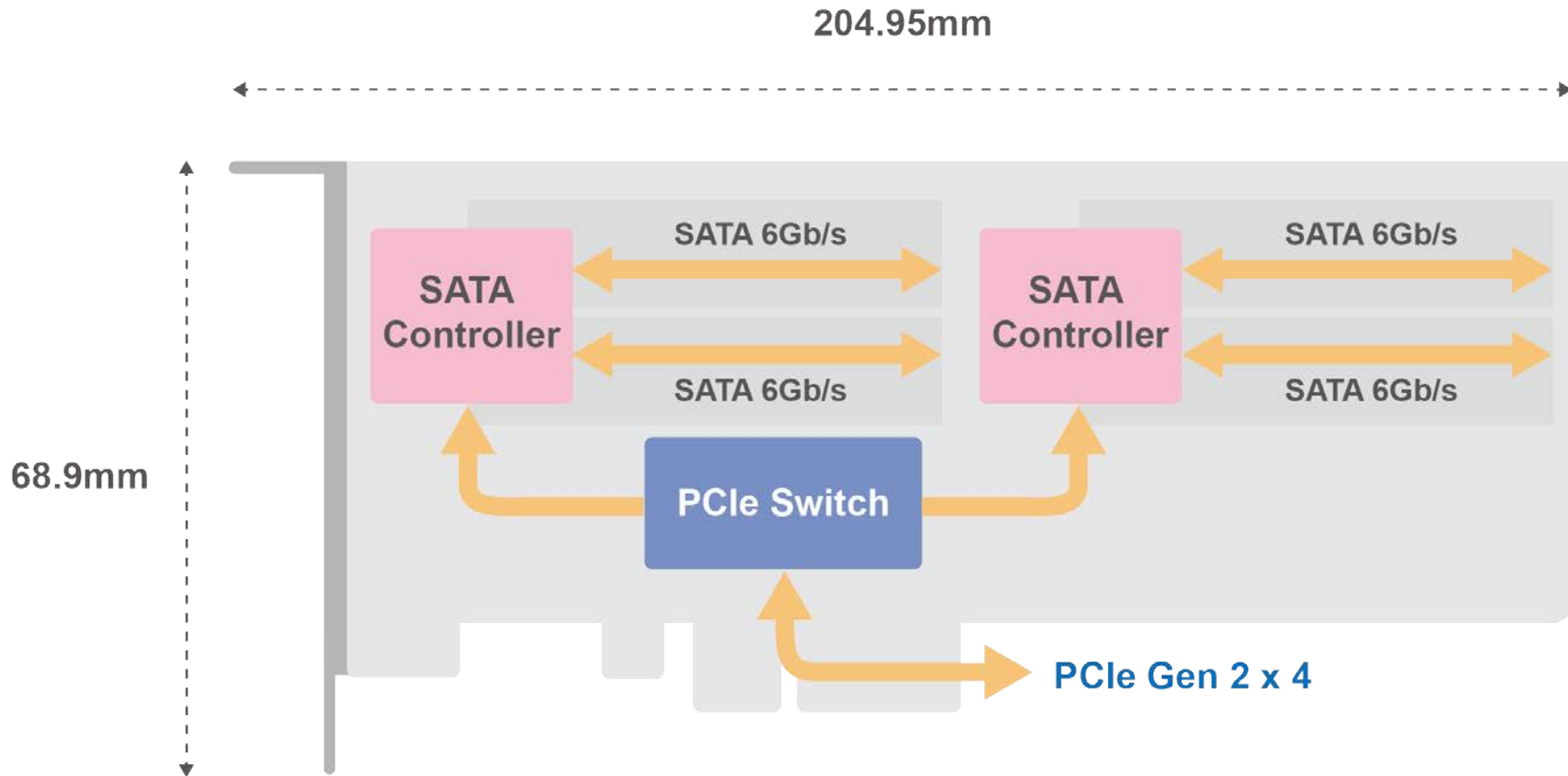
Adding four M.2 SSDs
with one PCIe slot

Bundled with heatsink and brackets that can be used on all NAS models

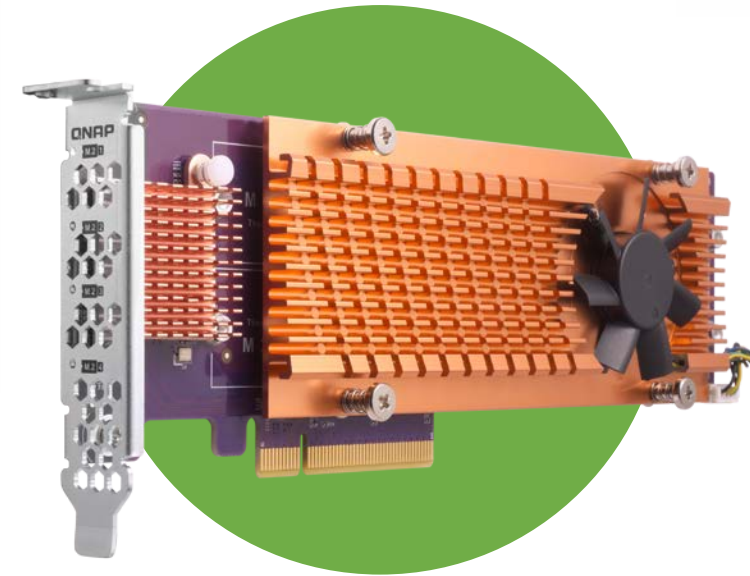
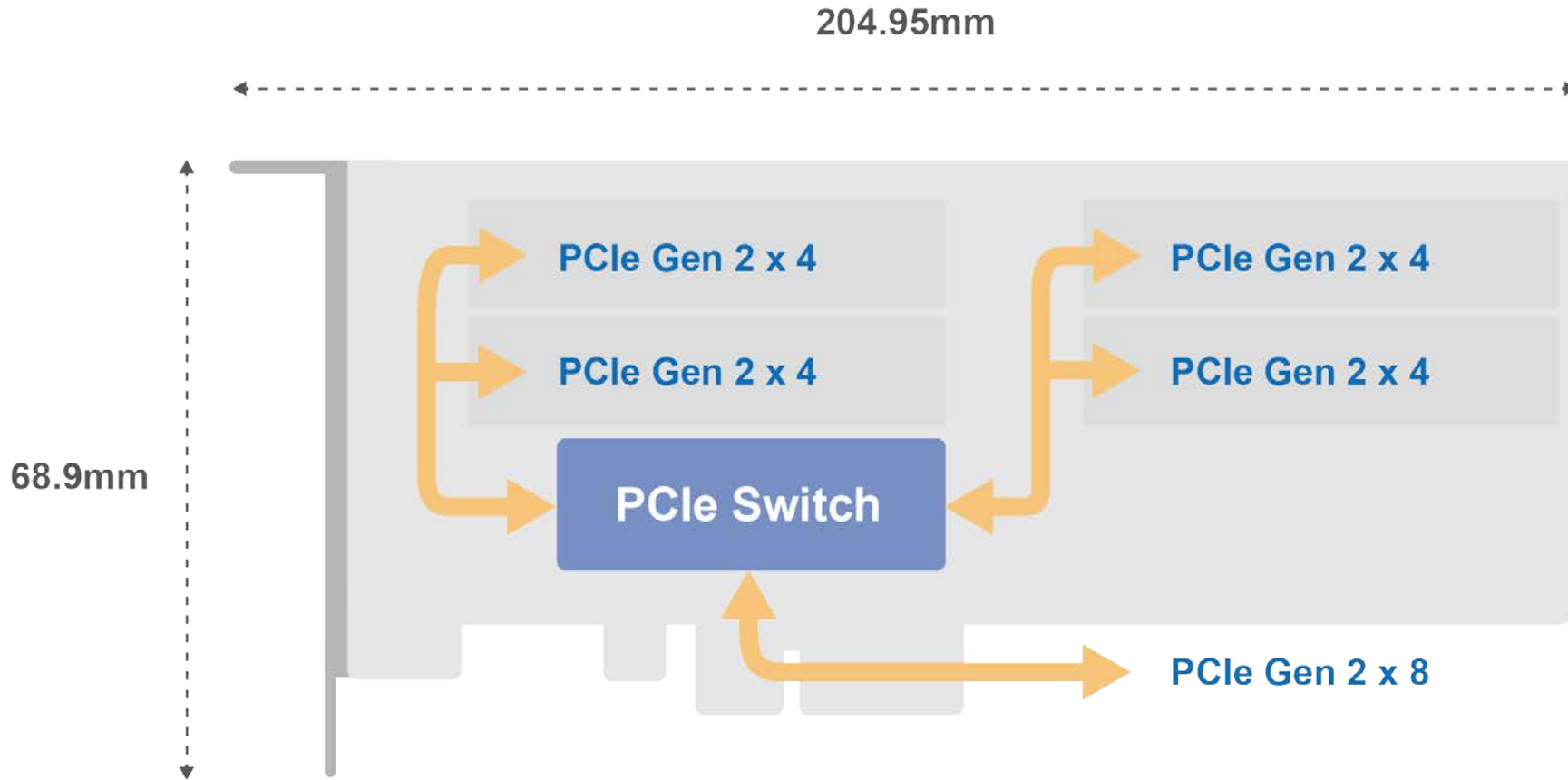


PCIe 2.0 interface

QM2-4S-240: 4 x M.2 SATA SSDs



QM2-4P-284: 4 x M.2 PCIe NVMe SSDs



QM2-4P-284 (2.0 x8 card)

4 x M.2 2280 PCIe 2.0 x4 NVMe SSD ports

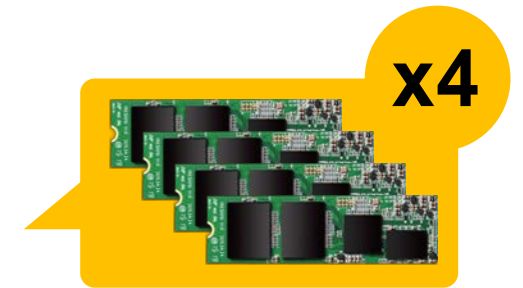
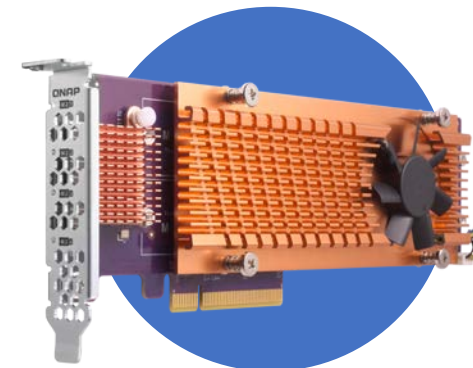
