



PEOPLESOFT SUPPLY PLANNING 8.8 USING ORACLE9i ON A HEWLETT-PACKARD hp server rp7410 SERVER

As the world's leading provider of application software for the Real-Time Enterprise, PeopleSoft delivers high performance solutions that exceed our customers' expectations. Business software must deliver rich functionality with robust performance maintained at volumes representative of customer environments.

PeopleSoft benchmarks demonstrate our software's performance characteristics for a range of processing volumes with a specific platform configuration. Customers and prospects can use this information while planning the software, hardware, and network configurations necessary to support their processing volumes.

The primary objective of our benchmarking effort is to provide as many data points as possible to support this important decision.



SUMMARY OF RESULTS

Benchmark (English)	PeopleSoft Supply Planning 8.8		
	Large Volume Model		
	Capacity Feasible Load and Solve	665,238 Demands – 8 hours	
	Demands/Hour	83,154 per hour	
Référence d'exécution (Français)	PeopleSoft Supply Planning 8.8		
	Grand volume de données		
	Capacity Feasible Load and Solve	665.238 Demands – 8 heures	
	Demands/heure	83.154 par heure	
Benchmark-Test (Deutsch)	PeopleSoft Supply Planning 8.8		
	Datenbankmodell "Large"		
	Capacity Feasible Load and Solve	665.238 Demands – 8 Stunden	
	Demands/Stunde	83.154 pro Stunde	
Patrón de rendimiento (Español)	PeopleSoft Supply Planning 8.8		
	Volumen grande de los datos		
	Capacity Feasible Load and Solve	665.238 Demands – 8 horas	
	Demands/hora	83.154 por hora	
Benchmark (Português)	PeopleSoft Supply Planning 8.8		
	Volume grande dos dados		
	Capacity Feasible Load and Solve	665.238 Demands – 8 horas	
	Demands/hora	83.154 por a hora	

The benchmark measured four Supply Planning application business process runtimes using our standard small and large database models. The testing was conducted in a controlled environment with no other applications running. **The goal of this performance test was to obtain performance results for PeopleSoft Supply Planning 8.8 on Oracle and HP.**

The figure below illustrates the processing time in hours, for the tested database models.

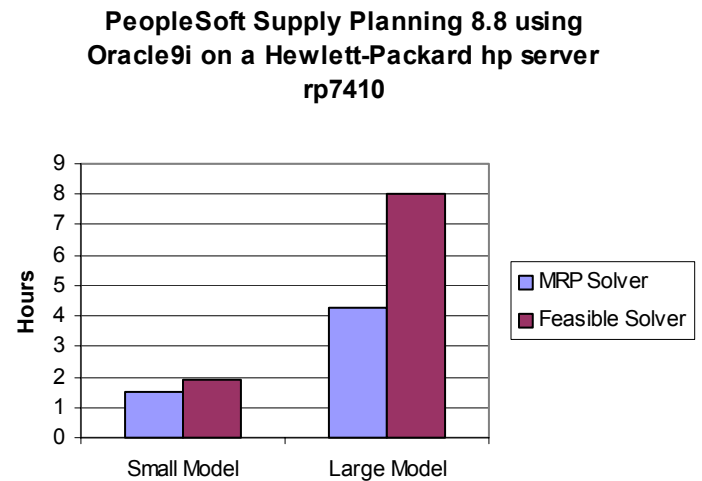


Figure 1: Elapsed Processing Time

BENCHMARK PROFILE

In August 2003, PeopleSoft conducted a benchmark study in Pleasanton, CA to measure the batch performance of PeopleSoft Supply Planning 8.8 using Oracle9i™ 9.2.0.2 on a 4-way Hewlett-Packard® hp server rp7410, running Hewlett-Packard® HP-UX® 11i.

METHODOLOGY

PeopleSoft Supply Planning 8.8 batch processes can be initiated from a browser.

Batch processes are background processes, requiring no operator intervention or interactivity. Results of these processes are automatically logged in the database. The runtimes are posted to the Process Request database table where they are stored for subsequent analysis.

Figure 2 shows a typical 4-tier benchmark configuration. This benchmark was run as a “Physical” 4-Tier configuration with each function on a separate server.

