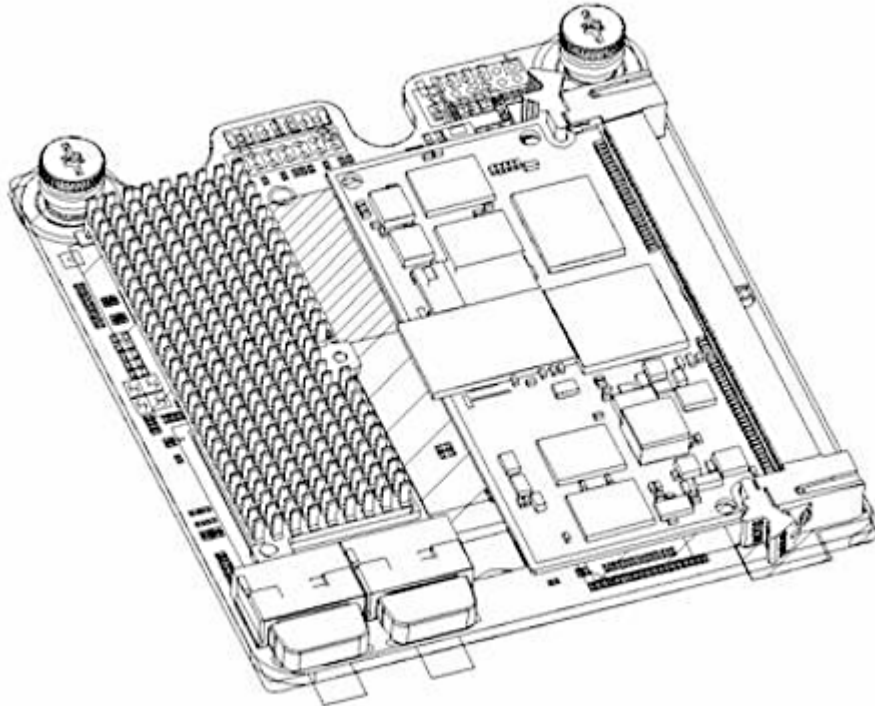


### Overview



---

The HP Smart Array P712m is a mezzanine card that is 1.5Gb SATA 3.0/6.0Gb SAS for the HP ProLiant BL280c G6 server. It is one of the highest performing controllers in the SAS portfolio and provides new levels of reliability for the HP ProLiant BL280c G6, through its support of the latest SCSI technology and advanced RAID capabilities.

---

### Models

HP Smart Array P712m Controller

484299-B21

**NOTE:** In order to support SAS Hard Drives the HP ProLiant BL280c G6 must have a P712m Controller installed in server mezzanine slot 1 or mezzanine slot 2. The preferred mezzanine slot is slot 1.

### Standard Features

#### The Smart Array Advantage

HP's innovative design and integration work within the Smart Array family of products creates customer value that is unmatched in the industry. Use of Smart Array products across multiple applications results in a much lower Total Cost of Ownership (TCO) than any other server storage RAID product. The HP Smart Array family brings an unparalleled return on investment. The P712m Smart Array solution fulfills all the RAID requirements for the HP ProLiant BL280c G6 solutions by allowing the customer the flexibility of purchasing one solution that can perform as an entry-level RAID controller as well as upgrade capability to high end RAID solution with the addition of more cache and/or BBWC module.

**Data Compatibility.** Data Compatibility with all Serial Smart Array controllers allows simple and easy upgrades any time needs for higher performance, capacity, and availability increase.

**Consistent Configuration and Management Tools.** All Smart Array products utilize a standard set of management and utility software. These tools minimize Total Cost of Ownership (TCO) by reducing training requirements and technical expertise necessary to install and maintain HP server storage.

**Pre-Failure Warranty.** Pre-Failure Warranty means Systems Insight Manager not only reports when a drive is going to fail but allows replacement of failing drives prior to actual failure. For complete details, consult the HP Support Center or refer to your HP Server documentation.

---

#### Key Features

- Up to 2 SATA or SAS hard drives via direct connect for the BL280c G6 Server Blade
- Zero Memory Raid, 256 and 512MB cache
- Battery Backed Write Cache
- 3.0/6.0Gb SAS capable technology delivers high performance and data bandwidth up to 1.2GB/s per physical link and contains full compatibility with 1.5G SATA technology
- Software consistency among all Smart Array family products: Array Configuration Utility, Systems Insight Manager, Array Diagnostic Utility (ADU) and SmartStart

---

#### Online Management Features

- Online array expansion (with BBWC upgrade)
- Online Advanced Capacity Expansion (with BBWC and Smart Array Advanced Pack upgrade)
- Online logical drive extension (with BBWC upgrade)
- Online RAID level migration (with BBWC upgrade)
- Online strip size migration (with BBWC upgrade)
- Offline Mirror splitting and recombining (with BBWC and Smart Array Advanced Pack upgrade)
- User selectable rebuild priority
- User selectable RAID level and stripe size
- User selectable read and write cache sizes (with BBWC upgrade)

---

#### Performance

HP's High Performance Architecture sets new boundaries of industry performance expectations.

