Planning and Scheduling

Business without Barriers

EPICOR®

Planning at peak performance removes barriers to profitability.

Planning and Scheduling

- Forecasting and Master Production Scheduling
- Forecast Pro for Epicor
- Material Requirements Planning

- Scheduling and Resource Management
- Advanced Planning and Scheduling
- Multisite Management

Financial Management

Supply Chain Management

Customer Relationship Management

Production Management

Sales Management

Enterprise Performance Management

Governance, Risk and Compliance

Planning and Scheduling

Human Capital Management

Project Management

Service Management

Product Data Management

Business Architecture

Epicor Planning and Scheduling

Performance-driven companies have mastered the art of predicting and responding quickly to changes in customer demand with minimal business interruption. Whether you are a global, multisite enterprise or a single site manufacturer or distributor, precise and flexible planning and scheduling is imperative to efficient and profitable operation. Epicor offers a comprehensive solution for forecasting, material requirements planning (MRP), scheduling, and advanced planning and scheduling to meet the needs of today's agile businesses. For companies with complex processes that require project management and resource management capabilities, Epicor Planning and Scheduling offers a comprehensive solution that is baked into the fiber of the product for unparalleled operational visibility.

Forecasting and Master Production Scheduling

Forecasting and Master Production Scheduling (MPS) in Epicor are designed to assist manufacturers and distributors with both day-to-day control and long-range planning and decision making. Forecasting and MPS support your business strategies, as well as those businesses that operate multiple, mixed-mode strategies simultaneously. Forecasts can be generated from multiple historical sources (e.g., sales, invoice, and inventory usage history).
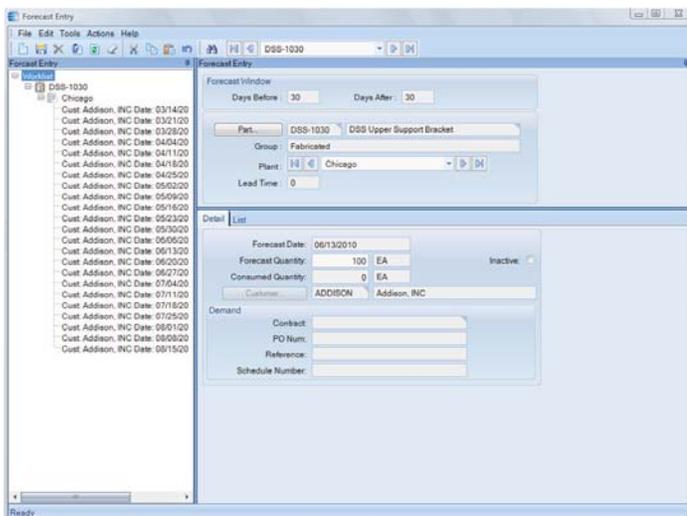
Display a forecast by customer and part number with information imported from a variety of sources.

Manual Forecast Entry
Manually enter forecasts for companies, plants, customers, dates, and parts. Users can cut-and-paste from other applications into the forecast system.

Forecast Export
Export historical information to third-party applications for the calculation of forecasts.

Forecast Import
Import forecasts from other applications or customers. Import options allow forecasts to be broken down by part, customer, plant, date, and company. This import can be additive, update the existing forecast, or a complete clear and re-load.

Forecast Methods
Epicor Enterprise Performance Management (EPM) offers a number of forecasting methods:

Focus: A simulation technique where forecasts from the past are simulated, using several simple or statistical algorithms, and then compared to what really happened in the past. Six different strategies are available:

- Past periods this year
- Past periods last year
- Growth over last year
- Moving averages
- Straight line
- Exponential smoothing

Statistical: A method which uses mathematical algorithms to fit curves to the historical time series. Three different strategies are available in the strategies dialog box when you choose statistical:

- Moving averages
- Straight line
- Exponential

Forecast Buckets
Bucket forecasts in any way: daily, weekly, monthly, yearly, etc.

Forecast Analysis
Forecast any number of variables (e.g., revenue) rather than just forecasting product units. Forecasting allows any number of tiers to be forecast and analyzed (e.g., forecasting product units by company, state, city, and customer).

