Intel Provides Enhanced Network Backup Performance with the StorageExpress™ II System

A Reliable and Manageable Network Backup Scheme

Intel's StorageExpress™ system is designed to increase the overall performance and reliability of local area networks by removing the back-up burden from individual file servers and workstations with a centrally-managed, fully-integrated back-up solution. In addition to increasing the reliability of production servers, the StorageExpress system provides a network backup scheme that can be centrally-managed and administrated.

Intel is dedicated to helping its customers meet the conflicting demands brought about by increases in the amount of network storage combined with decreasing backup windows in which back-up of this vital data must be performed.

A Platform Built for Speed

The new version of Intel's dedicated back-up server, the StorageExpress II System has incorporated a number of features designed to enhance the performance of "over-the-wire" network back-up. The StorageExpress system includes a Pentium® processor, a PCI bus, a 100Mbps Fast Ethernet card as well as a new version of the StorageExpress software (version 1.50).

Although the increases vary depending upon the type of network, the average performance gain on the new platform when using a single tape drive is 52%. The average gain using four drives (quad-streaming) is 78%. The combination of the Intel's new StorageExpress II System, quad-streaming DAT Drives, and Intel's EtherExpress™ PRO/100 Fast Ethernet card yields an astonishing 166% "server-to-server" back-up gain, or total throughput of 120 megabytes per minute. This configuration effectively reduces the back-up time for 5 gigabytes of network data to less than 42 minutes.

An Intermediate Step for Existing Customers to Increase Performance

Existing StorageExpress system customers may wish to increase the performance of their original StorageExpress I systems without the expense of upgrading to the newer platform.

This can be done by installing a 100MHz IntelDX4™ OverDrive® Processor and Turbo Cache Module. These inexpensive and simple additions yield average increases in performance of 45% when single-streaming and 35% when using quad-streaming. Additionally, existing StorageExpress system customers can purchase an upgrade to their existing system which provides Pentium microprocessor performance.

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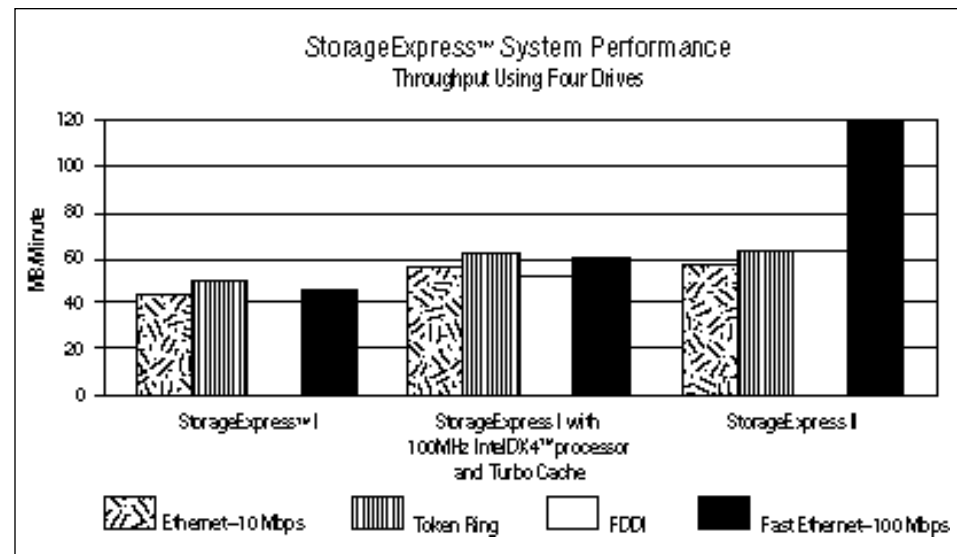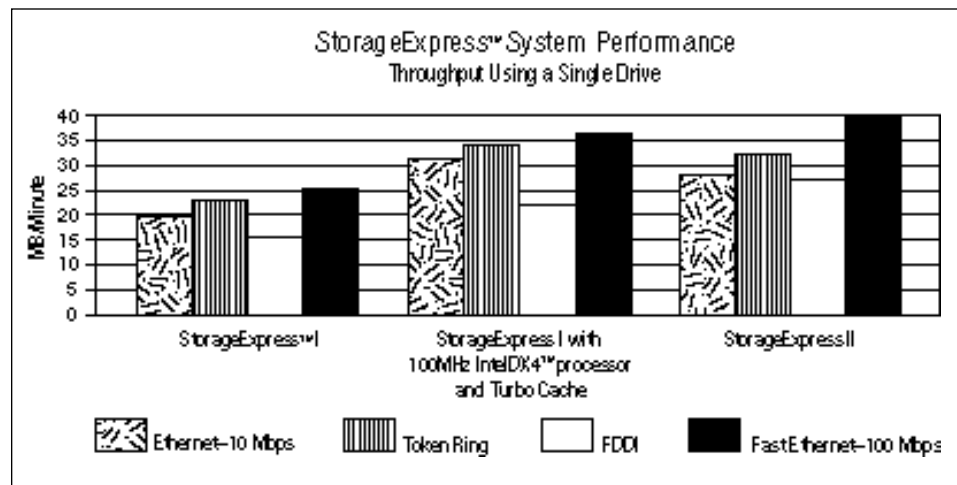## Actual Throughput Using Various StorageExpress™ System Models

Actual "over-the-wire" throughput measured in megabytes per minute	Original StorageExpress™ I		StorageExpress I (with100MHz IntelDX4™ processor and Turbo Cache)		StorageExpress II (new platform—Pentium® processor, PCI bus)	
Type of Network	Single Drive	Four Drives	Single Drive	Four Drives	Single Drive	Four Drives
Ethernet—10Mbps	20	43	31	56	28	58
Token Ring—16Mbps	23	50	33	67	32	70
FDDI—100Mbps	16	40	22	53	28	69
Fast Ethernet—100Mbps	25	45	36	64	40	120

StorageExpress™ System Performance
Throughput Using a Single Drive

StorageExpress™ System Performance
Throughput Using Four Drives

Performance Test Methodology

Performance measures were taken in an environment of mixed NetWare* 3.X and 4.X Pentium processor-based servers (three NetWare 3.X servers and one NetWare 4.X server.). The test configuration with variable network topologies consisted of the following; an original StorageExpress system XLD model, an original StorageExpress system XLD unit with an IntelDX4™-100 OverDrive® processor with turbo cache module, and a StorageExpress II system XLD model. Wherever possible, avoid the use of TSAs (Target Service Agents) as part of routine backup since they have a negative impact on back-up performance. NetWare 3.X servers will experience performance degradation of approximately 25% and NetWare 4.X servers will experience approximately 40% degradation when using TSAs. Additionally, router hops negatively impact "over-the-wire" back-up performance. As a result, back-up over wide area links will be substantially slower than back-up over the LAN.