



HP VMA-SERIES MEMORY ARRAYS

Data sheet

An external solid state storage array providing server applications with low-latency I/O performance in scalable capacities large enough to hold entire databases

The HP VMA-series Memory Arrays are part of the comprehensive HP solid state storage portfolio. As with all flash memory, the VMA series increases I/O performance with low-latency access to storage. The VMA system's advantages are in providing scalable capacities to terabytes or even petabytes of all-solid-state storage, with superior wear-leveling algorithms that certify consistent system performance.

The VMA-series Memory Arrays are conveniently packaged in a 3U chassis that can be mounted in a standard 19-inch rack. The VMA system offers the option of PCIe direct-attach storage, for superior performance benefits with single-server applications, or Fibre Channel SAN-attached storage, where multiple servers are accessing shared storage.

The VMA utilizes SLC NAND flash memory, a type of non-volatile storage technology that does not require power to retain data. Flash technology contains no moving parts and, as a result, this technology has higher reliability, faster access times, and consumes less power

than mechanical rotating magnetic media. Because the VMA is an external storage solution, your data is available even if your server goes down.

The VMA supports the HP ProLiant DL980 Server with either PCIe direct-attach or Fibre Channel SAN-attach storage and supports HP Integrity servers and blades running HP-UX with the Fibre Channel SAN-attach option.

The HP VMA provides practically unlimited solid state capacities

The VMA-series Memory Arrays provide scalable solid state capacities with higher performance and more reliability than traditional magnetic media.

The VMA provides:

- Practically unlimited scalability, up to terabytes or even petabytes
- Sharable storage in all-solid-state external systems
- Up to 240K sustained random write IOPS (4K block with RAID)
- 350K random read IOPS



HP VMA-series Memory Arrays for select HP server systems

The VMA provides options for two methods of server access. The first method, PCIe direct-attach, utilizes a PCIe card in your server and cable to connect to the external VMA array. This provides the fastest possible I/O access for single-server applications. Up to eight

VMA chassis may be connected to one server in this fashion. The second method utilizes the VMA SAN gateway to place the VMA system on a Fibre Channel SAN, where the storage can be shared by all servers on the SAN. Up to two VMA chassis may be placed behind each SAN gateway, and an unlimited number of VMA SAN gateways may be used, creating a practically unlimited capacity of solid state storage.

| VMA with PCIe direct-attach | VMA with Fibre Channel SAN-attach |
|--|---|
| Scalable external storage for single-server applications; connects directly to the server's PCIe bus; up to eight VMAs attached to a single server | Sharable storage with practically unlimited scalability, unconstrained by the number of server PCIe slots, rack space, or cable lengths |
| Less than 100 microseconds of latency | Less than 200 microseconds of latency |
| Can be managed like simple block storage | Uses standard Fibre Channel protocols; supports HP-UX, Windows® Server, and Linux |
| Supported with HP ProLiant DL980 servers | Supported with both HP ProLiant DL980 Servers and HP Integrity servers |

Key features and benefits

- Scalable capacity
 - Capacities sized to fit your needs, capable of holding entire databases
 - 5 TB or 10 TB building blocks
 - Up to eight VMA chassis connected directly to a single server
 - Practically unlimited capacity when attached via Fibre Channel SAN
- Solid state performance with 1/100 the latency of traditional, platter-based disk drives
- Built-in availability
 - External chassis, available even if servers are down
 - Hot-swappable memory modules
 - 4+1 parity RAID across multiple modules
- Energy efficiency and power savings
 - More reliability and lower power usage than traditional mechanical disks with moving parts
- No server processing overhead
 - Advanced wear-leveling and system management processing built into each VMA system
- Backed by HP world-class service and support

Positioning the VMA-series Memory Arrays

In comparison with other HP solid state products, the VMA offers more solid state storage capacity and optional shared storage access than internal, low-end solid state solutions, but less software manageability features than high-end auto-tiering systems. Customers requiring tiering, mirroring, replication, or availability software functionality should consider the HP 3PAR and HP P9500 platforms as the best approach and engage their HP Storage specialist.

The HP VMA-series Memory Arrays enhance online transaction processing (OLTP) for database applications. With the high capacities afforded by this product, customers can easily and quickly place entire databases into solid state memory and achieve very high IOPS performance with extremely low latency. Database solutions comprised of HP servers and HP VMA-series Memory Arrays provide capacity and performance, beating competitive offerings costing many times the price.

