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 Scheduler Asprova. Over these 25 years we have continued to upgrade the software, taking the feedback from our manufacturing customers in Japan into account. Not only is our local market share in Japan now as high as 38.4 percent, but our international and multilingual support system spanning 15 countries has allowed us to implement Asprova in over 2000 sites across more than 30 countries. Asprova APS helps your factory to become more transparent, improves on-time running, dramatically shortens lead times, reduces inventory and ultimately increases profits, then our work will have been for something. These are the feelings we hope will be apparent when you use Asprova APS.

Global Support Network

Asprova is supported by local subsidiaries in China, Korea, Germany, America, Malaysia, Thailand and more than 30 national distributors overseas.

Implementation Result

Domestic: 2063 sites  Overseas: 762 sites

Asprova Corporation

No.1, best seller over 25 years in Japan
Used in 38% of major companies and deployed over 30 countries at over 2800 sites
Market Share 50% in Japan

Advanced Planning & Scheduling system

www.asprova.jp  Asprova
How can I deal with the problems that can't be handled with Production Management System or IoT?

Can I fit a rush order into my schedule?

How much should I order?

Do I have enough materials?

The lead-time is too long.

Asprova can solve them all!

No.1 market share in Japan. Equipped with a multitude of standard features and highly-flexible scheduling logic “Visualize” the manufacturing factory floor, and solve your ‘Product control’ problems.

Solving all the problems with Ultra High-Speed Scheduling Logic

Planning efficiency improvements

Visualization

Inventory Reduction

Sharing of process information

Asprova Production Control System

ERP

Production System

Sales, Inventory, Master Data

Asprova Scheduler Module

AP

IMS

MPS

[Reporting Results]

[Work Instructions]

Asprova APS

Asprova Network License Module

Asprova MPS

Network Data Linkage Module

Asprova Schedule Editor Module

Asprova CRM

Master Maintenance Database Module

With success stories like these, it's no wonder Asprova is confidently solving everybody's problems.

Asprova has been brought into various factories around the world to solve a variety of problems faced in production planning. While many of them experienced the Planning Efficiency Improvements, Transparency, Inventory Reduction and Sharing of Process Information Asprova enables, these six examples are the most significant.

**Case 1**

Pentel Co., Ltd.

Coordination with ERP achieved significant improvements in on-time delivery and reducing stocks of unsold inventory.

Pentel Co., Ltd. is known for its school stationery consumer products, with recently the company has expanded into the manufacture and sale of electronic devices and industrial robots. Pentel implemented Asprova APS to assist with production proposals, related to sales planning. Pentel found Asprova APS with other Asprova-related FF solutions, resulting in drastic reduction in unsold inventory by 58 to 75 percent. The on-time delivery rate was also significantly improved.

**Case 2**

Nishikawa Rubber Co., Ltd.

Production plus steps reduced by two-thirds, while a better grasp of production capacity facilitated more flexible yield adjustments.

Nishikawa Rubber Co., Ltd. is a specialist manufacturer of automotive, residential, electrical and medical/!!esthetic products, while also producing variousAlso sealing materials. Asprova helped to reduce the number of steps required for production planning by two-thirds, while also making it easier to adjust yield. Setting minimum inventory also allowed Nishikawa Rubber to achieve a 40 percent reduction in production inventory.

**Case 3**

Panasonic Appliances


Made the global standard for its production planning system, improving efficiencies in product planning and reducing inventory across subsidiaries in several countries.

Panasonic Appliances Air-Conditioning Malaysia Sdn. Bhd. was founded in 1971, today making and exporting air-conditioner packages and parts to more than 100 countries. Asprova assists with production planning. At the same time, other units within the Panasonic group of companies experienced similar improvements. Improvements by Asprova’s教导 support network, Panasonic chose to share Asprova in a global standard, working to expand implementations into the rest of its network.

**Case 4**

Kobayashi Create Co., Ltd.

Factory transparency increased, with yield per planning time increased by 30 percent.