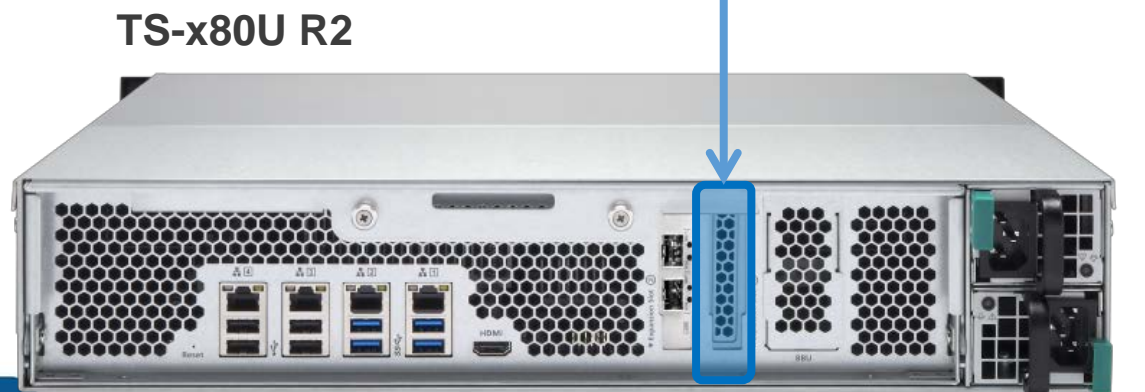
Demo: how to install a QM2-4S-240 card

QM2 installation

1. Remove cooling module.
2. Remove the protection pads from the card.
3. Install M.2 SSDs.
4. Install the cooling module.
5. Install the QM2 card to the TS-EC880U R2.

QTS configuration

1. Go to Control Panel > System Status or check the QM2 card information at Dashboard.
2. Go to Storage & Snapshots Manager to check M.2 SSD information.
3. Configure and expand the SSD tier in the Storage & Snapshots Manager.

