PeopleSoft | **Enterprise**

certified
Technology Benchmark

PEOPLESOFT FINANCIALS 8.4 ONLINE WITH ORACLE9i ON SUN MICROSYSTEMS' SUN FIRE™ E4900 AND E2900 SERVERS

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	PeopleSoft Financials 8.4	
	Small Volume Model	
(English)	Average Response	Load 1.55 sec, Save 1.85 sec
	Concurrent Users	15,000
Référence d'exécution	PeopleSoft Finances 8.4	
	Petit volume de données	
(Français)	temps de réponse	Load 1,55 sec, Save 1,85 sec
	Concourants Utilisateurs	15.000
Benchmark-Test	PeopleSoft Finanzen 8.4	
	Datenbankmodell "Small"	
(Deutsch)	Antwortzeit	Load 1,55 sec, Save 1,85 sec
	Gleichzeitige Benutzer	15.000
Patrón de rendimiento	PeopleSoft Finanzas 8.4	
	Volumen pequeño de los datos	
(Español)	tiempo de reacción	Load 1,55 sec, Save 1,85 sec
	Simultáneos Utilizadores	15.000
Benchmark	Financials 8.4 do PeopleSoft	
	Volume pequeno dos dados	
(Português)	tempo de resposta	Load 1,55 sec, Save 1,85 sec
	Simultâneos Usuários	15.000

BENCHMARK PROFILE

In July 2004, PeopleSoft and Sun conducted a benchmark in Santa Clara, CA to measure the online performance of PeopleSoft Financials 8.4 using Oracle9i™ 9.2.0.5 on a Sun Microsystems' Sun Fire™ E4900 (12-way) for the database server. Three 12-way Sun Fire E2900s were used for the application servers and web servers. All Sun systems utilized the Solaris™ 9 Operating Environment (OE).

The benchmark measured client response times for a single user, 5,000, 10,000 and 15,000 concurrent users using a standard 'small' data composition model. The testing was conducted in a controlled environment with no other applications running. Tuning changes, if any, were approved by PeopleSoft Development and will be available in a future update or release. **The goal of this benchmark was to obtain scalability performance data for PeopleSoft Financials 8.4 Online on Oracle9i and Sun Microsystems' servers.**

The figure below illustrates average retrieve and update response times for an individual client and for a single user with 5,000, 10,000and 15,000 concurrent users.

PeopleSoft Financials 8.4 Online with Oracle9i on Sun Microsystems Sun Fire Servers
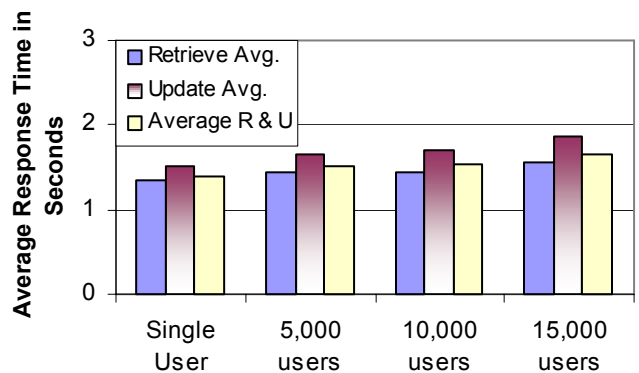

Figure 1: Average Response Times

* Results are weighted averages corresponding to the transaction mix specified in the Data Composition model.

METHODOLOGY

Mercury Interactive's LoadRunner® was used as the load driver, simulating concurrent users. It submitted a business transaction at an average rate of one every 5 minutes for each concurrent user to the application servers via the web servers.

Mercury Interactive's QuickTest® Professional was used to automatically submit transactions and to record the benchmark measurements on the client PC. Measurements were recorded when the user load was attained and the environment reached a steady state.

