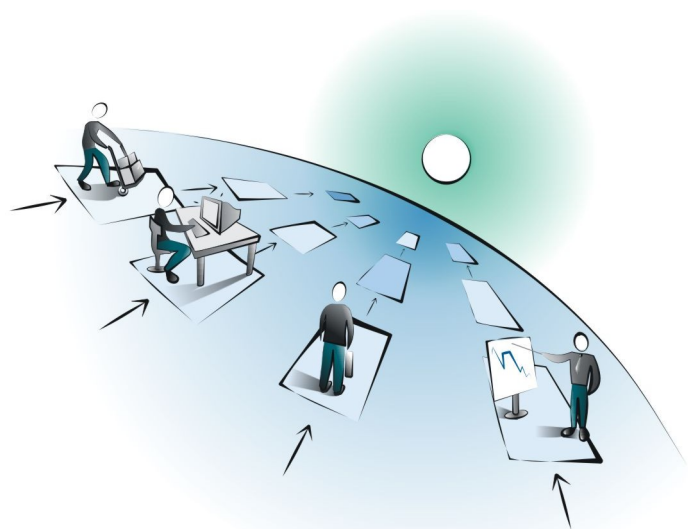


# GPS 645<sup>®</sup>

**THE NEW WAY TO PLAN!**



From thirty years of experience in material and production resources planning  
the most technologically advanced planning system  
able to provide extended connectivity  
high computing performance due to 64-bit addressing

# GPS 645<sup>®</sup>

## Global Planning System

Multi-company and multi-plant planning

Material planning per order, for stock and for batch homogeneity

Full Pegging (for all levels of BOM) with dynamic destination of stock and orders based on priority

Management by exception      Simulation      Optimization

Engineering change management for stocks depletion

Automatic proposition of "feasible" production orders

Implementation of the closed loop with finite capacity planning and scheduling



# APPLICATION ARCHITECTURE

The computational process consists of five steps .

**1 Data Extraction** from the databases in which they are managed and XML file creation that are transferred to the planning server (a special module makes the transferring and checks the accuracy).

**2 Data Loading** into the main memory of the server, first run of the overall planning and storage of results, always in the main memory.

**3 Results Analysis** by users (can be any number) using a normal web browser with the ability to make changes to the current situation. New run of planning procedures with "net change" techniques, which returns the results in main memory as the previous step. This step can be repeated several times, creating different production scenarios.

**4 Transfer**, by user request, to results management server of the planning session for later use. At this moment the data can be loaded on a support database to develop the activities of analysis provided by the previous step (optional).

**5** The development planning results, stored in a dedicated database, can be further accessed through an efficient graphic interface: **GPS Analyser**, that allows easy reading, interpretation and comparison of results generated by the various planning sessions.



## THE TECHNOLOGY

- Software entirely developed in **JEE** architecture ☕ (Java Enterprise Edition).
- Direct data extraction from the management database in **XML format**.
- Ability to transfer data to specific servers, on which to perform data processing, via Internet/intranet.
- Data memorizing in **real memory with addressing to 64 bit**. Fast response time: million of events planned in few minutes.
- User interface based on the use of a **web browser**.
- Ability to perform **simulation**, at the same time, by multi users.

# MATERIALS

## MPS - MASTER PRODUCTION SCHEDULE

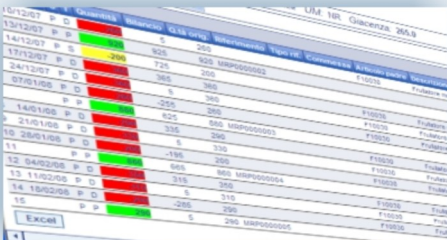


Allows, starting from sales forecasts, the formation of a production plan consistent with the availability of resources and materials, working on several periods of time whose amplitude is set parametrically.

Two possible detail levels: by product family and item.

An interface, with the commercial environment, is available to compare the plans in place with the backlog and to automatically generate plans per item starting from aggregated plans.

## MRP - MATERIAL REQUIREMENTS PLANNING



It is the most widespread materials planning methodology used by most companies in the world.

