When integrated with Duke's real-time 3-D ultrasound system, RTI's catheter will enable cardiac surgeons to visualize vulnerable plaque before the catheter disturbs it. This will greatly improve ablation therapies, for example, to remove plaque. The forward-looking ultrasound catheter may also improve image guidance and postoperative evaluation for cardiac stent placement procedures and other minimally invasive surgeries.

To ensure that the resulting technology will be suited for real-world application in exploratory and diagnostic procedures, RTI researchers have begun consulting with cardiovascular, urological, and other surgeons from several hospitals.

"Our goal is to develop a miniaturized catheter that performs better—and can be manufactured more cheaply—than current technology," said Dausch.

Innovations in Microsystem Integration Lead to a New Company

In June 2008, RTI launched its third spin-off company in eight years. The newly formed siXis, Inc., will commercialize an RTI technology that promises to increase processing performance while reducing the size of circuits, decreasing power requirements, and improving reliability.

This new circuit board technology integrates packaged and unpackaged semiconductor devices on a large-area silicon substrate with through-silicon vias, which are vertical electrical connections that pass through the silicon wafer.

Previously, silicon circuit boards were limited to approximately 1 square inch and demonstrated reliability problems at larger sizes. The siXis technology is expected to enable production of silicon circuit boards as large as 24 square inches and paves the way to replace traditional fiberglass printed circuit boards in high-performance applications.

Led by President and CEO John Goehrke and financed by RTI and venture capital firm Intersouth Partners, siXis will initially apply the technology to the reconfigurable computing market, in which high performance, low power, and small size are critical.

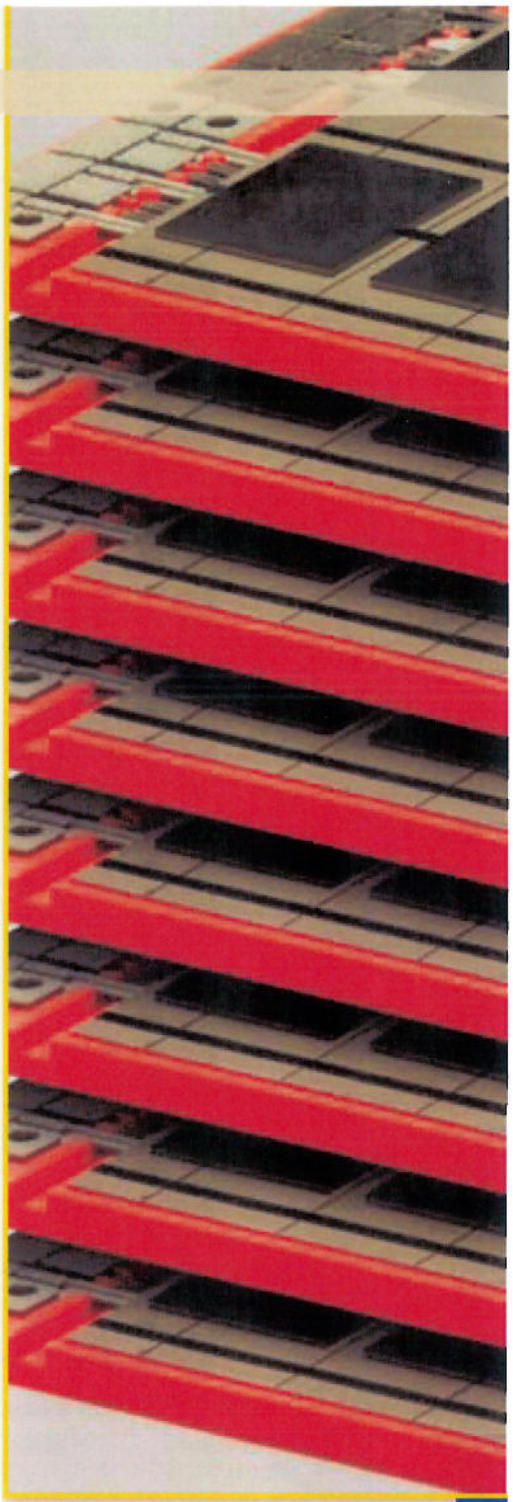
"Industry demands for smaller, faster, and more energy-efficient electronics create some very exciting possibilities for this new technology," Goehrke said. "With important development work at RTI behind us and the support of strong financial partners, we look forward to growing the company."

The spin-off of siXis leverages nearly 10 years of research and development in 3-D microsystem integration by members of RTI's Center for Materials and Electronic Technologies.

"This represents the product of many advances in microsystem integration that began in the early 2000s," said Dave Myers, PhD, RTI vice president of engineering and technology, "when these researchers were among the first in the U.S. to demonstrate 'through-silicon via' and 'through-silicon interconnect' technologies."

In fact, siXis became a key client of RTI's overnight, as our materials and electronics researchers continue to work with siXis engineers to develop their core technology.

In addition, the underlying R&D program that was the springboard for siXis continues to attract many externally funded projects to RTI, including a recent multimillion dollar award from the Defense Advanced Research Projects Agency for further advancement of our 3-D integration technology.



Our latest spin-off, siXis, Inc., will commercialize an RTI technology that allows circuits to be densely packaged into a silicon substrate, greatly increasing microprocessing efficiency.