TS-ECx80U R2 Series

8 / 12 / 16 / 24 - Bay Turbo NAS

4K2K UHD
Q vPC Technology
Use your Turbo vNAS as a PC

TS-EC880U R2

TS-EC1280U R2
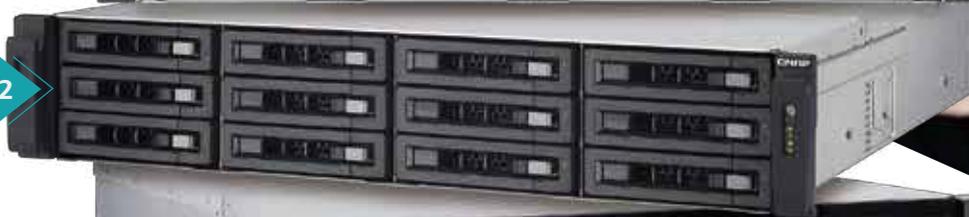
TS-EC1680U R2

TS-EC2480U R2

Built-in Dual-port
10GbE SFP+ Network Adapter

40GbE ready

- Based on tiered storage architecture with SSD cache acceleration
- Virtualization Station and Container Station Provide the new era of the virtual computing
- Unified storage management support iSCSI (File or Block based) , NFS and Samba
- Scale up storage with QNAP REXP-1220U-RP / REXP-1620U-RP expansion units, daisy chaining up to 8 units for total 1024TB raw capacity
- Support ECC & Non ECC RAM

Hardware specification

TS-ECx80U R2 Series

Model	TS-EC2480U-E3-4GE-R2	TS-EC1680U-E3-4GE-R2	TS-EC1280U-E3-4GE-R2	TS-EC880U-E3-4GE-R2
	TS-EC2480U-i3-4GE-R2	TS-EC1680U-i3-4GE-R2	TS-EC1280U-i3-4GE-R2	TS-EC880U-i3-4GE-R2
	TS-EC2480U-i3-8G-R2	TS-EC1680U-i3-8G-R2	TS-EC1280U-i3-8G-R2	TS-EC880U-i3-8G-R2
CPU	For E3 models: Intel® Xeon E3 Quad-core processor For i3 models: Intel® Core i3-4150 processor			
Memory	Total memory slots: 4 For 4GE SKUs: 4GB DDR3 ECC RAM For 8G SKUs: 8GB DDR3 non-ECC RAM			
Drive*	24 x 3.5" / 2.5"	16 x 3.5" / 2.5"	12 x 3.5" / 2.5"	8 x 3.5" / 2.5"
Drive Type	SATA 6Gb/s & 3Gb/s, hot swappable			
LAN Port	Built-in 2 x 10 GbE (SFP+) and 4 x GbE 40GbE is optional			
PCI-E Slot	2 (one is occupied by a Dual-port 10GbE network adapter)			
HDMI / USB 3.0 / USB 2.0	1 / 4 / 4			
Users / Groups / Shared Folders	4096 / 512 / 512			
Max Concurrent Connections (CIFS)	1500			
Max IP Cameras	Default 8 / Max 80 (optional)			
QNAP Expansion Enclosure	Max 8 REXP-1620U-RP/ REXP-1220U-RP			
SSD Cache	✓			
Hardware Transcoding	✓			
Virtualizatio Station	✓			

* Design and specifications are subject to change without notice.