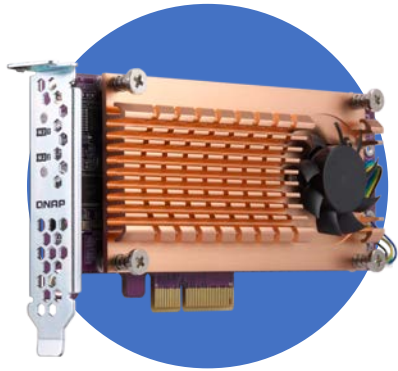


QM2-4S-240

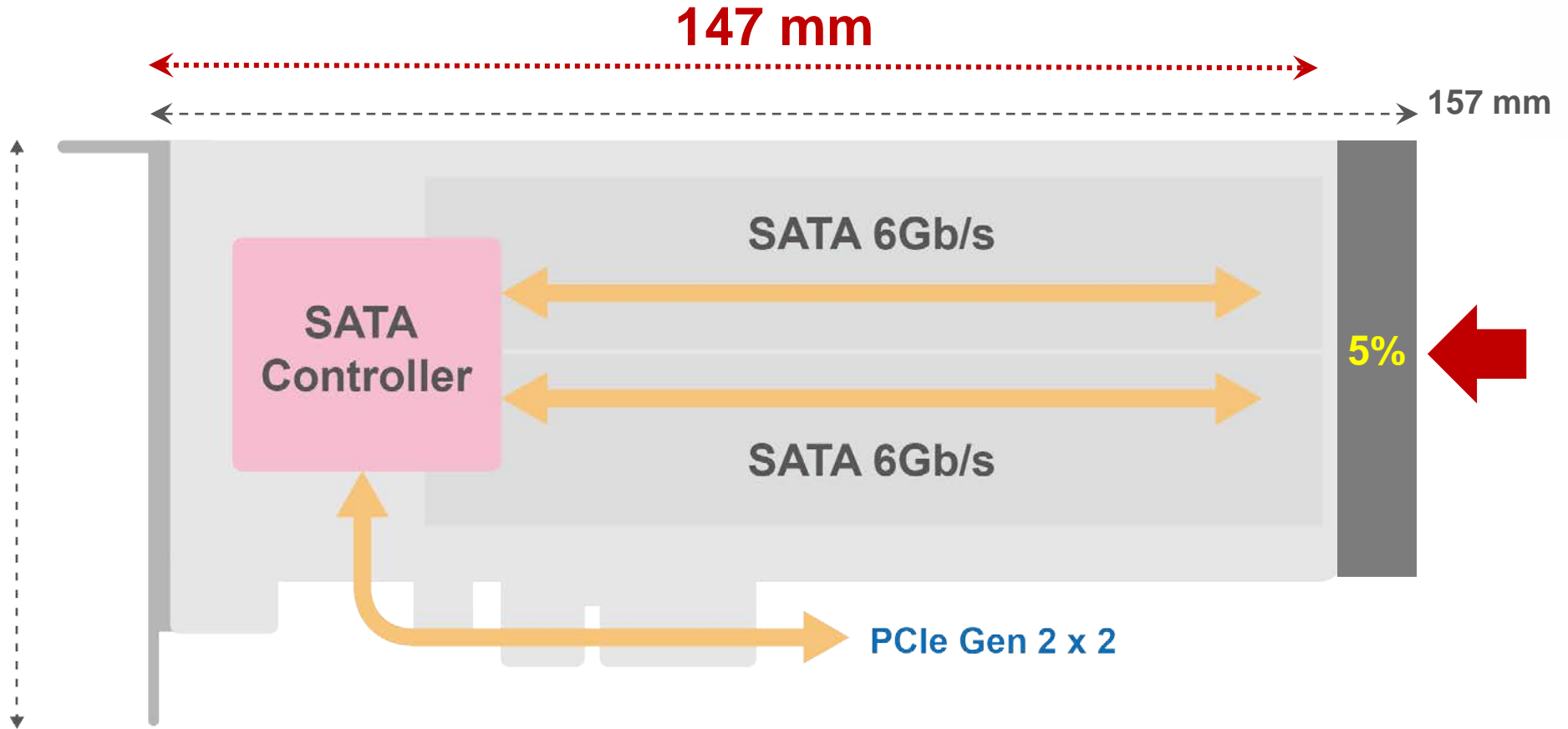
QM2-2S cards with compact design

QM2-2S-220A

5 % less compared with QM2-2S



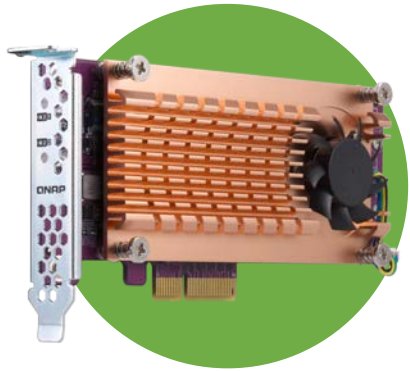
68.9mm



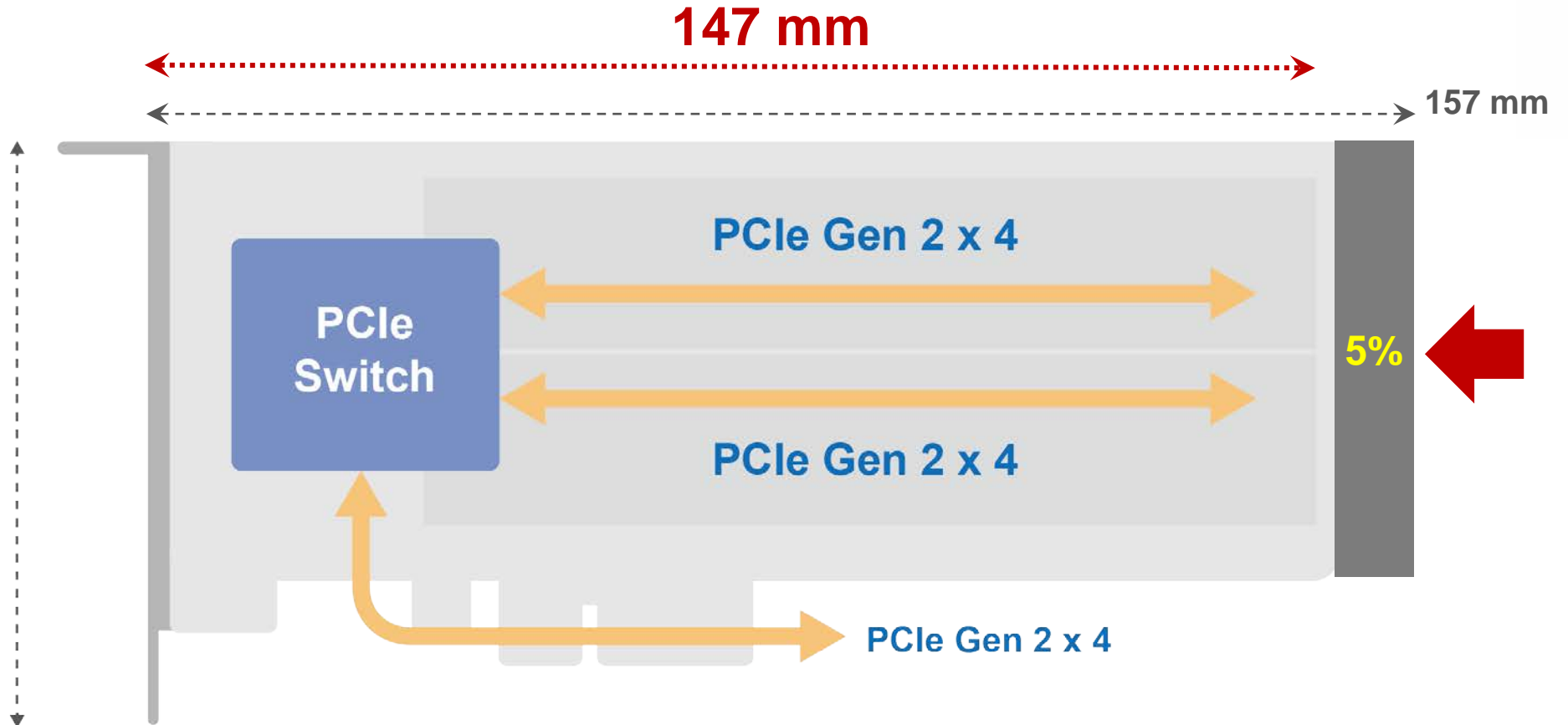
QM2-2P cards with compact design

QM2-2P-244A

5 % less compared with QM2-2P

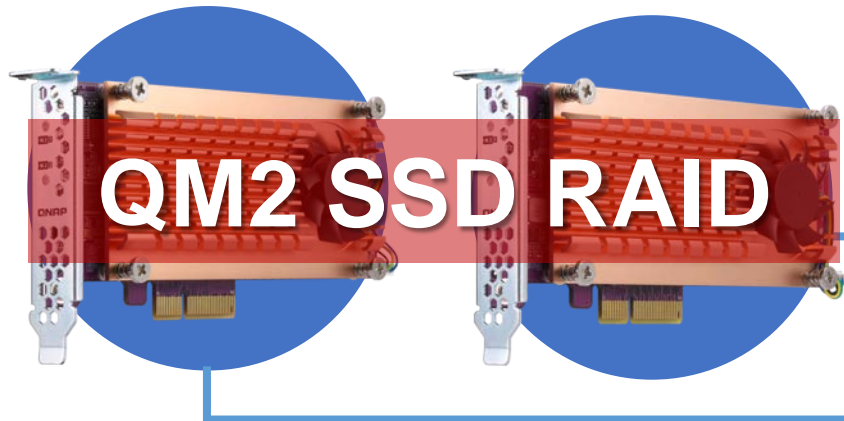


68.9mm



Fits with all PCIe slots

2 x QM2-2S-220A / QM2-2P-244A



PCIe slot 2

PCIe slot 3

Slot 1



Reserved the largest bandwidth for graphics cards

PCIe slot 1



TS-1677X

How to fully utilize the PCIe 3.0 bandwidth?

★ 3.0 x4 slot

- TS-x71U (1)
- TS-x73, TS-x73U
- TS-x77 (2)
- TS-x80U (1)

★ 3.0 x8 slot

- TS-x71 (2), TS-x71U (2)
- TS-x77 (1)
- TS-1282 (1)
- TS-x80, TS-x80U (2)
