

# Rackmount NAS Servers for SMB

Reliable and scalable NAS servers for building a private cloud

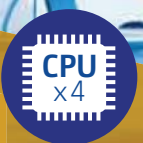
**QNAP**



Use your NAS as a PC



2GB/8GB DDR3L  
Max 8GB



Quad Core 2.0GHz  
Up to 2.41GHz



Quad GbE Ports  
Up to 423 MB/s



TS-1253U /  
TS-1253U-RP



- Manage, share, and back up business data
- Real-time Remote Replication (RTRR) and cloud-based storage backup
- NAS and iSCSI-SAN unified storage solution
- Enhanced data security with high-performance AES 256-bit encryption and anti-virus
- Supports VMware®, Citrix®, and Microsoft® Hyper-V and advanced virtualization features
- Use your NAS as a PC with QvPC Technology
- Operate multiple Windows, Linux and Android-based virtual machines with the integrated Virtualization Station
- On-the-fly and offline hardware accelerated video transcoding
- Expand the total storage capacity with an economical 12 bay UX-1200U-RP expansion enclosure

Dual core 2.41GHz, up to 2.58GHz  
1GB DDR3L RAM (Max 8GB) & dual LAN ports



TS-853U / TS-853U-RP



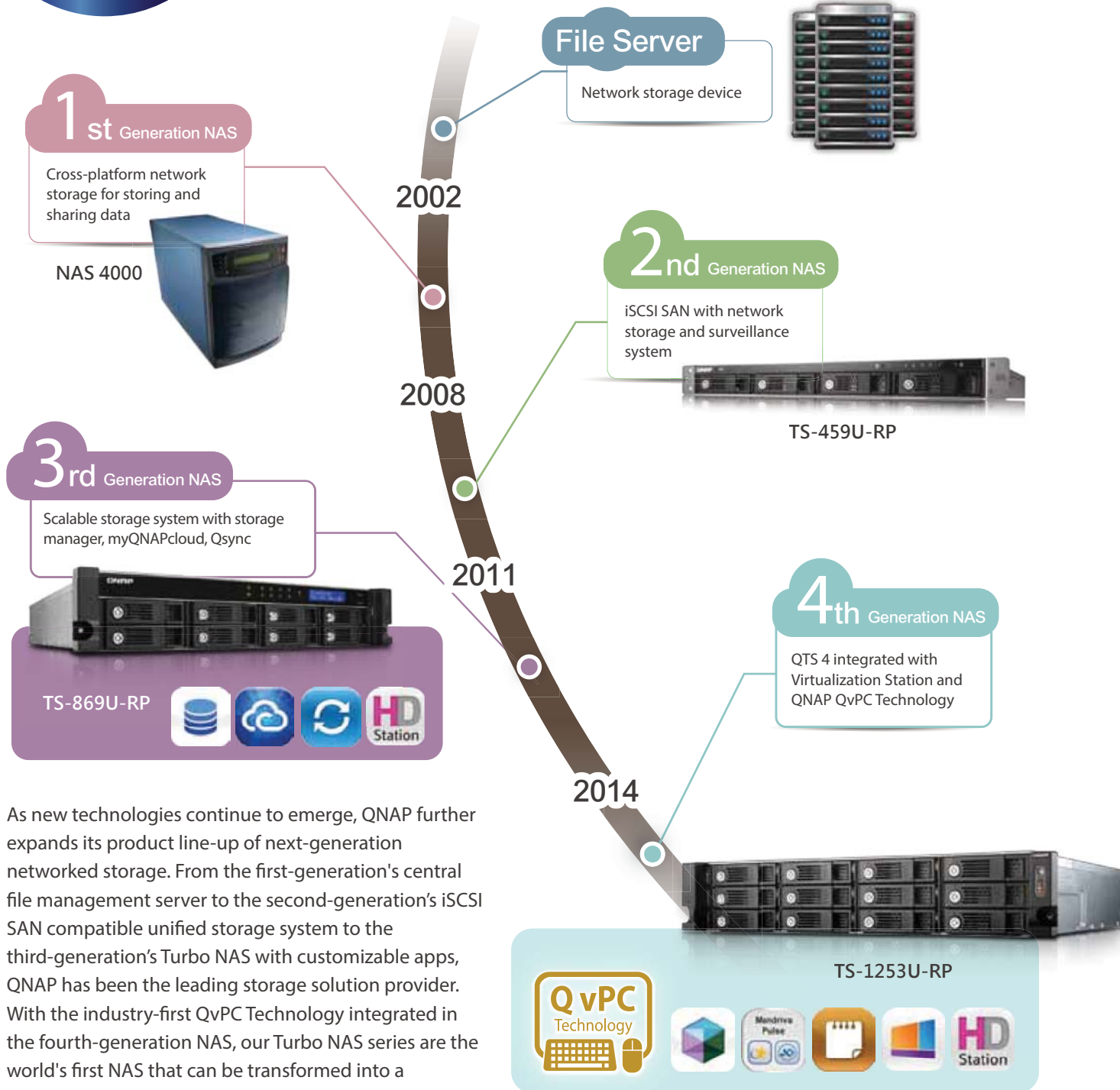
TS-453U / TS-453U-RP



TS-451U

# 4<sup>th</sup>

## Turbo NAS The 4th Generation Enhanced with the QvPC Technology



As new technologies continue to emerge, QNAP further expands its product line-up of next-generation networked storage. From the first-generation's central file management server to the second-generation's iSCSI SAN compatible unified storage system to the third-generation's Turbo NAS with customizable apps, QNAP has been the leading storage solution provider. With the industry-first QvPC Technology integrated in the fourth-generation NAS, our Turbo NAS series are the world's first NAS that can be transformed into a cost-effective PC substitute for business applications. The Turbo NAS series features Intel® Celeron® dual-core and quad-core processors to deliver exceptional performance, and with QvPC Technology provides flawless business content storage, backup, and sharing abilities.

### The Evolution of NAS




# Hardware Specification



	TS-451U	TS-453U		TS-853U		TS-1253U	