Kobayashi Create Co., Ltd., which provides products and services centered on the printing of recording paper and business forms, the company’s printing business operates entirely on a bulk-order basis, with each customer order, unique to another, eagerly expecting short delivery times. With optimized production proposals now possible however, Kobayashi Create was able to increase yield per planning time by 30 percent. Product same-day delivery improved from 10 to 40 percent as well reducing lost opportunities.

**Case 5**

Webasto Japan Co., Ltd.

Planning moved from a daily to hourly bases, drastically reducing warehouse inventory.

Webasto Japan Co., Ltd. makes products such as car sunroofs, its headquarters are located overseas. The company implemented Asprova as part of the broader group’s drive to globalize, demanding manufacturing efficiency improvements and the ability to manage all production. For Webasto, production is now planned on an hour-by-hour basis, while reduced parts ordering and product shipping is now automated, delivering dramatic reduction in inventory and necessary warehouse space. Personalization of production planning was also removed, streamlining experience and shifting from the process.

**Case 6**

Yamaha Corporation

Information sharing between production floor and management reduced production calendar and manufacturing lead time by two-thirds.

Yamaha Corp. has considerable global operations in the music and sound industries, producing musical instruments, IT equipment and music devices. Asprova was brought in, introducing information sharing between production floor and management. Planning could now be updated with performance information in real-time, reducing time needed for proposals from 13 to 35 minutes/month, as well as manufacturing lead time and ERP inventory by two-thirds.

Production Management System packages

BAP

SAP

TECHS

Dassault Systemes

Microsoft Corporation

EXPLORER

3PL Systems

ATOMIC Technology

Siemens Industry Software

PHOENIX CONTACT

FISCHER & KNEBEL

Shibaura

JIPROS

Konoshita Engineering

FUSAL

Yamaha

Mitsubishi Electric

Mitsubishi Heavy Industries
Connecting Peoples, Things, Resources With Production Scheduler

The environment surrounding the manufacturing industry is rapidly changing. It is required to improve the whole production process and production efficiency in the factory. Asprova provides work leveling (dispatching, resource load leveling), and improves the flow of connecting all peoples, things, resources in the whole processes from procurement, production to delivery, realizing inventory reduction and maximum resource utilization.

Factory MAP
Overall picture of connected factory

EFFICIENT
Planning Efficiency Improvements
We couldn’t immediately give a delivery date, so we lost the contract.
Asprova APS’s Planning Efficiency Improvements.
Speeding up the planning, with rapid and accurate delivery estimates reducing lost opportunities.

VISUALIZE
Visualization
It looks like demand will increase in the future, but I’m not sure we have the capacity we need.
Asprova APS’s Transparency.
Asprova APS’s solid understanding of future equipment load enables you to make the changes you need, such as shift adjustments and outsourcing.

LEAN
Inventory Reduction
We’ve got excess capacity but the warehouse is full, so we can’t increase production.
Asprova’s APS’s inventory Reduction.
Make maximum use of resources thanks to higher production planning accuracy.

SHARE
Sharing of Process Information
We gave our customers process timeframes based on experience and intuition—we messed up big time.
Asprova APS’s Sharing of Process Information.
All process information is shared throughout the company, making customer support far easier.

High Speed Scheduling for Smart Factory
Asprova Graph/Sheet/Pivot

All the features you need for production scheduling are in one package. Meets the client’s needs without Customization.

Asprova is equipped with a multitude of standard features covering everything you need on the production floor. Over the years we’ve listened to user feedback and release updates on a regular basis, adding the features requested by factory operators. Most companies using Asprova have been able to take advantage of the rich, practical feature set, operating in a non-customized manner.

**Resource Gantt Chart**

Orders, production, purchasing and inventory can be displayed in threaded format.

**Integrated Master Editor table**

Two different windows are available to display master data: a spreadsheet view for easy editing and graphical version for quick reviewing.

**Load Graph**

Load discrepancies can be viewed by day, week or month for each resource.

