

IBM Netfinity 7000 Sets Performance Record for SAP's R/3 SD Benchmark on 4-Way Intel-Based Systems

September 29, 1997

The IBM PC Company set a new performance record for running SAP R/3 Sales and Distribution (SD) Benchmark on 4-way, Intel-based servers. The IBM Netfinity 7000 system achieved 1,200 SD Benchmark users with 1.75 seconds average dialog response time on Oracle 7.3 and Microsoft Windows NT Server 4.0. This represents a throughput of 123,000 fully processed order line items per hour. This record surpasses all previous competitive results using four Intel Pentium Pro 200MHz processors.

The Benchmark Environment

The hardware configuration for the 1,200 SD benchmark user run consisted of one database server, an IBM Netfinity 7000 system with four 200MHz Pentium Pro processors with 1MB L2 cache, 2GB of main memory, and 234GB of total disk space running Windows NT Server 4.0 with Service Pack 3, Oracle 7.3 and SAP's R/3 Rel. 3.1G. The measured throughput was 368,000 dialog steps per hour with an average CPU utilization of 96 percent for the database server.

In addition, 13 IBM Netfinity 7000 systems with four 200MHz Pentium Pro processors running Windows NT 4.0 with Service Pack 3 were used as application servers with an average CPU utilization of 59 percent. Nine of these IBM Netfinity 7000 systems acted as dialog servers, three as update servers and one as a message/enqueue server.

This benchmark fully complies with SAP's issued benchmark regulations and has been audited and certified by SAP. Details can be obtained from IBM and SAPAG. The benchmark was performed at IBM's Server Performance Lab in Research Triangle Park, NC, by IBM engineers.

1. General Information about Benchmark Environment

Certification Number	1997030
Hardware Partner	International Business Machines Corporation
Contact Name/Tel./Mail ID	Phil Horwitz / 919-543-3606 / pjgator@us.ibm.com
R/3 Release	3.1G
DBMS Version	Oracle 7.3.2.3.8
Date	September 29, 1997
Location	Research Triangle Park, NC, USA
Lead Engineers	IBM: Phil Horwitz and Martha Centeno
Published	Yes

2. Detailed Hardware and System Software Configuration

Database Server			
System Name / Model	IBM Netfinity 7000		
Processor Type / Clock Rate / Number of Processors	Intel Pentium Pro 200MHz 4		
Cache Size / Level	1MB / Level 2		
Memory	2GB		
Operating System	Windows NT Server 4.0 with Service Pack 3		
Database System	Oracle 7.3.2.3.8		
Number of Disks	40 External, 12 Internal - Total Disk Space: 234GB		
I/O Subsystem			
Controller Number	Number of Disk Drives	RAID Level	Contents
1st ServeRAID Ch. 1	10 x 4.51GB External Drives	5	OS, Redo Logs
2nd ServeRAID Ch. 1	10 x 4.51GB External Drives	0	SAPDATA
3rd ServeRAID Ch. 1	10 x 4.51GB External Drives	0	SAPDATA
3rd ServeRAID Ch. 2	10 x 4.51GB External Drives	0	SAPDATA
1st Onboard Fast/Wide Ultra SCSI	6 x 4.51GB Internal Drives	0	SAPDATA
2nd Onboard Fast/Wide Ultra SCSI	6 x 4.51GB Internal Drives	0	SAPDATA

Application Server (1)	Message/Enqueue
System Name / Model	IBM Netfinity 7000
Processor Type / Clock Rate / Number of Processors	Intel Pentium Pro 200MHz 4
Cache (Level / Size)	Level 1 / 16KB; Level 2 / 1MB
Memory	512MB
Operating System	Windows NT Server 4.0 with Service Pack 3
Number of Disks	2

Application Servers (3)		Update
System Name / Model	IBM Netfinity 7000	
Processor Type / Clock Rate / Number of Processors	Intel Pentium Pro 200MHz 4	
Cache (Level / Size)	Level 1 / 16KB; Level 2 / 1MB	
Memory	1GB	
Operating System	Windows NT Server 4.0 with Service Pack 3	
Number of Disks	3	

Application Servers (9)		Dialog Servers
System Name / Model	IBM Netfinity 7000	
Processor Type / Clock Rate / Number of Processors	Intel Pentium Pro 200MHz 4	
Cache (Level / Size)	Level 1 / 16KB; Level 2 / 1MB	
Memory	1GB	
Operating System	Windows NT Server 4.0 with Service Pack 3	
Number of Disks	4	

Benchmark Driver (1)	
System Name / Model	IBM RS/6000 PowerPC Model F40
Processor Type / Clock Rate / Number of Processors	IBM PowerPC 166MHz 2
Memory	1GB
Operating System	AIX 4.1.5
Number of Disks	4

Network Configuration	
Type	100Mbps Switched Ethernet
Number of Segments	15 Segments Attached to a Switched Hub
Speed	100Mbps Full-Duplex Ethernet

3. Detailed R/3 Configuration

SAP R/3 Configuration	
SAP R/3 Version (Application)	SAP R/3 3.1G
SAP R/3 Version (Kernel)	SAP R/3 3.1G
Number of benchmark clients used	1,200

R/3 Module	Number of Simulated Benchmark Users	Number of Dialog Step / Hour or SAPs for SD	Average Response Time (Dialog and Update Task)	Average** CPU Utilization of Application Servers	Average** CPU Utilization of Database Server	Response*** Time	Distribution
SD	1,200	368,000	1.75	59 %	96 %	UPD: 298 DIA: 130	65 % under 2 seconds (ms)

** as in SAP Operating System Monitor

*** as in SAP Workload Monitor

Hardware Disclosure		
Quantity	Part Number	Description
Database Servers (1)		
1	8651-RH0	IBM Netfinity 7000
3	94G7147	IBM Netfinity 200MHz/1MB L2 Cache Processor
4	94G7385	IBM Netfinity 512MB Memory Expansion Kit
3	76H3584	IBM ServeRAID II Ultra SCSI Adapter
1	86H2432	IBM EtherJet 100/10 PCI Adapter
4	35201RU	IBM Netfinity EXP10 Rack Storage Enclosure with Redundant Power
52	94G7429	IBM 4.51GB Wide Ultra SCSI Hard Disk Drive
Dialog Servers (9)		
9	8651-RH0	IBM Netfinity 7000
27	94G7147	IBM Netfinity 200MHz/1MB L2 Processor
36	94G7384	IBM Netfinity 256MB Memory Expansion Kit
9	86H2432	IBM EtherJet 100/10 PCI Adapter
36	94G7429	IBM 4.51GB Wide Ultra SCSI SCA-2 Hard Disk Drive
Update Servers (3)		
3	8651-RH0	IBM Netfinity 7000
9	94G7147	IBM Netfinity 200MHz/1MB L2 Cache Processor
6	94G7384	IBM Netfinity 256MB Memory Expansion Kit
3	86H2432	IBM EtherJet 100/10 PCI Adapter
9	94G7429	IBM 4.51GB Wide Ultra SCSI SCA-2 Hard Disk Drive

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