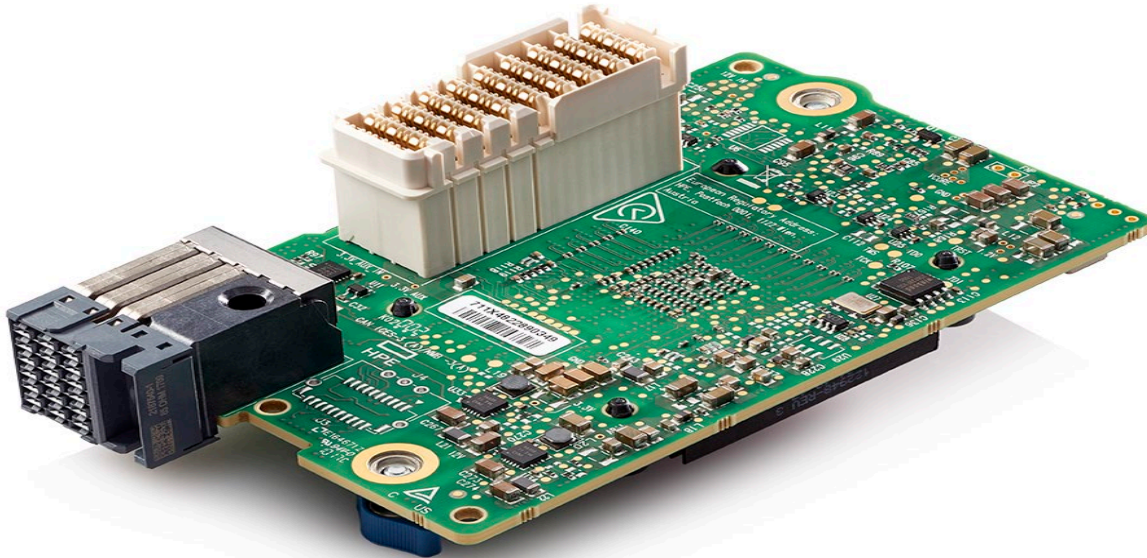## Overview

HPE Synergy Fibre Channel Host Bus Adapters

HPE Synergy Fibre Channel Host Bus Adapters provides high-performance connectivity to HPE Synergy Virtual Connect FC Modules and supports advanced virtualization, enhanced firmware security, dynamic power management and low CPU utilization features.

HPE Synergy Fibre Channel Host Bus Adapters

XXXXXX-**X21** is SKU designation formed by a common six digit part number and a **-X21** suffix that identifies a SKU that is available across multiple server family lines. Refer to the table below to find the SKU suffix that applies to the specific server product line this option can be ordered with.

-B21	-H21	-K21
COMPUTE Server Line	**SPECIALIZED COMPUTE Server Line**	**STORAGE Line**
HPE Cloudline CL2100/CL2200/CL2800/CL3100/CL4100/CL5200/CL5800 Servers HPE Composable Cloud for ProLiant DL HPE ProLiant BL460c/BL660c Servers HPE ProLiant DL20/DL160/DL180 Servers HPE ProLiant DL325/DL360/DL380/DL385/DL560/DL580 Servers HPE ProLiant DX360/DX380 Servers HPE ProLiant MicroServer HPE ProLiant for Microsoft Azure Stack HPE ProLiant ML30/ML110/ML350 Servers HPE Synergy 480/660 Systems	HPE Apollo 35/40/70 Systems HPE Apollo 2000/6000 Servers HPE XL170r/XL190r/XL270d (Apollo 6500) Gen10 Server for BlueData Software HPE Converged System 300/500/700/750 HPE Edgeline Systems and Servers HPE Integrity BL860c i6/BL870c i6/BL890c i6 Server Blades HPE Integrity MC990 X Server HPE Integrity rx2800 i6 Server HPE Integrity Superdome HPE SGI 8600 System HPE Solutions for SAP HANA (TDI)	HPE Apollo 4200 Gen9/Gen10 Servers HPE Apollo 4200 Gen10 LFF Server for BlueData Software HPE Apollo 4510 Gen10 System HPE D2220sb/D2500sb Storage Blade HPE D3000/D6020/D8000 Disk Enclosures HPE Scalable Object Storage with Scality RING HPE SimpliVity 2600 HPE SimpliVity 325/380 Gen10 HPE Storage File Controllers HPE StoreEasy 1460/1560/1650/1660/1860 Disclaimer: This may not be a complete listing of applicable servers

