

## Semiconductor companies move cautiously toward Web-based sales

**Just three years ago,** Intel Corp., Santa Clara, CA, had no online sales. Then it set a target of doing a billion dollars worth of business on its Web site and has never looked back. Once it began to take orders on the site in July 1998, it achieved the billion-dollar goal in six weeks. In 1999, it averaged a billion dollars in sales each month, and it hit \$2 billion per month in 2000. "Today, virtually all our customers are online," says Chris Thomas, Intel's chief e-strategist.

Although some original equipment manufacturers (OEMs)—including Cisco Systems Inc., San Jose, CA, and Dell Computer Corp., Round Rock, TX—have gotten a lot

Hallam, president of Arrow Internet Business Group. "Intel doesn't accept orders except over the Internet."

Intel is ahead of the pack, but many semiconductor companies are moving

sales to the Web will mitigate the historic boom-bust cycle. "It will, however, provide better visibility up and down the supply chain and that will give you better management," he says. Intel is closer to achieving that visibility than most, but getting there isn't easy.

As semiconductor companies move sales to the Web, they wrestle with several issues. Channel conflict is the top challenge for most. Others include attracting product decision makers and buyers to their sites; creating easy-to-navigate content; providing customer service during and after the shopping experience; providing real-time pricing and availability; linking order-entry systems to back-end logistics and fulfillment systems; and tying everything together so the entire system can be better used to manage the supply chain. First a little more detail on some of these issues, then a look at how three chip companies are dealing with them.

### Before, during and after

Just as in consumer e-commerce, chip companies first must get product decision-makers and buyers to visit their Web sites. For chips and other components, the decision-maker is often a design engineer and the buyer a purchasing agent, or the buyer might be a distributor and the decision-maker the distributor's customer.

Intel understands the need to have content and features that keep customers returning to the site, even though with its clout it could simply require customers to move their purchasing to the Web. Most chip companies don't have such a straightforward situation. Their customers have many

# SELLING chips ONLINE

more publicity for using the Web to sell products, Intel has taken online selling further than any other components company and has quietly built an online selling machine.

Arrow Electronics Inc., Melville, NY, does all of its ordering from Intel at the microprocessor manufacturer's Web site. "They have more online orders and sales than anyone else," says Tom

sales to the Web. Cahners In-Stat Group estimates that 39% of all chip sales will be conducted on the Web by 2003 (see graphic, page 94). "In 2000, about \$12.7 billion of semiconductor sales went through e-commerce channels," says Steve Cullen, director of semiconductor research for In-Stat, a unit of Cahners' Business Information, parent company of ELECTRONIC BUSINESS.

Contrary to some predictions, Cullen doesn't believe moving chip

By Bill Roberts



**chip**  
we're always pu  
walking on a high

Chris Thomas,  
Intel's chief e-strategist

channel options, and the only way to attract these people and keep them coming back is to make the Web site indispensable to their jobs.

"Getting them to the Web site is the hard part," says Larry Freed, vice president of professional services at Compuware Corp., Farmington Hills, MI, an IT services consulting firm. "Build it and they will come' doesn't work." He says the reliability and usability of the site are two characteristics that make a difference. "Studies show that up to two-thirds of people leave items in an electronic shopping cart and never complete the deal," he says. "Most of the time, the problem is navigation."

Channel conflict is a big issue, but experts say it's an old excuse. "In 1993, when people told us e-commerce wouldn't work, it was because of potential channel conflict," says Tom Patterson, managing director for e-commerce transactions at KPMG Consulting Inc., McLean, VA. "Eight years later, it's still the No. 1 reason people give." Now, he says, CFOs get involved in the debates and the bottom line often wins. "The CFO can say it's OK to blow up a channel and go to market some other way." In most cases, Patterson advises companies to plot a transition strategy rather than shut down entire channels.

