

TS-659 Pro II Turbo NAS

Hardware Spec.

CPU	Intel® Atom™ 1.8GHz Dual-core Processor
DRAM	1GB RAM (Expandable RAM, up to 3GB)
Flash Memory	512MB DOM
HDD	6 x 3/5" SATA 6Gb/s, SATA 3Gb/s hard drive or 2.5" SATA, SSD hard drive NOTE: <ol style="list-style-type: none">1. The system is shipped without HDD.2. For the HDD compatibility list, please visit http://www.qnap.com/pro_compatibility.asp
HDD Tray	6 x Hot-swappable and lockable tray
LAN Port	2 x Gigabit RJ-45 Ethernet port
LED Indicators	Status, LAN, USB, eSATA, Power, HDD 1, HDD 2, HDD 3, HDD 4, HDD 5, HDD 6
USB	2x USB 3.0 port (Front: 1; Back: 1) 4x USB 2.0 port (Back: 4) Support USB printer, pen drive, USB hub, and USB UPS etc.
eSATA	2 x eSATA port (Back)
Buttons	System: Power button, USB One-Touch-Backup Button, Reset button
LCD panel	Mono-LCD display with backlight Enter button, Select button for configuration
Alarm Buzzer	System warning
Form Factor	Tower
Dimensions	175 (H) x 257 (W) x 235 (D) mm 6.89 (H) x 10.12 (W) x 9.25 (D) inch

Weight	Net weight: 5.2 kg (11.46 lbs) Gross weight: 6.5 kg (14.33 lbs)
Sound Level (dB)	w/o HDD installed: 35.7 dB Stand by: 35.2 dB In operation: 40.8 dB (with 6 x 500GB HDD installed)
Power Consumption (W)	Sleep mode: 22W In Operation: 43W Power-off (in WOL mode): 1W (with 6 x 500GB HDD installed)
Temperature	0~40°C
Humidity	0~95% R.H.
Power Supply	Input: 100-240V AC, 50/60Hz, Output: 250W
Secure Design	K-lock security slot for theft prevention
VGA	Reserved VGA interface for maintenance
Fan	2 x quiet cooling fan (9 cm, 12V DC)

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

Features

Modern SMB, corporate, and entry-level enterprises face the challenge of the exploding growth of digital data storage needs, including documents, emails, and applications. To satisfy these storage demands and additional needs including centralized network backup, cross-platform (Windows, Mac, Linux, UNIX) file sharing, printer sharing, FTP download services, even video surveillance recording; QNAP has created the Business Series of Turbo NAS servers which are an IT administrator's dream. Never before has a single network device been capable of fulfilling as many business application needs, including the most comprehensive IP SAN solution as QNAP's Turbo NAS lineup of NAS servers.

The QNAP TS-659 Pro II Turbo NAS is the enterprise-class network-attached storage designed with next-generation technology like 6Gb/s (SATA III) hard drives support, delivering blazing fast data transfer speeds. The TS-659 Pro II houses up to six hot-swappable 3.5-inch or 2.5-inch SATA hard disk drives for up to 18TB of networked storage (based on 3TB drives). The TS-659 Pro II incorporates the Intel® Atom™ D525 1.8GHz dual core processor, capable of delivering ultra high performance, reliability, and lower power consumption during intensive data transfers. The TS-659 Pro II features 1GB of high performance DDRIII RAM, which can be upgraded to 3GB by simply adding a 2GB RAM in the additional RAM slot.

The TS-659 Pro II NAS supports super high-speed USB 3.0 ports, eSATA ports, and dual Gigabit network interfaces with load-balancing and failover support. Also standard is single disk, RAID 0, 1, 10, 5, 6, 10+hot spare, 5+hot spare, or 6+hot spare with online RAID capacity expansion and online RAID level migration for maximum data redundancy.

Is your network fully virtualized? The TS-659 Pro II is an efficient and powerful business storage center with advanced iSCSI services, cross-platform data sharing, and all-in-one server applications. With VMware® Ready™ and Citrix® Ready™ certification, and proven compatibility with Microsoft Hyper-V environment, the NAS is an ideal shared storage solution for virtualized and clustered environments.

