BROADCOM®

SELECTION GUIDE

Storage Solutions
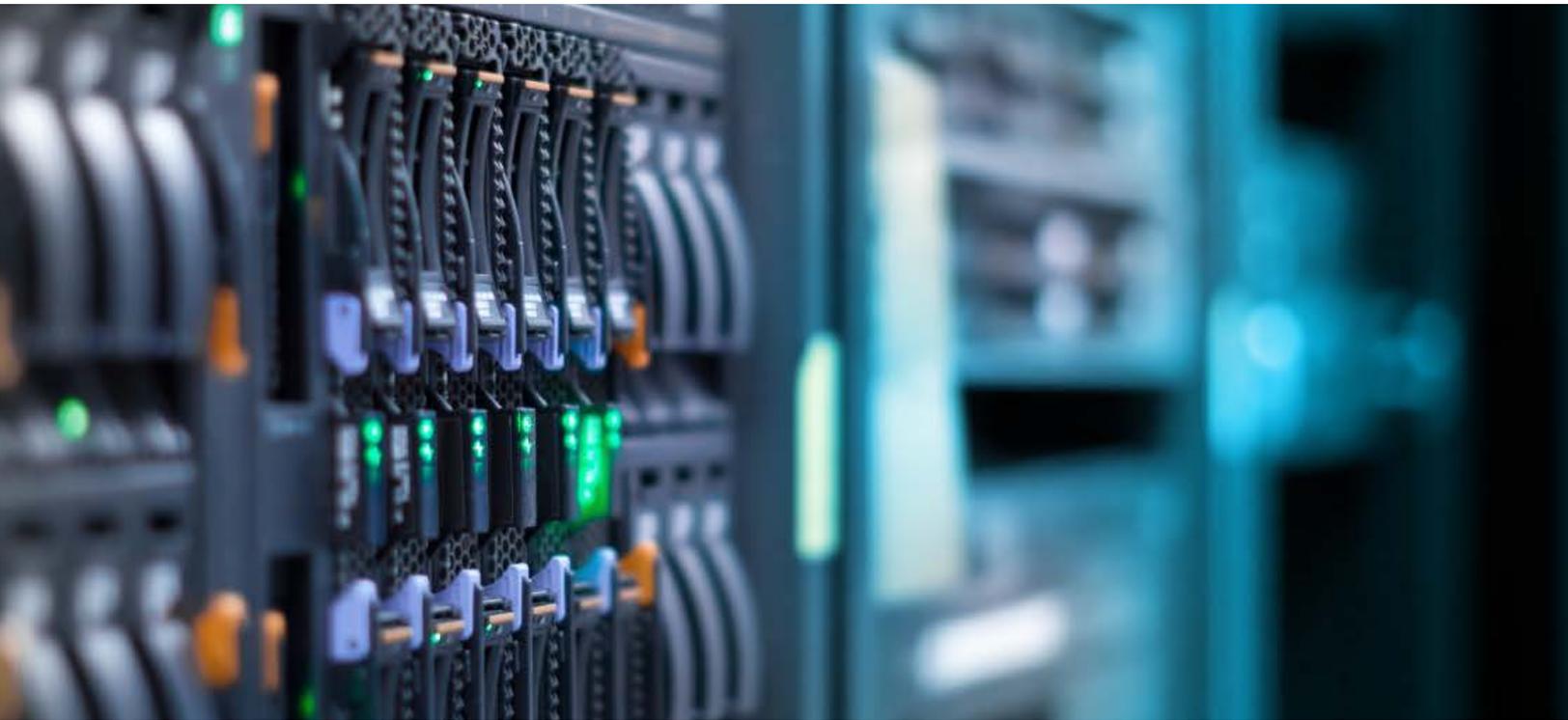
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The amount and variety of data produced by content-rich Internet, cloud, and enterprise applications poses unprecedented challenges for data centers of all sizes.

New approaches and technologies are needed to manage this deluge of data: to store it, protect it, and maximize the value from it. These challenges present opportunities to help the world make the most from its data.

Broadcom is focused on helping customers in wireless communications, wired infrastructure, enterprise storage, and industrial and other markets solve their challenges. Broadcom has the industry's broadest portfolio of storage solutions, backed by decades of experience and trusted by the world's leading server and storage suppliers. Broadcom provides the building blocks for storage solutions that help customers understand, prioritize, store, and protect critical data. Whether you need to protect data, power your storage solutions, or deliver the performance needed by critical applications, Broadcom® 24G and 12Gb/s SAS/SATA/NVMe Tri-Mode MegaRAID™ controller cards and host bus adapters (HBAs), and advanced software options are the smart choice.

