

# Netgate TNSR 8500

## Secure Routing and Services

Introducing the Netgate® TNSR 8500 Secure Router featuring TNSR software. Designed for service providers and large data centers, the TNSR 8500 Secure Router represents a giant leap in throughput and services capabilities. Featuring an Intel Xeon D-2899NT, 22-core processor, the TNSR 8500 can achieve throughput of over 480Gbps, while providing ample CPU power for enhanced security applications like IDS/IPS and others.

The TNSR 8500 comes standard with 8 10Gbps ports, and 9 1Gbps ports, and has 2 PCIe expansion slots that can be loaded with optional 2-port 25Gbps cards and 2-port 100Gbps ports, allowing this platform to easily scale to your throughput needs.

Combined with a high CPU core count, the TNSR 8500 is the perfect choice for inline Intrusion Detection and Prevention applications. Designed for service providers and large data centers, the TNSR 8500 is a game-changer for any organization.



**400+ Gbps  
Throughput**



**350+ Gbps  
Firewall**



**200+ Gbps  
NAT**



**140+ Gbps  
IPsec VPN**

iPerf3-BiDirectional tests were used to measure throughput.

## HIGH PERFORMANCE - MINIMAL FOOTPRINT

This compact 1U chassis, available in AC or DC configurations, optimizes space efficiency in server rooms and data centers, ideal for mission-critical deployments requiring robust high availability options and hotswap dual-power capability. Redefine your network standards by offering superior scalability, performance, and cost efficiency that exceeds industry expectations with Netgate's TNSR 8500 Secure Router.



### **Twenty-two Core 2.2 GHz Intel® Xeon® D-2899NT CPU**

Delivers 400+ Gbps routing using iPerf3-bidirectional traffic and over 350 Gbps of stateless firewall throughput, with plenty of processing power left over for enhanced security applications.

### **17 Independent 1G, and 10G ports**

Port flexibility - with 1G, 10G Ethernet configurable as WAN or LAN across the combination of 17 RJ45, SFP+, and SFP28 ports.

### **Expandability**

2x PCIe 4.0 x16 full-height three-quarters length card slots for 25G and 100G cards

### **Reliable Power**

Dual hot-swappable PSU bays. (2) 800W PSU included, 110V/240V AC. DC options available.

# SPECIFICATIONS

|                               |                                                                                                                                                                                                            |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CPU</b>                    | Intel Xeon D-2899NT, 22-core @ 2.2 GHz (Ice Lake-D HCC)                                                                                                                                                    |
| <b>Physical Network Ports</b> | (4) 10G SFP+ cage ports<br>(4) 10G SFP28 cage ports<br>(8) 1G RJ45 via (2) i350<br>(1) 1G RJ45 via Intel i210                                                                                              |
| <b>Storage</b>                | 512 GB NVMe 2280 M-Key M.2 SSD                                                                                                                                                                             |
| <b>Memory</b>                 | 128 GB DDR4, ECC, 2933 MT/s via 4x 32 GB UDIMM, 1 DPC                                                                                                                                                      |
| <b>Console Port</b>           | 1x "Cisco pinout" RJ45 console port<br>Ships with 6 foot "Cisco" pinout RJ45 to USB-A console cable                                                                                                        |
| <b>Management Port</b>        | 1x BMC management port via dedicated 1G RJ45                                                                                                                                                               |
| <b>USB Ports</b>              | 2 x USB 3.0 jacks (USB-A female)                                                                                                                                                                           |
| <b>RTC (Battery)</b>          | CR2032 (20mm) lithium coin cell onboard, 3VDC                                                                                                                                                              |
| <b>LED</b>                    | 3x RGB + AMBER LEDs - software/firmware controllable via Aspeed AST2620 BMC                                                                                                                                |
| <b>Enclosure</b>              | Sheet steel enclosure, powder coat finish.<br>16.92 x 14.75 x 1.72 inches*<br>430 x 375 x 43.8 mm<br>16.74 lbs. / 7.59 kg.                                                                                 |
| <b>Cooling</b>                | Active - internal chassis cooling fans at the rear of the enclosure<br>*airflow direction is front-to-back                                                                                                 |
| <b>Environmental</b>          | 0°C (32°F) to 40°C (104°F) - ambient                                                                                                                                                                       |
| <b>Power</b>                  | MAX:<br>2 x Internal 800W PSU 100V/240V AC input (hot-swappable) included,<br>optional 48V DC-DC PSU available.<br><br>AC Inlet: IEC320-C16 (3-pin)<br>2 x NEMA 5-15P to IEC320-C15 US power cord included |
| <b>Certifications</b>         | CE, CB, FCC (Class A), ISED (Class A), RoHS, UL, ACMA, UKCA, VCCI                                                                                                                                          |

# PERFORMANCE<sup>1</sup>

## iPerf3<sup>2</sup> Bidirectional Traffic

- L3 Forwarding: 400+ Gbps
- Firewall: 350+ Gbps
- NAT: 200+ Gbps
- IPsec VPN: 140+ Gbps

1. Refer to <https://www.netgate.com/products/appliances/> for the latest performance benchmarks. All performance tests are based upon maximum memory configuration and base model port configuration (no port expansion). Throughput measurements are based upon maximum bidirectional traffic across all available ports