- 3.0Gb/6.0 Gb SAS capable (up to 600MB/s bandwidth per physical link)
- Zero Memory Raid, 256 and 512MB cache

---

#### Capacity

- 600GB with 2 300GB SAS drives
-

### Standard Features

#### Availability

Provides increased server uptime by providing advanced storage functionality:

- Online RAID Level Migration (0,1 only with BBWC upgrade)
  - Online Capacity Expansion (with BBWC upgrade)
  - Logical Drive Capacity Extension (with BBWC upgrade)
  - Pre-Failure Warranty
- 

#### Fault Prevention

The following features offer detection of possible failures before they occur, allowing preventive action to be taken:

- S.M.A.R.T.: Self Monitoring Analysis and Reporting Technology first developed at HP detects possible hard disk failure before it occurs, allowing replacement of the component before failure occurs.
  - Drive Parameter Tracking monitors drive operational parameters, predicting failure and notifying the administrator.
  - Dynamic Sector Repairing continually performs background surface scans on the hard disk drives during inactive periods and automatically remaps bad sectors, ensuring data integrity.
  - Smart Array Cache Tracking monitors integrity of controller cache, allowing pre-failure preventative maintenance.
- 

#### Fault Tolerance

Keeps data available and server running while a failed drive is being replaced; several fault tolerance configurations are supported including:

- Drive Mirroring (RAID 1): This allocates half of the drive array to data and the other half to mirrored data, providing two copies of every file. It is a high-performance RAID.
- 

#### Fault Recovery

Minimizes downtime, reconstructs data, and facilitates a quick recovery from drive failure:

- Recovery ROM: This feature provides unique redundancy that protects from a ROM image corruption. A new version of firmware can be flashed to the ROM while the controller maintains the last known working version of firmware. If the firmware becomes corrupt, the controller will revert back to the previous version of firmware and continue operating. This reduces the risk of flashing firmware to the controller.
  - DRAM ECC corrects against single bit data and address corruption.
  - Battery-backed write cache upgrade provides for up to two days of battery power for data cache retention. The data backup duration could be extended anytime the server's auxiliary power is available during system power down.
- 

#### Ease of Use

Consistency and Upgradeability make the Smart Array family unique in the industry:

- GUI based configuration, management and diagnostic software tools
- Common data format between generations of products
- Data migration between servers and external StorageWorks Modular Smart Array enclosures

### Compatibility

<b>Servers</b>	HP ProLiant BL280c G6
<b>Operating Systems and Virtualization Software Support for ProLiant Servers</b>	Microsoft Windows 2003 Microsoft Windows 2003 R2 Microsoft Windows 2008 SLES 9 SP 4 SLES 10 SP1 SLES 11 VMware 3.5 U4 Red Hat Enterprise Linux 4 U6 Red Hat Enterprise Linux 5 U2 <b>NOTE:</b> For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: <a href="http://www.hp.com/go/supportos">http://www.hp.com/go/supportos</a> .

### Software Suite

All Smart Array products share a common set of configuration, management and diagnostic tools, including Array Configuration Utility, Array Diagnostic Utility (ADU), and Systems Insight Manager. This software consistency of tools reduces the cost of training for each successive generation of product and takes much of the guesswork out of troubleshooting field problems. These tools lower the total cost of ownership by reducing training and technical expertise necessary to install and maintain HP server storage.

#### Systems Insight Manager

- Powerful server and server options/storage manager tool
- Monitors over 1200 system wide parameters
- Configuration/Diagnostic Utilities

#### HP Array Configuration Utility (ACU)

- Powerful Web based configuration utility for all Smart Array controllers
- Provides a graphical view of HP server drive array configurations
- Allows for management of multiple arrays over a secure internet connection from anywhere in the world
- Easy to use Wizards for configuration
- Runs online on Windows and NetWare (CPQONLIN)

#### HP Option ROM Configuration for Arrays (ORCA)

- An alternative method for easily viewing, creating, and deleting multiple arrays and logical volumes during system power up.
- For advanced array configurations use ACU

