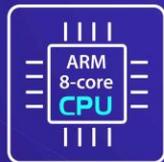
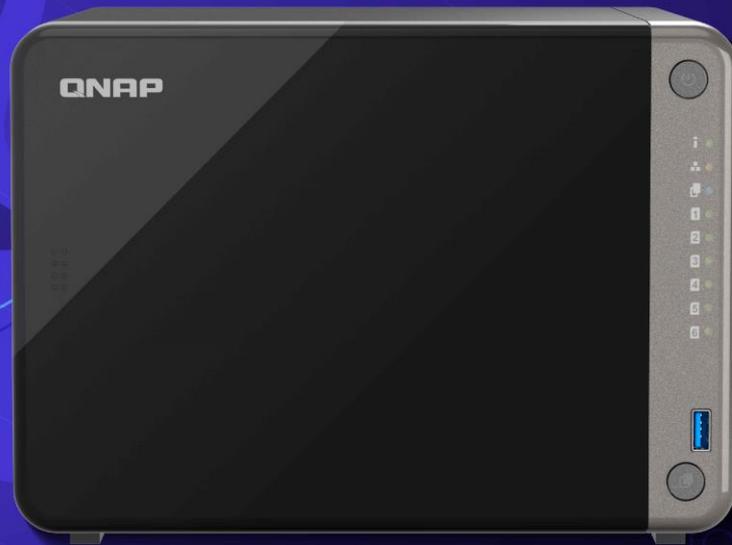


QNAP

6-bay 2.5GbE AI NAS

TS-AI642

With a built-in NPU for business surveillance and AI storage solutions



8-core TS-AI642 AI NAS features



NPU AI acceleration

Built-in 6 TOPS NPU enables accelerated AI applications



2.5 GbE + Dual 1 GbE

2.5GbE and dual 1 GbE RJ45 network ports for fast data transfer



PCIe Gen3 expansion

1 of PCIe Gen3 x2 slot for adding 10GbE connectivity or JBOD capacity expansion



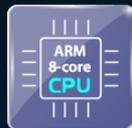
Dual 4K HDMI output

Dual HDMI outputs for surveillance video monitoring and playback



8GB memory

Abundant memory for running multiple NAS applications smoothly



ARM 8-core processor

High performance and energy-saving, suitable for business data backup and surveillance.



2023 is the starting year of Edge AI

According to Abhijit Roy, author of the AFT Media 2023.1.3 forum, 2023 will be the year of Edge AI. Due to continuous supply chain challenges, labor shortages, and economic uncertainties in recent years, companies have reassessed budgets for new technologies. Artificial intelligence (AI) is seen as a solution. According to IBM research, 35% of companies use artificial intelligence in their business. Edge AI use cases can help improve efficiency and reduce costs, making them a compelling place to attract new investment. For example, supermarkets and big box stores invest heavily in artificial intelligence to reduce losses from theft and human error.
Link: <https://autofintechs.com/2023-will-be-the-year-of-edge-ai/>



**increase
efficiency**



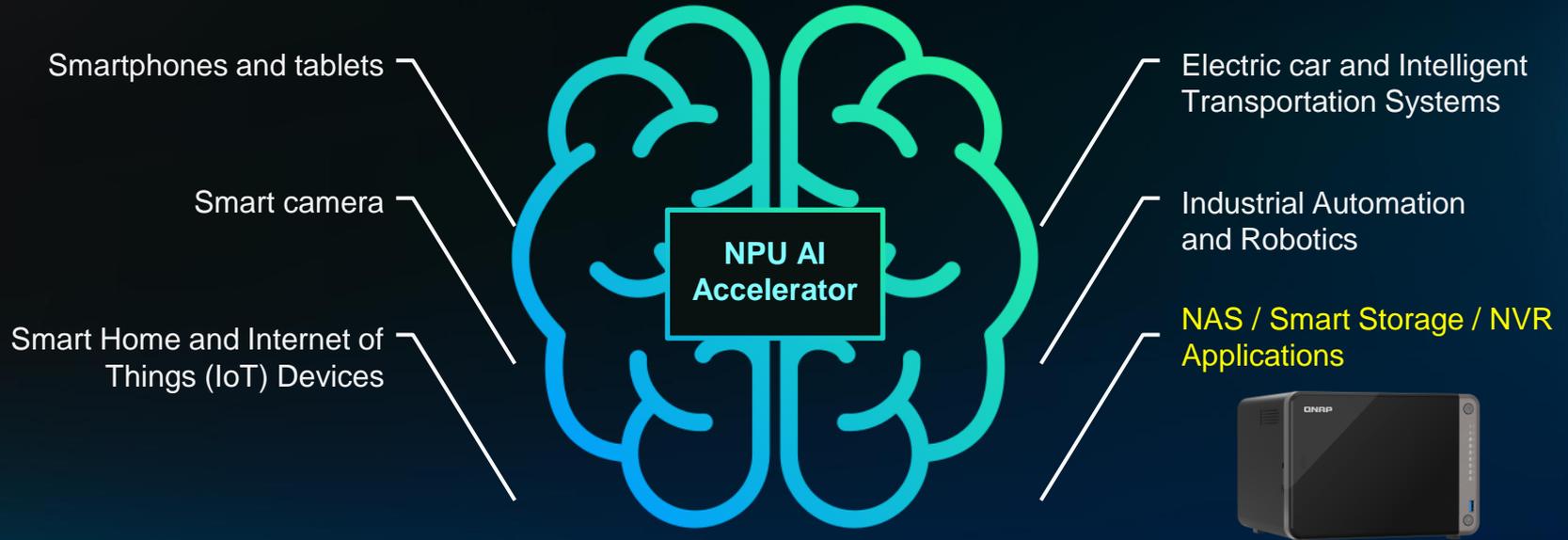
**reduce
cost**



**reduce
human error**

Accelerating the future: the next puzzle of the NPU applications

NPU is a processor specially designed to accelerate neural network operations. It has the characteristics of high performance and low power consumption. It is optimized for AI operations. It is widely used in various fields, such as image and video recognition, speech recognition, human Face recognition, object detection, smart cameras, autonomous driving, human-machine collaboration, and other applications that can be said to be diverse. Still, they are rarely mentioned in the field of network storage monitoring. QNAP NAS TS-AI642 has a high-performance ARM 8-core CPU and a built-in NPU with 6 TOPS computing power, which will meet the next puzzle of enterprise network storage and monitoring applications.



6-bay TS-AI642 NAS operates 25% more energy-efficient compared to TS-664.



Energy saving 25%

The TS-AI642 NAS features an energy-efficient ARM 8-core processor supporting up to 6 hard drives, operating at just 33 watts. Compared to the x86 platform NAS(TS-664), it saves 25% of power consumption, making it the ideal eco-friendly and energy-efficient choice for office or personal workspace data storage.