---

**An extensive set of essential features**

- Support for plans synchronizing multiple processes
- Save several steps when building master data, creating proposals synchronizing each step of the plan.
- Support for plans by the second, based on standard time
- Capacity can be noted per item, process or machine, enabling high-accuracy proposals.
- Support for individual machines, molds and personnel
- Production plans can take machine, mold and personnel restrains into account.

**Backing efficient proposals**

- Develop plans that take note of your progress
- When you run ahead of schedule or encounter delays, your entire plan can be rescheduled as necessary.
- Support for multiple planning scenarios
- This functionality includes standard allows for scenarios based on delivery time, product and other sequences.
- Modifiable planning results
  - Manual adjustment
  - Previously created plans can be partially adjusted manually before being rescheduled.

**Improving usability**

- GUI makes overloaded lines and delivery delays visible
- Pick item overheads and delivery delays instantly using charts and graphs.
- Flexible support for complex configurations
- A variety of constraints can be shown using formulas, such as for using alternate facilities when deliveries might be delayed.
- Data I/O capable of linking data using mapping only
- Data can be input or output specifying any field from external databases, including production management systems.

---

**Order Gantt Chart/Operation Table**

Useful for working out tasks instructions, delays in delivery or replying to delivery time requests.

**Dispatching View**

Allows you to confirm required tasks for the day by facility and operator. Use the mouse to quickly make changes to the order, facility or worker involved.

**PSI**

Calculates movements in demand, supply and inventory in day, week or month or adds your own calculation fields as necessary.
Asprova FCS Turbo Engine

Advanced Scheduling Engine
Multi-function, High-performance
Scheduling engine reflecting a multitude of unique customer requirements

- **Main Specification and Functionality**
  - Automatic operation setup
  - Load leveling assignment
  - Setting of resource priorities
  - Calculation of the necessary number of workers required
  - Setting of subassemblies such as modules, employees, tools, etc.
  - Assignment of merging and branching processes
  - Display of period of resources can be set in the master data
  - Restrict what resources can do in the next process with the Nest Resource Constraint
  - Function to customize the evaluation selection of candidate resources
  - If upper limit to suspension time for setup and production time
  - Dispatching rule can be set to assign in the order of highest priority
  - Ability to program various parameters to execute various simulations
  - Ability to reduce the amount of setup time for each process

**Optional features for even more advanced scheduling**

- **Sales**
  - Linking sales information and production planning
    - Functions: Automatic calculation of production order and sales information
      - Tracking sales (For orders can be linked in intermediate sales orders)
      - Calculation of sales (For orders can be linked in intermediate sales orders)
      - Calculation of sales (For suborders)

- **Purchase**
  - Linking and synchronization of the production plan and purchase information
    - Functions: Automatic calculation of purchase orders from the production plan
      - Calculation of purchase orders from the production plan
      - Calculation of purchase orders

- **KPI**
  - KPI (Key Performance Indicators) evaluated for a whole project or specific orders, resources, or products, and then saved in history
    - Indices: Sales efficiency, quality, delivery

- **Resource Lock**
  - After completing the production a resource can be locked for a certain amount of time
    - Functions: Resource locking

- **Time Constraint**
  - MAX
    - Functions: Resource locking

- **Group Assign**
  - Grouping operations, assigning them either simultaneously or consecutively
    - Functions: Resource locking

- **Event**
  - Set event conditions for each resource and generate event
    - Functions: Resource locking

- **Optimization**
  - Work sequences can be optimized for all resources
    - Functions: Resource locking

**Command Editor**

- **Command**
  - Prepare for assignment
    - Upload operations
    - Filter operations
    - Assign/Peg orders
    - Group Assign
      - Upload operations
      - Filter operations
      - Assign/Peg orders

**Leveling scheduling (up to X weeks ahead)**

- Upload operations
- Filter operations
- Assign/Peg orders

**Piling scheduling (up to Y months ahead)**

- Upload operations
- Filter operations
- Assign/Peg orders

**Customer Evaluation Single Execution**

- Upload operations
- Filter operations
- Assign/Peg orders
Asprova Database Fieldmapping

Linking with OLE DBs like SQL Server and Oracle or text files without programming!

