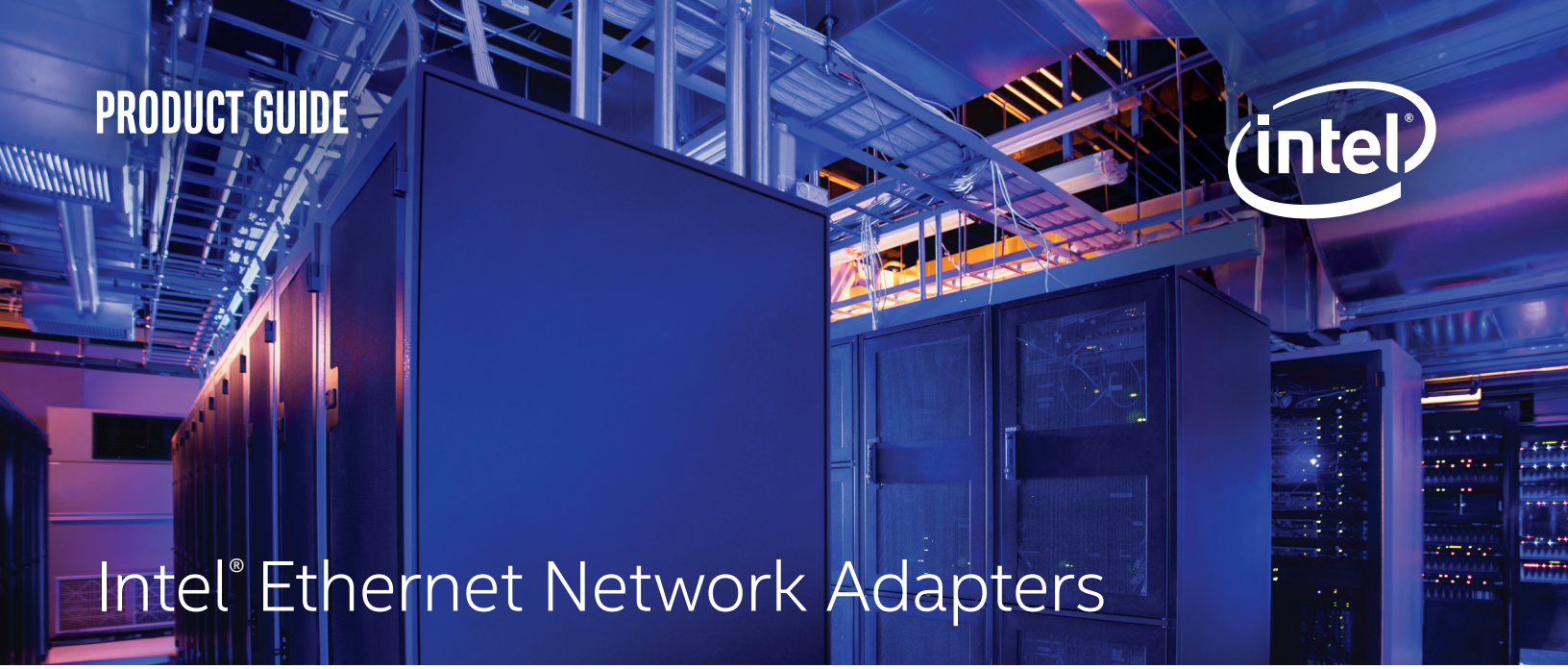

PRODUCT GUIDE

Intel® Ethernet Network Adapters

WHY INTEL® ETHERNET?

Driving continuous innovation for more than 35 years, Intel® Ethernet products deliver a reliable out-of-the-box experience, and proven interoperability for your current and future networking infrastructure.

Customers say **it just works**. Here's why:

High compatibility and broad interoperability

- Fully tested network adapters and accessories (optics and cables)
- Hardware and software is thoroughly validated across server and networking ecosystem
- Supports a broad selection of operating systems

Ease of use

- Works out of the box
- Automatic and highly optimized configuration setups
- Delivers the right traffic to the right VM via match filters

Performance assurance

- Optimized for Intel® architecture and broad OSV ecosystem
- Scales with CPU technology, leverages intelligent hardware offloads, network virtualization, and fast packet processing via Data Plane Development Kit (DPDK)

Worldwide product support

- Pre- and post-sales support
- Adheres to global regulatory, environmental, and market requirements
- Long product lifecycle support
- Limited lifetime warranty

Broad product selection and accessories

- Supports multiple speeds (1/10/25/40GbE) and media types (BASE-T, Fiber, SFP+, QSFP+, SFP28, QSFP28, KR, XAUI)
- Available in many different form factors: discrete controller, Intel® SoCs, and add-in cards (PCIe*, OCP, and custom form factors)

MAKE THE CONNECTION WITH INTEL® ETHERNET ADAPTERS.

