

# **Ferroelectric Memory Based Secure Dynamically Programmable Gate Array**

Shoichi Masui, Tsuzumi Ninomiya\*, Michiya Oura, Wataru Yokozeki\*,  
Kenji Mukaida\*, and Shoichiro Kawashima

Fujitsu Laboratories Limited

\* Fujitsu Limited

50 Fuchigami, Akiruno, Tokyo 197-0833, JAPAN

Phone: +81-42-532-1422, FAX: +81-42-532-2448, E-mail: masui@fram.ed.fujitsu.co.jp

A nonvolatile ferroelectric SRAM based 8-context dynamically programmable gate array enables low-cost field programmable systems by the elimination of off-chip nonvolatile memories. Read and program procedures of the associated configuration memory are securely protected, so that unauthorized users cannot access to configuration data. The ferroelectric SRAM configuration memory features 2nsec nondestructive read operations along with stable data recall. The logic block circuit is optimized to improve available logic gates for the multi-context scheme.