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# THE NEW POWER FOR THE NET ECONOMY



# ULTRASPARC™ III SETS NEW RULES FOR PERFORMANCE

## Meet the Processor that Powers the Net Economy

The SPARC™ processor has a decade-long history as the proven CPU behind the explosive growth of the Net economy—and as a key technology inside Sun™ workstations and servers for over ten years.

Leading the race to 64-bit computing, the UltraSPARC™ I CPU followed a few years later by ushering in a new level of performance and setting new standards for processor bandwidth and scalability. Next, UltraSPARC II and the Solaris™ Operating Environment introduced 64-way system capability with the Sun Enterprise™ 10000 system, setting new records for large systems and powering data centers worldwide.

The new era of UltraSPARC is focused on the CPU core. This second-generation pipeline is designed to improve execution and take UltraSPARC to even higher frequency levels.

## Performance Is a Matrix—Not a Single Benchmark

Benchmarks and uniprocessor performance (MHz) make for great bragging rights among CPU vendors. But how do benchmarks translate into real-world business success? In the Net economy—where you may be supporting a million users one day and a hundred million the next—a new set of requirements has emerged for CPUs that goes beyond benchmarks.

Computer systems built to power corporate intranets and public Web sites need multiprocessor performance and extreme bandwidth to access data files that expand exponentially every day. They need bulletproof reliability and scalability for changing customer demands. And they need investment protection to maximize software costs that far exceed the cost of the system infrastructure.

## Benchmarks to Dotmarks

The multiple performance attributes of the UltraSPARC product family are key to why Sun systems have always excelled in meeting the needs of companies who are “dot-comming” their businesses. Most benchmarks don’t measure end-user application performance. That’s why Sun focuses on a multidimensional set of performance metrics called Dotmarks.”

Dotmarks comprise the critical elements to success for the Net economy: scalability, multiprocessor performance, continuous uptime, and investment protection.

Of course, the importance of uniprocessor performance and benchmarks has not been lost on the UltraSPARC product family. Future generations of UltraSPARC are already well underway with clock speeds far exceeding the current crop of competitive processors, which simply don’t stand up to the Dotmark scrutiny needed for today’s business success.

## The Power of the Future Net Economy: UltraSPARC III

Like its predecessors, UltraSPARC III has been designed to deliver real-world performance based on real-world metrics—truly raising the bar and setting new rules for performance in the Net economy by delivering numerous integrated chip-level design features.

Capable of massive scalability with near linearity in performance, each UltraSPARC III on-chip memory controller increases the aggregate bandwidth available to maximize multiprocessor scaling performance. When combined with industry-leading 9.6 GB of coherency bandwidth and 2.4 GB of off-chip bandwidth, the system has access to all the bandwidth available at all times. Each processor has its own local SDRAM controller and memory—so the system architecture has all local memories in the same coherent data domain.

Because the UltraSPARC III processor architecture supports the scalability of Solaris in a tightly coupled shared memory architecture, the processor’s local memory and caches are shared with other processors. And extra memory and cache bandwidth is added to support tightly coupled processors.

Reliability on the UltraSPARC processor has been enhanced with the addition of the Up Time Bus, an 8-bit wide channel that isolates and contains errors away from main memory—all without missing a beat. Single Error Detection and Single Error Correction (SED/SEC) has been added along

with Error Checking and Correction (ECC) on L2 Cache to further enhance continuous uptime capability.

Multiprocessor performance is enhanced by 3.2 GB peak bandwidth access to 8 GB of local memory. So all the data is available to the processor all the time. The addition of multiport SRAM increases memory access and lowers latencies—all contributing to better application performance in real-world situations.

Of course, the investment protection offered by UltraSPARC III could easily be the most important Dotmark metric delivered. Expenditures on software, administration, and management skills far exceed the expense of new equipment. With Sun’s binary compatibility focus, companies can seamlessly migrate to new systems since UltraSPARC II systems will run the same applications right along with new UltraSPARC III systems.

## Sun Delivers it all

New requirements for business will be met by Sun’s industry-leading UltraSPARC processor, Solaris Operating Environment, and workstations and servers that work together seamlessly, scaling up and across new business needs—while delivering the performance Dotmarks required by the Net economy.

For more information, visit [www.sun.com/microelectronics](http://www.sun.com/microelectronics)