Overview

HPE ProLiant DX170r/DX190r, DX2000 Servers HPE ProLiant DX560 Gen10 server HPE ProLiant DX4200 Gen10 server		

Standard Features

Models

HPE Synergy 5330C 32Gb Fibre Channel Host Bus Adapter	870828-B21
HPE Synergy 5830C 32Gb Fibre Channel Host Bus Adapter	777456-B21

SKU	870828-B21	777456-B21
Description	HPE Synergy 5330C 32Gb Fibre Channel Host Bus Adapter	HPE Synergy 5830C 32Gb Fibre Channel Host Bus Adapter
Quick install card	√	√
Product warranty statement	√	√

SKU	870828-B21	777456-B21
Description	HPE Synergy 5330C 32Gb Fibre Channel Host Bus Adapter	HPE Synergy 5830C 32Gb Fibre Channel Host Bus Adapter
HPE Synergy 680 Gen9 Compute Module		
HPE Synergy 660 Gen10 Compute Module	√	√
HPE Synergy 480 Gen10 Compute Module	√	√

Operating System and Virtualization Support
The Operating Systems supported by this adapter are based on the server OS support. Please refer to the OS Support Matrix at **https://www.hpe.com/us/en/servers/server-operating-systems.html**

Related Option
Please refer to table below for supported synergy interconnect modules:

SKU	870828-B21	777456-B21
Description	HPE Synergy 5330C 32Gb Fibre Channel Host Bus Adapter	HPE Synergy 5830C 32Gb Fibre Channel Host Bus Adapter
Brocade 16Gb/12 Fibre Channel SAN Switch Module for HPE Synergy	√	√
Brocade 16Gb/24 Fibre Channel SAN Switch Module for HPE Synergy	√	√
Brocade 16Gb/24 PowerPack+ Fibre Channel SAN Switch Module for HPE Synergy	√	√
HPE Virtual Connect SE 16Gb FC Module for HPE Synergy	√	√
HPE Virtual Connect SE 32Gb FC Module for HPE Synergy	√	√
Brocade 32Gb Fibre Channel SAN Switch Module for HPE Synergy	√	√

SKU	870828-B21	777456-B21
Description	HPE Synergy 5330C 32Gb Fibre Channel Host Bus Adapter	HPE Synergy 5830C 32Gb Fibre Channel Host Bus Adapter
Support for with ASN1 v.2.8.7	√	√

Standard Features

ECC	√	√
Forward error correction (FEC)	√	√
NVMe over Fibre Channel	√	√
PLDM Temp(MCTP)	√	√
T10 DIF	√	√
T10 Protection Information (T10-PI)	√	√
VMWare VVoL	√	√
HPE SmartSAN	√	√
MCTP	√	√
HPE Sea Of Sensors 3D	√	√
Support for greater Server Virtualization	√	√
Supported with HPE Storage (see HPE SPOCK)	√	√
Secure Firmware download	√	
Link cable beaconing (LCB)	√	√
FDMI,	√	√
FC Ping		√
FC Trace Route	√	√
Read Diagnostic Parameters (RDP)	√	√
Buffer-to-Buffer Credit Recovery (BB_CR)	√	√
Virtual Machine ID (VMID)	√	√
Server Integration	√	√

Active Health System
Supports HPE Active Health System - monitors and records changes in the server hardware and configuration enabling customers to have accurate information that will assist in diagnosing problems and delivering rapid resolution when server failures occur.

NVMe over Fibre Channel
The Fibre Channel Host Bus Adapters are NVMe-enabled to support emerging NVM Express (NVMe) over Fibre Channel storage networks.

Secure Firmware download
These adapters deliver enhanced security via the new secure firmware update feature which protects and ensures the authenticity of device firmware.

T10 Protection Information (T10-PI)
These adapters support T10-PI for enhanced data integrity when connected to T10-PI enabled arrays like HPE 3PAR StoreServ.

Forward error correction (FEC)
FEC is enabled and improved at 32GFC as required by the FC Specification, automatically correcting transmission errors and improving network performance and resiliency

Class-specific Control (CS_CTL)
QoS capability that enables administrators to prioritize storage traffic to meet the needs of critical VM workloads.

Link cable beaconing (LCB)
LED beaconing for ports on both ends of a physical link simplifies cable identification and management.

Standard Features

FDMI,FC Ping, FC Trace Route
Quickly check connectivity to SAN devices and query the switch management server for in-depth details on connected devices.

