WHY TTI

For over 40 years TTI has been Ensuring Our Customers are never Line-down due to a Component Stock-out

At TTI we have always believed that distribution’s essential service is to make as much inventory available to our customers as possible. TTI is committed to stocking a full family of interconnect, passive, electromechanical (IP&E) and discrete semiconductor products.

In North America TTI carries over 500,000 part numbers; globally, the number is over 850,000. TTI has more IP&E and discrete components immediately available to you than from any other source.

IP&E components represent the heavy lifting of inventory management since they are 75% of the typical BOM component count, 85% of PCB placements and only 7%-10% of total spend.

Our systems have been developed and tailored for over 40 years to meet the special requirements of IP&E and discrete products. This enables TTI to minimize processing cost and maximize continuity of supply, giving you the lowest Total Cost of Ownership (TCO) and peace of mind.

TTI’s supply chain solutions are integrated into our mainstream business through Advanced Inventory Management (AIM) – our proprietary system that is the heart of TTI’s world-class inventory management system. AIM has been specifically designed to facilitate the management of thousands of low cost IP&E and discrete components, ensuring data processing accuracy, increase product availability to our customers and eliminate non-value-add transactions.

<table>
<thead>
<tr>
<th>Total Spend</th>
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<tbody>
<tr>
<td>60% Semiconductors</td>
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<tr>
<td>9% Printed Circuit Boards</td>
</tr>
<tr>
<td>8% Power/Adapters</td>
</tr>
<tr>
<td>5% Metal/Plastics</td>
</tr>
<tr>
<td>4% Backplanes</td>
</tr>
<tr>
<td>3% Cable Assemblies</td>
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<tr>
<td>2% Frequency Control</td>
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<tr>
<td>2% Hardware, Packaging, Documentation, Labels</td>
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<table>
<thead>
<tr>
<th>RATIO OF BILL OF MATERIALS</th>
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<tr>
<td>7% of Spend</td>
</tr>
<tr>
<td>10% IP&amp;E accounts for 85% of board placements</td>
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<tr>
<td>IP&amp;E accounts for 75% of BOM line items</td>
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Seven Reasons
Why Companies that AIM High
Partner with TTI

“The overall market and required time to market is changing rapidly, making supply chain services a critical requirement - TTI’s supply chain programs give us the competitive edge we need.”

Paul Kling
Deputy Vice President of Operations
BAE Systems

Advanced Inventory Management (AIM) Platform – TTI’s proprietary system designed exclusively for managing interconnect, passive, electromechanical and discrete semiconductor products.

Premier Line Card and Specialization – partnerships with premier manufacturers allow TTI to provide the BOM coverage necessary to deploy comprehensive supply chain solutions. Our unique specialization provides you with significantly better product knowledge to support manufacturing from design through production.

Supply Chain Optimization – whether your environment is high volume, low mix (HVLM) or low volume, high mix (LVHM), TTI has the skills and the tools to help you accomplish your objectives – economic order quantity and reorder point analysis, consumption to forecast analysis, materials acquisition cost calculator and more.

Dedicated Supply Chain Professionals – our supply chain managers are experienced materials management professionals, located across North America. They will work with you, and the local TTI branch, to develop a program that achieves the least total cost of ownership and the greatest amount of flexibility – let us do the heavy lifting.

Multiple Interfaces – TTI supports all the major supply chain transactions of ANSI X.12 and EDIFACT including invoicing, forecast sharing, PO change acknowledgements and advanced shipping notification. We also work with e-files and customer proprietary data export.

Powered by a Single, Global Computer System and Distribution – TTI has more than 1.2 million square feet of automated warehousing in North America, Europe and Asia. All are linked into our global warehouse management system to ensure superior customer service and overall business efficiencies. Wherever you are in the world, TTI can support you.

Unsurpassed Quality and Reliability – TTI was the first distributor to have all global warehouse locations ISO registered and are currently rated ISO9001:2008 and AS9100C in North America and TTI Europe to EN9100C and EN9120:2009. Year after year, customers rate our quality and management practices among the very best in the industry.

