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# ASE Unveils New Chip Manufacturing Technologies

*Leading the market in the production of TCP and High Lead Bumping*

Taiwan, Feb. 22, 2001 - Advanced Semiconductor Engineering (ASE, TAIEX:2311, NYSE:ASX ), one of the world's largest semiconductor packaging and testing companies, unveiled today the availability of two new chip manufacturing technologies: Tape Carrier Package (TCP) and High Lead Bumping.

Commenting on these new technologies, J.J. Lee, vice-president of Research & Development at ASE said: "Over the past few years, as the demand for higher interconnection density and more automated production increased, TCP technology has become more widespread, and is no longer the sole dominion of IDMs. Through partnership with ASE, we are confident that any company that requires TCP can benefit from this technology. As the LCD market continues its exponential growth, it will require ever-higher picture quality (resolution) and extremely low profile IC packages. We are confident that TCP, which has the advantage of high-density interconnects as well as significant miniaturization potential, will become the package method of choice in the market."

TCP packaging is fast becoming the mainstream for today's LCD driver chips, and ASE's introduction of this technique aims to enable the company to satisfy not only the rapidly rising demand for these chips, but also for other chips that require a small form factor and high-density interconnects. Throughout the entire process of TCP manufacturing - from the design and production of the tape, through bumping, and finally bonding - ASE is able to offer the most comprehensive high-quality service. Additionally, ASE utilizes Inner Lead Bonding (ILB) to make the TAB (Tape Automated Bonding) connection to the bumps on the die (chip core).

"Based on LCD industry figures, in 2000, Taiwan's LCD market increased by 130% to NT$1.3 billion, and it is estimated that by 2003 at least 50% of all computers available globally will be notebooks. We believe this is the opportune time to begin offering this product line, and be able to ride the wave of the LCD market growth," says Mr Lee. He added:"We estimate that our TCP production capacity may expand to a million units per month in the first quarter of this year. In terms of technology, ASE can already position up to 480 interconnects on the smallest 50-micron LCD driver chips."

The main advantages of the TCP format are a decreased lead pitch that allows more connections, and improved thermal electrical and mechanical performance. Due to this, LCD driver ICs and chips for notebook computers, mobile DVD players, digital cameras, and hand-held computers are the natural markets for TCP technology.

High Lead Bumping is another example of ASE's cutting-edge technological expertise in flip-chip bumping technologies. During the first quarter, ASE expects that the production capacity will reach approximately 1 million chips per month. This high production utilizing high lead bumping technology confirms the leading position of ASE as the technological leader. High Lead Bumping provides a solution to the problem of instability with decreasing bump size. At the same time, due to its higher melting point and mechanical strength, it is extremely suitable for flip-chip ICs used in calculation-intensive applications.

"In the first quarter of this year, we have already begun to offer this service to customers, and we are pleased to inform customers that it is currently being utilized in both 6-inch and 8-inch wafer production. A production capacity of 3,000 wafers per month can already be offered. We are proud to be currently the only manufacturer in the market offering this high performance flip chip technology,"concluded Mr Lee.

**About the ASE Group**

*Advanced Semiconductor Engineering Group (ASE Group) is one of the world's leading providers of semiconductor manufacturing services. ASE's focus is on helping customers achieve the greatest possible success by leveraging the most advanced technology, top-notch service, and flexible capacity allocation that it can provide. From wafer probing through to packaging and final test, ASE provides a full, high-quality IC packaging and testing service. Complementing this, Universal Scientific Industries Company Ltd, an ASE Group member, offers a total electronic manufacturing service (EMS). More information about ASE Group and individual member companies is available at www.aseglobal.com.*