HPE Sea of Sensors3D
Support for the HPE Sea of Sensors which is a collection of 32 sensors that automatically track thermal activity - heat - across the server. When temperatures get too high, sensors can initiate fans and make other adjustments to reduce energy usage. A significant improvement lies in the ability to apply fan speed increases only to the portion of the system that is rising in temperature, rather than all six fans in unison, which reduces the amount of energy used for cooling.

Read Diagnostic Parameters (RDP)
Identify the source of network and media errors like cyclic redundancy check (CRC) and loss of sync (LOS) by remotely accessing diagnostic information from anywhere in the fabric.

Fabric-assigned Port Worldwide Name (FA_WWN)
Interrupt coalescing (interrupt moderation) groups multiple packets, thereby reducing the number of interrupts sent to the host. This process optimizes host efficiency, leaving the CPU available for other duties.

Fabric-based Boot LUN (F_BLD)
Allow acquiring Boot-LUN information directly from Gen 5 16Gb or Gen 6 32GFCswitch, speeding up deployment of new servers in a SAN environment.

Buffer-to-Buffer Credit Recovery (BB_CR)
Enhance performance and resiliency by automatically recovering buffer credits, which can be lost on long distance and lossy connections with the potential to stall I/O or degrade performance.

Server Integration
The adapter is a validated, tested, and qualified solution that is optimized for HPE servers. Hewlett Packard Enterprise validates a wide variety of major operating systems drivers with the full suite of web-based enterprise management utilities including HPE Intelligent Provisioning and HPE Systems Insight Manager that simplify network management. This approach provides a more robust and reliable networking solution than offerings from other vendors and provides users with a single point of contact for both their servers and their network adapters.

Warranty
Maximum: The remaining warranty of the HPE product in which it is installed (to a maximum three-year, limited warranty).
Minimum: One year limited warranty.
Notes: Additional information regarding worldwide limited warranty and technical support is available at:
https://www.hpe.com/us/en/services.html#

Service and Support

HPE Services
No matter where you are in your digital transformation journey, you can count on HPE Services to deliver the expertise you need when, where and how you need it. From planning to deployment, ongoing operations and beyond, our experts can help you realize your digital ambitions.
https://www.hpe.com/services

Consulting Services
No matter where you are in your journey to hybrid cloud, experts can help you map out your next steps. From determining what workloads should live where, to handling governance and compliance, to managing costs, our experts can help you optimize your operations.
https://www.hpe.com/services/consulting

HPE Managed Services
HPE runs your IT operations, providing services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.
HPE Managed Services | HPE

Operational services
Optimize your entire IT environment and drive innovation. Manage day-to-day IT operational tasks while freeing up valuable time and resources. Meet service-level targets and business objectives with features designed to drive better business outcomes.
https://www.hpe.com/services/operational

HPE Complete Care Service
HPE Complete Care Service is a modular, edge-to-cloud IT environment service designed to help optimize your entire IT environment and achieve agreed upon IT outcomes and business goals through a personalized experience. All delivered by an assigned team of HPE Services experts. HPE Complete Care Service provides:
- A complete coverage approach -- edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced Incident Management experience with priority access
- Digitally enabled and AI driven customer experience

https://www.hpe.com/services/completecare

HPE Tech Care Service
HPE Tech Care Service is the operational support service experience for HPE products. The service goes beyond traditional support by providing access to product specific experts, an AI driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Tech Care Service delivers a customer-centric, AI driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service is available in three response levels. Basic, which provides 9x5 business hour availability and a 2-hour response time. Essential which provides a 15-minute response time 24x7 for most enterprise level customers, and Critical which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.
https://www.hpe.com/services/techcare

Service and Support

HPE Lifecycle Services
HPE Lifecycle Services provide a variety of options to help maintain your HPE systems and solutions at all stages of the product lifecycle. A few popular examples include:
- Lifecycle Install and Startup Services: Various levels for physical installation and power on, remote access setup, installation and startup, and enhanced installation services with the operating system.
- HPE Firmware Update Analysis Service: Recommendations for firmware revision levels for selected HPE products, taking into account the relevant revision dependencies within your IT environment.
- HPE Firmware Update Implementation Service: Implementation of firmware updates for selected HPE server, storage, and solution products, taking into account the relevant revision dependencies within your IT environment.
- Implementation assistance services: Highly trained technical service specialists to assist you with a variety of activities, ranging from design, implementation, and platform deployment to consolidation, migration, project management, and onsite technical forums.
- HPE Service Credits: Access to prepaid services for flexibility to choose from a variety of specialized service activities, including assessments, performance maintenance reviews, firmware management, professional services, and operational best practices.

