FastMRP Performance Results Set the Bar

Apr 7, 12:40 PM (ET)

By Chuck Morris

How fast is FastMRP? In an attempt to answer the question, a benchmark performance test was performed. Using a small IBM RS6000 with 1GB of memory and a 450 Mhz processor (retail price of about $20,000USD), world record results were achieved.

In preparation for the test, representative data was required. The Bill of Material was read from an SAP system used to build industrial construction equipment such as a backhoe. This generic bill of material was chosen because it combines both Generic BOMs and Standard BOMs using the well-known SAP ERP system. It was also used because the size of the Generic BOM exceeds that of most OEM automotive manufacturers.

The number of orders chosen covers the range of small to large automotive OEM manufacturers. These orders had an average of 32 options each. The results achieved are as follows:

FastMRP Performance Chart

Inputs	A	B	C	D
Sales Orders per day	160	320	960	1,200
Total Sales Orders in Production String	32,000	64,000	96,000	120,000
Generic Bill of Material Size	24,642	24,642	24,642	24,642
Production Schedule	4/2 to 8/25/2003	4/2 to 8/25/2003	4/2 to 8/25/2003	4/2 to 8/25/2003
MRP Functions Performed				
Delete Existing Forecast Records	Step 0	Step 0	Step 0	Step 0
Explode Custom BOM for every Order	Step 1	Step 1	Step 1	Step 1
Adjust Demand to Linefeed	Step 2	Step 2	Step 2	Step 2
Calculate Recommended Inventory based on Float	Step 3	Step 3	Step 3	Step 3
Calculate New Requirements based on Order Multiples	Step 4	Step 4	Step 4	Step 4
Adjust Times based on Delivery Pattern	Step 5	Step 5	Step 5	Step 5
Results				
Number Forecast Records Created	209,550	356,235	471,731	589,664
Time to generate MRP (sec)	214	574	782	992
Time to generate MRP (minutes)	3.6	9.6	13.0	16.5
Number of Material Orders per week	6,000	12,000	36,000	45,000
Time to convert Material Orders (seconds)	23	46	138	172
Time to convert Material Orders (minutes)	0.4	0.8	2.3	2.9
Total MRP Run Time (Minutes)	**3.9**	**10.3**	**15.3**	**19.4**

Actual tests done for 160 and 1200 orders. Worst case results used to extrapolate results for 320 & 960 orders

Worst case MRP Generation	784	per second
Worst case Material Order Creation	261	per second

FastMRP Performance Results Set the Bar

These performance results exceed an older version of a FastMRP system currently used by Mercedes-Benz U.S. International, Inc. in Vance, Alabama.