Inter-Company Trading
Dynamically accept forecasts from other companies within the enterprise. This allows companies to give visibility to the supply company of future demand without needing to raise a firm inter-company order.

MPS Entry
Manually enter or cut-and-paste MPS from other applications.

Forecast to MPS
Automatically generate the MPS for forecasting.

Driving Capacity and Raw Material Procurement
Make and alter MPS decisions based on constraints. Both forecasting and MPS can independently drive future demand.

Forecast Pro for Epicor

Forecast Pro® for Epicor is a comprehensive forecasting solution designed for accurate automated forecasting, collaborative forecasting, working with complex hierarchies, maintaining multiple forecast overrides, documenting your forecasting sessions, and integrating with other systems. With Forecast Pro for Epicor you can create accurate forecasts quickly and easily using proven statistical forecasting methods such as Exponential Smoothing, Box-Jenkins, Event Models, Multiple-level Models, Seasonal Simplification, Low Volume Models, Intermittent Demand Models, Moving Averages, Curve Fitting, and Simple Methods.

Use Forecast Pro for Epicor's Expert Selection capabilities to simplify the forecast process by creating accurate forecasts automatically.

Expert Selection
Forecast Pro for Epicor's Expert Selection mode analyzes each item and selects the appropriate forecasting method automatically. If you prefer to specify the forecasting approach, Forecast Pro for Epicor provides a complete range of forecasting methods and all the diagnostic tools you need.

Proven Statistical Forecasting Methods
Forecast Pro for Epicor supports Exponential Smoothing, Box-Jenkins, Event Models, Multiple-level Models, Seasonal Simplification, Low Volume Models, Intermittent Demand Models, Moving Averages, Curve Fitting, and Simple Methods such as same-as-last-year and same-as-last-year plus growth.

Adjust the Forecast with Business Expertise
Forecast Pro for Epicor lets you adjust your forecasts on a graph or in a spreadsheet-like display—in either view, you see both the historical data and forecasted values, allowing you to easily compare patterns within the data. Adjustments can be made at any level in your hierarchy and automatically reconciled. A handy commenting facility allows you to document any adjustments.

Make Convincing Presentations
With Forecast Pro for Epicor, you can create dazzling, presentation-quality reports in seconds. Four professionally designed standardized report formats are included as well as a custom reporting option for maximum flexibility. Forecast Pro for Epicor writes directly to Excel® (.xls and .xslx), making it easy to share your work.

Collaborate with Others
Working with colleagues can also improve the forecasting process. Using up to ten customizable override rows and handy comment fields, you can easily collaborate with your colleagues and document your changes to foster a truly collaborative forecasting process.

Save and Restore Forecasts
Forecast Pro for Epicor allows you to save and restore your forecasting sessions including the forecasting models used, the forecast overrides and their associated comments, and all of your reporting options.

Manage Hierarchies
With Forecast Pro for Epicor's powerful "shuffling" capability, you can rearrange your hierarchy on-the-fly. Need to generate a report showing product level forecasts broken out by customer and then create another report showing customer-level forecasts broken out by product? No problem!

Exception Reporting
Focus on the items that need attention with Forecast Pro for Epicor's comprehensive exception reporting, you can automatically flag exceptions, saving you from manually reviewing every forecast. Exception reports allow you to analyze the forecasts you are currently working on as well as previously completed and archived forecasts.

Monitor Forecasting Performance.
Forecast Pro for Epicor maintains an archive of your previous forecasts (including the statistical forecast as well as the adjusted forecast) so you can compare forecasts vs. actuals. With just a quick glance at Forecast Pro for Epicor waterfall reports you can zero in on what's working and what isn't.

Consolidate Team Forecasts

Forecast Pro for Epicor allows you to break large forecasting projects into smaller pieces that can be worked on separately and then reassembled into consolidated forecasts. For example, if three demand planners are responsible for three different geographical areas they can work independently and once they've completed their work, the forecast can be consolidated for further review and manipulation.

