VMware and AMD: Innovative Architectural Design To Enhance Your Virtualization Experience.

"At Bowdoin College we upgraded our virtualization server infrastructure to use AMD Opteron processors and our server CPU utilization dropped by two thirds. VMware ESX and AMD Opteron processors allow us to increase both density and performance of our virtual machines without increasing the datacenter footprint of our Virtual Infrastructure."

— Tim Antonowicz
Senior Systems Engineer
Bowdoin College

A Best-in-Class Relationship

In any relationship, working together is the key to growth. Through deep collaboration extending throughout our organizations, VMware and AMD are forging a best-in-class relationship between hardware and software that delivers robust virtualization solutions to support your business needs.

Virtualization is emerging as a key technological innovation that enables IT managers to build more productive, flexible, and scalable datacenters and at the same time reduce costs, increase availability, support new business initiatives, and adapt to rapidly changing requirements. By basing your virtualization solutions on VMware Infrastructure software and multi-core AMD Opteron™ processor-based systems from Dell, Fujitsu Siemens, HP, IBM, and Sun, you can significantly improve performance, reduce power consumption, increase utilization, and enhance security for your business critical resources.

A Robust Virtualization Ecosystem

When VMware software teams up with the AMD Opteron processor based-systems, the result is improved efficiency, greater productivity, and enhanced scalability—giving you greater return on your virtualization investment.

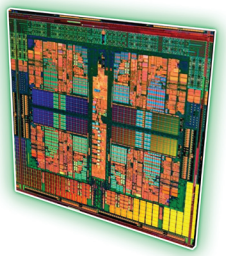
Operational Excellence. The AMD Opteron processor with Direct Connect Architecture is built on the innovative AMD64 technology that directly connects memory to the CPU. This provides the underlying foundation to support demands of the memory-intensive virtualization software like VMware.

Optimal Virtualization. Third-Generation AMD Opteron processors with AMD Virtualization™ (AMD-V™) technology provide a balanced approach to virtualization performance, enabling more virtual machines to run per server and more users and transactions to be handled per virtual machine. Rapid Virtualization Indexing™, an enhancement to AMD-V technology, is designed to increase the performance of the most demanding virtualized applications through hardware-assisted memory management, enabling faster switching between virtual machines.

Extensibility and Investment Protection. A key factor in data center optimization is planning ahead for intelligent growth that will enable faster deployment and better management of services. AMD's common-core strategy, same socket infrastructure, and stable, long-term road map enables seamless upgrade of processor technology to help you minimize the cost of transitions and maximize past investments in hardware, software, and personnel. Choosing the powerful combination of the AMD Opteron processor and VMware virtualization software can deliver a dramatic leap forward in platform stability, scalability, performance, and investment protection.

The Benefits of VMware Virtualization Solutions

- **Simplify the infrastructure.** Centrally manage all IT resources, provisioning new capacity in minutes rather than days.
- **Optimize resources.** Pool and share resources and consolidate the number of servers by as much as 10 times—now and in the future.
- **Deliver high availability.** Maintain true zero downtime, with VMware High Availability and VMware Disaster Recovery.
- **Enable real-time response.** Dynamically allocate resources based on business priorities, as they change.
- **Lower costs.** Realize measurable savings in both capital and operating costs.



Quad-Core AMD Opteron™ Processor

"AMD and VMware's strategic technology partnership is creating and delivering high-value hardware and software virtualization solutions designed to meet customers' needs today and tomorrow. Working together, we are innovating, designing and implementing virtualization hardware-assist functionality such as Rapid Virtualization Indexing and IOMMU, and driving its use in VMware Virtual Infrastructure, resulting in higher-performing virtualization solutions."

— Earl Stahl
VP Software Strategy and Solutions
Computing Product Group, AMD

Enhanced Efficiency. With energy-efficient features like Enhanced AMD PowerNow!™ technology, Independent Dynamic Core Technology™, AMD CoolCore™ technology, DDR2 memory, and native multi-core processing, AMD Opteron processors demonstrate AMD's performance-per-watt leadership. Businesses can better leverage power infrastructure, utilize space more efficiently, and control power and cooling costs—all while enjoying exceptional performance.

Unmatched Performance. An array of AMD innovations combine to deliver unparalleled performance:

- **Enhanced CPU cores are designed to execute more instructions per clock cycle**, maximizing performance for HPC software – which is not key for virtualized environments. AMD Balanced Smart Cache™, with dedicated L1 and L2 caches and a new large shared L3 cache, dramatically improves performance of applications that work with large datasets.
- **Dual Dynamic Power Management™** helps improve memory performance while allowing for decreased system power consumption.

Integration. When we talk about integration, it's not just about the hardware and software: it's about integrating our people and our processes, too. VMware and AMD engineers are strategic partners, working closely to design technologies that combine seamlessly and effectively. Obviously architectural design is key, but our relationship also reaches across quality assurance, memory management, customer and sales support, and mutual OEMs—maximizing the benefits of VMware Infrastructure to simplify and optimize mission-critical systems.

Get Started Today

VMware offers a vast array of free resources to help you learn more about virtualization and what it can do for your organization, including local seminars, webinars, downloadable white papers and more at www.vmware.com. To learn more about the power of VMware solutions on the AMD platform, please visit **www.amd.com/vmware.**

"We see multi-core capabilities in the Quad-Core AMD Opteron™ processor as a perfect fit for virtualization. The Rapid Virtualization Indexing feature of AMD's Direct Connect Architecture enhances this combination by smoothing out the performance profile across many workloads."

— Dr. Stephen Herrod
Vice President of Technology Development
VMware

AMD

vmware®

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