- TS-x89U (3,4,5)
- TS-1685 (1)

★ 3.0 x16 slot

- TS-682 (1), TS-882 (1)
- TDS-16489U (2)



Ideal choice to boost performance: M.2 PCIe NVMe SSDs

M.2 PCIe NVMe SSDs

have more than **2X performance enhancement.**

Interfaces

Theoretical Speed

M.2 SATA III

6Gb/s

240GB | USD \$70

M.2 PCIe 3.0 x2

★ **New choice** 16G/s

240GB | USD \$70

M.2 PCIe 2.0 x4

20Gb/s

240GB | USD \$150

M.2 PCIe 3.0 x4

★ **Mainstream**

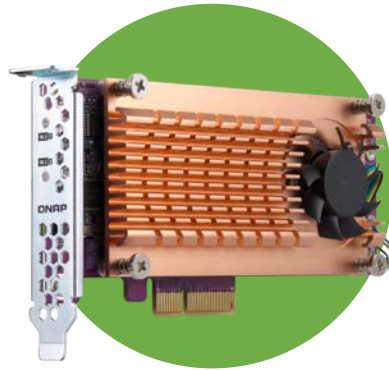
32Gb/s

240GB | USD \$150

Introducing the high-speed PCIe 3.0 interface to QM2 cards

2 x

M.2 **PCIe** NVMe SSD ports

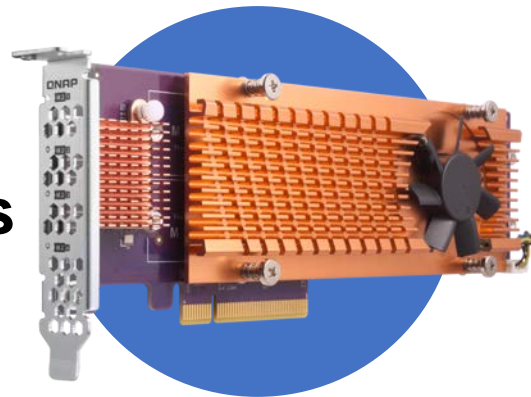


QM2-2P-344 (3.0 x4 card)

QM2-2P-384 (3.0 x8 card)

4 x

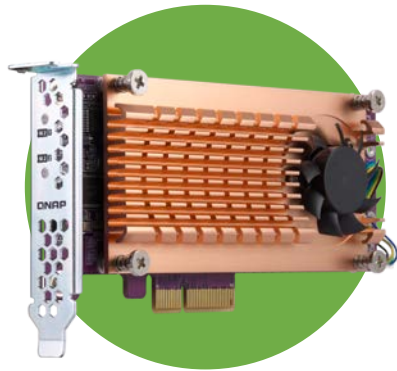
M.2 **PCIe** NVMe SSD ports



QM2-4P-342 (3.0 x4 card)

