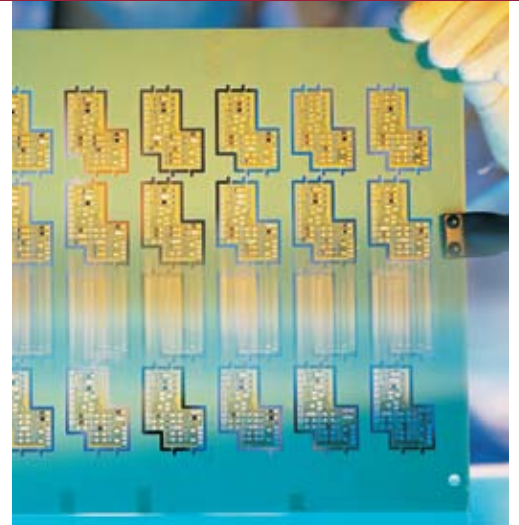


Case Study: AMD



## AMD Finds Inventory Control in Serus



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- The Situation**
  - The Need for Visibility and Control 4
  
- The Opportunity**
  - Serus' Discovery Process 5
  
- The Execution**
  - Alignment of the Team 6
  
- The Benefits**
  - Reaping the Benefits 7
  
- The Next Steps**
  - Extending the Implementation 9
  
- The Company**
  - About Serus 11

## Chipmaker realizes substantial savings and gets more accurate, reliable inventory reporting with Serus INCA intelligent operations management system.

Advanced Micro Devices, Inc. (AMD) is one of the world's largest semiconductor manufacturers, with more than \$5.6 billion in revenue in 2006. In 1984 AMD installed a mainframe-based enterprise work in progress (WIP) management system and has used it ever since. That is, until CIO Clay Cipione decided enough was enough and that the 23-year-old system had to go.

That is no mean feat, given how deeply engrained in an organization a system with that kind of tenure tends to become. But working with experts from Serus Corp., the AMD IT team succeeded in retiring the legacy system altogether, replacing it with Serus' enterprise solution code-named INCA (short for Inventory Control and Accountability), an integrated manufacturing, inventory tracking and financial consolidation system. The project resulted in an immediate return for AMD from retiring the mainframe, along with a host of additional benefits. Chief among them is more accurate, reliable inventory status reporting, which has a ripple effect, improving a myriad of other manufacturing and financial operations. The new tool also greatly enhanced AMD's

ability to quickly make updates to suit its various and changing requirements.

"We had a 23-year-old piece of software that was incredibly antiquated, incredibly hard to maintain, and almost impossible to extend," Cipione says. He credits Rick Carlson, AMD's director of IT, as well as Serus, for taking a complex project and implementing it with no major snags. "This went like clockwork. Between Rick and Serus, they made it look easy."



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*—Clay Cipione, Chief Information Officer*

The Situation

### The Need for Visibility and Control

Mainframe-based WIP systems present numerous problems. For one, mainframes are expensive to maintain, both in terms of ongoing software costs and in finding and retaining people with the skills required to operate them — a vanishing breed. The systems are also difficult to update because of fixed data fields. “To expand a data field took an act of Congress,” as Carlson puts it.

As a result, lots of extra effort is needed to maintain accurate inventory records, and consolidating all the appropriate information into any given report can be a challenge, to say the least.

The legacy system provided less-than-desirable visibility to costing systems, which made closing the books each month a time-consuming chore.

“To expand a data field took an act of Congress.”

—Rick Carlson, Director of IT



#### AMD at a Glance

**Founded:** 1969

**Number of Employees:** 16,500

**Headquarters:** Sunnyvale, California

**Number of Locations:** 80

**Revenue:** \$5.649 billion in 2006

### Serus' Discovery Process

In September, 2005, AMD signed on Serus to replace the legacy system. The work was to be done in two major phases: first an architectural overview and needs assessment, followed by a proposal for a future architecture.

The first phase took three months, during which a Serus team interviewed some 200 AMD employees to find out exactly how they used the existing WIP system—and any ancillary shadow tools that had cropped up along the way. “That’s where Serus produced what I think is one of the better pieces of work I’ve seen in 48 years in the business,” Cipione says.

