

Fujitsu Siemens Looks To Tomorrow's World

With 10 production lines running 24 hours per day, 5-6 days per week and producing over 2 million PC system boards per year, Fujitsu Siemens Computers relies as much on its manufacturing partners and suppliers as it does on its own engineering team. No wonder the company selected Digitaltest for high performance systems with low maintenance and a degree of flexibility unparalleled in the industry.



Since its launch in 1999, *Fujitsu Siemens Computers* has quietly established itself as a leading European IT company with a full portfolio covering handhelds, notebooks, desktops, servers, and enterprise-class computer solutions. The company is a joint venture between Fujitsu Ltd and Siemens AG with each holding 50%. But the venture is more than just a business partnership. The combined forces of these two electronics giants gave the new company experience in product development and technology integration, with expertise that covers a wide spectrum of IT issues. Research and development staff number more than 1,500 engineers and developers - one in every five employees - working mainly at locations in Germany as well as in the heart of Silicon Valley, USA.

Fujitsu Siemens Computers launched its first notebooks with wireless communications as a standard feature two years ago. The company was also the first vendor to introduce a mobile workstation that meets the high-performance

requirements for 3D graphics demanded by CAD users. And when the market called for tablet PCs, they were ready to capitalize on more than a decade of experience in designing and manufacturing pen-enabled computers. The company has become a technology leader in set-top-boxes for the digital broadband content service sector, helping many telecommunication operators and broadcast companies to expand this new market by integrating digital TV, a multimedia home platform and a satellite receiver, along with digital video recording, CD, DVD, Internet, MP3 and e-mail functions, all in one unit.

In addition to its home and small business markets, the company

serves scientific and technical applications and has built one of the most powerful high-performance computers that can be used in the automotive industry for simulating random car crash scenarios.

Herbert Maier is the Director of Production Engineering Systemboard. He describes the challenges that faced the company.

“We faced the competition with development, system board production and PC-assembly still in Germany. Augsburg, Paderborn and Sömmerda are locations where we produce more than 2 million PCs per year. When we talk about PCs, one of the key competencies we are focused on at the Augsburg plant is





the system board - the heart of every PC. High quality and high volume system board production runs 24 hours, 5-6 days a week with 10 production lines.

“Each production line consists of solder printer, component mounting systems, oven, through-hole technology mounting and the test system. To fulfil our requirements in quality, runtime, price and volume we need to use best-in-class equipment.

“Strategic partners such as Siemens with SMD mounting systems and Digitaltest with the test systems are helping us to satisfy our customer and to compete on the market.

“Our business is always changing. Some years ago production volume consisted mainly of PCs with standard configuration. Nowadays three out of four computers are configured by the customer. Offering this capability is one of our key market skills but to achieve this we need well organised production and test processes. Flexible test solutions are embedded into our processes, so that test, diagnosis, repair and quality management can be performed cost-effectively.”

Robert Schmid, Manager of Test Development Systemboard, is responsible for the implementation of test strategies.

“When we started this business, we looked for a partner who would offer more than just a test system. We expected a complete solution which could be integrated into our environment. Data from product development needed to be prepared for production and test. Software became a more and more important factor when looking for a test solution. Digitaltest was an early pioneer of high-performance test systems supported by the integrated software package C-Link/Testpro,” says Schmid.

“Continuous improvements in yield, reliability, time- to-market, and customer satisfaction all depend on quick and safe ways of testing our products. The methods of test are limited. A test strategy may contain optical, in-circuit (ICT) or functional test stages in different locations in the line. With PC-system boards we have to guarantee a quality level better than 99.4%. A test strategy which ensures good quality, allows controlling and improving processes, makes diagnosis and failure analyse easy and moves within the cost limits is essential.

“Most board faults arise during production. Failures such as shorts, wrong or missing components and open pins can be covered by using the high performance hybrid, non multiplexed ICT and for this we use Digitaltest.”

Many common test requirements are anticipated during board design, which ensures that ICT-test methods are fast and efficient.

“Using a bed-of-nails we are able to contact each net of the board and this achieves the highest fault coverage. Since we deliver our system boards to several assembly factories, who expect zero defects, we cannot rely on local tests prior to assembly. Final system tests on the assembled PCs should only confirm a failure-free system board.

