TSMC 28nm Technology in Volume Production

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HSINCHU, Taiwan, Oct. 24, 2011 /PRNewswire/ -- TSMC (TWSE: 2330, NYSE: **TSM**) today announced that its 28nm process is in volume production and production wafers have been shipped to customers. TSMC leads the foundry segment to achieve volume production at 28nm node.

TSMC's 28nm process offering includes 28nm High Performance (28HP), 28nm High Performance Low Power (28HPL), 28nm Low Power (28LP), and 28nm High Performance Mobile Computing (28HPM). Among these technology offerings, 28HP, 28HPL and 28LP are all in volume production and 28HPM will be ready for production by the end of this year. The production-version design collateral of 28HPM has been distributed to most mobile computing customers for their product-design use.

The number of customer 28nm production tape outs has more than doubled as compared with that of 40nm. At 28nm, there are currently more than 80 customer product tape-outs. The TSMC 28nm process has surpassed the previous generation's production ramps and product yield at the same point in time due to closer and earlier collaboration with customers. TSMC's 28nm design ecosystem is available through its Open Innovation Platform®, with qualified EDA design tools and third-party IP ready for customer designs.

"Building on TSMC and Altera's 18 years of established technology partnership, TSMC's comprehensive 28nm process offerings and Altera's leading-edge FPGA technology complement each other perfectly, enabling us to uniquely tailor our 28nm product portfolio to best meet our customers' diverse design requirements," said Vince Hu, Vice President of Product and Corporate Marketing at Altera Corporation. "In

our 28nm generation, TSMC's 28LP process fits the requirement of Cyclone V and Arria V families with the lowest power and costs, and we have utilized the 28HP process for the industry's first delivered high-end 28nm FPGA, Stratix V with the highest performance and the lowest power in high-performance systems."

"We applaud TSMC's success bringing a robust 28nm process to market, and we look forward to leveraging the benefits of this new process when we ship our next-generation discrete graphics products," said Matt Skynner, Corporate Vice President and General Manager, GPU Division, AMD. "The combination of AMD's industry-leading graphics IP and TSMC's manufacturing prowess will enable the next big leap in graphics performance with the parallel compute horsepower and power efficiency designed to meet the needs of even the most demanding gamer."

"NVIDIA and TSMC have a history of delivering the most complex GPU architectures on state-of-the-art process nodes. This partnership has been among the industry's most prolific, resulting in more than one billion GPUs shipped. Our close collaboration in developing 28nm processors will once again deliver the most energy-efficient GPUs and highest-performance graphics processors on the market," said Jeff Fisher, Senior Vice President, GeForce Business Unit, NVIDIA.

"Qualcomm and TSMC have a long history of collaboration to bring to market the latest in mobile semiconductor technology on the most advanced silicon manufacturing processes, and we are excited to be introducing the first integrated smartphone processors at the 28nm node," said Jim Clifford, senior vice president and general manager of operations at Qualcomm. "Most recently, Qualcomm's work with TSMC yielded our Snapdragon™ S4 class of processors, including the Snapdragon S4 MSM8960™, a highly-integrated, dual-core SoC designed to reduce power in cutting-edge smartphones and tablets. The Snapdragon S4 class of processors are manufactured in TSMC's highly sophisticated 28LP process, enabling Qualcomm to deliver the breakthrough combination of high performance and ultra low power to mobile devices."

"Building our 7 Series FPGA and processing families on the 28nm HPL process in collaboration with TSMC is enabling Xilinx to lower static power by 50% while also increasing both raw performance and usable performance ," said Vincent Tong, Senior Vice President, Worldwide Quality and New Product Introductions at Xilinx. "Xilinx has delivered several industry-firsts to our customers, including the first 28nm FPGA to begin shipments and the industry's highest capacity FPGAs with the lowest power. To date, we've passed preliminary product qualification, our yields are on track and we've shipped 7 Series FPGAs to customers months ahead of our competition thanks to TSMC's 28nm HPL process."

"Being the first to 28nm volume production demonstrates TSMC's leadership in technology and brings great value to our customers through design wins with competitive products," said Jason Chen, TSMC Senior Vice President, Worldwide Sales and Marketing.

About TSMC

TSMC is the world's largest dedicated semiconductor foundry, providing the industry's leading process technology and the foundry's largest portfolio of process-proven libraries, IPs, design tools and reference flows. The Company's managed capacity in 2010 totaled 11.33 million (8-inch equivalent) wafers, including capacity from Three advanced 12-inch GIGAFAB™ facilities, four eight-inch fabs, one six-inch fab, as well as TSMC's wholly owned subsidiaries, WaferTech and TSMC China, and its joint venture fab, SSMC. TSMC is the first foundry to provide 28nm production capabilities. Its corporate headquarters are in Hsinchu, Taiwan. For more information about TSMC please visit **http://www.tsmc.com**.

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