Host Bus Adapters (HBAs)

Equip storage solutions with the connectivity needed to meet any scaling needs from the smallest SMBs to the largest data centers. Broadcom HBAs can enable an easy, long-term storage growth strategy in practically any direct-attached storage scenario. Whether solutions use SAS or SATA, NVMe (PCIe), hard disk or flash, or even internal or external storage elements, Broadcom HBAs are designed to create the fabric tying any or all of those components together into a unified storage effort.
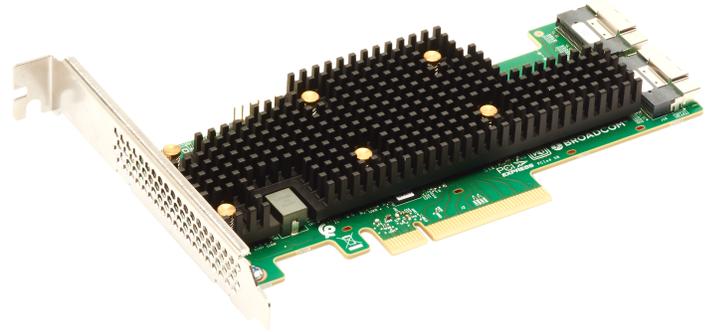
24G SAS/SATA/NVMe HBA Specifications

Product Name	MPN (SGL)	Form Factor Ports	Ports	Connectors	Bus Interface	RAID Levels
9700W-32i	05-50164-02	LP-MD2	32	Two SFF-TA-1016	x16 PCIe Gen 5.0	JBOD
9700-16e	05-50165-00	LP-MD2	16	Four SFF-8674	x8 PCIe Gen 5.0	JBOD
9620-16i	05-50111-02	LP-MD2	16	Two SFF-8654	x8 PCIe Gen 4.0	0/1/10/JBOD
9600-24i	05-50111-01	LP-MD2	24	Three SFF-8654	x8 PCIe Gen 4.0	JBOD
9600-16i	05-50111-00	LP-MD2	16	Two SFF-8654	x8 PCIe Gen 4.0	JBOD
9600W-16e	05-50108-00	LP-MD2	16	Four SFF-8674	x16 PCIe Gen 4.0	JBOD
9600-16e	05-50118-00	LP-MD2	16	Four SFF-8674	x8 PCIe Gen 4.0	JBOD
9600-8i8e	05-50145-00	LP-MD2	16	One SFF-8654, Two SF-8674	x8 PCIe Gen 4.0	JBOD

12Gb/s SAS/SATA/NVMe HBA Specifications

Product Name	MPN (SGL)	Form Factor Ports	Ports	Connectors	Bus Interface	RAID Levels
9500-16i	05-50134-00	LP-MD2	16	Two SFF-8654	x8 PCIe Gen 4.0	JBOD
9500-8i	05-50134-01	LP-MD2	8	One SFF-8654	x8 PCIe Gen 4.0	JBOD
9500-16e	05-50075-00	LP-MD2	16	Four SFF-8644	x8 PCIe Gen 4.0	JBOD
9500-8e	05-50075-01	LP-MD2	8	Two SFF-8644	x8 PCIe Gen 4.0	JBOD

MegaRAID Entry (iMR)

MegaRAID SAS/SATA/NVMe entry controller cards provide trusted MegaRAID data protection and reliability for non-business-critical applications. Offering the same management features and OS support as the mainstream MegaRAID lineup at an affordable price point, the entry controllers are great solutions for small and medium businesses (SMB) deploying entry-level server platforms and workstations.

12Gb/s SAS/SATA/NVMe MegaRAID Entry (iMR) Specifications

Product Name	MPN (SGL)	Form Factor Ports	Ports	Connectors	Bus Interface	RAID Levels
9524-8i	05-50170-00	M.2	8	One SFF-8654	x4 PCIe Gen 4.0	0/1/10/JBOD
9520-8i	05-50134-25	LP-MD2	8	One SFF-8654	x8 PCIe Gen 4.0	0/1/10/JBOD

MegaRAID (iMR) Boot Protection

The MegaRAID boot adapter provides a reliable boot solution based on the Broadcom second-generation PCIe Gen 4.0 Tri-Mode SAS3808 I/O controller. The 9520-2M2 adapter supports two M.2 NVMe or SATA drives, enabling users to separate their OS drives from their primary data drives. By taking advantage of the unified Broadcom tool suite, users familiar with the Broadcom standard RAID and HBA controllers can easily integrate the 9520-2M2 adapter into their existing management application suite.