#### HP Array Diagnostic Utility (ADU)

- In depth diagnostic and reporting utility for all Smart Array controllers

### Smart Array P712m Controller Features

- 3.0/6.0Gb SAS technology delivers high performance and data bandwidth up to 600 MB/s per physical link and contains full compatibility with 1.5G SATA technology
- Supports connection to both SAS and SATA hard drives
- Software consistency among all Smart Array family products: Array Configuration Utility, Systems Insight Manager, Array Diagnostic Utility (ADU) and SmartStart
- Recovery ROM protects against a ROM corruption

### Service and Support, HP Care Pack, and Warranty Information

**Warranty** The warranty for this device is 3 years parts only.  
**Pre-Failure Warranty:** Drives attached to the Smart Array Controller and monitored under Insight Manager are supported by a Pre-Failure (replacement) Warranty. For complete details, consult the HP Support Center or refer to your HP Server Documentation.

---

**Software Product Services** Standalone telephone support  
Rights to new license version  
Media and documentation updates

---

**Hardware Product Services** Installation services  
On-site maintenance (includes warranty support)  
Response time upgrades during the warranty period  
Post-warranty coverage  
RAID setup and performance consulting via statement of work  
**NOTE:** For additional hardware installation and maintenance information, please refer to the URL: <http://www.hp.com/hps/hardware/>

---

**Warranty Upgrade Options** **Response** - Upgrade on-site response from next business day to same day 4 hours  
**Coverage** - Extend hours of coverage from 9 hours x 5 days to 24 hours x 7 days  
**Duration** - Select duration of coverage for a period of 1, 3, or 5 years  
Warranty upgrade options can come in the form of Care Packs, which are sold at the HP System level this product attaches to.

---

**HP Care Pack Information** HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage. Care Packs for this option is sold at the system level this option attaches too.  
HP Care Pack is not available for less than the product's warranty duration.  
HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.  
HP Care Pack services are prepaid.  
**NOTE:** For additional HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL: <http://www.hp.com/hps/carepack/>

### Options

#### Hard Drives

**NOTE:** Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

##### SAS Non-Hot Plug 2.5" Enterprise (ENT) Drives

HP 300GB 6G SAS 10K SFF DP NHP ENT HDD 537809-B21

HP 146GB 6G SAS 10K SFF DP NHP ENT HDD 537807-B21

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/12244\\_na/12244\\_na.html](http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html)

##### SATA Non-Hot Plug Entry (ETY) Disk Drives

HP 250GB 3G SATA 5.4K NHP SFF ETY HDD 460357-B21

HP 120GB 1.5G SATA 5.4K NHP SFF ETY HDD 459357-B21

**NOTE:** Please see the QuickSpecs for Technical Specifications and additional information:

[http://h18000.www1.hp.com/products/quickspecs/13021\\_na/13021\\_na.html](http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html)

---

#### Storage Controllers

256MB Cache Module 462968-B21

HP 650 mAh P-Series Low Pro Battery 575031-B21

HP Smart Array Advanced Pack No Media 1-Server license including 1yr 24x7 Technical Support 516471-B21

**NOTE:** This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services.

### Technical Specifications

Dimensions	4 in x 4.5 in x 0.8 in (10.1 cm x 11.4 cm x 2 cm)
Disk Drive and Enclosure	3/6G SAS (Serial Attached SCSI)
Protocol Support	1.5G SATA (Serial AT Attachment)
SAS Connectors	two x1 connectors for cabled drives
Memory Bus Speed	DDR2-800MHz and 72-bit wide bus (512MB module) 40-bit wide bus (256MB module)
SAS Port Link Rate	3/6G per physical link
Software upgradeable Firmware	Yes
Cache Memory	512 MB Read/Write ECC protection, battery-backed, and removable
Logical Drives Supported	Up to 2 logical drives
Maximum Capacity	600GB
Memory Addressing	64-bit, supporting servers memory space greater than 4 GB
RAID Support	RAID 1 (Mirroring) RAID 0 (Striping)
Upgradeable Firmware	4-MB flashable ROM with redundant firmware images

---

<b>Environment-friendly Products and Approach</b>	<b>End-of-life Management and Recycling</b>	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> . To recycle your product, please go to: <a href="http://www.hp.com/go/green">http://www.hp.com/go/green</a> or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.
---	---	--

The EU WEEE directive (2002/95/EC) 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 web site at: <http://www.hp.com/go/green>. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

---

© Copyright 2009 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice. Microsoft and Windows are registered trademarks or trademarks of Microsoft Corporation in the U.S. and/or other countries. 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.

For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.