That work documentation produced by the Serus team, led by Vice President and General Manager of Enterprise Solutions Geoff Annesley, reflected the requirements as well as the functional and physical design of the new proposed application. “That’s what really sold us,” Carlson says.

Together, Serus and AMD got into detailed discussions with factory personnel to find out exactly how they did their jobs, how processes worked, what was working with the current system and what they would like to see in a new solution.

“We had interactive workshops throughout the process,” Carlson says. “About every six weeks we’d go and spend a week at a site and play back what we heard the previous time, demonstrate the software functionality and then refine it.”

By the end of the process, Annesley and his team had impressed AMD with its understanding of their problem. That

they could literally dissect our problem and articulate a solution gave us the confidence that they had great comprehension of our needs,” Cipione says.

He was also impressed by the enthusiasm of the Serus team. “They had a Coast Guard-like attitude: Got to go out, don’t have to come back,” he says. “They really wanted to do the work for us and demonstrated great capability to do it in the design phase.”

“That they could literally dissect our problem and articulate a solution gave us the confidence that they had great comprehension of our needs.”

—Clay Cipione, Chief Information Officer

## Alignment of the Team

Its quality design work earned Serus the right to proceed to the next step of the project: implementation of its proposed solution.

In January, 2006, AMD put a stake in the ground: it would implement the new Serus INCA system by January 1, 2007. “That was an imperative to march to,” as Carlson puts it. “We missed that date by about 37 days, but we came close, so I’d say it worked.”

Implementation meant changing the way AMD had done business for the last 23 years. Knowing that a change of such magnitude would be difficult, the company formed a steering committee with high-level representatives from multiple crucial departments, including IT, supply chain, global logistics and finance executives from each of the three countries involved. Cipione was the IT representative while Carlson served as technical secretary and coordinator for the committee.

When implementation began, the steering committee would meet monthly; by the time the project was complete, they met daily. “Nothing happens in a large global company without that kind of focus,” Cipione says. “There were a lot of reluctant warriors along the way, but we managed to overcome that by dragging them in for fireside chats and encouraging them to play ball.”

Implementing INCA meant tying the system in with various existing AMD applications, including SAP, cost accounting, factory MES systems and various databases. “You have to get down to the transaction level and understand what happens on the other side of the fence,” Carlson says. He describes the process as a series of punch list activities to com-

plete. “They happened without any significant problems,” he says.

Along the way, the remaining undocumented systems came to light and had to be accounted for in the new setup.

AMD, of course, is no stranger to large IT projects; Cipione says he has eight or 10 on his hit list. At least two of them were running at the same time as the INCA project, including a technical upgrade to its SAP implementation.

“When you talk to 200 people and you have as many tentacles and locations involved as we did, it sounds immensely complex,” he says. “But when you compare that to trying to do a technical upgrade to SAP, it’s almost a walk in the park. That’s a great tribute to Rick and the Serus folks.”

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—Rick Carlson, Director of IT

### Reaping the Benefits

Today, AMD has complete visibility into all aspects of its enterprise manufacturing processes, including production, engineering and development data. Day to day, the system brings the most benefit to employees on the factory floor and those involved in inventory control, Carlson says.

Product lifecycle management involves managing the flow of a product from development to production to obsolescence. INCA enables AMD to keep on top of each process along the lifecycle in ways that its legacy system simply could not.

For example, an engineering group in Austin may start with a high-level process for a product it wants to build. They ship engineering builds to MESs, detailing the manufacturing steps. Manufacturing may come back and say, we can't quite do that and here's why. Engineering can then tweak the process a bit and send the plans back. While

this type of back and forth can go on repeatedly, INCA is the sole source for all the data used by both sides of the process. When the product gets to the point where engineering, production and marketing are all satisfied, the product status is changed from engineering to production. Whereas previously various shadow systems might detail many of these steps, now all data—including all the materials used at every step of the process—is fully detailed in INCA, allowing for highly accurate inventory reports and controls.

AMD can also detail in the INCA part chain management system what type of data should be gathered at each step in the process and what information is required for a lot to move from one stage to another. The system keeps track of all required validations, making it simple to move a lot to the next stage when it's ready. Previously, some of that validation data might be housed in the legacy mainframe system, but much of it existed in various other systems. Now, AMD has a complete part chain, from start to finish.

