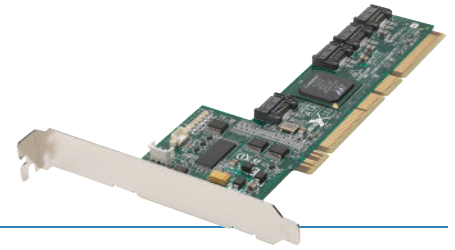


# Adaptec 1420SA vs. Promise TX4300: SATA Controller Performance Comparison



The Adaptec Serial ATA II RAID 1420SA PCI-X controller was used in this benchmark versus the Promise TX4300 to compare random READ and WRITE performance for typical 4KB transfer sizes.

- The Adaptec 1420SA is faster for RAID 0, 1, 10 and JBOD.
- The 1420SA excels tremendously in random READS and WRITES.
- These performance results show that the Adaptec 1420SA provides the excellent performance and data protection for desktops, workstations, and entry-level servers.

## RAID Level Performance

### RAID 0

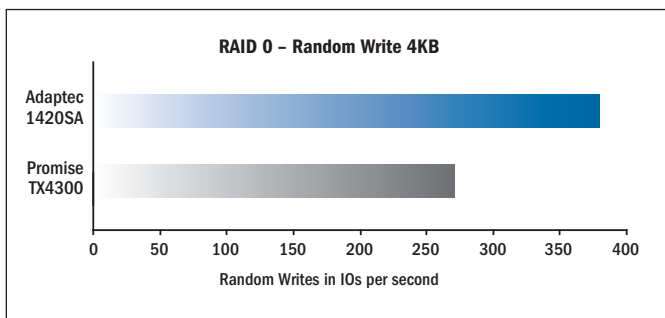


Figure 1: In a four-drive RAID 0 configuration, the Adaptec 1420SA random writes are 29 percent faster.

### RAID 1

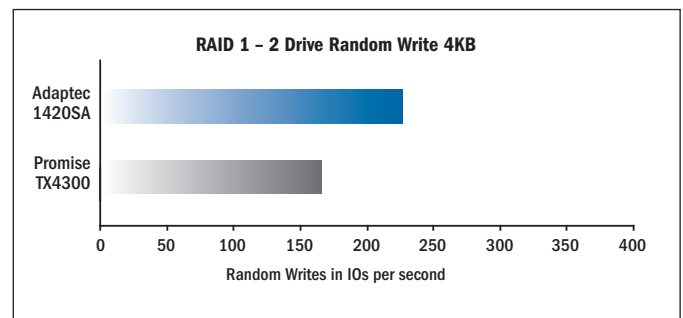


Figure 2: RAID 1 protects your data against a drive failure and the Adaptec 1420SA offers superior RAID 1 performance. The Adaptec 1420SA random write performance on a RAID 1 array is 26% faster than the Promise TX4300.

### RAID 10

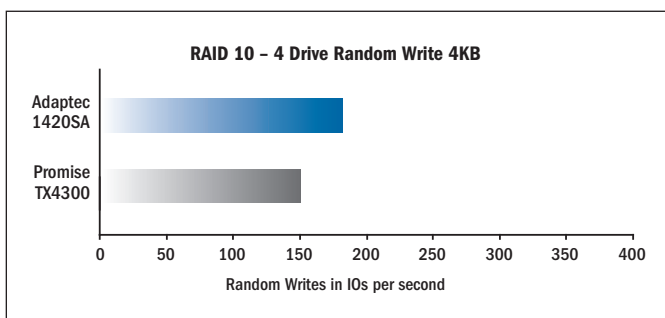


Figure 3: The performance of the Adaptec 1420SA performance scales. Random writes on a RAID 10 array are 15% faster with the Adaptec 1420SA as compared to the Promise TX4300.

### JBOD

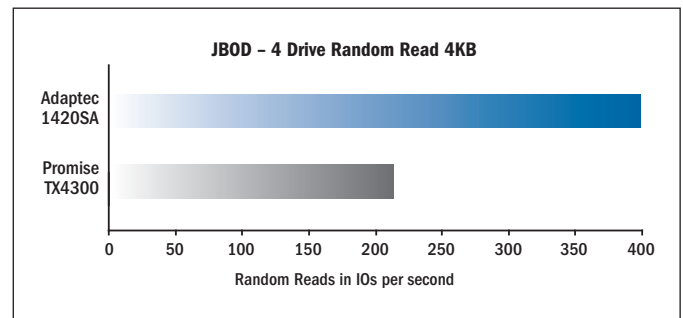


Figure 4: In a JBOD or "Just a Bunch Of Disk" configuration the Adaptec 1420SA performance blows away the Promise TX4300. The Adaptec 1420SA random reads are 46% faster!

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**Test Environment**

The following test environment was used:

- CPU: Dual Intel Xeon 3.60Ghz
- Motherboard: Supermicro X6DH8G2
- Memory: DRAM DDR2-400
- HDD: Samsung HD160JJ
- OS: Windows 2000 Advanced Server
  - Testing Utility: Iometer version 2005.30.07, queue set to 32 per target
- Host adapter information:
  - Adaptec Serial ATA II RAID 1420SA  
Device driver: Released Windows driver version 1.1.5719.0 with performance registry file
  - Promise TX 4300  
Device driver 2.7.000.26

**Features****Adaptec Serial ATA II RAID 1420SA card**

- PCI-X host bus interface
- Serial ATA and Serial ATA II hard drive support
- Up to 300MB/s for each SATA II drive port
- Support RAID level 0, 1, 10 and JBOD
- Native Command Queuing (NCQ)
- Hot swap and hot spare
- BIOS booting support (INT13)
- 64bit LBA for over 2TB support
- Adaptec Storage Manger RAID management software
- Command Line Interface (CLI)
- I2C Enclosure management (requires Adaptec 335SAS enclosure)
- Hard drive activity and Failed LED support
- Operating system support (32-Bit & 64-Bit)
  - Microsoft (Windows 2003, 2000, XP)
  - Linux Red Hat & SuSe (Advanced versions only)
  - Netware 6.5

**Comparison Matrix**

	<b>Adaptec 1420SA</b>	<b>Promise TX4300</b>
General Description	Four port SATA II HBA	Four port SATA II HBA
Host Bus	PCI-X	PCI
Metadata compatibility	Seamless upgrade to Adaptec processor-based RAID products	Metadata not compatible
Check-pointing	Resume data reconstruction from same position ensuring data integrity after recovery from power failure	NA
Enclosure support	Compatible with Adaptec 335SAS disk drive enclosure	NA



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