



Turbo NAS Model	TS-431	TS-231	TS-131	TS-212P	TS-112P
CPU	Freescale™ ARM Cortex-A9 dual-core 1.2GHz processor			Marvell 1.6GHz	
RAM	512MB				
Flash	512MB eMMC			16MB	
Max. number of HDDs/SSDs	4 x 2.5" or 3.5" SATA 6Gb/s, 3Gb/s	2 x 2.5" or 3.5" SATA 6Gb/s, 3Gb/s	1 x 2.5" or 3.5" SATA 3Gb/s	2 x 3.5" SATA 3Gb/s	1 x 3.5" SATA 3Gb/s
Gigabit LAN Ports	2		1		
USB 3.0/ USB 2.0	3/ 0			2/ 1	
eSATA	1			-	1
LED Indicators	Power/Status, LAN, HDD 1-4, USB	Power/Status, LAN, HDD 1-2, USB	Power/Status, LAN, HDD, USB	Power, Status, LAN, HDD 1-2, USB	Power, Status, LAN, HDD 1-2, USB, eSATA
LCD Display	-				
Buttons	Power, Reset, USB One Touch Copy				
Dimensions (HxWxD)	177 x 180 x 235 mm 6.97 x 7.09 x 9.25 inch	168.5 x 102 x 225 mm 6.63 x 4.02 x 8.86 inch	168.5 x 73 x 225 mm 6.63 x 2.87 x 8.86 inch	165.5 x 85 x 218.4 mm 6.52 x 3.35 x 8.6 inch	165.5 x 60 x 218.4 mm 6.52 x 2.36 x 8.6 inch
Weight (Net/Gross)	3 kg (6.61 lbs)/ 4.3 kg (9.48 lbs)	1.28kg (2.82 lbs)/ 2.32kg (5.11 lbs)	1.04 kg (2.29 lbs)/ 1.8 kg (3.97 lbs)	0.91 kg (2.01 lbs)/ 1.9 kg (4.85 lbs)	0.79 kg (1.74 lbs)/ 1.7 kg (3.53 lbs)
Temperature and Humidity	0-40°C , 5-95% R.H				
Power Supply Specification	External Power Adapter, 90W, 100-240V	External Power Adapter, 60W, 100-240V	External Power Adapter, 36W, 100-240V	External Power Adapter, 60W, 100-240V	External Power Adapter, 36W, 100-240V
Power consumption: HDD sleep mode (W)	14.84	9.78	6.26	6	5
Power consumption: Typical operations (W)	33.75	20.56	13.31	13	7
Windows Upload/ Download (MB/s)	82/110	79/108	79/109	65/95	56/93
AES 256-bit Encrypted Windows Upload/ Download (MB/s)	30/35	34/39	33/35	12.6/13.3	12.8/13.7
File System: Internal Hard Drive	EXT4				
File System: External Hard Drive	EXT3, EXT4, NTFS, FAT32, HFS+				
Wi-Fi USB dongles	✓ (IEEE 802.11ac/a/b/g/n)			✓ (IEEE 802.11b/g/n)	
RAID Recovery	✓	-	-	✓	-
Online RAID Capacity Expansion	✓	-	-	-	-
Online RAID Level Migration	✓	-	-	-	-
RAID Type	Single Disk, JBOD, RAID 0, 1, 5, 6, 10, 5 + Hot spare	Single Disk, JBOD, RAID 0, 1	Single Disk	Single Disk, JBOD, RAID 0, 1	Single Disk, Q-RAID 1
Global Hot Spare	✓	-	-	-	-
Surveillance Station - Default IP Cameras	2				
Surveillance Station - Max IP Cameras	8				
VPN Server (PPTP + OpenVPN)	✓ (MAX. connections: 15+15)				
Max. Number of Users	4096			2048	
Max. Number of User Groups	512			256	
Max. Number of Shared Folders	512			256	
Max. Number of Concurrent Connections	300			256	

