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Fabless Manufacturer Gains Visibility into Global Operations with Centralized ERP Solution

Technical Case Study

ISSI®

Country or Region
United States

Industry
High-tech and electronics manufacturing

Customer Profile
Integrated Silicon Solution, Inc., (ISSI) is a global fabless semiconductor company that designs and markets high-performance, integrated circuits for digital consumer electronics, networking, mobile communications, automotive electronics, and medical and industrial applications.

Business Situation
ISSI was operating multiple disparate enterprise resource planning systems that made conducting business across global business units challenging.

Solution
ISSI deployed a material requirements planning solution based on Microsoft Dynamics AX with help from Microsoft Gold Certified Partner Armanino. The solution provides a single, global database for companies with intercompany orders and multicurrency and multisite needs.

Benefits
- Reduce cost of technology ownership
- Analyze and direct global performance
- Empower employees to succeed
- Optimize global processes and operations

Fabless Manufacturer Gains Visibility into Global Operations with Centralized ERP Solution

Integrated Silicon Solution, Inc., (ISSI) designs and markets high-performance, integrated circuits for a variety of applications. Because its products are made-to-order, ISSI offers a virtually unlimited number of designs, each with its own bill of materials and unique product management cycle. As a fabless manufacturer, the company oversees a supply chain that involves numerous suppliers, subcontractors, and intercompany transactions. Finding that both operations and reporting were hampered by disparate, legacy ERP systems, ISSI deployed Microsoft Dynamics AX and the add-on for High Tech Industries from Microsoft Gold Certified Partner Armanino. By consolidating financial and operations management on a single ERP system, ISSI standardized global operations and optimized business processes. Now, company executives and process managers enjoy visibility into all levels of the operation.

Situation

Integrated Silicon Solution, Inc., (ISSI) designs and markets high-performance, integrated circuits for digital consumer electronics, networking, mobile communications, automotive electronics, and medical and industrial applications. From its offices in the United States, Europe, and Asia, the company serves customers worldwide, including many major consumer electronics and industrial brands.

As a fabless manufacturer, ISSI relies on a network of subcontractors to produce, assemble, test, package, and deliver memory devices designed to its exacting specifications. ISSI managers in the company's Silicon Valley, California, headquarters faced a daunting task of overseeing not only the complex supply chain and external vendor relationships but also the global operations of numerous subsidiaries across Taiwan, China, Europe, Hong Kong, India, Korea, Singapore, and Japan.

In its make-to-order and engineer-to-order manufacturing environment, many ISSI products are unique to a specific customer. Consequently, ISSI offers a virtually unlimited number of different products, and the product management cycle is extremely complicated. To further complicate operational management, most sales orders involve intercompany transactions, typically between a local subsidiary and the fulfillment facility based in Taiwan.

As the company grew through acquisition, evolving into a truly global enterprise, the IT infrastructure became increasingly disparate and complex. For many years, ISSI had relied on Baan and a locally custom-developed material requirements planning (MRP) system to manage most of its resources and financial operations.

Through the years, programmers had heavily customized the Baan system, but the inability to share data across other enterprise systems—particularly between Baan and the custom-developed MRP solution in place at the recently acquired Taiwanese subsidiary—made reporting extremely difficult.

It took analysts several days and multiple iterations to consolidate inventory. Intercompany sales/purchasing and demand forecasting were all manual processes. And, the finance team performed manual consolidation by working from spreadsheets that various business units sent in, which created opportunities for human error.

With support for the Baan system phasing out, company executives undertook a search for a new enterprise resource planning (ERP) solution. The ideal solution would help them unify financial and operations management on a single platform, standardize worldwide operations and reporting across business units, and provide the capability to optimize business processes on an ongoing basis.

"With the old systems, the U.S. headquarters lacked visibility into our overseas operations and had no clear picture of the performance of the global enterprise," explains Michael Wang, Vice President of Business Systems at ISSI. "We needed a new system, first to replace Baan, but more importantly to consolidate worldwide operations onto a single platform."

"For employees in Taiwan, who were used to operating as an independent company with a completely custom system, they were immediately comfortable with the solution's interface because it looks similar to that in the Microsoft Office system. That helped ease any reservations they had about the new solution."

