PeopleSoft8

REVISION 2.1

PEOPLESOFT GLOBAL PAYROLL 8.8 (HONG KONG) USING DB2 UDB FOR HP-UX ON A HEWLETT-PACKARD hp server rp7410

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 (Hong Kong)	
	Large Model	
(English)	Payroll	20,006 Payees – 35.47 minutes (includes Payslip)
	Payeess/Hr	33,842 per hour* (*Monthly w/Retro processing)
Référence d'exécution	PeopleSoft Paie Globale 8.8 (Hong kong)	
	Grand modèle de données	
(Français)	Livre de paie	20.006 Payees – 35,47 minutes (avec Payslip)
	Payees/heure	33.842 par heure
Benchmark-Test	PeopleSoft Personalabrechnung 8.8 (Hong-Kong)	
	Datenbankmodell "Large"	
(Deutsch)		20.006 Payees – 35,47 Minuten (mit Payslip)
	Payees/Stunde	33.842 pro Stunde
Patrón de rendimiento	PeopleSoft Nomina Global para Hong-Kong 8.8	
	Modelo con volumen superior de datos	
(Español)	Nómina	20.006 Payees – 35,47 minutos (con Payslip)
	Payees/hora	33.842 por hora
Benchmark	Pagamento 8.88 (Hong.kong) do PeopleSoft	
	Modelo de Grande Volume	
(Português)		20.006 Payees – 35,47 minutos (con Payslip)
	Payees/hora	33.842 por a hora

BENCHMARK PROFILE

In July 2003, PeopleSoft conducted a benchmark in Pleasanton, CA to measure the batch performance of the [Employee] Identification, [Payroll] Calculation, Finalize, Banking, Payslip, and End of Year processes in PeopleSoft Global Payroll 8.8 (Hong Kong) with IBM® DB2® Universal Database Enterprise Edition Version 8.1 w/FP 1 for HP-UX®.

The batch/database server was an 8-way Hewlett-Packard® hp server rp7410 database server, running Hewlett-Packard® HP-UX 11i.

The benchmark measured 'Global Payroll' application business process runtimes for two database models representing medium and large-sized organizations. 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.**

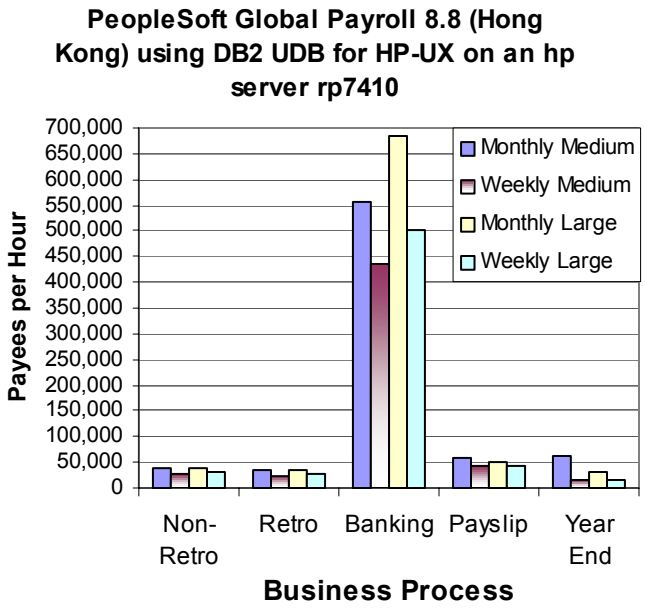

Figure 1: PeopleSoft Global Payroll 8.8 Processing Rates

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 Banking 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
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 Global Payroll 8.8 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.