Hardware Introduction



Turbo NAS Model	TS-421	TS-221	TS-121	TS-420	HS-210
CPU	Marvell 2.0GHz			Marvell 1.6GHz	
RAM	1GB			512MB	
Flash	16MB			16MB	
Max. number of HDDs/SSDs	4 x 2.5" or 3.5" SATA 3Gb/s	2 x 2.5" or 3.5" SATA 3Gb/s	1 x 2.5" or 3.5" SATA 3Gb/s	4 x 2.5" or 3.5" SATA 3Gb/s	2 x 2.5" or 3.5" SATA 3Gb/s
Gigabit LAN Ports	2	1		2	1
USB 3.0/ USB 2.0	2/2	2/1		2/2	
eSATA	2		1	2	-
LED Indicators	Power/Status, LAN, HDD 1-4, USB, eSATA	Power/Status, LAN, HDD1-2, USB, eSATA	Power/Status, LAN, HDD, USB, eSATA	Power/Status, LAN, HDD 1-4, USB, eSATA	Status, LAN
LCD Display	✓	-			
Buttons	Power, Reset, USB One Touch Copy				Power, Reset
Dimensions (HxWxD)	177 x 180 x 235 mm 6.97 x 7.09 x 9.25 inch	150 x 102 x 216 mm 5.91 x 4.02 x 8.5 inch	150 x 67 x 216 mm 5.91 x 2.64 x 8.54 inch	177 x 180 x 235 mm 6.97 x 7.09 x 9.25 inch	41.3 x 320 x 220 mm 1.63 x 11.89 x 3.41 inch
Weight (Net/Gross)	3 kg (6.61 lbs)/ 4.6 kg (10.14 lbs)	1.74kg (3.84 lbs)/ 2.92kg (6.44 lbs)	1.06 kg (2.34 lbs)/ 1.86 kg (4.10 lbs)	3 kg (6.61 lbs)/ 4.6 kg (10.14 lbs)	1.56kg (3.44 lbs)/ 2.62kg (5.78 lbs)
Temperature and Humidity	0-40°C , 5-95% R.H				
Power Supply Specification	External Power Adapter, 120W, 100-240V	External Power Adapter, 60W, 100-240V	External Power Adapter, 36W, 100-240V	External Power Adapter, 120W, 100-240V	External Power Adapter, 60W, 100-240V
Power consumption: HDD sleep mode (W)	13	7	4	12	7
Power consumption: Typical operations (W)	26	19	7	33	14
Windows Upload/ Download (MB/s)	69/105	68/108	68/108	69/105	65/107
AES 256-bit Encrypted Windows Upload/ Download (MB/s)	13/14.5	13.5/15	13/13	13/14.5	12.6/13.3
File System: Internal Hard Drive	EXT4				
File System: External Hard Drive	EXT3, EXT4, NTFS, FAT32, HFS+				
Wi-Fi USB dongles	✓ (IEEE 802.11b/g/n)				
RAID Recovery	✓		-		✓
Online RAID Capacity Expansion	✓		-		✓
Online RAID Level Migration	✓		-		✓
RAID Type	Single Disk, JBOD, RAID 0, 1, 5, 6, 10, 5 + Hot spare	Single Disk, JBOD, RAID 0, 1	Single Disk, Q-RAID 1	Single Disk, JBOD, RAID 0, 1, 5, 6, 10, 5 + Hot spare	Single Disk, JBOD, RAID 0, 1
Global Hot Spare	✓	-		✓	-
Surveillance Station - Default IP Cameras	2				
Surveillance Station - Max IP Cameras	8				
VPN Server (PPTP + OpenVPN)	✓(MAX. connections: 15+15)				
Max. Number of Users	4096	2048		4096	2048
Max. Number of User Groups	512	256		512	256
Max. Number of Shared Folders	512	256		512	256
Max. Number of Concurrent Connections	512	256			

Software Specification

Operating System

- QTS 4.1 (embedded Linux)

Supported Clients*

- Windows 7 and Windows Server 2003 onward, Apple Mac OS X onward, Linux & UNIX

Supported Browsers

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

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

Networking

- TCP/IP, IPv4 & IPv6*
- Dual Gigabit NICs with jumbo frame (failover, multi-IP settings, port trunking/NIC teaming)*
- Service binding based on network interfaces*
- Proxy client, proxy server
- DHCP client, DHCP server

NTP 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 adapter support

Security

- Network access protection with auto-blocking: SSH, Telnet, HTTP(S), FTP, CIFS/SMB, AFP
- CIFS host access control for shared folders
- AES 256-bit volume-based data encryption***
- AES 256-bit external drive encryption**
- Importable SSL certificate
- Instant alert via E-mail, SMS, and beep
- Antivirus protection

Storage Management

- Single Disk, JBOD, RAID 0, 1, 5, 6, 10, 5/6/10 + spare***
- Global hot spare***
- Online RAID capacity expansion
- Online RAID level migration
- 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

Access Right Management

- 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 Multimedia Station
- Subfolder permissions support for CIFS/SMB, AFP, FTP, and File Station

myQNAPcloud Service

- Private cloud storage and sharing with myQNAPcloud id (QID)
- Free host name registration (DDNS)
- Auto router (via UPnP) configuration
- 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
- Share team folder as a file center for team collaboration
- Shares files by links via e-mail
- Policy settings for conflicted files and file type filter support
- Incremental synchronization for HDD space saving
- Supports Windows & Mac OS

Web Administration

- Personalized desktop
- Smart toolbar and dashboard for system status
- 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
- 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 supported

File Station

- Supports ISO Mounting (Up to 256 ISO Files)
- Support thumbnail display of multimedia files
- Support share download link and upload link
- Drag-n-drop Files via Chrome and Firefox Browsers
- Photo, music, and video preview and playback
- File Compression and decompression (ZIP and 7z)

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 filter, and transfer rate limitation
- 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
- Third party backup software support: Veeam backup & replication, Acronis True Image, Arcserve backup, EMC retrospect, Symantec Backup Exec, etc.

