

## Enabling Semiconductor Companies to Improve Visibility, Decision Making, and Compliance in Outsourced Manufacturing

### B2B On Demand Software Solution

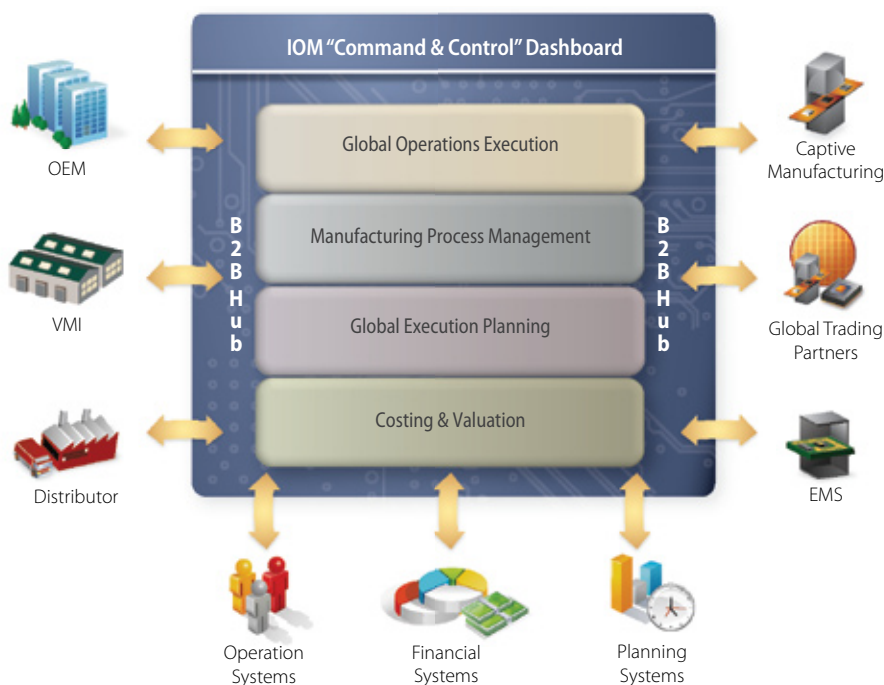
Today's semiconductor companies use a mix of captive and outsourced manufacturing to lower costs, scale operations, and focus on core competency and customers. While the use of outsourced manufacturing has provided tremendous advantages, it has also created operational challenges in a long lead-time environment with increasing variable demand and greater product complexity.

As companies attempt to respond to these challenges, executives are realizing custom home grown systems and spreadsheets are hindering their supply-chain transformation goals. To adequately respond, semiconductor companies need B2B visibility into global manufacturing, improved collaboration and decision making between different functions, departments, and companies, and ensured compliance.

Serus IOM Enterprise is a closed-loop operations management solution addressing these needs by providing:

- Multi-tiered visibility across the value chain including manufacturing and inventory
- Real-time decision support for efficient fulfillment execution
- Quality and compliance with regulatory and customer requirements

Serus IOM Enterprise leads to a higher performing operations model with the tightest operations controls available in today's complex outsourced manufacturing environment leading to higher quality products produced at lower cost.



## Product Capabilities

### Global Operations Execution

- Inventory control and accountability (INCA), system of record
- Lot, wafer, bin, and material tracking across value-chain
- Closed-loop enforcement of business rules and manufacturing specification enabling management by exception and quality control
- Full spectrum supply and distribution instruction management

### Dashboard

- Real-time monitoring and exception management
- Decision support analytics and reporting framework
- Cycle time, binning and yield reporting
- Drill down for root cause analysis

### B2B Hub

- Turnkey partner connectivity
- Fault tolerant parallel transaction processing with connections to standard and custom partner systems
- Integration to internal systems including ERP, MES, PLM, and SCM

### Manufacturing Process Management

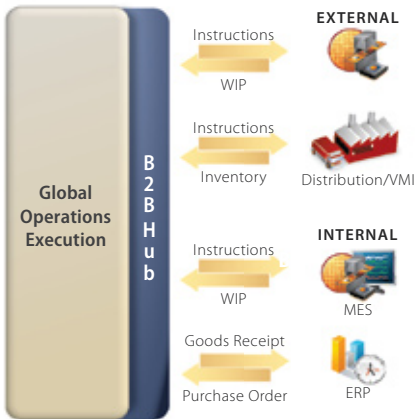
- Global manufacturing specifications and recipe management, broadcast and synchronize across trading partner systems
- Product and process lifecycle management with approval and history tailored for semiconductor "part-chain"