Forecast Pro for Epicor Collaborator

Forecast Pro for Epicor Collaborator is a fully integrated companion product to Forecast Pro for Epicor which provides an easy and affordable way to collaborate with colleagues. Forecast Pro for Epicor Collaborator allows others to view your forecasts—including graphs and reports—add overrides and comments, and save the results.

Work With Your Existing Epicor Data

Forecast Pro for Epicor imports data in a variety of flexible, easy-to-create formats including Excel, text files, and ODBC. These flexible formats allow you to easily import and export data from your Epicor system or other external systems.

Material Requirements Planning

Built for the needs of the single site as well as extended enterprise, MRP offers cross plant and cross company planning. Enhanced to offer plant source as well as product group sourcing of materials and assemblies, MRP automatically and visually extends the enterprise to efficiently manage supply and demand.

Forecast

Enter general part forecasts or specific customer/part forecasts. MRP consumes the forecast with actual orders as they are received. View lower-level component requirements with long lead-times before the end part is released.

Manual Forecast

Manually enter forecasts for companies, plants, customers, dates, and parts as well as cut-and-paste from other applications into the forecast system.

Forecast Export

Historical information can be exported out to third-party applications for the calculation of forecast.

Forecast Import

Import forecasts from other applications or customers. Import options allow forecasts to be broken down by part, customer, plant, date, and company. This import can be additive, update the existing forecast, or a complete clear and re-load.

Master Production Schedule

Enter production forecasts for specific end parts using the MPS function. Perform an iterative process of entering a planned schedule, viewing the effect on your resources, then modifying the plan until you have achieved an optimal schedule.

MRP Generation

Run MRP with either net change or full MRP regeneration options. The MRP generation process balances the demand of customer orders and forecasts with the supply of jobs. As orders and forecasts change, MRP automatically adjusts corresponding jobs so you are in balance. MRP even reschedules your plant for you.

Log File

See what changes were made by MRP in the log file.

Material Planning

Create purchase order suggestions for inventory and purchased parts that are needed to complete production. Use lead times and vendor price breaks to determine when the part should be ordered and at what price.

Dynamic Lead-Times

Take into consideration variables such as the batch size, production calendar for a resource, the run rate of the resource utilized and the availability of material flagged as constrained in production schedules.
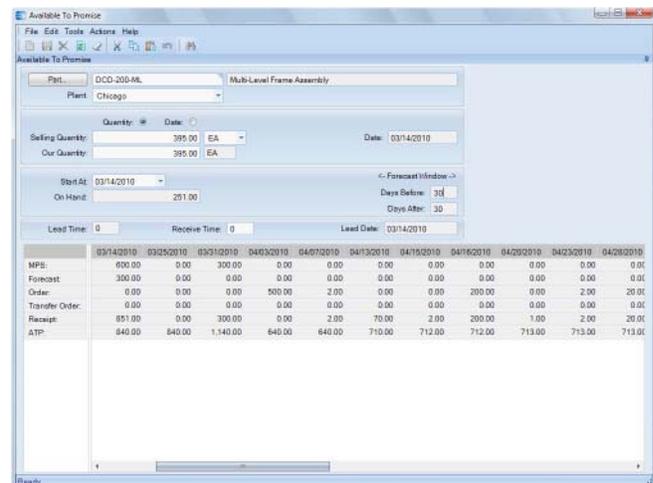
Check supply and demand of a part with Available-to-Promise functionality.

Part Planning Tools

Account for production prep, kit, and receipt time. Use this to derive appropriate lead-time for producing the product in addition to cycle-times required to produce the product.

Plan as Assembly

Use Plan as Assembly to plan lower component manufacturing parts without the need to include them in the full assembly structure. This feature enables complex planning for Multilevel complex parts with components that are typically stocked.

Planning Horizon

Review the planning horizon of a part or resource, then plan to, but not beyond the horizon, preventing premature planning.

Auto Job Firm Process
Use predefined rules to firm and move MRP production requirements to production planning automatically, for rapid response to current demand.

Multisite
Run MRP for all plants or for individual plants within a company. Changed schedule dates roll down to all subcomponents—even those being manufactured in another plant.

