



join the WINNERS

Implement a
"profit increase project" with Asprova,
and join the winners of the manufacturing industry.

Message from the President

Asprova Corporation was founded in 1994 as the first company in Japan to specialize in production scheduling software. Since then, we have continued to focus solely on the development and sales of the production scheduling software Asprova. I am pleased to say that Asprova has been implemented now in over 800 factories worldwide.

Among these stand out cases of companies buying one license at first, and then going on to deploy Asprova in one factory after another after confirming the benefits of the first implementation. In one case, a single company has deployed over 40 licenses of Asprova. **This overwhelming number of users is proof of the value of visual management, lead time shortening, lateness reduction, and other benefits of implementing Asprova.**

Recently, we released Asprova2003 as a complete renewal of Asprova Ver9. When we started designing Asprova2003, **the list of unsolved needs that we had gathered over the past nine years from existing users totaled around 650 items. After organizing these needs, we chose a list of 323 "challenge problems", and designed a new base architecture that would be capable of solving nearly all of them.** In the initial release of Asprova2003, solutions to some of the "challenge problems" are already implemented. The others we plan to implement as new features in upcoming releases. You can look forward to new features being released one after another to better meet your needs.

The new-architecture production scheduler Asprova2003 is a crystallization of the manufacturing know-how of the more than 800 Asprova users around the world. Within the company, we say we are working to be "the three world's bests". These three are **"the world's best scheduling logic", "the world's best graphical user interface", and "the world's best external interface"**. These are the goals of the Asprova2003 development team.

However, Asprova2003 is not just the results of the pursuit of something technically impressive. Once, while visiting one of our users, I was told with great emotion that "deploying Asprova was what saved our company from bankruptcy". Hearing that, I too was deeply moved. What I felt at that time was that **"in an industry environment where it is as hard to make a profit as it is now, there can surely be no more rewarding work than if I could contribute to increasing our customers' profits."**

It was that conviction that led me to set our primary goal in designing Asprova2003 to **"contributing to increasing the profits of our customers"**. It's not easy to make a significant increase in one's customers' profit with just a piece of software. But feeling that if we're going to do it at all, we'll aim for what's really important, regardless of the difficulty, it is precisely this goal that we have chosen to strive for.

If by using Asprova2003 you can achieve visual management in your factory, shorten lead times, reduce inventory, **and increase your profits, then we will truly feel that our efforts were worthwhile.** I hope that this feeling will be communicated to you through Asprova2003.



Kuniyoshi Takahashi
Representative Director
Asprova Corporation

Overwhelming User Base

Asprova2003 was developed in response to the voices of the more than 800 Asprova users throughout the world. Asprova is highly regarded across diverse industries, with installations spanning from electric/electronic, automotive, and machinery to chemicals and pharmaceuticals.

Electric / Electronic

LEDs, connectors, solderless terminals, microprocessors, printed circuit boards, silicon wafers, air conditioner cases (plastic molding), speakers, ceramics, watches, semiconductors, lead frames, CD-ROMS, CD-R/DVD/CD-ROM drives, electric wire, LCDs, stereos, photo masks, VVF cables, sockets, cellular phones, connectors for cellular phones, IC packages, aluminum electrolytic capacitors, photoresist, TFT modules, piston rings, needles, piano wire, printer pins, automotive meters, digital cameras, car navigation systems, refrigerators, light fixtures, sensors, traffic signal controllers, solar-powered battery modules, vacuum fluorescent displays, batteries, multipolar connectors, power cables, mainframe computers ...

Automotive

engine parts, doors, chassis, interior (plastic molding), metal molds, shock absorbers, vehicle inspections, pipes, tubes, engines, cranes, rubber, aircraft parts, test bodies, break parts, high-pressure hose, seat fabrics, wire rope, transmissions, camshafts, crankshafts, cases, wire harnesses, motorcycles, automobiles ...

Machinery

looms, kitchen appliances, machine tools, agricultural machinery, industrial machinery, optical instruments, light fixtures, air conditioners, heating appliances, plastic parts for office equipment, control computers, material handling equipment, power transmission equipment, power-driven hand tools, internal combustion engines, in-line instrumentation systems, wafer visual inspection equipment, centrifuges, sewing machines, heat treatment equipment, tanks, water tanks, turbines, condensers, model engines, vacuum pumps, wafer precision equipment, food products machinery, electric facilities, gas and water-related tools, water supply-related instruments, electric welders, stage lighting fixtures, sewing machine parts ...