Notes: To review the list of Lifecycle Services available for your product go to:
https://www.hpe.com/services/lifecycle

For a list of the most frequently purchased services using service credits, see the **HPE Service Credits Menu**

Other Related Services from HPE Services:
HPE Education Services
Training and certification designed for IT and business professionals across all industries. Broad catalogue of course offerings to expand skills and proficiencies in topics ranging from cloud and cybersecurity to AI and DevOps. Create learning paths to expand proficiency in a specific subject. Schedule training in a way that works best for your business with flexible continuous learning options.
https://www.hpe.com/services/training

Defective Media Retention
An option available with HPE Complete Care Service and HPE Tech Care Service and applies only to Disk or eligible SSD/Flash Drives replaced by HPE due to malfunction.

Consult your HPE Sales Representative or Authorized Channel Partner of choice for any additional questions and services options.

Parts and Materials
HPE will provide HPE-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements.

Parts and components that have reached their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual, product quick-specs, or the technical product data sheet will not be provided, repaired, or replaced as part of these services.

How to Purchase Services
Services are sold by Hewlett Packard Enterprise and Hewlett Packard Enterprise Authorized Service Partners:
- Services for customers purchasing from HPE or an enterprise reseller are quoted using HPE order configuration tools.
- Customers purchasing from a commercial reseller can find services at **https://ssc.hpe.com/portal/site/ssc/**

Service and Support

AI Powered and Digitally Enabled Support Experience
Achieve faster time to resolution with access to product-specific resources and expertise through a digital and data driven customer experience

Sign into the HPE Support Center experience, featuring streamlined self-serve case creation and management capabilities with inline knowledge recommendations. You will also find personalized task alerts and powerful troubleshooting support through an intelligent virtual agent with seamless transition when needed to a live support agent.
https://support.hpe.com/hpesc/public/home/signin

Consume IT On Your Terms
HPE GreenLake edge-to-cloud platform brings the cloud experience directly to your apps and data wherever they are—the edge, colocations, or your data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use, scalable, point-and-click self-service experience that is managed for you, HPE GreenLake edge-to-cloud platform accelerates digital transformation in a distributed, edge-to-cloud world.
- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

To learn more about HPE Services, please contact your Hewlett Packard Enterprise sales representative or Hewlett Packard Enterprise Authorized Channel Partner. Contact information for a representative in your area can be found at "Contact HPE"
https://www.hpe.com/us/en/contact-hpe.html

For more information
www.hpe.com/services

Technical Specifications

Technical Specifications Table		
SKU	870828-B21	777456-B21
Description	HPE Synergy 5330C 32Gb Fibre Channel Host Bus Adapter	HPE Synergy 5830C 32Gb Fibre Channel Host Bus Adapter
Network Processor	Emulex G6 XE501	Marvell EP2722
Data Rate	2 port, each at 32Gb	2 port, each at 32Gb
Bus Type	PCIe 3.0 x8	PCIe 3.0 x8
Power	<12W	<12W
Temperature	**Operating** 0° to 55°C (32° to 131°F) **Non-Operating** -65° to 85° C (-85° to 185° F)	
Humidity	**Operating** 10% to 90% non-condensing **Non-operating** 5% to 95% non-condensing	

Environment-friendly Products and Approach - End-of-life Management and Recycling

Hewlett Packard Enterprise offers end-of-life **product return, trade-in, and recycling programs**, in many geographic areas, for our products. Products returned to Hewlett Packard Enterprise will be recycled, recovered or disposed of in a responsible manner.

The EU WEEE Directive (2012/19/EU) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the **Hewlett Packard Enterprise web site.** These instructions may be used by recyclers and other WEEE treatment facilities as well as Hewlett Packard Enterprise OEM customers who integrate and re-sell Hewlett Packard Enterprise equipment.
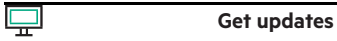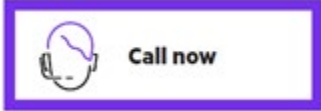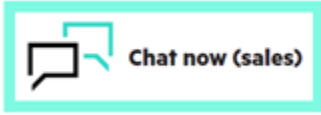
Summary of Changes

Date	Version History	Action	Description of Change
04-Dec-2023	Version 5	Changed	Service and Support Section was updated
15-May-2023	Version 4	Changed	Removed the 16G HBAs
15-Nov-2021	Version 3	Changed	Service and Support Section was updated
06-May-2019	Version 2	Changed	Update table format, glossary and technical specifications
02-Apr-2019	Version 1	New	New QuickSpecs

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