The Most Affordable and Flexible Virtualization Solution

The TS-659 Pro II Turbo NAS is certified as compatible with VMware® vSphere4 (ESX 4.0 and above) and Citrix® XenServer virtualization platforms, and is also compliant with Windows 2008 Failover Cluster. The TS-659 Pro II supports NAS and iSCSI applications to provide a low-cost, highly flexible, and efficient IP SAN solution for business.

Feature-rich and Integrated Applications for Business



















The Turbo NAS supports file sharing across Windows, Mac, Linux, and UNIX. Versatile business applications such as file server, FTP server, printer server, web server, and Windows AD (Active Directory) support are provided. The dominant features, such as WebDAV, Shared Folder Aggregation (also known as DFS), IPv6 and IPv4 dual-stack, Wake on LAN, scheduled power on/off, hard disk S.M.A.R.T., comprehensive log systems, and policy-based unauthorized IP blocking are all included.

New iSCSI/ IP SAN for Virtualization Deployments

The Turbo NAS supports the following iSCSI features for flexible and secure storage server deployment:

- **[NAS + iSCSI/ IP SAN storage solution](#)**
The Turbo NAS can serve as a NAS (network-attached storage) for file sharing and an iSCSI storage concurrently.
- **Flexible multiple LUNs management**
The NAS supports multiple LUNs (Logical Unit Numbers) and iSCSI targets. The LUNs can be flexibly mapped to, unmapped from, and switched among different iSCSI targets.
- **Secure IP SAN environment deployment**
Designed with CHAP authentication and LUN masking, the advanced ACL (Access Control List) offers you the capability to block the access from unauthorized initiators.
- **Designed for virtualized and clustered environments**

With VMware, Citrix, and Microsoft Windows Failover Cluster support, the Turbo NAS is an affordable storage center for virtualized and clustered server environments.

iSCSI Features	QNAP NAS	Other NAS
VMware Ready [®] certified iSCSI array		
Citrix Ready [™] certified iSCSI storage		
Windows 2008 Hyper-V and Failover Cluster compatible		
SPC-3 for clustered environment deployment		
MC/S for failover, load balancing and performance gain		
MPIO for failover and load balancing.		
LUN masking for advanced security		
LUN mapping for flexible management		
Thin Provisioning for efficient disk usage		

Storage Expansion by [Virtual Disk Drive \(VDD\)](#)

The NAS supports flexible storage expansion by stacking other iSCSI targets on the network via its built-in iSCSI initiator. The connected iSCSI targets are turned into "virtual disk drives" of the NAS to provide more storage capacity.

Superior Performance and Energy-saving Design

The NAS delivers superior performance and high reliability for critical business applications. It is optimized to achieve low noise and low power consumption for environment protection.

SAMBA/ FTP Access

- FTP/SAMBA Testing Environment: Intel Core2 Quad CPU Q8300 2.50GHz/ 4GB DDRII RAM, WD640AAKS 640GB, Windows 7 Enterprise 32 Bits, Intel PRO 1000 PT Dual Port Server Adapter 82571

- FTP/SAMBA Testing Method: Connect the TS-659 Pro II and PC to switch, upload/download 5GB File without Jumbo Frame, FTP Tool: File Zilla

Wake on LAN

Enable this option to power on Turbo NAS remotely by Wake on LAN.

HDD Stand-by Mode







This option helps you save power consumption of the NAS by allowing the hard disks to enter standby mode when there is no access within the specified period.

Scheduled Power On/Off

You can create schedules to automatically turn on, turn off, or restart the NAS. Up to 15 schedules can be set.

Abundant Business Features

The Turbo NAS provides diversified server applications for business.