NAS	TS-451U-1G	TS-453U-2G / TS-453U-8G	TS-453U-RP-2G / TS-453U-RP-8G	TS-853U-2G / TS-853U-8G	TS-853U-RP-2G / TS-853U-RP-8G	TS-1253U-2G / TS-1253U-8G	TS-1253U-RP-2G / TS-1253U-RP-8G
CPU	Dual-Core Intel® Celeron® 2.41GHz (Up to 2.58GHz)	Quad-core Intel® Celeron® 2.0GHz (Up to 2.41GHz)					
Memory	1 GB DDR3L	2GB / 8GB DDR3L					
Number of RAM Slots	2 (Max 8GB, SO-DIMM)						
Flash	512MB (DOM)						
Max. Number of HDDs/SSDs	4	4		8		12	
HDDs/SSDs Formfactor, Interface	2.5" or 3.5" SATA 6Gb/s, 3Gb/s; hot-swappable, with keylock						
Expansion Enclosure Support	1 (UX-1200U-RP, UX-800U-RP)						
Gigabit LAN Ports	2	4		4		4	
USB Ports	USB 3.0: 4, USB 2.0: 1	USB 3.0: 4, USB 2.0: 1		USB 3.0: 4		USB 3.0: 4	
HDMI	1						
LED Indicators	Status, LAN, USB, HDD1-4			Power, Status, LAN, USB, HDD1-8		Power, Status, LAN, USB, HDD1-12	
Buttons	Power, Reset, USB Auto Copy			Power, Reset		Power, Reset	
Form Factor	1U Rackmount			2U Rackmount		2U Rackmount	
Dimensions (HxWxD)	44 x 439 x 499 mm / 1.73 x 17.28 x 19.65 inch			89 x 482 x 534 mm / 3.50 x 18.97 x 21.02 inch			
Weight (Net/Gross)	7.63 / 11.60 kg	7.63 / 11.60 kg		11.02 / 19.26 kg		16.14 / 18.98 kg	
	16.82 / 25.57 lb	16.82 / 25.57 lb		24.29 / 42.46 lb		35.58 / 41.84 lb	
Temperature and Humidity	0-40oC, 5-95% R. H.	0-40oC, 5-95% R. H.		0-40oC, 5-95% R. H.		0-40oC, 5-95% R. H.	
Power Supply Specification	Standard: ATX 250W, 110-240V AC, 50-60Hz, 5A / RP: Redundant, hot swap ATX 250W, 100-240V AC, 47-63Hz, 5A-2.5A						
Power Consumption (W)							
HDD Sleep	21.03	23.54	36.89	30.49	43.09	35.14	47.85
Typical Operation	38.01	39.86	52.88	82.31	98.53	83.52	126.59
File Sharing							
Max Users	4096	4096		4096		4096	
Max User Groups	512	512		512		512	
Max Shared Folders	512	512		512		512	
Max Concurrent Connections (CIFS)	700	800		800		800	
Performance (MB/s) - Link Aggregation							
Windows Upload / Download	220 / 224	420 / 421		425 / 430		394 / 423	
AES 256-bit Encrypted Windows Upload / Download	90.0 / 128.0	158.7 / 240.9		163.8 / 273.0		163.0 / 271.0	