Figure 2 shows a typical 4-tier benchmark configuration. This benchmark was run as a "Logical" 4-Tier configuration with the application servers and web servers sharing host machines.
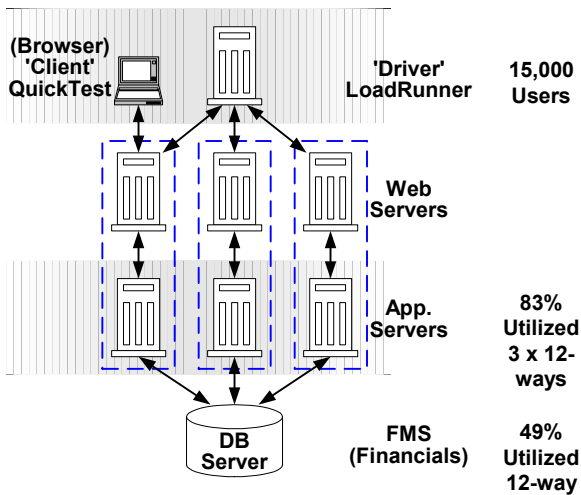

Figure 2: 4-Tier Configuration

Load times were measured from the time the user clicks the <OK> button until all the data for the entire business transaction has been retrieved.

Update times were measured from the time the user clicks the <SAVE> button until the system has released the page.

BUSINESS TRANSACTIONS

PeopleSoft defines a business transaction as a series of HTML pages that guide a user through a business process, such as applying payments or entering a journal entry. Seventeen business transactions in four financial applications were tested in this benchmark. They are as follows:

ASSET MANAGEMENT (AM)

Asset Additions: Add capitalized assets automatically, with most of the information defaulted from an asset profile.
AM01: Asset Add

Asset Update: Change an existing asset's Tag number
AM02: Asset Update
AM03: Update Acquisition Details

Asset Inquiry: Retrieve non-financial descriptive information, detailed depreciation by period or by year, and detailed historical cost information for assets.
AM04: Calculate Net Book Value (NBV)
AM06: Cost History Listings

PAYABLES (AP)

Maintain Vendor Information: Create or update profiles for all types of vendors.
AP01: Vendor Add

Review Vendor Information: Review payment status, then link to detailed voucher information.
AP02: Inquire Payment Information
AP03: Inquire Voucher

Enter Vouchers: Record vendor invoice information on pages that are the equivalent of electronic voucher forms.
AP04: Voucher Add

RECEIVABLES (AR)

Maintain Customers: Establish and maintain customer processing requirements and attributes.
AR01: Customer Add
AR02: Customer Update

Apply Payments: Apply payments to open items through the use of a payment worksheet.
AR03: Apply Payments

Customer Item Inquiry: Sift through a customer's account looking for trends in open items, closed items, or both.
AR04: Inquire Customer Item

GENERAL LEDGER (GL)

Journal Entry: Enter Journal Header and line information in domestic or foreign currencies.
GL01: Journal Add
GL06: Journal Add - Foreign Currency

Ledger Inquiry: Pinpoint ledger balances using intuitive views based on specific Chart Field combinations.
GL03: Inquire Ledger

Journal Inquiry: Access detailed journals lines based on the Journal Header selected.
GL05: Inquire Journal

The following table shows how the business transactions were weighted in the measurements of this benchmark. The weightings are intended to simulate a typical user environment.

Application	Business Transaction	Percentage of Total
AM (10%)	AM01	0.71%
	AM02	5.33%
	AM03	1.71%
	AM04	1.13%
	AM06	1.13%
AP (35%)	AP01	2.19%
	AP02	2.73%
	AP03	2.73%
	AP04	27.36%
AR (30%)	AR01	0.85%
	AR02	0.99%
	AR03	9.14%
	AR04	19.02%
GL (25%)	GL01	15.24%
	** GL02	0.00%
	GL03	6.11%
	GL05	3.03%
	GL06	0.62%
Total		100.00%

Table 1: Business Transaction Mix

** Once every 15 minutes GL02: Edit/Post process is executed. This processes all journals added during that period. It is a batch process that is run in the background without being timed.

