

TVS-471U

4-Bay rack mount Turbo NAS

An Affordable, 4-bay high performance unified storage



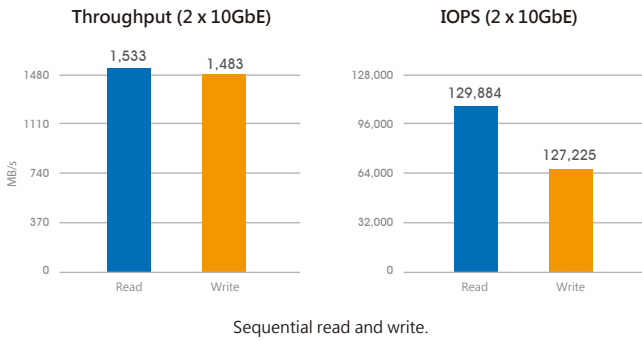
- ◆ 1,500+ MB/s throughput and 128,000+ IOPS
- ◆ Two internal cache ports for IO acceleration
- ◆ Scalable design, up to 1056TB raw capacity
- ◆ Virtualization-ready, centralized data storage, backup, sharing and disaster recovery



Power. Reliability. Expandability.

■ Breakthrough performance

The TVS-471U supports SATA 6Gbps hard drives driving over 1,533 MB/s throughput and 129,884 IOPS. The TVS-471U is powered by an Intel® Haswell processor with numerous options including Pentium® and Core™ i3 for users to flexibly choose based on their demands, greatly enhancing the efficiency of CPU-consuming tasks and serving more concurrent tasks at the same time.



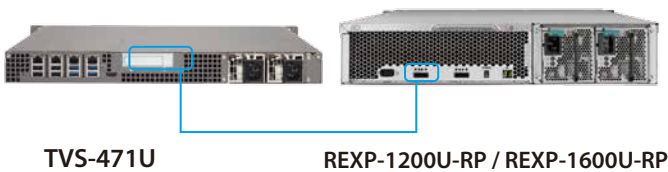
Tested in QNAP Labs. Figures may vary by environment.

Test Environment

2 Client PC configuration: Intel(R) Core(TM) i7-2600 CPU, 16GB DDR3 RAM, Windows 7 professional 64-bit, Dual-port Intel X520 10GbE Server Adapter, IOMeter sequential read and write. NAS configurations: TVS-471U-i3, Plexstor PX-256MPro SSDs with RAID 5 configuration, QNAP LAN-10G2T-U dual-port 10GBase-T network adapter*2

■ Seamless capacity expansion

The TVS-471U offers a high performance yet affordable storage solution to fulfill the needs of businesses for archiving rapidly-growing data & large files. The TVS-471U supports capacity expansion by connecting multiple QNAP expansion enclosures. With the QNAP scale-up solution, the raw storage capacity can be expanded on demand, making the TVS-471U an ideal file center for storage-intensive business applications such as video surveillance, data archiving, TV broadcast storage, and more.



Turbo NAS Model	RAID Expansion Enclosure	No. of RAID Expansion Enclosure	Total HDD No. (NAS + Enclosure)	Max. Raw Capacity (TB)*
TVS-471U	REXP-1600U-RP	8	132	1056
		7	116	928
		6	100	800
		5	84	672
		4	68	544
	REXP-1200U-RP	3	52	416
		2	36	288
		1	20	160
		8	100	800
		7	88	704
		6	76	608
		5	64	512
		4	52	416
		3	40	320
		2	28	224
		1	16	128

* The maximum capacity is calculated by using 8TB HDDs.

■ Flexible 10 GbE connectivity

A 10GbE (10 Gigabit Ethernet) network is essential for businesses that demand high bandwidth for virtualization and fast backup and restore for an ever-growing amount of data. The TVS-471U is an affordable and reliable storage solution for deploying a 10GbE environment.