Another new breakthrough for Production Control organizations is the ability to use interactive charting to view the results of an MRP run. Typically, end-users would use a supply schedule showing only numbers. Now the data can be evaluated using an interactive charting tool.
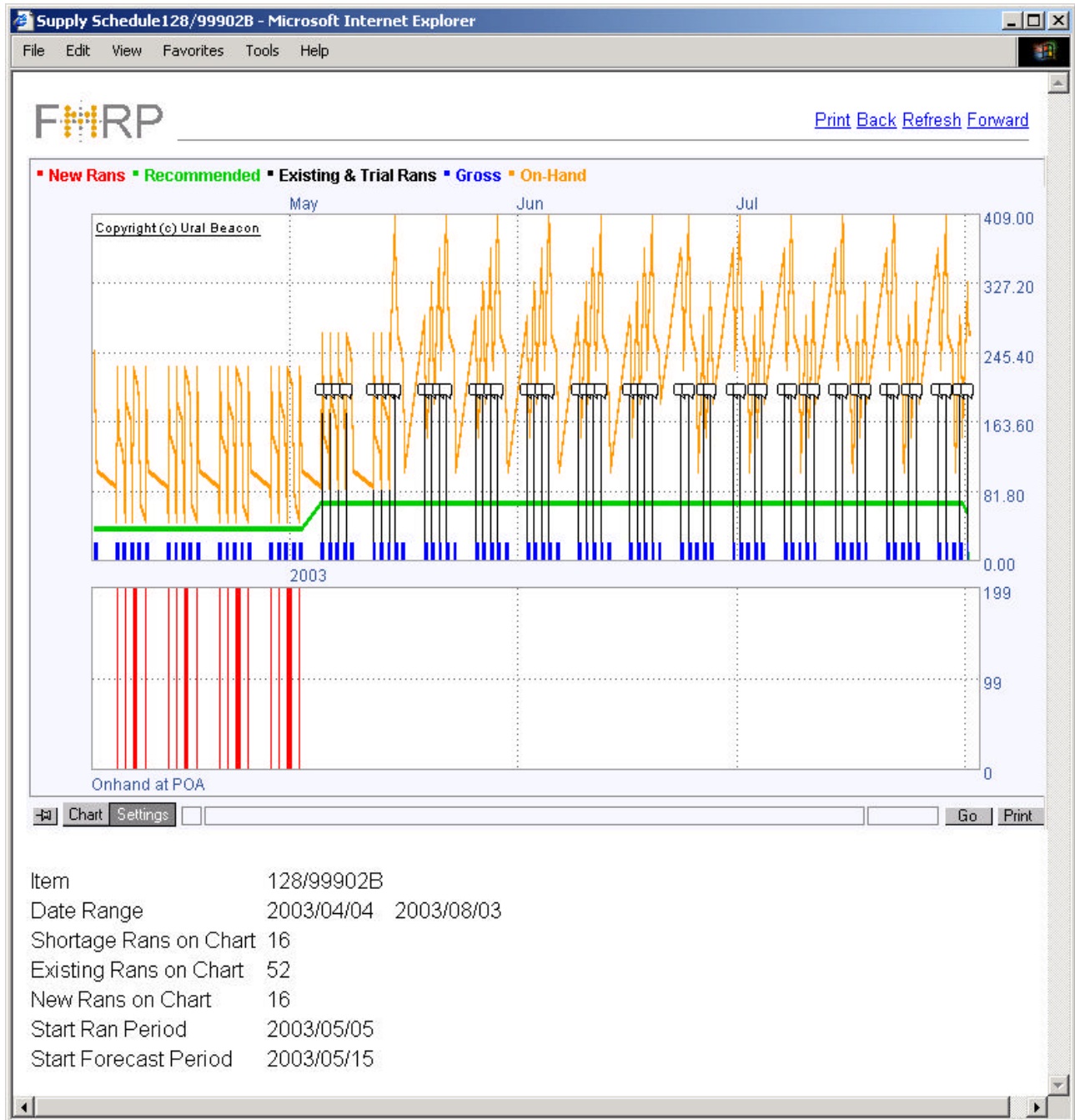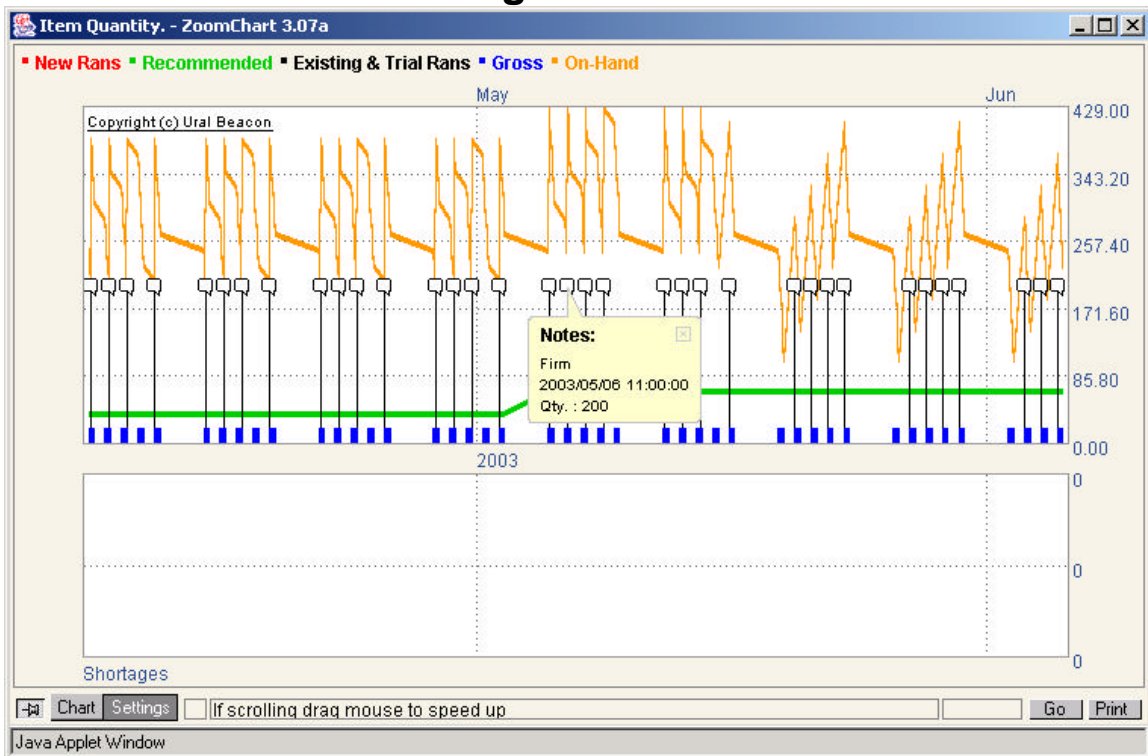
FastMRP Performance Results Set the Bar

Note: the charting tool was created by Ural beacon for stock analysis in the financial industry. Morris Consulting & Training, Inc is now adopting it for use in supply chain management.

