



## Unlock your Network Potential with 10-Gigabit/Multi-Gigabit 5-Speed Networking Switches

Revolutionary 5-speed 10-Gigabit/Multi-Gigabit technology built in the NETGEAR multi-speed switches allows your devices to speed past the Gigabit barrier.

With the growth of virtualization, flash Storage, 4K videos, video streaming and IP surveillance, SMB networks need to extend beyond 1 Gigabit barrier. The 10-Gigabit/Multi-Gigabit Plus series from NETGEAR presents the right

solution for this requirement; delivering unprecedented 10-Gigabit/Multi-Gigabit bandwidth at an affordable cost.

Each port automatically detects which speed is needed by the connected device and provides the adequate speed. As opposed to regular 10-Gigabit switches that will only provide 1-Gigabit connectivity to any device that require less than 10-Gigabit, the XS512EM

and XS724EM gives the exact speed required, no downgrade. Also, the new NETGEAR Multi-speed switch ports can be connected with regular Cat5E Ethernet cables, without the need to upgrade to Cat6/Cat6A wiring, therefore reducing wiring costs and hassle

## Highlights

### Hardware Highlights

- 5-speed Networking :
  - XS512EM-12-port 10-Gigabit/Multi-Gigabit
  - XS724EM-24-port 10-Gigabit/Multi-Gigabit
- 2-Port SFP+ (combo) for fiber uplinks
- Rackmount or Desktop
- Internal power supply to eliminate power brick
- Active fans for whisper quiet operation
- 50°C Maximum Operating Temperature
- Compact Small Form Factor (XS512EM)

### Software Highlights

- VLAN support for traffic segmentation
- Quality of Service (QoS) for traffic prioritization
- Auto "denial-of-service" (DoS) prevention
- Link Aggregation to add redundancy and increase your network speed (Static LAC and LACP supported)
- Loop prevention and broadcast storm controls
- IGMP snooping v1, v2 and v3 support for multicast optimization
- Rate limiting for better bandwidth allocation

- Port mirroring for network monitoring
- Jumbo frame support
- Energy Efficient Ethernet (IEEE802.3az) support for maximum power savings
- Troubleshoot connection issues via cable test

### Industry leading warranty

- Limited Lifetime\* 24/7 Technical Support
- Limited Lifetime\* Hardware Warranty



### Hardware at a Glance

Model Name	Form-Factor	10-Gig/Multi-Gig Copper Ports	Internal Power Supply	10G SFP+ Ports	LED's	Case Material	Fans
XS512EM	Rackmount/Desktop/	12	Yes	2 (shared)	Power, Port Link/Speed/Activity/ Fan	Metal	Active Fan
XS724EM	Rackmount/Desktop/	24	Yes	2 (shared)	Power, Port Link/Speed/Activity	Metal	Active Fan



XS512EM: front

- 12 x 10-Gig/Multi-Gig Copper Ports
- 2 x SFP+ Ports
- 19-inch Rackmountable
- Small Form Factor



XS512EM back

- Internal PSU



XS724EM: front

- 24 x 10-Gig/Multi-Gig Copper Ports
- 2 x SFP+ Ports
- 19-inch Rackmountable



XS724EM back

- Internal PSU

### Software at a Glance

LAYER 2 FEATURES							
Management	VLANs	QoS	Port Trunking	IP Multicast Filtering	Rate Limiting & Priority Queueing	Jumbo Frame Support	IEEE (802.3az) Energy Efficient Ethernet
Web Browser-based GUI (HTTP), PC-Based Pro-SAFE Plus Utility (PSU)	Port-based, IEEE 802.1Q-based, Voice	Port-based, IEEE 802.1p/DSCP-based	Static LAG and LACP	IGMP Snooping	Yes	Yes	Yes

