

Platform™

AMD Relies on Platform LSF® software to Optimize Computing Resources and Accelerate Compute-Intensive Workload

Overview

AMD needed to harness the full power of its computing environment to enable designers to get increasingly complex and higher-performing microprocessor chips to market faster and error free

Challenge

- Put more compute power into the hands of design engineers
- Manage and accelerate the computing workload across a growing IT environment
- Optimize existing computer resources to reduce the need for further spending
- Support transition to a 64-bit computing model

Solution

- Platform LSF® software

Results

- Billions of design, simulation & verification jobs run faster than ever thought possible
- Better utilization of existing resources, and need to purchase additional hardware minimized
- Fault-tolerant & fail-over capabilities yield an always-available computing environment
- Smooth transition to 64-bit Linux environment increased IT performance and reduced costs
- AMD is able to get better products to market faster and at lower cost

In today's economically challenged high tech sector, Advanced Micro Devices, Inc. (AMD) is one of only a few key players still competing successfully in the highly competitive microprocessor chip market. From the AMD-K6® chip to its 1GHz AMD Athlon® processor and now its award-winning 32-bit and 64-bit AMD Opteron® and AMD Athlon 64 processors, AMD continues to compete in this tough market by bringing better products to market faster and at lower prices.

Since 1995, AMD has been using Platform LSF® software to optimize the performance of its extensive computing environment to meet aggressive timelines for delivering these powerful microprocessor products. Using Platform LSF to cluster thousands of individual computers into a single virtual resource, AMD was able to make use of otherwise unused computing power across its entire technology infrastructure, reducing the need to purchase additional hardware.

As AMD's computing environment grew in response to demands to get even more complex microprocessor chips to market faster – including its recent AMD Opteron processor – strong scalability features enabled Platform LSF to effectively manage the computing workload across clusters containing a significantly greater number of CPUs. In addition, enhancements to Platform LSF helped AMD transition to an even more powerful 64-bit computing environment.

Business Challenge

Getting new microprocessor chips from design to silicon quickly – and error free – requires plenty of computer horsepower to use sophisticated design automation tools. The increased complexity and higher performance of chips such as AMD's 32-bit and 64-bit AMD Opteron processor however – and the need to get them to market even faster in order to stay competitive – placed even greater demands on AMD's engineers. Increasing amounts of computing power were needed to run millions of design automation, simulation and verification jobs quickly and efficiently.

AMD's traditional computing infrastructure however, which consisted of multiple high-performance workstations on every designer's desk, was no longer efficient since many workstations could remain idle for long periods of time. AMD needed a better way to use existing computing resources to provide the power its engineers needed.

And as computing requirements continued to grow and more engineers were added to its design and development team, AMD added additional servers – and started replacing existing servers with new ones – that take advantage of the performance of AMD's own technology by using the AMD Athlon and AMD Opteron processors. However, they needed to manage the growing size and complexity of their IT infrastructure, while holding the line on costs.

“With our computing resources running at over 90 percent utilization, Platform LSF has allowed us to push our design hardware and computing resources to the limit. With Platform as our technology partner, AMD can continue to deliver the most advanced products and services to the ever-evolving microprocessor industry.”

Clive Dawson

Manager of Systems Engineering, Computation Products Group,



Solution

Since first used at AMD in 1995 to cut the design-to-manufacture time of the AMD-K6 processor by as much as six months, Platform LSF has continued to play a critical role in the design of AMD chips. Platform LSF® software offered an effective and reliable solution to AMD's computing workload management requirements by clustering all the individual computers together as a single, virtual resource. By marshalling the compute power needed to run leading design simulation and verification applications, Platform LSF ensured the right person had access to the right computing resources at the right time to handle any complex job. And by making effective use of unused compute cycles, Platform LSF helped AMD optimize the use of existing IT equipment, and reduce the need to purchase additional hardware.

With the variety and volume of work to be accomplished in the chip design cycle, high availability of computing resources was also of prime concern. With strong fail-over capabilities, including automatic job restart/rerun, Platform LSF provides a fail-safe, no-downtime computing environment that has played a key role in the success of AMD's microprocessor development program.

Initially, AMD's development environment consisted primarily of Unix-based systems from a variety of vendors. To take advantage of the industry-leading performance of its own chips, however, and to help keep down its IT costs, AMD has transformed most of its environment into Linux systems that are based on its own 32-bit AMD Athlon and 64-bit AMD Opteron chips. Supported by a 64-bit version of Platform LSF, this transition has gone smoothly for AMD, who continues to be impressed by how well LSF performs in either 32- or 64-bit mode and by the ability of LSF to continue to scale up as the AMD compute farm grows ever larger.

Along with the increased complexity and speed of today's chips, AMD continues to push its computing resources – including Platform LSF – to the limits of performance and reliability. Platform LSF has also been a useful mechanism for automatically distributing software patches or performing other housekeeping tasks on the operating systems across all of AMD's servers.

AMD upgraded to Platform LSF 5.1 in 2003, which can support over 3,000 CPUs in each cluster. And by incorporating additional functionality and scalability features in Version 6.0, the ability of Platform LSF to intelligently prioritize workload, automate repetitive work, and allow more tasks to be completed faster will help AMD further reduce time-to-market and increase the quality of its next-generation microprocessors.

Customer Site

AMD (NYSE:AMD) designs and produces microprocessors, Flash memory devices and system-on-chip solutions for the computer, communications and consumer electronics industries. AMD is dedicated to helping its customers deliver standards-based, customer-focused solutions for technology users, ranging from enterprises to government agencies and individual consumers. Founded in 1969, AMD is a Standard & Poor's 500 company with global operations and manufacturing facilities in the United States, Europe, Japan and Asia.



About Platform Computing

Platform Computing's intelligent, practical enterprise grid software solutions help organizations optimize IT resources to Accelerate Intelligence™. We plan, build, run and manage grids that link IT to core business objectives, and help our customers improve service levels, reduce costs and enhance business performance. With industry-leading partnerships and a strong commitment to standards, we are at the forefront of grid software development, propelling over 1,600 clients toward powerful insights that create real, tangible business value. For more please visit www.platform.com.



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