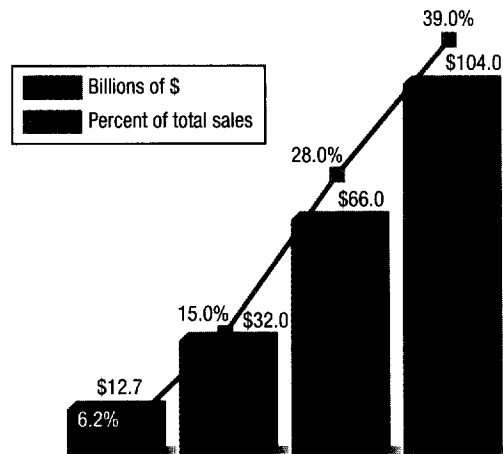
Mark Withington, a market analyst and founder of PLM Research, Plymouth, MA, says the industry is beginning to understand the stakes and to look for ways to resolve channel conflict. "Chip companies recognize if you don't get designed in on the board you will never get the production order. And the distribution channel recognizes that their money is made in the production order." Successful companies will use the Web to influence the decision and aid the selling process, no matter who actually fulfills an order, he believes.

There's wide agreement on one thing: Once the navigation hurdle has been cleared, actually placing an order on the Web is by far the easiest part.

"The sales transaction is a small part of it," says In-Stat's Cullen. "The real issue is to what extent they can further automate the delivery and make it all a seamless Web transaction."

The post-sale phase of selling touches various activities that occur

**ONLINE CHIP SALES TO RISE**  
estimated worldwide sales, 2000-2003



SOURCE: CAHNERS IN-STAT GROUP

after the order is placed, including order tracking and changes, fulfillment, logistics, integration with existing enterprise resource planning (ERP) systems and customer service. As crucial as these activities are to good customer relations, they are usually neglected at first. "Fulfillment tends to be the last piece

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companies think about," says Compuware's Freed.

Freed typically sees companies throw up sites, then figure how to market them, then figure how to take orders and only then realize everything they've done will impact fulfillment and other post-sale activities. This tendency was especially true of pure dot-coms, but

also is the case for most electronics companies. "The only saving grace is that it usually takes time before a site gets a lot of traffic, and companies have time to work out the kinks."

Freed says part of the problem is that e-commerce executives often come from sales and marketing and have no experience in logistics and fulfillment. But customer satisfaction is crucial to any online selling effort, and back-end processes impact customer satisfaction, he says.

**National: Enabling the channel**

When it comes to attracting and keeping visitors, industry observers say National Semiconductor Corp., Santa Clara, has built a Web site others would do well to emulate. The site has become indispensable to thousands of design engineers, and now the company is taking aim at purchasing agents. "National is enabling the channel," says Withington.

National launched an electronic catalog of several thousand entries with a parametric search engine back in 1995, when most chip companies were still figuring out brochureware. The company has consistently added to its site's features and functions. Today, it offers a virtual workbench of tools the designer can use to select parts, run simulations, design boards, and order and pay for prototypes—which are delivered overnight in most cases.

National's executives conservatively estimate the site saves an individual engineer 40 to 60 hours per month. "The productivity gain to these engineers is potentially tens of millions of dollars," says Phil Gibson, vice president of Web business and sales automation. Gibson says the site is extremely important to National's customer relationship strategy. "That's why we created these tools and this community."

The site attracts 750,000 visitors—mainly design engineers—each month. It takes between five and 10 orders a day, mostly for small numbers of prototypes, and can deliver prototypes to 72 countries. National recently extended the ordering capability to purchasing agents who need spot sources of National components. The company only fulfills those orders if it happens to

have them in stock. "If we have the stock and can transact it, then we do," says Gibson. "I'd be delighted if our channel bought it all instead." National does not use the Web for large orders, which are still handled by distributors.

The Web site's emphasis is on helping those distributors. National builds a profile of each design engineer who visits the site. When the engineer does something on the site, it instantaneously notifies National's sales force. Or if the visitor's company has a relationship with a distributor, National notifies the distributor of the event on the site. "The distributor has 10 days to react and close," says Gibson. "If they don't, we open up the information to others in the channel."

So National doesn't sell much product at the site, nor will it soon. But securing design wins by giving engineers indispensable tools is a presale strategy hard to duplicate off the Web. "We call the kind of features National has 'lock-in' features," says KPMG's Patterson. "Engineers will go there because they like those features. Having a good online selling plan includes finding ways to keep customers happy on the Web site and keep them there for the long term."

