

Disk matrix

SAS

2 communication channels (redundancy)

SATA

1 communication (half-duplex channel)

HPE M6510

- Model: 3PARA-ST1111
- 24 x 2,5"
- SAS 6Gb

Dell PowerVault MD1200

- 6Gps SAS
- H800 controler with large disks support

Dell PowerVault MD3000/MD1000

!!! MD3000 has integrated RAID controller.

- Do not use it with PERC 6e or similar.
- Use simple SAS5E or SAS6E HBA adapter

MD3000 vs MD1000:

- the same enclosure.
- MD3000 is a base module, contains EMM with raid support (AMP01-RSIM).
- MD3000i is a base enclosure like above but EMM supports two ethernet ports for iSCSI and one SAS expansion port.
 - seen as virtual device for dumb HBA
 - redundant connections (dual path)
 - 512 MB cache mirrored in each EMM
 - RAID is performed inside enclosure, so multiple device access is not consuming bandwidth on 3Gbps SAS port.
- MD1000 is expansion module, contains simple dumb pass through EMMs (AMP01-SIM)

[MD1000 MD3000](#)

- Enables mixing SAS and SATA drives in a single enclosure
- 15 drives backplane.
- Enclosure modes:
 - unified mode for direct connectivity to 15 hard drives
 - split mode with dual EMMs providing a direct connectivity to drives 0 though 6 and a separate direct connectivity to drives 7 though 14.
 - Possible bandwidth increase with soft raid using 2 x 3Gbps cabling
 - Daisy chaining is not supported in split mode
- Old 3Gbps SAS enclosure
- To be use with PERC5e and PERC6e. 32 bit addressing limits disks to 2TB.
- Specification capacity 15 x 2TB max.
- People reports that MD1000 backplane supports 3TB drives max.
- SAS/SATA support:
 - Interposer card required for SATA drives when mixind SATA and SAS. Interposer "emulates" SAS interface for SATA drive.
 - One guy confirms that SATA drives works without interposer cards.
 - There is label on disk caddy "SAS" or "SATAu"
 - SATAu caddy has interposer mounted, and disk is mounted a bit shifted to front to make space for interposer card

Hints: <http://www.jebriggs.com/blog/2009/12/md1000-and-md3000-redundancy-matrix/>

Enclosure Management Module (EMM)

At least one EMM must be installed (in primary left EMM bay).

AMP01-RSIM

- (R) - RAID controller ? with 512MB ram ?
- one or two (multihost) IN ports (multiple standards, depends on product number)
- one SAS OUT port to next enclosure
- one mangement ethernet port
 - default IPs: 192.168.128.101 and 192.168.128.102
- one service port (6 pin mini-DIN - for factory use only)

Part number:

- M999D,59V6C,6706C,GY794 - Single host one SAS IN



- 0P2GW4, MW736, CM669, MW726, X2R63, P809D, - 2x iSCSI IN ethernet ports



- 0P2GW4, 0CM670 2x SAS IN (dual host) ports



AMP01-SIM

- One SAS port IN
- One SAS port OUT to chain to next matrix

Part numbers: CK614 TH262 HM240 JT517 - SAS/SATA



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