-  [FTP Server](#)
You can set up the Turbo NAS as an FTP server and share the files conveniently with your co-workers and customers.
-  [Encrypted Remote Replication](#)
The data on the Turbo NAS can be backed up to or from other Turbo NAS or Rsync servers securely on the network.
-  [File Server](#)
The Turbo NAS allows file sharing across Windows, Mac, Linux, and UNIX. It also supports [WebDAV](#) for you to access the share folders via HTTP/HTTPS protocol remotely.
-  [Printer Server](#) *New!*
QNAP NAS offers cross-platform printer sharing over the network and remote printing over Internet (max. 3 USB printers).It supports IPP (Internet Printing Protocol), Samba, print job management, and Bonjour printing for Mac OS X.
-  [Backup Server](#)
The Turbo NAS offers the most complete backup solution with Apple Time Machine support, remote replication to an Rsync server, Windows client backup software NetBak Replicator, and third party backup software support, and so on.
-  [Virtual Host Supported Web Server](#)
You can host multiple websites on the Turbo NAS with the built-in web server and virtual host feature. The NAS supports PHP, MySQL, HTTPS connection, and SSL authentication. It is the ideal solution for you to create your own websites, e-shops,

blogs, content management system (CMS), wiki, and so on.

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[Surveillance Station](#)

You can connect to maximum 4 IP cameras via the Turbo NAS and set up a video surveillance system with comprehensive monitoring, recording, and playback features.

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IPv6

The Turbo NAS supports IPv6 (Internet Protocol Version 6) which makes your NAS a dual-stack IP host running IPv4 and IPv6 at the same time.

Advanced RAID Management with Hot-swap Design

The Turbo NAS offers RAID 0, 1, 10, 5, 6, 10+hot spare, 5+hot spare, 6+hot spare, single, and JBOD disk configurations. It also supports hot-swap design that a failed member drive of a RAID configuration (RAID 1, 5, 6 only) can be replaced by hot swapping without turning off the server.

[Online RAID Capacity Expansion](#)

The storage capacity of a RAID configuration can be expanded by replacing the larger hard drives. All the data will be kept and seamlessly moved to the newly installed hard drives without turning off the server.

[Online RAID Level Migration](#)

You can upgrade the disk configuration to higher RAID level with the data retained without turning off the server.

Complete Data Backup Solution

The NAS offers complete backup solution for data protection, including cloud-based storage backup ([Amazon S3](#), [ElephantDrive](#)), [Apple Time Machine support](#), [encrypted remote replication](#), [Real-time Remote Replication \(RTRR\)](#) third party software backup, one-touch-copy backup and QNAP exclusive Windows-based utility NetBak Replicator.

- **Cloud Storage Backup**










The Turbo NAS supports Amazon S3 and ElephantDrive online backup and storage services. You can perform scheduled and real-time backup, access your data easily on the Internet, and restore the NAS data from the cloud storage.


- **Windows Client Backup Software - NetBak Replicator**

QNAP NetBak Replicator is a utility provided for you to back up the files and folders from Windows PCs to the Turbo NAS and restore the data. This software supports instant data backup and recovery, file filter, scheduled backup, and more.

- **Third-party Backup Software**
The NAS is compatible with popular third-party backup software, for example, Acronis True Image, CA BrightStor ARCserve Backup, EMC Retrospect, and Symantec Backup Exec.
- **Remote Replication by Rsync**
The data stored on the NAS can be remotely backed up to another QNAP Turbo NAS or to Rsync servers by Rsync over the network.
- **[Real-time Remote Replication \(RTRR\)](#) *New!***
Real-time Remote Replication (RTRR) is a feature used for real-time or scheduled data replication between the local NAS and a remote NAS, an FTP server, or an external drive. With real-time replication, the NAS will monitor the file changes and synchronize the data to the remote backup server.
- **[Apple Time Machine Backup and Management](#)**
Mac users can back up data from multiple MacBooks to the NAS via Time Machine. You can also specify the storage space dedicated to Time Machine backup on the NAS and manage the backup data easily via the web-based administration interface.
- **[Blazing Fast Data Backup via USB 3.0](#) *New!***
The Turbo NAS features USB 3.0 ports to offer blazing fast transfer speeds for data backup. You can configure the one-touch-copy button on the front of the NAS to copy the data from the NAS to an external storage device or vice versa.
 - Testing Method: Connect the TS-x59 Pro II to an external USB storage device (EXT4 or NTFS file system). Then copy a DVD file of 3GB from the NAS to the external device.

