



A TECHNICAL BUSINESS NETWORK EXECUTIVE REPORT
FABRICATING A NEW ECOLOGY FOR CENTRAL TEXAS

SUMMARY OF THE SEMICONDUCTOR INDUSTRY FORUM CONFERENCE

MARCH 2001

FABRICATING A NEW ECOLOGY FOR CENTRAL TEXAS

by Emily Sopensky, The Iris Company

Chip sales grew 32% in 2000. Some predict twice that growth rate by 2004. - SIA

How to capitalize on existing momentum in the semiconductor industry so that it benefits the Central Texas region is the subject of this report and the conference hosted by the Technical Business Network and the Fabless Semiconductor Association in March 2001. The event held in Austin featured national and local leaders in the semiconductor industry, funding sources and businesses.



Overview

In the semiconductor industry, Austin and Dallas are clearly on the map. Both Texas cities are major producers of semiconductor products. Dallas is headquarters to a giant in the industry, Texas Instruments. While Austin boasts the headquarters for Motorola's Semiconductor division, the birthplace for AMD's successful Athlon chip, and home to IBM's Power family of chips. Samsung provides a strong international influence producing dynamic memory. Intel and Sun Microsystems have been expanding their presence, especially in design capacity.

Notwithstanding these mainstays and the significant presence of others in Austin, the city also boasts a sizeable cadre of entrepreneurial talent and investment dollars that are being devoted to semiconductor-related activities, including fabless houses such as Legerity and Banderacom.

Similarly, Dallas and Austin provide a healthy environment for the semiconductor support and services industry, with companies like Bridgepoint Technical Manufacturing and High Desert Executive Search.

The Central Texas region is experiencing strong growth in not only semiconductor production, but also design and manufacturing capabilities. Talent that might have migrated to Silicon Valley for more challenge and pay is finding opportunity and a better lifestyle in Central Texas. This trend is not restricted to mid-level employees either: AMD's CEO keeps his residence in Austin, despite the company's headquarters being located in California.

¹Source: Angelou Economics

Compared to Silicon Valley, the granddaddy of chip-centric locations in the U.S., which has 444 chip manufacturing establishments, Austin has a much smaller presence with only 57¹. In comparison, Phoenix (AZ), which has 73 establishments, and double Austin's population, has a reduced concentration of semiconductor interest per capita. Also, Phoenix's chip culture is heavily dominated by one company, Motorola, which compares with relative diversity found in Austin.

Consequently, Austin has a higher location quotient than Phoenix, and roughly one-half the quotient of San Jose's number one ranking¹.

The rise of the semiconductor industry in Austin is reflected by the announcements coming from the largest semiconductor manufacturers as well as from the growth in fabless semiconductor firms in the area. Listing just a few of these plans, economist Angelos Angelou notes the following:

- It is highly likely that AMD's 300-mm, \$3-billion project will find a home in Central Texas.
- Tokyo Electron is in the process of expanding its Austin presence significantly. Competitor Applied Materials has plans for expansion.
- Sun Microsystems says its numbers for Austin will be much higher.
- IBM recently announced a significant agreement with Sony to jointly design a chip in Austin.
- Homegrown Silicon Labs, a mixed signal fabless manufacturer that had an excellent IPO in 2000 raising \$865 million, is also expanding and diversifying.

Much of the industry's growth in 1999 and 2000 in Austin was due to investments in startups and spinoffs. To name a few: Alchemy Semiconductor, Banderacom, Bandspeed Inc., Chicory Systems, Inc., Cicada Semiconductor, Cygnal Integrated, Cynergy System Design, Extreme Devices, Interactive Silicon, Layer N Networks, Legerity, Radiant Photonics, Seagull Semiconductor (now OmniBand), SigmaTel Inc., Silicon Labs, and Silicon Metrics.

Both Dallas and Austin are favorable places for investments, according to VentureWire, a recognized source for reports on private companies investments in technology.

Both Austin (11th) and Dallas (8th) are listed in the VentureWire Top 20 Metro Areas 2001. As the highest ranking city in Texas, Dallas firms received \$3.14 billion in 212 investments, and Austin received \$1.6 billion in 130 investments during the period between February 2000 and February 2001.

Conference Agenda

Led by Technical Business Network's president Sonia St. James with help from the Fabless Semiconductor Association, a unique and informed group of experts was gathered for the conference.



