



● TAPE BACKUP DRIVE

HP StorageWorks Ultrium 960

PRICE £3,215 exc VAT

BASIC WARRANTY 3yrs NBD swap-out

INTERNET www.hp.com/uk

SUPPLIER HP 0845 270 4222

VERDICT HP's LTO-3 implementation delivers a storming performance teamed up with an enterprise-level storage capacity and full support for WORM media.

Yet again, we bring you another exclusive review of the latest and greatest in tape backup formats, this time with HP's LTO-3 drive. Although Certance beat IBM and HP to the punch by launching its CL-800 Desktop at the end of 2004 (see issue 124, p197), it was a big disappointment. Despite delivering a far higher performance than Quantum's SDLT600, it fell well short of the quoted native transfer rates.

At the time, we advised you that if performance was a critical requirement you should wait until HP or IBM delivered their versions, and the honour falls to HP as we look at its StorageWorks Ultrium 960. We did lay down the gauntlet to IBM to go head to head with HP, but despite many promises it failed to deliver a product. HP's LTO-3 implementation takes the format into the performance stratosphere, delivering a doubling in native speed to 80MB/sec. Capacity also makes it an

ideal choice for backup in mid-range and enterprise networks, as this gets increased to a whopping native 400GB. These improvements have been made possible with the introduction of a new 16-channel head, along with developments in track and bit density, plus a slight increase in tape length. WORM (write once, read many) also comes into the picture, since HP utilises the 4KB flash memory chip built into all LTO cartridges to stop any data being overwritten. The WORM cartridges also have their servo tracks encoded differently and their shell has a two-tone colour.

Tape speeds in the mid-range backup market have now reached the point where a well-specified system is a must if you're going to get even close to native performance. To highlight this, we first installed the drive on a dual 1.7GHz Xeon server with 1GB of PC2100 memory and running Windows Server 2003. Using Computer Associates ARCserve 11.1, we



The most powerful tape drive in the world.

asked the drive to secure a 9GB mixture of data on a Seagate Ultra320 SCSI drive configured as a system disk. ARCserve reported 48MB/sec for backup – clearly well below what the drive is capable of.

We then moved the tape drive to a Fujitsu Siemens TX300 S2 server (see p173) with dual 3.6GHz Xeons, 2GB of DDR2 memory and a dual-drive striped Ultra320 disk array. Using the same test data, we saw backup performance improve dramatically to 65.5MB/sec. However, that's still some way short of native speeds, so we copied the backup data to three separate drives on the



server and ran another backup job with ARCserve's multiplexing feature switched on. This allows three backup jobs to be streamed to the tape drive simultaneously and clearly has some major benefits, as ARCserve reported a stonking 84MB/sec average throughput. You may also be interested to know that the trio of extra drives were Western Digital Raptor WD740 SATA/150 drives attached to an AMCC 9000 RAID controller, showing that SCSI doesn't have the monopoly on performance.

The CL-800 may have let the side down slightly, but HP's StorageWorks Ultrium 960 delivers on all the promises of LTO-3. You'll need a good system to get the best out of it, but we can wholeheartedly agree with HP's claim that currently this is the world's fastest tape drive.

DAVE MITCHELL

PC PRO RATINGS	
PERFORMANCE	★★★★★
FEATURES & DESIGN	★★★★★
VALUE FOR MONEY	★★★★★
OVERALL	★★★★★

SPECIFICATIONS Ultrium LTO-3 tape drive; native capacity 400GB; quoted native transfer rate 80MB/sec; Ultra320 SCSI LVD interface; 128MB SDRAM buffer; backward read/write compatible with LTO-2, backward read compatible with LTO-1; HP Data Protector and Yosemite TapeWare XE Single Server software supplied; LTO-3 cartridges, £103; WORM cartridges, £114.