NATURETECH

KEY HIGHLIGHTS

Company
Naturetech

Industry/Market
Portable Computers

Applications/Solutions
- Industry's first notebook computer based on Sun's UltraSPARC™ IIe microprocessor

Products/Services
- Sun UltraSPARC™ IIe microprocessor
- Solaris™ 8 Operating Environment

Key Business Challenges
- Provide benefits of mobile computing to UNIX® system users
- Quickly bring to market a notebook computer based on Sun technology
- Provide high levels of reliability and performance, and features such as video and MP3, in a lightweight solution with long battery life and modest price tag

Key Business Solutions
- Host of features packed into exceptionally small, lightweight package with low power consumption
- Hearty embrace of sample systems by users
- Production volume gearing up to ship thousands of units per month
- SPARC™ architecture compatible product line extended to new levels of affordability

"Sun has the best overall package, the most reliable UNIX® system, and the most mature RISC technology. Sun was also a smart choice from a marketing viewpoint, since it's so popular all around the world. As the Internet got bigger and bigger, and Java™ technology became so clearly the way to develop Internet applications, the arguments for Sun just got stronger and stronger. When I saw the UltraSPARC™ IIe microprocessor's price/performance and specifications – especially its power consumption spec – I knew it was the chip for us."

Wenson Chang
President, Naturetech

Naturetech has developed the most powerful SPARC™ processor/Solaris™ Operating Environment notebook computer ever produced. The company's new S-Note 777S is the world's first and only notebook computer powered by Sun's UltraSPARC™ IIe microprocessor. It runs the Solaris™ 8 Operating Environment – which brings GUI user-friendliness to the UNIX® operating system. The 777S introduces new lows in size, weight, power consumption, and cost to the SPARC computer systems market and extends the benefits of mobile computing to Sun's user base.

The 777S reached the market after just ten months of development thanks to exceptional synergy and teamwork between Naturetech's engineers and Sun's support team. Based on enthusiastic reactions from initial customers about the 777S's performance, reliability, and rich array of features, Naturetech is optimistic that sales will ramp up very quickly in the near future.

Notebook Design Specialist Sees Big Opportunities for Mobile UNIX Computers

Naturetech is a three-year old company based in Taipei, Taiwan that specializes in designing and producing mobile computing products. Fifty of the firm's 200 employees are engineers with seven years or more computer design experience. Quality is a watchword at Naturetech, whose products are ISO 9001 certified.

Until recently, all of Naturetech's notebook computers were Intel processor based. President Wenson Chang, however, had long been waiting for the right opportunity to introduce a RISC/UNIX version. "My interest goes back six or more years," Chang recalled. "The market for Intel-based notebooks consists primarily of individual consumers. Intel is not so appropriate for corporate professionals such as developers and systems administrators, for whom UNIX and its networking strengths represent a much better solution. UNIX professionals can benefit greatly from portable solutions – performing their development work at home for example, or managing productivity tasks in StarOffice on the same system."

UltraSPARC™ IIe Microprocessor Announcement Triggers Naturetech's Decision

"When I first surveyed the field of possibilities, I seriously considered SPARC architecture, Alpha, and MIPS chips, and – just as important – the operating systems that went with them,"

> **"Sun has the industry's most extensive range of completely compatible technology, all running the same SPARC microprocessor family on the same Solaris Operating Environment, from giant supercomputers to very small personal machines. We're proud to have extended Sun's range by adding new levels of affordability and convenience to industry's broadest price/performance spectrum."**
>
> *Wenson Chang, President, Naturetech*

Chang continued. "I found that Sun has the best overall combination, the most reliable UNIX running on a very mature RISC technology. Sun was also the smart choice from a marketing viewpoint, since it's so popular all around the world. As the Internet got bigger and bigger, and Java™ technology became so clearly the way to develop Internet applications, the arguments for Sun just got stronger and stronger. My evaluation made it clear that Sun would be the right choice when the time came, but I wasn't yet ready to commit to this new kind of notebook. UNIX systems were still not so popular for a large segment of the market for notebooks, and the challenges of dealing with heat dissipation and power consumption in the microprocessors of the time were just too daunting."