◤ JBOD Hardware specification

Model	REXP-1620U-RP	REXP-1220U-RP
Form Factor	3U rack mount	2U rack mount
Host Interface	Three SAS 12Gbps wide port	
LED Indicators	Front panel: Status, fault, system over heat, fan error Rear panel: SAS link, SAS error, enclosure ID	
Dimensions (DxWxH) mm	130 x 442.4 x 528.3	88 x 439 x 520
Weight (Net/ Gross) kg	18.14 kg/25.92 lb	14.8 kg / 21.18 kg
Max. number of HDDs/SSDs supported	16	12
Hard Drive Type	3.5" SAS/SATA 12/6Gb/s, SAS/SATA 3Gb/s hard drive or 2.5" SAS/SATA SSD	
Temperature	0-40˚C	
Humidity	5~95% RH non-condensing, wet bulb: 27˚C.	
Power Supply Specification	Redundant/ Hot Swap ATX Power Supply, 650W, 90-240Vac~, 50-60Hz	Redundant/ Hot Swap ATX Power Supply, 400W, 90-264Vac~, 47-63Hz
Management	Managed via QNAP QTS OS 1. Supports disk S.M.A.R.T. information 2. RAID expansion enclosure identifier 3. Locate RAID expansion enclosures 4. Locate hard disks on RAID expansion enclosure 5. Smart fan control by detecting system and hard drive temperature 6. In-band SAS firmware update	

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◤ Accessory

Category		Order P/N	Description
SAS Card		SAS-12G2E-U	Dual-wide-port storage expansion card, SAS 12Gbps
Rail kit		RAIL-A03-57	A03 series (Chassis) rail kit, max. load 57 kg
		RAIL-A02-70	A02 series (chassis) rail kit, max. load 90kg(For TS-EC2480U R2 only)
mSATA Flash		FLASH-256GB-MSATA	128GB mSATA Flash module x 2
RAM		RAM-4GDR3-LD-1600	4GB DDR3 RAM, 1600MHz, Long-DIMM
		RAM-4GDR3EC-LD-1600	4GB DDR3-1600 ECC Long-DIMM RAM Module
Cable		CAB-SAS10M-8644	MiniSAS external (SFF-8644 to SFF-8644), 1.0m
		CAB-SAS05M-8644	MiniSAS external (SFF-8644 to SFF-8644), 0.5m

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For more information, please go to www.qnap.com

◤ Network card compatibility list

Category		Order P/N	Interface	Description
QNAP		LAN-10G2T-U	10GBASE-T	Dual-port 10 Gigabit network expansion card for rack mount model, low-profile bracket, cat6A cable
		LAN-10G2SF-MLX	SFP+ OPTIC	Dual-port 10 Gigabit network adapter
		LAN-40G2SF-MLX	QSFP+	Dual Port QSFP+ 40 Gigabit network adapter
Mellanox		MCX311A-XCCT	SFP+ DAC/Optic	ConnectX®-3 Pro 10 Gigabit Ethernet Single SFP+ Port Adapter Card, full high bracket
		MCX312B-XCCT	SFP+ DAC/Optic	ConnectX®-3 Pro 10 Gigabit Ethernet Dual SFP+ Port Adapter Card, full high bracket
		MCX313A-BCCT	QSFP+	ConnectX®-3 Pro 40 Gigabit Ethernet Single QSFP+ Port Adapter Card, full high bracket
		MCX314A-BCCT	QSFP+	ConnectX®-3 Pro 40 Gigabit Ethernet Dual QSFP+ Port Adapter Card, full high bracket
Intel		X520-T2 (E10G42BT)	10GBASE-T	Dual-port 10 Gigabit network expansion card for tower models, desktop bracket, cat6A cable
		X520-SR2 (10G42BFSR)	SFP+ OPTIC	Dual-port 10 Gigabit network adapter, short range optical cable
		X520-DA2 (E10G42BTDA)	SFP+ DAC (Direct Attach Copper)	Dual port 10 Gigabit network adapter, SFP+ direct attach copper cable
Emulex		Oce11102-NT	10GBASE-T	Dual-port 10 Gigabit network expansion card for rackmount models, cat6A cable
		OCe11102-NM	SFP+ OPTIC	Dual-port 10 Gigabit network adapter, short range optical cable
		OCe11102-IM	SFP+ OPTIC	
		OCe11102-NX	SFP+ DAC (Direct Attach Copper)	Dual port 10 Gigabit network adapter, SFP+ direct attach copper cable
		OCe11102-IX	SFP+ DAC (Direct Attach Copper)	

