

# ThinkSystem Intel E830-XXV 10/25GbE Ethernet Adapters

## Product Guide

The ThinkSystem Intel E830-XXV 10/25GbE Ethernet Adapters redefine network performance and application efficiency with their advanced feature set. Designed for high-density virtualized workloads, the Intel E830-XXV adapters offer up to 25GbE bandwidth, flexible port configurations, advanced precision time capabilities (including PTM), and comprehensive security. Optimized for performance, flexibility, and energy efficiency, they support a wide range of workloads in Cloud, Enterprise, Telecommunications, and Edge deployments. Both PCIe low profile and OCP 3.0 form factors are supported, ensuring seamless integration in a wide range of platforms.

The following figure shows the ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter.



Figure 1. ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter

### Did you know?

The Intel E830-XXV adapters offer excellent small packet performance, and offer virtualization features with support for GENEVE, VXLAN, NVGRE offloads, DPDK, SR-IOV, and VMDq protocols.

Intel Ethernet E830 and E810 Series network adapters share drivers, ensuring software consistency across generations of products for easy deployment.

## Part number information

The following table provides the ordering part numbers and feature codes for the Intel E830-XXV adapters.

Table 1. Ordering information

Part number	Feature code	Description
4XC7A96735	C4HV	ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter(Generic FW)
4XC7A96736	C4HW	ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter(Generic FW)

The option part numbers includes the following items:

- One Intel Ethernet adapter
- PCIe adapters: Low profile (2U) bracket attached with full-height (3U) bracket included in the box
- Documentation flyer

**Note:** The adapters ship without any SFP28 transceivers or direct attach cables. These items must be ordered separately as listed in the following section.

The following figure shows the ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter.

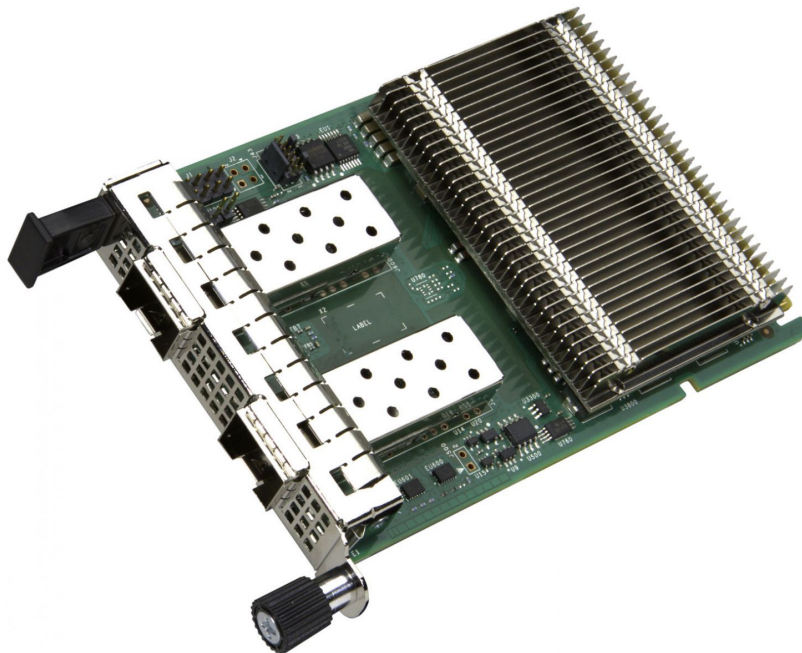


Figure 2. ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter

## Supported transceivers and cables

The Intel E830-XXV adapters have empty SFP28 cages for connectivity. The adapter either supports connections to a 10 Gb or 25 Gb switch or can share a connection to a 100 Gb switch using a 4:1 breakout cable.

The following table lists the supported transceivers.