Multilevel Pegging
Analyze all the supply and demand in your system, then peg each supply against demand, prioritized by due date. Because supply is calculated for every inventory item from all possible sources—regardless of whether demand exists—you are alerted to items that may be overstocked or obsolete.

Sourcing By Plant
Define a unique source per part or plant—whether its default sourcing is purchased, produced, or transferred. What is produced in one location may be purchased—or transferred in—from another.

Available-to-Promise
View running balances with the available-to-promise function. Enter a quantity, and the system will find the earliest date that quantity will be available. Enter a date, and see how many parts are available on that day. MPS, forecast, order, and planned receipt quantities are visible to help you in your production planning tasks.

Planning Types
Maximize your planning accuracy with multiple types of inventory planning, including minimum/maximum/multiple, days of supply and run out.

Rough Cut Horizon
Enable MRP to process more efficiently by removing the time spent scheduling beyond a specified threshold or rough cut horizon.

Recycle Jobs
MRP reuses un-firm jobs for optimum MRP performance.

Short Horizon Days of Supply
To optimize MRP performance, a Short Horizon Days of Supply field is included within the Part Maintenance program on the Plant Detail sheet. This field defines a material value that will be used when MRP determines that the needed materials falls within the Short Horizon. Here's how this is calculated:

- If that day is <= Schedule Start Date + Short Horizon Days, then the Short Horizon Days of Supply value will be used for the materials.

- If the date is > Schedule Start Date + Short Horizon Days then the Standard Days of Supply value will be used.

Short Horizon Planning
The Part Maintenance program includes the Short Horizon Planning functionality. The Part-Plant sheet contains the following fields: Horizon Days, Min Lot Size, and Max Lot Size.

Calculate Manufacturing Lead Time
Plan for part components lower down in the assembly structure for accurate MRP scheduling.

Start Minimum Quantity
Account for partial material availability in MRP calculations to get started earlier with available material and improve delivery performance.

Bill of Materials
MRP checks the revision level and verifies approvals before pulling in a standard BOM and routing. For parts that do not have a current approved revision, a job suggestion is created in the new/change order queue to help ensure requirements are not lost.

Scheduling and Resource Management

Multiple resource views and online scheduling tools such as the change impact informer offer the master scheduler and manager the ability to visually locate overload problems and slack conditions, then perform cost and throughput analysis on schedule changes before they are firmly committed.

The scheduling engines uses several factors that affect production quantity, setup time, production time, capacity, priority, and so on to calculate how long it will take each job to complete. It then displays the schedule through the Job Scheduling Board, the Resource Scheduling Board, and the Multi-Resource Scheduling Board.
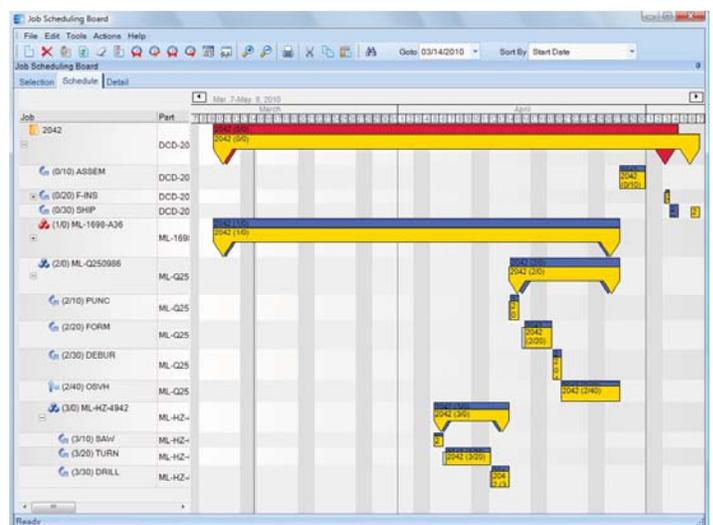
Manipulate the schedule directly from a sophisticated, drag-and-drop visual scheduling board.

