

CORPORATE STRATEGIES

Entrepix: Taking CMP to the Next Level

Chemical mechanical polishing (CMP) process outsourcing and equipment services provider Entrepix (Tempe, AZ) has big plans for 2007, including kitting out its first regional site by the end of this year and going fully 24x7 in January of this year.

Set up in 1998, under the name Total Fab Solutions, the company provides high volume CMP engineering, R&D, and manufacturing—through outsourcing, or by providing customers additional capacity at Entrepix' facilities. The firm also refurbishes CMP and thin-film metrology. "The two are so complementary to one another, because you have to have both process and equipment to run effectively. So they feed off one another and generate large solutions for our customers," Tim Tobin, president and CEO, tells ECHN.

"We have the capability to polish upwards of 3,000 wafers a day," says Bob Tucker, general manager and v.p. "In addition to being able to install more capacity here, we have plans to install capacity in other regions."

Expansion plans for the existing 18,000 sq ft facility include moving to 24x7 production in January and increasing capacity by buying "one or two more" high throughput CMP polishers—each with three times the capacity of old-style polishers — sometime during in 2007. Entrepix also has room to expand its existing 1,700 sq ft of clean room facilities—some areas are class 10, others class 100. "That is a much larger undertaking, but that could be done, depending on the volume that our customers [want]," Tobin says.

Total staff numbers, currently 35, could increase 25%-to-35% through 2007. The company plans to replicate its production facility in regional U.S. sites within two years. Prime locations are areas with high concentrations of semiconductor manufacturers, Tobin says.



R&D Fix: Entrepix offers latest technologies.

"There are two very clear sites right now that are prime for expansion. We are speaking in detail to some of our [biggest] customers," he says.

The first regional site could be announced by mid-2007, with equipment installed by the end of 2007.



Entrepix: Expertise in CMP.

"There are probably a total of four sites in the U.S. that would be appropriate to have a regional site, and then there's a handful of other ones that we could have 'insource' at." Two insourcing deals—where Entrepix installs its own equipment at a customer's facility—could be signed this year. The first may be announced in a couple of months. "We cannot release [a name] until [the customer] makes its product introduction to the market," Tobin says. "I can state that it is non-Arizona based but in the western half of the U.S. Some of [the insource] manufacturers will also allow us to bring in other manufacturer's wafers. So we can service a bigger regional area through an insource that will also become a regional site. In three-to-five years Entrepix hopes to introduce international regional centres or insources.

"The reason that our customers have a strong need for having a CMP outsource partner has to do with how much more CMP has been integrated into their flows every [new] generation of technology," Tucker says. "So as a result the idea of being able to put regional sites and additional capacity in place will very much be driven by our customer's forecasts of what they need."

"By providing [our customers] an extension to their own internal capabilities Entrepix becomes a strategic differentiator to their financial and technological success—that's kind of the vision of where we want to go," Tobin says.

In June 2006 Entrepix launched CMP FastForward a portfolio of CMP processes, foundry services and equipment offerings, ranging from customized development projects to the integration, qualification and ramp-up of a new CMP line.

"CMP FastForward is the concept that combines all of our products and services together," Tobin says. "And what it does is accelerates our customers time to revenue, in addition to the other two primary benefits of reducing customer risk and improving operational

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focus. If you're a year late to market on a product you can lose as much as 90% of the revenue that you can ever generate from that product."

Entrepix can also speed time to revenue for current products—for instance if demand is higher than expected, Tobin says. "It would take six months plus to order additional capacity and to get the line to produce more chips. So we do that for you."

In September 2006 the company announced it had signed CMP Fast Forward volume pricing agreements (VPA) with BASF (Ludwigshafen, Germany), and in December, with an aerospace defence contractor. The VPAs essentially mean Entrepix' resources become an extension of the customer's internal capabilities.

"The customer commits 'x' million dollars over a period of time—typically 12-36 months—and then the customer has the discretion and flexibility to use this 'budget' as needed to support their CMP and metrology requirements," Tobin says. "It can be spent on foundry services for engineering & technology development purposes, volume manufacturing supporting customer's internal equipment needs, etc."

Entrepix' customers include CMP consumables and materials suppliers. Its largest market is to supply integrated device manufacturers (IDMs). "IDMs are the largest growth opportunity for the company," Tobin says. "That's where we start running their production, or we are running their production."

Consumable manufacturers and material suppliers are also important, Tucker says. "We provide them access to state of the art process that they can then develop new technology on. They can produce data sets in our facilities that give them a data package, which allows them to sell their products to the IDMs."

"[This] gives our IDM customers some unique advantages, particularly if they are developing new technology, because our facility gives visibility to all the newest chemistries, both the clean chemistries and the slurries, such that we're really able to see the breadth of all the different products that are coming out and which ones are maybe ideal for certain integrations and opportunities," Tobin says.

The IDMs fall into two categories; those that have CMP; and those new to it. For the latter Tobin says, "it makes sense that we do it all for them, whether they outsource it to a remote facility that's nearby, or we put our equipment into their facility."

Customers with existing facilities either use Entrepix for excess capacity or "the ones that are much more strategic about their business, and have more of an operational financial approach to it they take a slice off the bottom, we are given a very set capacity that they send to us all the time."

"There is different pricing primarily driven by substantially reduced costs with a 'slice off the bottom'. This produces a predictable volume of wafers running through Entrepix polishers, which results in better utilization of equipment, personnel and of the consumable materials, particularly pad cost," Tobin says. "Similarly, longer term contracts of 12-to-36 months are priced more favorably than shorter term ones of 3-to-6 months."

Looking ahead, "CMOS-type device manufacturers will drive part of the company's growth," Tucker says. "Some market segments are growing faster — such as MEMS, and the micromachining of devices—than the

general market. We have MEMS customers when we polish, in their flow, they have up to 8-10 CMP steps to make one device. Those wafers come back to us for each of those polishes," he says.

The company says it expects to continue its steady growth in size in line with demand growth across the market. "We're about 35 people, we have grown every single year, and we've never had a lay off," Tobin says. "We've been cashflow positive and

profitable every year. And we should be in 8-figures plus [dollars] for 2006," Tobin adds.

Part of that confidence is based on the perception that the market will continue to grow in part because the percentage of products using CMP is increasing. Additionally, the number of CMP polishes per product is increasing; as is the number of layers per product; and the number of materials that can be CMP polished. The future for Entrepix looks bright.

■ COMPANY SNAPSHOT

ENTREPIX

Financials:	The company has consistently been cashflow positive and profitable. It forecasts that it will record "8-figures plus [dollars] for 2006."
Key Activities:	The foundry division provides high volume manufacturing through outsourcing or providing additional capacity, and engineering and R&D.
Strengths:	Entrepix claims to be the only CMP foundry in the world. It has more than 300 customers, including 250 foundry customers. Over half of the top-20 device manufacturers worldwide are customers, Entrepix says.
Weaknesses:	Currently, it only has one production site in Arizona, but has plans to open regional sites in the near future.
Outlook:	The company forecasts that the CMP market will continue to grow. In line with the market growth the company says it will increase its current staff of 35 by 25%-35% in 2007.