Metal

drills, screws, cannons, wire, plumbing fixtures, guard rails, pipes, magnetic wire, steel, sheet metal parts, fence, metal bridge parts, blades, connecting rods, nuts, industrial precious metal products, drawing alloys, aluminum for beverage cans, blades for cutting machines, gears, metal springs, timer parts, precision gears, aluminum foil, sheet copper, ship plates, drawn copper products, specialty steel products, cutting tool tips, lubricating oil packaging, beverage cans, magnets ...

Non-metal

corks, packaging, textiles, paper, shipping blocks, camera film, rubber products, ABS resin, UV ink, gravure ink, printing of packaging materials, coated abrasives, resin hose, coating materials, dental materials, film sheets, ceramic base for electronic parts, tiles, firebricks, new ceramics, catalysts, paper clay ...

Consumer Goods

fermented soybeans, detergent, flour, plastic bags, plastic models, office goods, fishing reels, microwave dinners, magnets, wood processing, socks, cans, cosmetics, rubber stamps, ballpoint pens, shampoo, shopping bags, cardboard, home exterior products, drinking water, entranceways, underfloor storage units, fixture components, shoes, toy parts, necklaces, stockings ...

Medical

medical products, test drugs, medical equipment, laboratory testing reagents, granulated powder, pills ...

Chemical

adhesives, plastic, asphalt, silicon, motor oil, polyethylene, polypropylene, molding materials, rubber, fluorine chemical products, polyvinyl chloride, polyvinyl chloride paste ...

Implement a "profit increase project" with Asprova, and join the winners of the manufacturing industry.

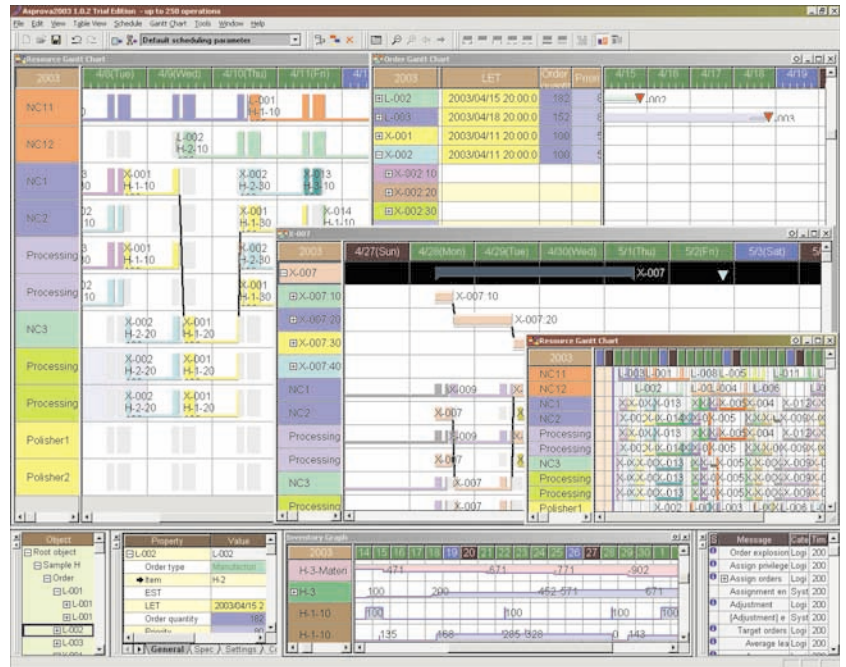
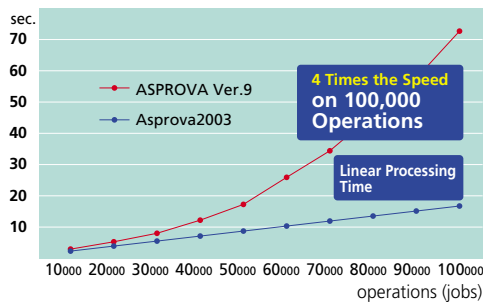
What should you do to increase the profits of your factory? Realize visual management, shorten lead times, and reduce inventory. If you achieve these three things, your factory's profits will increase without fail. Asprova2003 is designed to increase factory profit. Let us introduce the advanced features of Asprova2003 that make "realizing visual management, shortening lead times, and reducing inventory" possible.

