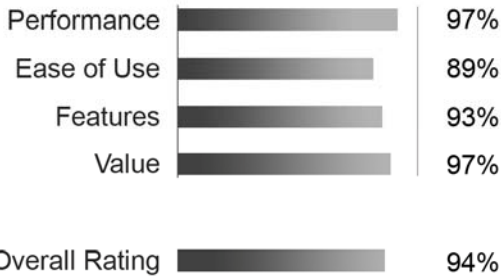


## Thecus N8800 8 Bay RackMount NAS



# 94%

**Manufacturer:** Thecus  
**Model:** N8800  
**MSRP(diskless):** \$1,599  
**Price as Reviewed:** \$1,599  
**Date Reviewed:** July 22, 2009  
**Link to Product:** [N8800](#)

### First impressions

The first 8-bay NAS made a quite entrance in the last quarter 2008, and as it has become customary, Thecus Technology Co were the first manufacturer to launch an 8-bay NAS in the SMB arena. The 8-bay followed closely on the heels of first ever 7-bay NAS launched by Thecus five weeks prior. Hats off, to Thecus R&D department for working diligently to get the product launched within a strict timeframe.

The N8800 is a rack mount solution as opposed to the desktop form factor of the 7-bay N7700. It was well received by all in sundry including many media publications depicting it as one of the best value for money and performance combinations they had seen that year. Little has

changed in 2009 Thecus N8800 still carries the same value for money tag. Features are a plenty and will appeal to both business and professional home enthusiasts.

Our 'First Looks' has now been further accentuated by having the N8800 in our portfolio for over 6 months and have successfully integrated and sold the unit to many satisfied customers. Popular demand from our readers has led us to write this review. The model reviewed had 8 x 1TB drives initially, replaced eventually by 8 x 2TB drives, just to get a comparative performance analysis of the differing drive capacities.

The unit is a large affair and the drive bays are protected with a flip-up mesh grille, a neat touch in case the nit was to fall on its face!, the



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bays are protected. Overall the unit is manufactured and designed to ensure sufficient airflow eliminating any possible overheating in instances when maximum capacity is achieved.



### The Inside Story

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The N8800 has the same motherboard as the N7700 and sports the Intel 1.86GHz Celeron M processor coupled with 1GB of DDR2 memory, the memory whilst it can be expanded is not being encouraged by Thecus at this moment as a result of incompatibilities they have discovered with upgrades performed by other resellers as well as users using lower quality memory modules that do not meet with its memory specifications. These have caused Thecus no end of headaches. We have tested the upgrade with the correct memory upgrade kit and have found the difference in performance to be negligible when tested within office applications platform only. We have NOT tested the memory upgrade in a typical audio/video – multi-media environment and hence cannot report memory performance variance results, if any. There are also a couple of PCI Express expansion slots but do not take these into consideration as Thecus has not decided what these are going to be used for.

### Monitoring Progress

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The usual LCD panel is included first introduced by Thecus, and now emulated by other manufacturers. The progress monitoring features are typically: Status - System Busy/Fail, HDD1-8 Activity/Fail, WNA/LAN Activity and IP Address designation, USB and eSATA connectivity and progress status. The unit like others can be controlled from the front panel with menu based option allowing selection of appropriate features for overall management.

### Connectivity Stats

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Connectivity is well catered for with two hot-plug power supplies, plus Dual Ethernet connectivity is via two RJ-45x2: 10/100/1000 BASE-TX Auto MDI/MDI-X WOL supported ports that facilitate Link Aggregation for 802.3ad, load balance and fail over. Load Balancing, which allows you to balance traffic across the two ports to maximize transfer rates, as well as Failover which in turns allows you to have the luxury of the second port taking over in case the first port fails. There are 4 x USB ports that support numerous USB based peripherals as well being used as a print server if desired. We did test a few USB based external drives and these worked flawlessly backing up on one of the shares we had created earlier. The USB transfer rate will be dependent on the peripheral and its implementation of the full USB specification.