The NAS supports EXT3, EXT4, NTFS, and HFS+ file systems for high speed data transfer and enhanced compatibility between the NAS and Windows PC or Mac OS X.

File System	QNAP NAS	Other NAS
EXT4, EXT3		
FAT32		
High-speed NTFS		 
HFS+		

 : Lower speed

The TS-x59 Pro II Series models support 2 super high-speed USB 3.0 ports (1 front for one-touch data copy, 1 back panel for external storage expansion and data backup).


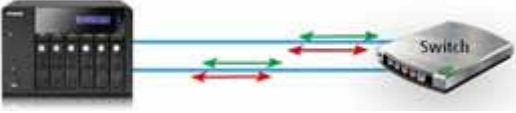

Network Deployment

IPv6 & IPv4 dual stack

The Turbo NAS supports IPv6 (Internet Protocol Version 6) which makes your NAS a dual-stack IP host running IPv4 and IPv6 at the same time.

Benefits of Dual LAN Deployment

The Turbo NAS supports multiple bonding modes: Balance-rr (Round-Robin), Active Backup, Balance XOR, Broadcast, IEEE 802.3ad, Balance-tlb (Adaptive Transmit Load Balancing), and Balance-alb (Adaptive Load Balancing).

Scenario	Benefits to your company
<p style="text-align: center;">Failover</p> 	<p>Provides continuous services when one network port fails.</p>
<p style="text-align: center;">Load Balancing</p> 	<ul style="list-style-type: none">▪ Aggregates bandwidth to boost the file transfer speed.▪ Data traffic is evenly distributed to balance network loading.
<p style="text-align: center;">Multi-IP Setting</p> 	<p>Allows sharing among different workgroups in two different subnets.</p>

Virtual LAN *New!*

You can integrate the NAS to an existing VLAN on a virtualization environment and configure the NAS as the storage system of other VLAN devices.

By enabling VLAN on the NAS, only the devices with the same VLAN ID can access the NAS.

Wireless LAN *New!*

Connect the Turbo NAS to the wireless network through a USB Wi-Fi dongle for convenient access. The NAS is compatible with fast 802.11n and 802.11g dongles for Wi-Fi connection.

Practical System and Authority Control Management Tools



[Instant SMS and Email Alert](#)

You can configure the SMTP server and SMSC server settings on the NAS in order to receive instant system warning or error messages by email and/or SMS.



SNMP (Simple Network Management Protocol)

You can collect the information, warning or error of the NAS and send to maximum 3 SNMP servers for centralized management and real-time monitoring.



Comprehensive Event Log System

Detailed logs of file-level data access to the NAS via SAMBA, iSCSI, FTP, AFP, HTTP, HTTPS, Telnet, and SSH, and networking services accessed by online users are all recorded.



S.M.A.R.T. & Advanced HDD Health Scanning (HHS)

S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) helps you monitor the hard disk drives status. Moreover, the Turbo NAS supports HHS (HDD Health Scan) for disk checking and bad blocks scanning.

Smart Fan

The fan rotation speed is automatically adjusted according to the server's temperature. You can also define the system temperatures to trigger high speed or low speed fan rotation. By manually setting the fan rotation speed, the fan will rotate at the defined speed continuously.

Policy-based Automatic IP Blocking

To prevent the NAS from malicious attacks, you can create an IP filter policy to allow, deny, or auto-block the IP address or network domain which attempts to connect to the NAS via SSH, Telnet, HTTP(S), FTP, Samba, or AFP.

[Import/ Export User](#) *New!*

The user accounts can be imported and exported in batch (BIN file) between different QNAP NAS servers.

Syslog Settings

All the system event logs and connection logs can be saved to a remote Syslog server.