Field Mapping Window

[Main Specification and Functionality]
- Master data mapping results can be imported/exported
- Table elements for import/export can be selected
- Field name and sequence can be defined at will
- Differential import and export functionality
- Individual adjustment for each table
- Data change function when importing/exporting
- Primary keys can be adjusted
- The sequence of data in the database is important
- Record limiting
- Text files supported are CSV, Tab-separated or unicode

DB SQL Server Oracle Microsoft Access

Asprova Expression

High degree of flexibility makes most additional programming unnecessary

Expression Editor Dialog

Expressions can affect the operational settings, time calculation, graphical user interface, OLE connection etc., in many ways. The settings are similar to macros that under normal circumstances would otherwise require additional programming to handle complex settings. In addition, the amount of master data that needs to be set can be greatly reduced by efficiently setting the master data.

Asprova Parameter (BOM)
Expressions can be used as part of the BOM's Group Editor settings. Depending on the properties of the order, you can also change the number of the processes. Furthermore, gathering the similar BOM's Group Masters and applying the with Expressions, you can greatly reduce registration data.

Free Trial & Lesson

Pre-verification

By using the free trial version which can be downloaded from the homepage, you can confirm the functions on the sample data and verify the planning requirement of the target process by the prototype. Also you can practice the operation and setting method with e-learning and training seminar. Please visit the pre-verification menu and experience the specific merits of using Asprova.

Sample data of function
- E-Learning
- Training seminar
- Online help
- Prototype development support

Industrial sample

You can confirm the different expected effects and special planning requirements of different industry types and processes with the industrial sample. We release the e-learning and sample data.

Operating Environment

Asprova APS
- Intel® Xeon® processor is recommended.
- Memory: 8GB (depends on the quantity of data)
- Hard disk: 300GB
- SQL Server 2008 Service Pack 3
- 64-bit version is recommended
- Operating Environment for Asprova NLS
- Processing environment is required. Windows 7 64-bit (depends on the quantity of data)
- 64-bit version is recommended
- Operating Environment for Asprova APS
- Operating Environment for Asprova NLS-DS
- Please access our homepage for the further information
Choose the scheduler and supplementary modules that matches your needs

**APS**
Advanced Planning & Scheduling
An APS scheduler based on MS with the Sales option and Purchase option provided as standard.
Performs scheduling right the way through from sales to purchase. MRP functionality is built-in as standard. So it can do the material requirements planning as well.

**MS**
Manufacturing Scheduler
Production scheduler for factory which produces production plan of multi-products, multi-processes at high speed
Performs finite-capacity assignment of manufacturing orders for a factory. Can make both short term plans for actual work instructions, and long term plans to simulate resource load. Contains MRP functionality.

**MRP**
Material Requirements Planning
A scheduler that executes MRP (Material requirements planning) scheduling. Schedules with fixed build-times set for item table and parts list. Master data can be shared with other modules, so upgrading to APS or MS is easy.

**SED**
Schedule Editor
A editor module for modifying the scheduling result
Sequencing functionality that modifies the scheduling result by arranging operations manually provided as standard.

**BOM**
Bill of Material
Specialized module for the creation and maintenance of the master data (Integrated Master Editor)
By combining with DS it is possible to update the master whilst in the middle of scheduling. Also can be used to input results since the functionality of MES module is built-in it.

**MES**
Manufacturing Execution System
A scheduler viewer suited for the manufacturing shop floor
Display all the various charts, graphs and table windows as well as input results.

**NLS**
Network License Server
A module to handle the administration of all the Asprova licenses together on one PC. Licenses can be recognized across the network.
At least one scheduler module (APS, MS, MRP) is required for each project.