* Installed 6 x WD10EFRX.



2.5GbE + dual 1GbE network ports to provide the high bandwidth needed by businesses



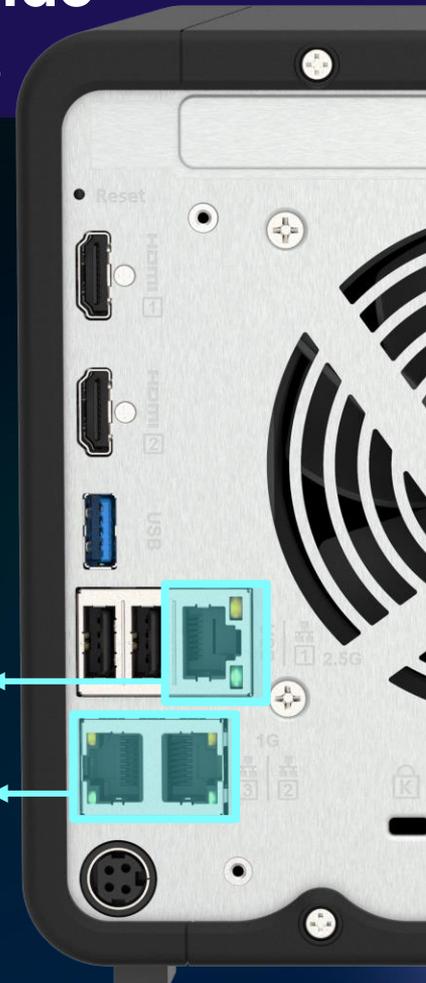
1 x 2.5GbE



2 x 1GbE

Upgrade to 2.5 GbE high-speed network

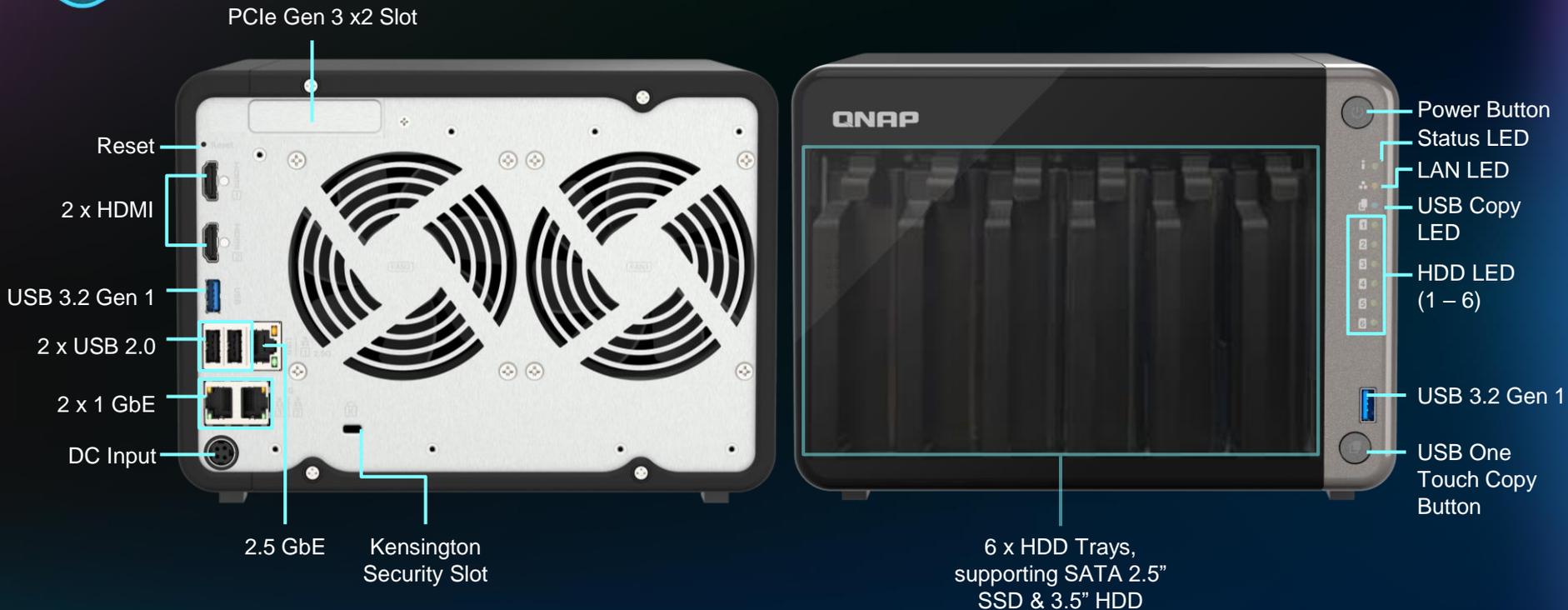
The old 1GbE network no longer meets the increasing data transmission and storage needs in the office. In addition to the 2 x 1GbE ports, the TS-AI642 NAS also has 1 x 2.5GbE port for users to increase data transmission speed.



Use QNAP 2.5GbE switches for the max performance
<https://www.qnap.com/zh-tw/product/series/qsw-2-5gbe-switches>



LED Indicators and I/O



QVR AI monitoring-related software

QNAP Surveillance apps for the NAS



QVR Elite

The flexible subscription-based surveillance system



QVR Pro

Designed for business users with 8 free channels



QVR Human

A real-time people-counting solution



QVR Face Insight

A facial recognition solution for door access and attendance management



QVR Pro Client

Multi-channel monitoring on computers (Windows, macOS) or mobile devices (Android, iOS)

QVR AI Pack



QVR Smart Search

Through computer or NAS HDMI to search for events in a specific time interval and designated area.



QVR Smart Client

Directly output the monitoring screen through the NAS HDMI. No need for an extra computer.