Sonia St. James with keynote speakers and moderator

Moderated by Joe Jones, CEO, Bridgepoint Technical Manufacturing, the conference comprised two keynotes and two panels:

- Jon Joseph, senior analyst with Salomon Smith Barney, gave a national overview of the industry.
- Angelos Angelou, Angelou Economics Advisors, provided an industry view of Central Texas.
- The Critical Success Factors in Today's Market: Exploring New Opportunities for Networking panel was moderated by Joe Jones.
- Stephen Straus, Executive Partner, Austin Ventures
- Mike Midgley, Dean of Advanced Technology, Austin Community College
- Tom Felger, Partner, Baker Botts LLP
- Ron Van Dell, CEO, Legerity
- Craig Ensley, VP of Corporate Marketing, Cirrus Logic
- Randy Smith, VP of Marketing and Sales, TriMedia
- The Collaborating to Compete - Working More Effectively and Efficiently with Semiconductor Partners in Texas panel was moderated by Vinay Asgekar, Research Director, Semiconductor & Hi Tech, AMR Research.
- Ron Waters, Foundry Operations Manager, Motorola
- Clay Miller, Director of IT, Chartered Semiconductor Manufacturing
- Tom Selgas, Co-Founder and VP of Marketing, ChipData

- Bernard Natali, VP of Supply Chain Management, Amkor Technology
- Eric Broockman, President and CEO, Alchemy Semiconductor
- Bill Graham, VP of External Operations, Cirrus Logic



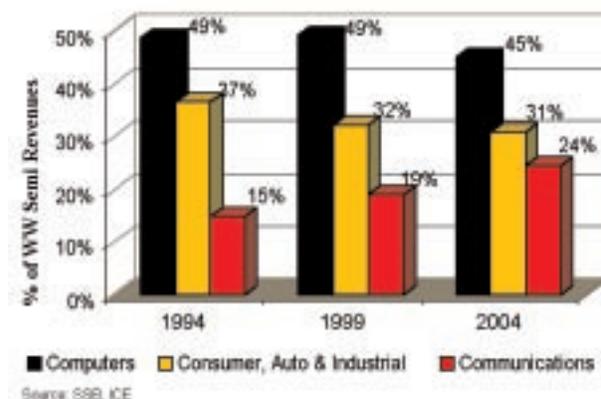
Joe Jones, moderator

Keynote Briefs

Bowing to the significant economic downturn in 1Q2001, senior analyst Jon Joseph of Salomon Smith Barney, provided Central Texas business leaders with an acknowledgment that the speculative bubble has burst. He pegged the early signs to the first quarter of 2000 - not 2001. "The semiconductor industry cannot avoid being in a steep decline until August of this year because it cannot accelerate until inventory is down."

He advises: Look for the fundamentals to trough. Compared to other countries with concentrated interests in the semiconductor industry, Americans have an ability to remake themselves; thus, readjustments are quicker and surer, he said.

The growth in the worldwide industry over the last 15 years has been due primarily to the extraordinary growth in the PC market. PC sales have more than doubled in the last five years to \$135 billion². As PC sales slow, analysts like Joseph see some of the slack-if not all - being picked up by the increased demands the industries supporting communications.



Though forthcoming activities may be tempered somewhat by the current economic climate, most will proceed as planned in order to stay competitive. For example, Intel is continuing with its major expansion in Portland and AMD still seeks to build its 300-mm fab.

Joseph notes: "The semiconductor industry runs in its own cycles. You can have a recession in semiconductors and not in the rest of the economy."

Riding the Wave

Analyst Jon Joseph in his keynote and later venture capitalist Stephen Straus of Austin Ventures on the first panel both demonstrated obliquely that analysts and venture capitalists have a symbiotic relationship, where one is often thinking what the other is saying or completing the other's sentences, and so forth.

Case in point, Joseph's presentation was entitled *Cycle Surfing: Riding the Semiconductor Wave*. Straus, too, referenced the unique cyclical nature of the semiconductor industry, when he said, "Semiconductors will happen regardless of the [economic] trend. The industry is like the ocean with big waves and swells on the top." In short, the shear size and bulk of the ocean is impervious to the peaks and valleys of the waves, no matter how stormy the sea is.

Continuing the metaphor, certainly those reassurances do not infer that sailing is smooth for the next few quarters.

Joseph points out that capacity is being reduced - the result of excess orders of the last two years. "We were so far ahead of shipments in 200 that we were bound to build up excess capacity and get into trouble." Order growth rate was over 200% per year, yet capital only grows 50% per year. With inventories being worked down, prices are beginning to weaken.

Themes

According to Joseph, the most interesting sector for the next three to five years is communication components. There is a high penetration of these in Sweden but low in China, India, and Africa. As technology and infrastructure continue to support more and more mobility, PDAs will become the cell phone and cell phones will be PDAs. Joseph predicts that the digital consumer will be strong during that same period projected for decline in the PC and increase in communications growth rates.

Critical Success Factors Mirrored in Regional Growth

The huge growth in the area's population has fueled a similar growth in the Austin Community College, according to Advanced Technology Dean Mike Midgley. More than 47,000 students are enrolled annually at ACC, and another 15,000 take continuing education courses.

In response to the strong technology industrial base in Austin, ACC excels in supplying graduates to technology employers in Central Texas. With an accompanying demand especially for technicians, ACC's Semiconductor Manufacturing Technology program is as important to the Central Texas semiconductor community as it is to those looking for long-term gainful employment.