### Global Execution Planning

- Global tactical planning
- Collaborative lean planning
- Collaborative demand planning

### Costing & Valuation

- Real time inventory valuation
- Standard and actual costing
- Standard costing workspace



## Serus IOM Enterprise

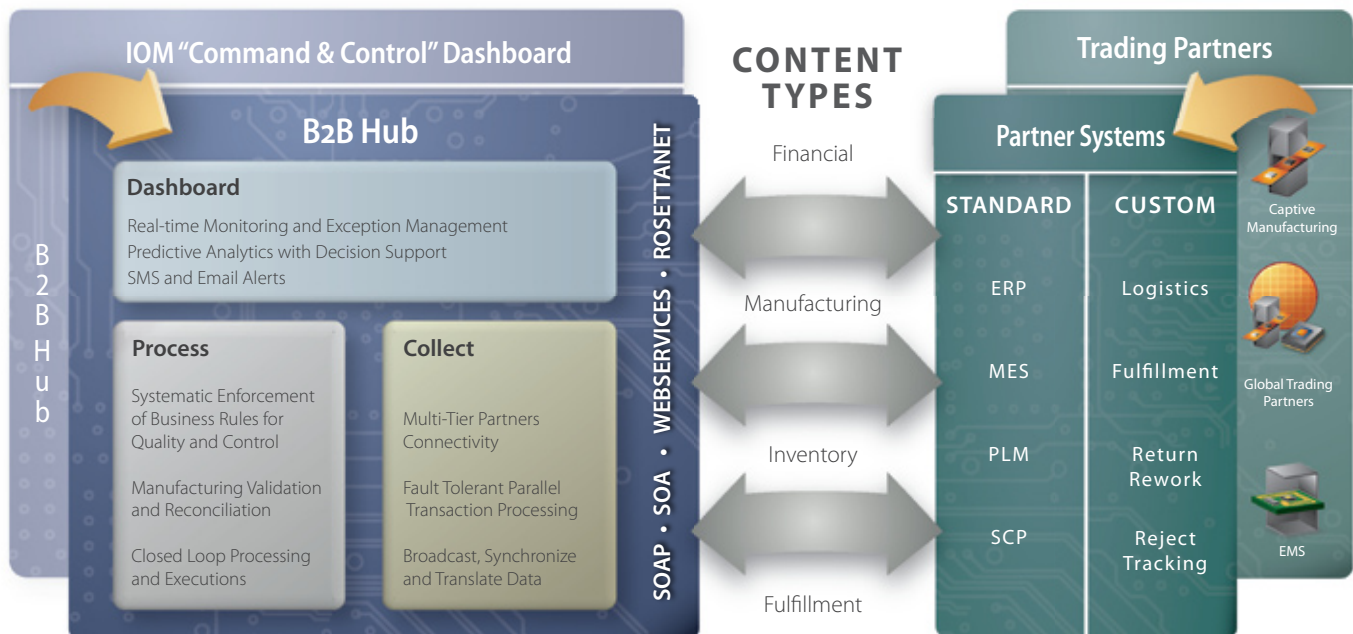
Serus IOM Enterprise provides all the necessary tools to operate a semiconductor business in today's demanding environment. Serus IOM Enterprise is comprised of the following solutions; Global Operations Execution, Manufacturing Process Management, Operations Execution Planning, and Costing and Valuation. These solutions are enabled by the Serus IOM Platform with B2B Hub and Operations Dashboard.

### Global Operations Execution

- Real-time visibility and control across the value chain, between different functions, departments, and companies, through a high performance operations model that optimizes quality manufacturing output at low cost
- Facilitates decision support through email and SMS alerts regarding supply disruptions and gives recommendations for quick and accurate order fulfillment
- All transactions are processed by the GOE Rules engine ensuring all trading partners are in compliance with your manufacturing, inventory, distribution and fulfillment rules

