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mdadm-raid0-xfs-4mb-randomwrite

Intel Core i5 650 testing with a MSI 2A9C v1.0 and AMD Radeon HD 5550/5570/5630/6510/6610/7570 2048MB on Fedora 25 via the Phoronix Test Suite.

Test Systems:

MDADM RAID0

Processor: Intel Core i5 650 @ 3.20GHz (4 Cores), Motherboard: MSI 2A9C v1.0, Chipset: Intel Core DRAM, Memory: 4096 MB + 2048 MB + 2048 MB + 2048 MB DDR3-1333MHz, Disk: 1000GB SAMSUNG HD103SJ + 1000GB Western Digital WD1002FAEX-0 + 500GB Western Digital WD5000AZRX-0 + 1000GB Elements 1078, Graphics: AMD Radeon HD 5550/5570/5630/6510/6610/7570 2048MB (157/200MHz), Audio: Realtek ALC888, Monitor: SyncMaster, Network: Realtek RTL8111/8168/8411 + Ralink RT3090 Wireless 802.11n 1T/1R

OS: Fedora 25, Kernel: 4.10.12-200.fc25.x86_64 (x86_64), Compiler: GCC 6.3.1 20161221, File-System: xfs, Screen Resolution: 1920x1080

MDADM RAID1

Processor: Intel Core i5 650 @ 3.20GHz (4 Cores), Motherboard: MSI 2A9C v1.0, Chipset: Intel Core DRAM, Memory: 4096 MB + 2048 MB + 2048 MB + 2048 MB DDR3-1333MHz, Disk: 1000GB SAMSUNG HD103SJ + 1000GB Western Digital WD1002FAEX-0 + 500GB Western Digital WD5000AZRX-0 + 1000GB Elements 1078, Graphics: AMD Radeon HD 5550/5570/5630/6510/6610/7570 2048MB (157/200MHz), Audio: Realtek ALC888, Monitor: SyncMaster, Network: Realtek RTL8111/8168/8411 + Ralink RT3090 Wireless 802.11n 1T/1R

OS: Fedora 25, Kernel: 4.10.12-200.fc25.x86_64 (x86_64), Compiler: GCC 6.3.1 20161221, File-System: xfs, Screen Resolution: 1920x1080

MDADM RAID5

Processor: Intel Core i5 650 @ 3.20GHz (4 Cores), Motherboard: MSI 2A9C v1.0, Chipset: Intel Core DRAM, Memory: 4096 MB + 2048 MB + 2048 MB + 2048 MB DDR3-1333MHz, Disk: 1000GB SAMSUNG HD103SJ + 1000GB Western Digital WD1002FAEX-0 + 500GB Western Digital WD5000AZRX-0 + 1000GB Elements 1078, Graphics: AMD Radeon HD 5550/5570/5630/6510/6610/7570 2048MB (157/200MHz), Audio: Realtek ALC888, Monitor: SyncMaster, Network: Realtek RTL8111/8168/8411 + Ralink RT3090 Wireless 802.11n 1T/1R

OS: Fedora 25, Kernel: 4.10.12-200.fc25.x86_64 (x86_64), Compiler: GCC 6.3.1 20161221, File-System: xfs, Screen Resolution: 1920x1080

Stripe (RAID0)

Processor: Intel Core i5 650 @ 3.20GHz (4 Cores), Motherboard: MSI 2A9C v1.0, Chipset: Intel Core DRAM, Memory: 4096 MB + 2048 MB + 2048 MB + 2048 MB DDR3-1333MHz, Disk: 1000GB SAMSUNG HD103SJ + 1000GB Western Digital WD1002FAEX-0 + 500GB Western Digital WD5000AZRX-0 + 1000GB Elements 1078, Graphics: AMD Radeon HD 5550/5570/5630/6510/6610/7570 2048MB (157/200MHz), Audio: Realtek ALC888, Monitor: SyncMaster, Network: Realtek RTL8111/8168/8411 + Ralink RT3090 Wireless 802.11n 1T/1R

OS: Fedora 25, Kernel: 4.10.12-200.fc25.x86_64 (x86_64), Compiler: GCC 6.3.1 20161221, File-System: zfs, Screen Resolution: 1920x1080

mdadm-raid0-xfs-4mb-randomwrite

Mirror (RAID1)