### Performance at a Glance

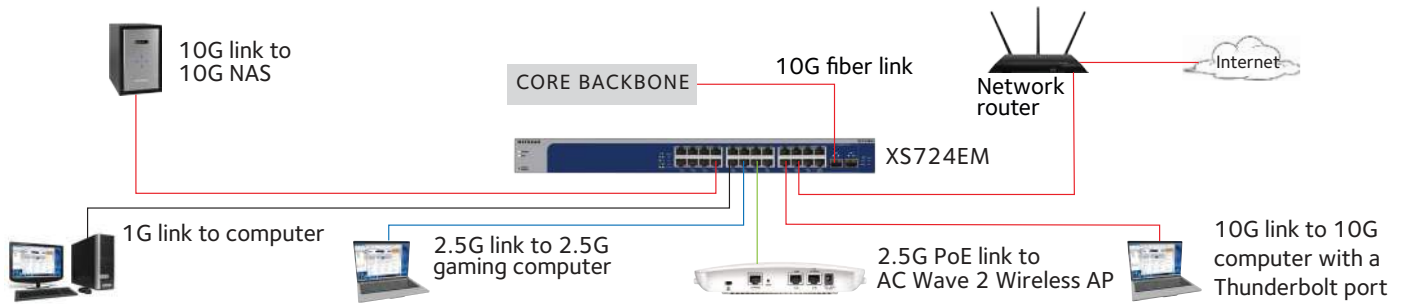
Model Name	Fabric	Packet Buffer	Latency (Max Connection Speed)	VLANs	MAC Address Table	Priority Queues	Multicast IGMP Group	Packet Forwarding Rate (64 byte)	Jumbo Frames (bytes)
XS512EM	240Gbps	3MB	10G : AVG 4.3us 5G: AVG 5.2us 2.5G : AVG 7.1us 1G : AVG 3.76us 100M: AVG 13.63us	N/A	32K Entries (dynamic)	8 (WRR)	128	178.6 Mfps	up to 9K
S724EM	480Gbps	3MB	10G : 4.16us 5G: AVG 5.3us 2.5G : AVG 7.53us 1G : AVG 3.77us 100M: AVG 13.4us	N/A	32K Entries (dynamic)	8 (WRR)	128	240 Mfps	up to 9K

## Features and Benefits

Hardware Features	Benefits
10-Gigabit/Multi-Gigabit support	Each copper interface supports 100M/1G/2.5G/5G/10G giving the exact speed required to any device regardless of the cable that's been used.
Active Fans	Active Fans make the XS512EM and XS724EM silent switches, well below offices ambient background noise.
10GBASE-X SFP+ ports	Providing flexibility to uplink to 10G-capable core or aggregation switches that support fiber links. Backward compatible to Gigabit fiber. Support copper or fiber modules.
Rackmount or desktop	Flexible deployment for either rackmount or desktop placement.
Software Features (GS110EMX Only)	Benefits
Port-based and 802.1Q-based VLANs	Segment network into smaller groups for more secure and efficient use of network resources.
Comprehensive QoS features: <ul style="list-style-type: none"> <li>• Port-based or 802.1p-based prioritization</li> <li>• Layer 3-based (DSCP) prioritization</li> <li>• Port-based ingress and egress rate limiting</li> </ul>	Advanced controls for optimized network performance and better delivery of mission-critical traffic such as voice and video. Ingress and egress rate limiting allows for bandwidth shaping for mitigating network resources constraints or for optimizing guest access bandwidth on the network.
IGMP Snooping	For improved network efficiency on delivering multicast traffic. Save cost and improve network efficiency by ensuring multicast traffic only reaches designated receivers without the need of an extra multicast router.
Link Aggregation ( Static LAG and LACP)	Build up bigger bandwidth to support aggregated uplink/downlink traffic or to provide redundant link(s) using Static Manual LAGs or LACP.
Voice VLAN	The feature enables auto assignment of voice traffic (based on OUI) to a special VLAN (AKA Voice VLAN); allowing the assignment of special QoS parameters to that traffic, giving it high priority services. Port has to be MANUALLY assigned to be a member of the Voice VLAN.
Loop detection and auto DoS prevention	Detect accidental network loops and protect against DoS attacks.
Port Mirroring	For better and quicker network diagnostics and troubleshooting.
Energy Efficient Ethernet (IEEE 802.3az)	For maximum power savings and reduced energy costs.
Cable Test	Easily identify bad Ethernet cables.

## Example Application

### XS512EM/XS724EM in a Business Environment



## Cables and Speeds

The following table describes the network cables that you can use for the switch connections and the speeds that the cables can support, up to 100 meters (328 feet).

SPEED	CABLE TYPE
100 Mbps	Category 5 (Cat 5) or higher rated
1 Gbps, 2.5 Gbps, or 5 Gbps	Category 5e (Cat 5e) or higher rated
10 Gbps	Category 6A (Cat 6A) or higher rated

**Note:** For speeds of 10 Gbps, if the cable length is shorter than 55 meters (180 feet), you can use a Category 6 (Cat 6) cable.

## Why the NETGEAR 10-Gig/Multi-Gig Switches are ideal for SMB?

1. 5-speed Networking Expand your network instantly and give your devices either 100Mb, 1, 2.5, 5 or 10-Gigabit automatically.
2. Security to protect the SMB networks for possible threats thanks to Auto DoS and Storm Control.
3. Visibility to identify any possible cable issues or abnormal traffic behavior with cable health test and port statistics.
4. Enhanced Control to improve your network performance with VLAN, QoS and Multicast Support.
5. Reliability to assure that the SMB networks are up and running we introduced Link Aggregation and Loop Prevention to minimize possible downtimes.