INTEL® ETHERNET 700 SERIES NETWORK ADAPTERS

Accelerate the delivery of new services and capabilities by increasing the speed and efficiency of your network infrastructure. The Intel® Ethernet 700 Series is the foundation for server connectivity, providing broad interoperability, critical performance optimizations, and increased agility for Telecommunications, Cloud, and the Data Center.

- **Interoperability** – Multiple speeds and media types for broad compatibility backed by extensive testing and validation.
- **Optimization** – Intelligent offloads and accelerators to unlock network performance in servers with Intel® Xeon® processors.
- **Agility** – Both kernel and Data Plane Development Kit (DPDK) drivers for scalable packet processing.

Product	Connector & Cable Medium	Cabling Type	Intel® Ethernet Controller	Slot Type, Maximum Bus Speed & Bus Width	Connection Speed	Ports	Supported Slot Heights	Network Virtualization Acceleration	Storage over Ethernet	RDMA	Order Codes
 New! X722-DA2 X722-DA4	SFP+ Direct Attach Copper Twinaxial SFP+ LC Fiber Optic Module	Direct Attach Passive Twinaxial: - up to 15 m Multimode Fiber: - up to 300 m (OM3) - up to 400 m (OM4) Single-mode Fiber: - up to 10 km	Intel® C628 Chipset with integrated Intel® Ethernet Connection X722	PCI Express* v3.0 8.0 GT/s, x8 Lanes	1/10GbE	Dual and Quad Port	Low Profile and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support[1]	iSCSI, NFS, SMB and SMB Direct	iWARP	X722DA2, X722DA4FH, X722DA4G1P5
 XXV710-DA1 XXV710-DA2	SFP28 Direct Attach Copper Twinaxial SFP28 LC Fiber Optic Module	Direct Attach Passive Twinaxial 25GbE: - up to 5 m with RS-FEC - up to 3 m with no FEC Direct Attach Passive Twinaxial 10GbE: - up to 15 m Multimode Fiber: - up to 70 m (OM3) - up to 100 m (OM4) Single-mode Fiber: - up to 10 km	XL710	PCI Express* v3.0 8.0 GT/s, x8 Lanes	1GbE/10GbE/ 25GbE	Single and Dual Port	Low Profile and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support[1]	iSCSI, NFS, SMB		XXV710DA1, XXV710DA1BLK XXV710DA2, XXV710DA2BLK
 X710-DA2 X710-DA4FHBLK	SFP+ Direct Attach Copper Twinaxial SFP+ LC Fiber Optic Module	Direct Attach Passive Twinaxial: - up to 15 m Multimode Fiber: - up to 300 m (OM3) - up to 400 m (OM4) Single-mode Fiber: - up to 10 km	X710	PCI Express* v3.0 8.0 GT/s, x8 Lanes	1GbE/10GbE	Dual and Quad Port	Low Profile and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support[1]	iSCSI, NFS, SMB		X710DA2, X710DA2BLK X710DA4FH, X710DA4FHBLK X710DA4G2P5
 XL710-QDA1 XL710-QDA2	QSFP+ Direct Attach Copper Twinaxial QSFP+ Fiber Optic Module	Direct Attach Passive Twinaxial: - up to 7 m Multimode Fiber: - up to 100 m (OM3) - up to 150 m (OM4) Single-mode Fiber: - up to 10 km	XL710	PCI Express* v3.0 8.0 GT/s, x8 Lanes	10GbE/40GbE	Single and Dual Port	Low Profile and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support[1]	iSCSI, NFS, SMB		XL710QDA1, XL710QDA1BLK XL710QDA2, XL710QDA2BLK
 X710-T4	RJ45 Copper Twisted-pair	Category 6: - up to 55 m Category 6A or better: - up to 100 m	XL710	PCI Express* v3.0 8.0 GT/s, x8 Lanes	100Mb/1GbE/ 10GbE	Quad Port	Low Profile and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support[1]	iSCSI, NFS, SMB		X710T4, X710T4BLK

1. Learn more about DPDK at intel.com/dpdk

All Intel® Ethernet 700 Series and 500 Series Network Adapters include intelligent offloads, are optimized for Data Plane Development Kit (DPDK) and Intel® Ethernet Flow Director, and include these server virtualization attributes: on-chip QoS and traffic management, Flexible Port Partitioning, Virtual Machine Device Queues (VMDq), PCI-SIG* SR-IOV capable.

ONE ARCHITECTURE. MULTIPLE SPEEDS.

Intel® Ethernet 700 Series Network Adapters offer customers a common architecture.

- Greater intelligence and performance for NFV
- Enhanced network virtualization overlays (NVOs)
- Flexible and scalable I/O for virtualized infrastructures
- Improved performance and efficiency
- Flexible port partitioning (FPP)
- Advanced traffic steering

INTEL® ETHERNET 500 SERIES NETWORK ADAPTERS

The best choice for 10GBASE-T, the Intel® Ethernet 500 Series is backward compatible with existing 1000BASE-T networks, simplifying the transition to 10Gb Ethernet when more bandwidth is needed.