12Gb/s SATA/NVMe MegaRAID Entry (iMR) Specifications

Product Name	MPN (SGL)	Form Factor Ports	Ports	Connectors	Bus Interface	RAID Levels
9520-2M2	05-50148-03	LP-MD2	2 x4	Two M.2	x8 PCIe Gen 4.0	0/1/JBOD

MegaRAID

Ensure critical data is protected and available with the most widely deployed RAID data protection architecture. Broadcom enables high-performance storage connectivity and flexible system designs that support any combination of NVMe, SAS and SATA devices with the industry's first hardware RAID adapter with Tri-Mode SerDes technology.

The MegaRAID Tri-Mode storage adapters bring NVMe performance benefits to the storage tier by providing connectivity and data protection that MegaRAID technology has offered for over 20 years for SAS/SATA interfaces.

Broadcom Tri-Mode SerDes technology enables operation of NVMe, SAS or SATA devices in a single drive bay. A single controller can operate in all three modes concurrently servicing NVMe, SAS, or SATA devices. Tri-Mode support provides a non-disruptive way to evolve existing data center infrastructure.

24G SAS/SATA/NVMe MegaRAID Specifications

Product Name	MPN (SGL)	Form Factor	Ports	Connectors	Bus Interface	Cache Memory (GB)	Cache Protection
9760W-16i	05-50164-01	LP-MD2	16	One SFF-TA-1016	x16 PCIe Gen 5.0	IRC	CVPM33[a]
9760W-32i	05-50164-00	LP-MD2	32	Two SFF-TA-1016	x16 PCIe Gen 5.0	IRC	CVPM33[a]
9670W-16i	05-50113-00	FH	16	Two SFF-8654	x16 PCIe Gen 4.0	8	CVPM05[b]
9670-24i	05-50123-00	FH	24	Three SFF-8654	x8 PCIe Gen 4.0	8	CVPM05[b]
9660-16i	05-50107-00	LP-MD2	16	Two SFF-8654	x8 PCIe Gen 4.0	4	CVPM05[b]

a. CacheVault™ Kit/Power Module included.
b. CacheVault Kit/Power Module sold separately.

12Gb/s SAS/SATA/NVMe MegaRAID Specifications

Product Name	MPN (SGL)	Form Factor	Ports	Connectors	Bus Interface	Cache Memory (GB)	Cache Protection
9560-16i	05-50077-00	LP-MD2	16	Two SFF-8654	x8 PCIe Gen 4.0	8	CVPM05[a]
9560-8i	05-50077-01	LP-MD2	8	One SFF-8654	x8 PCIe Gen 4.0	4	CVPM05[a]
9580-8i8e	05-50076-00	LP-MD2	16	Two SFF-8654, Two SFF-8644	x8 PCIe Gen 4.0	8	CVPM05[a]

a. CacheVault Kit/Power Module sold separately.

OCP Adapters

Broadcom offers a series of PCIe Gen 4.0-based OCP 3.0 storage adapters that utilize Broadcom Tri-Mode SerDes technology. The OCP adapters enable the operation of NVMe, SAS, or SATA devices in a single drive bay, allowing for endless design flexibility. Based on the Broadcom SAS3916 and SAS3816 eight-lane host PCIe to SAS/SATA/PCIe ROC/IOC controllers, the 9562 and 9502 series OCP 3.0 adapters offer both PCIe Gen 4.0 host and PCIe Gen 4.0 storage interfaces.

Providing storage adapters in the OCP 3.0 NIC small form factor (SFF) gives users more flexibility for integrating storage into the server. By using an OCP slot for storage, users can free up a standard PCIe adapter slot for other uses. The adapters support the same feature set and provide the same performance as the standard 95xx PCIe adapters.

12Gb/s SAS/SATA/NVMe OCP Adapter Specifications

Product Name	MPN (SGL)	Form Factor	Ports	Connectors	Bus Interface	Cache Memory (GB)	Cache Protection
9562-16i	05-50137-00	OCP 3.0 NIC SFF	16	Two SFF-8654	x8 PCIe Gen 4.0	8	CVPM05[a]
9502-16i	05-50137-02	OCP 3.0 NIC SFF	16	Two SFF-8654	x8 PCIe Gen 4.0	—	—

a. CacheVault Kit/Power Module sold separately.

Cache Protection Options

RAID caching is a cost-effective way to improve I/O performance by writing data to a controllers' cache before it is written to disk. In write-back mode, data written to cache is vulnerable until it is made permanent on disk. To help avoid the possibility of data loss or corruption during a power or server failure, Broadcom offers the CacheVault flash cache protection module or the battery backup units for MegaRAID SAS controllers cards.

For additional details, view the Cache Protection Options Matrix.