## Technical Specifications

Technical Specifications	XS512EM	XS724EM
100M/1G/2.5G/5G/10G RJ-45 copper ports	12	24
10G SFP+ ports	2 (shared)	2 (shared)
Form Factor	Desktop/Rackmount	Desktop/Rackmount
<b>Performance Specification</b>		
Packet buffer memory (Dynamically shared across only used ports)	3MB	
Forwarding modes	Store-and-forward	
Bandwidth	240 Gbps	480 Gbps
MAC Address database size (48-bit MAC addresses)	32K	
Packet forwarding rate (64 byte packet size) (Mfps or Mpps)	178.6	240
Speed / Latency	10G : AVG 4.3us 5G : AVG 5.2us 2.5G : AVG 7.1us 1G : AVG 3.76us 100M: AVG 13.63us	10G : 4.16us 5G : AVG 5.3us 2.5G : AVG 7.53us 1G : AVG 3.77us 100M: AVG 13.4us
Jumbo frame support	Up to 9K packet size	
Acoustic noise level @ 25° C (dBA) (ANSI-S10.12)	Idle : 29.13dB@25dC/ Full load :40.85dB@50dC	Idle : 35.91dB@25dC Full load :56.87dB@50dC
Mean Time Between Failures (MTBF) @ 25° C	1,113,477Hrs	830,493Hrs
<b>L2 Services - VLANs</b>		
VLAN (# Supported)	64	
Port-based VLANs (physical)	Yes	
IEEE 802.1Q VLAN Tagging	Yes	
<b>L2 Services - Availability</b>		
Broadcast, multicast, unknown unicast storm control	Yes	
Static Manual LAGs (Port Trunking)	Yes	
LACP	Yes	
IEEE 802.3x (full duplex and flow control)	Yes	
<b>L2 Services - Multicast Filtering</b>		
IGMP snooping (v1, v2, and v3)	Yes	
IGMP snooping querier	No	
Block unknown multicast	Yes	
Static multicast router port	Yes	
<b>L3 Services - DHCP</b>		
DHCP client	Yes	

## Technical Specifications

Link Aggregation	XS512EM	XS724EM
Static Manual LAGs (Port Trunking)		Yes
LACP		Yes
# of Static LAGs / # of members in each LAG	8 LAGs with max 8 members in each LAG	12 LAGs with max 8 member in each LAG
Quality of Service		
Port-based rate limiting		Ingress and egress
Port-based QoS		Yes
IEEE 802.1p COS		Yes
IPv4 DSCP		Yes
IPv4 ToS		Yes
TCP/UDP-based		No
Weighted Round Robin (WRR)		Yes
Strict priority queue technology		No
IEEE Standards Supported		
<ul style="list-style-type: none"> <li>• IEEE 802.3 Ethernet</li> <li>• IEEE 802.3u 100BASE-TX</li> <li>• IEEE 802.3ab 1000BASE-T</li> <li>• IEEE 802.1Q VLAN Tagging</li> <li>• IEEE 802.3x Full-Duplex Flow Control</li> <li>• IEEE 802.1p Class of Service</li> <li>• IEEE 802.3az Energy Efficient Ethernet (EEE)</li> </ul>	<ul style="list-style-type: none"> <li>• IEEE 802.3an 10GBASE-T</li> <li>• IEEE 802.3bz 5Gbps and 2.5Gbps Ethernet Over Copper Twisted Pair Cable</li> <li>• IEEE 802.3ae 10-Gigabit Ethernet Over Fiber</li> <li>• IEEE 802.3z Gigabit Ethernet 1000BASE-SX/LX</li> </ul>	
Management		
Password management		Yes
Web browser-based graphical user interface (GUI)		Yes
Plus Configuration Utility (PCU) for multi-switch management		Yes
Firmware upgrade	TFTP (Plus Utility) / HTTP (Web GUI)	
Config file transfers (backup, restore)	Plus Utility or Web GUI	
Firmware upgrade through Plus Utility (TFTP)		Yes
Config download (to switch) through Plus Utility		Yes
Config upload (to server) through Plus Utility		Yes
Firmware upgrade through web GUI (HTTP)		Yes
Config download (to switch) through web GUI (HTTP)		Yes
Config upload (to server) through web GUI (HTTP)		Yes
Cable test utility		Yes
LEDs		
Per port	Speed, Link, Activity	
Per device	Power, Fan	