ONLINE TRANSACTION RESULTS

The following tables show average retrieval and update times, in seconds, for each business transaction.

Asset Management (AM)		# Users			
Bus. Transaction		1	5,000	10,000	15,000
AM01	Retrieve	0.88	0.83	0.88	1.38
	Update	1.75	0.17	2.13	2.36
	Default B	1.72	0.16	1.75	1.88
AM02	Retrieve	1.40	1.29	1.44	1.59
	Update	1.47	1.41	1.46	1.47
AM03	Retrieve	1.40	1.22	1.17	1.64
	Update	0.91	0.99	0.95	1.16
AM04	Retrieve	0.80	0.88	0.85	1.45
	Inquiry	0.89	0.93	0.93	1.11
AM06	Retrieve	1.34	1.36	1.45	1.92
	Inquiry	0.89	0.96	0.95	1.03

Table 2: AM Business Transaction Runtimes

Payables (AP)		# Users			
Bus. Transaction		1	5,000	10,000	15,000
AP01	Retrieve	0.80	0.84	0.82	1.02
	Update	1.81	1.63	1.70	1.83
AP02	Retrieve	1.01	1.19	1.12	1.20
	Inquiry	1.12	1.17	1.25	1.36
AP03	Retrieve	1.16	1.31	1.27	1.37
AP04	Retrieve	1.63	1.89	1.90	2.11
	Update	1.97	2.36	2.40	2.55

Table 3: AP Business Transaction Runtimes

Receivables (AR)		# Users			
Bus. Transaction		1	5,000	10,000	15,000
AR01	Retrieve	1.09	1.04	0.92	1.25
	Update	0.87	0.96	0.92	1.28
AR02	Retrieve	0.96	1.06	1.10	1.39
	Update	1.87	1.39	1.48	1.88
AR03	Retrieve	0.99	1.02	1.01	1.01
	Build	1.52	1.57	1.63	1.72
	Edit	1.67	1.43	1.68	1.58
	Update	0.86	0.84	0.85	1.05
	Worksheet	1.13	1.16	1.18	1.19
AR04	Retrieve	1.18	1.39	1.20	1.28
	Inquiry	1.03	1.05	1.04	1.02

Table 4: AR Business Transaction Runtimes

General Ledger (GL)		# Users			
Bus. Transaction		1	5,000	10,000	15,000
GL01	Retrieve	1.43	1.37	1.45	1.54
	Update	1.15	1.20	1.21	1.40
GL03	Inquiry	2.15	2.33	2.84	2.82
GL05	Retrieve	0.91	0.95	0.93	0.95
	Inquiry	3.69	3.77	3.69	3.84
GL06	Retrieve	1.20	1.51	1.43	1.65
	Update	1.27	1.40	1.42	1.52

Table 5: GL Business Transaction Runtimes

The following table shows the average runtimes for all business transactions. The database and application servers were processing a total of 3,000 business transactions per minute at the peak load of 15,000 concurrent users.

AVERAGE RUNTIMES	# Users			
* Weighted Avg.	1	5,000	10,000	15,000
Retrieve	1.35	1.44	1.45	1.55
Update	1.52	1.65	1.70	1.85
Ret. & Update	1.40	1.51	1.53	1.65
Transactions/Minute	n/a	1,000	2,000	3,000

Table 6: Average Runtimes

4-TIER ENVIRONMENT

The following table shows the number of Application Servers utilized for each level of concurrent users.

# Users	1	5,000	10,000	15,000
# App Servers	1	3	3	3
# AppServ Instances	1	3×40	3×40	3×40

Table 7: Physical Application Servers

SERVER PERFORMANCE

Figure 3 shows the average Database Server CPU utilization and the average Application/Web Server CPU utilization.