#### **Analog: Opportunity, not conflict**

Analog Devices Inc., Norwood, MA, didn't jump on the Web as early as National. Since 1999, however, it too has offered virtual tools to help the design engineer find, test and order small lots.

Analog's initial premise was to allow engineers only to order small numbers of parts for design and evaluation. "We started small because we hadn't rationalized in our own mind whether we were creating channel conflict or oppor-

tunity," says Mark Skillings, Analog's director of marketing for semiconductor components. "If we made mistakes, we wanted to keep them small."

Skillings believes the entire industry will move most sales to the Web. "A large percentage of ordering will eventually be done electronically," he predicts. That's not where Analog or others are today, he notes, but over time they will offer customers the opportunity to order as little or as much product online as the customer wishes.

Analog's own research has led it to conclude that many customers would like to place large orders at the Web site. It has increased the size of orders it will take online and installed credit-application and approval processes. Skillings says channel strategies of five or 10 years ago may no longer be relevant, but at the same time, the company doesn't want to create unnecessary conflict. It's a difficult balancing act.

In the past, the manufacturer could segment customers into channels that suited the manufacturer. Skillings says Analog recognizes that the Web changes that: "We're seeing the shift toward a customer-centric strategy, where the channel is the choice of the customer." He says Analog is moving toward the time when it will continue to negotiate major contracts through traditional channels, then allow the orders to be placed on the Web site.

Arrow's Hallam agrees that negotiating contracts through traditional channels will remain necessary, because it'll make Web sales quicker and smoother. "Pricing must be negotiated at the contract level," he says. "There's not time to interrupt order placement and management to say 'how much will you

charge us for this?' That must be agreed [upon] well in advance."

Skillings says Analog is trying to satisfy all constituents: first the customer, then the direct sales and distributor channels. In principle, he says, none of them opposes selling on the Web. However, he notes, "Change is difficult to implement. When people start to evaluate change, they say 'how does this affect me?' There are a lot of me's with different stakes and different roles."

#### **Intel: An evolution**

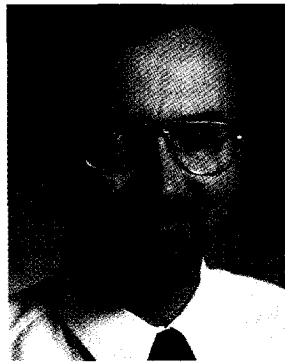
Intel illustrates how online selling does not spring up overnight. The company moved in fits and starts, making some mistakes along the way, but with a steady eye on what it was trying to accomplish. Its content-delivery system is one example.

In 1998, Intel launched a content-delivery system intended for use by all customers. The site quickly became popular and began to bog down from all the searching engineers were doing. "So we split into two systems, using the same database," says Thomas. "One optimized for searching by the general public, the other for use by authenticated customers."

Then it became evident there was a need for even more definition of content. Today, Intel's site has three tiers, all fed from the same database. The slicing and dicing of the content is done automatically, so the providers don't have to think about which constituents they're providing with information.

The site has a tier where noncustomers—and customers who aren't sure what they need—can search for general information. A second, authentication-controlled tier allows known customers to get specifications, diagrams, drivers and other functions Intel provides to people with whom it has business arrangements. The third—and most protected—tier is for key customers working with Intel intellectual property and core design capabilities.

For this tier, Intel replaced its previous nondisclosure procedure—a cumbersome system of color-coded, hand-carried legal documents—with electronic nondisclosures on the Web site. "We now do disclosures in minutes," says



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—Phil Gibson, vice president of Web business and sales automation, National Semiconductor Corp.

Thomas. Rather than having to search for material, users of the third tier can get completely packaged development kits, put together by the Intel staff. "We've queried engineers, who tell us these reduce their design times by two-to-three weeks per product," he says.