2. Basic Traffic (Primarily Data Download): iPerf3 traffic is TCP: 1460-byte payload and TCP framing.

## KEY HIGHLIGHTS

### SECURE FAST ROUTING

- Combines the power of TNSR software with an Intel Xeon D-2899NT, 22-core CPU
- Built around Vector Packet Processing technology
- Supports all popular routing and redundancy protocols, as well as management protocols
- Separation of forwarding plane from management plane

### LOW TOTAL COST OF OWNERSHIP

- No complicated license schemes
- No artificial limits or add-ons are needed for full functionality
- Enjoy unlimited users, firewall rules, IPsec tunnels, dual WAN, and more without additional usage or feature-based pricing
- Designed for an extended deployment lifetime

### GROWS WITH YOU

- 88 Gbps base throughput, expandable to 400+ Gbps
- Processing power for advanced security applications
- Built-in powerful features like Snort version 3 for IDS/IPS
- TNSR software updates to enable new features and performance enhancements
- Supports all popular routing protocols and redundancy protocols

### EASY MANAGEMENT

- Intuitive CLI
- RESTCONF and NETCONF API
- Configure advanced routing, firewall rules, VPNs, multi-WAN, and high-performance NAT
- SNMP, IPFIX, and Prometheus Exporter for monitoring and detailed reporting

### SECURE REMOTE ACCESS

- Highly flexible, suitable for remote access and site-to-site connections, supporting a wide range of VPN types, including IPsec and WireGuard,
- Simplified multi-vendor supported VPN creation and management
- Secure connectivity for mobile and remote workers to the cloud

## BEST FOR

- Large service providers and large enterprise data centers
- Organizations with high throughput needs (400+ Gbps)
- High performance edge routing and networking requirements
- Edge-to-Cloud applications
- Enhanced secure routing requirements requiring IDS/IPS services
- High performance VPN requirements

# SOFTWARE FEATURES

## ROUTER:

- Static and dynamic routing
- Popular protocols supported (BGP, OSPF, IS-IS, RIP)
- Virtual Router Redundancy Protocol (VRRP)
- Bidirectional Forwarding Detection (BFD)
- Virtual Routing and Forwarding (VRF)
- Large scale NAT support
- IP Unnumbered interfaces
- Equal cost multi-path support
- ACL-Based Forwarding
- Multiple IP addresses per interface
- Complex NAT mapping (outbound and inbound)
- Full IPv4 and IPv6 support
- Optional multi-node High Availability (HA) clustering

## FIREWALL, NAT and ATTACK PREVENTION:

- High-performance stateful firewall/NAT technology
- Extensive firewall rules
- Stateful filtering & packet inspection
- Per-interface configuration
- IDS/IPS with built-in Snort version 3
- Unicast Reverse Path Forwarding

## VPN:

- Site-to-site and remote access VPNs
- IPsec routed site-to-site with pre-shared-keys and Certificate authentication
- IPsec remote access VPNs with pre-shared keys, EAP-TLS, and EAP-RADIUS
- IPsec Acceleration Intel QuickAssist Technology (QAT)
- WireGuard®
- Latest encryption algorithms (AES-GCM, AES-CBC, SHA2/256, ChaCha20-Poly1305)
- Split tunneling
- IPsec route-based protocol support

## USER AUTHENTICATION & SYSTEM SECURITY:

- Pre-shared-keys and Certificate authentication for admin access
- RBAC using NETCONF Access Control Model (NACM)
- User and group-based privileges
- LDAP authentication
- Optional key-based SSH access
- Captive portal with user data transfer quotas

## NETWORK SERVICES

- Dynamic Host Configuration Protocol (DHCP) client/server
- DNS resolver
- NTP server

## CONFIGURATION:

- Familiar CLI
- RESTCONF and NETCONF API support
- Easy configuration backup/restore
- Configuration versioning

## MONITORING & REPORTING:

- CLI show commands
- REST API Endpoints
- SNMP
- Prometheus Exporter
- IPFIX
- SPAN/ERSPAN



## ADDITIONAL INFORMATION

- TNSR Technical Documentation: Getting Started, API Documentation, and other helpful guides
- TNSR Supported Platform Manual
- Not PoE Compatible
- Ships with a USA power cord. Easily changed to non-US style by purchasing a IEC320-C15 (3 PIN) compatible power cord (visual example).

## SUPPORT INFORMATION

- Technical assistance is available from Netgate Global Support 24x7x365.
- A TNSR software subscription includes Netgate Global Support technical assistance (TAC Pro, our 24-hour SLA) for the first year.
- Upgrade to TAC Enterprise for our fastest 4-hour SLA.
- Help is also available on our community forum

## WARRANTY INFORMATION

- One-year manufacturer's hardware warranty
- Extended warranties for US customers are available from Extend.
- Standard 30-day return policy. Netgate does not sell seconds or returns. An open box fee may apply.
- All specifications are subject to change without notice.

## YOU WILL ALSO NEED

- Mounting hardware specific to your racking system. Due to the wide variety of rack mount fasteners, cage nuts, rack screws, and similar mounting hardware are not included. Please select fasteners that are suitable for your rack installation. Consult a qualified tradesperson if you need assistance.

## PRO TIP

- Take a photo of the label on the bottom of your Netgate 8500 before installation.
- It is always a good idea to note serial numbers and additional information from the label on the bottom of your system before installing it in a server rack. Labeling may be challenging to read while mounted in the rack. Please take a picture of the information or write it down for future reference.

Questions? We'd love to hear from you. Contact us at [sales@netgate.com](mailto:sales@netgate.com)