Table 2. Transceivers

Part number	Feature code	Description
1Gb Transceivers		
00FE333	A5DL	SFP 1000Base-T (RJ-45) Transceiver
10Gb Transceivers		
00FE331	B0RJ	10GBASE-LR SFP+ Transceiver
00MY034	ATTJ	Lenovo Dual Rate 1G/10GB SFP+ Transceiver
46C3447	5053	SFP+ SR Transceiver
4TC7A78615	BNDR	ThinkSystem Accelink 10G SR SFP+ Ethernet transceiver
25Gb Transceivers		
4M27A67041	BFH2	Lenovo 25Gb SR SFP28 Ethernet Transceiver
4TC7A88638	BYBJ	ThinkSystem Finisar Dual Rate 10G/25G SR SFP28 Transceiver

**25Gb transceivers:** When installed in this 25Gb Ethernet adapter, 25Gb transceivers are designed to operate at either 25 Gb/s or 10 Gb/s speeds as listed in the description of the transceiver, however the speed also depends on the negotiation with the connected switch. In most configurations, this negotiation is automatic, however in some configurations you may have to manually set the link speed or FEC mode.

The following table lists the supported optical cables.

Table 3. Optical cables

Part number	Feature code	Description
<b>LC-LC OM3 Fiber Optic Cables</b>		
00MN499	ASR5	Lenovo 0.5m LC-LC OM3 MMF Cable
00MN502	ASR6	Lenovo 1m LC-LC OM3 MMF Cable
00MN505	ASR7	Lenovo 3m LC-LC OM3 MMF Cable
00MN508	ASR8	Lenovo 5m LC-LC OM3 MMF Cable
00MN511	ASR9	Lenovo 10m LC-LC OM3 MMF Cable
00MN514	ASRA	Lenovo 15m LC-LC OM3 MMF Cable
00MN517	ASRB	Lenovo 25m LC-LC OM3 MMF Cable
00MN520	ASRC	Lenovo 30m LC-LC OM3 MMF Cable
<b>MTP-4xLC OM3 MMF Breakout Cables (these cables require a transceiver)</b>		
00FM412	A5UA	Lenovo 1m MPO-4xLC OM3 MMF Breakout Cable
00FM413	A5UB	Lenovo 3m MPO-4xLC OM3 MMF Breakout Cable
00FM414	A5UC	Lenovo 5m MPO-4xLC OM3 MMF Breakout Cable
<b>SFP+ 10Gb Active Optical Cables</b>		
00YL634	ATYX	Lenovo 1M SFP+ to SFP+ Active Optical Cable
00YL637	ATYY	Lenovo 3M SFP+ to SFP+ Active Optical Cable
00YL640	ATYZ	Lenovo 5M SFP+ to SFP+ Active Optical Cable
00YL643	ATZ0	Lenovo 7m SFP+ to SFP+ Active Optical Cable
00YL646	ATZ1	Lenovo 15M SFP+ to SFP+ Active Optical Cable
00YL649	ATZ2	Lenovo 20M SFP+ to SFP+ Active Optical Cable
<b>SFP28 25Gb Active Optical Cables</b>		
4X97A94008	AV1F	Lenovo 3m 25G SFP28 Active Optical Cable
4X97A94011	AV1G	Lenovo 5m 25G SFP28 Active Optical Cable
4X97A94012	AV1H	Lenovo 10m 25G SFP28 Active Optical Cable
4X97A94013	AV1J	Lenovo 15m 25G SFP28 Active Optical Cable
4X97A94702	AV1K	Lenovo 20m 25G SFP28 Active Optical Cable
<b>OM4 LC to LC Cables</b>		
4Z57A10845	B2P9	Lenovo 0.5m LC-LC OM4 MMF Cable
4Z57A10846	B2PA	Lenovo 1m LC-LC OM4 MMF Cable
4Z57A10847	B2PB	Lenovo 3m LC-LC OM4 MMF Cable
4Z57A10848	B2PC	Lenovo 5m LC-LC OM4 MMF Cable
4Z57A10849	B2PD	Lenovo 10m LC-LC OM4 MMF Cable
4Z57A10850	B2PE	Lenovo 15m LC-LC OM4 MMF Cable
4Z57A10851	B2PF	Lenovo 25m LC-LC OM4 MMF Cable
4Z57A10852	B2PG	Lenovo 30m LC-LC OM4 MMF Cable

The following table lists the supported direct-attach copper (DAC) cables.