Michael Wang
Vice President of
Business Systems, ISSI

Solution

ISSI evaluated solutions from SAP and Oracle before selecting Microsoft Dynamics AX and the add-on for High Tech Industries from Microsoft Gold Certified Partner Armanino. "Both SAP and Oracle had the core ERP capabilities we needed, but both required a much larger investment in deployment costs and in the length and complexity of the implementation," explains Wang. "Microsoft Dynamics AX offered the same core capabilities with a much easier path to tailor the solution to our processes and to integrate with other enterprise systems. Our ERP team felt that Microsoft Dynamics AX was the right solution for our future."

Industry-Specific Solution and Partner
The availability of the add-on for High Tech Industries from Armanino, which provides functionality specific for fabless semiconductor manufacturers, also made Microsoft Dynamics AX an attractive solution. With Armanino's industry expertise, ISSI had the confidence that it could

work directly with a local implementation partner who understood and could tailor the deployment to the company's needs.

Explains Chris Moore of Armanino, "Our industry expertise enables us to address the specific complexities of fabless semiconductor manufacturing. For ISSI, Microsoft Dynamics AX provides a single, integrated solution that addresses their reverse bill of materials, yield management, supplier integration, and supply chain requirements. These extensions make the solution even more powerful for a company of this size."

Streamlined Processes

When ISSI and Armanino completed the initial phases of the deployment, as many as 200 of ISSI's 600 employees began using Microsoft Dynamics AX in their daily work. With two-thirds of all orders originating outside Taiwan and fulfilled through the Taiwanese subsidiary, intercompany purchasing is one process that the company has streamlined dramatically. When an employee anywhere in the world creates a sales order for a customer, the solution automatically creates an intercompany purchase order in the local environment and a corresponding sales order in the intercompany environment in Microsoft Dynamics AX. Previously, employees passed along intercompany sales and purchase orders manually, using e-mail and fax to transmit paper orders among business units.

The production-planning and scheduling capabilities of Microsoft Dynamics AX have also introduced efficiencies in sourcing and supply chain management. For example, a production order in Microsoft Dynamics AX includes a bill of materials (BOM) for each of the outsourced manufacturing operations, including sort, assembly, test, and packaging. This helps production staff track the number of units at each subcontractor location as work in process and the pay points for the subcontracted services for each order. Production orders are tied to the appropriate purchase order for each subcontractor to facilitate payment when work is completed.

Route-planning tools help production managers more effectively manage work in process and allocate capacity to subcontractors. Previously, production control staff within each operational unit had the freedom to designate routes whenever necessary and to direct tasks, such as assembly, test, or packaging, to any or as many subcontractors as they saw fit. Frequently, routes became overly complex as production managers sought the cheapest vendor for a particular subtask. Today, employees can identify subcontractors and review routes when a BOM item is created in Microsoft Dynamics AX; in addition, ISSI's finance team can review BOMs and routes for any production order in any subsidiary. This efficiency has reduced the number of subprocesses and subaccounts and increased the ability to drop-ship orders.

Through automated data exchange with customers and suppliers in Microsoft Dynamics AX, ISSI no longer needs to manually record thousands of transactions per day. By using Armanino's supply chain interface tool, ISSI imports transactional data, including start-lot notifications and lot moves, from subcontractors' systems directly into Microsoft Dynamics AX.

With electronic data interchange (EDI) capabilities through Microsoft BizTalk Server, ISSI sends sales order confirmations, invoices, advanced shipping notices (ASN) directly to customers. ISSI also receives purchase orders and change orders from customers through EDI.

A Unified Platform
Concurrent to the ERP implementation, ISSI also migrated other enterprise systems to current Microsoft technologies, including Windows 7, Microsoft Exchange Server, Microsoft SQL Server, BizTalk Server, Microsoft FRx, and the 2007 Microsoft Office system.

Standardizing on the Windows platform and Microsoft technology stack has simplified management of the global IT infrastructure. The common platform has also reduced the demands on ISSI's IT staff to perform point-to-point integrations between disparate systems, and simplified support requirements.

The consistent interface between Microsoft Dynamics AX and the Microsoft Office system helped users adapt to the new solution. And, the ability to easily copy and paste data between applications in the Microsoft Office system, such as Microsoft Office Excel, and Microsoft Dynamics AX streamlined many analysis processes.

"For employees in Taiwan, who were used to operating as an independent company with a completely custom system, they were immediately comfortable with the solution's interface because it looks similar to that in the Microsoft Office system," explains Wang. "That helped ease any reservations they had about the new solution."

Benefits
Although ISSI has not performed a return-on-investment analysis of the new solution, the benefits are evident in the quality and velocity of the work that all functional areas of the company have performed. ISSI now has greater control of its operations on a global scale and has the necessary tools for its employees to support the company's mission.