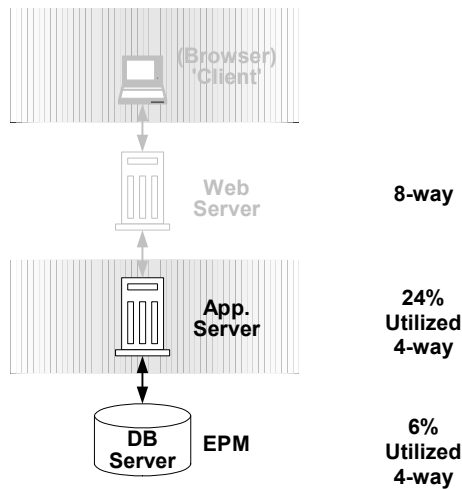


Figure 2: 4-Tier Configuration

BUSINESS PROCESSES

The Supply Planning processes are as follows:

Refresh ODS: (*Application Engine*) This ETL (Informatica® 5.12) process loads data from the Financials/Supply Chain Management database into the Enterprise Warehouse.

Load Planning Instance: (*Application Engine*) After defining the Planning Instance, you are ready to isolate the corresponding data for that instance in order for the planning process to run. This process of ‘isolating’ the data is the Load Planning Instance process. This process will select data out of the Operational Data Store within the Enterprise Warehouse and copy it into tables for Supply Planning.

Material Solver: (C++) During the solve phase of planning, it is possible to both load and solve the planning instances. This business process loads the planning instance into memory using the PeopleTools Optimization Framework and then solves the data for material ‘violations.’ Once the ‘solve’ is complete, the results are committed back to the database to be posted to the transaction system. The process is kicked off from an Application Engine program, but the processing is done in a C++ plug in.

Material and Capacity Feasible Solver: (C++) As with the Material Solver, this process encompasses both the load and solve of a planning instance. This solver also uses the PeopleTools Optimization Framework to perform in-memory processing. Typically, either the Material Solver or the Material and Capacity Feasible Solver would be used separately. The difference between the solvers is in the way they address the planning problem. This solver solves the transactional data for both material and capacity issues. The process is kicked off from an Application Engine program, but the processing is done in a C++ plug in.

BATCH PROCESS RESULTS

PeopleSoft’s Supply Planning application has been designed to support concurrent processing. However, only the “Refresh ODS” process was run as parallel concurrent jobs.

The tables below contain the actual runtimes, in minutes, for the benchmark business processes.

Business Process	Jobs	Small Model	Large Model
Refresh ODS	20	28	28
Load Planning Instance	1	18.4	26.7
Start Planning Engine & Material Solver	1	45.12	201.66
Material Load and Solve Time-min		91.52	256.37
Material Load and Solve Time - Hours		1.53	4.27
Material Solver Memory Usage		1,750 MB	2,704 MB
Number of Demands		235,439	665,238
Throughput – Demands/Hour		154,358	155,692

Table 1: Material Solver Process Runtimes

Business Process	Jobs	Small Model	Large Model
Refresh ODS	20	28	28
Load Planning Instance	1	18.4	26.7
Start Planning Engine & Material Capacity Feasible Solver	1	66.3	425.3
Capacity Feasible Load and Solve Time - min		112.7	480
Capacity Feasible Load and Solve Time - Hours		1.88	8
Material & Capacity Feasible Solver Memory Usage		1,797 MB	2,700 MB
Number of Demands		235,439	665,238
Throughput – Demands/Hour		125,344	83,154

Table 2: Capacity Feasible Solver Process Runtimes

Performance may vary on other hardware and software platforms and with other data composition models.

SERVER PERFORMANCE

The CPU utilization is shown as the average across all the available CPUs for each server. Single job streams involved an individual CPU.