\* Design and specifications are subject to change without notice.

## Accessories

Category		Order P/N	Description
Rail Kit		RAIL-B01	2U rail kit for TS-853U, TS-853U-RP, TS-1253U, TS-1253U-RP (ANSI/EIA-RS-310-D)
		RAIL-C01	1U rail kit for TS-451U, TS-453U, TS-453U-RP (ANSI/EIA-RS-310-D)
Memory		RAM-2GDR3L-SO-1600	2GB DDR3L-1600 RAM Module SODIMM
		RAM-4GDR3L-SO-1600	4GB DDR3L-1600 RAM Module SODIMM
		RAM-8GDR3L-SO-1600	8GB DDR3L-1600 RAM Module SODIMM

# Software Specification

## Operating System

- QTS 4.1 (embedded Linux)

## Supported Client OS

- Windows XP, Vista, Windows 7 (32/64-bit), Windows 8 (32/64-bit), Windows Server 2003, 2008 R2, 2012, 2012 R2
- Apple Mac OS X
- Linux & UNIX

## Supported Browsers

- Microsoft Internet Explorer 10+
- Mozilla Firefox 8+
- Apple Safari 4+
- Google Chrome

## Multilingual Support

- Chinese (Traditional & Simplified), Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese (Brazil), Romanian, Russian, Spanish, Swedish, Thai, Turkish

## File System

- Internal drive: EXT4
- External drive: EXT3, EXT4, NTFS, FAT32, HFS+

## Networking

- TCP/IP (IPv4 & IPv6: Dual Stack)
- Not all services support IPv6
- Jumbo frame support
- Proxy server (Squid package available in App Center)
- Proxy client
- DHCP client, DHCP server
- Protocols: CIFS/SMB, AFP (v3.3), NFS(v3), FTP, FTPS, SFTP, TFTP, HTTP(S), Telnet, SSH, iSCSI, SNMP, SMTP, and SMSC
- UPnP & Bonjour discovery
- USB Wi-Fi 802.11ac/a/n adapter support

## Security

- Network access protection with auto-blocking: SSH, Telnet, HTTP(S), FTP, CIFS/SMB, AFP
- CIFS host access control for shared folders
- FIPS 140-2 validated AES 256-bit volume-based data encryption\*
- AES 256-bit external drive encryption\*
- Importable SSL certificates
- Instant alert via email, SMS, beep
- \* The data encryption functions may not be available in accordance to the legislative restrictions of some countries (ex. Russia, Belarus, Ukraine, Kazakhstan and Uzbekistan.)