“At the end of each system board line we use one MTS845/SPRINT in-circuit test system testing the board. On lines where we produce the high format server boards which have more than 4000 nets an MTS888/OMEGA is used. The MTS888, developed in 2004, meets all our requirements for the large server boards and is also able to replace the software compatible MTS845 test systems when necessary. Two of these flexible test systems with eight power supplies and analogue and digital capability are now in use at our system board



manufacturing plant. With this test system we will cope with current and next generations of PC- and Server products.”

“Today’s products do face unprecedented cost and time-to-market pressures,” says Maier. “The complexity of computer electronics has increased rapidly. Margins shrink and test cost has become an important issue. Overall test cost including initial cost for the system, the costs for maintenance, the operator among other things have to be taken into consideration.

“Digitaltest is still the leading company providing low-cost test solutions without lacking on throughput or performance. For example, non multiplexed pin architecture guarantees easy use and quick change of fixture and test software.

“By working with Digitaltest’s in-circuit test systems at the end of each line we are able to ensure a quality of more than 99%. This is only possible because the SPRINT

test system provides both analogue and digital features as well as functional test capabilities.

“Customers no longer accept delays due to manufacturing or supply problems. Reliable test systems means high volume and zero downtime. With Digitaltest’s systems the maintenance costs are quite low and nearly every failure can be repaired by our own maintenance group.

“Probably the most important characteristic which contributed to the purchase decision is the flexibility of non multiplexed pin architecture. Changes in board design can easily be done. The bed-of-nail vacuum fixture can be modified as simply as the test program. New programs can be generated within one day and debugged within one week. Considering that a typical application for us has around 800 components and 1500-2000 nets, this is a very good value.”

While technology is Fujitsu Siemens

Computers core business, environmental protection has been and remains a vital corporate concern. The company pursues an end-to-end environmental policy, meaning that environmental issues are taken into consideration from the start of a product’s life cycle, beginning with the selection of materials that will not harm the environment. In the early 1990s standards were set for environmentally friendly product design, and the company was one of the first companies to qualify for environmental approval for PC systems.

Bernd Bischoff, CEO of Fujitsu Siemens Computers, recently stated “We use our creativity and innovative technological skills to preserve our environment.” The same is expected from manufacturing partners. Low power consumption and minimal heat loss are further criteria that Digitaltest test systems have to fulfil.

Of course, the company has considerable advantages over its



competition, being able to work very closely with parent companies, Fujitsu and Siemens. This collaboration provides access to best-in-class technologies and combined research and development investments of about 9 billion euro.

“The slogan of Fujitsu Siemens Computers is *'We Make Sure'* and one promise is to deliver best-in-class products. Using the most advanced production and test equipment, creating good processes and motivating employees contribute to this success,” says Maier.

In today's competitive business environment, a close relationship with your suppliers and partners is important. In 2005 Digitaltest celebrates its 25 year anniversary jubilee. The company's philosophy has always been to develop and provide test systems and software which meets the customer needs. To get a complete test solution from one partner covering automatic test equipment (MTS tester family) together with powerful software

(C-Link for test development and QMAN as our repair and quality management software) has helped Fujitsu Siemens Computers optimize its service.

“It is worth mentioning timely and professional support from Digitaltest,” concludes Maier. “New test requirements such as vectorless test with OpensCheck, polarity check of electrolyte capacitors and device programming tools have always been fulfilled quickly.”

For the future Fujitsu Siemens Computers will concentrate on emerging end-user markets in order to provide customers and partners with the most attractive product portfolio for personal computing, with a strategic focus on Mobility and Business Critical Computing, recognising that these are positioned as key drivers of the Information Age in the 21st century.

Fujitsu Siemens Computers is at the forefront of technology developing new ideas, inventions and processes for tomorrow's world.



FACTS AND FIGURES

Fujitsu Siemens Computers
(Holding) BV., NL

Founded: October 1, 1999

Based in: Maarsse, Netherlands

Shareholders:

Fujitsu Limited, Tokyo (50%)
Siemens AG, Munich (50%)

CEO and President:

Bernd Bischoff

Manufacturing and developing facilities:

Augsburg, Germany
Munich, Germany
Paderborn, Germany
Sömmerda, Germany
Milpitas, California, USA

Operating figures:

Fiscal year: April 1 to March 31
for FY 2004/2005: Euro 6.018 billion

Employees: about 7,000

Home markets:

Europe, Middle East, Africa

Global reach:

Global accounts are served from Global Account Management of Fujitsu Siemens Computers and the global network of both shareholder companies -- Fujitsu and Siemens.

Cooperation with partners:

35,000 sales partners

2,600 software and technology partners

Website:

www.fujitsu-siemens.com