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### Extended RAID features

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The N8800 supports multiple RAID modes - RAID 0, 1, 5, 6, 10, JBOD, with extended RAID features allowing Auto-rebuild, Hot-Swap, Hot-Spare, Global Hot-Spare and the ability to expand both RAID and Capacity levels without loss of data based on adherence of instructions provided. Space can be allocated for iSCSI as well if required, but be aware you need to allocate space in the initial RAID setup otherwise the RAID set will need to be reformatted to make an allocation for iSCSI. It is important to calculate capacity allocation prior to formatting the RAID set. The latest firmware (2.01.09) also adds Disk SMART and bad block test supported, allowing you to test for bad blocks anytime you wish to do so – WARNING – only do this if you do not need to use the NAS as it takes a while. Another feature added is RAID volume encryption supported in AES 256bit; this is a nice feature adding another level of security for RAID systems when required.



### Salient Features

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Some of the features borne by the Thecus N8800 most certainly relate to enterprise level, initially designed by Thecus at prices that

equate to less than a quarter of their enterprise counterpart products.

**iSCSI** – Support for iSCSI initiators makes it easy for users to centrally manage and deploy storage for the entire network with ease and allow consolidation of storage from the same central core. Thecus was the first SMB NAS manufacturer to support iSCSI and recognized the advantages of leveraging this at the SMB level

**Stackable** – Connect up to another five N8800 units and manage them via a master control panel.

**Filesystem** - A choice of ext3, ZFS, and XFS file systems, previously only a single option, now extended to multiple options allowing an array of users that were otherwise not keen to move over to the Thecus platform to do so with some ease. The ZFS file system is one that will encourage all SUN based users to immediately adopt the Thecus as a NAS of their choice should the need arise for one.

**ext3** - The ext3 or third extended file system is a Journaled file system that is coming into increasing use among users of the Linux operating system. It is the default file system for the Red Hat, Fedora and Debian Linux distributions. Why migrate from ext2 to ext3? Four main reasons: availability; data integrity; speed; and easy transition. Although its performance and scalability is less attractive than many of its competitors such as ReiserFS and XFS, it does have the significant advantage in that it allows in-place upgrades from the



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popular ext2 file system without having to backup and restore data.

**Wikipedia Definition of ZFS:** In **computing**, ZFS is a **file system** designed by **Sun Microsystems** for the **Solaris Operating System**. The features of ZFS include support for high storage capacities, integration of the concepts of Filesystem and **volume management**, **snapshots** and **copy-on-write** clones, on-line integrity checking and repair, and **RAID-Z**. ZFS is implemented as **open-source software**, licensed under the **Common Development and Distribution License** (CDDL).

**Wikipedia Definition of XFS:** XFS is a high-performance **journaling file system** created by **Silicon Graphics**, originally for their **IRIX operating system** and later ported to **Linux kernel**. XFS is particularly proficient at handling large files and at offering smooth **data transfers**.

## Range of Network File & Media Services

Network File and Media services offered with Thecus N8800 is inclusive but not limited to, CIFS/SMB for SMB/CIFS, HTTP/HTTPS, FTP, NFS v3, AFP, basically a heterogeneous environment that allows multiple platform clients to share the N8800. The Media Streaming support is adequate and allows Compatibility across UPnP AV, iTunes server supporting File Types: AAC, MP3 w/ ID3 tag, Photo Web Server Supported File Types: GIF, JPG (JPEG), BMP, PNG, Supports EXIF display, Supports slide show. Thecus continues to add more support across the range of services, but also relies on their party add-on outfits to realize this potential.

## Easy Backup with volume snapshots

Backup is via FarStone Drive Clone PRO 5.0 which is schedule based with incremental backup services. Furthermore disaster recovery can be facilitated using the same software to ensure rapid recovery at times of disaster. NAS remote replication can be achieved via Thecus proprietary Nsync service.

