



Inphi's solutions for servers and storage

Problem: Demand for data bandwidth is driving growth in areas such as the digital home, HDTV, global IPTV and IP video, video over wireless networks and various social media applications. Cloud computing is becoming a more prevalent method for delivering various services and applications, and data center servers are the workhorses of cloud computing.

Data center servers are expected to process and deliver information and services faster, while also minimizing the physical space and energy they consume and the heat they generate. Virtualization and multi-core designs help servers achieve some of their goals, enabling higher server utilization and better efficiencies.

At the same time, however, CPU virtualization compounds other performance problems with IO subsystem, notably storage. Improved utilization of the CPU requires quicker accesses to data from the system memory as well as from slower IO peripheral and storage systems. The CPU cores are often starved while waiting for the data from the IO sub-system, thereby reducing the overall efficiency of the virtualized systems. . Extensions of virtualization to IO resources (VT-d technology from Intel) addresses some of the challenges by allowing direct assignment of the IO resources to the Virtual machines (read CPU) and also providing the hardware based address translation. However this is not enough to overcome the slower data transfer from the mechanical storage systems. New solutions are required to overcome the storage bottleneck.

In the realm of memory subsystem, as server CPUs increase in speed and capacity, the amount of memory they can drive actually decreases. When CPUs exceed the limit of how much memory they can address over the memory channel, they suffer from signal integrity issues – i.e., errors in how data is received.

Inphi's solutions: optimized for high-performance and cloud computing

Inphi offers components that address the critical CPU-to-memory bottleneck – as well as the CPU-to-storage bottleneck –enabling data center servers to operate at greater speeds and memory capacity, more power-efficiently.

Inphi's ExacTik® family of CMOS timing devices provides memory clocking and other server, workstation and notebook applications. ExacTik memory interface products are characterized by the highest performance – in terms of jitter, slew rates, lock times and skew – along with the highest signal integrity.

Inphi's recently announced Isolation Memory Buffer (iMB™) component enables servers and workstations to handle greater volumes of data and support more memory modules,

thereby addressing important performance and capacity challenges. Inphi's Isolation Memory Buffer is a single-chip solution – part of a load-reduced dual-inline memory module (LRDIMM) – that isolates the processor and the memory components on system memory as well as Storage IO write cache. It accomplished the above by buffering the data, command, address, clock and control signals.

Today, Inphi is the leading supplier of memory interface components for DDR2, DDR3 and LRDIMM memory modules. For more information on Inphi's Server and Storage products visit www.inphi.com.

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November 12, 2009