

?: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????.