

Sematech Subsidiary ATDF to Develop Metal Source Drain Transistor for Acorn Technologies

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ATDF, a leading technology R&D center for the semiconductor industry, has been selected by Acorn Technologies, Inc., to fabricate its proprietary, patented metal insulator source/drain transistor technology, called XMOS, for advanced integrated circuits (ICs). These transistors replace the traditional doped silicon junctions with passivated metal-silicon interfaces (Schottky junctions). Such transistors have the potential to scale to much smaller dimensions, with higher performance, improved yield, faster switching and lower power dissipation.

Acorn Technologies is a privately held R&D intellectual capital management company based in Los Angeles, CA. Under a recently signed agreement, ATDF will fabricate prototype field-effect transistors (FETs) using Acorn's XMOS technology in place of source/drain diffused junctions. A significant advantage of these devices is their potential to scale to very small feature sizes, enabling the continuation of Moore's law well beyond the limitations of conventional doping techniques.

“Acorn has been developing this technology for some time in-house. When it became time to fabricate our device using the most advanced processing capability we looked at several processing facilities in the industry. We chose ATDF because of their speed of execution and ability to fabricate advanced technology,” said Tom Horgan, Acorn's chief executive officer.

For Acorn, the advantage of working with ATDF is that it operates an advanced industrial quality fab capable of producing semiconductor chips that meet the SIA 65 nanometer node and smaller. It is used by SEMATECH's members and other companies to develop new state-of-the-art semiconductor devices and chips.

Using full-flow transistor processing, ATDF engineers and technicians will work toward fabricating the Acorn devices through a series of graduated milestones. The project will take approximately seven months to develop new process technology and device integration to realize functioning XMOS transistors.

“We're looking forward to this project as a demonstration of our company's role as a catalyst for commercialization,” said Juergen Woehl, ATDF general manager. “This is exactly the kind of work that we do best, advanced processing with leading-edge tools in a compressed timeline.”

[Acorn Technologies, Inc.](#)

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