HP VMA-SERIES MEMORY ARRAY

Technical specifications

| | VMA3205 | VMA3210 |
|-----------------------|--|--|
| Capacity | 5.2 TB (4 TB usable with RAID) May be expanded to 10 TB | 10.5 TB (8 TB usable with RAID) |
| NAND type | Single-level cell (SLC) | SLC |
| Bandwidth | 1.45 GB/s | 1.45 GB/s |
| IOPS | Up to 350K IOPS read (4K block) Up to 250K IOPS write (4K block) | Up to 350K IOPS read (4K block) Up to 250K IOPS write (4K block) |
| Access latency | PCIe direct-attach: 80-microsecond reads 25-microsecond writes SAN-attach: Less than 200 microseconds of latency | PCIe direct-attach: 80-microsecond reads 25-microsecond writes SAN-attach: Less than 200 microseconds of latency |
| Interface | PCIe direct-attach or SAN-attach | PCIe direct-attach or SAN-attach |
| Size | 3U racked | 3U racked |
| Endurance | Up to 4 TB writes per hour for 5 years | Up to 8 TB writes per hour for 5 years |
| Warranty | 3-year parts/3-year labor/3-year onsite; 3-year limited warranty, parts exchange, next business day delivery* | 3-year parts/3-year labor/3-year onsite; 3-year limited warranty, parts exchange, next business day delivery* |
| Maximum usage | 245 PB of writes | 494 PB of writes |

* Subject to maximum-usage limitations. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations. Maximum supported lifetime—the period in years set to equal the warranty for the device. Maximum usage limit—this is the maximum amount of data that can be written to the device before write burn-out.

Environmental specifications

| | |
|--------------------|---|
| Temperature | Operational: 41°F to 104°F (5°C to 40°C) Non-operational: -40°F to 158°F (-40°C to 70°C) |
| Humidity | Operational: 5% to 85% RH @ 104°F (40°C) non-condensing Non-operational: Up to 93% RH @ 104°F (40°C) |
| Altitude | 3,050 m (10,000 ft) |

Why choose VMA-series Memory Arrays?

There are many advantages to using the VMA series:

- They have a large capacity, which means you can put more than just log files or simple structures into solid state. The HP VMA can hold entire databases.
- They can be used for either single-server data needs or multiserver shared-storage applications.
- Their external design does not add power and cooling burden to servers.
- They can be serviced by the customer and have hot-plug memory modules.

Ideal business applications

Online transaction processing, data warehousing, and business intelligence

HP Financial Services

HP Financial Services provides innovative financing and financial asset management programs to help you cost-effectively acquire, manage, and ultimately retire your HP solutions. For more information, contact your local HP representative or visit:

www.hp.com/go/hpfinancialservices

Burst through speed bottlenecks and add a new dimension to storage performance and reliability:

www.hp.com/go/vma

HP Services

Technology Services for increased uptime, productivity, and ROI

Trust HP solid-state-technology service experts for every level of service and support. Our integrated portfolio of services are designed to help you enhance technology operations and lower risk—and make it easier for you to seek the right balance between affordability and service-level commitments. The support for the VMA device would take on the same service level that is associated with either a new or existing server. There is an additional support charge to add this device. The services listed below are the recommended support levels for the servers in the IT environment.

Minimum recommended HP Care Pack service offerings

3 Year HP Critical Service for Integrity server environments

Your dedicated HP team evaluates how well your existing infrastructure meets your availability requirements.

HP Critical Service provides you with access to:

- Immediate 24x7 access to your account advocate, a 6-hour call to repair
- 100% data availability guarantee
- Proactive onsite expertise from HP-certified high-availability experts
- Remote support technology to monitor your environment for potential problems

3 Year HP Critical Advantage for ProLiant DL980 environments

HP Critical Advantage is an end-to-end infrastructure support solution for business-critical applications running on virtualized/x86 infrastructures.

HP Critical Advantage provides access to:

- An assigned account team that knows your environment and business requirements
- A suite of core proactive services (such as HP remote tool setup, firmware and driver analysis, and patch analysis for OS)
- Flexible reactive hardware service levels—choose from a variety of hardware support options

HP Care Pack service benefits

- Reduce deployment time and manage ProLiant server solutions smoothly and efficiently
- Increase server uptime and performance for your business
- Detect, diagnose, and repair problems quickly, saving time, money, and resources.

For more information, visit [HP Support Services](#).

Note: Supplies and consumable parts are not supported and will not be provided as part of this service; standard warranty terms and conditions apply to supplies and consumable parts. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations will not be provided, repaired, or replaced as part of this service.



Get connected

www.hp.com/go/getconnected

Current HP driver, support, and security alerts delivered directly to your desktop

© Copyright 2011 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Windows is a U.S. registered trademark of Microsoft Corporation.

4AA3-5891ENW, Created August 2011