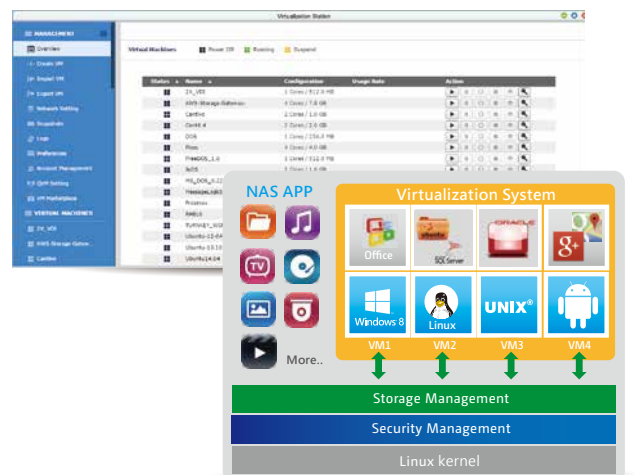
■ QTS - Simple and efficient

Thanks to the intuitive user interface of QTS, system operations of the TVS-471U are smooth and handy. Its intelligent desktop allows you to find desired functions quickly, create desktop shortcuts or group shortcuts, monitor important system information on a real-time basis, and open multiple application windows to run multiple tasks concurrently, bringing greater operating efficiency.



■ Run additional operating systems

The TVS-471U support Virtualization Station, transforming it into a 2-in-a-box device that can function as an all-in-one NAS and a virtualization platform. Virtualization Station supports multiple operating systems, virtual machine (VM) creation, VM import/export, snapshot, and enables desktop operations on web browsers. You can also download VMs on demand from online VM marketplaces and import them to the NAS without any complex procedures.



■ Cross-platform file sharing & centralized data storage

The TVS-471U supports SMB/CIFS, AFP, and NFS protocols for file sharing across Windows®, Mac, Linux/UNIX networks. Data, logs and ISO images of CDs and DVDs can be centrally stored on the TVS-471U and protected by an integrated antivirus solution. The Windows AD and LDAP services enable system administrators to configure user permissions by using an existing Windows AD server, LDAP server or built-in LDAP service. The TVS-471U supports SAMBA v4 and can act as a Windows domain controller to manage privilege settings.



■ Well-rounded backup solutions to secure data

The QNAP NetBak Replicator supports real-time and scheduled data backup on Windows including Outlook email archiving. Apple Time Machine is also supported to provide Mac OS X users with a solution to effortlessly back up data to the TVS-471U.



■ Disaster recovery solutions brings peace of mind

The TVS-471U offers various data recovery options. RTRR (Real-Time Remote Replication) supports real time or scheduled data backup to a remote Turbo NAS or FTP server and synchronizes files to a remote folder from a local folder with better backup efficiency and reduced backup time. The TVS-471U also supports the rsync protocol to back up data to another remote server on a scheduled basis. Data can also be backed up to and restored from a range of cloud storage services, including Amazon® S3/Glacier, OneDrive, Microsoft® Azure, ElephantDrive®, Dropbox® and Google Cloud Storage*.



*Note: The Google Drive and OneDrive support will be provided in the QTS 4.2.0 OS.



■ Internal cache port for IO acceleration

The TVS-471U supports two on-board internal cache ports. By installing mSATA flash modules (optional purchase), the IOPS performance of storage volumes can be remarkably boosted. It is perfect for improving the overall workflow of random IOPS demanding applications such as databases and virtualization. The internal cache port design does not require the space of a hard drive tray to allow for more storage capacity.



*Note: Instead of installing the mSATA in the internal cache port, SSDs can be installed in the hard drive tray.

■ Powerful QNAP flexible volume

QNAP's flexible volume provides a more secure and flexible way to store NAS data. This next-generation volume offers powerful features such as storage pooling with multiple RAID group protection, thin provisioned volumes with space reclaim, block-level iSCSI LUN, and online capacity expansion. The QTS Storage Manager neatly presents tools and options for managing system storage which greatly simplifies the process of NAS capacity expansion and QNAP RAID expansion enclosure management.



■ Storage for comprehensive virtualization applications

The TVS-471U supports VMware® and Citrix®, and is compatible with Microsoft® Hyper-V™ and Windows Server 2012, benefiting flexible deployment and management in the virtualization environments. The TVS-471U supports VMware VAAI and Microsoft ODX to increase performance by offloading server loading for ESXi server and Hyper-V respectively, and supports QNAP vSphere Client plug-in and QNAP SMI-S provider for enhanced operational efficiency and management in virtualization applications.



