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## Market Roundup
August 15, 2003

**Two Streams into One River?**

**HyperTransport Consortium Gains New Members**

**A Customer What?**

**Los Alamos Chooses Opteron for Linux Clusters**

## Two Streams into One River?

*By Jim Balderston*

HP announced 158 new products this week targeted at the consumer market. The products included a number of digital cameras, printers, laptop computers, and accessories designed, the company said, to make computing easier for the home user. The devices HP unveiled are designed to help consumers manage and store a wide range of digital content, including music, video, and photographs. HP CEO Carly Fiorina noted that consumer products constituted $18 billion of HP's $73 billion in revenues, and said she expected that number to go up in the coming years, pointing out that only 20% of the public has switched from film-based cameras to digital versions. HP said it would spend $300 million promoting its new consumer offerings.

Just taking note of the number of products HP rolled out, one has to ask: "Could any other IT company do this?" In our minds, HP is unique in this regard, when one considers vendors like Dell, which is not in the printer and gizmo business, or Apple, which offers a smaller number of highly tweaked products. For sheer breadth of offerings, HP truly stands alone.

To add a bit more perspective to HP's consumer breadth and depth, one must also calculate in the fact that HP is also one of the world's largest enterprise systems vendors. This separates HP from its larger systems rivals like IBM or Sun. No company in our mind appears capable of pursuing a dual revenue track: on the consumer side and within the enterprise IT world. That said, HP has an opportunity to leverage this unique position, by allowing cross-pollination of technology from both the consumer and enterprise side. Now, one may assume that high-performance computer clusters will not be something that home users want, but particular pieces of that technology may be applicable to home users at some point. At the same time, the idea of making computing easier for the home users should have applications inside the enterprise; we would argue that there are plenty of enterprise end users (and IT professionals alike) who would like their computing environments to be a little more user-friendly. We believe that one of the more intriguing opportunities for HP would be to combine its dual expertise specifically for the SMB market. Enterprise-tested products with a consumer-friendly veneer offer the best of both worlds to the SMB market that not only wants but requires reliability and ease of use and a transparency of functionality that allows for maintenance without a significant IT staff investment. In essence, HP has the opportunity to leverage its dual track to make a difference to a significant IT market. Will they do so? Stay tuned.

## HyperTransport Consortium Gains New Members

*By Charles King*

The HyperTransport Technology Consortium, a non-profit organization that manages the HyperTransport technology specification, has announced that EMC, IBM, LTX, Media Fusion, National Semiconductor, Network Appliance, and Texas Instruments have joined the Consortium, whose other members include AMD, Cisco, LSI Logic, NEC, Sun, Toshiba, and Transmeta. In addition, the Consortium has created two new membership classes, adding Advisor and Academic classes to current Promoter, Contributor, and Adopter classes. The Advisor membership allows firms to participate in the Consortium without exchanging IP rights and patents while the

Academic membership is free and open to any accredited educational institution and provides access to the HyperTransport technology and IP for educational purposes.

HyperTransport is a packet-based universal chip-to-chip I/O connectivity technology that is licensed on a royalty-free basis through the HyperTransport Consortium. It provides extremely high (12.8 Gbps aggregate) bandwidth, frequency scalability, low-cost implementation, and full software compatibility with legacy PCI and PCI-X I/O technologies. Developed by AMD and its partners, HyperTransport has gained increasing interest and traction in the market due to the notable scaling and performance it provides AMD's 32-/64-bit hybrid Opteron processor. HyperTransport is only one of many I/O technology options that are becoming standards for chip-to-chip communications in high-performance processors, but a few issues in the Consortium's press release merit mention. Primary among these are the vendors who have decided to associate themselves with HyperTransport. I/O connectivity is a natural enough area of interest for PC and systems vendors such as NEC, Toshiba, and Sun while Texas Instruments, IBM, and EMC represent the interest of major players in the wireless, semiconductor, and storage arenas. In a way, their interest continues the original intent of the consortium, which was to deliver a low-latency, packet-based I/O solution with a low cost of implementation to a wide range of IT players.

It is also interesting to see that missing from this IT Who's Who are two vendors that would likely benefit: Intel and HP. In a sense, Intel's absence is largely understandable, since the company has long avoided solutions that emanated from rival AMD. Intel would likely insist that its PCI Express technology, an expansion of the company's original 3GIO I/O technology, is superior to HyperTransport. But PCI Express is really a whole system architecture with features that include physical connections developed by Intel. How enthusiastic vendors will be about buying into PCI Express and providing Intel real estate literally "inside" their products is uncertain, though it would be safe to hazard a guess that it is a road IBM, Sun, and others are not likely to travel down. HP's absence is a bit harder to figure, but it makes sense considering the company's literal and strategic investment in Intel's Itanium platform. Since the ability of AMD's Opteron to run 32- and 64-bit code natively revealed a notable weak point in Itanium, HP is unlikely to associate itself in any way with AMD, at least in high-end products. That is too bad, since HyperTransport appears to offer levels of server latency and scalability that would please enterprise customers. In a sense, HP's actions reveal the ultimate weakness of the "enemy of my friend is my enemy" philosophy. Such a blanket attitude may look good on paper, but it pales when your self-imposed enemy has something that could provide great benefits to you and your customers.

