PeopleSoft8

certified
Technology Benchmark

PEOPLESOFT GLOBAL PAYROLL 8.8 (AUSTRALIA) USING DB2 UDB FOR AIX ON AN IBM p660 6M1

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 Global Payroll 8.8 (Australia)	
	Medium Model	
(English)	Payroll	37,648 Payees – 39.07 minutes
	Payeess/Hr	57,821 per hour* (*Monthly w/Retro processing)
Référence d'exécution	PeopleSoft Paie Globale 8.8 (L'Australie)	
	modèle de données de taille moyenne	
(Français)	Livre de paie	37.648 Payees – 39,07 minutes
	Payees/heure	57.821 par heure
Benchmark-Test	PeopleSoft Personalabrechnung 8.8 (Australien)	
	Datenbankmodell "Medium"	
(Deutsch)		37.648 Payees – 39,07 Minuten
	Payees/Stunde	57.821 pro Stunde
Patrón de rendimiento	PeopleSoft Nomina Global para Australia 8.8	
	Modelo con volumen mediano de datos	
(Español)	Nómina	37.648 Payees – 39,07 minutos
	Payees/hora	57.821 por hora
Benchmark	Pagamento 8.88 (Austrália) do PeopleSoft	
	Modelo de Médio Volume	
(Português)		37.648 Payees – 39,07 minutos
	Payees/hora	57.821 por a hora

BENCHMARK PROFILE

In February 2003, PeopleSoft conducted a benchmark in Pleasanton, CA to measure the batch performance of the [Employee] Identification, [Payroll] Calculation, Finalize, Banking, Payslip, State Payroll Tax Report, General Ledger and End of Year processes in PeopleSoft Global Payroll 8.8 (Australia) with IBM® DB2® Universal Database Enterprise Edition Version 7.2 w/FP 8 for AIX.

The batch/database server was an 8-way IBM® **e server** eServer pSeries p660 6M1 server, running IBM® AIX® 5.1 ML02.

The benchmark measured 'Global Payroll' application business process runtimes for one database model representing a medium-sized organization. Testing was conducted in a controlled environment with no other applications running. The tuning changes, if any, were approved by PeopleSoft Development and will be generally available in a future release or update. **The goal of this Benchmark was to obtain reference performance results for PeopleSoft Global Payroll 8.8.**

**PeopleSoft Global Payroll 8.8 (Australia)
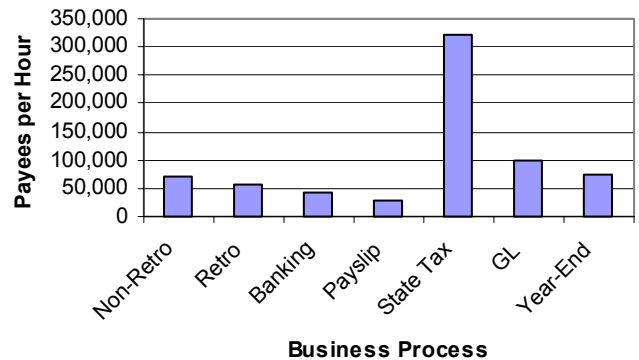using DB2 UDB for AIX on an IBM
eServer pSeries p660**

Figure 1: PeopleSoft Global Payroll 8.8 Processing Rates

The "Non-Retro' and 'Retro' throughput rates above include the Identification, Calculate and Finalize processes.

METHODOLOGY

PeopleSoft Global Payroll 8.8 batch processes can be initiated from a browser. For this benchmark, all runs used a browser to initiate COBOL, Application Engine (AE) or SQR jobs.

The Identify, Calculation and General Ledger processes were run as 8 concurrent processes—based upon the employee ID number ranges. The Banking process is run partly single-threaded and partly as parallel concurrent jobs.

Business Process	Job Streams	Process Type
Identify	8	COBOL
Calculate	8	COBOL
Finalize	Single-Threaded	COBOL
Banking	8 Single-Threaded	App Engine
Payslip	Single-Threaded	SQR
State Payroll Tax Report	Single-Threaded	App Engine/SQR
GL	8	App Engine
End of Year	Single-Threaded	App Engine

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.

BUSINESS PROCESSES

The PeopleSoft 8 Global Payroll processes tested are as follows:

[Employee] Identification: (COBOL) Identifies eligible payees for the selected Calendar period. The process looks at the Calendar selection criteria and then compares this to the employee's pay system flag (JOB.PAY_SYSTEM_FLG), pay group (JOB.GP_PAYGROUP), and status (JOB.EMPL_STATUS). When applicable, it also looks at Positive Input information as well as Retro Triggers. The Identification process can be run separately from the other two tasks, usually right before the first calculation is run.

[Payroll] Calculation: (COBOL) Looks at identified payees and performs appropriate payroll and/or absence calculations for those employees. Payroll Calculation can be run any number of times throughout the pay period. The first run will do most of the processing, while each successive run updates only the calculated totals of changed items. This iterative design minimizes the time required to calculate a payroll or absence run, as well as the processing resources required. In this benchmark, Payroll Calculation was run only once, as though at the end of a payroll/absence period.

Finalize: (COBOL) Takes the information generated by Calculation and 'closes' the period. Finalize can only be run once, and therefore, must be run at the end of the pay period.

Banking: (AE) Setup to prepare for the creation of a single entity for each payroll result that needs to be 'paid out,' in an interface table. The table keeps all of the information required to execute the payment (net payment, garnishments, and external deductions). This process generates a flat file for Electronic File Transfer purposes.