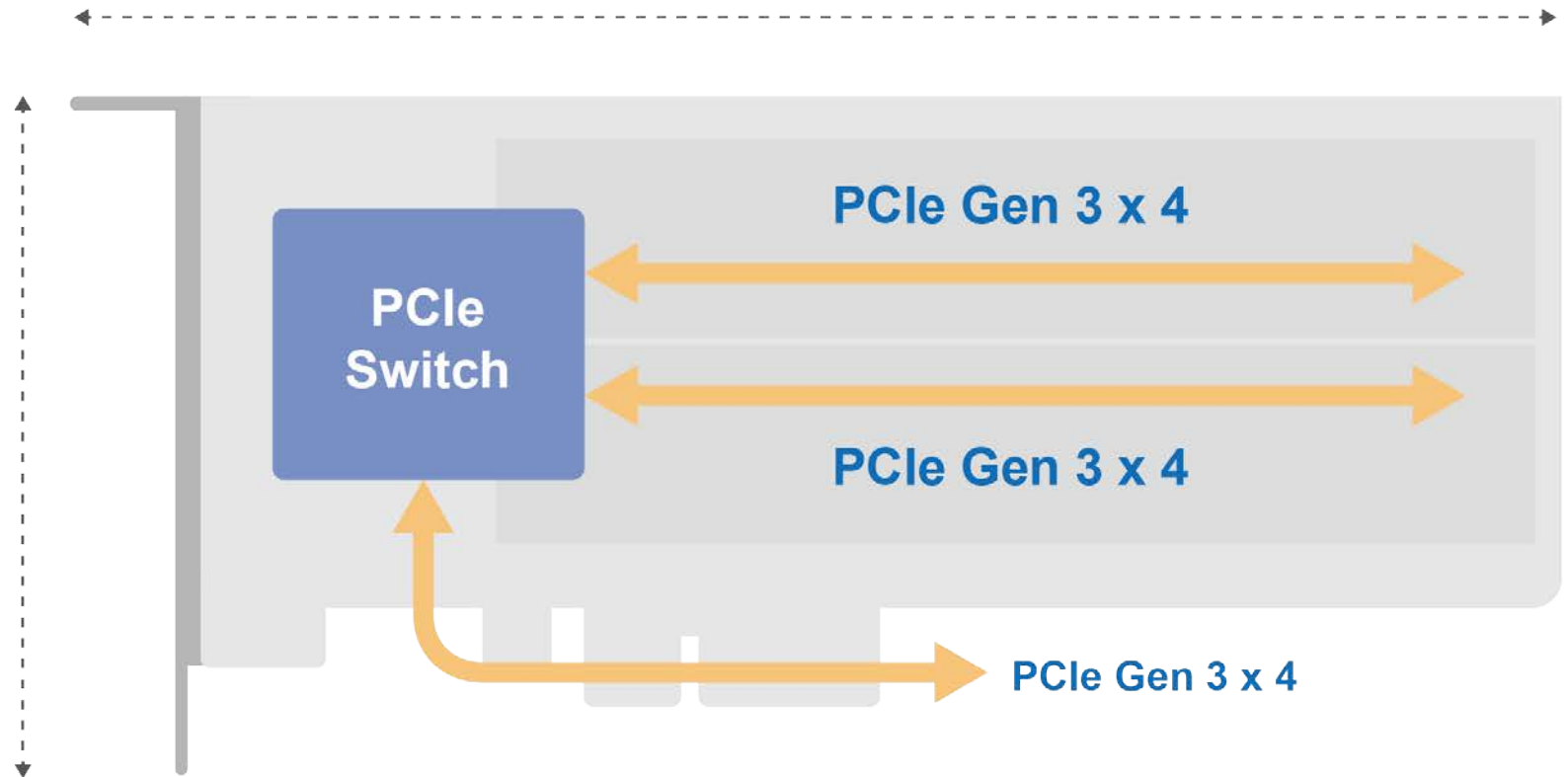
QM2-4P-384A (3.0 x8 card)

QM2-2P-344 PCIe 3.0 x4 card: 2 x NVMe SSD



68.9mm

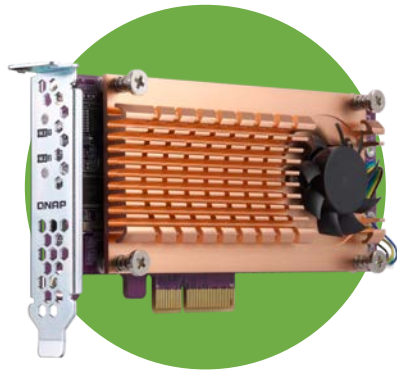
147mm



QM2-2P-344 (3.0 x4 card)

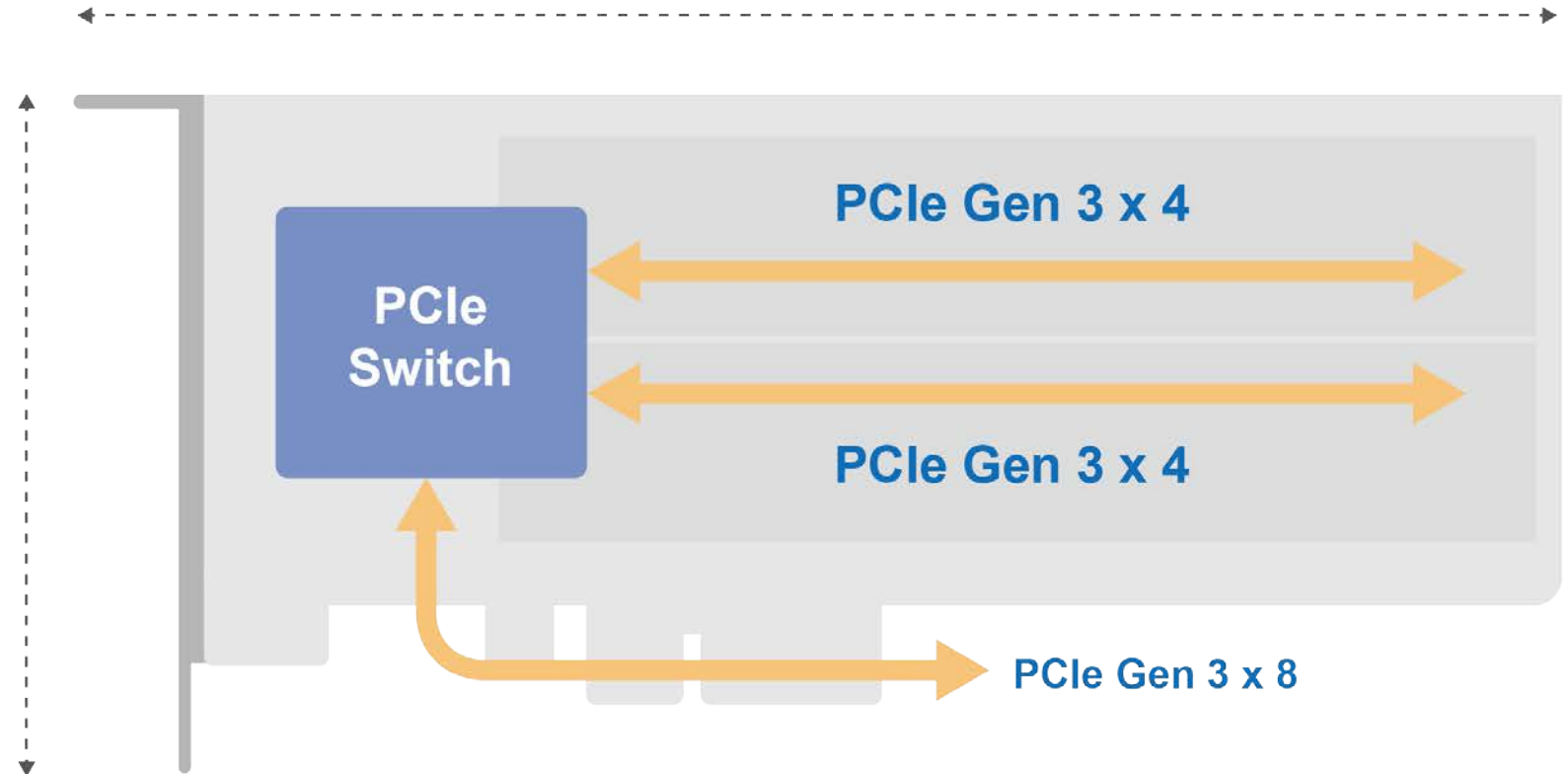
2 x M.2 22110/2280 **PCIe** 3.0 x4 NVMe SSD ports