## Technical Specifications

Physical Specifications	XS512EM	XS724EM
Dimensions (W x D x H)	328 x 204 x 43 mm (12.9 x 8.0 x 1.7 in)	440 x 204 x 43 mm (17.3 x 8.0 x 1.7 in)
Weight	2.51kg (5.54 lb)	3.72kg (8.21 lb)
Power Consumption		
Power Supply	Fixed internal PSU, 100-240VAC, 50-60Hz, 2.5A max Power cord localized to country of sale	Fixed internal PSU, 100-240VAC, 50-60Hz, 2A max Power cord localized to country of sale
Max power (worst case, all ports used, line-rate traffic) (Watts)	76.56W	150.52W
Min power (link-down standby) (Watts)	36.5W	59.27W
Heat Dissipation (max and min) (BTU/hr)	Max: 261.38 BTU/hr Min: 164.2 BTU/hr	Max: 513.88 BTU/hr Min: 202.35 BTU/hr
Energy Efficient Ethernet (EEE) IEEE 802.3az	Yes	Yes
Short cable power reduction	No	No
Auto power-down	No	No
Fan(s)	2	3
Environmental Specifications		
Operating		
Operating temperature	0° to 50°C (32° to 122°F)	
Humidity (relative)	90% maximum relative humidity (RH), non-condensing	
Storage		
Storage temperature	-20° to 70°C (- 4° to 158°F)	
Humidity (relative)	95% maximum relative humidity, non-condensing	
Electromagnetic Emissions and Immunity		
Certifications	47 CFR FCC Part 15, SubpartB, Class A ICES-003:2016 Issue 6, Class A ANSI C63.4:2014 EN55032:2012+AC:2013, Class A EN 55024:2010 EN 61000-3-2:2014, Class A EN 6100-3-3:2013 AS/NZS CISPR 32:2013, Class A VCCI-CISPR32:2016 Korea KC mark CNS 13438	
Electromagnetic Compliance (Class A or B)	Class B	

## Technical Specifications

Safety Certifications	XS512EM	XS724EM
Certifications	<ul style="list-style-type: none"> <li>CB mark, commercial</li> <li>IEC 60950-1:2005(ed.2) + A1:2009 + A2:2013</li> <li>UL/cUL Listed (UL 60950-1)/CAN/CSA C22.2 No. 60960-1-07</li> <li>EN 60950-1: 2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013</li> <li>IEC 60950-1:2005 (ed.2)+A1:2009+A2:2013</li> <li>AS/NZS 60950.1:2015</li> <li>CNS14336-1</li> <li>Russia EAC mark</li> </ul>	
Warranty and Support		
	Limited Lifetime* Warranty	
	Limited Lifetime* 24x7 Online Technical Support	
	Limited Lifetime* Next-Business-Day (NBD) Replacement	
ProSUPPORT OnCall 24x7, Service Packs**	<ul style="list-style-type: none"> <li>Category 2:</li> <li>PMB0312 (1yr)</li> <li>PMB0332 (3 yrs)</li> <li>PMB0352 (5 yrs)</li> </ul>	
Package Content		
All models	<ul style="list-style-type: none"> <li>XS512EM and XS724EM 10-Gigabit/Multi-Gigabit Ethernet Plus Switch</li> <li>Power cord (localized to country of sale)</li> <li>Rackmount kit</li> <li>Installation guide</li> </ul>	



## Ordering Information

Ordering Information	
XS512EM-100NAS	North America and Latin America
XS512EM-100EUS	Europe and United Kingdom
XS512EM-100AJS	Asia Pacific and Australia
XS724EM-100NAS	North America and Latin America
XS724EM-100EUS	Europe and United Kingdom
XS724EM-100AJS	Asia Pacific and Australia
Optional Modules and Accessories	
AGM731	SFP Transceiver 1000BASE-SX (Short range, multimode)
AGM732F	SFP Transceiver 1000BASE-LX (Long range, single mode)
AGM734	SFP Transceiver 1000BASE-T Copper RJ45 GBIC
AXC761	10GSFP+ Cu (passive) SFP+ to SFP+ Direct Attach Cable 1m
AXC763	10GSFP+ Cu (passive) SFP+ to SFP+ Direct Attach Cable 3m
AXM761	10GBASE-SR SFP+ GBIC (OM3/OM4 Multimode)
AXM762	10GBASE-LR SFP+ GBIC (Single mode)
AXM763	10GBASE-LRM SFP+ GBIC (Long Reach Multimode for OM1/OM2, also compatible with OM3/OM4)
AXM764	10GBASE-LR LITE SFP+ GBIC (Single mode)

\* 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.

\*\* The NETGEAR OnCall 24x7 contract provides unlimited phone and email technical support for your networking product. For products purchased prior to 06/2014, also includes next business-day hardware replacement.

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