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

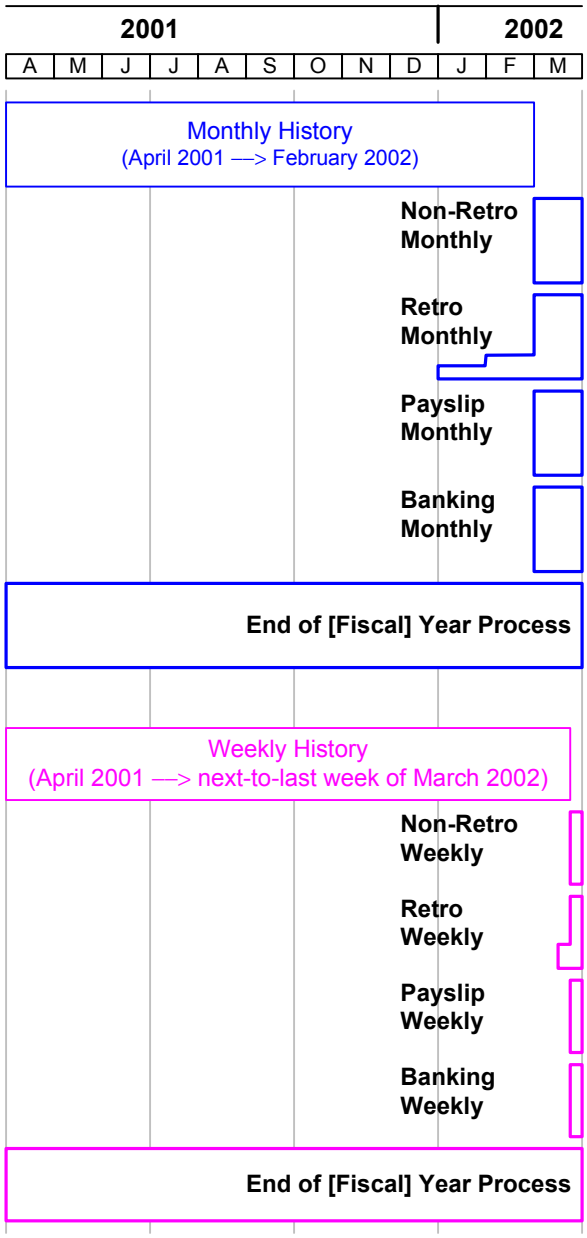

Figure 2: History and Execution Plan

BATCH RESULTS

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

Monthly Payees	5,012 Payees		20,006 Payees	
	Medium Time (Min.)	Medium Hourly Rate	Large Time (Min.)	Large Hourly Rate
Non-Retro Payroll				
Identify	0.54	556,889	1.79	671,843
Calculate	1.48	202,961	5.53	217,194
Finalize	0.11	2,693,015	0.41	2,927,707
SubTotal:	2.13	140,963	7.72	155,420
Payslip	5.33	56,420	23.52	51,028
Total:	7.46	40,293	31.25	38,416
Retro Payroll				
Identify	1.56	193,389	3.78	317,276
Calculate	1.91	157,858	7.72	155,554
Finalize	0.13	2,255,400	0.45	2,687,373
Total:	3.59	83,688	11.95	100,477
Payslip	5.33	56,420	23.52	51,028
Total:	8.92	33,700	35.47	33,842
Banking				
Calculate	0.33	911,273	0.95	1,263,537
Finalize	0.03	10,024,000	0.13	9,602,880
EFT	0.18	1,655,339	0.68	1,756,624
Total:	0.54	555,175	1.76	682,669
Payslip – Payees/hr	5.33	56,420	23.52	51,028
† Payslip – Payslips/hr	5.33	64,480	23.52	58,318
Year-End	4.73	63,555	39.75	30,198

Table 1a: PeopleSoft Global Payroll 8.8 Process Runtimes

Weekly Payees	5,001 Payees		20,001 Payees	
	Medium Time (Min.)	Medium Hourly Rate	Large Time (Min.)	Large Hourly Rate
Non-Retro Payroll				
Identify	1.63	184,274	2.11	569,198
Calculate	2.25	133,558	8.24	145,579
Finalize	0.34	895,701	0.72	1,678,406
SubTotal:	4.21	71,273	11.07	108,439
Payslip	7.05	42,562	28.30	42,410
Total:	11.26	26,648	39.36	30,487
Retro Payroll				
Identify	3.55	84,524	4.88	245,746
Calculate	2.84	105,779	11.35	105,748
Finalize	0.35	869,739	0.77	1,551,802
Total:	6.73	44,574	17.01	70,571
Payslip	7.05	42,562	28.30	42,410
Total:	13.78	21,772	45.30	26,490
Banking				
Calculate	0.43	697,814	1.21	995,900
Finalize	0.08	3,913,826	0.51	2,353,059
EFT	0.18	1,636,691	0.68	1,756,185
Total:	0.69	434,870	2.40	500,372
Payslip – Payees/hr	7.05	42,562	28.30	42,410
† Payslip – Payslips/hr	7.05	56,749	28.30	56,547
Year-End	17.61	17,042	81.71	14,687

Table 1b: PeopleSoft Global Payroll 8.8 Process Runtimes

The retro calculation involved approximately 28.5% of the 'monthly' population and 33% of the weekly population. Their payroll data was re-run for the previous one or two periods. Thus, the large monthly run processed 28,580 segments rather than the base 20,006 payees. The computed transaction rates are still based upon the 20,006 monthly payees or 20,001 weekly payees.