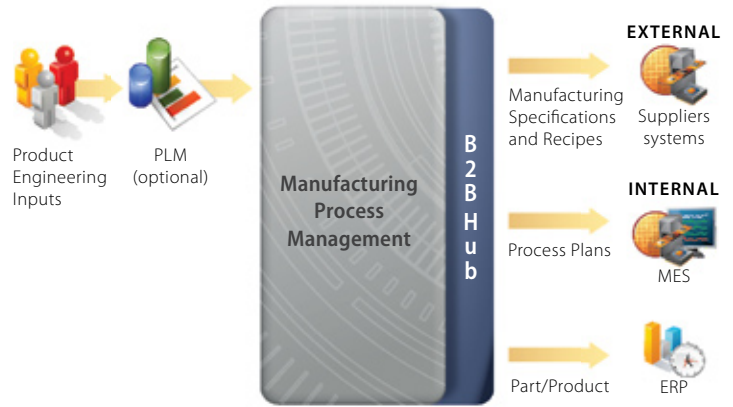
### B2B Hub

- Serus' B2B Hub seamlessly connects you to your trading partners for fabrication, assembly and testing
- Turnkey trading partner network for rapid onboarding in less than 4 weeks
- Global Operations Execution leverages this tight connectivity for complete visibility, monitoring, and control across the value chain including both in-house and outsourced manufacturing and inventory



### Manufacturing Process Management

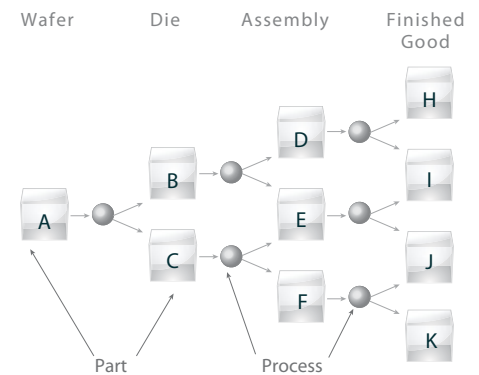
- A product lifecycle management (PLM) solution for engineering and operations that controls and manages product, process, and resource information
- Rapid new product introduction, improved manufacturing accuracy and time to volume is ensured with full access to accurate real-time manufacturing information throughout the extended organization and partner network
- Bridges the information gap between engineering, operations and trading partners' systems with bill of material change management, manufacturing specifications, part chains and recipes
- Ensures manufacturing meets specification throughout your supply chain from fab to fulfillment
- The only solution that meets the unique business needs of semiconductor companies with out-of-the-box support for the inverted bill of materials, multi-level binning, and downgrading



### Global Execution Planning

- Provides fine resolution, short-term execution planning capability in a complex semiconductor supply-chain environment by bridging the gap between weekly or monthly planning and hourly execution
- Contains a workspace to optimize fulfillment in a global drop-ship environment through what-if scenario analysis for matching lots to orders
- Ensures the appropriate trade-offs made while adhering to manufacturing and customer rules
- Optimized test, pick, pack, and ship execution improves on time delivery and customer satisfaction while decreasing cycle time and inventory cost
- Provides for collaborative lean planning to optimize safety stock and service levels by setting inventory reorder points and triggering buy signals

### SEMICONDUCTOR PART CHAIN (Inverted BoM)



### Costing and Valuation

- Uses manufacturing information including yields, binning, and product genealogy to provide actual product costing and inventory valuation
- Provides a standard costing workspace with scenario analytics where you can analyze the effect different yields, binning, and product bill of materials assumptions have on product cost over



## Customer Benefits

### Global Operations Execution

- Connection to trading partners for closed-loop performance monitoring capability
- Governance across the supply chain ensuing trading partner compliance to finance, inventory, fulfillment and distribution rules
- Improve communication and coordination across value-chain

### Manufacturing Process Management

- Coordination and synchronization of in-house and out-sourced manufacturing on new product introduction
- Collaborating with your partner network to improve yields and reduce scrap
- Meeting regulatory compliance with product and process change control

### Global Execution Planning

- Improve on-time delivery and customer satisfaction
- Decreased inventory and operations costs
- Responsiveness to changes in supply and demand

### Costing and Valuation

- Provide financial inventory transparency, with accurate calculation of inventory exposure, predictability, automated reconciliation and SOX compliance
- Optimize profit with real-time actual product cost data and a costing workspace with scenario analysis
- Minimizes discrepancies between book and physical inventories

### B2B Hub

- Rapid trading partner onboarding
- Real-time collaboration with trading partners
- Accurate, real-time manufacturing information

## Partial Trading Partner List



### Fab

AMS	IBM	BOSCH
TSMC	UMC	XFAB
Chartered	Jazz	Telephus
PolarFab	Dalsa	

### Assembly/Test

Amkor	AITB
ASAT	HANA
Kyocera	Stats ChipPac
Tong Hsing	Carsem
KYEC	UTAC
ASE	SPIL
IST	Open Silicon
Chipmos	STARS
Casio	Giga
HGM	Global Test
Integra	Infinity
AIT	Tong Hsing
Unisem	