TTI’s Advanced Inventory Management Solutions
Improve Supply Chain Flexibility and Reduce Cost
Ready... AIM... Reduce Costs

Increase Turns and Mitigate Risk with Solutions Based in Best Practices

TTI’s supply chain solutions allow you to better utilize valuable floor space, cut inventory carrying costs, reduce transportation costs and effectively eliminate the burden of purchase order reschedules.

Reduce Non-value-add Cost with Automated Order and Receipt Processing

**TALON®** – TTI’s web-based, point-of-use replenishment and stockroom management system for automating the purchasing and receiving process. TALON is a standards-based system allowing for support of all your suppliers, eliminating the need for multiple replenishment programs.

**Auto-replenishment** – TTI will reserve inventory based on forecast demand and fulfill based on released orders, automatically.

**Kanban/Demand Pull** – based on actual material on the production line, a replenishment signal will be sent to TTI. This signal can be automated by standard EDI transactions or scanning technology. We ship the parts upon receipt of order notification.

Reduce Lead-time with Bonded or Consignment Inventory

TTI’s bonded and consigned inventory programs will reduce procurement lead times and increase your inventory turns. TTI will reserve inventory in our warehouse or yours and retain ownership of this inventory until your predetermined trigger releases it to the production floor.

The Advantage of Onsite Personnel

TTI’s in-plant store model takes consignment to the next level with the addition of onsite TTI logistics personnel to manage the planning, receipt and maintenance of your required inventory levels.

Onsite staff program provides qualified, trained TTI personnel to support your procurement and engineering teams.
At TTI we understand that the economic environment makes optimizing resources critical – today over 40% of our revenue comes from customers who choose a TTI supply chain solution to reduce the TCO associated with transaction-intensive IP&E products.

Our professional materials and supply chain teams follow a documented, best-practice process that ensures your program is developed, implemented and monitored on an ongoing basis to meet your total-cost objectives.

**Program Implementation:**
An AIM program manager will team with your local TTI branch and supply chain manager to seamlessly transition your current process to the TTI solution:
- Develop a statement of work that ensures your supply chain program is optimized
- Review the forecast management process including format, content, transmission process and frequency
- Review component candidate list
- Account setup and purchase order transition

**Performance Management:**
TTI’s performance management tools quantify key cost drivers in the material acquisition process and identify opportunities to reduce total cost of ownership:

- Economic Order Quantity and Reorder Point Analysis:
  - Minimize your order management and inventory holding costs
  - Determine optimum shipment quantities
  - Calculate min/max and reorder point quantities
  - Utilize your data when available or benchmark data

- Total Acquisition Cost Analysis:
  - Identify key cost drivers in the order management process
  - Quantify the cost savings between your current process and potential benefits of a proposed solution
  - Reduce non-value add activity

- Consumption to Forecast Analysis:
  - Measures actual consumption compared to required reservation by part
  - Identifies key trends in demand
  - Tracks changes in manufacturers’ lead time

**Steps to Implementation:**

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Our goal is to help you deliver products at a lower total cost, and a higher profit for you.

For more information contact your local TTI Supply Chain Manager

**1.800.CALL.TTI**  [www.ttiinc.com](http://www.ttiinc.com)
TTI's forecast management program is a proven, best practice and the foundation of our supply chain solutions. This closed loop inventory reservation program begins with the sharing of your forecast requirements and closes the loop with replenishment signals directly to our component suppliers and product shipment to you.

Your component demand is integrated into TTI's proprietary AIM platform where the appropriate component quantity and schedule is then pipelined and an inventory reserve created to support unplanned spikes in your demand. Our flexible reservation system, designed by materials managers, enables us to apply trend factors and offer additional inventory management techniques in order to optimize your program. On a regular basis an AIM Program Manager will review your forecast and system generated exception reporting to identify potential shortages and variance in demand.

