

Industry Cluster:

# Semiconductors



In Richardson, the semiconductor cluster is built around two large semiconductor industry leaders: Texas Instruments (400 employees and 1,100,000 SF ) and TriQuint Semiconductor (800 employees and 550,000 SF ). There are two additional boutique fabs: Honeywell (200 employees and 140,000 SF ) and VLSIP (100 employees and 75,000 SF ). Also of note are 4 significant Texas Instruments fabs located on Richardson's southern border, namely DFAB, DMOS 5 North, DMOS 5 South and DMOS 6 comprising approximately 3 million square feet. Because of this intense concentration of semiconductor operations, there are over 50 service and equipment suppliers, design, fabless, and R&D companies in Richardson serving the semiconductor industry.

## **Texas Instruments (TI)**

Richardson began to grow in the 1950's because Texas Instruments sited its corporate headquarters on the city's southern border. Over the years, Texas Instruments has brought thousands of engineers and technical specialists to Richardson. TI's growth into a global industry leader was also the catalyst for a strong support network of semiconductor services and suppliers that developed in and around Richardson. That supplier network now totals more than 50 Richardson companies, and has been a key component of Richardson's growth as a high tech center in North Texas.

In 2003, despite the trend of taking U.S. manufacturing off shore, TI took a bold step and chose Richardson as the site for "RFAB", a 1.1 million square-foot, 300mm world-class semiconductor manufacturing facility. TI completed RFAB in 2006, and by 2009, with state of the art equipment, the company commenced production of analog semiconductor wafers. At full capacity, RFAB will employ about 1,000 workers.

## **TriQuint Semiconductor**

Richardson's other major semiconductor operation is TriQuint Semiconductor, an Oregon-based chip manufacturer with a 550,000 square-foot facility next door to RFAB. TriQuint produces 100mm gallium arsenide (GaAs) and gallium nitride (GaN) chips. It also has 150mm bulk acoustic wave fab operations. Major customers are mobile communication device companies and the military.

In October 2010, TriQuint announced an investment of more than \$100 million at its Richardson plant over the next five years. It currently is expanding its GaAs chip production from four-inch wafers to six-inch wafers. TriQuint employs 750 people.

"Texas Instruments is one of the few semiconductor companies able to leverage the significant advantages that come with closely linking our chip design activity with manufacturing and process technology development. Our commitment to move forward with the fab in Richardson attests to that strength of TI and our customers as we focus on the communication and entertainment-centric chip products driving the modern electronics era."

-Rich Templeton, President and CEO, Texas Instruments

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**TriQuint**   
**SEMICONDUCTOR**

 **TEXAS  
INSTRUMENTS**

To support microelectronics, semiconductor and materials science technologies, Richardson has developed a world-renown and exceptionally skilled workforce in partnership with The University of Texas at Dallas (UT Dallas). UT Dallas began in the 1960's as a graduate engineering school founded by the leaders of Texas Instruments. Today, it has more than 21,000 students. Almost 20% are enrolled in the school of engineering and computer sciences, which graduates 700+ BS, MS, and Ph.D. students annually. Ranked 3<sup>rd</sup> among public universities in Texas, the core competencies at the Erik Jonsson School of Engineering and Computer Science are:

- Computer systems
- Optics, electro-optics and photonics
- Control systems
- Digital circuits and systems
- Software engineering
- Microelectronics, MEMS and NEMS

Texas Instruments chose to donate a key portion of the incentive package for RFAB from the State of Texas and UT System to support UT Dallas' goal of becoming the first Tier-1 research university in the D-FW area. Funds have been used to hire highly qualified faculty and researchers, and to build a 192,000-square-foot Natural Science and Engineering Research facility.

Richland College and Collin College also offer semiconductor manufacturing technology programs. Richland is in the Dallas County Community College District, and Collin College services Collin County.

**Other Richardson semiconductor-related manufacturers, product and process developers:**

Analog Devices  
Automated Circuit Design  
Cambridge Silicon Radio (CSR)  
Freescale  
Honeywell  
Intelligent Epitaxy  
Rudolf Technologies  
TGM Inc.  
Trilogy Circuits  
Triune Systems  
Tronics MEMS  
VLSIP

**Semiconductor equipment and supplier companies with offices in Richardson:**

Agilent Technologies  
AirLiquide  
Altera  
Applied Materials  
ASML  
Avnet  
Axcelis  
DFW Test Inc.  
International Rectifier  
KLA-Tencor  
Lam Research  
LSA Cleanpart  
LTX/Cadence  
Micrel  
MKS Instruments  
Novellus  
NTK Technologies  
PDF Solutions  
Quickfilter Technologies  
Unique Technologies  
V-Tech  
Yarborough Southwest