NETGEAR®

AV Line

Product Brief | **M4500 series**

100GE-Enabled Managed Switches

# Product Brief



The NETGEAR M4500 series is a powerful 10G, 25G, and 100G solution designed for the edge, the server room, and the core. M4500 delivers nonstop Multi-Chassis Link Aggregation MLAG, spine and leaf, edge to core connectivity for AV and IT networks. In AV environments, the AV User Interface, Engage Controller and AV profiles are certified by 200+ AV manufacturers.

## Key features

- Cost effective 100G aggregation and 10G access layer for AV deployments and redundant spine & leaf topologies
- Zero Touch AV-over-IP with pre-configured L2 Multicast on all models (10G AV encoders and decoders) and SDVoE-ready
- Advanced Layer 3 feature set including IP Multinetting/CIDR, Static, PBR, VRRPv2, OSPFv3, PIM-SM, VxLAN, BGP4, VRF-Lite
- Optimized for "Spine and Leaf" redundant AV installations, with or without MLAG between spine switches
- Up to 320 TX / 320 RX (10 Gigabit) Nodes all line rate with each other in a redundant spine and leaf architecture
- 2 power supply units (APS750W) and 6 redudant fan trays (AFT402) pre-installed for 1+1 power and 4+2 fan redundancy
- Ultra-low latency (spine 0.13µs @100G; leaf 0.119µs @10G) and scalable table size (32K MAC, 8K ARP, 4K VLANs, 32K routes)

## AV Software features

- Designed for the most demanding AV over IP installations of up to thousands of endpoints
- AV-centric User Interface allows for simple, profile-based, per-port configuration in a snap
- Works out of the box with automatic, multi-switch configuration for most AV-over-IP installs
- All the simplicity of the M4250 AV Line packed in more Enterprise-class hardware with redundant PSUs and larger fabrics
- Less time to install and configure using the NETGEAR Engage™ Controller
- NETGEAR IGMP Plus™ means AV-over-IP multicasting will work out of the box and not flood your network
- With Auto-Trunk and Auto-LAG, simply connect M4500 switches together and you are done!

## Other Software features

- Advanced classifier-based, time-based hardware implementation for L2 (MAC), L3 (IP) and L4 (UDP/TCP) security and prioritization
- Selectable Port-Channel / LAG (802.3ad - 802.1AX) L2/L3/L4 hashing for fault tolerance and load sharing with any Ethernet channeling
- Up to 64 Link Aggregation Groups (LAG, Port-Channel, LACP) with 32 ports per LAG and Multi-chassis Link Aggregation (MLAG)
- Comprehensive IPv4/IPv6 static and dynamic routing including IP Multinetting/CIDR, PBR, VRRPv2, OSPFv3, PIM-SM6, BGP4, VRF-Lite
- PTPv2 Transparent Clock (1-step E2E)
- Advanced IPv4/IPv6 security including malicious code detection, DHCP Snooping, IP Source Guard, and Control Plane Policing (CoPP)
- Priority-Based Flow Control (PFC), DCBX Bridging, Enhanced Transmission Selection (ETS) and VXLAN Gateway for server installations

## Availability

- Two (2) redundant, modular power supplies are pre-installed contributing to business continuity management
- Six (6) hot-swappable fan trays are pre-installed for 4+2 fan redundancy
- Spine and leaf architecture with every leaf switch (10G/25G access) connecting to every spine switch (distributed 100G core)
- Up to 48 paths ECMP routing for load balancing and redundancy
- Link Dependency feature enables or disables ports based on the link state of different ports

## Management

- Industry standard SNMP, RMON, MIB, LLDP, AAA, sFlow and RSPAN remote mirroring implementation
- Service port for out-of-band 1 Gigabit Ethernet management (OOB)
- Standard RS232 straight-through RJ45 for local management console (USB 2.0 to RS232 converter with PL203 chipset is advised)
- Non-Disruptive Configuration for applying a new configuration file without disrupting the operation of unchanged features
- Industry standard command line interface (CLI) only

## NETGEAR M4500 warranty and support

- NETGEAR M4500 series is covered under NETGEAR Enterprise Lifetime Warranty*
- 3 years of Sprint support included with 24/5 Technical Support (phone, online) and Advance RMA Replacement
- Overdrive support contracts available for 24/7 Technical Support (phone, online, 2h SLA) and Next Business Day RMA Replacement

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# Hardware-at-a-Glance

| | | | FRONT | | REAR | | MANAGEMENT | |
|---|---|---|---|---|---|---|---|---|
| Model name | Form-Factor | Switch-ing Fabric | 25GBASE-X SFP28 ports | 100GBASE-X QSFP28 ports | PSU | Fans | Out-of-band Console | Model number |
| M4500-32C | **Full width** 1-unit 1U rack mount | 6.4 Tbps | | **32 ports** 1x100G; 1x50G; 1x40G; 4x25G; 4x10G **1x100G default mode** | **Modular 2 bays** 2 PSU included (1+1 redundancy): 2 x APS750W | **Modular 6 slots** 6 Fans included (4+2 redundancy): 6 x ATF402 Front-to-back 64.0dB | Ethernet: Out-of-band 1G port (Front) Console: RJ45 RS232 (Front) Storage: USB (Front) | CSM4532 |
| M4500-48XF8C | **Full width** 1-unit 1U rack mount | 4 Tbps | **48 ports** 1x25G; 1x10G; 1x1G* **1x10G default mode** | **8 ports** 1x100G; 1x100G; 1x50G; 1x40G; 4x25G; 4x10G **1x100G default mode** | **Modular 2 bays** 2 PSU included (1+1 redundancy): 2 x APS750W | **Modular 6 slots** 6 Fans included (4+2 redundancy): 6 x ATF402 Front-to-back 68.0dB | Ethernet: Out-of-band 1G port (Front) Console: RJ45 RS232 (Front) Storage: USB (Front) | XSM4556 |

* SFP28 port speed is configurable by multiples of 4 ports (Port-1 for 1-2-3-4; Port-5 for 5-6-7-8; etc.)