■ Cloud-ready 24/7 surveillance solution

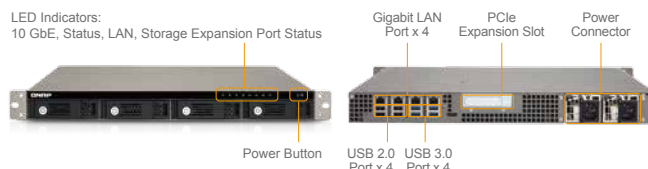
Surveillance Station is a professional network surveillance Video Management System (VMS) that offers a user-friendly management interface, compatibility with over 3,000 IP camera models, and expandable IP camera channel licenses. It supports real-time monitoring, video & audio recording and playback with a wide range of customizable settings. You can also install the Vmobile mobile app on your iOS® or Android™ devices to manage the monitored channels anytime and anywhere to safeguard your office environment, or install the Vcam app to turn your device into a network camera to instantly record to your TVS-471U. The TVS-471U offers 4 free IP camera channels and you can expand up to 72 channels by purchasing additional licenses.



Camera Channels
Free: 4 / Max: 72

Hardware & Software Specifications

	TVS-471U	TVS-471U-RP
CPU	Intel® Core™ i3 Dual-Core 3.5GHz	Intel® Pentium® Dual-Core 3.1 GHz
DRAM	System memory: 4 GB DDR3 RAM Memory module pre-installed: 4 GB x1 Total memory slots: 4 Memory expandable up to: 32 GB (8GB x4) <small>Note: When upgrading RAM to more than 28GB, the original 4GB RAM modules must be removed.</small>	Intel® Core™ i3 Dual-Core 3.5GHz
Flash Memory	512MB DOM	Intel® Pentium® Dual-Core 3.1 GHz
Internal Cache Port	Two mSATA port on board for read caching <small>Note: The standard system is shipped without mSATA flash module. For the optional mSATA flash module, please visit http://shop.qnap.com/</small>	Intel® Pentium® Dual-Core 3.1 GHz
Hard Drive	4 x 3.5-inch SATA 6Gb/s, SATA 3Gb/s hard drive or 2.5-inch SATA, SSD hard drive <small>NOTE: 1. The standard system is shipped without hard drives. 2. For the hard drive compatibility list, please visit www.qnap.com/compatibility</small>	Intel® Pentium® Dual-Core 3.1 GHz
Hard Disk Tray	4 x hot-swappable and lockable tray	Intel® Pentium® Dual-Core 3.1 GHz
LAN Port	4 x Gigabit RJ-45 Ethernet port (Expandable up to 6 x 1 Gb LAN or 2 x 10 Gb + 4 x 1 Gb LAN by installing optional dual-port 10 Gb and 1 Gb network card) <small>Note: 1. For the optional network card compatibility list, please visit www.qnap.com/compatibility 2. For the information of network card installation, please refer to chapter 6 in the Turbo NAS Hardware Manual.</small>	Intel® Pentium® Dual-Core 3.1 GHz
LED Indicators	Status, 10 GbE, LAN, storage expansion port status	Intel® Pentium® Dual-Core 3.1 GHz
USB/eSATA	4 x USB 3.0 port (rear), 4 x USB 2.0 port (rear) Support USB printer, pen drive, USB hub, and USB UPS etc..	Intel® Pentium® Dual-Core 3.1 GHz
HDMI	1	Intel® Pentium® Dual-Core 3.1 GHz
Buttons	System: Power button and reset button	Intel® Pentium® Dual-Core 3.1 GHz
Alarm Buzzer	System warning	Intel® Pentium® Dual-Core 3.1 GHz
Form Factor	1U, Rackmount	Intel® Pentium® Dual-Core 3.1 GHz
Dimensions	44 (H) x 439 (W) x 499 (D) mm 1.732 (H) x 17.28 (W) x 19.64 (D) inch	Intel® Pentium® Dual-Core 3.1 GHz
Weight	Net weight: 7.63 kg (16.82 lbs.) Gross weight: 11.60 kg (25.57 lbs.)	Intel® Pentium® Dual-Core 3.1 GHz
Sound Level (dB)	Sound pressure (LpAm) (by stander positions): 40.7 dB <small>(with 4 x WD WD20EFRX hard drive installed)</small>	Intel® Pentium® Dual-Core 3.1 GHz
Power Consumption(W)	HDD Standby: TVS-471U-PT-4G: 46.34 TVS-471U-i3-4G: 45.72 <small>(with 4 x WD WD30EFRX hard drive installed)</small>	In Operation: TVS-471U-PT-4G: 50.55 TVS-471U-i3-4G: 49.15 <small>(with 4 x WD WD30EFRX hard drive installed)</small>
Temperature	0~40°C	Intel® Pentium® Dual-Core 3.1 GHz
Relative Humidity	5~95% non-condensing, wet bulb: 27°C.	Intel® Pentium® Dual-Core 3.1 GHz
Power Supply	Input: 100-240V AC, 47-63Hz, Output: 250W	Input: 100-240V AC, 50/60Hz Output: 250W (Redundant power)
PCIe Slot	1 (PCIe Gen3 x4)	Intel® Pentium® Dual-Core 3.1 GHz
Fan	2 x 4 cm smart cooling fan	Intel® Pentium® Dual-Core 3.1 GHz