QVR Elite / QVR Pro

Smart security surveillance solution



QVR Elite

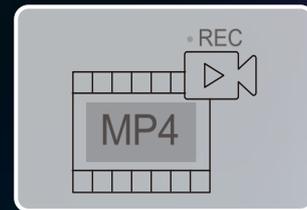
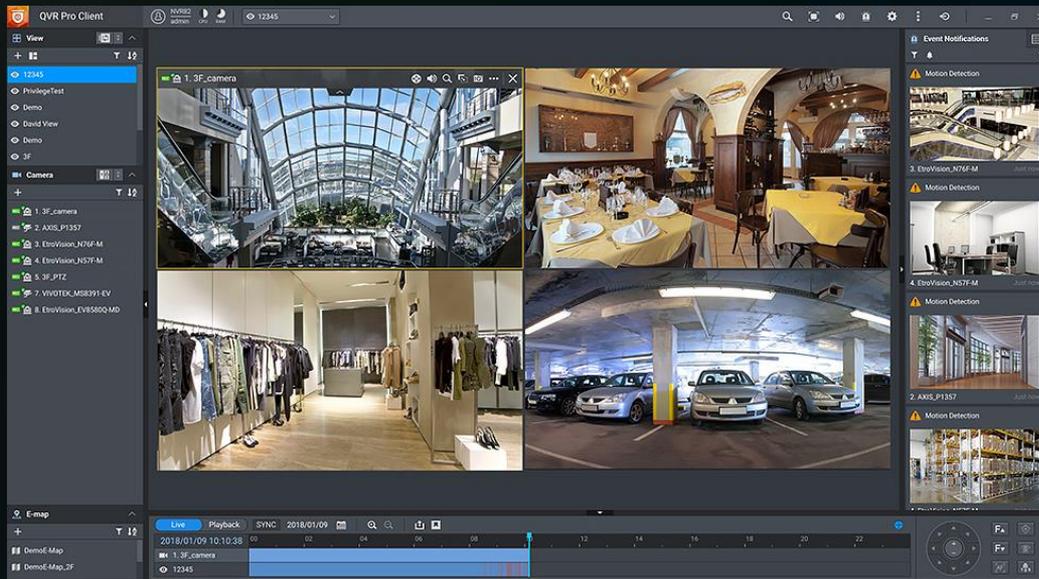


QVR Pro



TS-AI642

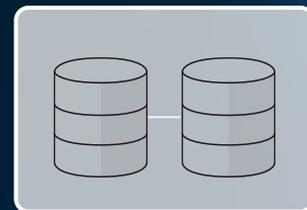
- QVR Elite: 2 camera channels for free, up to 64 channels with licenses.
- QVR Pro: 8 camera channels for free, up to 36 channels with licenses.



Standard MP4 format



Flexible subscription plan



Easy to expand storage capacity

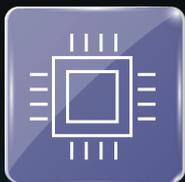
QVR Face Insight for facial recognition



TS-AI642 has an NPU AI accelerator, making it suitable for running QVR Face Insight facial recognition

The AI facial recognition solution, QVR Face Insight, can be integrated into smart offices, residential communities, research institutions, and retail stores to provide intelligent attendance management, door access control management, VIP welcome systems and smart retail services.

- Simultaneous Multi-Channel Analytics
- Mask detection and facial recognition in one solution
- Identity authentication made easy with profile database



Real-Time Facial Recognition and Analytics



NPU AI acceleration



Door access 3 channels / attendance management 10 channels



- QVR Elite supports 2 monitoring channels for free, and you can choose to pay to subscribe to more channels
- QVR Face Insight supports 1 authorized channel for free, and you can purchase licenses up to 4 channels



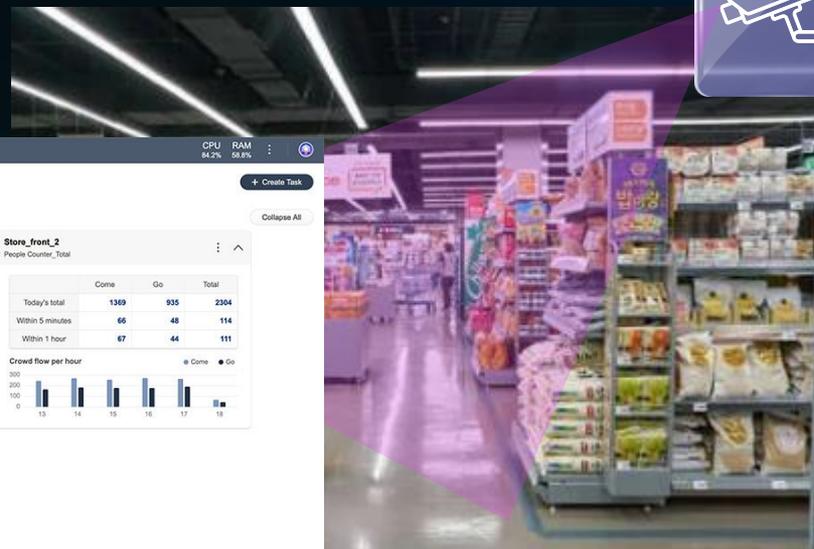
QVR Human people counting solution, supports up to 3 channels

Grow your business through effective customer footfall analytics with TS-AI642's NPU AI acceleration. QVR Human analyzes live video streams from various sources (including RTSP, QVR Pro, or QVR Elite servers), enabling you to streamline your surveillance systems. Event notifications can be set and sent when the number of indoor occupants reaches the upper limit.

- Cross-line Counting
- Area Density



Restaurant

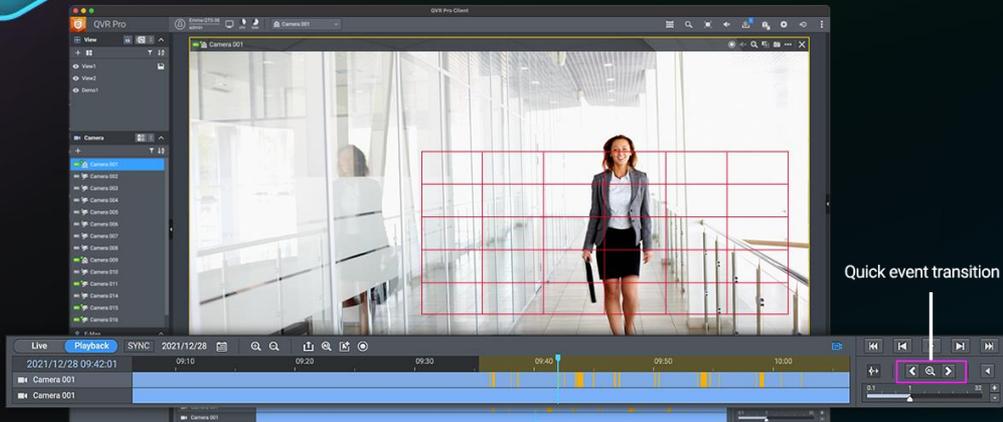


Retail store

- QVR Human offers a 1-month free trial with 2 channels. You can subscribe and add licensed channels.

QVR AI Pack

*QVR AI Pack requires a license purchase.



**QVR
Smart Search**



**QVR
Pro Client**

Display the monitoring screen on the computer or NAS with HDMI:

- Find the event images of the monitoring environment in a specific period and within a specified range.
- Use AI to avoid the manual search. In the timeline, quickly identify when the search event occurred.
- Conveniently view individual search events with a forward/backward switch key.