- Supports 100Mb, and 1/2.5/5/10GBASE-T
- Low cost, low power
- Optimized for network virtualization overlays

Product	Connector & Cable Medium	Cabling Type	Intel® Ethernet Controller	Slot Type, Maximum Bus Speed & Bus Width	Connection Speed	Ports	Supported Slot Heights	Network Virtualization Acceleration	Storage over Ethernet	Order Codes
 X550-T1 X550-T2	RJ45 Copper Twisted-pair	Category 6: - up to 55 m (10GbE) Category 6A or better: - up to 100 m (10GbE) Category 5 or better: - up to 100 m (1GbE/2.5GbE/5GbE)	X550	PCI Express* v3.0 8.0 GT/s, x4 Lanes Operable in x8 and x16 slots	100Mb/1GbE/ 2.5GbE/5GbE/ 10GbE	Single and Dual Port	Low Profile and Full Height	Multi-Queue and Stateless Offloads for NVO, such as VXLAN, NVGRE, and GENEVE Enhanced DPDK packet-processing support[1]	iSCSI, FCoE,[2] NFS, SMB	X550T1, X550T1BLK X550T2, X550T2BLK
 X520-DA2	SFP+ Direct Attach Copper Twinaxial SFP+ LC Fiber Optic Module	Direct Attach Passive Twinaxial: - up to 15 m Multimode Fiber: - up to 300 m (OM3) - up to 400 m (OM4) Single-mode Fiber: - up to 10 km	82599ES	PCI Express* v2.0 5.0 GT/s, x8 Lanes	1GbE/10GbE	Dual Port	Low Profile and Full Height	RSS for UDP for VXLAN Enhanced DPDK packet-processing support[1]	iSCSI, FCoE,[2] NFS, SMB	E10G42BTDA E10G42BTDABLK
 X520-SR1 X520-SR2	LC Fiber Optic Customer may remove optics as needed.	Multimode Fiber: - up to 300 m (OM3) - up to 400 m (OM4)	82599ES	PCI Express* v2.0 5.0 GT/s, x8 Lanes	1GbE/10GbE	Single and Dual Port	Low Profile and Full Height	RSS for UDP for VXLAN Enhanced DPDK packet-processing support[1]	iSCSI, FCoE,[2] NFS, SMB	E10G41BFSR, E10G41BFSRBLK E10G42BFSR, E10G42BFSRBLK
 X520-LR1	LC Fiber Optic Customer may remove optics as needed.	Single-mode Fiber: - up to 10 km	82599ES	PCI Express* v2.0 5.0 GT/s, x8 Lanes	1GbE/10GbE	Single Port	Low Profile and Full Height	RSS for UDP for VXLAN Enhanced DPDK packet-processing support[1]	iSCSI, FCoE,[2] NFS, SMB	E10G41BFLR E10G41BFLRBLK

1. Learn more about DPDK at intel.com/dpdk

2. Support for new operating systems will not be added to FCoE. The last operating system versions supporting FCoE are: Microsoft Windows Server* 2012 R2, Red Hat Enterprise Linux* 7.2 & 6.7, SUSE Linux Enterprise Server 11 SP4, 12 SP1; VMware ESX* 6.0

All Intel® Ethernet 700 Series and 500 Series Network Adapters include intelligent offloads, are optimized for Data Plane Development Kit (DPDK) and Intel® Ethernet Flow Director, and include these server virtualization attributes: on-chip QoS and traffic management, Flexible Port Partitioning, Virtual Machine Device Queues (VMDq), PCI-SIG* SR-IOV capable.

INTEL® ETHERNET OPTICS AND CABLES FOR INTEL® ETHERNET 700 SERIES AND 500 SERIES NETWORK ADAPTERS

Combine these accessories with Intel Ethernet 700 Series and 500 Series Network Adapters, for dependable interoperability and consistent performance across the network.