Software specification

Operating System
· QTS 4.2 (embedded Linux)

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

Supported Browsers
· Google Chrome
· Microsoft Internet Explorer 10+
· Mozilla Firefox 8+
· 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: EXT3, EXT4, NTFS, FAT32, HFS+

Networking
· TCP/IP (IPv4 & IPv6: Dual Stack)
· Quad Gigabit NICs with jumbo frame (failover, multi-IP settings, port trunking/NIC teaming)
· Service binding based on network interfaces
· Squid Proxy server
· 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

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 E-mail, SMS, beep, push service, and LCD panel**
· 2-step verification
* SomeThe data encryption functions may not available in accordance with the legislative restrictions of some countries.

Storage Management
· QNAP flexible Volume/LUN with thin provisioning and space reclaim
· RAID 0,1, 5, 6, 10, + hot spare
· Supports storage pool*
· Support snapshot (4GB System RAM required)*
  -Support Volume/LUN snapshot*
  -Snapshot manager*
  -Snapshot clone*
  -Snapshot vault*
  -Snapshot replica*
  -Snapshot Agent for Windows VSS and VMware*
· Online volume expansion
· Online storage pool expansion
· Online RAID capacity expansion and online RAID level migration
· SMART data migration
· Storage expansion
· JBOD enclosure roaming
· SSD read-only/read-write cache
· 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
· 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 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 (Maximum sync tasks: 32)
· Shares files by links via emaile-mail
· Policy settings for conflicted files and file type filter support
· Version control: up to 64 versions.
· Incremental synchronization for HDD space saving
· Unified privilege management
· Unified configuration management
· Support central configuration mode
· Support remote erase / restore
· Support shared folders sync
· Supports Windows & Mac OS

Web Administration
· Multi-window, multi-tasking based system management
· Movable Icons and personalized desktop
· Smart toolbar and dashboard for neat system status display on system status
· 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
· Support mount Cloud Drive (such as Google Drive, Dropbox, Microsoft OneDrive, Amazon Cloud Drive, Yandex Disk and Box)
· Support mount remote shared folder through FTP, WebDAV or Microsoft networking (SMB/CIFS)
· Supported open office document via Office Online, Google Docs or Chrome Extension (Edit Office files in Google Docs, Sheets, and Slides)
· Supports ISO Mounting (Up to 256 ISO Files)
· Supports thumbnail display of multimedia files
· Supportsed sharinge download links and upload links
· Drag-n-drop Files via Google Chrome and Mozilla Firefox Browsers
· 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 display (*.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)

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
· Backup versioning for RTRR
· 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.

Cloud Storage Backup
· Amazon S3
· Amazon Glacier
· WebDAV-based cloud storage
· Microsoft Azure
· Open Stack
· Google Drive
· Dropbox
· ElephantDrive
· Symform

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

Virtualization Station
· Support Virtual Machine (VM) creating to run an operating system such as Windows, Linux and Android
· Support VM import and export
· Support VM clone
· Support VM snapshot
· Support VM backup and restore
· VM console can be displayed via HDMI output - QVM
· HTML5-based shared remote console

HD (HybridDesk) Station 3.0
· Playbacks videos, music, photos on yout TV tv with XBMC xbmc via HDMI hdmi output
· Watch various online contents such as YouTtube, Flickr, Picasa, Shoutcast, and more, etc.
· Web browser (Chrome, Firefox)
· Supports multi-nation keyboard, input and mouse
· Supports QNAP Qremote app and the official KODI remote app
· 4 new desktop themes
· Support user login permissions
· A variety of applications available such as Skype, Plex, Popcorn Time etc

Signage Station
· Supports dynamic content includinges videos, images, music, and text messages
· Supports multi- users collaboration
· Supports searching via keywords,
· Supports sharing via email and social networks sharing
· Supports design software - iArtist Lite
· Supports account authority management
· Supports various web browsers for playback (Chrome, Firefox, IE, Safari)
· Supports most- viewed, latest- released and different categories content list

