



Infineon Technologies

BUSINESS

Infineon Technologies AG, manufacturer of the industry's most advanced semiconductor solutions and services

ISSUES

- Faster speeds to support advanced chip design and increase productivity
- High capacity to run very large jobs
- Reliable service and support for the long-term

SOLUTION

Fujitsu PRIMEPOWER 800

BENEFITS

- Faster run times shorten design cycle
- Increased processor speed improves test accuracy and enhances simulations and verifications for a more reliable product

High-Performance Computing for a High-Performance Company

Since spinning off from Siemens AG Electronics two years ago, Infineon Technologies has increased revenues by 72 percent and moved from being the tenth-largest semiconductor manufacturer in the world to number nine.

With 22 manufacturing and 26 design sites on three continents (Europe, Asia, and North America), Infineon is a global leader in the design and manufacture of innovative semiconductors and systems for a range of technologies: from the power train management systems in cars to LAN and WAN networks to cellular and cordless phones to smart cards to the chips running PCs.

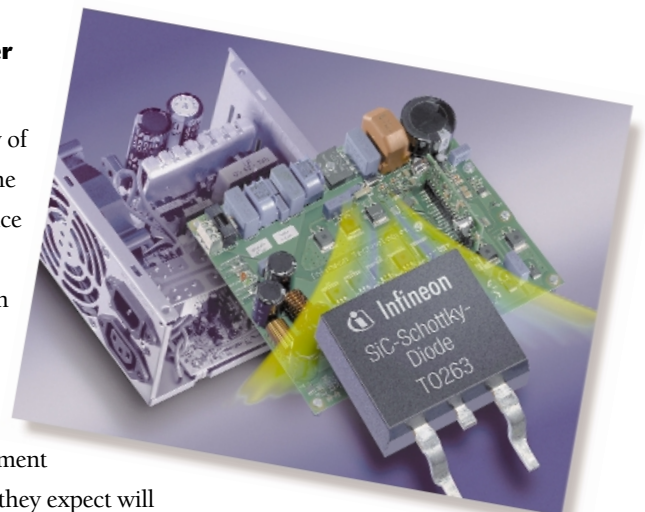
Infineon's independence has seen increased profit margins in all five of its business units—Automotive and Industrial, Wired Communications and Peripherals, Wireless Communications, Security and Chip Card ICs, and Memory Products—but the growth of the Memory Products division has been extraordinary. Generating over 50 percent of Infineon's total revenue last year, the Memory Products division has pushed the envelope in a high-stakes market. "You have to be first with the most powerful, fastest chip on the market," says Dirk Knabe, director, Concept Engineering IT R&D, speaking from Infineon's headquarters in Munich. "It's a high-volume product, and you can make a lot of money if you're successful and lose a lot of money if you're not."

Infineon has been successful. From the development of the first working DRAM on a 300-mm wafer to a revolutionary new generation of 1-GB DRAM modules, Infineon is a leading competitor in the drive for smaller, more powerful, more available memory technology. Innovation is a requirement to compete, and Infineon invests 14 percent of revenues in R&D.

PRIMEPOWER for number crunching

It is to advance the technology of that miniature workhorse of the PC industry—high-performance DRAM—that the people at Infineon's Williston, VT, design center devote their efforts.

Currently, Joerg Kollermeier, senior CAD engineer, and his team are working to implement an advanced test concept that they expect will reduce costs, a benefit that will be passed on to customers.



The designers draw their circuits and generate chip layouts on their workstations, but the testing of the design requires a powerful server for the intense number-crunching required by the simulation and verification phases of the design process. That is where the PRIMEPOWER® 800 comes in.

Forging a new business relationship

The story of its acquisition began a year and a half ago when Dirk Knabe took a look at Fujitsu's PRIMEPOWER server, the fastest in the commercial UNIX® industry, and was impressed. For a memory chip company, getting an innovative product to market ahead of the competition is the name of the game. "Speed is the most important issue for us," says Knabe. "The faster the server, the faster we can get the product out."

But while speed was the most important issue, it was not the only one. Knabe had some questions. Infineon's design software had been developed to run in the Solaris® operating environment. Could a native version of Solaris

As part of his evaluation, Knabe visited the Fujitsu manufacturing facility in Japan to see how PRIMEPOWER servers were developed, built, assembled, and tested. He also wanted to introduce Infineon to Fujitsu. He was evaluating

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run on a Fujitsu PRIMEPOWER server without special software, drivers, or add-ons? Knabe knew Fujitsu as a mainframe vendor. How committed was Fujitsu to the SPARC® architecture over the long term? How reliable was Fujitsu in terms of service and support?

more than a technology. He was assessing the value of a potential business relationship.

That was a year and a half ago. Today, several PRIMEPOWER servers run seamlessly in the data center at Munich headquarters. PRIMEPOWER's compatibility has been proven, and likewise Fujitsu's service and support. "They have been very responsive," says Knabe, speaking of the service team. "Whenever we needed an expert, we were always able to talk to the right person."

So when the need for a new compute server in the Williston, VT, design center arose, a PRIMEPOWER server was already in the running. But Knabe still had some questions. As he put it, "We are a global company, and we would love to have Fujitsu servers as compute servers globally, not only in Munich. But how will it work in the States?" He was concerned that although Fujitsu was strong in the Japanese and European markets, the company's capability in the United States was an unknown to him. What about the warranty, the service and support? How would the delivery be handled?



Knabe was assured that everything would be the same in the U.S. as in Europe—delivery, installation, service and support. Once he was satisfied, he requested a quote. “I figured, okay, if it doesn’t work, we have bad luck, but if it works, we’re the king.”

PRIMEPOWER investment pays off

It worked. A PRIMEPOWER 800 with 8 processors and 16 GB of RAM was delivered to the Vermont design center on time and installed in two days. “The purchase-order process and the delivery and the installation were really perfect,” reports Knabe. “It was a real pleasure to see it running.”

He looks forward to the benefits he has come to expect from a PRIMEPOWER server. The PRIMEPOWER’s speed not only increases productivity but also helps Infineon produce a more reliable product, Knabe explains. “The shorter the [processing] cycle, the more accurately we can test the chip’s behavior. A memory chip can behave very differently in between two nanoseconds. How it behaves in a picosecond gives us a much more accurate picture.”

The PRIMEPOWER’s speed also allows Infineon to increase the number of simulations and verification tests to further ensure the reliability of the chip. “If we can run a simulation or verification test in seven hours rather than nine hours, we can run twice as many jobs, because a nine-hour cycle means that people go home before the test is complete, while a seven-hour cycle means that people will have a chance to start a second test before they go home and get the results in the morning.”

Scalable capacity is also an important benefit. Infineon has single jobs that can use up to 50 GB of RAM and over 150 GB of virtual address space. “We need a fast processor, but we also need a cabinet where we can put in more than 50 GB,” says Knabe. A PRIMEPOWER server meets both needs.

Expanding into the future

Infineon is one of the world’s fastest growing semiconductor companies. Over the last five years, it has outgrown its market and is continuing to expand. Of its 26 design sites, 7 have been added since Infineon’s IPO in March 2000.

Knabe looks forward to the challenges presented by success in this fast changing market and expects Infineon’s relationship with Fujitsu to continue. “The price/performance of Fujitsu is superior,” he points out, and as long as that continues, PRIMEPOWER servers are likely to be part of Infineon’s advance into the future.





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