As a TTI supply chain partner, you will be able to view both your part reservation and exception reporting online through TTI ezReview:
- Easy online access to your required reservation parts and highlighted potential shortages
- Capability to export to Excel format and e-mail for review
- Inventory reservation report that includes additional available to sell inventory
- View components on order with no demand
- Recent shipment history with waybill number
- Current manufacturer’s lead time

Forecast Management Benefits:
- Eliminate non-value-add activities in the materials management process
- Reduced material acquisition cost
- Increased flexibility to support changing customer demand
- Increased assurance of supply and improved on-time delivery
- Component lead time management

Steps to Implementation:

1. REVIEW forecast management and order release process options
2. CREATE a statement of work to define the process
3. ESTABLISH a separate account
4. TRANSITION open orders to the new forecast management account
5. SETUP ezReview for online review and reporting

“Our focal point in establishing our association with TTI stemmed from TTI’s lead time reduction program through forecasting, their ability to handle that data and to stock products. TTI continues to effectively support us with this program as we've grown.”

Gregg DuGranrut
Purchasing Manager
GSW Manufacturing, Inc.

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1.800.CALL.TTI    www.ttiinc.com
The goal of Vendor Managed Inventory (VMI) programs is to improve your ROI by increasing inventory asset turnover and reduce manufacturing lead time while mitigating the risk of being line-down. At TTI we understand that it’s all about having exactly what you need, exactly when you need it. While other distributors are focused on maximizing their own inventory turns — we’re focused on your satisfaction and peace of mind.

By specializing in the components that represent 75% of your BOM component count and 7% - 10% of your total spend – TTI is perfectly positioned to reduce your lead times, minimize your acquisition and overhead costs, and return greater ROI on your inventory investment.

**Bonded Inventory** – your safety net, our investment. TTI will reserve a buffer stock for you in our warehouse. Our bonded inventory program is the perfect solution for customers who are unable to share their forecast, we’ll apply our proprietary EOQ lot sizing algorithm to your estimated annual usage.

**Consignment** – at your fingertips, on our books. Customers transmit their forecast demand to TTI in order to maintain the materials pipeline. TTI retains ownership of the inventory at your facility until it is removed from a consigned location. Once material is released to your production floor, the transaction is communicated to TTI (EDI, e-mail, web portal, etc.) to initiate the invoicing and replenishment process. To ensure inventory accuracy, TTI owned inventory is stored in a secure, physically segregated area with access designated by you.

**In-plant Stores** – focus on your core competencies, we’ll focus on ours. Based on your forecast demand, TTI’s onsite personnel will manage the planning, receipt and maintenance of the required inventory levels. As with our basic consignment solutions, TTI retains ownership of the inventory until triggered to release it to production via your in-house replenishment signals.

**VMI Benefits:**

- Delayed ownership of material and increased inventory turns
- Increased assurance of supply
- Reduced material overhead and acquisition costs
- Reduced lead times
- Stockroom management

**Steps to Implementation:**

1. **TARGET** the components with the greatest potential benefit
2. **ESTABLISH** stocking and replenishment criteria
3. **IMPLEMENT** document practices and a secure location
4. **DEVELOP** a material issue and cycle count process

Our goal is to help you deliver products at a lower total cost, and a higher profit for you.

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**1.800.CALL.TTI**   www.ttiinc.com
TALON is a comprehensive, web-based, auto-replenishment stockroom management system designed to support lean manufacturing concepts and reduce the cost of acquisition and inventory management. This virtual management tool automates the order placement process and manages inventory. This single system can be used to support all your suppliers.

**TALON Features:**
- Online and offline stockroom management
- Internet based e-commerce
- Barcode or electronic kanban min/max ordering
- Barcode capability generates labels and supports PDA scanning
- 20+ standard reports for inventory management with the ability to customize as needed

**TALON Benefits:**
- Automated order and receipt process reduces non-value-add activities and cost
- Increased assurance of supply
- Improved inventory turns
- Mitigated risk of excess inventory and line-down
- Securely hosted by independent third party
- Purchase orders and advance ship notifications are exchanged via EDI
- User setup allows access and feature control

**Steps to Implementation:**
1. REVIEW the desired process flow
2. CREATE statement of work defining the process
3. IDENTIFY existing content to start the program
4. DETERMINE kanban sizes and/or mix/max levels
5. ORDER scanner, set up program components
6. INSTALL software and train users

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EDI & File Sharing

The sharing of supply chain transactions in a computer-to-computer environment saves time, increases accuracy and improves the overall efficiency of communications. TTI supports the industry's widest range of electronic communication methods, the two most common are Electronic Data Interchange (EDI) and Electronic File Sharing (e-file).