Photo Station

- Show photos in thumbnails, list, timeline, or folder view
- Supports virtual/smart album
- Tags photos with text, color, and rating
- Slideshows with background music and different transition effects
- Animated thumbnails for videos
- Geotags photos and display them on Google maps
- Shares slideshows link to social websites or

through email

- Supports Facebook friends login

Music Station

- Plays or shares music collections with web browser
- Automatic classification via Media Library
- Internet radio streaming (MP3)
- Up to 8 music alarms
- Mobile app: Qmusic for music playing and management

iTunes Server

- Audio and Video Sharing for Windows & Mac iTunes

Video Station

- Show photos in thumbnails, list, timeline, or folder view
- Tags videos with text, color, and rating
- Animated thumbnails for videos
- Shares video collection link to social websites or through email
- Display movie information from IMDB

DLNA Server

- Supports DLNA/UPnP TVs and players such as PlayStation 3 and Xbox 360

Transcode Management

- Transcode video files to 240p, 360p, 480p, 720p and 1080p resolution
- Automatic video transcoding for watched folders

AirPlay

- Streams videos, photos and music from NAS to Apple TV via Qfile or QAirPlay's web-based controller

Digital TV Station

- DVB-T Digital TV Live View, Recording, and Playback
- Electronic Programming Guide (EPG) with Scheduled Recording

Note:The availability of DVB-T broadcasting and EPG may vary depending on geographic locations.

Download Station

- PC-less BT, FTP/FTPS, and HTTP/HTTPS download (up to 500 Tasks)
- BT download with Magnet Link and PT support
- Scheduled download and bandwidth control
- RSS subscription and download (broadcasting)
- Bulk download with wildcard settings
- BT search
- Proxy support for BT download
- PC utility: Qget for downloads browsing and management
- Mobile app: Android Qget for downloads browsing and management

Cloud Storage Backup

- Amazon S3
- Amazon Glacier
- WebDAV-based cloud storage
- Microsoft Azure
- Open Stack
- Google Drive

Print Server

- Max number of printers: 3
- Print job display and management
- IP-based and domain name-based privilege control

Surveillance Station

- Supports over 2,700 IP cameras
- Includes 2 free camera licenses, up to 8 camera channels via additional license purchase
- Instant playback to check the recent event
- Visual aid by e-map
- Playback and speed control by shuttle bar
- Video preview on 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)

Notes Station

- Graphical web-based editor for taking notes
- Integrate with NAS file system: insert attachment or image from NAS file system
- Event calendar and to-do list
- Image editor
- Provide Chrome Extension: Notes Station Clipper
- Clip web page content to your note
- Mobile app: Qnotes

Signage Station

- Support dynamic content includes video, image, music, and text message
- Multi-user collaboration
- Support email and social network sharing
- Support design software - iArtist Lite for Windows*
- Support various browser playback (Chrome, Firefox, IE, Safari)

iSCSI (IP SAN)

- iSCSI Target
- Multi-LUNs per Target
- Up to 256 Targets/LUNs Combined
- Supports LUN Mapping & Masking
- File-based LUN
- Online LUN Capacity Expansion
- iSCSI LUN Backup, One-time Snapshot, and Restore
- iSCSI Connection and Management by QNAP Finder (Windows)
- Virtual Disk Drive (via iSCSI Initiator)
- Max No. of Virtual Disk Drives: 8

VPN Server

- Secure remote access: PPTP & OpenVPN VPN services
- Max number of clients: 15 for PPTP & 15 for OpenVPN

Domain Authentication Integration

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

App Center

- More than 100 official and community software add-ons

Mobile Apps

- Qfile: iOS, Android Phone, window phone
- Qfile HD: iPad version
- Qmanager: iOS, Android Phone
- Qmusic: iOS, Android Phone
- Qremote: iOS, Android Phone
- Qget: Android Phone
- Vmobile: iOS, iPad, Android Phone

* Not all services are supported.

** The data encryption functions may not available in accordance with the legislative restrictions of some countries.

*** The supported features may vary among models.

Design and specifications are subject to change without notice.