Processor: Intel Core i5 650 @ 3.20GHz (4 Cores), Motherboard: MSI 2A9C v1.0, Chipset: Intel Core DRAM, Memory: 4096 MB + 2048 MB + 2048 MB + 2048 MB DDR3-1333MHz, Disk: 1000GB SAMSUNG HD103SJ + 1000GB Western Digital WD1002FAEX-0 + 500GB Western Digital WD5000AZRX-0 + 1000GB Elements 1078, Graphics: AMD Radeon HD 5550/5570/5630/6510/6610/7570 2048MB (157/200MHz), Audio: Realtek ALC888, Monitor: SyncMaster, Network: Realtek RTL8111/8168/8411 + Ralink RT3090 Wireless 802.11n 1T/1R

OS: Fedora 25, Kernel: 4.10.12-200.fc25.x86_64 (x86_64), Compiler: GCC 6.3.1 20161221, File-System: zfs, Screen Resolution: 1920x1080
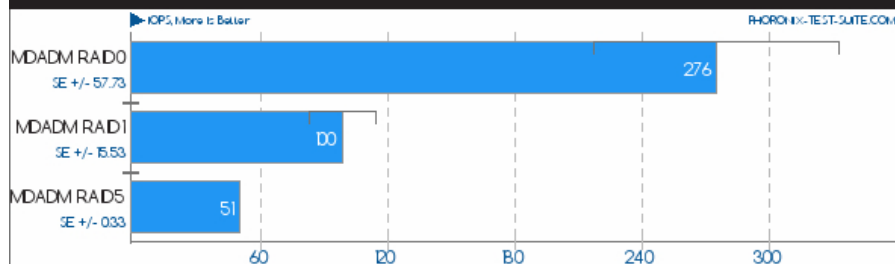
RAID-Z (RAID5)

Processor: Intel Core i5 650 @ 3.20GHz (4 Cores), Motherboard: MSI 2A9C v1.0, Chipset: Intel Core DRAM, Memory: 4096 MB + 2048 MB + 2048 MB + 2048 MB DDR3-1333MHz, Disk: 1000GB SAMSUNG HD103SJ + 1000GB Western Digital WD1002FAEX-0 + 500GB Western Digital WD5000AZRX-0 + 1000GB Elements 1078, Graphics: AMD Radeon HD 5550/5570/5630/6510/6610/7570 2048MB (157/200MHz), Audio: Realtek ALC888, Monitor: SyncMaster, Network: Realtek RTL8111/8168/8411 + Ralink RT3090 Wireless 802.11n 1T/1R

OS: Fedora 25, Kernel: 4.10.12-200.fc25.x86_64 (x86_64), Compiler: GCC 6.3.1 20161221, File-System: zfs, Screen Resolution: 1920x1080

Flexible IO Tester v2.1.13

Type: Random Write - IO Engine: POSIX AIO - Buffered: Yes - Direct: Yes - Block Size: 4MB - Disk Target: /mnt/mdadm_raid - Result: IOPS

▶ IOPS, More Is Better

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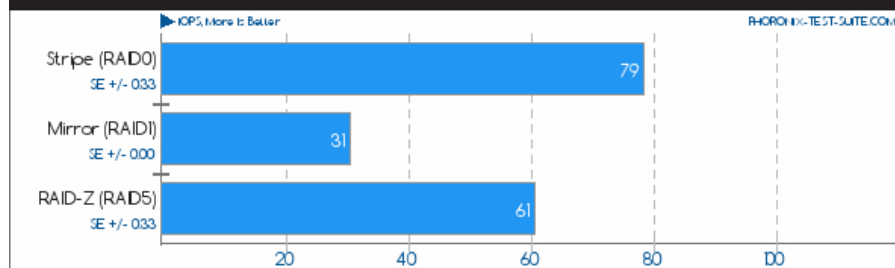|	
MDADM RAID0 SE +/- 57.73	276
MDADM RAID1 SE +/- 15.53	100
MDADM RAID5 SE +/- 0.33	51

60   120   180   240   300

Phoronix Test Suite 6.6.0

1. (CC) gcc options -rdynamic -std=gnu99 -O3 -ffast-math -include -lrt -laio -lm -lpthread -ldl

Flexible IO Tester v2.1.13

Type: Random Write - IO Engine: POSIX AIO - Buffered: Yes - Direct: Yes - Block Size: 4MB - Disk Target: Default Test Directory - Result: IOPS

▶ IOPS, More Is Better

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Stripe (RAID0) SE +/- 0.33	79
Mirror (RAID1) SE +/- 0.00	31
RAID-Z (RAID5) SE +/- 0.33	61

20   40   60   80   100

Phoronix Test Suite 6.6.0

1. (CC) gcc options -rdynamic -std=gnu99 -O3 -ffast-math -include -lrt -laio -lz -lm -lpthread -ldl