

## **Highly Manufacturable Sub-100nm DRAM Integrated with Full Functionality**

S. Choi, B.Y. Nam, J.-H. Ku\*, D.C. Kim, S.H. Lee, J.J. Lee, J.W. Lee, J.D. Ryu, S.J. Heo,  
J.K. Cho, S.P. Yoon, C.J. Choi, Y.J. Lee, J.H. Chung, B.H. Kim, M.B. Lee, G.H. Choi,  
Y.S. Kim, K. Fujihara, U.I. Chung, J.T. Moon

Process Development Team, Semiconductor R&D Division, Samsung Electronics Co., Ltd.

\*Advanced Process Development Project, System LSI Business

San #24, Nongseo-Ri, Kiheung-Eup, Yongin-Si, Kyunggi-Do, 449-900, Korea

Phone: 82-2-760-6328, Fax: 82-31-209-6299, e-mail: buckeye@samsung.co.kr

Sub-100nm DRAM is successfully fabricated for the first time with several key technologies, including W/WxN-poly gate, bitline structure having low parasitic capacitance, Ru/Ta<sub>2</sub>O<sub>5</sub>/poly-Si capacitor and advanced CVD-Al contact processes. Fully functional working device is obtained with promising cell performance. Each technology also shows its extendibility as a manufacturable module process for further scaled DRAM.