Reduce Cost of Technology Ownership
By choosing Microsoft Dynamics AX, ISSI was able to deploy the specific functionality required by its fabless business model and work with an experienced, local deployment partner at nearly half the cost of working with Oracle or SAP. "We needed a flexible, affordable ERP system that

could give us visibility throughout a complex, international supply chain that involves multiple trading partners in various high-tech industries," says Scott Howarth, ISSI President and Chief Executive Officer. "We went with Microsoft Dynamics AX because it had the functionality we needed and could be implemented at half the quoted cost for Oracle or SAP."

Analyze and Direct Global Performance
The availability of a single, consolidated repository for all ERP and financial data across all of ISSI's global business units has given ISSI executives and analysts an unprecedented view of operational performance from the enterprise, to the individual companies, to specific BOMs, and to product shipments.

By using Microsoft Dynamics AX reporting and Microsoft FRx, the financial team can easily run consolidated inventories and financial statements and manage budgets. And, senior marketing and operations directors now look at worldwide sales activities with total visibility.

"Now, our individual business units can work with our financial team to ensure performance of every product line," explains Wang. "The cost roll-up functionality is beautiful. Before, our finance group had to work with estimates; now, we have confidence in our financial information and a much better grasp of cost elements across the company."

Empower Employees to Succeed
Standardizing ERP and other core infrastructure has simplified day-to-day management of IT resources and makes it easier for ISSI to find the talent and skills it needs to customize or maintain systems.

"By standardizing our infrastructure and becoming a 'Microsoft shop,' we've eliminated much of the integration work," explains Wang. "It is easier for our in-house IT staff to deploy and manage multiple, integrated solutions when they are built on a common platform."

Wang notes that the consistent user interface across Microsoft Dynamics AX and the Microsoft Office system has helped employees quickly become comfortable with the ERP solution. "The familiar look and feel of the two systems provides a platform that employees can easily learn, adopt, and configure and use to share information," he says.

Optimize Global Processes and Operations
By migrating all business units to a single, central instance of Microsoft Dynamics AX, ISSI has standardized processes and reporting across the company. The company has used the standardized solution to help unify

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Scott Howarth
President and Chief Executive Officer, ISSI

its many business units from a cultural standpoint, capture best practices that its subsidiaries use, and propagate these to other business units.

A second phase will examine processes for efficiency and implement updates and customizations where appropriate to achieve further efficiency gains. Further process optimization is expected to be undertaken concurrent with an upgrade to Microsoft Dynamics AX 2009.

"Staying competitive in the sophisticated semiconductor memory industry means that our business processes require constant tuning and optimization across a global supply chain," says Howarth. "Microsoft Dynamics AX helps us manage the constant challenges posed by accelerated product life cycles, leading-edge products, and global pricing pressures. Over the past year, the solution has helped us integrate global operations in real time, reduce inventory, improve productivity, and be more proactive in our decision making."

You can read more about the Microsoft Dynamics AX add-on for High Tech Industries that ISSI chose in the Microsoft Dynamics Solution Finder.

About Certified for Microsoft Dynamics Solutions
Microsoft set the bar high by developing the Certified for Microsoft Dynamics accreditation for business solutions built on Microsoft Dynamics software by partners. It sets a small group of proven, tested, and recommended business solutions apart from thousands of other solutions that have not met the rigorous requirements. Solutions that are Certified for Microsoft Dynamics are:

- Designed to meet your unique business and industry needs.
- Tested and seamlessly integrated with Microsoft Dynamics products.
- Used and recommended by other companies like yours.

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For more information about Integrated Silicon Solution, Inc., products and services, call (408) 969-6600 or visit the Web site at: www.issi.com.

For more information about Armanino products and services, call (256) 771-7050 or visit the Web site at www.amllp.com/microsoft-dynamics.

Microsoft Dynamics

Microsoft Dynamics is a line of integrated, adaptable business management solutions that enables you and your people to make business decisions with greater confidence. Microsoft Dynamics works like familiar Microsoft software such as Microsoft Office, which means less of a learning curve for your people, so they can get up and running quickly and focus on what's most important. And because it is from Microsoft, it easily works with the systems that your company already has implemented. By automating and streamlining financial, customer relationship, and supply chain processes, Microsoft Dynamics brings together people, processes, and technologies, increasing the productivity and effectiveness of your business, and helping you drive business success.

For more information about Microsoft Dynamics, go to: www.microsoft.com/dynamics.