

Intel's Austin team is working on its next big hit Chip designers not content to rest on Atom's success.

By [Kirk Ladendorf](#)

AMERICAN-STATESMAN STAFF

Monday, March 30, 2009

Intel Corp.'s chip design center in Austin is on a roll these days.

Despite a tough industry downturn, Intel now has more than 900 workers in Austin, more than ever at its 11-year-old design center.

The reason is the Atom family of low-power, low-cost processors, which Austin designers created and which has become a major new product for Intel.

Atom fueled a boomlet in the infant market for netbooks — small, affordable mini-notebook computers — in 2008.

By various estimates, computer makers sold about 20 million netbooks last year, making the segment one of the few bright spots in a weak year for the personal computer industry.

And Atom was inside most of them, including Asustek's pioneering netbook and products made by Hewlett-Packard Co., Dell Inc. and Acer Inc.

Now Intel is pushing hard to extend the Atom technology into new markets, and the Austin team is deeply involved.

Intel last fall showed off early prototypes of a second-generation Atom chip, code-named Lincroft, that shows promise for helping to extend Intel's reach into smart phones and mobile Internet devices, which are small computers that are slightly larger than conventional cell phones but fit into a shirt pocket.

"As far as Intel is concerned, the Austin design center is the prettiest girl at the party," said analyst Will Strauss with Forward Concepts in Tempe, Ariz.

"More people are accessing the Internet from portable devices than from traditional personal computers. The world wants to go portable, and the world wants to go low power consumption. And Intel wants to be there."

Elenora Yoeli, the tough-minded Israeli who leads the Atom design team, said she is proud of the team's accomplishments. But she doesn't want the team to rest on its laurels.

"You have to continue to execute. If you are a star, people expect you to do more things," said Yoeli, who was promoted in 2008 to vice president of Intel's mobility group — more evidence of the Austin team's importance to the company.

Some new Atom-related projects will take place in other cities, but Brad Beavers, Intel's Austin site manager, said the Austin team will remain central to the effort: "The charter for driving new designs remains with Elenora in Austin. That is a statement of what the company thinks about our efficiency."

Lincroft gives a clear indication of where Intel is headed. The new chip will have a built-in graphics processor and memory controller to go with a lower-power Atom processing core.

That should make it well-suited to run multimedia Internet applications without eating up battery power.

Intel won't say how many people worked on the Lincroft project, but outsiders say the effort probably involved a few hundred.

Key players were Rajesh Patel, chief architect; design manager Shantanu Ganguly; and Pankaj Kukkal, the manager of Intel's Austin chip validation lab.

The engineers are enjoying their newfound status as a center of company attention.

"It is pretty exciting," said Patel. "My daughter has a little Atom-based netbook. She took it to her high school, and everybody thought it was cool. It is nice to build products that people think are cool."

Intel's Austin operation does much of the engineering for the company's ultra-mobility group. The company has a variety of Atom-related projects going on in Austin, but some are still under wraps.

The new chip is thought to be the foundation for a recently announced alliance between Intel and South Korea's LG Electronics Inc., one of the world's top cell phone makers, to develop new mobile Internet devices. The first products to come from that partnership are expected to appear next year.

As Intel pushes into markets for new ultra-portable products, analysts say the company will run into tough competition from chipmakers that are veteran suppliers to the cell phone industry.

Qualcomm Inc., Texas Instruments Inc. and Austin-based Freescale Semiconductor Inc. all are expected to introduce promising new chips over the next few months that have enough performance to satisfy users of portable products who want to pull down music, videos and other content from the Internet over a wide variety of wireless networks.

"Qualcomm tells me they have over 30 design wins for their Snapdragon platform," which will directly compete against Atom-based systems, Strauss said.

Intel leads the world in chip manufacturing technology, but software will play a big role in which chip suppliers prevail in the ultra-mobile market.

Intel's chips are all compatible with low-

power versions of Microsoft Corp.'s Windows operating system. Intel also has spent heavily on its own software development so that products that use Linux software with its chips will be able to play most of the multimedia applications on the Web.

Competitors say they are working with fast-moving Linux developers and with Google Inc.'s Android software to deliver a comparable user experience.

Analysts say Intel has to move carefully with its Atom family to avoid cannibalizing the lower end of its business supplying chips for lower-cost notebook computers.

"Atom is an extreme tightrope, because Intel needs to be successful in areas that are outside their core business of computers and push into growing consumer markets," said analyst Cody Acree with Stifel, Nicolaus & Co. in Dallas. "The PC market is very mature. They need to have some success in expanding into new customers. The problem is, if you do that and cannibalize the existing customer base, what does that do to your gross (profit) margins? They are trying to address both issues.

"We don't know yet if they will be successful, but it is definitely something we want to watch."

Courtesy of JB Goodwin