Motion search

Detect any movement in an area



Missing objects

Detect any missing object in an area



Foreign objects

Detect any foreign object in an area



Camera occlusion

Detect if the camera view is blocked



Human search

Detect any human body in an area (supports advanced search by clothing color)



Vehicle search

Detect any car body in an area (supports advanced search by color and vehicle type)

TS-AI642 is compatible with a large number of IP camera models



More than **180 brands**

 GeoVision

 **VIVOTEK**
BUILT WITH RELIABILITY

 Panasonic

 **AXIS**
COMMUNICATIONS

 MOBOTIX

 Canon

 **HIKVISION**

 **aHua**
TECHNOLOGY

 Honeywell

 **Brickcom**

More than **6700 models**



ONVIF Profile support



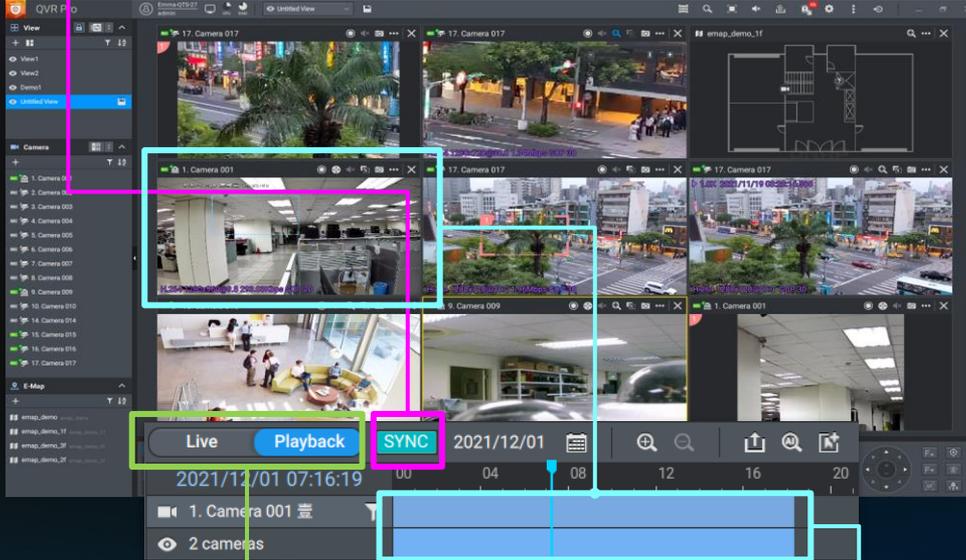
RTSP stream
Input / output

RTMP stream
Input

Intuitive interface for monitoring and playback simultaneously

Watch real-time video footage and control the playback through QVR Pro Client.

One-click to show all cameras on the screen at the same time



Switch between monitoring and playback with one-click

You can view past videos through the timeline



QVR Pro Client

Mobile Device Recording and Playback

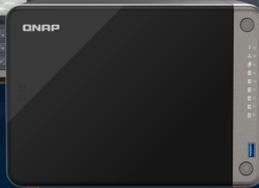
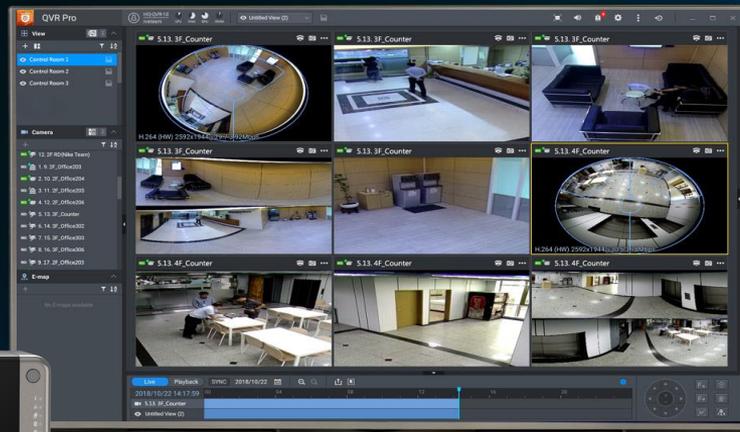
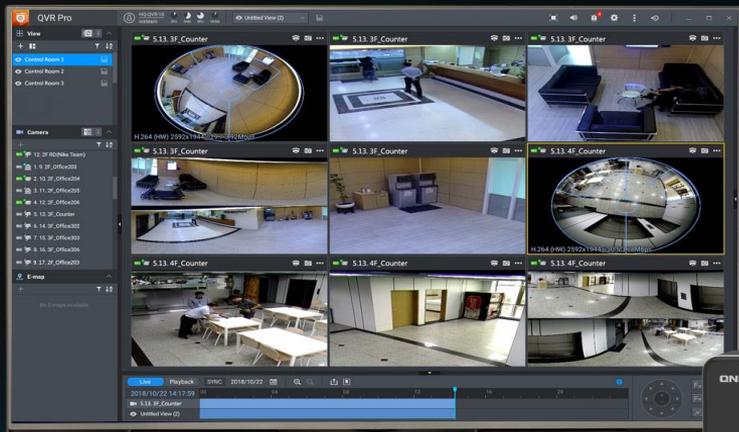
The QVR Pro Client client can be installed on Mac®, Windows®, and mobile devices, allowing you to use various devices flexibly to monitor the overall situation at any time.



TS-AI642: Built-in GPU with Dual HDMI Monitor Outputs, Accelerated Video Transcoding for Improved Compatibility and Storage Efficiency



The TS-AI642 has a built-in ARM Mali-G610 MC4 GPU, providing dual 4K HDMI outputs. Additionally, it offers video transcoding acceleration, ensuring smoother streaming transmission and improved compatibility for various platforms. Converting videos to H.264/H.265 also enhances storage efficiency.