Advanced Features of Asprova2003 That Support Your Profit Increase Project

Realizing Visual Management

● Ultrafast Scheduling Logic

Asprova2003 is even faster than its predecessor Asprova Ver9 -- 4 times as fast when scheduling 100,000 operations. This speed enables you to shorten your planning cycle so as to be able to visually confirm the latest state of the shop floor as it changes from moment to moment.



● Order Gantt Chart

Displays a Gantt chart organized by order. You can drill down to display hierarchically the operations corresponding the processes under each order, and drill down further to display the setup, production, teardown, and other tasks under each operation, realizing "visual management" for each order. By looking at this chart, you can discover orders that are likely to run late according to the schedule, and take measures ahead-of-time to complete each order by its due date.

● Resource Gantt Chart

Displays a Gantt chart organized by resource (machine, worker, tooling, etc.). Displays the scheduled work for each resource to a precision of one second, realizing "visual management" for each resource.

● Detailed Display of Narrow Operations and Overlapping Operations

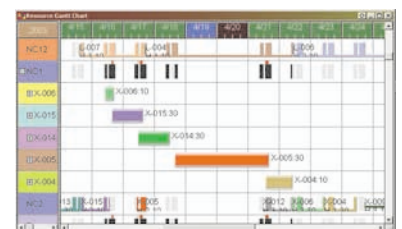
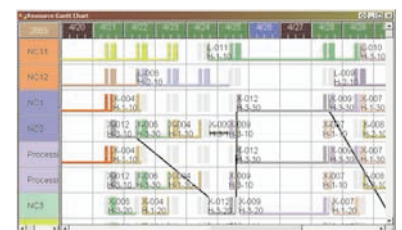
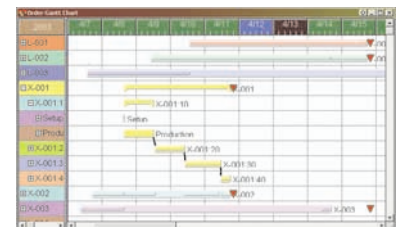
Overlapping operations and narrow operations are difficult to confirm visually on the resource Gantt chart. Asprova2003 allows you to perform a drilldown on a specified region on the resource Gantt chart, displaying each operation assigned to that region on a separate row. This makes it easy to visually confirm the assignment of even overlapping operations or narrow operations.

● Moving Operations with the Keyboard

Overlapping operations and narrow operations are difficult to select and move with the mouse. Asprova2003 allows you to select and move operations using either the mouse or the keyboard, making it easy to select and move even overlapping or narrow operations.

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● Load Graph

Displays a graph of how the load on each resource changes over time. Using this graph, you can visually confirm the future load on each resource. You can use this information to reduce labor costs by increasing or decreasing the number of available workers ahead-of-time to match the expected workload, and you can increase overall throughput by visually identifying the bottleneck resources.

● Inventory Graph

Displays a graph of how inventory levels for each item change over time in terms of quantity or monetary value. Using this graph, you can visually confirm how inventory quantities of each item will change in the future. You can also display a graph of past inventory levels to evaluate numerically the degree to which you succeeded in reducing inventory in terms of quantity or monetary value after deploying Asprova.

● Production Lead Time Graph

Displays a graph of production lead times. You can confirm the length of future production lead times as calculated in the schedule. You can also display a graph of past production lead times to evaluate numerically the degree to which you succeeded in shortening production lead times after deploying Asprova.

● Due Date Performance Graph

Displays a graph of lateness and due date performance. Using this graph, you can visually confirm future due date performance according to the schedule. You can also display a graph of past due date performance data to evaluate numerically the degree to which you succeeded in improving due date performance after deploying Asprova.

● Composite Gantt Chart

From the order Gantt chart, you can select an order and jump to a composite Gantt chart consisting of an order Gantt chart for the selected order and a resource Gantt chart for all resources related to that order. Using this chart, you can simultaneously confirm both the flow of the processes of the selected order and the loads on the related resources. If an order is expected to run late according to the current schedule, for example, you can visually determine which resource is responsible for the lateness.