Table 4. Copper cables

Part number	Feature code	Description
<b>SFP+ 10Gb Passive DAC Cables</b>		
00D6288	A3RG	0.5m Passive DAC SFP+ Cable
90Y9427	A1PH	1m Passive DAC SFP+ Cable
00AY764	A51N	1.5m Passive DAC SFP+ Cable
00AY765	A51P	2m Passive DAC SFP+ Cable
90Y9430	A1PJ	3m Passive DAC SFP+ Cable
90Y9433	A1PK	5m Passive DAC SFP+ Cable
00D6151	A3RH	7m Passive DAC SFP+ Cable
<b>SFP28 25Gb Passive DAC Cables</b>		
7Z57A03557	AV1W	Lenovo 1m Passive 25G SFP28 DAC Cable
7Z57A03558	AV1X	Lenovo 3m Passive 25G SFP28 DAC Cable
7Z57A03559	AV1Y	Lenovo 5m Passive 25G SFP28 DAC Cable
<b>QSFP28 100G-to-4x25G Ethernet Breakout Cables</b>		
7Z57A03564	AV22	Lenovo 1m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable
4Z57A85043	BS32	Lenovo 1.5m 100G to 4x25G Breakout SFP28 Breakout DAC Cable
4Z57A85044	BS33	Lenovo 2m 100G to 4x25G Breakout SFP28 Breakout DAC Cable
7Z57A03565	AV23	Lenovo 3m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable
7Z57A03566	AV24	Lenovo 5m 100G QSFP28 to 4x25G SFP28 Breakout DAC Cable

## Features

The ThinkSystem Intel E830-XXV 10/25GbE Ethernet Adapters offer leading performance, security, manageability, and interoperability without the technical complexity and the high cost of proprietary technologies. The Intel E830-XXV adapters support solutions across Cloud, Enterprise, and Communications with concurrent support of iWARP and RoCEv2 RDMA, modern security features, and key timing protocols. The low power design enables decreased energy consumption across the system to reduce costs and environmental impact, solving increasingly important power density challenges.

### Optimized for Intel Xeon processors

Every data center and workload need computing capacity and powerful ways to move data securely. Intel architecture offers both. Deployment-ready, reliable, and affordable, Intel Ethernet E830 Network Adapters are the perfect choice for amplifying performance for servers with Intel Xeon 6 processors.

### Remote Direct Memory Access (RDMA)

Both RoCEv2 and iWARP protocols are offered, and for added flexibility, RoCEv2 and iWARP can run concurrently.

### Programmable Pipeline / Dynamic Device Personalization (DDP)

DDP improves packet processing performance by using the E830 Controller's programmable pipeline to classify frames instead of the CPU. DDP increases throughput, lowers latency, and reduces host CPU overhead in both network functions virtualization (NFV) workloads and cloud-native architectures.

## Data Plane Development Kit (DPDK)

DPDK enabled to deliver faster NFV, advanced packet forwarding, and efficient packet processing resulting in effective use of CPU cycles and reduced overhead.

## Precision Time Synchronization and Measurement

Growth in 5G RAN and edge deployments is driving demand for high-precision timing synchronization across the network.

Intel Ethernet E830 Network Adapters enable service providers to build open, disaggregated vRAN solutions with off-the-shelf components to meet unique customer needs, including system size and budget.

- Compliant with IEEE 1588 Precision Time Protocol (PTP) v2.
- Includes Precision Time Measurement (PTM) v1.0a, a protocol used to synchronize a CPU with other devices in a server platform, such as E830 network adapters. Applications benefitting from PTM sub-microsecond timing accuracy include financial services, network monitoring, and distributed database systems.

## Manageability

Broad system manageability capabilities using the latest DTMF (Distributed Management Task Force) protocols.

- NC-SI 1.2 protocol compliance. Transport options include NC-SI over RBT, NC-SI over MCTP.
- Secured messages using SPDM over MCTP.
- PLDM over RBT with an extended list of message types, including T4, T5, T6 over RBT and MCTP transport.

## Open vSwitch (OVS) Acceleration

The E830 is optimized for Intel Xeon processors to minimize packet parsing overhead and flow table search. DPDK integration with OVS increases performance by eliminating extra layers in the architecture and native OVS stack.

## Modern Standards-based Security

Intel offers modern standards-based cryptographic security anchored by a hardware Root of Trust (RoT).

- Unsigned device attestation in compliance with SPDM 1.1.2 Security Protocol and Data Model.
- Silicon Root of Trust (RoT) compliant with NIST SP 800-193 platform firmware resiliency guidelines.
- Meets FIPS 140-3 level 1 requirements.
- Secure Boot isolates sensitive parameters and keys used for boot and operation.
- Secure Firmware Update verifies digital signatures of new firmware binaries.
- Recovery Mode Failsafe mode is activated upon detection of abnormal device operation.