**DS**
Data Server
A module to integrate scheduler data amongst all modules on the network
By using a check-in/check-out system, exclusive control can be applied when a user checks out the project file. Results, orders, masters etc. will have their different data integrated into DS by transaction. When the data is updated in DS it notifies all the other modules and their respective users are aware of the data update in realtime and can download the newest data.

Module Option Structure

<table>
<thead>
<tr>
<th>Module</th>
<th>Standard Functionality</th>
<th>APS</th>
<th>MS</th>
<th>MRP</th>
<th>SED</th>
<th>BOM</th>
<th>MES</th>
<th>NLS</th>
<th>DS</th>
</tr>
</thead>
<tbody>
<tr>
<td>APS</td>
<td>Sales/Purchase Scheduler</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>MS</td>
<td>Standard Scheduler</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td>MRP</td>
<td>Fixed lead-time</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
<tr>
<td></td>
<td>Unfinite piling of assignment</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
<td>❌</td>
</tr>
</tbody>
</table>

**Configuration Example**

**Scheduler + Shop Floor Terminal**
- Asprova APS
- Asprova MS
- Asprova BOM

**MRP + ERP**
- Asprova MRP
- ERP

In the case where exclusive control and real-time data connectivity occurs
- Asprova MS
- Asprova SED
- Asprova MRP
- Asprova NLS
- ERP
Installation Record

<table>
<thead>
<tr>
<th>Industry</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric/Electronic</td>
<td>LED TVs, converters, industrial terminals, microprocessors, printed circuit boards, silicon wafers, air conditioner cases, plastic molding, speakers, capacitors, switches, semiconductors, lead frames, CMOS, CMOS-58V, CD4001, CD4013, LEDs, drives, electric wires, DVD-In, stereo, photo masks, HF cables, sockets, mobile phones, converters for telecommunication, K packages, aluminum electrolytic capacitors, photometers, 187 metal, photosensitive, micros, quadro wires, printer pens, automotive meters, photodiscs, boards, digital lasers, car navigation systems, refrigerators, light fixtures, sensors, optical couplers, optoelectronic devices, vacuum fluorinated display, batteries, multiplex connectors, power cables, mainframe computers, projection equipments, quartz transmission equipments, desktop PCs, carbon electrodes, styrene, paints, power boards, heating equipment controllers, solar cells, medical electrical equipments, ST cards, digital media devices, connectors, bar code readers, electronic instruments, x-ray products, optical drives, automotive electronics, polymer parts, sensor transmitters, OA machines, M1 machines, communication equipments, communication waves.</td>
</tr>
<tr>
<td>Automotive</td>
<td>Engine parts, gears, chassis, motors (stamping, molding), metal, shock absorbers, vehicle inspections, pipes, tubes, engines, crankshafts, rear axles, motor parts, test tubes, brake pads, high-performance hoses, seal fabrics, wire, ties, steering column, camshafts, crankshafts, cases, wire harnesses, motorcycles, relays, relay camgears, external leads for tires, anti-wrapping equipments for vehicle tires, metal, marble, ceramic pipes, automotive switch, marine drives.</td>
</tr>
<tr>
<td>Machinery</td>
<td>Lenses, kitchen appliances, machine tools, agricultural machinery, industrial machinery, optical devices, light fixtures, air conditioners, heating appliances, plastic parts for office equipments, control computers, material handling equipments, power transmission equipments, automation hand tools, internal combustion engines, injection systems (instrumentation systems), wafer visual inspection equipments, centrifuges, sawing machines, heat treatment equipments, lathes, water, water pumps, condensers, metal engineering, vacuum pumps, wafer precision equipments, food products machinery, electric furnaces, gas and water-cooled tanks, water-supplied instruments, solenoid valves, staging, lighting fixtures, sawing machine parts, pumps, ultrasonic diagnostic equipments, CNG, robot transfer machines, nuclear equipments, crystal balls, rubber tires, field alarm equipments, industrial metals, engine bearings, precision jigs, automatic molding machines, seawater desalination plants.</td>
</tr>
<tr>
<td>Metal</td>
<td>Skulls, screens, cans, wires, bending fixtures, guide rods, pipes, magnet wires, steel, sheet metal, hinges, metal plates, blades, connecting rods, nuts, industrial precision metal products, drawing alloy, aluminum for beverage cans, blades for cutting machines, gears, metallographs, inner parts, precision poles, aluminum fins, steel, copper, steel aircraft, drawing copper parts, specially shaped products, cutting tools, lubricating oils packaging, beverage cans, magnets, stainless pipes, large steel pipes, engine parts, precision jigs, automatic molding machines, seawater desalination plants.</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>Designers, plastic bags, plastic food containers, plastic molds, office goods, fishing rods, microwave ovens, wood processing, tools, sinks, cement, rubber stamp, ballpoint pens, chopsticks, shopping bags, cardboards, household interior products, entertainments, underfloor storage units, future components, shoes, toy parts, medals, stockings, office furniture &amp; fixtures, lords, envelopes, stationeries, storage boxes, inner camgears, cans, food boxes, bags, recording paper, industrial and industrial chemical, tapes, mats, cutlery.</td>
</tr>
<tr>
<td>Food</td>
<td>Fermented soybeans, Coffee beans, black tea, drinking water, whey, cheese, coffee, candies, gums, fruits, yolk, seasonings, hams, ripening, juices, jams, fruit ketchup, oil, food, healthy foods, canned foods, bottled foods, snack foods.</td>
</tr>
<tr>
<td>Medical</td>
<td>Medical products, test drugs, medical equipments, laboratory testing reagents, magnetic resonance, laparoscopy, endoscopy, dental materials, orthopedic medical, chemistry, genomics, pharmaceuticals, surfactants, endoscopy, microsurgery, plastic surgery.</td>
</tr>
<tr>
<td>Chemical</td>
<td>Adhesives, plastic materials, carboxyl, silicates, metal oxide, polystyrene, polypropylene, rubber, fluorescent dyes, plastic components, polyethylene, polypropylene, plastic, plastic products, make up products, chemical substances, incense, fluidized beds, food chemical products.</td>
</tr>
</tbody>
</table>