Production Scheduling Board

Easily manipulate the schedule with drag-and-drop and drill-down techniques for Multilevel assemblies and operation details. A main control center for scheduling resources graphically displays schedule by job, resource, resource group, or entire plant. Dynamically change the timeline of the view to see short-run operations and analyze the impact of long running operations instantly.

Alerts

View indicators, such as late status and material availability, to proactively alert the master scheduler to potential problems in the schedule. Optionally customize colors to denote actual, what-if, or delinquent load by job or operation.

Finite Scheduling

Schedule and reschedule with flexible, finite real-time schedule capabilities for a single job and plant-wide global finite capacity. Features include job locking for key operations or jobs, user-defined priority, and capacity load leveling by resource and resource group.

Start Time

You can define a Start Time for this scheduling process. This feature lets you run Global Scheduling during the current date, as you can indicate from what specific point in time the global finite scheduling process will begin. Previously this function only allowed you to begin Global Scheduling on the next day.

Drag-and-Drop

Drag-and-drop scheduled load hours forward or backward to alleviate the overload and effectively reschedule when faced with overload conditions at critical resources or resource groups.

Operation Complete Quantity Displayed

The Job Scheduling Board, Resource Scheduling Board, and Multi-Resource Scheduling Board all have an Operation Complete Quantity field on their Detail sheets. This field displays the number of parts that are so far complete on the current operation.

Operation Complete Time Displayed

Both the Job Scheduling Board and Resource Scheduling Board display the Operation Complete Time value after you move an operation. This shows you the amount of time that is left to complete the operation.

Overload Informer

Display each date and resource/resource group, where scheduled hours exceed capacity based on what-if or actual job schedules. Access resource, resource-group, and job scheduling information to review the causes of an overload and make schedule changes as needed.

Multilevel Assemblies

Manage complex assemblies by matching the schedule to actual production output. From branch- and component-level rescheduling to final assembly, Epicor ensures that all components are on time and that nothing slips through the cracks. Visually explode high-level components to view lower-level component schedules.

What-If

Schedule jobs in a what-if mode, with the ability to analyze potential bottlenecks before finalizing the actual schedule.

Setup Grouping

Use setup groups to streamline your setup processes. Dynamically assign grouping based on the criteria you define.

Capabilities with Zero Priority

When you schedule by capability, the Scheduling Engine selects resources by the Priority value defined for each capability. You can assign a zero value to a capability's priority. Any resource that is defined by this zero priority will not be selected by the Scheduling Engine. It will, however, be available to use as a resource on the Start Activity or Labor Entry windows.

Change Impact

View the potential changes for cost and throughput to the schedule after creating what-if scenarios.

Dual Resource Constraints

Use a secondary resource constraint (e.g., a tool or employee) in finite capacity scheduling in addition to the primary resource.

Conditional Forward Schedule

Optionally allow the system to perform a forward schedule based on a start date of today when performing a backward schedule if a current date is encountered.

Resource Group

Define an unlimited number of resources within a resource group. Resource groups can be used in the planning process with the actual resource assigned automatically based on availability of individual resources. Resources may have unique calendars, and values for hourly/daily capacity, queue-and move-time.

Finite Load Horizon

Prevent the schedule from making adjustments too far into the future—potentially impacting material purchases and resource allocations—with finite load horizons (e.g., time fences or cutoff dates) for finitely scheduling load on the resource.

Resource-Based Schedule

Develop a schedule for each individual resource deployed in the schedule.

Reschedule Delta

Optionally automate the system's response to parts that are planned to be early or late by a threshold number of days.

Rough Cut Scheduling

Keep an eye on the future with Rough Cut Scheduling. Rough Cut Scheduling is deployed to offer visibility of future production without taxing system resources.

Scheduling Factor Send Ahead

Start-to-start scheduled operations or operations scheduled to begin at the same time can be staggered based on an offset factor that is calculated by number of pieces or a percentage of time allocated.

Scheduling Blocks

Account for periodic processes with scheduling blocks. Scheduling blocks offer definition of periodic setup needs such as tool changes or other processes.

