QNAP TVS-h1688X-W1250-32G 144TB (Seagate Ironwolf Pro) 16-Bay TurboNAS (12 x 3.5 HDD + 4 x 2.5 SSD); SATA 6G; Intel Xeon W-1250 6 cores 12 threads 3.3 GHz (boost up to 4.7 GHz); 32GB DDR4 ECC RAM (max. 128GB); 4 x 2.5GbE; 2 x 10GBASE-T 10GbE; 2 x M.2 22 NAS Tower Ethernet LAN Black

Brand : QNAP

Product code: TVS-H1688X-W1250-32G/144TB-IWP

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- Attain quad-port Thunderbolt™ 3 connectivity by installing two QXP-T32P expansion cards in the PCIe Gen 3 x4 slots
- Two 10GBASE-T and four 2.5GbE LAN ports accelerate virtualization, intensive file access, large backup/restoration tasks, and media transfer
- PCIe slots allow for installing 5/10/25/40GbE adapters, QM2 cards, or graphics cards to increase application performance
- 4K media playback and real-time transcoding; directly output videos to an HDMI display (up to 4K @30Hz)
- Supports virtual machines and containerized apps, centralized storage, backup, sharing, disaster recovery, and storage expansion
- Cloud storage gateways realize hybrid cloud applications by working with the cache space reserved on NAS to ensure low-latency data access to the cloud

Intel Xeon W-1250 6-core (3.3 GHz), Intel UHD Graphics P630, 4 x Long-DIMM DDR4, LCD, 6x USB 3.2 Gen 2, HDMI, 550 W

Storage	
Storage drive interface *	Serial ATA II, Serial ATA III
Supported storage drive interfaces	Serial ATA II, Serial ATA III
Storage drive sizes supported	2.5,3.5,M.2
Number of M.2 (M & B) slots	2
RAID support *	✓
RAID levels	0, 1, 5, 6, 10, 50, 60, JBOD
Online RAID migration	✓
Online RAID expansion	✓
RAID rebuild	✓
Hot-swap drive bays	✓
Supported file systems	FAT32, HFS+, NTFS, ZFS, exFAT, ext3, ext4
Storage drives installed *	✓
Total installed storage capacity *	144 TB
Number of storage drives supported *	16
Supported storage drive types *	HDD & SSD
Auto-rebuild	✓
Bad block scan	✓

Processor	
Processor manufacturer *	Intel
Processor family *	Intel® Xeon®
Processor model *	W-1250
Processor frequency *	3.3 GHz
Processor boost frequency	4.7 GHz
Processor cores	6
Processor threads	12
Processor cache	12 MB
CPU configuration (max)	1
On-board graphics card model	Intel UHD Graphics P630

Design	
Cable lock slot	✓
Cable lock slot type	Kensington

Performance	
Type *	NAS
Backup function *	✓
Backup features	Cloud, USB drive, iSCSI LUN
Buzzer	✓
Multilingual support	✓
Noise level	25.8 dB
Third-party support	✓
Snapshot	✓
Management protocols	SNMP
Web-based management	✓
Share folder access right management	✓
Security algorithms	256-bit AES, FIPS 140-2, HTTPS, SSH, SSL/TLS
Access Control List (ACL)	✓
Reset button	✓
On/off switch	✓
Built-in BitTorrent client	✓
Built-in FTP server	✓
Browser supported	Safari, Google Chrome, Internet Explorer, Mozilla Firefox
System log	✓
Hot spare	✓
S.M.A.R.T. support	✓
Universal Plug and Play (UPnP)	✓
USB copy function	✓

Memory	
Internal memory type	DDR4
Maximum RAM supported	128 GB
Memory slots	4
Internal memory *	32 GB
Memory form factor	UDIMM
ECC	✓
Flash memory	5000 MB

Network	
Ethernet LAN *	✓
Ethernet LAN data rates	100,1000,2500,10000 Mbit/s
Ethernet LAN data rate supported (max)	10000 Mbit/s
DHCP client	✓
DHCP server	✓
Jumbo frames support	✓
iSCSI support	✓
Wake-on-LAN ready	✓
Link aggregation	✓
Load balancing system	✓
Dynamic DNS (DDNS)	✓
WLAN adapter supported	✓

Ports & interfaces	
USB port *	✓
USB 3.2 Gen 2 (3.1 Gen 2) Type-A ports quantity	4
USB 3.2 Gen 2 (3.1 Gen 2) Type-C ports quantity	2
HDMI ports quantity	1
HDMI version	1.4b
Ethernet LAN (RJ-45) ports *	6
PCI Express x4 (Gen 3.x) slots	2
PCI Express x8 (Gen 3.x) slots	1

Design	
Chassis type *	Tower
Cooling type *	Active
Product colour	Black
Number of fans	5 fan(s)
Fan diameter	8 cm
Fan diameter 2	9.7 cm
LED indicators	HDD, LAN, Status, System, USB
Built-in display	✓
Display type	LCD

Software	
Operating system installed *	QuTS hero
Operating system version	4.5.0
Windows operating systems supported	Windows 10, Windows 7, Windows 8
Linux operating systems supported	✓
Mac operating systems supported	✓
Server operating systems supported	Windows Server 2008 R2, Windows Server 2012, Windows Server 2012 R2, Windows Server 2016, Windows Server 2019
Other operating systems supported	✓

Power	
Power supply location	Built-in
Power supply unit (PSU) capacity	550 W
Power consumption (typical)	97.492 W
Power consumption (sleep)	91.26 W
AC input voltage	100 - 240 V
Fan voltage	12 V

Weight & dimensions	
Width *	369.9 mm
Depth *	319.8 mm
Height *	303.8 mm

Packaging content	
Cables included	AC, LAN (RJ-45)
Power cables quantity	1
Number of screws	72

Processor special features	
Embedded options available	✗
Enhanced Intel SpeedStep Technology	✓
Execute Disable Bit	✓
Idle States	✓
Intel 64	✓
Intel Clear Video Technology	✓
Intel Trusted Execution Technology	✓
Intel Virtualization Technology (VT-x)	✓
Intel Virtualization Technology for Directed I/O (VT-d)	✓
Intel VT-x with Extended Page Tables (EPT)	✓

Operational conditions	
Operating temperature (T-T)	0 - 40 °C
Operating relative humidity (H-H)	5 - 95%
Storage temperature (T-T)	-20 - 70 °C

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