QM2-2P-384 PCIe 3.0 x8 card: 2 x NVMe SSD



68.9mm

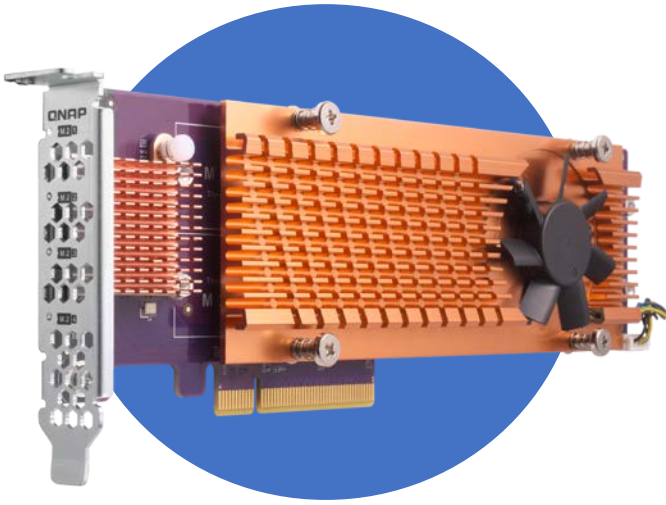
147mm



QM2-2P-384 (3.0 x8 card)

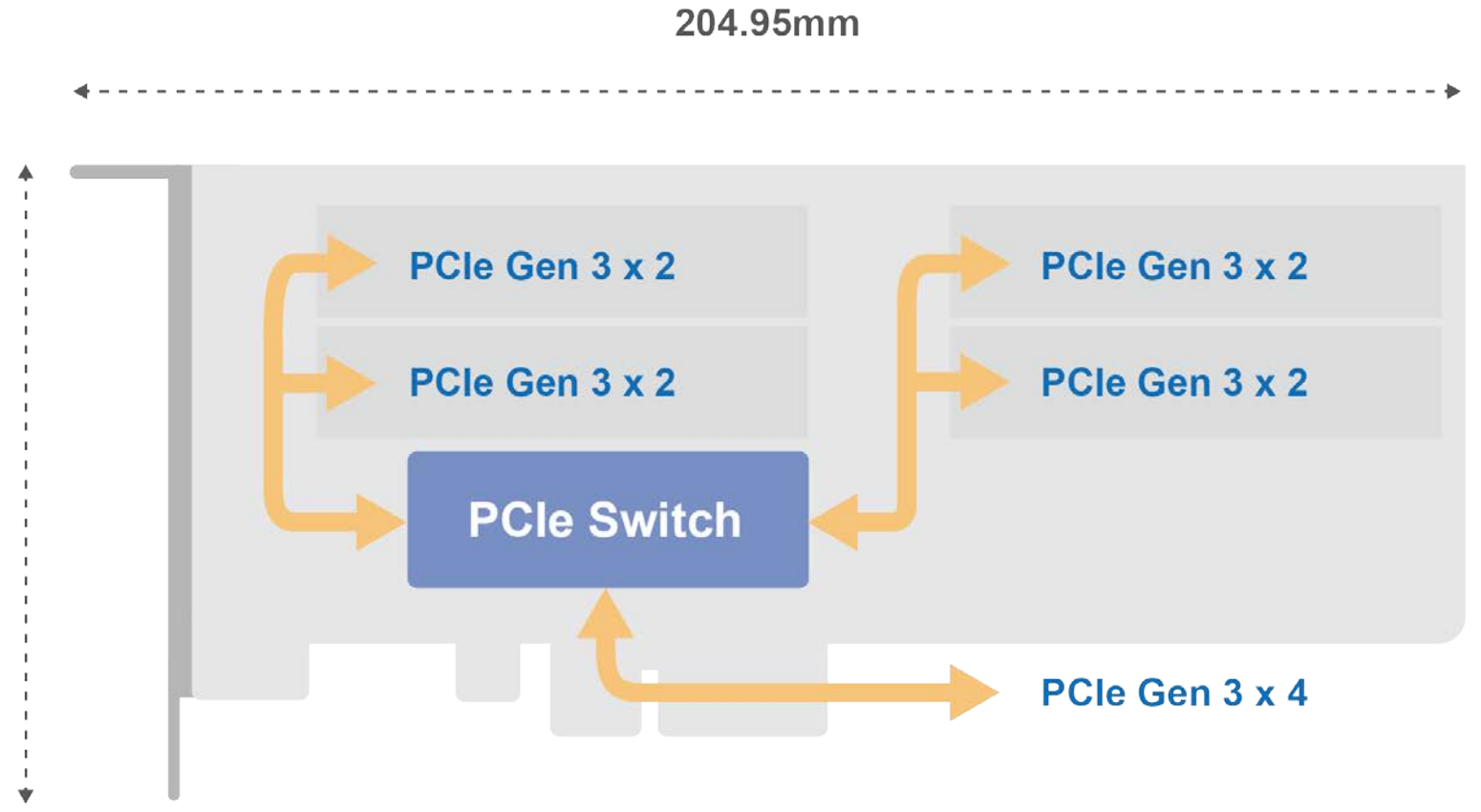
2 x M.2 22110/2280 **PCIe** 3.0 x4 NVMe SSD ports