Global Scheduling Component Process

The Global Scheduling process is divided into three components. You must run these components in the following order to globally schedule your jobs:

- Calculate Global Scheduling Order: This program is a setup process you must run before the Global Scheduling process. Each time this process is run, it will schedule any job that is a candidate for the Global Scheduling process. This process determines if each job will be early or late. This Early Days or Late Days value is then compared against the Priority code value on the job to determine a job priority sequence. The Global Scheduling process will then schedule these jobs in using this generated job priority sequence.

- Adjust Global Scheduling Order: This is an optional component you can run. Launch this program to review the job priority sequence that was generated through the Calculate Global Scheduling Order process. You can use this program to manually change the sequence through which these jobs will be scheduled during Global Scheduling.

- Global Scheduling: Run this process to schedule the jobs. All the jobs selected by the Calculate Global Scheduling. Order process will be placed within the schedule, either on the actual schedule or on a What-If schedule. The jobs will be scheduled in order using either the sequence generated by the Calculate Global Scheduling Order process or the modified sequence you changed within the Adjust Global Scheduling Order program.

## Material Constraints Displayed

Both the Multi-Resource Scheduling Board and the Job Scheduling Board indicate which materials are constrained. On both scheduling boards, the Related Materials grid now contains additional columns that display this information. One column indicates whether or not the material is constrained. The other columns define the purchase order, job, and lead time linked to the constrained material.

Advanced Planning and Scheduling

Available as an extension to Scheduling, Epicor Advanced Planning and Scheduling incorporates the strength of the Scheduling engine and enhances it with advanced functionality such as multiple constraint scheduling, a wide range of scheduling methods, visual drag-and-drop scheduling, capability and dependent capability-based scheduling, real-time capable-to-promise functionality, and advanced material planning functionality.

Capable-to-Promise

Easily manage customer expectation with real-time capable-to-promise functionality in Order Management. Enabled with APS, Epicor capable-to-promise uses the scheduling engine to determine accurate promise dates and offers order processing single-click confirmation or order cancellation based on the projected due date.
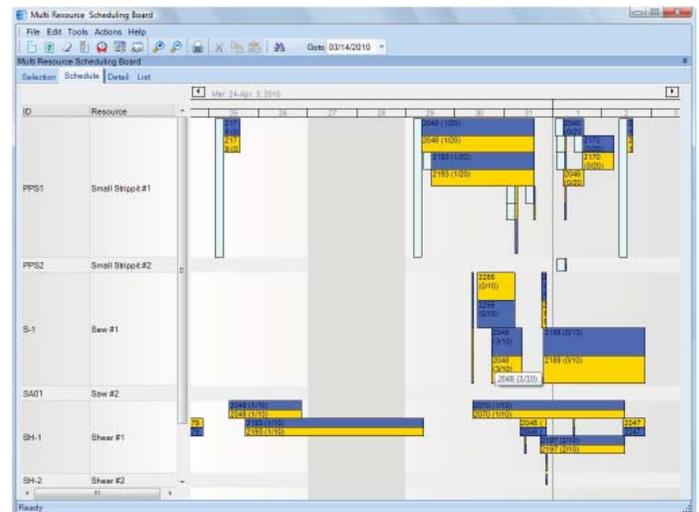
Consider production resources and create a visual finite schedule for improved schedule accuracy.

Multiple Resource Scheduling Board

Easily manipulate the schedule with drag-and-drop manipulation and drill-down techniques for multilevel assemblies and operation details. A main control center for scheduling resources graphically displays schedules for a group of resources in one screen. Dynamically change the timeline of the view to see minute operations and analyze the impact of long running operations instantly. Add memos to a schedule on the Multi-Resource Scheduling Board about any aspect of a current schedule.

Multiple Constraints

Set up every operation with multiple constraints or resources (e.g., machines, tools, skilled labor, raw materials, or available subassemblies).

Resource Eligibility
Define resources within a specific resource group with individual characteristics to improve scheduling accuracy.

Automated Scheduling by Capability
Define a capability or skill level that can be tied to multiple resources rather than a resource group or individual resource in the planning process. The APS engine then determines, based on the available resources, which individual resource to schedule for the operation.