Development History

Let’s Try Steps for implementing an Asprova project

Step 1: Understanding the Current Situation and Setting Goals
- Conduct a project team discussion with the local manufacturing management or senior staff to understand the micros and macro goal setting project. The project team typically consists of three or more people, including project leaders and team members who work on production planning and control process implementation.

Step 2: Creating a Prototype and Investigating Systematization
- Develop a solution that covers the entire process of the project and establishes a prototype. The project team will typically consist of three or more people, including project leaders and team members who work on production planning and control process implementation.

Step 3: Signing the Contract and Assembling a Project Team
- Sign a contract regarding the Asprova license, prepare development and consultation, and propose the project team to the company. The project team typically consists of three or more people, including project leaders and team members who work on production planning and control process implementation.

Step 4: Preparing Data and Developing Additional Programs
- Prepare data files. Downloading the necessary data into the system can be a significant challenge. The project team will typically consist of three or more people, including project leaders and team members who work on production planning and control process implementation.

Step 5: Starting Test Operation
- Put together an operation manual describing the test procedures for running new instructions, gathering test results, and making the system operational. The Asprova project mechanism includes instructions and the operation of the product. The operation team will typically consist of three or more people, including project leaders and team members who work on production planning and control process implementation.

Step 6: Maintenance
- Rent or purchase equipment. You can run Asprova for a long time. You can order new software and upgrade Asprova for a long time. We recommend that you make a maintenance contact for necessary maintenance and software upgrades.

Support System

- Reproduction Seminar
- Mock-up Sheet
- Introduction Manual
- MSS Seminar
- Introduction Seminar
- Hands-on Training Seminar (Charged)
- External Agreements
- Product Development Support (Charged)