QM2-4P-342 PCIe 3.0 x4 card: 4 x NVMe SSD



68.9mm

204.95mm

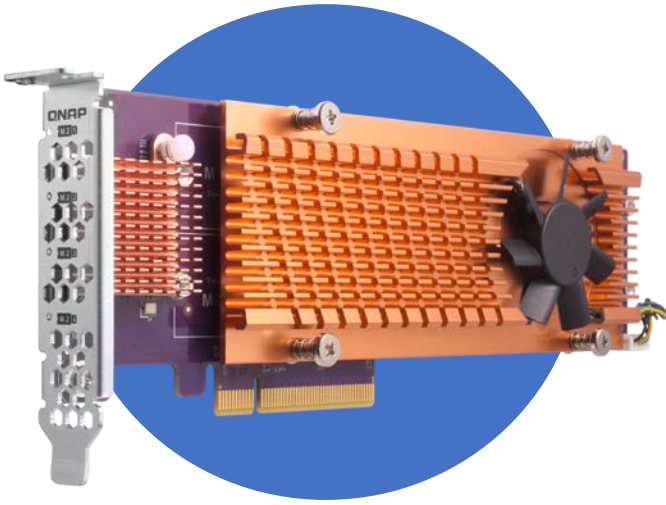


QM2-4P-342 (3.0 x4 card)

4 x M.2 2280 PCIe 3.0 x2 NVMe SSD ports

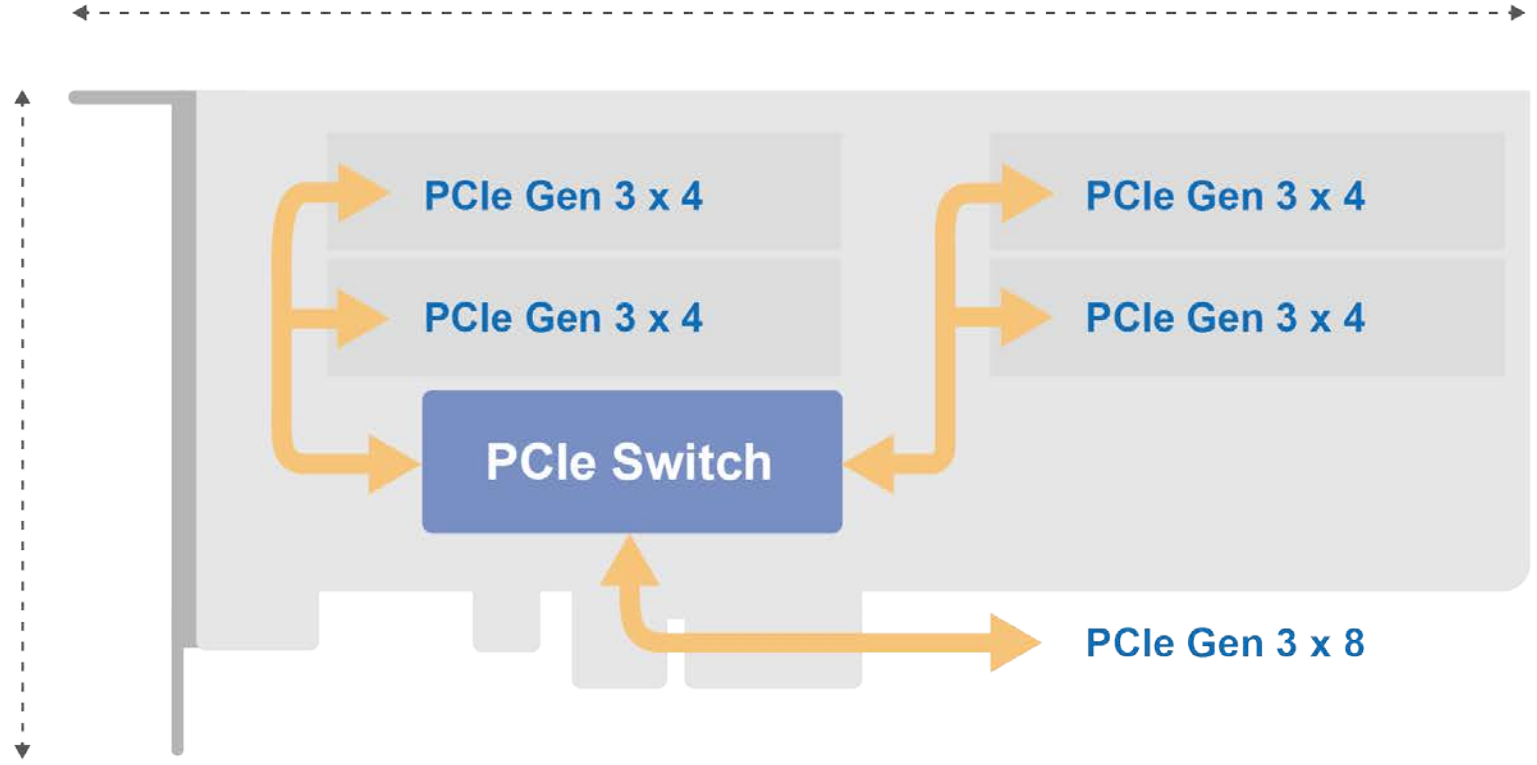


QM2-4P-384 PCIe 3.0 x8 card: 4 x NVMe SSD



68.9mm

204.95mm



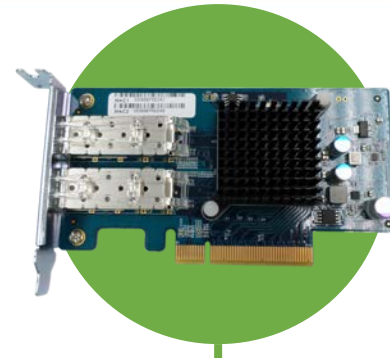
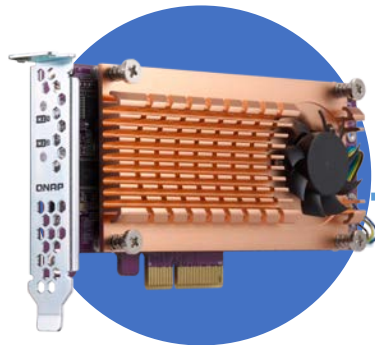
QM2-4P-384A (3.0 x8 card)