## Front View

M4500-32C




M4500-48XF8C



## Rear View

M4500-32C



M4500-48XF8C



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## Software-at-a-Glance

| LAYER 3 PACKAGE | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model name | Manage-ment | AV Dedicated UI | IPv4/IPv6 ACL and QoS, DiffServ | IPv4/IPv6 Multicast Filtering | IPv4 / IPv6 Policing and Conver-gence | VLANs | Trunking Port Channel | IPv4/IPv6 Authentication Security | IPv4/IPv6 Static Routing | IPv4/IPv6 Dynamic Routing | Datacenter Features | Model number |
| **M4500 series** | NETGEAR Engage Controller<br>Out-of-band; CLI; Telnet; SSH<br>SNMP, MIBs RSPAN<br>Ra-dius Users, TACACS+ | AV Web-based GUI<br>Designed for AV installers<br>AV-related controls<br>Audio over IP profiles<br>Video over IP profiles<br>Mixed Audio and Video profiles | Ingress/ egress<br>1 Kbps shaping rate limit | IGMP Plus for automatic IGMP<br>IGMPv3 MLDv2 Snooping, Proxy<br>SSM<br>IGMPv1,v2 Querier (compatible v3)<br>Control Packet Flood-ing | Policy-based rout-ing (PBR)<br>LLDP-MED<br>IEEE 1588 PTPv2 1-Step End-to-End Transparent Clock (TC) | Static, Dynamic<br>Double VLAN mod (QinQ) | Auto-Trunk and Auto-LAG between M4250, M4300, M4350, and M4500 Switches<br>Static LAG, or Dynamic LACP<br>Seven (7) L2/ L3/L4 hashing algorithms<br>Multi Chassis Link Aggregation Group (MLAG) | Successive Tiering<br>(DOT1X; MAB)<br>DHCP Snooping<br>Dynamic ARP Inspection<br>IP Source Guard | Port, Subnet, VLAN routing<br>DHCP Relay<br>Multicast static routes | IP Multinetting/ CIDR<br>PBR<br>VRRPv2, OSPFv3<br>PIM-SM/ SSM<br>BGP4, VRF-Lite | PFC<br>DCBX<br>CoS Queuing and ETS<br>VXLAN Gateway | All models |

## Performance-at-a-Glance

| | TABLE SIZE | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model name | MAC ARP/ NDP | Routing / Switching Capacity | Through-put | Application Route Scaling | Packet Buffer | Latency | IP Multicast Forwarding Entries | CPU | Multicast IGMP Group member-ship | VLANs | Link Aggregation Port Channel | sFlow | Model number |
| **M4500-32C** | 32K MAC<br>8K ARP<br>2.5K NDP | 6.4 Tbps<br>Line-rate | 2 Bpps | Static routes: 128<br>IPv4 routes: 32K<br>IPv6 routes: 24K<br>IP IGMP/ MLD: 2,048<br>PIM-SM: 1536<br>PIM-SMv6: 512 | 256 Mb | 64-byte frames<br><0.13µs 100G QSFP28<br><0.417µs 50G QSFP28<br><0.15µs 40G QSFP+<br><0.125µs 4x25G breakout<br><0.766µs 4x10G breakout | 2,048 IPv4<br>2.048 IPv6 | x86 Intel Atom® Processor C3558<br>8GB DDR3/ECC RAM<br>128GB SSD storage | 4K IPv4 / IPv6 | 4K VLANs | 64 groups (LAG)<br>802.3ad with LACP<br>32 members/ LAG<br>63 groups (MLAG)<br>Multichassis LAG<br>32 members/ MLAG | sFlow v5<br>8 sessions<br>416 samplers<br>416 pollers<br>8 receivers | **CSM4532** |
| **M4500-48XF8C** | 32K MAC<br>8K ARP<br>2.5K NDP | 4 Tbps<br>Line-rate | 2 Bpps | Static routes: 128<br>IPv4 routes: 32K<br>IPv6 routes: 24K<br>IP IGMP/ MLD: 2,048<br>PIM-SM: 1536<br>PIM-SMv6: 512 | 256 Mb | 64-byte frames<br><0.117µs 25G SFP28<br><0.119µs 10G SFP+<br><0.129µs 100G QSFP28<br><0.129µs 50G QSFP28<br><0.144µs 40G QSFP+ | | | | | | | **XSM4556** |

*This product comes with a limited warranty that is valid only if purchased from a NETGEAR authorized reseller, and covers unmodified hardware, fans and internal power supplies – not software or external power supplies, and requires product registration at https://www.netgear.com/business/registration within 90 days of purchase; see https://www.netgear.com/about/warranty for details. Intended for indoor use only.

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