QNAP 6-bay NAS comparison



CPU	8-core (4C Cortex-A76 2.2 GHz and 4C Cortex-A55 1.8GHz)	Intel® Celeron® N5095 4-core/4-thread processor, burst up to 2.9 GHz	AMD Ryzen™ Embedded V1500B 4-core/8-thread 2.2 GHz processor
RAM	8 GB on board (non-expandable)	8 GB on board (non-expandable)	1 x 8GB DDR4 SODIMM, 2 slots, maximum 64GB, support ECC
NPU	6 TOPS	x	x
Drive Bay	6 x 3.5 / 2.5-inch, SATA 6Gb/s	6 x 3.5 / 2.5-inch, SATA 6Gb/s	6 x 3.5 / 2.5-inch, SATA 6Gb/s
HDMI	2 x 4K HDMI 1.4b	1 x 4K HDMI 2.0	Optional via a PCIe adapter
M.2 NVMe	Optional	2 x M.2 2280 PCIe Gen 3 x1	2 x M.2 2280 PCIe Gen3 x1
USB	USB 3.2 Gen1 (1 x rear, 1 x front) 2 x rear USB 2.0	2 x USB 3.2 Gen3 x2 2 x USB 2.0	3 x USB 3.2 Gen 2 1 x USB 3.2 Gen1
1 GbE	2	x	x
2.5 GbE	1	2	2
10 GbE / 5 GbE	Optional via a PCIe adapter	Optional via a PCIe adapter	Optional via a PCIe adapter
Recommended expansion enclosure	1 x TL-D1600S / 1 x TL-R1200C-RP	1 x TL-D1600S / 2 x TL-R1200C-RP	2 x TL-D1600S / 2 x TL-R1200C-RP / 2 x TL-R1620Sep-RP
Power	Adapter 120W	Adapter 120W	Power supply 250W
Dimensions (HxWxD)	168(H) × 235(W) × 226(D) mm	168(H) × 235(W) × 226(D) mm	168 × 235 × 226 mm
PCIe Slot	1 x PCIe Gen 3 x2	1 x PCIe Gen 3 x2	2 x PCIe Gen 3 x4

NPU accelerates Qsirch 5.3.0 new AI OCR for search and capture text in images



AI OCR Live Text Detection

Find and select the image you need, and click on “Live Text Detection” to copy and download text files (.txt format) from images for further usage

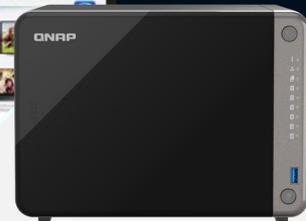
Smart keywords

Qsirch recommends using more keywords based on your keyword search results, enabling you to search for files more precisely

Similar files

Looking for similar files through Qsirch is an easy thing. It makes searching no longer like a journey but instead an easy walk.

A composite image showing the Qsirch 5.3.0 interface. The top part is a 'Text Detection' window with a search bar set to 'Japanese + English' and a list of options: '一方方向同期', '双方向同期', 'フィルタリング', 'スマートダウンロード', and '省スペースモード'. Below this is a search results page for 'president' with a grid of news thumbnails. A large white arrow points from the search results towards the right, where a QNAP TS-AI642 NAS device is shown. A large blue arrow points from the NAS towards the bottom right, where a magnifying glass icon is overlaid with a green circular arrow and the text '20%'.



Built-in NPU in TS-AI642 can increase AI OCR recognition speed by 20%

20%





TS-AI642: Built-in NPU for 2x Faster AI Image Recognition Speed

TS-AI642: Built-in Neural Network Processor Boosts AI Album Recognition Speed by 2x

TS-AI642 supports QuMagie AI Album, doubling AI recognition speed compared to similar models, enhancing overall performance, and accelerating your smart life.

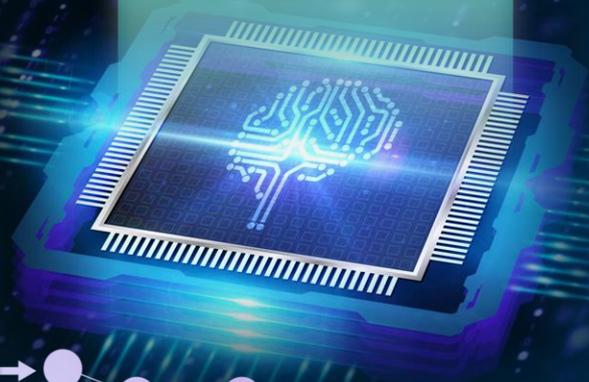
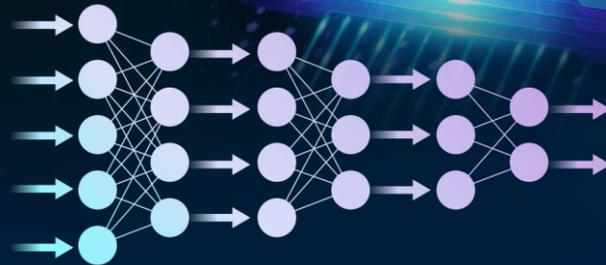
Neural Network AI model

Through the independent NPU processor, run the image recognition AI model to make the image classification operation faster



QuMagie

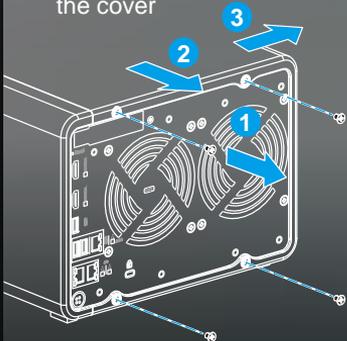
AI Image recognition speed increased by 2 times



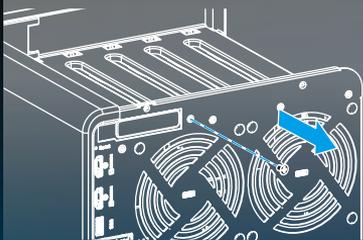
TS-AI642 PCIe slot Gen 3 x2 speed

TS-AI642 supports an optional 10GbE network card for fast transfer speed. In addition, it also supports the QNAP QM2 M.2 SSD expansion cards and the TL SATA JBOD series, providing businesses with options to upgrade network transmission speed and expand capacity. The installation steps are as follows:

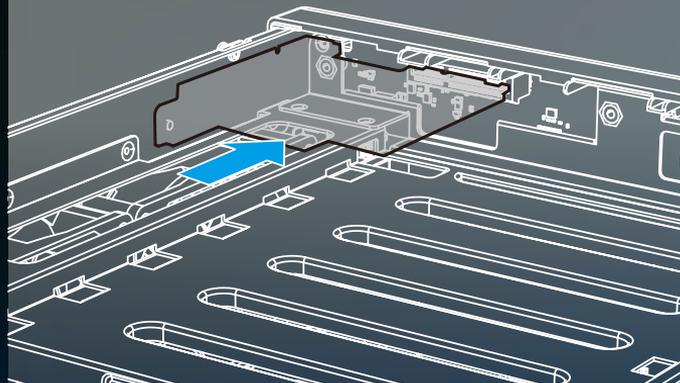
- 1 Remove the rear screws and remove the cover