When Sun announced the UltraSPARC IIe microprocessor and Solaris 8 Operating Environment, Chang knew the time had come for his company's RISC/UNIX laptop. "When I saw the UltraSPARC IIe microprocessor's price/performance and specifications – especially its power consumption spec – I knew it was the chip for us," he reported. "It runs the Solaris 8 Operating Environment, which incorporates a GUI user interface alternative to the classic UNIX command line interface. That's a really important benefit for notebook computer clientele. In fact, I believe the user friendliness of the Solaris 8 Operating Environment could well be the entry point for UNIX systems' use by the masses."

Despite Naturetech engineers' awesome experience in notebook computer design, they were new to SPARC architecture; therefore, it was essential that they get some help from a knowledgeable source. "Fortunately, Sun has an outstanding Design Kit and Technical Support program under which they provided all the SPARC and Solaris 8 Operating Environment knowledge we needed," said Chang.

Support from Sun's Design Kit Program Makes One Year Development Cycle Possible

Sun's Design Kit program assigns a Sun support team to accompany technology that is provided to customers like Naturetech who plan to perform extensive design on top of it. Sun begins by finding the ideal individual to become Project Leader. He or she must have in-depth knowledge of the technology, the people skills to recruit specialists from Sun and interface with them on behalf of the customer, and the willingness to actually become part of the project – working as an integral member of the client's team throughout all stages of a product's evolution. Initially, the interface is at the engineering level, but as ship date approaches the Project Leader becomes involved with the customer's marketing and sales staffs as well. "The Design Kit Support program is an outstanding idea, and the people Sun provided us under that program are just as outstanding," reported Chang. "That's why we got it done in less than a year. And not just done – done correctly!"

Indeed the development took just ten months, from July 2000 when Technology Licensing agreements were finalized to May 2001 when the first samples were shipped. Along the way, the team faced significant obstacles. Thermal ventilation was the foremost challenge, requiring three months of study and experimentation. Other significant challenges included development of microcode and software drivers for graphics engines and peripherals, overall power management, and creation of sufficiently strong but light housing for the 777S.

The Naturetech S-Note 777S – An Engineering Masterpiece

The resulting product is a showcase of fine laptop engineering. The 777S comes with a 15" high resolution, 1024x768 LCD display supporting up to 16M colors, and CPU speeds up to 500 MHz. Up to 60 GB of disk space and as much as 1 GB of memory is provided. DVD, CD-ROM, and even a CD burner are included as standard equipment. Up to two batteries are provided, each of which lasts two hours under very heavy usage and much longer normally. The laptop's magnesium alloy chassis does a superior job of dissipating heat besides giving the 777S a handsome and distinctive appearance. The entire package weights just 6.8 pounds, with a 5 pound model expected in fall of 2001.

Naturetech's engineers are keenly aware of the extra perils from theft that a laptop faces. Therefore, they built an additional layer of security on top of Sunscreen Lite, the security software already built into the Solaris 8 Operating Environment. Each 777S user can be assigned a unique code that must be entered correctly using an array of five buttons on the computer before it will even power on.

Successful Pilot Leads to High Volume Shipments

Naturetech announced the S-Note 777S at the CeBIT show in March 2001 to considerable excitement. The samples shipped in May were well received by customers, so now Naturetech is preparing to supply the 777S in volume. "From all points of view – reliability, performance, ergonomics, etc. – the pilot program has been a success," said Chang.

Although competitors began lining up once they heard Naturetech's announcement, Chang is not concerned. "We're first to market by a long shot," he explained. "Now, it's up to us to maintain our lead."

"We're very pleased with our accomplishments," Chang said. "We expect the 777S to be every bit the business success that it is a technical success. We share credit for this success with Sun – both the people who worked so hard and so well side by side with us throughout the project, and the people who created such excellent technology in the first place. With Naturetech's tremendous notebook design expertise and Sun's industry-leading technology, what a combination we make!"

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>
> *Wenson Chang*
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"Sun does the best engineering job, executes the best marketing strategy, and has the Solaris 8 Operating Environment, the most popular UNIX on the market," concluded Chang. "Sun has the industry's most extensive range of completely compatible software/hardware computing environments, all running the same Solaris Operating Environment on SPARC based platforms, from giant supercomputers to very small personal machines. We're proud to have extended Sun's range by adding new levels of affordability and convenience to the industry's broadest price/performance spectrum."

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