**EDI**

EDI is the computer-to-computer interchange of strictly formatted documents between trading partners. EDI communications utilize a standardized format created and governed by the National Institute of Standards and Technology. TTI supports a wide range of the most commonly used transactions including forecast sharing, purchase orders, advanced shipment notification and invoicing. The benefits of EDI include the elimination of paper documents, reduced risk of human error, increased productivity and faster response times.

**EDI Transaction Set Examples**

- **Customer**
  - [830] Planning Schedule with Release Capability(e)
  - [850] Purchase Order
  - [860] Advance Ship Notice/Manifest
  - [862] PO Change Request
  - [865] PO Change Request Acknowledgement
  - [866] Shipping Schedule
  - [810] Invoice

- **Supplier**
  - [855] Purchase Order Acknowledgement
  - [856] Advance Ship Notice/Manifest
  - [855] PO Change Request
  - [865] PO Change Request Acknowledgement

**Electronic File Sharing**

For customers not using EDI for computer-to-computer communication, TTI also supports a broad range of e-file sharing options that provide many of the same benefits without limitation. Using this communication method, customers transmit their key business documents, demand requirements, purchase orders, etc., via e-mail attachment or by providing access to their secure web portal. At TTI, we convert these Excel and text files then electronically integrate them into our AIM platform for processing.

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1.800.CALL.TTI www.ttiinc.com
Case Study
Talon® Success Story

$100 million dollar EMS provider improves efficiency and eliminates line-down risk with supply chain solution from TTI.

Challenge
Our customer understood that in order to be successful as an Electronics Manufacturing Service Provider (EMS) specializing in prototypes and new product introductions they had to provide a quality product in less time than their customers could do the job themselves – lines-down and missed product launches are not acceptable.

As a low volume, high mix manufacturer (LVHM) they buy standard component values over and over and need to have reels available for multiple surface mount technology (SMT) lines at the same time. Their materials and manufacturing resource planning program doesn’t accommodate for the need of full reels to be maintained across multiple lines – the buyer was constantly struggling with discrete purchase orders and expedites.

Solution
The company turned to long time partner TTI – specialists in IP&E and discrete components, to create a line-side stocking solution where a variety of standard value capacitors and resistors could be expensed and maintained on the production floor.

The challenge to TTI was how to manage the inventory to maintain sufficient quantities without over stocking. The customer needed a system to track usage and to automate the replenishment of these expensed, commodity items.

Never short on solutions – TTI materials and supply chain professionals designed a Kanban process and deployed TALON, TTI’s web-based replenishment solution.

A rolling cart was built to hold multiple reels of the most commonly used components and staged on the production floor. Once a week, an operator determines the number of reels missing, scans the TALON barcode label and an order is created and sent via EDI to TTI. The replenishment quantities ship the next day. By populating a blanket purchase order in TALON, purchasing time related to the replenishment of these components has been virtually eliminated.

Results: Today, the company employs TTI’s Forecast Management solution to reserve inventory and pipeline based on lead time; and a line-side stocking program powered by TTI’s TALON auto-replenishment solution. Their efficiency is increased, total cost of ownership is reduced and lines-down are a thing of the past.
Maximize Profits and Speed Time to Market with Supply Chain Optimization and TTI

Whether your goal is to improve the efficiency of your existing supply chain program or reduce operating costs, our proprietary inventory management system and supply chain experts will show you how to reduce inventory while actually improving the availability of parts and components.

Purchasing
- Improved productivity and quality through automated transactions
- Increased time for strategic efforts and cost reductions
- Reduced purchasing cycle times and fewer vendors to manage

Supply Chain
- Reduced inventory and increased quality
- Increased time for planning and strategic efforts
- Reduced cycle times and fewer suppliers to manage
- Improved on-time delivery

Manufacturing
- Improved availability and reduced setups
- Increased flexibility and reduced lead times
- Improved quality and predictability of materials
- Mitigate line-down risk

Finance
- Reduced inventory cost
- Reduced transactional cost
- Freed up capital and improved bottom line

Quality
- Lower cost of quality and improved bottom line

Reduce Total Cost of Ownership and Mitigate Risk
Call your local TTI Supply Chain Representative

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