

?:OSSLAB VXR
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Baseline(Read ahead &Write back &Direct I O), SSDC01(N Read head&Write Though &Direct IO)
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Baseline(Read ahead &Write back &Direct I O), SSDC01(N Read head&Write back &Direct IO)

* CacheCade ??:LSI/AVAGO?Tri-mode??:?:?:. ??:?NVME??:?, ??:?:?:.

LSI MegaRAID CacheCade Pro 2.0 ?/?:?:?:?:.?:?:?:?:?:?: (SSD) ??:?:?:?:,?:?“?”?:?:?:?:,?:?:?:?:?:?: (HDD) ??:?:? I/O ??:? CacheCade Pro 2.0 ??: MegaRAID??:?:?:? HDD ??:?:,?:?:?:?:?: 13?,?:?:? 82%.

CacheCade Pro 2.0??:?RAID Key?PCB??:?:?:?LSISAS 2208/2108 RoC??:?. CacheCade Pro 2.0?CacheCade 1.x? ??:?, ??:1.x??:?:?:?I/O??:, ??:?:?Write-caching??:?:?(Hot data)??:?:?SSD Cache?.

CacheCade Pro 2.0?LSI??:?:?SSD Caching??:, ??:SSDC, ??:?:?:?:?:?:?:?I/O??:, ??:?:?:?:?:?50??:. LSI SSDC ??:?:?:?:?:?PCB??:?:?, ??:?:?:?, ??:?:?:?(unlock).

?:?:?:?:?:?RAID Premium Feature Key(??:PFK)?PCB??:?:?:?pin header?, ??:RAID f/w??:BIOS initializing?, ??:?:?LSI SSDC??. LSI SSDC?LSI??:?:?:?(Advanced Software Options)??:, ??:?:?:?::

?:?:?:?:?:, RAID 6?RAID 5??:?:?, ??:?:?:?:?OEM solution??:, ??:LSI??:?:, ??:?:?:?:?. ??:PFK??:?:?pin header??:, ??:RAID f/w??:BIOS??:?, ??:?:?:?:?. ??:?:?:?:?:?:?:?:?::

1. ?WebBIOS?Advanced Software Options??:?.
2. ??:MegaRAID Storage Manager?Dashboard??:.
3. ??:MegaCLI??:?:?:?.
4. ??:tty Log??:?:?:?, ??:?:?.

?:?:?LSI MSM??:?:?:?Dashboard View??:?:?:, ??:?:?::

?:?:?SSDC with Write-caching??:(CacheCade Pro 2.0)??:?:?:?:?. ??:FastPath??:(SSD??:)??:?SSDC??:?:?:?. ??:?:? Manage MegaRAID Advanced Software Options??:?:?:?:?:?:?:?:?:?:?:?:?:?:?:.

?:?:?TTY Log(Firmware Log)??:?:?:?:?:?:?:?, MFC settings??:RAID f/w??:?:?:?:?:?:?:?:?::

?:?:?:?, enableSSC?enableSSCWB, ??:?:?:?:?:?:?:?:?::

1. SSC: Solid State Caching
2. SSCWB: Solid State Caching with Write Back

?:?LSI MSM??:?:, ??:Controller Properties View??:?:?SSDC??:?:?:?:?, ??:?:?:?:?Write-caching??::

?:?:?:?CacheCade Pro 2.0??:?, Write Cache Capable??:?flag??:??:?Yes, ??:?:?:?:?(Write-back)??:. ??:, ??:?VD??:?, ??:VD Properties View??:?:?VD??:SSDC??:.

?CacheCade Type??:?Read and Write?, ??:?:?CacheCade Pro 2.0??:. ??:?:?:?SSDC??:?:?, LSI??:?:?::

LSI??????, ?????! ?????????????? ??, ?????, ?????I/O?. ???CacheCade Pro 2.0???????, Write-caching?????? (unlock)?????. ?????SSDC VD????Write-back:

CacheCade Pro 2.0????????(Hot data)????SSD?, ??????????????. ?????????

????????????SSD?Caching?????, ???OLTP????????(Database)???, ??LSI SSDC?????????????. ?????? ??????????. ???SSDC????RAID f/w??RAID Controller????HDD????, ???SSDC??6Gb/s RoC??SSDC??.

??LSI?SSDC??, ?????????CacheCade Pro 2.0????RAID VD?I/O?, ???SSD Caching????, ??????????, ? ?????MySQL??????:

????????????, ?????????Hot-zone; ??, ?????????????Cold-zone. SSDC????????????IP Core, ??? ?????????Hot-zone????(Hot-data), ??SSDC?????. ?????SSDC?????:

?LSI SSDC????, ???SSDC????IP Core??, ?LSI????Adaptec, ?????maxCaching. ?????????, ?????Hot-zone? ????. ?????v2.0?, ???Write-caching????Hot-data?SSD?.