Detailed System Information

You can view the system status, such as CPU usage, total memory, free memory, packets received, packets sent, error packets, system up time, CPU temperature, system temperature, hard disk drive temperature, and system fan speed.

AES 256-bit Volume-based Data Encryption

The disk volume with AES 256-bit encryption can only be accessed by an authorized encryption password or key. This prevents the NAS data from unauthorized access and data breach even if the hard disk drives or the entire system were stolen.

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

DOM Architecture and Fail-safe Dual OS

Two operating systems are built on the DOM of the Turbo NAS for system booting alternatively upon every system startup. When one fails, the other one will be used to boot up the NAS, and the failed OS is recoverable from the other healthy OS.

Touch-N-Go PC-less Installation

You can use the front panel LCD display to complete the first time installation in a few simple steps. The Turbo NAS will automatically complete the hard disk formatting and RAID building.

Windows Active Directory (AD) Authentication

You can import the user accounts* from a Windows AD domain to the NAS to let the domain users access the domain and the NAS with the same login settings. The NAS also supports setup of large amount of users and user groups.

*200,000 domain users and user groups can be imported according to QNAP's lab test.

Shared Folder Aggregation

You can easily access the shared folders of other servers on Microsoft Networking through the "portal folder" on the Turbo NAS. This saves your time and effort to login different servers one by one.

Host Access Control *New!*

The host-based permission control of the Turbo NAS prevents unauthorized hosts (computers or servers) access to the NAS shared folders via Microsoft Networking. You can specify the allowed access by host name, IP address, or network.

Advanced Folder Permission *New!*

Advanced folder permissions allow you to configure access control to the folders and subfolders of QNAP NAS. With this feature enabled, you can manage folder permissions from Microsoft Windows or the web-based management interface of the NAS without complicated procedure.

Network UPS

This feature allows multiple Turbo NAS servers on the same physical network to be protected by a single UPS via receiving UPS notification about abnormal power supply.

Expandable RAM Memory *New!*

The Turbo NAS provides an extra RAM memory module slot for users to expand the RAM memory of the NAS.

*The RAM module is available as an optional purchase.

[MyCloudNAS Service](#) *New!*

MyCloudNAS is a service which allows you to connect to your NAS remotely from anywhere. The easy-to-use wizard helps you assign a unique name to your NAS without going through the complicated process of registering DDNS service. Various NAS services can be easily published and accessed on the Internet.

[Web File Manager](#)

Web File Manager is a web-based feature for NAS users to upload, download, and manage the files anywhere by web browsers. File extraction, folder creation, and smart search for files and folder are supported. It makes file management on the NAS much easier.

[ISO CD/DVD Archiving and Sharing](#)

The Turbo NAS supports mounting ISO images of CD and DVD discs as network shares for data archiving, storage, and sharing. This feature saves the space for storing the physical discs, reduces the risk of data loss caused by disc wearing and tearing, and enhances the performance of data sharing on a business network.

[Multimedia Station](#)

Multimedia Station is a web-based application which lets you watch your photos and videos, and play music on the NAS by a web browser. You can also share the multimedia files with your friends and publish photos to popular social networking sites such as Facebook, Plurk, Twitter, Blogger, and so on.

[Data Access by iPhone and Android Mobile Devices](#)

QNAP offers a free multimedia application QMobile for users of iPhone, iPad, iPod touch, and Android handsets to carry all the multimedia files on the NAS in their pocket. You can stream videos, watch and upload digital pictures, play music that are stored on the NAS over the network and share your music playlists with other iPhone or Android phones users.

[Download Station & QGet](#) *New!*

QNAP NAS features Download Station for high-speed BitTorrent, HTTP (including RapidShare support), and FTP download without PC. RSS download (broadcatching) is also supported for automatic BitTorrent download.

QGet is a powerful utility which can be installed on any Windows or Mac computers to manage the download tasks of multiple Turbo NAS servers remotely (LAN/WAN).

[Software Expansion via QPKG](#)

You can maximize the usage of Turbo NAS by installing additional QPKG software add-ons developed by the users and community worldwide.