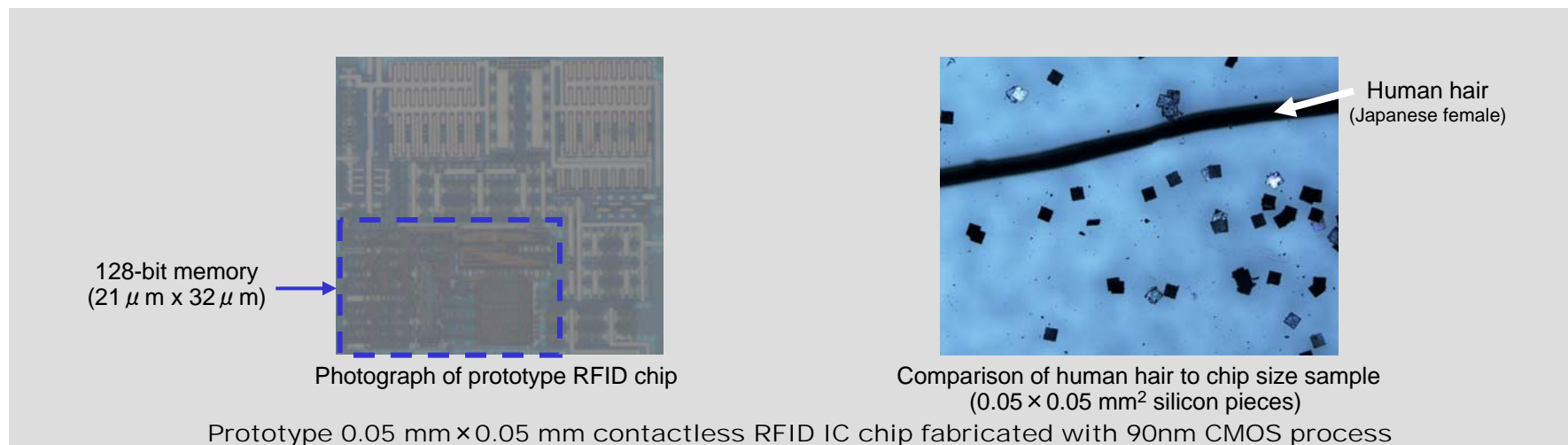


2007/2/13 Release

Operation verified on world's smallest $0.05\text{mm} \times 0.05\text{mm}$ "contactless powder IC chip" - One-ninth the size of previous prototype, enabling insertion in paper -



The Central Research Laboratory (General Manager: Mr. Yasushi FUKUNAGA) of Hitachi, Ltd. has developed and verified operation of a $0.05 \times 0.05\text{mm}^2$, $5\ \mu\text{m}$ thick contactless IC chip (henceforth 0.05mm chip), the smallest and thinnest in-the-world, to date. The 0.05mm chip is a smaller version of the $0.4 \times 0.4\ \text{mm}^2$ "μ-Chip" currently being marketed by Hitachi, maintaining the same level of functionality. The 0.05mm chip was achieved by employing 90nm silicon-on-insulator (SOI) technology and memory technology using electron beam lithography. The surface area of the $0.05\ \text{mm}$ chip is one-ninth the size of the $0.15 \times 0.15\ \text{mm}^2$, $7.5\ \mu\text{m}$ thick contactless IC chip announced by Hitachi in February 2006. The range of applications for contactless IC chips will be further expanded by this drastic decrease in chip size, such as its use in authentication of gift vouchers and stock certificates, and will open the way to new markets for RFID tags.

These results will be presented at the IEEE International Solid-State Circuits Conference (ISSCC 2007), held from 11th - 15th February 2007, in San Francisco, California, U.S.A.

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