Take a look at the features of the **FarStone Drive Clone PRO 5.0** by [clicking here](#) and downloading the features that make the package a useful addition to the N8800.

Thecus' Nsync copies data from one appliance to another to a schedule and volume snapshots are supported only if you use the ZFS file system. The stackable feature is unique, as you declare iSCSI targets on other Thecus appliances that support IP SANs to the N8800, which can export them as network shares with ACLs applied.

## Performance

The N8800 designed specifically for customers who require a rack mount solution but with 8 drive bays will be pleased to learn it does not disappoint in the performance arena. Thecus has always managed to somehow balance price competitiveness whilst maintaining to continue turning in systems that perform exceptionally well.



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**Test Environment**

Thecus N8800 (8x1000GB – WD Standard Edition GREEN)

Firmware Revision: 2.01.09

RAID 5 Configuration

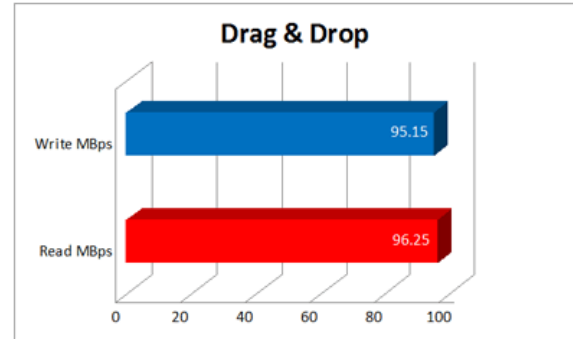
**Network**

NETGEAR FSM726 10/100Mbps + 1000Mbps ProSafe Managed Switch

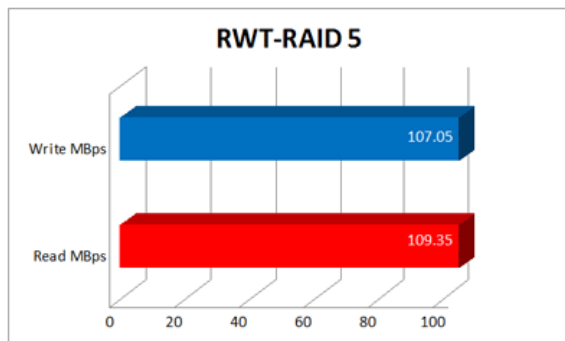
**Test Method**

There are two tests that we used to measure performance on the Windows platform:

Real-World testing utility that consist of workload traces gathered from typical digital home applications, traces of high definition video playback and recording, office productivity applications, video rendering/content creation as well as a broad range of different applications, using 1024 KB sequential block reads and writes on a 2 GB test file, as well as Drag & Drop of a 2 GB file over CIFS, Windows default network protocol.



The outcome of the Real World Test performance results will provide a tremendous dilemma for those users who value performance as a high priority in the pecking order for selecting a NAS. Thecus N8800 will not disappoint as clearly depicted by the tests. Read and Write speeds are above the 100MB/s limit and this it seems is clearly as a result of the latest firmware, as the older version only generated results of just below this level.



Drag and Drop is a methodology used by a majority of users to move data back and forth on their individual systems. As such, we feel this method should form an integral part of our testing of products and to ensure a return in results depicting a realistic process. Drag and Drop results represents a unit that is far ahead of its competitors.

The overall results clearly depict the Thecus N8800 as the fastest NAS we have tested to date. This with a price point that many 4-bays are sold for, means the N8800 now has a combo of value and performance accolades to add to its award list.



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## Overall Conclusion

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The 8-Bay Thecus N8800 scores big in many aspects, and leaves all its competitors in their starting blocks, but when it comes to value and performance the N8800 races away, and does not have a competitor in sight.

This review is courtesy of: eAegis.com Product Testing and Evaluation Division.

Please email [reviews@eaegis.com](mailto:reviews@eaegis.com) for a PDF version.