

SmartCode Debuts Smallest Chip

The company says its tiny RFID chip will allow it to produce tags for 5 to 10 cents in volumes of 1 billion or more.

Jan. 23, 2004—[SmartCode](#), an RFID systems provider based in Tel Aviv, Israel, says it has created the prototype for an RFID microchip that is 0.25 millimeters square. The smallest microchip currently used in RFID tags on the market is 0.55 millimeters square.

The smaller size of the chip reduces the overall cost of the tag. SmartCode says it will sell Class 1 EPC tags for 5 to 10 cents in volumes of 1 billion or more. Last year, Gillette placed an order for 500 million RFID tags from Alien Technology, a tag and reader supplier in Morgan Hill, Calif. Gillette said it paid "well under 10 cents," which is the lowest price paid for silicon-base RFID tags to date.

The new chip, which will go into commercial production in the fourth quarter, is manufactured using standard CMOS (complementary metal-oxide semiconductor) technology, a common, cost-effective way to manufacture chips. SmartCode has been working with a silicon fabrication company to create the chip, but Roy Apple, SmartCode's VP of business development, declined to identify the company for competitive reasons.

The chip operates in the UHF spectrum (902-928 MHz). Apple says it delivers a read rate and read range comparable to that of other UHF tags on the market (15 to 20 feet). SmartCode plans to assemble tags with a high-speed tag assembly machine—dubbed FAST, for Flexible Area Synchronized Transfer—that it says can produce 10 billion units per year (see [SmartCode Readies RFID Production](#)).

SmartCode is a member of [EPCglobal](#), the organization that is commercializing EPC technology. The new chip is based on EPCglobal's specification for the Class 1 EPC tag. Apple says SmartCode will support Class 1, Gen 2, once the specification for the new protocol is finalized by EPCglobal.

"Our announcement of the new EPC RFID chip, side by side with our FAST mass-production manufacturing lines, perfectly fits with our strategy to provide suppliers of Wal-Mart, the DOD, Tesco and the Metro Group with the best available RFID solutions," says Apple.

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