Intel?IP Core????Smart Response Technology(SRT)????SSDC?. SRT????????Hot-zone????, ????????? I/O????, ??????.

????Intel SRT?????, ?????????Multiple SSD Caching, ??????????. ?????Desktop?. ?????????, ????? RST?????:

????, Intel SRT????SSD(Single SSD)?Caching, ??????. ?????????, ??????????. ????, LSI????SSDC??, CacheCade v1.x. ?????Read-caching?. ???????:

v1.x??SSDC????????Hot-data?????. ?????v2.0??, ???Write-caching????I/O?????:

????Write-caching????????, ?????Hot-data????SSDC?, ??SSDC????, ?????VD????????, ?????RAID f/w?????????????. ??SSD?NAND FLASH?????. LSI????MegaRAID v3.6????SSD Guard????SSD????, ??? ?????SSDC?????:

??RAID f/w??PFA??, ???SSD????, ?????SSD?????. SSD Guard????SSD??GHSP, ?????SSD(Configured SSD), ?????????, RAID f/w??RAID Controller??Copyback????SSD????GHSP, ?????SSD?(???? SSDC). ??LSI MSM????Controller Properties View??SSD Guard????:

????????SSDC????? I/O????, ??????????. LSI?????????????????????:

???, ?????I/O??, ?????????, ?????SSDC?. ?????????????, ???SSDC????????, ??????. ??, ?????????????, SSDC?????????????:

??SSDC????I/O?????????. LSI??CacheCade????????SSDC VD, ?SSDC VD????RAID?, ??? Multiple SSDs??RAID????I/O?, ?????? ?LSI????RAID 0(Data Striping)?RAID 1(Mirror)????SSDC VD. ?? SSDC VD????, ???RAID VD??SSDC VD??, ?RAID f/w??SSDC VD??RAID VD?. ??????, ??LSI MSM???? SSDC VD:

????, ???SSDC VD????????RAID VD, ???????:

????, Associated Virtual Drive(s)????RAID VD, ?????SSDC VD????, ?????RAID Level, Size??Write

Policy?...

1. LSI CacheCade Pro 2.0 SSDC???, ?????????:
2. LSI MegaRAID SAS 9260-8i(LSISAS2108 RoC) HBA??LSI CacheCade Pro 2.0????
3. Crucial M4 SATA 3.0 SSD 64GB, ??8????SSDC.
4. RAID VD, ??WD1000FYYG SAS 2.0 1TB HDD, ??4??RAID 5.
5. ??????????????: Baseline(RA&WB&DIO), SSDC01(NRA&WB&DIO), SSDC02(NRA&WT&DIO)

CrystalDiskMark??, ?Baseline????, ?????????RAID 5 I/O??, ?????I/O????:

SSDC01 Profile, ?SSDC??Baseline????, ?????, ?????I/O?????:

????????????, ?????I/O(QD:32)????????, ??????. ??, ????SSDC02 Profile????, ?????WB??WT??:

??????, ??WT????, ?????4K????????I/O????????, ??????. ???WT????????I/O????, ?????WB??, ?
????I/O??, ?????????RAID VD??(Baseline)?????
????CrystalDiskMark????RAID VD?I/O??, ??????????. ?????????, ??????. ?????????????, ??????:

????????, SSDC????I/O??, ??????????????. ???RAID??, ?????????, ???SSDC?????:

SSDC????RAID????I/O??, ?????I/O????. ?SSDC??Write-caching????????, SSDC?????.
????, ?LSI?SSD Guard. ???SSDC???, ?????????????? ?????????????I/O????.

????SSDC??, ?????????, ?????????dirty cache??, ?????????BBU?????????. ???Super
Capacitor??NAND FLASH????(Data Protection)?. ?LSI?CacheVault??Adaptec?ZMCP solution.
????-Super Capacitor, ??????. RAID HBA????FPGA????Hot-date Buffer??dirty-cache
????(Flash-based Cache Module)??NAND FLASH?. ?????Super Capacitor????.

????(Advanced Software Options)??, ???Hardware Key?PCB????, LSI????Advanced Software
Licensing????, ?Hardware Key????Key????.

?????: <http://www.lsi.com/products/storagesw/Pages/LSIAdvancedSoftwareLicensing.aspx>

LSI????CacheCade Pro 2.0 SSDC??, ??????????:

Notes: LSI????LSISAS2208 MR f/w????CacheCade Pro 2.0????.