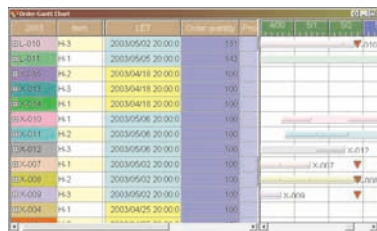


● Day of the Week Zoom Factor and Visible Times of Day

On the order Gantt chart and resource Gantt chart, you can specify detailed settings regarding the days of week and time periods of interest to you. For example, you can "display Saturday at 50% the normal width and Sunday at 30% the normal width, and only show the period of 8:00 to 17:00 on each day". In this way, you are able to display more relevant information on the screen at one time, improving the efficiency of your visual management.

● Gantt Chart Incorporating a Table View

An order table view is incorporated into each order Gantt chart. A resource table view is incorporated into each resource Gantt chart. This makes it easy for you to confirm and modify settings while using the Gantt chart.



● Object Window

All data relating to the schedule is stored in memory in the form of objects. Objects include things like orders, items, and resources. All objects exist in a hierarchy as descendants of the "root object" displayed in the top level of the object window. By navigating through the object hierarchy in the object window, you can reach all the data in Asprova2003, making it easy to find the data you need.

● Properties Window

Each object holds a number of properties, such as, for an order, "quantity" and "due date". When you select a bar on the Gantt chart or a row in the table view, the properties of the selected object are displayed in the properties window. This makes it easy to confirm the data settings of interest to you.

● Message Window

Displays messages that were generated during data loading, scheduling, etc. Since messages in Asprova2003 have a hierarchical structure, you can drill down to see the details of each message, making it easy to investigate the potential problems that the messages describe.

● Window Zooming

By spinning the mouse wheel while pressing the CTRL key, you can zoom in and zoom out on any of Asprova's windows. In this way, you can increase the amount of information displayed at once, making it easy to confirm the data of interest to you.

● Excel-like Editable Table View

Displays data such as master data or order data in a table format. You can edit as well as view data in the table view, using copy & paste, series fill, copy & paste to and from Excel, and many of the other time-saving features popular in Microsoft Excel. You can also have the background color and text color of each cell change depending on the value specified, making it easy to confirm data settings at a glance.

● Flexible Sort and Filter Features

You can sort and filter the rows of the table view and Gantt chart using any property of the objects displayed. This makes it easy to find just the data you are interested in.

● Integrated Master Editor

In the Integrated Master Editor, you can display and input all the relevant master data for each finished item in a single screen. This makes inputting and confirming master data easy, reduces simple mistakes, and improves the efficiency of your work.



Shortening Lead Times

● Synchronized Finite Capacity Scheduling

If the time each process takes is expressed as a fixed lead time (as in the case of MRP), production lead times are simply the sum of the fixed lead times of the individual processes, and thus cannot be shortened. On the other hand, since Asprova2003's finite capacity scheduling calculates the net processing time of each process while synchronizing the schedules of subsequent processes, Asprova2003 can calculate the shortest production lead time realistically allowed by the available capacity of the resources. For at least one user, simply switching to using finite capacity scheduling shortened production lead times by 75%.

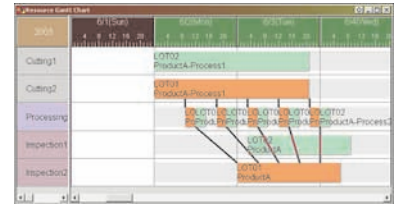
● Operation Splitting

If you would like to shorten production lead times even further, you can split lengthy operations and assign the split operations in parallel on multiple resources. There are many ways of expressing the way to split an operation, including the number of split operations, the number of parallel operations, split ratio, minimum lot size, maximum lot size, and lot size unit. Using these features, you can greatly shorten production lead times. Also, by splitting some of the processes of a manufacturing order that the schedule says will run late, you can shorten the production lead time of a specific manufacturing order so as to complete it before its due date.



● External Setup

Up till now, scheduling external setups was considered to be technically difficult. Asprova2003, however, makes the scheduling of external setups possible. By converting internal setups into external setups, you can shorten your production lead times while increasing the throughput on bottleneck resources and thence the productivity of your factory as a whole, as explained in TOC (Theory of Constraints). Both of these factors lead to increasing your factory's profits.



