● **OPTERON 275 RACK SERVER**

HP ProLiant DL385

PRICE As reviewed, £2,895 exc VAT

SUPPLIER HP 0845 270 4222
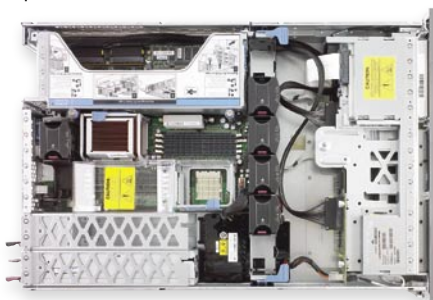
WARRANTY 3yrs on-site NBD

INTERNET www.hp.co.uk

VERDICT HP serves up a tasty combination of dual-core Opteron and the latest small-form-factor SAS hard disks in a low-profile rack chassis backed by excellent remote management facilities.

A few blue-chip server vendors have been quick to see the benefits of the latest SAS (serial attached SCSI) disk interface and haven't wasted any time integrating it into their rack servers. In our exclusive review last month, we saw IBM first past the post with its *PC Pro* Recommended xSeries 366 (*see issue 134, p164*). This showed clearly how the small-form-factor (SFF) SAS drives can radically change server design. Next up is HP's ProLiant DL385, which brings together a top-notch combination of build quality, design and specification, and adds no less then eight hot-swap SAS drives to the mix.

The fact that the chassis is only 2U high shows off the advantages of low-profile SAS drives. The hot-swap bay is small enough to leave plenty of room for air to flow unrestricted through the chassis. Processor thermal requirements can be satisfied with lower-profile chassis, and more servers can be placed in a rack cabinet, which in turn means processing density can be increased.

The DL385 was designed with SCSI storage in mind, so there have been a few modifications to cater for SAS. The motherboard still sports an Adaptec dual-channel Ultra320 controller plus the pair of interfaces on the forward edge. The embedded Smart Array 6i controller is still in residence as well. To accommodate SAS, HP has swapped out the drive bay backplane and disk cage and also fitted its Smart Array P600 SAS/SATA RAID controller card, which comes with a good helping of battery-backed cache memory. Usefully, the drive backplane is split, so it's possible to have four drives managed on each RAID controller channel. But there's still room to expand, since although the 133MHz PCI-X slot in the vertical riser card is taken up for SAS duties, a pair of 100MHz slots is available.

EXCLUSIVE

PC PRO A LIST

PC PRO RECOMMENDED

The DL385 can be upgraded to four processors with a second dual-core Opteron.

The server's web management interface provides plenty of operational information and alerts.

Server installation is easy, as HP's SmartStart bootable CD-ROM provides plenty of assistance in installing your chosen OS. It loads drivers and utilities, and provides access to the P600 ACU (array configuration utility). It also automatically installs HP's web services, allowing the server to be remotely accessed for general monitoring. The bundled Systems Insight Manager provides enhanced browser-based remote management and monitoring, and offers high levels of information about system operations plus extensive alerting facilities. You can also remotely access any HP server with an Insight agent installed.

Remote management gets even better, as the DL385 includes HP's embedded integrated lights-out (iLO) controller, which allows the server to be accessed securely via a browser, regardless of its condition. We found the interface easy to use. It allowed us to monitor the status of the controller and server, view installed components,

HP has changed things around internally to accommodate the serial attached SCSI interface.

access the iLO log and run diagnostics. Full access to power is also provided, so you can reset the server, power it off and on, and emulate pressing the power button. Remote access security is tight too. The card supports only encrypted SSL sessions, comes with a preconfigured unique password and uses a dedicated 10/100BaseTX Ethernet port, allowing management to be placed on a separate network segment. You can also open a remote-control session to the server, although this is an optional feature and requires an upgrade – this comes as standard on most IBM xSeries servers.

As we've come to expect from HP, the DL385's build quality is exemplary, with a solid chassis and excellent internal design. Cabling has been reduced to a minimum, and the SAS cables are routed neatly along the side of chassis out of harm's way. A bank of four hot-swap fans is located behind the drive bays, and the assembly has room for two more to be added. These are easily removed and replaced, plus a couple of levers at each end allow the entire assembly to be lifted out if required. The processor sockets are located behind with the single dual-core 2.2GHz Series 275 Opteron included in the review system, which is topped off by a large passive heatsink. Processor removal and replacement is a cinch, as the DL385 uses the same simple clamp and lever mechanisms employed by the ProLiant DL585 (*see issue 120, p178*). A second hot-swap fan assembly sits at the rear of the chassis and accepts one fan for each processor as they're installed. Banks of four DIMM sockets are located next to each Opteron socket and each can only be used if the accompanying processor is installed.

The SFF SAS drive is clearly the storage device of choice for rack servers, as their minimal space demands allow for a much tidier internal design. Performance is also a bonus. We've already shown in our exclusive review of the LSI Logic SAS3442X controller card (*see issue 133, p168*) that SAS easily outstrips SCSI in multiple drive configurations. Combine all these benefits with the latest dual-core Opterons and you have a low-profile rack system ideally suited to high-performance server applications.

DAVE MITCHELL

PC PRO RATINGS

PERFORMANCE	★★★★☆
FEATURES & DESIGN	★★★★★
VALUE FOR MONEY	★★★★☆
OVERALL	★★★★☆

SPECIFICATIONS 2U rack chassis; 2.2GHz dual-core AMD Opteron 275; AMD 8131/8111 chipset; 1GB PC3200 DDR SDRAM expandable to 16GB; 4 x 36GB HP SFF SAS hard disks in hot-swap carriers; HP Smart Array P600 dual-channel SAS/SATA PCI RAID controller with 256MB cache memory and battery backup pack, supports RAID0, 1, 5, JBODs, hot-swap and hot-standby; HP dual-port Gigabit Ethernet; 2 x 64-bit/100MHz PCI-X; 1 x 64-bit/133MHz PCI-X; embedded iLO management processor with 10/100BaseTX port; HP SmartStart and Systems Insight Manager 7 software supplied.