## Storage Management

- QNAP flexible Volume/LUN with thin provisioning and space reclaim
- RAID management
- Global hot spare
- Supports storage pool
- Online volume expansion
- Online storage pool expansion
- Online RAID capacity expansion and online RAID level migration
- Storage expansion via a QNAP UX-1200U-RP/UX-800U-RP expansion unit
- Bad block scan and hard drive S.M.A.R.T.
- Bad block recovery
- RAID recovery
- Bitmap support

## Power Management

- Wake on LAN
- Internal hard drive standby mode
- Scheduled power on/off
- Automatic power on after power recovery
- USB and network UPS support with SNMP management
- System sleep mode (S3)

## Access Right Management

- Batch users creation
- Import/Export users
- User quota management
- Local user access control for CIFS, AFP, FTP, and WebDAV
- Application access control for Photo Station, Music Station, Video Station, and File Station
- Subfolder permissions support for CIFS/SMB, AFP, FTP, and File Station

## Domain Authentication Integration

- Microsoft Active Directory (AD) & Domain Controller support
- LDAP server, LDAP client
- Domain users login via CIFS/SMB, AFP, FTP, and File Station

## myQNAPcloud Service

- Private cloud storage and sharing
- Free host name registration (DDNS)
- Auto router configuration (via UPnP)
- Web-based file manager with HTTPS 2048-bit encryption
- CloudLink for remote access without complicated router setup
- myQNAPcloud connect for easy VPN connection (Windows VPN utility)

## Qsync

- Syncs files among multiple devices with SSL support
- Selective synchronization for syncing specific folders only
- Use team folders as a file center for greater team collaboration (maximum sync tasks:32)
- Shares files by links via email
- Policy settings for conflicted files and file type filter support
- Version control: up to 64 versions.
- Incremental synchronization for HDD space saving
- Supports Windows & Mac OS

## Web Administration

- Smart toolbar and dashboard for neat system status display
- Smart fan Control
- Dynamic DNS (DDNS)
- SNMP (v2 & v3)
- Resource monitor
- Network recycle bin for file deletion via CIFS/SMB, AFP, and File Station
- Automatic Cleanup
- File Type Filter
- Comprehensive logs (events & connection)
- Syslog client/server
- System settings backup and restore
- Restore to factory default
- Mobile app: Qmanager for remote system monitoring & management

## File Server

- File sharing across Windows, Mac, and Linux/UNIX
- Windows ACL
- Advanced folder permission for CIFS/SMB, AFP, FTP
- Shared folder aggregation (CIFS/SMB)

## FTP Server

- FTP over SSL/TLS (Explicit)
- FXP support
- Passive ftp port range control

## File Station

- Supports ISO Mounting (Up to 256 ISO Files)
- Supports thumbnail display of multimedia files
- Supports sharing download links and upload links
- Drag-n-drop Files via Google Chrome and Mozilla Firefox
- Photo, music, and video preview and playback with hardware-accelerated transcoding
- File Compression (ZIP or 7z)
- Creation of and sending download links for sharing public files with expiration time and password protection
- Support for displaying subtitles (\*.SRT, UTF-8 format)
- Video seeking support for video playback during on-the-fly transcoding
- Support slideshow playback in media viewer
- Mobile App: Qfile for file browsing and management

## Transcode Management

- Transcode video files to 240p, 360p, 480p, 720p and 1080p resolutions
- Automatic video transcoding for watched folders
- Hardware-accelerated transcoding support
- Embed subtitles with videos inbackground transcoding