Dependent Capabilities
Link dependent capabilities that the scheduling engine schedules along with the primary capability when operations require dependent skills to perform the operation.

Finite or Infinite Capacity
Define each resource with either finite or infinite capacity. When a piece of the schedule is moved, the resource is rescheduled according to its type.

Minimum WIP Scheduling
Use a unique scheduling algorithm designed to minimize work in process by scheduling a job to ship as early as possible. APS then back schedules to start working on the job as late as possible.

Dimensional Planning
Schedule by volume and quantity using dimensional planning that is not time constrained.

Rate-Based Scheduling
Schedule cells based on production throughput rates rather than time.

Material Constraints
Consider material availability as a scheduling constraint. Integrated directly with Inventory and Purchasing, the APS system knows when material is due and schedules accordingly.

Advanced Material Planning
Increase throughput by considering material and component availability as a constraint. Advanced material planning, an integral feature of APS, facilitates intelligent stocking and procurement of material requirements.

The schedule function recognizes materials earmarked as constraints, gives the master scheduler material availability, and considers supplier calendars for a more realistic schedule.

Change Impact Analysis
See the immediate impact of proposed changes on other orders to make informed decisions about desired changes.

Time Adjustment
Automatically take into account resource utilization and resource group efficiency for more accurate load calculation.

Optimization Rules
Generate a schedule based on rules assigned to individual resources.

Balanced Optimization
Concurrently consider priority, slack time, and setup time when determining load balance.

Single Cell Scheduling
Schedule an entire job or assembly within a single work cell.

Unlimited What-If
Create unlimited what-if scenarios to view the effect of changes on your shop floor.

Multi-Plant Communication
Ensure that interdependent plant schedules are coordinated.

Multisite Management

Best-in-class enterprises are outpacing their competitors today with new initiatives to drive out redundancies and improve lead times. Maximizing the use of your internal supply chain can be a key differentiator. Not only are manufacturers and distributors looking for new tools to oversee multiplant operations, they are also looking to maximize the use of existing resources. Alternative production methods management helps optimize the production processes for specific parts in each plant, based on the resources available. Another optimization tool includes the transfer of material or semi finished components to another plant for completion.

About Epicor

Epicor Software is a global leader delivering business software solutions to the manufacturing, distribution, retail, hospitality and services industries. With 20,000 customers in over 150 countries, Epicor provides integrated enterprise resource planning (ERP), customer relationship management (CRM), supply chain management (SCM) and enterprise retail software solutions that enable companies to drive increased efficiency and improve profitability. Founded in 1984, Epicor takes pride in more than 25 years of technology innovation delivering business solutions that provide the scalability and flexibility businesses need to build competitive advantage. Epicor provides a comprehensive range of services with a single point of accountability that promotes rapid return on investment and low total cost of ownership, whether operating business on a local, regional or global scale. The Company's worldwide headquarters are located in Irvine, California with offices and affiliates around the world. For more information, visit www.epicor.com.

www.epicor.com

EPICOR.

Worldwide Headquarters	Latin America and Caribbean	Europe, Middle East and Africa	Asia	Australia and New Zealand
18200 Von Karman Avenue Suite 1000	Blvd. Antonio L. Rodriguez #1882 Int. 104	No. 1 The Arena	238A Thomson Road #23-06	Level 34
Irvine, California 92612 USA	Plaza Central, Col. Santa Maria,	Downshire Way	Novena Square Tower A	101 Miller Street
Toll Free: +1.800.999.6995	Monterrey, Nuevo Leon, CP 64650	Bracknell, Berkshire RG12 1PU	Singapore 307684	North Sydney NSW 2060
Direct: +1.949.585.4000	Mexico	United Kingdom	Singapore	Australia
Fax: +1.949.585.4419	Phone: +52.81.1551.7100	Phone: +44.0.1344.468.468	Phone: +65.6333.8121	Phone: +61.2.9927.6200
www.epicor.com	Fax: +52.81.1551.7117	Fax: +44.0.1344.468.010	Fax: +65.6333.8131	Fax: +61.2.9956.8976