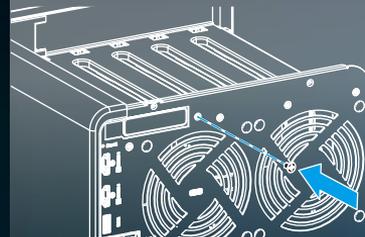
- 2 Remove the PCIe bracket screw



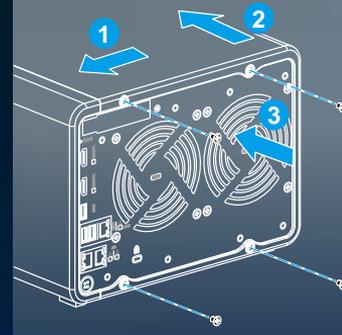
- 3 Insert a compatible expansion card



- 4 Tighten PCIe bracket screws



- 5 Install the cover and tighten the screws to complete the installation



Various QNAP 2.5GbE/5GbE/10GbE network expansion cards for the PCIe slot

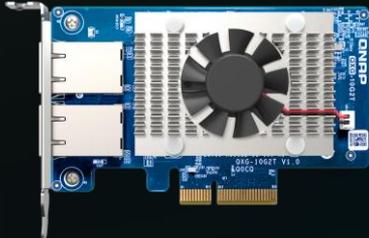


10GbE expansion card

COMING SOON

QXG-10G2T

2 x RJ45



BEST VALUE

QXG-10G1T

1 x RJ45



5GbE expansion card

QXG-5G1T-111C

QXG-5G2T-111C

QXG-5G4T-111C

1/2/4 x RJ45



2.5GbE expansion card

QXG-2G1T-I225

QXG-2G2T-I225

QXG-2G4T-I225

1/2/4 x RJ45



more...

Please refer to the Compatibility List
<https://www.qnap.com/go/compatibility/>

QNAP 2.5GbE & 10GbE switches



QSW-1108-8T (unmanaged)



8 x 2.5G
RJ45 Multi-Gig

Fanless and metal case

Scale up to 2.5GbE without replacing existing cabling

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



QSW-1208-8C (unmanaged)

8 x 10G/5G/2.5G
RJ45 Multi-Gig



QSW-308-1C (unmanaged)

1 x 10G/5G/2.5G
RJ45 Multi-Gig



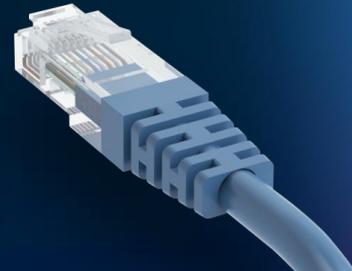
QSW-M408-4C (unmanaged)

4 x 10G/5G/2.5G
RJ45 Multi-Gig



QSW-M2108R-2C (half-width unmanaged)

2 x 10G/5G/2.5G
RJ45 Multi-Gig



Add more storage space with QNAP JBOD & RAID storage expansion enclosures



TL-D800C 8-bay
Desktop USB 3.2 Gen 2 JBOD



TL-D400S 4-bay
Desktop SATA JBOD



TL-R1200C 12-bay
Rackmount USB 3.2 Gen 2 JBOD
Support redundant power supply



TR-002 2-bay
Desktop USB 3.2 Gen 2 JBOD
Support hardware RAID



TR-004 4-bay
Desktop USB 3.2 Gen 1 JBOD
Support hardware RAID



TR-004U 4-bay
Rackmount USB 3.2 Gen 1 JBOD
Support hardware RAID



TL-D800S 8-bay
Desktop SATA JBOD



TL-D1600S 16-bay
Desktop SATA JBOD



TL-R1200S 12-bay
Rackmount SATA JBOD
Support redundant power supply

TS-AI642 supports the maximum number of JBODs

TL-D800C	1
TL-R1200C-RP	1
TR-002	2
TR-004	2
TR-004U	2
TL-D400S	1
TL-D800S	1
TL-D1600S	1
TL-R1200S-RP	1

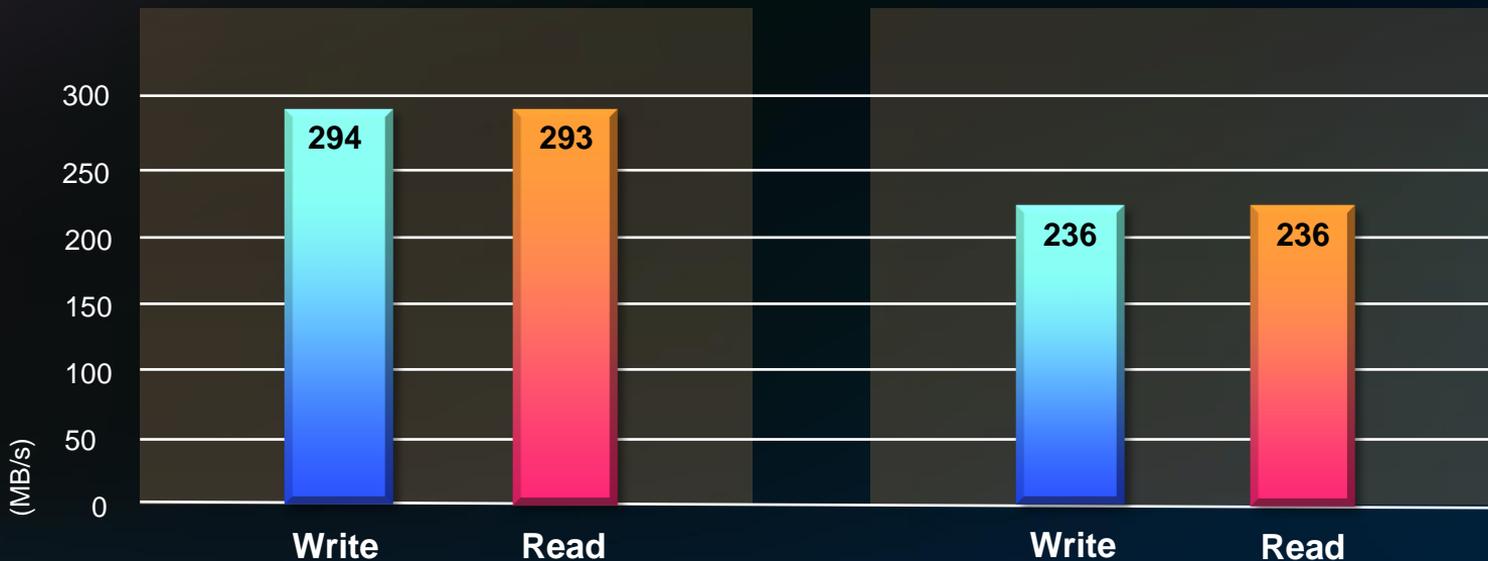
The maximum quantity supported is calculated based on a single model, excluding mixed-use.

