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ASE news

ASE's fine pitch bonding technology accelerates CSR's Bluetooth™ developments

Technology lowers cost and higher functional integration in CSR's single chip solutions for bluetooth™ applications

TAIPEI, Taiwan, February 22nd, 2002 - Advanced Semiconductor Engineering Incorporated (ASE, TAIEX: 2311, NYSE: ASX), one of the world's largest semiconductor packaging and testing companies, is utilizing its fine pitch bonding (FPB) technology to drive down cost and increase functionality of Bluetooth™ integrated chips.

Bluetooth is fast becoming the standard for personal area networking due to its extreme versatility and low cost potential. In the early days, only passive components were integrated into the chips. Bluetooth companies now add many more applications into a single piece of silicon and focus on integrating all of the baseband, microprocessor, memory and RF circuits. Packaging plays an increasingly crucial role to help Bluetooth chip developers make the most of this higher level of integration by providing the lowest possible form factor and excellent RF connectivity characteristics to maintain the performance of the chip.

ASE also announced that it has been working with CSR (Cambridge Silicon Radio, headquartered in Cambridge, UK), to build its powerful, next generation Bluetooth chip with a single-chip implementation of the baseband, microcontroller, memory and radio.

The ASE facility in Chung Li, Taiwan is providing CSR, turnkey packaging and test services including the application of FPB. ASE's advanced FPB packaging technology features smaller solder balls and a finer pitch than conventional BGA (ball-grid array) solutions, allowing CSR to achieve the industries' lowest form factor for Bluetooth baseband, RF (radio frequency), microcontroller and memory units. Furthermore, ASE's VFBGA (very thin, fine-pitch ball-grid array) provides more I/O connections without increasing the size of the chip which leads to substantially increased product stability and performance.

"CSR's BlueCore family is the leading choice among Bluetooth product developers because it is a highly integrated, high performance single chip solution at a low cost," said S. S. Lee, President of ASE Chung Li. "Working with CSR enables us to contribute significantly, with our packaging and testing capabilities, in the development of CSR's Bluetooth systems."

"CSR's aggressive BlueCore development program is dramatically shrinking the size of Bluetooth systems, reaffirming our commitment to leading the industry with the lowest cost and most complete Bluetooth

solutions available," said Chris Ladas, Vice President of Operations, CSR. "ASE's low cost, high quality packaging and test solutions will aid in slashing costs to make the \$5 goal for Bluetooth a reality."

ASE's Chung Li Industrial Intelligent Park, established in December 2000, will house assembly, materials, test and EMS capabilities under one roof. In the near future, it will also establish the Advanced Packaging Research and Development Center to pioneer high performance, cost-effective technologies to support customers in achieving new heights in product development.

About ASE Inc.

ASE Inc. (TAIEX: 2311, NYSE: ASX) is one of the world's largest independent providers of semiconductor packaging services and, together with its subsidiary ASE Test Limited (Nasdaq:ASTSF), the world's largest independent providers of semiconductor testing services, including front-end engineering testing, wafer probing and final testing services. The Company's international customer base of more than 200 blue-chip customers includes such leading names as Advanced Micro Devices, Inc., Altera Corporation, Cirrus Logic Inc., Conexant Systems, Inc., LSI Logic Corporation, and Qualcomm Inc. With advanced-process technological capabilities and a global presence spanning Taiwan, Korea, Hong Kong, Singapore, Malaysia and the United States, ASE Inc. has established a reputation for reliable, high quality products and services. For more information, visit the website, <http://www.aseglobal.com>

About CSR

CSR (Cambridge Silicon Radio) specialises in providing single-chip radio devices to the global market for short-range wireless communications, including Bluetooth™. The company's mission is to create the most highly integrated radio devices available, fabricated using standard CMOS technology, to provide its customers with the lowest cost of ownership of high quality digital radio.

CSR was the first company in the world to offer a true single-chip Bluetooth solution with BlueCore, a fully integrated 2.4 GHz radio, baseband and microcontroller. In Q3 2001 CSR released BlueCore2, its second generation family, and offer developed hardware/software bundles for each of the fastest growing Bluetooth applications markets. Users can combine the chips with the CSR Bluetooth software stack to provide a fully compliant solution for data and voice communications or, used with an upper layer host software stack, CSR is able to offer a complete Bluetooth end-to-end solution.

CSR has a growing list of major international companies including Sony, Compaq, IBM, Fujitsu, LG, ALPS, TDK, 3Com, Mitsumi, Siemens and Motorola, who have already used CSR's BlueCore in the development of a range of Bluetooth products. In fact, up to the end of 2001, 70% of available pre-qualified modules, as listed on the qualified products page of the Bluetooth Special Interest Group (SIG) web site, feature BlueCore01 and it is in 60% of all qualified Bluetooth v 1.1 enabled end product designs.

CSR is headquartered in Cambridge, UK, with offices in Richardson, Texas; Tokyo, Japan; Singapore and Aalborg, Denmark.

More information about CSR can be found on the web site at www.csr.com ###

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