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## Applications & Services

### CASE-IN-POINT

## Cypress Semiconductor schedules its way to synchronized production plans

When San Jose, Calif.-based **Cypress Semiconductor** purchased a master planning solution from **i2 Technologies**, the manufacturer thought it had everything it needed to decide what to build—and when—at 15 facilities around the world. What soon became apparent, however, was that while the i2 package did a good job of creating production plans, it needed a boost in orchestrating the process.



**PROFILE:**

**Company:** Cypress Semiconductor, a computer chip manufacturer based in San Jose, Calif.

**Challenge:** Synchronize 100 sequence-dependent jobs nightly on 15 computers running on multiple platforms to enable the master planning application to build the next day's production plans for all the company's factories

**Solution:** ActiveBatch job scheduler from Advanced Systems Concepts

**Results:** Reduced planning personnel by half, inventory by 30 percent, and cycle times by 10 percent

It all revolved around creation of the master production schedule. At Cypress, that's a complex process that begins each night with the i2 planning application exchanging data among 15 computers running on multiple platforms. In all, generating a complete master production schedule involves processing more than 100 jobs—all of which must be performed in a precise sequence.

Rob Price, database administrator at Cypress, says the problem cried out for an automated solution. "Managing all those dependencies is complex," says Price. "It's ugly, maintenance-heavy, and error-prone. We needed a batch [scheduling program]."

Cypress, of course, could have written its own, but a bad experience with a homegrown scheduler for engineering jobs made buying a commercial program seem like a better option.

After reviewing some top-of-the-line systems, Cypress chose ActiveBatch from **Advanced Systems Concepts**, which cost less than \$10,000. There were, of course, tradeoffs.

For example, the high-end systems could graphically show interrelationships between jobs, making editing a simpler process. "That's a feature we would have liked," says Price, adding that the capability is available in ActiveBatch 5.0, which Cypress will be implementing early this year.

High-end systems also are much more mature, admits Price. "When you buy something cheaper, it's not as robust."

Still, the tradeoff was worth it. ActiveBatch "did everything we wanted," says Price. "We needed something that could talk to both UNIX and Windows NT and be interoperable, and we got that with ActiveBatch."

Finding a system that cost one-third the price and took less time to implement than building its own system clinched the deal for Cypress.

ActiveBatch, which is linked to the i2 planning system via an object-oriented graphical user interface, acts like a concertmaster, deciding when one program is finished and the next one should start—all the while keeping track of program interdependencies, and monitoring for errors in a three-step process.

"The i2 engine has very complicated algorithms to determine how to load the production lines with parts," explains Price. "It needs to read a database of information to do its job. ActiveBatch's function is to load that database. In the second phase, ActiveBatch turns on the engine and lets the jobs run. Once everything is done, it writes the reports and distributes them to the right parties."

ActiveBatch's central scheduler is resident on one computer, and "agents" are installed on the other 14, explains Price. "When you schedule

the 100 jobs, you tell ActiveBatch which computer will run the job, and it orchestrates the whole thing," he says.

The jobs are implemented in a cascade. "We start with five jobs, each of which begins at a different time," explains Price. "When job 'A' finishes, job 'B' should start. From there, all the other jobs follow."

While the system is meant to run automatically, should a job fail, ActiveBatch alerts a human via a pager or an e-mail to Cypress' 24/7 help desk. The system also knows how long the jobs should take, so if one is running longer than it should, ActiveBatch sends an alert.

Cypress' five-year journey with ActiveBatch has paid off. The combination of the i2 planning system and the ActiveBatch solution for production planning & scheduling enabled Cypress to cut its planning department by half, its inventory by 30 percent, and cycle time by 10 percent. Using ActiveBatch also means Cypress no longer needs live operators scheduling jobs 24 hours a day.

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