2.5GbE for 10GB file transfer performance



2.5GbE Windows file transfer (10GB)

2 x 1GbE Windows file transfer (10GB)



Environment:
NAS | TS-A1642, QTS 5.0.1, 6 x Samsung 860 EVO 1TB, RAID 5
PC | Windows Server 2019 Standard, AMD EPYC 7232P 3.0GHz, DDR4 64GB, Onboard Intel I225

Tested in QNAP Labs. Figures may vary by environment.

10GbE for Throughput Performance Test



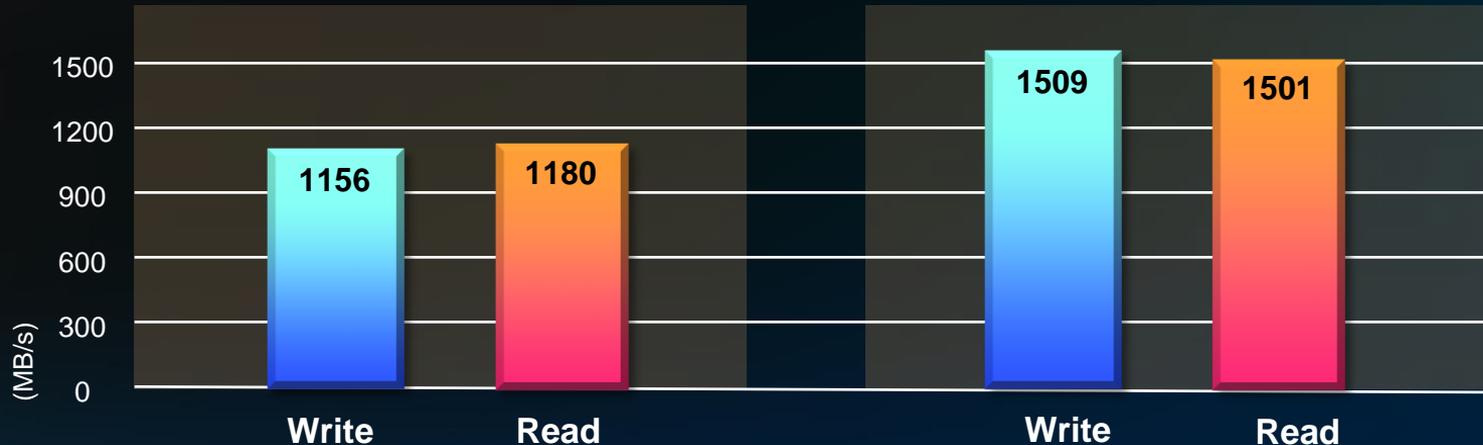
QXG-10G1T

1 x 10GbE SMB Throughput



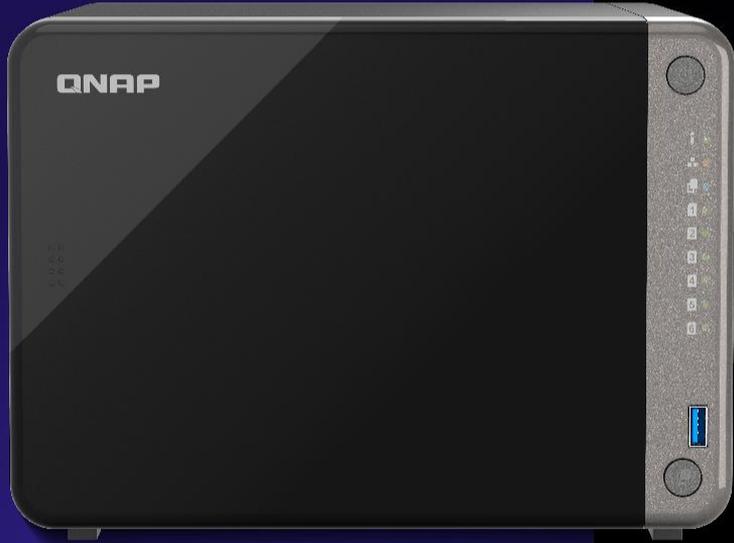
QXG-10G2TB

2 x 10GbE SMB Throughput



Environment:
NAS | TS-AI642, QTS 5.0.1, 6 x Samsung 860 EVO 1TB, RAID 5 with QXG-10G1T or QXG-10G2TB
PC | Windows Server 2019 Standard, AMD EPYC 7232P 3.0GHz, DDR4 64GB, with LAN-10G2T-X550

Tested in QNAP Labs. Figures may vary by environment.



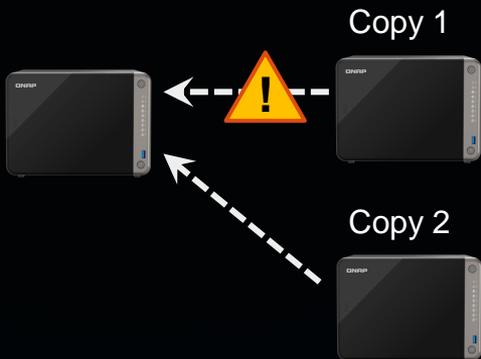
**LIVE
DEMO**

Backup 3-2-1



The storage industry commonly solution are used three copies of data, two media types, and one copy of the off-site backup.

3 Data copies



2 Media type



1 Offsite copy



DA Drive Analyzer disk failure prediction



Each NAS can perform one disk failure prediction for free, and additional disks can pay a subscription to strengthen protection.

The screenshot shows the DA Drive Analyzer dashboard. The top navigation bar includes 'Overview', 'Drive Prediction', 'Email Alerts', 'Additional Information', and 'Prediction History'. The main content area is titled 'Overview' and displays a summary of drive health. It shows 5 Faulty drives (90% risk of failure), 4 Critical drives (70% risk of failure), 9 Warning drives (70% risk of failure), and 1 Normal drive. A 'Data Analysis in Progress' indicator shows 0 drives. Below this, an 'Important: Review Drive Status' section lists 18 drives with their severity levels, manufacturers, and capacities. A 'License' section indicates the license plan is BETA and valid until 2022-02-18.

Drive (Drive Enclosure)	Severity Level	Drive Manufacturer	Drive Capacity
Disk 1 (NAS Host)	Warning	ST320LM001	298.09 GB
Disk 2 (NAS Host)	Warning	WDC	298.09 GB
Disk 4 (NAS Host)	Faulty	ST320LM001	298.09 GB
Disk 7 (NAS Host)	Warning	TOSHIBA	298.09 GB
Disk 8 (NAS Host)	Critical	WDC	298.09 GB
Disk 9 (NAS Host)	Faulty	TOSHIBA	298.09 GB

Disk Health Analysis and Failure Prediction

DA Drive Analyzer integrates ULINK cloud AI machine learning inference technology, which can notify you before disk failure, helping you prevent data loss or downtime loss caused by unexpected disk damage.