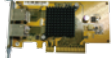




Volume Types	Single disk, RAID 0, 1, 5, 6, 10, 5 + spare
Storage Management	Flexible volume/LUN with Storage Pool, Online RAID capacity expansion and online RAID level migration, SSD cache, AES 256-bit full NAS encryption
Storage Expansion	Expand up to 132 drives via QNAP expansion enclosures: REXP-1200U-RP, REXP-1600U-RP (Max 8 enclosures)
Supported Client OS	Windows XP/Vista/7/8, Windows Server 2003/2008 R2/2012 R2, Apple Mac OS X, Linux & UNIX
File System	Internal: EXT4 External: EXT4, EXT3, NTFS, HFS+, FAT32
Networking Protocols	CIFS/SMB, AFP, NFS, FTP, FTPS, SFTP, TFTP, HTTP(S), Telnet, SSH, iSCSI, SNMP, SMTP, VPN (PPTP, OpenVPN, L2TP), WebDAV, Rsync
File Sharing	Max user accounts: 4096; Max groups: 512; Max shared folder: 512; Max concurrent connections: 800
Directory Service	Windows AD, domain controller, LDAP
Surveillance Station	Includes 4 free camera licenses, up to 72 camera channels via additional license purchase (http://license.qnap.com)
Features	File Station, Backup Station, FTP server, Web Server, Qsync, Notes Station, Print Server, VPN Server, VPN Client, Antivirus Protection, System Logs, Photo Station, Music Station, Video Station, Download Station (BT/HTTP/FTP), App Center, Background Transcoding
Streaming Server	DLNA Server, Airplay, Chromecast, iTunes Server
Remote Access	myQNAPcloud with CloudLink
Mobile Apps	Qfile, Qmanager, Qmusic, Qphoto, Qvideo, Qnotes, Qget, Qremote, Ymobile
Utilities	Qfinder, Qsync, NetBak Replicator, vSphere Client plug-in, QGet, myQNAPcloud Connect, Qsnap
Language	English, Chinese (Traditional & Simplified), Czech, Danish, Dutch, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese (Brazil), Romanian, Russian, Spanish, Swedish, Thai, Turkish

* Some data encryption functions may not available in accordance with the legislative restrictions of some countries (such as Russia).

** For utilities and mobile apps, please refer to QNAP.com for the supported platforms.

Accessories

LAN Card				
Order P/N	LAN-10G2T-U	LAN-1G2T-U	SAS-6G2E-U	FLASH-256GB-mSATA
Description	Dual-port 10GBASE-T 10GbE NIC	Dual-port Gigabit Network Expansion Card	Dual-wide-port storage expansion card, SAS 6Gbps.	Two 128GB mSATA flash modules

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