The highlights of this new tool are:

1. Any shortages are highlighted in RED in the bottom chart to quickly highlight problems.
2. Any new Orders required in the Order or Forecast Periods are also highlighted in red in the top chart.
3. Recommended inventory is calculated with accuracy equal to the tact time. This allows float to be defined in fractions of an hour (i.e. 1.1, 1.2.. etc.)
4. Actual Hourly demand is shown using blue bars at the start of each hour where demand is required.
5. The projected on-hand inventory is highlighted using orange across the top.
6. Existing Orders are shown with a small box that can be "clicked" to see additional information.
7. Most importantly the chart can be zoomed in down to hourly buckets.
8. Float is date driven
9. Delivery patterns are date driven.
10. All Item Ship-to data such as Packaging, Staging Areas, Delivery Methods and Order Multiples are also date driven by effective dates.
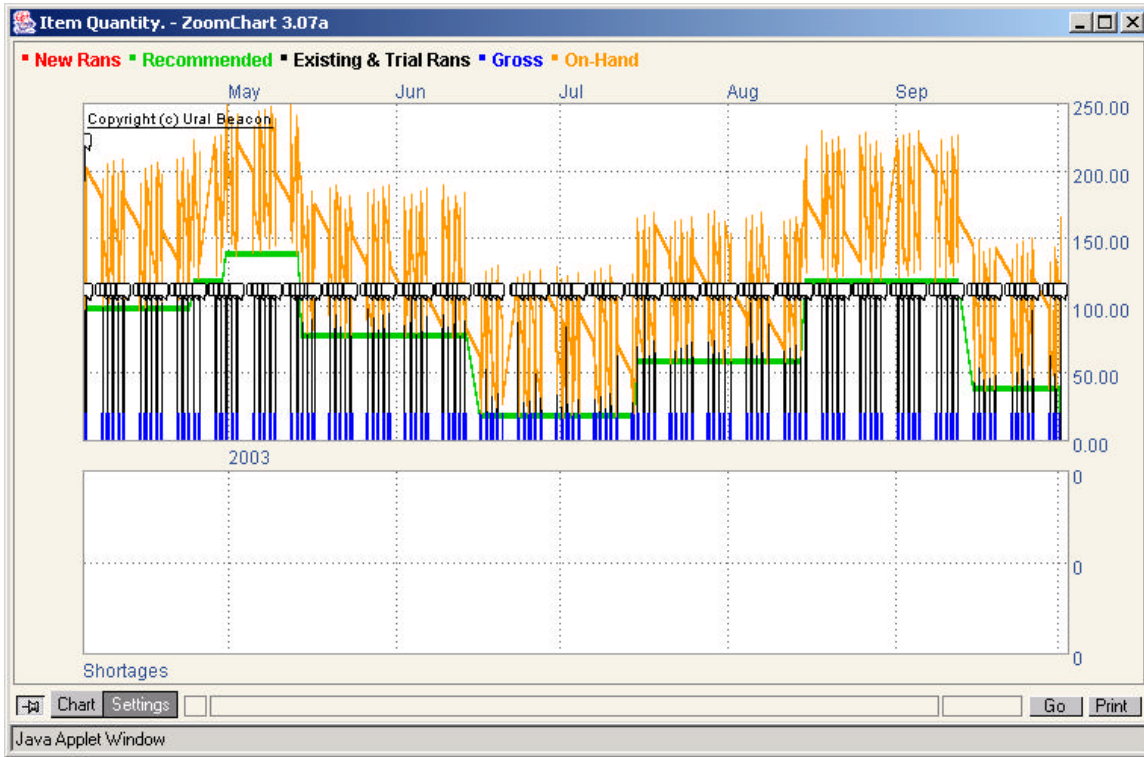
SAMPLE With No Shortages