	Medium Monthly	Large Monthly	Medium Weekly	Large Weekly
Active Payees	5,012	20,006	5,001	20,001
Retro segments	7,160	28,580	6,668	26,668

Table 2: Payee and Retro Correspondence

† About 14.3% of the monthly population gets two Payslips. About 33% of the weekly population gets two Payslips. Thus, there were 22,864 Payslips for 20,006 large-model monthly employees. See Table 3, below.

	Medium Monthly	Large Monthly	Medium Weekly	Large Weekly
Active Payees	5,012	20,006	5,001	20,001
Payslips	5,728	22,864	6,668	26,668

Table 3: Payee and Payslip Correspondence

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

SERVER PERFORMANCE

Table 4 shows the average CPU utilization for each process. The value shown is the average across all eight processors.

	5,012 Payees	20,006 Payees	5,001 Payees	20,001 Payees
	Medium Monthly	Large Monthly	Medium Weekly	Large Weekly
Non-Retro Payroll				
Identify	55	80	63	69
Calculate	66	81	73	80
Finalize	4	8	9	9
Retro Payroll				
Identify	41	73	71	68
Calculate	71	82	80	79
Finalize	5	8	7	10
Banking				
Calculate	33	61	50	52
Finalize	2	4	4	9
EFT	6	9	6	9
Payslip	13	13	13	13
Year-End	10	11	9	11

Table 4: Average CPU Utilization

The Finalize and EFT (Electronic Funds Transfer – within the Banking process) processes executed quickly. Therefore, it is less obvious if they are I/O bound. Payslip and the End-of-Year process may have been somewhat I/O bound.

DATA COMPOSITION DESCRIPTION

History data for April 2001 through February or late March 2002 was created prior to the timed benchmark runs (11 periods for monthly payees and 51 periods for weekly payees). This is shown graphically in Figure 2.

A payroll calendar, absence calendar and hourly absence accrual calendar were run for each month/week of this benchmark (as part of a single Calendar Group).

The Retro calculation primarily involves the first three processes (ID, Calc, Finalize). Two of the 'monthly employee' profiles have retro processing for the previous two months (January and February). Two other 'monthly employee' profiles have retro processing for only the previous month (February).

One of the three 'weekly employee' profiles has retro processing for the previous week.

The employees were distributed over a single pay entity with a separate pay group for the monthly and weekly payees. There are 17 different monthly employee profiles and three different weekly employee profiles. The distribution is as follows:

Pay Entities	Pay Entity 1 (Pay Group 1) Monthly	Pay Entity 1 (Pay Group 2) Weekly
Payees (Population)	100%	100%
Period Segmentation (changed department/job)	10%	10%
Element Segmentation (changed pay rate)	10%	10%
Absence	10%	10%
Vacation	10%	10%
Positive Input	30%	30%

Table 5: Hong Kong Specific Setup

BENCHMARK ENVIRONMENT

HARDWARE CONFIGURATION

The Hewlett-Packard® hp server rp7410® server was used as the batch/database server. It was equipped with the following:

- 8 × 875 MHz PA-RISC 8700® processors, each with 1.5 MB of Data Cache and 768 KB of Instruction Cache
- 20 Gigabytes of Memory
- 1 × HP Enterprise Virtual Array 5000
- 3024 Gigabytes of total Disk Space available (84 × 36 GB), 320 GB allocated, approximately 220 GB used
- 2 × Hewlett-Packard® Fibre Channel Disk Controllers connected via two HP 2Gb Fibre Channel 16B switches

SOFTWARE VERSIONS

PeopleSoft Global Payroll (Hong Kong extension) 8.8

PeopleTools 8.42

IBM® DB2® Universal Database Enterprise Server Edition Version 8.1 w/FP 1 for HP-UX

Hewlett-Packard® HP-UX® 11i with Gold Base Patches

Merant™ Server Express™ (COBOL) 2.0.11

BEA Tuxedo® 6.5 with Jolt 1.2

PeopleSoft Worldwide Headquarters
4460 Hacienda Drive
P. O. Box 8018
Pleasanton, California 94588-8618
Tel 925/694-3000
Fax 925/694-3100
Email info@peoplesoft.com
World Wide Web http://www.peoplesoft.com