## A Customer What?

*By Jim Balderston*

IBM announced this week that it had been selected by the LEGO Company to help consolidate its existing server environment and to install an On Demand environment in which LEGO will pay for computing resources as needed. IBM said it would be consolidating more than 220 existing servers into 34 IBM eServers and IBM Enterprise Storage Server Systems. The new system will also include IBM's Tivoli Storage Manager. In other news, Sun Microsystems announced a series of new customers wins, focused on Sun's lower-end product line. Sun announced new deals with Best Buy Canada, Dartmouth College, General Dynamics, Land Rover, Northeastern University, University of Notre Dame, Southwest Airlines, and the Department of Veteran Affairs, among others. Sun highlighted the customer wins by noting that the deals involved its entry level Sun Fire and Netra Servers, as well as its Sun Fire B1600 Blade Platform servers, which can mix and match SPARC and Intel-based servers.

In IBM's announcement, one sees what must be one of the company's more significant On Demand deployments, adding validation to the idea of offering computing resources on a pay-as-you-use basis. Sun's announcement demonstrates they can successfully execute on a strategy that focuses on their lower-end products, and are doing so in the private and public sectors as well as in academia. Both companies appear to be gaining traction with their respective go-to-market strategies.

More exciting is the fact that these strategic wins have happened in what has been a droopy IT investment environment. Just a few short years ago, customer wins were so routine they barely warranted mention on an individual basis. Looking at these two announcements one might dare consider the idea that the near comatose IT market may be coming back to life. The IBM-Lego deal is notable in itself in this regard, as it is no incremental

upgrade sale; it is the kind of rip-and-replace deployment that requires the use of heavy machinery sporting powerful hydraulics. That such a sale could occur in what is still seen as an IT spending Dead Zone may, in fact indicate that there is life in the old girl yet. Sun's ability to make sales using not its flagship products but smaller, lighter offerings indicates its opportunities may be expanding by growing demand in the marketplace. While two customer win announcements do not a turnaround make, we would argue that it is time to begin reassessing the state of the IT spending environment, this time to a more optimistic calibration.

## Los Alamos Chooses Opteron for Linux Clusters

*By Charles King*

AMD announced this week that the Los Alamos National Laboratory has selected the AMD Opteron processor for two separate large-scale Linux clusters. Scheduled for installation in October, the "Lightning" cluster is expected to include more than 2,800 Opteron processors and is designed to run at a peak of 11.2 teraFLOPS. The cluster will support the National Nuclear Security Administration's Advanced Simulation and Computing program (ASCI) which helps ensure the reliability and safety of the nation's nuclear weapons stockpile. The "Orange" cluster will be part of Los Alamos' institutional computing program that supports scientific, medical and environmental research. Orange is a 256-node dual-processor cluster, and is expected to be the first Opteron cluster to use Infiniband technologies to enhance interconnect bandwidth and scalability. Both clusters are being designed, built and integrated by LinuxNetworx, and will utilize Opteron Model 244 processors and Arima HDAMA motherboards.

At one level, the AMD/Los Alamos announcement qualifies as a conventional self-congratulatory pat on the back that is perfectly understandable. Launched with a good bit of fanfare just a few months ago, the Opteron processor has already brought AMD a great deal of publicity relating to supercomputing installations. In June, Dawning Information Industry of China said it would build a 10-teraFLOP system based on Opteron, while IBM announced in July that it would use Opteron for a clustered system it is building for Japan's National Institute of Advanced Industrial Science and Technology. The announcements also punctuate the ongoing leveraging of clustered systems, running Linux more often than not, that are increasingly becoming the norm in supercomputing and high performance computing (HPC) installations. While all this may sound good on paper, many pundits have suggested that translating Opteron HPC wins into acceptance and success in the greater market will be a difficult if not hopeless exercise for AMD.

With all due respect, we disagree. While ASCI safety simulations are hardly the sort of project an average business would pursue, the ongoing evolution of clustered technologies along with dramatic shifts in server price/performance have helped to drive HPC and supercomputing solutions further into the commercial market than were once thought possible. Once considered fit only for the rarified air of university or government research labs, clustered HPC solutions are being used increasingly in commercial applications including oil and gas exploration, and automobile and aviation design and simulation. Beyond these obvious opportunities, we believe AMD's Opteron processor stands to gain even more from this sector. While Opteron has sparked some interesting lab reports and benchmark tests, the technology is both new and unique, two qualities that seldom sit well with enterprise IT buyers who had their fill of "innovative" solutions in the years leading up to the dotcom bust. Second, AMD has always been considered something of an also-ran to processor leader Intel, and has been sabotaged by its own errors as often as by Intel's superiority. Finally, Opteron made waves when its elegant native 32- and 64-bit capabilities were compared against the less flexible Itanium platform, which has rankled Intel and its supporters. While these issues may dog Opteron in the commercial market, research and government labs are notorious for judging technologies purely on their capabilities. As a result, we expect that the Opteron wins in this space to date represent the tip of what will become a larger and larger iceberg. More importantly for AMD, if Opteron systems perform as well over time as they have in the short term, the platform's success in research supercomputing and HPC applications should drive further successes in commercial markets. If that happens, the already interesting dynamics of the 64-bit computing market are likely to become downright melodramatic.