PeopleSoft SCM Supply Planning using Oracle9i on a Hewlett-Packard hp server rp7410

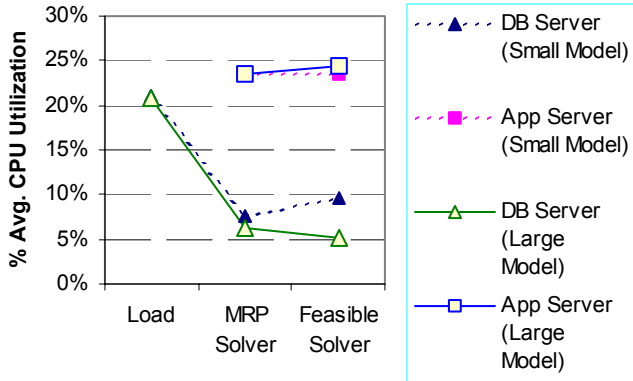


Figure 3: Average CPU Utilization

The CPU utilization was negligible for the “Refresh ODS” process. However, the Solver processes each pegged a single App Server CPU at effectively 100% — with the remaining three CPUs left idle. This is reflected in Figure 3 for the App Server data points where the ‘average’ across four CPUs is close to 25%.

DATA COMPOSITION DESCRIPTION

MODEL SIZE(S)

Data Description	Small	Large
Planned Items	26,345	71,473
Planned Production Items	8,011	8,011
Planned Purchased Items	14,012	28,856
Planned Transfer Items	4,302	34,106
Total Items	72,398	72,398
Average items per BOM	2	7
Average BOM levels	2	4
Average Routings steps	5	5
Total Products	9,375	9,375
Total Order Lines	420,319	420,319
Vendors	5,228	5,228
Manufacturing BU	1	1
Supplying IBUs	1	1
Distribution IBUs	3	3
Work Centers	63	63
Forecast	126,063	126,063
Production Orders	8,006	8,006
Total Demand	235,439	665,238
Model Output		
Material Solver Planned Purchases	55,001	450,618
Material Solver Planned Production	74,323	74,323
Material Solver Planned Transfers	2,002	2,002
Feasible Solver Planned Purchases	61,021	307,552
Feasible Solver Planned Production	44,390	44,390
Feasible Solver Planned Transfers	2,002	2,002

Table 4: Model Sizes

Note: Total Demand is calculated using Net Forecasts, Order Schedules, Production Components, and Transfer from the material run.

BENCHMARK ENVIRONMENT

HARDWARE CONFIGURATION

Database Server:

A Hewlett-Packard® hp server rp7410® server (partition) was used as the database server. It was equipped with the following:

- 4 × 875 MHz PA-RISC 8700+® processors, each with 1.5 MB of Data Cache and 768 KB of Instruction Cache
- 10 Gigabytes of Memory
- 1 × Internal SCSI Disk Controller,
 - 2 x 36GB (Internal SCSI-3 Disk)
- 1 × A6795A HP Tachyon XL2 Fibre Channel
- 1 × Fibre Channel SanSwitch 2/16
- Enterprise Virtual Array (EVA) 5000
 - 2 HSV110, 1GB cache per controller
 - 41U rack with 84 × 36GB 15Krpm disk
- 100 Gigabytes of total Disk Space was created (10 × 10GB), approximately 100 GB used

Application Server(s):

One Hewlett-Packard® hp server rp7410® server (partition) was used as the application server. It was equipped with the following:

- 4 × 875 MHz PA-RISC 8700+® processors, each with 1.5 MB of Data Cache and 768 KB of Instruction Cache
 - 1 × Internal SCSI Disk Controller,
 - 2 × 36GB (Internal SCSI-3 Disk)
- 10 Gigabytes of Memory

Web Server(s):

One Hewlett-Packard® hp server rp7400® server was used as the web server. It was equipped with the following:

- 8 × 550 MHz PA-RISC 8600® processors, each with 1.5 MB of Data Cache and 768 KB of Instruction Cache
- 8 Gigabytes of Memory
- 72 Gigabytes of total Disk Space (4 × 18 GB)

SOFTWARE VERSIONS

PeopleSoft Supply Planning 8.8

PeopleSoft FMS/SCM 8.4

PeopleTools 8.43.06

Oracle9i™ 9.2.0.2

Hewlett-Packard® HP-UX® 11i with Gold Base Patches (on the database server, application server and web server)

Informatica® 5.12

The PeopleSoft logo is displayed in a large, blue, serif font. The word "PeopleSoft" is written in a classic, elegant typeface, with the "P" and "S" being notably larger and more prominent than the other letters. A registered trademark symbol (®) is located at the end of the word.

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