

SCI StorInt™ Dispatch - IBM080715

Announcing IBM TS1130 1TB enterprise tape drive

IBM announced their latest enterprise class tape drive supporting 1TB native capacity and a 160MB/sec native data transfer rate, the fastest available tape throughput.

TS1130 announcement

IBM continues to capture share in the enterprise tape market space. IDC numbers show that IBM has 68% of enterprise tape drive revenue in CY07 as well as almost 60% of enterprise tape automation share. Since CY06, IBM has gained 6% in enterprise drive revenue and 3% in automation revenue.

As the leader in the enterprise tape market, IBM continues to enhance their tape technology. The most recent addition supports 1TB of data on current generation tape media. The TS1130 will write the previous generation tape format and will read up to two generations back. This is the third generation of IBM's 3592 tape drive technology. The product utilizes the existing cartridge media supporting the 3 different cartridge types: the fast access 128GB cartridge, the standard 640GB cartridge and the extended capacity 1TB cartridge. Each cartridge has a WORM media version that cannot be overwritten but can be appended. The drive also supports data encryption at no additional charge.

This is the first tape drive in the world to support new GMR heads. This technology was first used in disk drives about 15 years ago and is now making its debut in tape. The advantage to this is the knowledge that a tape technology roadmap exists for at least the next decade. In fact, the IBM Almaden lab has demonstrated an 8TB tape cartridge with GMR heads, which we expect will no doubt be available sometime in a future generation of their enterprise class drives. The latest GMR head improves SNR over the previous generation AMR heads and this leads to higher data integrity, density and faster tape storage.

The new generation 3 tape media format has 1152 total data tracks, written 16 tracks at a time. They have increased the number of tracks from 896 on the previous generation. Also they have increased the linear density by 14%.

IBM had an interesting comparison chart comparing the Sun T10000B tape drive versus the TS1130 and in every category displayed the TS1130 is either equivalent or is the hands down winner. For example, although capacity is the same at 1TB for their respective high density cartridge, the TS1130 vs. Sun T10000B comparisons for Data rate@160MB/s vs. 120MB/s, Drive Buffer@1GB vs. 256MB, avg. file access@49s vs. 62s, and finally, power@46W vs. 63W shows the IBM drive as a clear winner.

The TS1130 also supports a new, standby power mode which kicks in after five minutes of idle time which drops power consumption down to 17W further helping to conserve precious energy consumption.

IBM spent some time discussing their enterprise tape speed matching and virtual back-hitch technology. The TS1130 has dynamic speed matching with 6 different speeds for streaming data and it will choose whichever one can keep the media streaming. Apparently, the Sun T10000 only has 2 speeds. The TS1130's finer grained speed matching should improve transport performance for non-peak workloads and allow the tape cartridge to be written with less back-hitches that can degrade tape job performance.

IBM also mentioned their "virtual back-hitch" technology which is used whenever the tape transport receives a "sync" operation. This technology physically writes the synced buffer out to tape as a "temporary physical buffer" which is later overwritten but the tape continues to stream without backhitching. The TS1130 has some advancement in this technology over the previous generation with higher performance for large files and higher performance overall. IBM's TS1130 tape virtual backhitch capability, large drive buffer, speed matching, fast data access, and fast data transfer rate should add up to outstanding job performance.

Other tape announcements

IBM's enterprise class tape library, the TS3500 now supports TS1130 tape drives and an intermix of 3 generations of 3592 tape drives. IBM also announced support for IPv6, SSL, embedded SMI-S support in the TS3500 tape library. There is also a new Tape System Reporter that provides SQL queries for tape media, transport and library utilization reports.

IBM's TS1120 tape drive controller provides FICON to FC protocol conversion for mainframe attached TS1130s but now IBM has added a 16-port FC switch as a new feature for the controller.

IBM's midrange tape library, the TS3310 now supports enhanced media and resource utilization reporting and a new encryption key manager functionality which assist admins in setup, config, and trouble shooting library managed encryption.

Announcement significance

Tape is alive and well, at least at the midrange and high end enterprise space. Both IBM and Sun are continuing to advance this technology and invest significantly in its success. IDC states that the enterprise class tape market grew last year and looks to be moderately flat to slight decline over the next 5 years. It appears with this announcement that IBM intends to continue their dominance in this space for at least the foreseeable future. Also it's evident that Sun's announcement was timed to take some of the press away from IBM. At least Sun is showing some life, now if only they could turn around their market share numbers it could start to become really exciting for enterprise tape users.

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