Plugging customer-service processes into the Web-selling efforts also has been a key to success. It has reduced order errors by 75%. Here's how that works: An OEM's engineer might tell his purchasing agent that a certain product requires a Pentium processor. By the time the buyer actually goes to buy, there might be different options than there were when the engineer made the choice. The Web site has a product-verification procedure that requires the buyer to revalidate the purchase with his engineer before an order is transacted.

By reducing errors in this way, Intel also has increased the productivity of its customer-service staff. "We ramped from \$1 billion a month in sales to \$2 billion without adding support staff," says Thomas. "We got a 40% improvement in productivity." Instead of spending time resolving errant orders, customer-service staff can spend time helping customers figure out which product is best, and cross sell other items.

Most Intel sales are direct to OEMs. However, it does have a reseller channel, to which it has extended its Web capabilities. For each tier of content, there is a segment specifically for resellers, since they're typically looking for a higher level of integration than OEM engineers. "They're typically not adding IP, but just get-

ting a motherboard into which they can plug a solution," says Thomas.

Intel has linked its order-entry systems to its own internal manufacturing processes. It also has e-business systems in place with many OEMs. It is now beginning to take the next step of linking key distributors, such as Arrow, into its systems. Intel is using partner interface processes (PIPs) developed by RosettaNet, Santa Ana, CA, a non-profit e-commerce standards consortium, to link to Arrow. The Intel-Arrow connection is the industry's first use of these PIPs. "We spent three years defining these processes; now this will be our showcase start," says Thomas.

#### A matter of cost

Linking chip companies, OEMs, distributors and others through a web of electronic connections is the Holy Grail for Intel and others. When that happens, they should have visibility that will help them better manage the supply chain. This was one

vision of electronic data interchange (EDI), but the cost of implementing EDI was so expensive it prohibited its use between all but the largest partners. One of the great hopes of Web-based commerce is to extend selling processes throughout the supply chain.

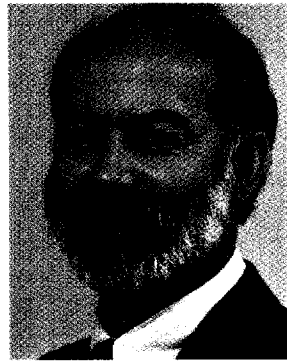
But the costs of using the Internet, while cheaper than EDI, also are turning out to be significant. The desire to share costs has given rise to so-called e-markets, including those for electronic components. As part of his research, In-Stat's Cullen has looked at e-markets, which number nearly 100 in the computer and electronics industry. He and others expect a big shakeout.

At present, most e-markets in the electronic component space are focused on the spot market, which comprises only about 5% of the total market. One e-market further along than most is Converge Inc., Cupertino, CA, which plans to move beyond the spot market into giving partners an infrastructure from which they can collaborate and manage their supply chain.

Cullen and others say sharing the cost of setting up infrastructure for business-to-business e-commerce is a motivating factor for companies joining these efforts. For example, Converge is a consortium founded by several marquee electronics companies, including Agilent Technologies, Advanced Micro Devices, Compaq, Gateway, Hewlett-Packard, Samsung Electronics and Solectron.

Whether they plan to participate in an e-market or not, cost is no small issue for chip companies. Skillings says Analog, for example, is spending a great deal on software, hardware and staff—investments that are reaping relatively small amounts of revenue. The potential may be huge, but the cost is not trivial, he says, and a company must be willing to take a leap of faith to make the investment. "Everyone says the Internet is free," he says. "But only the movement of electrons is free. Everything else costs money."

*Bill Roberts is a contributing writer for ELECTRONIC BUSINESS. You can reach him at brobert1@netcom.com.*



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### U-R-Linked

<http://www.analog.com/>

Analog Devices Inc., Norwood, MA

<http://www.arrow.com/>

Arrow Electronics Inc., McVie, NY

<http://www.instat.com/>

Carners In-Stat Group, Scottsdale, AZ

<http://www.compuware.com/>

Compuware Corp., Farmington Hills, MI

<http://www.intel.com/>

Intel Corp., Santa Clara, CA

<http://www.kpmgconsulting.com/>

KPMG Consulting Inc., McLean, VA

<http://www.national.com/>

National Semiconductor Corp., Santa Clara, CA