4 x M.2 2280 PCIe 3.0 x4 NVMe SSD ports

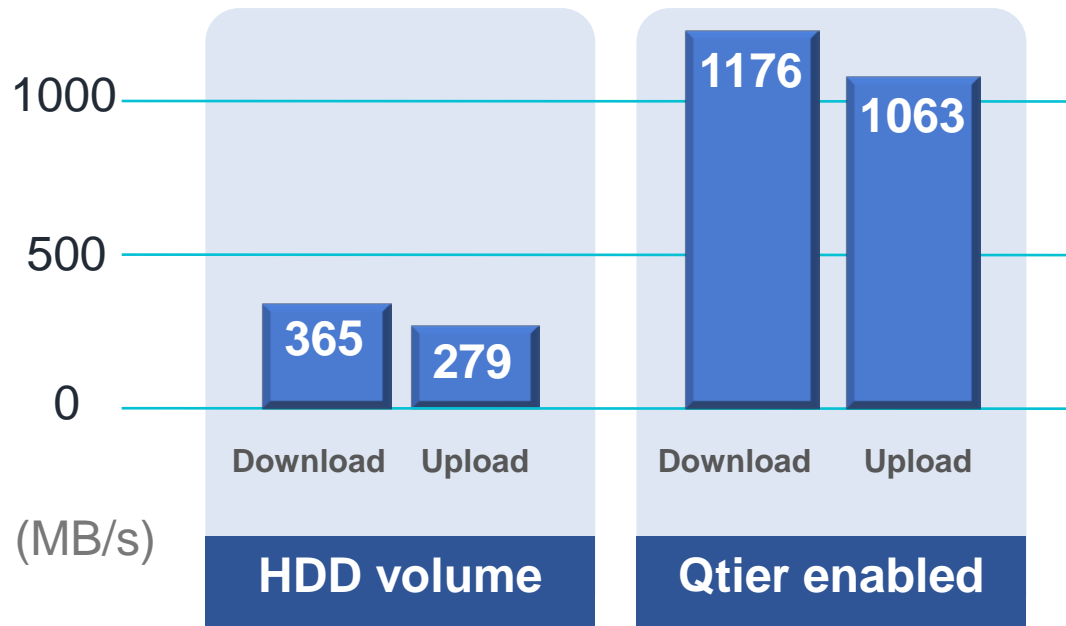


Performance demo: PCIe 3.0 NAS with a QM2 installed

Install a QM2-2P-384
at PCIe 3.0 x8 slot



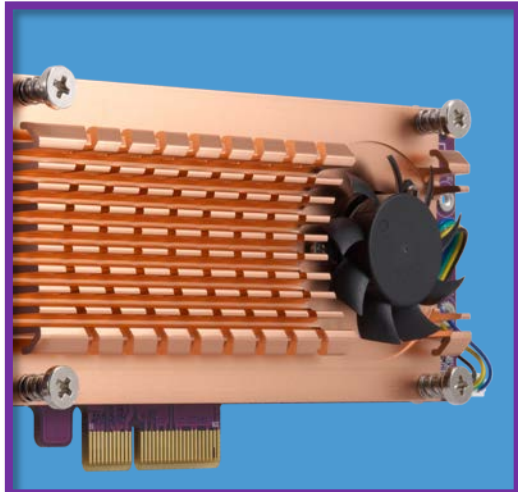
Install a LAN-10G2SF-MLX
at PCIe 2.0 x4 slot



Tested in the QNAP lab. Actual results may vary by environments.
Test environment:
NAS operating system: QTS 4.3
Volume type: RAID 5; 4 x Seagate Enterprise HDD 1TB

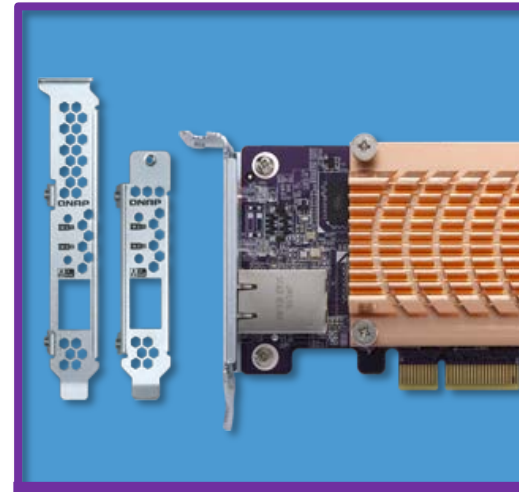
Client PC:
Intel® Core™ i7-4770 3.40GHz CPU; 16GB
RAM; Intel 10GbE NIC ; Windows® 10 64-bit;
10GB file transfer by Robocopy

3rd party operating system support



Active cooling module

Self-monitored with thermal sensors to control the speed of smart fan modules.



Compliant with PCIe standards

Low-profile PCIe add-on cards, bundled with full-height bracket.

Select the QM2 card you need



M.2 SATA

QM2-2S
QM2-2S-220A

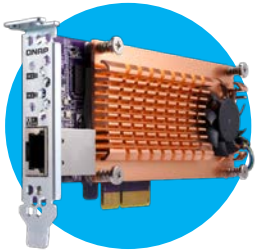
M.2 PCIe Gen 2

QM2-2P
QM2-2P-244A

M.2 PCIe Gen 3

QM2-2P-344
QM2-2P-384

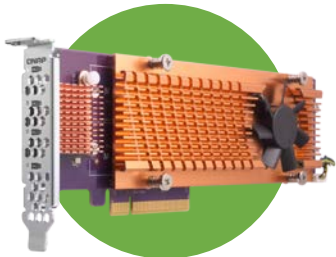
Support 10GBASE-T port



QM2-2S10G1T

QM2-2P10G1T

Expand four M.2 ports



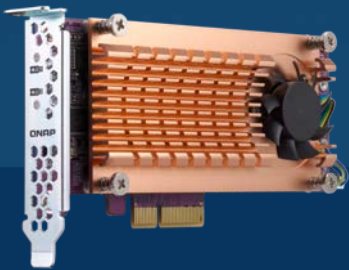
QM2-4S-240

QM2-4P-284

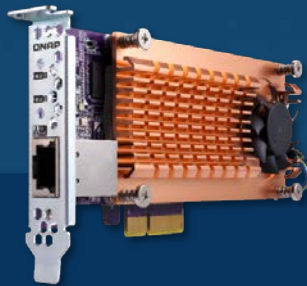
QM2-4P-342
QM2-4P-384A

QNAP

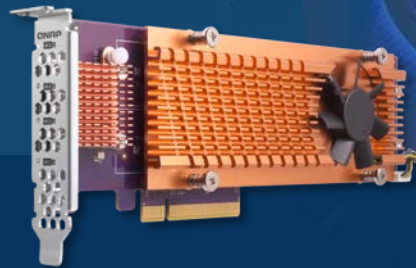
Transform your NAS with QM2 expansion cards



QM2-2S, QM2-2P
QM2-2S-220A, QM2-2P-244A
QM2-2P-344, QM2-2P-384



QM2-2S10G1T
QM2-2P10G1T



QM2-4S-240, QM2-4P-284
QM2-4P-342, QM2-4P-384A