**Today, AMD has complete visibility into all aspects of its enterprise manufacturing processes, including production, engineering and development data.**

INCA also provides for a reconciliation process, to identify and correct any errors in inventory levels. Every four hours, AMD MESs take a snapshot of inventory levels while INCA does the same. Then the two are compared and, if any discrepancies exist, INCA provides a process for digging into various transactions to root out the cause.

The multiple audits built into INCA also help AMD comply with its internal control requirements. Security is provided based on the group employees belong to and their location. Each user has to be authenticated through INCA's built-in LDAP directory and the system tracks all changes made as well as who made them, providing a clear audit trail.

Such a system brings increased efficiency to AMD, with improved accuracy in inventory status, which helps with planning and financial reporting for sites around the globe.

Cipione notes that INCA, with its improved accuracy and ability to act as a sole source of data for sites around the globe, also helps AMD to close its books much quicker each month. "It's hard to quantify that in terms of dollars and cents, but suffice to say there are certainly benefits to it," he says.

The benefits that AMD has been able to quantify are considerable, starting with the substantial savings from retiring the mainframe. And it was indeed retired, not repurposed. "It's dead as a door-

nail" Cipione says. "We kept the faceplate, that's all that's left."

In contrast to its legacy system, INCA is written in Java, runs on AMD-based computers and uses SQL databases. That kind of adherence to industry standards makes INCA far easier and less expensive to support than the proprietary mainframe system it replaced.

INCA has also reduced inventory variances at AMD, which improves our supply visibility, control, risk management and valuation accuracy.

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### Extending the Implementation

With the INCA installation at AMD under his belt, Carlson is diving right back in for another major implementation. In October, 2006, AMD acquired graphics processor maker ATI Technologies and Carlson is now charged with bring ATI's manufacturing operation under the INCA umbrella.

"We just kicked that effort off [in May] and plan to complete it by September 30," he says. "But I have enough confidence to say we can build upon what we already did without a lot of trepidation."

While its previous WIP system lasted 23 years, Cipione says that won't be repeated, at least if he has his way. But neither should AMD have to go through the kind of massive overhaul that it did to install INCA.

"Systems have to continue to get revitalized. They don't have to get replaced, but have to continually have attention paid to them so they stay viable and vital and meet the needs of the business," he says.

"INCA is built in a very modular, extensible way. It runs on rational, commodity server products. It will lend itself to being evolved as opposed to having to wait around for a revolution."

**"Systems have to continue to get revitalized. They don't have to get replaced. INCA is built in a very modular, extensible way. It runs on rational, commodity server products."**

*—Clay Cipione, Chief Information Officer*

## A Sampling of Benefits Serus' INCA Provides to AMD

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- » Complete inventory visibility from supply to market—no more “shadow” or workaround systems that hold data
- » Increases supply to market velocity
- » Real time monitoring of key operations and supply to market inventory metrics
- » Fast, accurate, efficient inventory financial closure at quarter end
- » Combined product lifecycle and supply chain management with manufacturing visibility and control, resulting in more efficient operations
- » Inventory monitoring and control—product movement, define custom rules, control user privileges
- » Manage and resolve transaction fallout
- » Increased inventory accuracy
- » Improved compliance with internal controls
- » Improved synergy between product development, engineering and production
- » Collaboration among all sites around the globe
- » Single system of record for inventory reporting
- » Reduction in system administrative time and cost
- » Improvement in key performance indices, including real-time processing of over 1 million transactions per month

### About Serus

Serus Corporation is a pioneer in the emerging category of on-demand Intelligent Operations Management (IOM). Serus' solutions help global organizations—from the mid-market to the Fortune 500—solve multiple outsourcing challenges across their worldwide supply and fulfillment networks. Founded in 2001, the company's core areas of expertise include fully customizable solutions for transaction automation, operations planning and business performance management. Based in Mountain View, California, Serus' customers include companies such as AMD, Spansion, Cisco and Solectron, as well as other emerging leaders in the fabless semiconductor, high technology manufacturing and global enterprise markets.

For more information, please visit [www.serus.com](http://www.serus.com).





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