● Time Constraint Method (Transfer Batch Size)

The time constraint method refers to the method of controlling the time relationship between subsequent processes. ES (End-Start) pegs the end of the previous process to the start of the next process. SS (Start-Start) pegs the start of the previous process to the start of the next process. SSEE (Start-Start-End-End) pegs the start of the previous to the start of the next, and the end of the previous to the end of the next process. These are the time constraint methods that have been available up till now. Asprova2003 adds two new time constraint methods to further support production lead time shortening. EES (End Each-Start) pegs a previous process consisting of a single operation to a following process consisting of multiple split operations so as to supply items just-in-time. ESE (End-Start Each) pegs a previous process consisting of multiple split operations to a following process consisting of a single operation so as to supply items just-in-time. This makes it possible to take advantage of operation splitting to the fullest in reducing lead times.

● Bottleneck-Oriented Scheduling

In Asprova2003, you can perform scheduling while keeping fixed all operations assigned to bottleneck resources. Asprova2003 will perform backward assignment on processes previous to the fixed operations and forward assignment on following processes, optimizing start times while shortening production lead times.

Reducing Inventory

● Auto-Replenishment Production (Bulk Production of Intermediate Items)

By setting a safety stock level for key items, you can have Asprova2003 automatically generate production orders to replenish inventory just-in-time to keep the inventory from falling below the safety stock level. In this way, you can keep inventory to a minimum. Asprova2003 also allows you to specify a minimum, maximum, and unit for the production lot size (rather than simply a fixed lot size), so that lot sizes can be calculated in such a way as to eliminate any surplus, making inventory reduction through auto-replenishment even more effective.

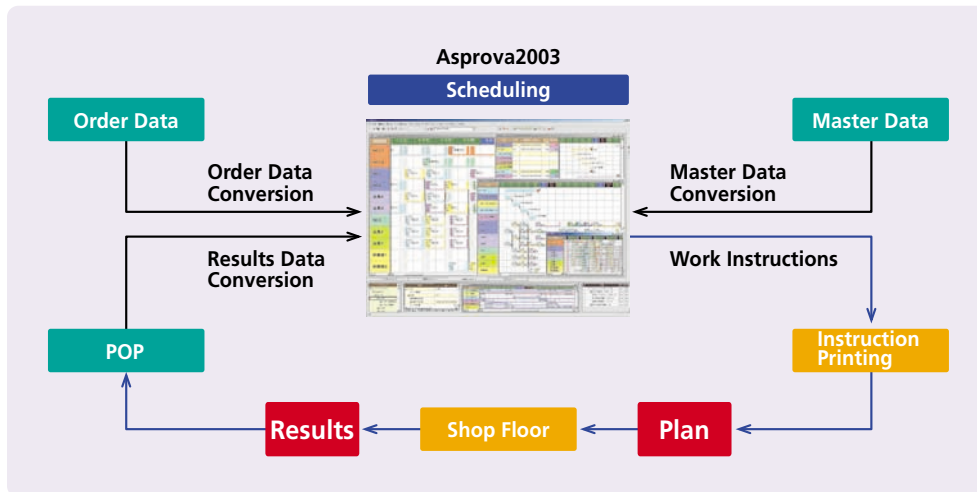
Other Advanced Features

- Selection of Master Data Through Conditional Expressions
- Setting Expressions for Calculating Production Times, Setup Times, and Required Quantities
- Splitting Processes
- By-Products
- Pegging of Sales Orders, Manufacturing Orders, and Purchase Orders

Advanced Features Planned for Release After January 2004

- Sequence Optimization
- Multi-Step Processes
- TOC Buffer Management
- Setups Without Related Production Tasks
- Setups During Production
- Lateness Reduction Features
- Nighttime / Holiday Priority Assignment
- Inventory Location Management
- Differential Data I/O

System Architecture Example



Operating Environment

CPU: Pentium 4 or greater **Memory:** 512MB or greater **OS:** Windows2000, WindowsXP

Asprova2003 can be integrated with most ERP, production management, and legacy systems. Please contact us for details.

Winners of the Manufacturing Industry Site

<http://www.asprova.com/>

"Implement a profit increase project with Asprova, and join the winners of the manufacturing industry" is the theme of this web site, including valuable information on how to increase profits, success stories, trade shows, seminars, training materials, and details of Asprova2003's features. Also, if you register as a member (free of charge), you can download the free trial version of Asprova, help file, introductory manual, profit increase project diagnosis sheet, and other information useful if you are considering deploying Asprova2003. Please take advantage of this opportunity to download the free trial version and investigate thoroughly the applicability of Asprova2003 to your needs before purchasing the software.



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