Comprehensive NAS Security Protection

QuFirewall



Protect your NAS from external attacks. You can set rules to allow/deny IP addresses and regions to prevent unauthorized access and brute force attacks for safeguarding data and service security.

The screenshot shows the QuFirewall management interface. On the left, there is a sidebar with navigation options: Firewall Profiles, Event Counts, Capture Events, and Notification Settings. The main content area displays 'Firewall Profiles : 3' and a table of profiles. A 'Basic protection' profile is highlighted as 'Enabled'. Below the table, there is a notification stating 'QuFirewall has denied access to 1 events in the last 24 hours.' and a 'Firewall ON' toggle switch.

Profile Name	Rules	Action
> <input checked="" type="checkbox"/> Basic protection Enabled	6	
> <input type="checkbox"/> Include subnets only	4	
> <input type="checkbox"/> Restricted security	40	

Malware Remover



Regularly scan and remove malware from your NAS. For worry-free NAS data security, it is strongly recommended to enable auto-system scanning to ensure your important data is well protected.

The screenshot shows the Malware Remover management interface. On the left, there is a sidebar with navigation options: Scan, Settings, and Event Logs. The main content area features a large 'Start Scan' button with a blue circular icon containing a white stethoscope. Below this, there are two columns of status information: 'Scheduled Scan' (Daily, 03:00) and 'Last Scan' (20 second(s) ago), as well as 'Instant scan after malware definition updates' (Enabled) and 'Last Scan Status' (Scan Complete).

Qfiling simplified file organization

Qfiling automates your file organization. All you need to do is categorize your files, set a schedule, and Qfiling will do the rest. It's easy, smart, and efficient!



Customized flexibility

Customize the file organization rules according to the needs, and can do batch editing for multiple files at the same time.



Increase efficiency

Schedule or set real-time tasks



Easily monitoring

System records and file organization status are apparent.



The screenshot displays the Qfiling Premium interface. On the left is a navigation menu with options: Overview, Task List, Recipe Library, and System Logs. The main content area is titled 'Task Status' and features three circular progress indicators for different task types:

- One-time task:** Total 4. Sub-status: Completed 2, Running 1, Queued 1.
- Scheduled task:** Total 3. Sub-status: Completed 1, Running 1, Queued 1.
- Real-time task:** Total 1. Sub-status: Monitoring the ... 1.

Below the task status is a section for 'File Editing Modules' with the following options:

- Video Transcoding (For videos)
- Subtitle Pairing (For videos)
- Encryption & Decryption (For all files)
- Compression (For all files)
- Watermark (For images and videos)
- Resize (For images)
- Convert (For images)
- Face Blur (For images)
- Image2PDF (For images)

Support video streaming and is suitable as a multimedia server

Various multimedia files can be easily centrally stored, such as photos, music, and video. Enjoy your NAS collections on your phone, tablet, or TV.



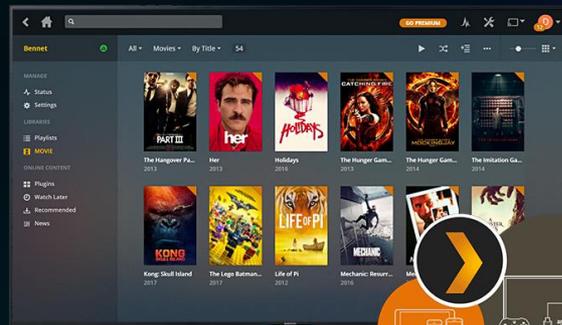
Stream/Transform Multimedia to Various AV Devices with Plex



Play via Qmedia on Apple TV/Fire TV/Roku/Android TV



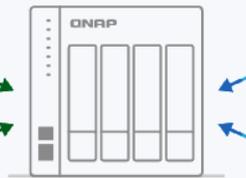
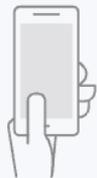
QuMagie smart album, automatic face recognition, and object classification



Qsync cross-device file synchronization technology for individual and team collaboration

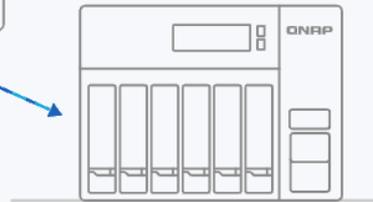
Qsync allows you to conveniently synchronize real-time files between your QNAP NAS and bound devices, suitable for desktops, laptops, and mobile devices. As a result, you can access the newest data on all your devices and easily share it with your work team or family members.

Centralized management of binding devices to improve security and management efficiency



NAS installed
Qsync Central
App

Sync files to other NAS or cloud with Hybrid Backup Sync



- Central control mode and user-defined mode flexible configuration
- Up to 64 version-controlled, restore data at any time
- Remote erase to delete synced files from lost devices

Lighter and faster VPN service

- The new QVPN supports **WireGuard VPN**, which is lighter, easier to set up, supports multiple user platforms, and greatly improves the speed. It is an essential tool for enterprise.
- The Kernel layer processes the VPN encrypt packet directly, and the transmission speed is faster.
- Login with key only. (No general account management)


WIREGUARD
FAST, MODERN, SECURE VPN TUNNEL



Support
10GbE card



8 Core

ARM 4-core Cortex-A76 2.2 GHz +
4-core Cortex-A55 1.8 GHz

96

TB
Raw
capacity



1 PCIe Gen3 x2
expansion slot

QTS

Support
QTS 5.1.0 or above

64



Up to 64 monitoring
channels

Expansion
of various
JBOD

TS-AI642



Built-in 6 TOPS
NPU accelerated
computing

Energy-efficient,
operates at only
33W



Qsirch AI OCR live text
detection support



Built-in 1 x 2.5GbE
2 x 1GbE

8GB Memory



QVR Elite
Surveillance
solution

QuMagie

Face recognition
3 times faster



Support 6-bay SATA
2.5" SSD / 2.5" HDD /
3.5" HDD

HDMI

HDMI

Dual
HDMI

Extended Warranty for up to 5 years



The TS-A1642 comes with a free **3-year** standard warranty. If you require a longer warranty period, you can purchase QNAP's extended warranty service plan, which provides a maximum of 5 years of product warranty and protection.



Extended warranty P/N:
LIC-NAS-EXTW-ORANGE-2Y (Physical packaging)
LIC-NAS-EXTW-ORANGE-2Y-EI (Software Store)

QNAP

6-bay 2.5GbE AI NAS

TS-AI642

A versatile and reliable partner for enterprise AI storage solutions