Stephen Straus, a general partner with Austin Ventures, a sizeable venture capital firm in Southwest U.S., underscored the need for keeping the pipeline full of talent because that is ultimately what attracts employers. "The semiconductor industry will happen regardless," he reassured.

Besides having a readily available talent pool on which to draw, another very critical factor to support growth in the region of the semiconductor industry is the knowledge pool. Tom Felger, a partner with Baker Botts LLP, specializes in intellectual property. He observes that the industry has fairly high capital-intensive requirements, which can be an obstacle to entering the market. But by gaining experience in the industry first, entrepreneurs-to-be can gain the know-how and contacts that are necessary for success. Spending some time in the bigger companies first is excellent schooling, he implies.

Craig Ensley, VP of Corporate Marketing, Cirrus Logic highlighted factors that make the Central Texas area attractive to the semiconductor industry. Explaining why his company recently moved its headquarters from Silicon Valley to Austin, Ensley said it boiled down to "workforce talent in the area as well as the attractiveness of the community."

To focus on their core strategies and strengths, companies like TI and AMD have been selling and spinning out technologies that do not fit their current business plans. Legerity is a company that was formed last year to receive AMD's mass of communication products. Pointing out that Legerity is already profitable, CEO Ron Van Dell, confirmed that focus combined with a solid management team is a key factor in the success of a semiconductor manufacturer in today's markets.

While acknowledging that Austin is still in a better place than San Jose, he did express concern that the train wreck waiting to happen in two to three years is the Austin infrastructure. It just can't support the growth expected by then.

Acknowledging that the infrastructure may be a problem a few years down the road, Randy Smith, VP of Marketing and Sales for California-based TriMedia, said they were attracted to Austin primarily because of the existing

talent pool. In addition, he said, "You don't have as many physical boundaries like the mountain ranges we have in Silicon Valley that confines us and complicates growth."

Manufacturers and Suppliers Collaborate

Managing the supply chain, especially in technology manufacturing, has always been a highly intricate and demanding process. To increase profitability and decrease expenses, manufacturers continually look for economies. Moderated by Vinay Asgekar, Research Director, Semiconductor & Hi Tech, AMR Research, the panelists on the supply chain panel reached the same conclusions.

In his initial presentation, Asgekar is seeing trends in reducing time to volume. Just as important, he notes is the zeal in pursuing manufacturing cost containment as well the trend to outsource as much as possible.

With the increase in complexity and sophistication of IC design, it's not surprising that another trend he is finding is an increase in design partnerships and engineering collaborations.

Cirrus Logic, for example, has adopted a quarterly scorecard process that rates price, quality and the value of each supplier.

Each supplier tends to be unique in his own environment, explains Bill Graham, VP External Operations. Cirrus Logic saw no general trends among suppliers when the formal process was instituted, but the average score has increased at least three points (out of a possible 100). Graham believes this is because both supplier and buyer want to find better ways of working together. "Good supply management to us means suppliers who are willing to work with us," he says.

Clay Miller, Chartered Semiconductor Manufacturing director of IT, and Tom Selgas, co-founder and VP of Marketing, ChipData, an electronic design automation software, both agreed that collaboration is more the trend in the manufacturer-supplier relationship.

According to Bernard Natali, VP of Supply Chain Management, Amkor Technology, one trend in supply chain management is to minimize the opportunities to introduce data error. From the point of view of designing, something as innocuous as re-keying a part number for a design can introduce a myriad of errors down the line and create costly inefficiencies such as under- or over-stocking.

Another trend to minimize overhead is to consolidate administration of suppliers. Ron Waters, Foundry Operations Manager for Motorola, explains that his company is in the process of reducing its five subcontract sites for ordering and shipping into one hub site. Their goal is also to establish standards for information exchange among its vendors. Finally, Eric Brockman, President and CEO, Alchemy Semiconductor attested to the fact that many more manufacturers are opening shop because of the ability to rely on foundries, typically found in Taiwan.

The ability to shorten the physical distance between manufacturer, suppliers and the actual factory is something all on the panel would prefer. The fact that the Central Texas region has grown in bulk and sophistication in the semiconductor industry is just now being recognized and appreciated, according to Asgekar.

Another perspective in the trends to improve supply chain management, Jones suggested that this last downturn may have happened so rapidly because the supply chain is so much more efficient. He wondered if the spring back may also occur rapidly.

As a freelance writer and journalist, Emily Sopensky, writes for and about companies in high technology. Considered technically astute and armed with an East Coast MBA, Sopensky focuses on the business implications of technology. Her company, The Iris Company, works with businesses to hone their message and technical communications. You can email her at emily@iriscompany.com.

Conceived by the Technical Business Network
Presented by the Technical Business Network
(www.techbiz.com) in association with the Fabless
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