PeopleSoft Financials 8.4 Online with Oracle9i on Sun Microsystems Sun Fire Servers
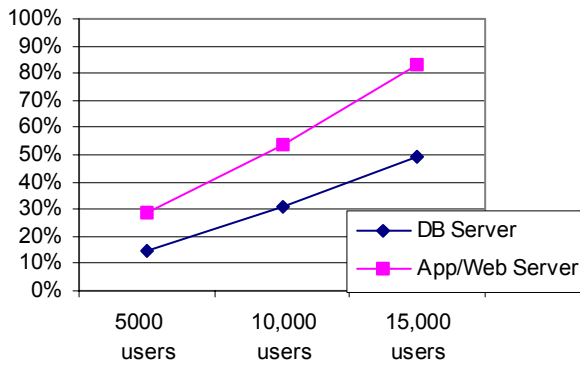
Figure 3: CPU Utilization

	5,000 Users	10,000 Users	15,000 Users
App/Web Servers	$\times 3$	$\times 3$	$\times 3$
App/Web Server CPU	28%	53%	83%
App/Web Server Memory	17.3 GB	20.8 GB	28.3 GB
DB Server			
DB Server CPU	14%	31%	49%
DB Server Memory	11.3 GB	11.3 GB	11.1 GB

Table 8: Average CPU and Memory Utilization

The values for the application/web servers are the average across all three machines.

DATA COMPOSITION DESCRIPTION

The database was based on our standard Small Data Composition Model as discussed below.

The Asset Management tables were comprised of:

- 500,000 assets in 3 asset books
- 10 Business Units

The Payables tables were comprised of:

- 10,000 Vendors
- 415,000 Vouchers (400,000 Paid / 15,000 Unpaid)

The Receivables tables were comprised of:

- 262,500 Items (½ of customers have 5 invoice items and ½ of customers have 30 invoice items)
- 15,000 Customers

The General Ledger tables were comprised of:

- 8,000,000 Journal Lines (1 Year)
- 2,500,000 Total Ledger Rows (2 Years)

BENCHMARK ENVIRONMENT

HARDWARE CONFIGURATION

Database Server:

One Sun Fire E4900™ was used as the database server. It was equipped with the following:

- 12 × 1.2 Gigahertz (Dual-Threaded) UltraSPARC® IV Processors each with 16 Megabytes of Level-2 Cache
- 48 Gigabytes of Memory (~12 used)
- 16 × Sun StorEdge® 6120 Array(s) for the Enterprise (RAID 5)
- ~1,900 Gigabytes of total Disk Space (16 × 120 GB)
- 12 × Sun Integrated Fibre Channel Disk Controllers

Application/Web Server(s):

3 × Sun Fire™ E2900s were used as the application/web servers. They were equipped with the following:

- 12 × 1.2 Gigahertz (Dual-Threaded) UltraSPARC® IV Processors each with 16 Megabytes of Level-2 Cache
- 96 Gigabytes of Memory (~30 used)
- 72 Gigabytes of total Disk Space (2 × 36 GB)

Load Driver(s):

1 × Sun Fire™ 880 server was used as the load driver. It was equipped with the following:

- 8 × 900 Megahertz UltraSPARC® III Processors each with 8 Megabytes of Level-2 Cache
- 32 Gigabytes of Memory

Client PC:

Dell® PowerEdge 2450 with the following:

- 600 Megahertz Pentium® III Processor with 256 Kilobytes of Level-2 Cache
- 512 Megabytes of Memory

SOFTWARE VERSIONS

PeopleSoft Financials 8.4

PeopleTools 8.43

Oracle9i™ 9.2.0.5

Sun Solaris 9 Operating Environment, 4/04 s9s_u6wos_07 SPARC (on the Database server, Application/Web servers and Driver)

Microsoft® Windows® 2000 Advanced Server 5 w/SP 4 (on the Client)

Mercury Interactive's LoadRunner® 7.6

Mercury Interactive's QuickTest® Professional 6.0

BEA Tuxedo® 6.5 with Jolt 1.2

BEA WebLogic® 6.1 w/SP 4 with Java Hotspot Client VM 1.3.1-b24

Merant™ (Micro Focus) Server Express™ 2.2

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