## Specifications

The Intel E830-XXV adapters have the following key specifications:

### Key Specifications

- Dual-port 25/10GbE SFP28
- PCIe 4.0 x8 host interface
- Dynamic Device Personalization (DDP)
- Data Plane Development Kit (DPDK) enabled
- IEEE 1588 Precision Time Protocol v2
- Precision Time Measurement (PTM) v1.0a

- Modern security with signed firmware, secure boot, and hardware root of trust (RoT)
- Commercial National Security Algorithm (CNSA) 1.0 compliant

## Packet Processing

- General:
  - Stages of parsing, switching, ACLs, Exact Match (Flow Director), classification, packet modification
  - Programmable packet processing pipeline
  - Multiple control domains
  - Profile based
  - Programmable actions
  - Propagation of priorities between stages
- Parser:
  - Parses up to 504 bytes from packet header
  - Parse-graph based
  - Session-based parsing
  - Programmable parse engine
- Virtual Ethernet Bridge (VEB) switch (binary classifier):
  - 768 switch ports (VSIs)
  - Programmable forwarding rules
  - Storm control
  - Megaflow lookup for up to 16 lookups at line rate
- ACLs:
  - 8K programmable TCAM entries
  - Tiling capability to n\*40b width
- Classification filters:
  - Hash-based statistical distribution
  - Intel® Ethernet Flow Director (Flow Director) flow-based classification
  - Flow-based identification of iWARP and RoCE flows
  - Programmable rules
  - Sampling/mirroring/multicast
  - Statistics
- Modifier:
  - Insert (Tx), remove (Rx), and modify of packet VLANs

## Virtualization

- Host virtualization via VMQ and SR-IOV
- 256 SR-IOV Virtual Functions (VF)
- 768 S-IOV VDEVs (virtual device instance that is exposed to a VM). Up to 3 PASIDs per each one of the 768 VSIs
- Stateless offloads for tunneled packets (network virtualization support)
- Stateful offloads for tunneled packets (network virtualization)
- Malicious VF protection

## RDMA

- iWARP and RoCE v2
- 256K Queue Pairs (QPs)
- Send queue push mode

## Quality of Service (QoS)

- WFQ transmit scheduler (Tx scheduler) with 9 programmable layers
- Policing can prioritize marking capabilities
- Pipeline sharing and starvation avoidance

- Up to 32 congestion domains in the Tx and Rx paths
- QoS via 802.1p PCP or differentiated services DSCP value
- Rx packet buffer supports at least 3 no-drop flow control events, shared among ports

### **Communication Features**

- Packet shaping
- Packet drops/aging + reporting
- Reduced burstiness
- jitter control
- Adjustment of credits per packet based on four different header types
- Concurrent quanta descriptors/legacy scheduling

### **Manageability**

- SMBus operating at up to 400 Kb/s
- DMTF-compliant NC-SI 1.2 Interface at 100 Mb/s
- MCTP over PCIe and SMBus
- PLDM Types 0, 2, 5, 6 for monitoring and control, firmware update, and Redfish device enablement
- Enterprise-level management schemes via local Management Controller (MC)

### **Power Management**

- Supports PCI power management states D0, D3hot, D3cold
- APM WoL support in D0, D3hot and D3cold

### **Time Synchronization**

- Time stamp with each Rx packet
- Selective time stamps for Tx packets
- IEEE 1588 support

### **Security**

- Authentication of firmware contents on load from NVM
- Supports PCIe ECRs related to authentication and measurement:
  - Data Object Exchange (DOE)
- Component Measurement and Authentication Support MCTP PMCI SPDM specifications: DSP0274 1.0 and DSP0275 1.0



## Server support

The following tables list the ThinkSystem servers that are compatible.