SAMPLE Zoom down to hourly buckets
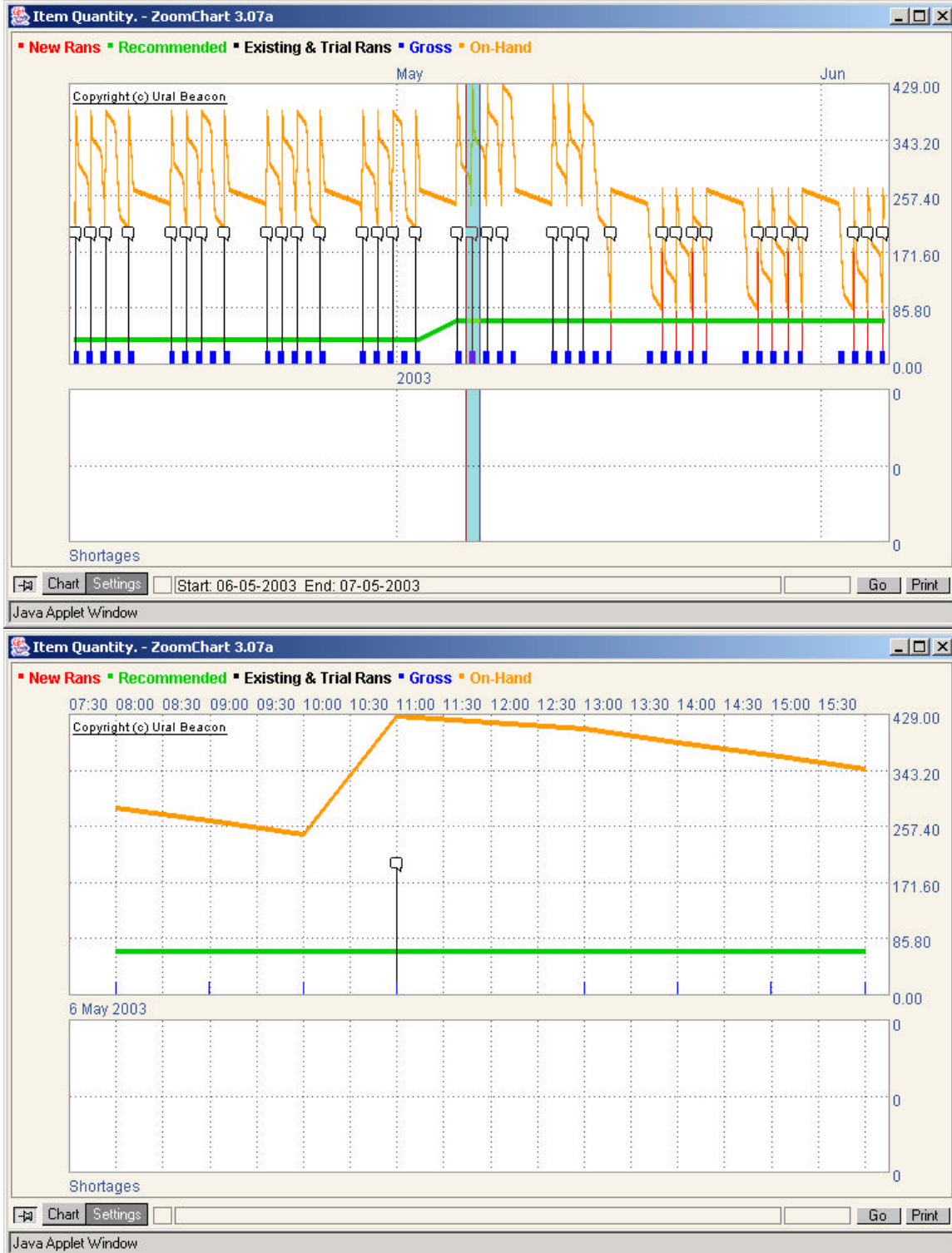
SAMPLE – Date Driven Float

SAMPLE – Date Driven Delivery Patterns

FastMRP Performance Results Set the Bar

With this new charting capability it is now possible to see very quickly the effect that part ordering parameters have on the warehouse and supply chain requirements.

With the speed of FastMRP and the interactive charting capability, you have the closest thing to a crystal ball. By using FastMRP, customer driven demand can be distributed throughout the supply chain allowing all involved to keep inventory at its lowest possible levels. In most cases this will eliminate the need for in-bound warehouses. When unexpected problems occur, such as lost shipments or interrupted transportation routes, shortage management tools can find the problem parts in minutes and provide the information needed to expedite using the appropriate transportation method. When unexpected changes to customer orders occur, the supply chain management tools work the same. This allows your manufacturing organization to be responsive and welcome changing customer demand because it becomes your competitive advantage.

For further information please contact ChuckMorris@FastMRP.com.