

Cisco UCS C-Series Network Adapters

SUPPORTING THE MOVE TO A UNIFIED NETWORK FABRIC



Unified Computing Through Unified Fabric

Cisco® UCS C-Series Rack-Mount Servers extend unified computing innovations to an industry-standard form factor to help reduce total cost of ownership (TCO) and increase business agility. Designed to operate both in standalone environments and as part of the Cisco Unified Computing System™, the series employs Cisco technology to help customers handle the most challenging workloads. The series incorporates a standards-based unified network fabric, Cisco VN-Link virtualization support, and Cisco Extended Memory Technology. It supports an incremental deployment model and protects customer investments with an easy migration path to unified computing.

Benefits of Cisco UCS C-Series Network Adapters

- **TCO:** Fewer network interface cards (NICs), host bus adapters (HBAs), cables, and switches needing to be powered, cooled, configured, etc.
- **Simplified operations:** Compatibility, flexibility, and unique virtualization support
- **Performance and availability:** 10 Gigabit Ethernet and up to 128 virtual interfaces on a single card

Cisco offers a choice of four types of PCI Express (PCIe) adapters for use with Cisco UCS C-Series Rack-Mount Servers so that organizations can choose the technology most appropriate for their data centers and applications. The adapters can be mixed and matched in the same server. All Cisco UCS C-Series adapters are covered by a [Cisco warranty](#).

Industry-Standard Network Interface Cards and Host Bus Adapters

When using the Cisco UCS C-Series in a traditional computing environment, separate, fixed Ethernet and Fibre Channel adapters may be used, in keeping with existing architectural practices. Cisco provides several efficient, high-performance options, selected for compatibility with existing drivers of each type:

- Ethernet adapters:
 - [Intel® Gigabit ET2 Quad Port Server Adapter](#)
 - [Intel® Ethernet Server Adapter X520-DA2](#)
 - [Broadcom NetXtreme II 5709 Quad Port Ethernet PCIe Adapter Card with TOE and iSCSI HBA](#)
 - [Broadcom NetXtreme II 57711 Dual Port 10 Gigabit Ethernet PCIe Adapter Card with TOE and iSCSI HBA](#)
- Fibre Channel HBAs:
 - [Emulex LightPulse LPe11002 4-Gbps Fibre Channel PCI Express Dual-Channel Host Bus Adapter](#)
 - [QLogic SANblade QLE2462, Dual-Port 4-Gbps Fibre Channel-to-PCI Express Host Bus Adapter](#)

Converged Network Adapters

Converged network adapters (CNAs) support nondisruptive transition to unified fabric by providing compatibility with existing drivers on top of a single, general-purpose, high-performance, highly available network. Unified fabric greatly simplifies the network infrastructure and reduces costs. Unified fabric supports broader data center virtualization by providing consistent, ubiquitous network and storage services to all connected devices. Cisco has certified two CNAs for use with the Cisco UCS C-Series:

- [Cisco UCS CNA M61KR-I Intel Converged Network Adapter](#)
- [Emulex OneConnect Universal Converged Network Adapter](#)
- [QLogic QLE8152 Dual-Port 10 Gbps Ethernet- to-PCIe Converged Network Adapter](#)

By using standard adapter vendor application-specific integrated circuits (ASICs) to encapsulate multiple traffic streams on the unified network fabric, these CNAs offer complete compatibility with existing data center best practices that are based on the use of Emulex or QLogic HBAs. This approach helps increase compatibility with target storage systems and may reduce the effort needed for IT departments to qualify the CNAs.

When used in a Cisco Unified Computing System environment, the CNAs for the Cisco UCS C-Series offer these benefits:

- Reduced risk and greater ease of migration to the Cisco Unified Computing System through adapter integration with Cisco UCS Manager and compatibility with existing Fibre Channel and Ethernet drivers
- Reduced TCO through consolidation of LAN and SAN traffic over the same PCIe card and fabric
- Both HBA and NIC firmware and settings that are provisioned just-in-time by Cisco UCS Manager

When virtualization software is run on servers with two adapter slots, one can be populated with a virtual interface card for virtual machine access to the network, and one can be populated with a compatibility-optimized CNA for hypervisor access to storage, helping preserve existing operational best practices while helping IT build on the benefits of Cisco VN-Link-supported networking.



Virtual Interface Card

A Cisco innovation, the [Cisco UCS P81E Virtual Interface Card](#) is optimized for virtualized environments, for organizations that seek increased mobility in their physical environments, and for data centers that want reduced TCO through NIC, HBA, cabling, and switch reduction and reduced management overhead. This Fibre Channel over Ethernet (FCoE) PCIe card is designed for use with Cisco UCS C-Series servers. It offers these benefits:

- Allows up to 128 virtual adapters (initially, up to 2 Fibre Channel and 16 Ethernet adapters) to be provisioned in virtualized or nonvirtualized environments using just-in-time provisioning, providing tremendous system flexibility and allowing consolidation of multiple physical adapters
- Delivers uncompromising virtualization support, including hardware-based implementation of Cisco VN-Link technology and pass-through switching
- Improves system security and manageability by providing visibility and portability of network policies and security all the way to the virtual machine

The virtual interface card makes Cisco VN-Link connections to the parent fabric interconnects, which allows virtual links to connect virtual NICs in virtual machines to virtual interfaces in the interconnect. In a Cisco Unified Computing System environment, virtual links then can be managed, network profiles applied, and interfaces dynamically reprovisioned as virtual machines move between servers in the system.

A Network Adapter for Every Environment and Application

Cisco UCS C-Series network adapters allow the Cisco UCS C-Series servers to operate in traditional, standalone environments, and they also provide server-side on-ramps to the unified network fabric. With options that are optimized for virtualization and I/O consolidation, compatibility with existing environments, and efficient, high-performance Ethernet and Fibre Channel access, Cisco C-Series network adapters offer a range of choices that support an incremental deployment model and protect customer investments with a migration path to unified computing.

Cisco Unified Computing Services

Using a unified view of data center resources, Cisco and our industry-leading partners deliver services that accelerate your transition to a unified computing architecture. Cisco Unified Computing Services help you quickly deploy your data center resources, simplify ongoing operations, and optimize your infrastructure to better meet your business needs. For more information about these and other Cisco Data Center Services, visit <http://www.cisco.com/go/unifiedcomputingservices>.

For More Information

Visit <http://www.cisco.com/go/unifiedcomputing> for more information about the Cisco Unified Computing System.

To learn more about the Cisco UCS C-Series, please visit <http://www.cisco.com/en/US/products/ps10493/index.html>