Table 5. Server support (Part 1 of 4)

Part Number	Description	AMD V3				2S Intel V3/V4				4S 8S Intel V3			Multi Node V3/V4		1S V3						
		SR635 V3 (7D9H / 7D9G)	SR655 V3 (7D9F / 7D9E)	SR645 V3 (7D9D / 7D9C)	SR665 V3 (7D9B / 7D9A)	ST650 V3 (7D7B / 7D7A)	SR630 V3 (7D72 / 7D73)	SR650 V3 (7D75 / 7D76)	SR630 V4 (7DG8 / 7DG9)	SR650 V4 (7DGC / 7DGD)	SR650a V4 (7DGC / 7DGD)	SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	ST45 V3 (7DH4 / 7DH5)	ST50 V3 (7DF4 / 7DF3)	ST250 V3 (7DCF / 7DCE)	SR250 V3 (7DCM / 7DCL)
4XC7A96735	ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter(Generic FW)	N	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N
4XC7A96736	ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter(Generic FW)	N	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N

Table 6. Server support (Part 2 of 4)

Part Number	Description	GPU Rich					Edge				Super Computing					1S Intel V2					
		SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	SR780a V3 (7DJ5)	SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SC750 V4 (7DDJ)	SC777 V4 (7DKA)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-I V3 (7D7L)	SD650-N V3 (7D7N)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)
4XC7A96735	ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter(Generic FW)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XC7A96736	ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter(Generic FW)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 7. Server support (Part 3 of 4)

Part Number	Description	2S Intel V2			AMD V1				Dense V2			4S V2	8S	4S V1					
		ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)	SR650 V2 (7Z72 / 7Z73)	SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR655 Client OS	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)
4XC7A96735	ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter(Generic FW)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XC7A96736	ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter(Generic FW)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 8. Server support (Part 4 of 4)

Part Number	Description	1S Intel V1				2S Intel V1								Dense V1				
		ST150 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)	ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y02 / 7Y03)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR670 (7Y36 / 7Y37)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)	SN850 (7X15)	
4XC7A96735	ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port PCIe Ethernet Adapter(Generic FW)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
4XC7A96736	ThinkSystem Intel E830-XXVDA2 10/25GbE SFP28 2-Port OCP Ethernet Adapter(Generic FW)	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

## Support of adapters with generic firmware

One or more of the adapters described in this product guide uses standard vendor firmware (look for "Generic FW" or "Generic" in the adapter names). These adapters are supported in Lenovo servers however there are currently limitations on the use of Lenovo management tools.

Support in Lenovo XClarity management tools for adapters with generic firmware is per the following table.

**Tip:** Always use firmware that is obtained from Lenovo sources to ensure the firmware is fully tested by Lenovo and is supported. You should not use firmware that is obtained from the vendor web site, unless directed to do so by Lenovo support.

Table 9. Lenovo XClarity management tools support for adapters with generic firmware

Function	Lenovo XClarity Provisioning Manager	Lenovo XClarity OneCLI (out-of-band)	Lenovo XClarity OneCLI (in-band)	Lenovo XClarity Administrator
Adapter configuration	Supported (in-band via UEFI)	Planned for support 3Q/2025	Planned for support 3Q/2025	Planned for support 3Q/2025

## Physical specifications

The PCIe adapters have a Low Profile form factor with the following dimensions:

- Length: 168 mm (6.6 in.)
- Height: 69 mm (2.7 in.)

The OCP adapter has the following dimensions:

- Width: 76 mm (3 in.)
- Depth: 115 mm (4.5 in.)

## Operating environment

The Intel E830-XXV adapters are supported in the following environment:

- Operating temperature: 0 to 55 °C (32 to 131 °F)
- Storage temperature: -40 °C to 70 °C (-40 °F to 158 °F)
- Relative humidity (non-operating): 10% to 90%

## Warranty

One-year limited warranty. When installed in a supported server, these adapters assume the server's base warranty and any warranty upgrade.

## Agency approvals

The adapter conforms to the following standards:

- FCC Class A
- UL 62368-1 and CAN/CSA C22.2 No. 62368-1-14
- cULus
- CE
- VCCI
- BSMI
- RCM
- KCC
- EEE

## Related publications

For more information, see the following resources:

- ThinkSystem Ethernet and InfiniBand Adapter Reference  
<https://lenovopress.lenovo.com/lp1594-thinksystem-ethernet-infiniband-adapter-reference>
- Intel Ethernet Products web page  
<https://www.intel.com/content/www/us/en/architecture-and-technology/ethernet.html>
- Lenovo ServerProven compatibility information  
<http://serverproven.lenovo.com>

## Related product families

Product families related to this document are the following:

- [25 Gb Ethernet Connectivity](#)
- [Ethernet Adapters](#)

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