## Backup Station

- Remote replication server (over rsync)
- Real-time remote replication (RTRR) to another QNAP NAS or FTP server
- Works as both RTRR server & client with bandwidth control
- Real-time & scheduled backup
- Encryption, compression, file filters, and transfer rate limitations
- Encrypted replication between QNAP NAS servers
- Desktop backup with QNAP NetBak Replicator for Windows
- Apple Time Machine backup support
- Data backup to multiple external storage devices
- Synchronizes with cloud storage: Amazon S3, ElephantDrive, Symform, Dropbox\*, and Google Drive
- Third party backup software support: Veeam backup & replication, Acronis True Image, Arcserve backup, emc retrospect, Symantec Backup Exec, etc.

## Print Server

- Max. number of printers: 3
- Support for Internet Printing Protocol
- Print job display and management
- IP-based and domain name-based privilege control

## Cloud Backup Station

- Amazon S3
- Amazon Glacier
- Webdev-based cloud storage
- Microsoft Azure
- Open Stack

## HD (HybridDesk) Station

- Playback videos, music, photos on you TV with XBMC via HDMI output
- Watch various online contents such as YouTube, Flickr, Picasa, Shoutcast, and more.
- Web browser (Chrome, Firefox)
- Supports USB U.S. keyboard and mouse
- Supports QNAP Qremote app and the official XBMC remote app
- Supports user login permissions

Note:

- The playback and quality of some video files may be affected due to the CPU and GPU decoding abilities.
- Up to 7.1 channel audio passthrough is supported

## Storage Plug & Connect

- Creating and mapping shared folders usingQNAP Windows Qfinder
- Creation of and connection to iSCSI targets/LUN

## iSCSI (IP SAN)

- iSCSI target with multi-LUNs per target (Up to 256 targets/LUNs combined)
- Support for LUN mapping & masking
- Online LUN capacity expansion
- Support for SPC-3 persistent reservation
- Support for MPIO & MC/S
- iSCSI LUN backup, one-time snapshot, and restoration
- iSCSI connection and management by QNAP Windows Qfinder
- Virtual disk drive (via iSCSI initiator)
- Stack chaining master
- Max No. of virtual disk drives: 8

## Surveillance Station

- Supports over 2,700 IP cameras
- Includes 2 free camera licenses, up to 24 camera channels via additional license purchase
- Instant playback to check recent events
- Online editing to change cameras when in live view
- Visual aid by using e-maps
- Playback and speed control by shuttle bar
- Video preview using playback timeline
- Intelligent Video Analytics (IVA) for advanced video search
- Surveillance client for Mac
- Mobile surveillance app: Vmobile (iOS and Android)
- Mobile recording app: Vcam (iOS and Android)

## VPN Server

- Secure remote access: PPTP & OpenVPN VPN services
- Max number of clients: 30

## VPN Client

- Supported VPN protocols: PPTP & OpenVPN services
- PPTP Authentication: PAP, CHAP, MS-CHAP, MS-CHAPv2
- PPTP Encryption: None, AES 40/128 bit, AES 256 bit
- OpenVPN Encryption: None, AES 40/128 bit, AES 256 bit
- Transmission package monitor
- OpenVPN port control
- OpenVPN link compression

## DLNA Server

- Supports DLNA/UPnP TVs and Players such as PlayStation 3 and Xbox 360
- Supported audio formats: AIFF, APE, DSD (DSF, DFF), FLAC, M4A, M4A Apple Lossless (ALAC), MP3, Ogg Vorbis, WAV (PCM, LPCM), WMA, WMA PRO, WMA VBR\*
- Support CUE indexing files for APE, FLAC audio format.
- Video and Audio On-the-fly Transcoding

\*DRM-protected files are not supported.

## App Center

- Over 100 official and community software add-ons (including Dropbox, Google Drive Sync, McAfee, WordPress, HappyGet II, and more.)
- Photo Station, Music Station, Video Station, Download Station, Notes Station, Signage Station, Digital TV Station (DVB-T only)

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