Cache Protection Product Specifications

Product Name	MPN	Description	Compatible Controller Cards
CVPM33	05-50169-00	Cache Offload Energy Pack	MegaRAID 9760 Series
CVPM05	05-50039-00	Cache Offload Energy Pack	MegaRAID 9560, 9580, 9660, and 9670 Series
BBU-BRACKET-05	L5-25376-00	Remote Mounting Board for CVPM05	MegaRAID 9560, 9580, 9660, and 9670 Series

Tri-Mode Cables

These cables enable connection from 95xx and 96xx series MegaRAID and HBA Tri-Mode adapters to SAS, SATA, and PCIe (NVMe) devices.

Cable Specifications

MPN	Description	Length (m)	Side Bands Supported	To Controller	To Device/Backplane	Compatible Controllers
05-60015-00	Cable, x16 1016 to 2x8 1016	1	Yes	x16 SFF-TA-1016	2x8 SFF-TA-1016 MCIO	9760W-16i 9760W-32i 9700W-32i
05-60016-00	Cable, x16 1016 to 2x8 8564 (24G SAS/PCIe Gen 4)	1	Yes	x16 SFF-TA-1016	2x8 SFF-8654 SlimSAS	
05-60017-00	Cable, x16 1016 to 4x4 8639	1	Yes	x16 SFF-TA-1016	4x4 SFF-8639 Direct U.2 Drive Connect	
05-60018-00	Cable, x16 1016 to 4x4 1009	1	Yes	x16 SFF-TA-1016	4x4 SFF-TA-1009 Direct EDSFF Drive Connect	
05-60019-00	Cable, x16 1016 to 16x1 SAS/SATA	1	Yes	x16 SFF-TA-1016	16x1 SAS/SATA Direct Drive Connect	
05-60001-00	Cable, x8 8654 to 2x4 8612, AltWiring	1	Yes	SFF-8654 (SlimSAS)	2x4SFF-8612 OCuLink	9670-24i 9670W-16i 9620-16i 9600-24i 9600-16i 9600-8i8e 9580-8i8e 9560-16i 9560-8i 9524-8i 9520-8i 9500-16i 9500-8i
05-60002-00	Cable, x8 8654 to 2x4 8643 (W), SMC	1	Yes	SFF-8654 (SlimSAS)	2x4 SFF-8643 Mini SAS HD NVMe Connection[a]	
05-60003-00	Cable, x8 8654 to 2x4 8643, 9402 SAS	1	Yes	SFF-8654 (SlimSAS)	2x4 SFF-8643 Mini SAS HD SAS Connections	
05-60004-00	Cable, x8 8654 to 2x4 8654, 9402	1	Yes	SFF-8654 (SlimSAS)	2x4 SFF8654 SlimSAS	
05-60005-00	Cable, x8 8654 to 2xU.2 Direct	1	Yes	SFF-8654 (SlimSAS)	2xU.2 Direct Connect	
05-60006-00	Cable, x8 8654 to 8xU.3 Direct	1	Yes	SFF-8654 (SlimSAS)	8xU.3 Direct Connect	
05-60007-00	Cable, x8 8654 to 1x8 8654, 9402	1	Yes	SFF-8654 (SlimSAS)	1x8 SFF8654 SlimSAS	
05-60010-00	Cable, x8 8654 to 8x1 SATA with Sideband	1	Yes	8 SFF-TA-8654 (SlimSAS)	8x1 SATA	
05-60009-00	Cable, x4 SFF-8644 to 1x4 SFF-8644	3	Yes	x4 SFF-8644	1x4 SFF-8644	9580-8i8e 9500-16e 9500-8e

a. Cable 05-60002-00 is designed for SuperMicro NVMe enabled backplanes using white Mini SAS HD connectors for the NVMe connections.

Connecting everything®

Broadcom Inc., a Delaware corporation headquartered in Palo Alto, California, is a global infrastructure technology leader built on more than 60 years of innovation, collaboration, and engineering excellence.

With roots based in the rich technical heritage of AT&T/Bell Labs, Lucent, and Hewlett-Packard/Agilent, Broadcom focuses on technologies that connect our world. Through the combination of industry leaders Broadcom, LSI, Broadcom Corporation, Brocade, CA Technologies, Symantec's enterprise security business, and VMware, the company has the size, scope, and engineering talent to lead the industry into the future.

Broadcom is focused on technology leadership and category-leading semiconductor and infrastructure software solutions. The company is a global leader in numerous product segments serving the world's most successful companies.

Broadcom combines global scale, engineering depth, broad product portfolio diversity, superior execution, and operational focus to deliver category-leading semiconductor and infrastructure software solutions so its customers can build and grow successful businesses in a constantly changing environment.