Payslip: (SQR) Provides payroll information at the employee-level, allowing the employee to view their net pay.

State Payroll Tax Report: (AE & SQR) Produces a detailed break out of the earnings, benefits, deductions and expenses that have been identified as payroll taxable or as payroll tax exempt.

General Ledger: (AE) Application Engine job specific to Australia that accounts for the expense of leave — 'taken' or 'accrued.'

End of Year: (AE) An End of Year process specific to Australia used to create an employee payment summary.

BATCH RESULTS

Table 1 contains the actual runtimes, in minutes, for the Global Payroll processes.

37,648 Monthly Payees		Time (Minutes)	Hourly Rate	Job Streams
Non-Retro Payroll				
	Identify	6.42	352,033	8
	Calculate	24.05	93,924	8
	Finalize	1.20	1,882,400	single
	Total:	**31.67**	**71,333**	N/A
Retro Payroll				
	Identify	9.13	247,323	8
	Calculate	28.48	79,305	8
	Finalize	1.45	1,557,848	single
	Total:	**39.07**	**57,821**	N/A
Banking				
	Calculate	23.53	95,986	8
	Finalize	0.67	3,388,320	single
	EFT	27.82	81,206	8 serial
	Total:	**52.02**	**43,426**	N/A
Payslip – Payees/hr		84.42	26,759	single
† Payslip – Payslips/hr		84.42	31,776	single
State Payroll Tax Rpt		7.03	321,168	single
General Ledger				
	Calculate	16.32	138,440	8
	Leave Entitlement	6.28	359,503	8 serial
	Finalize	0.08	27,106,560	single
	Total:	**22.68**	**99,583**	N/A
Year-End		**30.07**	**75,129**	single

Table 1: PeopleSoft Global Payroll 8.8 Process Runtimes

The retro calculation involved approximately 12.5% of the population. Their payroll data was re-run for the previous two periods. Thus, this run processed 47,060 segments rather than the base 37,648 payees. The computed transaction rate is still based upon the 37,648 payees.

† About 18.75% of the population gets two Payslips. Thus, there were 44,707 Payslips for 37,648 employees.

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

SERVER PERFORMANCE

Table 2 shows the average CPU utilization for each process. The value shown is the average across all eight processors.

37,648 Monthly Payees		Average CPU	Memory Usage - Megabytes
Non-Retro Payroll			
	Identify	91%	8400
	Calculate	89%	8928
	Finalize	19%	7859
Retro Payroll			
	Identify	73%	7985
	Calculate	82%	8002
	Finalize	27%	8003
Banking			
	Calculate	67%	7815
	Finalize	36%	7903
	EFT	12%	7890
Payslip		17%	8024
State Payroll Tax Rpt		19%	8322
General Ledger			
	Calculate	84%	7244
	Leave Entitlement	9%	7878
	Finalize	20%	7921
Year-End		97%	7933

Table 2: Average CPU Utilization

Finalize, EFT (Electronic Funds Transfer – within the Banking process), Payslip and the State Payroll Tax Report processes were somewhat I/O bound. Note that the memory usage peaked at about one half of the available 16 Gigabytes.

DATA COMPOSITION DESCRIPTION

History data for July 2001 through May 2002 was created prior to the timed benchmark runs (11 periods for monthly payees). A payroll calendar, absence calendar and hourly absence accrual calendar were run for each month of this benchmark (as part of a single Calendar Group).

The following table shows the total number of paid employees for each model.

	Monthly Period
Active Payees	37,648
Retro segments	47,060

Table 6: Database Composition

The Retro calculation primarily involves the first three processes (ID, Calc, Finalize) and involves the two previous months for two of the 'monthly employee' profiles.

The employees were distributed over a single pay entity and pay group with 18 different employee profiles. The distribution is as follows:

Pay Entities	Pay Entity 1 (Pay Group 1) Monthly
Payees (Population)	100%
Period Segmentation (changed department/job)	10%
Element Segmentation (changed pay rate)	10%
Absence	10%
Vacation	10%
Positive Input	30%

Table 7: Australia Specific Setup

BENCHMARK ENVIRONMENT

HARDWARE CONFIGURATION

The IBM® *e*server eServer pSeries (RS/6000®) model p660 7026-6M1 was used as a batch and database server. It was equipped with the following:

- 8 × 750 Megahertz RS64-IV PowerPC® Processors, each with 16 Megabytes of Level-2 Cache, 128 Kilobytes of Level-1 Data Cache and 128 Kilobytes of Level-1 Instruction Cache

- 16 Gigabytes of Memory

- ~1,002 Gigabytes of total Disk Space (16 × 36 GB SSA +2 × 18.2 GB SCSI + 32 × 36 GB ESS) ~ 87 GB used

- 4 × FC SCSI Disk Controllers (ESS)

- 2 × SSA 160 SerialRAID Disk Controllers with 32 MB Fast-Write Cache

- 1 × Wide/Ultra-2 SCSI Disk Controller

The IBM® pSeries p660 was attached to:

One IBM® TotalStorage™ Enterprise Server, 2105-F20, 60 GB disk size, 12 Terabytes of total Disk Space, with 800 Gigabytes allocated for this benchmark

SOFTWARE VERSIONS

PeopleSoft Global Payroll (Australia extension) 8.8

PeopleTools 8.42

IBM® DB2® Universal Database Enterprise Edition Version 7.2 w/FP 8 for AIX

IBM® AIX® 5.1 ML02

Merant™ Server Express™ (COBOL) 2.0.11

BEA Tuxedo® 6.5 with Jolt 1.2

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