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

Server Virtualization & Clustering
· Server Virtualization & Clustering
· VMware vSphere (ESXi 5.x)
· VMware VAAI for iSCSI and VAAI for NAS
· vSphere Plug-in
· Citrix XenServer (6.2)
· Windows Server 2012 R2 Hyper-V
· Supports Microsoft ODX
· QNAP SMI-S provider for Microsoft SCVMM

Surveillance Station
· Supports over 2,100 IP ip cameras
· Includes 8 free camera licenses, up to 80 camera channels via additional license purchase
· Instant playback to check the recent events
· Online editing to change edit cameras when in live view
· Visual aid by using e-maps
· Playback and speed control by shuttle bar
· Video preview using on playback timeline
· Intelligent Vvideo Aanalytics (IVAiva) for advanced video search
· Surveillance client for Mac
· Mobile surveillance app: Vvmobile (iOS and Android)
· Mobile recording app: Vvcam (iOS and Android)

Notes Station
· A handy Note-taking tool for everywhere you go on your private cloud.
· Direct and quick backup from Evernote with re-editing availability
· Support Google Calendar
· Import/Export PDF file available

· RSS live feed and auto update
· Online quick preview multimedia attachments available
· Notes encrypt/decrypt available
· Smart snapshot for version control
· Background task available for multi-tasks users
· Collaborate notes with multi users
· Support graphical editor for note editing
· Three tiers Note structure for easy organizing
· Support keyword search
· Collaborate notes with multi users
· Provide Chrome Extension: Notes Station Clipper (Clip web page content to your note)

VPN Server
· Secure remote access: PPTP、L2TP/IPsec & 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

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

AirPlay & Chromecast
· Streams videos, photos and music from the NAS to Apple TV via Qfile or QAirPlay&Chromecast's web-based controller
· Streams videos, photos and music from the NAS to TV with a Chromecast dongle via Qfile , Qvideo or QAirPlay&Chromecast's web-based controller

App Center
· More than 100 official and community software add-ons (ex: Dropbox, Google Drive Sync, McAfee, WordPress, HappyGet II, etc.)
· Photo Station
· Music Station
· Video Station
· iTunes Server
· DLNA Server
· AirPlay: Streams videos, photos and music from NAS to Apple TV via Qfile or QAirPlay's web-based controller
· Digital TV Station
· Download Station
· HD Station + XBMC media player + Google Chrome

Mobile Apps
· Qfile: iOS, Android, Windows Phone 8+
· Qfile HD: iPad version
· Qmanager: iOS, Android
· Qmusic: iOS, Android
· Qremote: iOS, Android
· Qget: Android
· Vmobile: iOS, iPad, Android

PC Utilities
· Qfinder: Windows, Mac, Linux
· myQNAPcloud Connect: Windows
· Qsync: Windows, Mac
· NetBak Replicator: Windows
· QGet: Windows, Mac, Linux
· vSphere Client plug-in: Windows
· Qsnap: Windows

Q'center (NAS CMS)
· Multiple NAS monitoring
· Utilization history reports
· Unified configuration management
· Visual display reports
· Monitor NAS behind NAT router with Q＇center Assistant
· Virtual appliances supported for Hyper-V and VMware

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QNAP

TS-ECx80U R2
Turbo NAS series

NAS with built-in 10GbE SFP+ LAN Ports and 40GbE ready

40GbE Ready **HDMI** **SSD cache support** **ECC RAM support**

Built-in Dual-port
10GbE SFP+
Network Adapter

◆ **Unified Storage, Backup & Sharing**

Provides a secure storage solution for data backup, file sharing and virtualization applications via iSCSI, CIFS and NFS, coupled with hardware-accelerated AES-256-bit Full NAS volume encryption for ensured security.

◆ **Breakthrough performance**

The TS-ECx80U R2 series to provide fast data transmission speeds and 10/40 Gigabit high speed networks.

TS-EC2480U R2

TS-EC1680U R2   **TS-EC1280U R2**   **TS-EC880U R2**

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