The application complies with international standards, in more offers additional features to improve the management and operation: contract and batch planning, inventory exhaustion management, lead time calculation starting from the cycle, positioning of needs in the beginning of the operation ,etc ... .

## PRM - PEGGING RELATIONSHIP MANAGEMENT



The module is based on a reticular planning technique that helps to overcome the constitutional limits of MRP (as proposed in the past...).

Using events (orders and needs) already available in the MRP and re-allocating inventory and orders to the priority-based needs, the system is able to: determine the constraints between events, calculate, for each order, the dates "as soon as possible", identify the critical paths repositioning "forward" the events that constitute them.

# RESOURCES

## RCP - RAW CAPACITY PLANNING

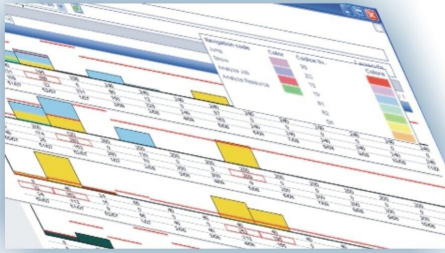


The module aims to define a production plan consistent with the availability of materials and production capacity.

For finished products (single or clusters) are defined capacitive "macro-constraints" and lotting rules. The analysis is carried out over several production periods, parametrically definable. For each period, taking into account the availability of materials (at any level of BOM), defined by MRP-PRM modules and by "macro-constraints", the system determines the production orders "feasible" in the period under review. In

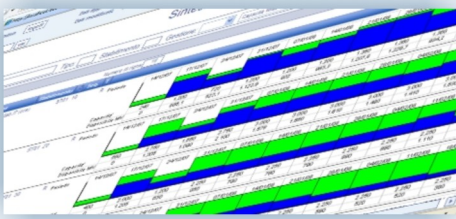
case there was not sufficient capacity, lower priority orders are moved to the next period. If, it does not reach the saturation of resources, later periods orders are anticipated, as long as they have the necessary materials availability.

## CRP - CAPACITY REQUIREMENTS PLANNING



Using production orders, proposed or already in operation, the module defines the resources load profile, generating capacity-need plan. The calculation is done attaching each order to its processing cycle. For each resource, the system provides the level of saturation in different periods, with two views: position to work later and as soon as possible. The first allows the identification of supersaturation, the second of underutilization.

## FCP - FINITE CAPACITY PLANNING



It repositions the production activities over time taking into account the resource availability profiles. For all operations is made a timed reservation as soon as possible of the required resources that are allocated according to priorities. Before sending delayed actions, the system looks for alternatives. If the supply is unable to honor all requests for the period of analysis, lower priority activities are moved forward.

## OPTIMIZATION

New modules that, based on techniques of operations research (linear and constraints programming) allow better use of materials and resources optimizing production plans.

They include the optimization engines IBM ILOG: CPLEX or CP Optimizer.

## ESS - ENTERPRISE SCHEDULING SYSTEM



The only scheduler that, using a constraint programming engine, plans at the same time all the company's productive resources considering the respective constraints.

It is able to make better use of resources (machines, manpower, equipment ...) and use of materials, they are allocated only if the former are available.

## SRP - SURPLUS REDUCTION PLANNING

Once completed the computational process of materials allocation, this module allows you to identify unused materials, to enhance them, and by analyzing the BOMs, to propose the production of finished products in order to consume as much as possible the surplus, highlighting the need for any eventual purchase. The value of inventory reduction is indicated for each batch of products. Powerful simulation tools support the user in finding the best solution through an iterative process.

## MAO - MATERIALS ALLOCATION OPTIMIZATION

Allows the assignment of materials to production events not only on the basis of priority/date, but also maximizing the number of finished products producible and the consumption of components in stock.

## CPO - CUT PLAN OPTIMIZER

Optimization of single and two dimensional cutting plans: you can plan purchases of materials "on fit" (sheets, panels, bars, ...) defining the optimal size to reduce waste during the production process.