Intel® Ethernet SFP+ Optics	Intel® Ethernet SFP+ Twinaxial Cables	Intel® Ethernet QSFP+ Optics	Intel® Ethernet QSFP+ Twinaxial Cables	Intel® Ethernet QSFP+ Twinaxial Breakout Cables	Intel® Ethernet SFP28 Optics	Intel® Ethernet SFP28 Twinaxial Cables	Intel® Ethernet QSFP28 to SFP28 Twinaxial Breakout Cables
E10GSFPSR = SFP+ SR Optic E10GSFPSRX = SFP+ SRX Optic (extended temp) E10GSFPLR = SFP+ LR Optic	SFP+ to SFP+ copper direct attach cable XDACBL1M = 1 Meter XDACBL3M = 3 Meter XDACBL5M = 5 Meter	E40GQSFPSR = QSFP+ SR Optic E40GQSFPLR = QSFP+ LR Optic	QSFP+ to QSFP+ copper direct attach cable XLDACBL1 = 1 Meter XLDACBL3 = 3 Meter XLDACBL5 = 5 Meter	QSFP+ to (4) SFP+ copper direct attach breakout cable X4DACBL1 = 1 Meter X4DACBL3 = 3 Meter X4DACBL5 = 5 Meter	E25GSFP28SR = SFP28 SR Optic E25GSFP28SRX = SFP28 SR Optic (extended temp)	SFP28 to SFP28 copper direct attach cable XXVDACBL1M = 1 Meter XXVDACBL2M = 2 Meter XXVDACBL3M = 3 Meter	QSFP28 to (4) SFP28 copper direct attach breakout cable XXV4DACBL1M = 1 Meter XXV4DACBL2M = 2 Meter XXV4DACBL3M = 3 Meter

1GBE INTEL® ETHERNET NETWORK ADAPTERS

Product	Connector & Cable Medium	Cabling Type	Intel® Ethernet Controller	Slot Type, Maximum Bus Speed & Bus Width	Ports	Supported Slot Heights	Halogen Free	Intelligent Offloads	Intel® Virtualization Technology for Connectivity	Storage over Ethernet	Intel Ethernet Power Management[3]	Order Codes
 I210-T1	RJ45 Copper Twisted-pair	Category 5 or better: - up to 100 m	I210	PCI Express* v2.1 2.5 GT/s, x1 Lane	Single Port	Low Profile and Full Height	Yes	Yes	Includes Audio-Video Bridging (AVB) support (802.1Qav)	iSCSI, NFS, SMB	Yes	I210T1 I210T1BLK
 I350-T4	RJ45 Copper Twisted-pair	Category 5 or better: - up to 100 m	I350	PCI Express* v2.1 5 GT/s, x4 Lanes	Quad Port	Low Profile and Full Height	Yes	Yes	On-chip QoS and traffic management Flexible Port Partitioning (FPP) Virtual Machine Device Queues (VMDq) PCI-SIG* SR-IOV capable	iSCSI, NFS, SMB	Yes	I350T4V2
 I350-T2	RJ45 Copper Twisted-pair	Category 5 or better: - up to 100 m	I350	PCI Express* v2.1 5 GT/s, x4 Lanes	Dual Port	Low Profile and Full Height	Yes	Yes	On-chip QoS and traffic management Flexible Port Partitioning (FPP) Virtual Machine Device Queues (VMDq) PCI-SIG* SR-IOV capable	iSCSI, NFS, SMB	Yes	I350T2V2
 I350-F2	LC Fiber Optic	Multimode Fiber OM1 (62.5 µm): - up to 275 m Multimode Fiber OM2 or better (50 µm): - up to 550 m	I350	PCI Express* v2.1 5 GT/s, x4 Lanes	Dual Port	Low Profile and Full Height	N/A	Yes	On-chip QoS and traffic management Flexible Port Partitioning (FPP) Virtual Machine Device Queues (VMDq) PCI-SIG* SR-IOV capable	iSCSI, NFS, SMB	Yes	I350F2 I350F2BLK
 I350-F4	LC Fiber Optic	Multimode Fiber OM1 (62.5 µm): - up to 275 m Multimode Fiber OM2 or better (50 µm): - up to 550 m	I350	PCI Express* v2.1 5 GT/s, x4 Lanes	Quad Port	Full Height	N/A	Yes	On-chip QoS and traffic management Flexible Port Partitioning (FPP) Virtual Machine Device Queues (VMDq) PCI-SIG* SR-IOV capable	iSCSI, NFS, SMB	Yes	I350F4 I350F4BLK

1GBE FOR DESKTOP

Product	Connector & Cable Medium	Cabling Type	Intel® Ethernet Controller	Slot Type, Maximum Bus Speed & Bus Width	Ports	Supported Slot Heights	Halogen Free	Intelligent Offloads	Intel® Virtualization Technology for Connectivity	Storage over Ethernet	Intel® Ethernet Power Management[3]	Order Codes
 Intel® Gigabit CT Desktop Adapter	RJ45 Copper Twisted-pair	Category 5 or better: - up to 100 m	82574	PCI Express* v1.1 2.5 GT/s, x1 Lane	Single Port	Low Profile and Full Height	N/A	N/A	N/A	iSCSI, NFS, SMB	N/A	EXPI9301CT EXPI9301CTBLK

3. Intel Ethernet Power Management includes Energy Efficient Ethernet (EEE) and DMA Coalescing.

MAKE THE CONNECTION WITH INTEL® ETHERNET ADAPTERS AT INTEL.COM/ETHERNET

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