Oracle's latest Sparc refresh puts software in silicon
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Ovum view

Summary

Oracle's newest refresh of its Sparc hardware line, putting "software in silicon," has burned in the capability to accelerate SQL query and encryption processes. Part of a larger trend among server processor manufacturers to use chip-level acceleration for high-overhead software functions, Oracle's latest refresh of the Sparc architecture is directed at mixed enterprise application and database workloads.

Optimizing enterprise database and application workloads

In a market where the Intel x86 has commoditized raw power and scale, players like Oracle and IBM have positioned their own hardware lines as premium offerings that are tailored for specific, mission-critical enterprise server use cases. In part, the latest refresh of Oracle's Sparc follows the known script of brute force boosts to performance and scale: M7's cores are capable of addressing larger blocks of cache, with the result being higher I/O and superior encryption performance. Size matters: a single M7 processor sports 32 cores, versus 18 for Intel x86 E5 v3 and six for IBM Power8.

But Sparc M7 is about more than feeds and speeds: it is an architecture designed to move high-overhead software functions into silicon and memory. It supports:

- SQL and encryption in silicon
- inline decompression that inflates the volume of data that can be processed
- pipelining capabilities that consolidate processing steps (e.g., read and write)
- hardware-based memory protection that closes off what otherwise would be backdoors for intrusions
- "versioning" capabilities that can spot "dirty" (corrupted) pages.

The result is that database-in-memory operations are performed more efficiently and more securely. Oracle's rivals aren't standing still either; for instance, Intel has already engineered advanced encryption instructions into its Xeon server processor architecture. But Oracle, in its own benchmarks, claims faster encryption performance against the smaller Intel and IBM chips.

Sparc M7 adds another high-performance option for Oracle's database portfolio. At this point, the M7 processor is available for Oracle Super Cluster systems. Unlike Oracle's other engineered systems, such as Exadata, which is designed as a database machine, and Exalogic, which handles the application tier, Sparc M7 is for now being targeted at Oracle installations that handle higher-throughput, mission-critical enterprise application and database loads. That makes M7 of special interest to enterprises with Oracle databases running Oracle, SAP, or other enterprise applications.
Appendix

Further reading

Exploring Oracle's Engineered Systems, IT0022-000248 (December 2014)

"Oracle engineered systems are now going to compete on price," IT0014-002983 (February 2015)

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We hope that this analysis will help you make informed and imaginative business decisions. If you have further requirements, Ovum’s consulting team may be able to help you. For more information about Ovum’s consulting capabilities, please contact us directly at consulting@ovum.com.

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