



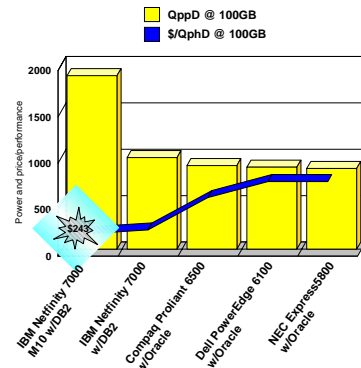
IBM Netfinity 7000 M10 Raises the Bar for Performance

The IBM Netfinity* 7000 M10 with an Intel** Pentium** II Xeon** processor sets the benchmark for performance by Intel processor-based servers. With record-setting performance on the TPC-D, SAP and SPECweb benchmarks, the 7000 M10 claims its place as the best platform for enterprise applications. Its balanced system design integrates the memory and I/O required to deliver a powerful application platform with no compromises. The 7000 M10 integrates this power with the scalability, control and service characteristics needed for business-critical applications in a 7 x 24 environment.

TPC Benchmark D

The Netfinity 7000 M10 server running IBM's DB2* Universal Database posted the highest power (1,871.1 QppD@100GB) and the highest throughput (661.3 QthD@100GB) recorded on a four-processor, Intel/Windows** NT**-based server at the lowest price/performance ratio (\$243/QphD@100GB) in the industry.

Except for the Netfinity 7000 M10, the following are published results for the TPC-D benchmark run on 4-way, Intel Pentium Pro-based systems.



| | QppD @ 100GB | QthD @ 100GB | \$/QphD @ 100GB | Total Solution Availability Date |
|----------------------------------|--------------|--------------|-----------------|----------------------------------|
| IBM Netfinity 7000 M10 with DB2 | 1,871.1 | 661.3 | 243 | October 31, 1998 |
| IBM Netfinity 7000 with DB2 | 987.2 | 362.4 | 284.14 | October 31, 1998 |
| Compaq Proliant 6500 with Oracle | 902.1 | 275.5 | 632.05 | May 15, 1998 |
| Dell PowerEdge 6100 with Oracle | 898.2 | 277.6 | 673.04 | December 31, 1997 |
| NEC Express5800 with Oracle | 885.5 | 276.2 | 803.82 | January 15, 1998 |

The performance breakthroughs, verified by Transaction Processing Performance Council (TPC**) auditors on June 19, 1998, ranked the Netfinity 7000 M10 and DB2 Universal Database as the performance leader among all hardware and database vendors for 100GB TPC-D results on a four-processor, Intel Pentium II Xeon-based system, and the price/performance leader overall. The planned availability of the 7000 M10 and the DB2 Universal Database software used to achieve these results is September 25 and October 31, 1998, respectively.

The TPC-D benchmark simulates data modeling and trend analysis of information contained within a large database such as a data mart or data warehouse. Customers can use TPC-D results to better understand the relative performance of business intelligence systems from different vendors.

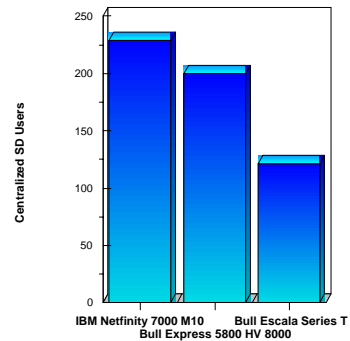
SAP R/3 Centralized SD Benchmark

On June 25, 1998 the IBM Netfinity 7000 M10 database server achieved 229 SD Benchmark users with 1.98 seconds average response time and a throughput of 23,000 fully processed order line items per hour.

The environment was a 4-way 400MHz Pentium II Xeon processor with 1MB L2 cache, 2GB of main memory and 455GB of total disk space, running Windows NT Server 4.0, Oracle 8.0.4 and Sap R/3 Release 3.1H. Measured throughput was 69,000 dialog steps per hour with an average CPU utilization of 99 percent for the central server. This benchmark fully complies with SAP's issued benchmark regulations and has been audited and is certifiable by SAP. The benchmark was completed at IBM's Netfinity Server Performance Lab in Research Triangle Park, NC, by IBM engineers.

With its extensive functionality and high level of integration, the SAP R/3 System meets the full range of business requirements, including financial accounting and controlling, sales and distribution, materials management, production planning and human resources management. The certification achieved with these results ensures that the new Netfinity 7000 M10 supports the SAP R/3 System client/server business applications—meeting the requirements of customers whose business operations depend on these applications.

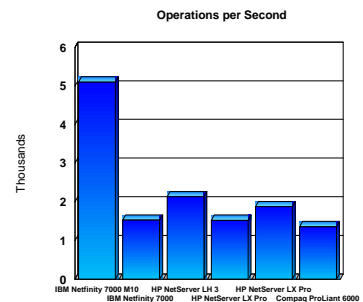
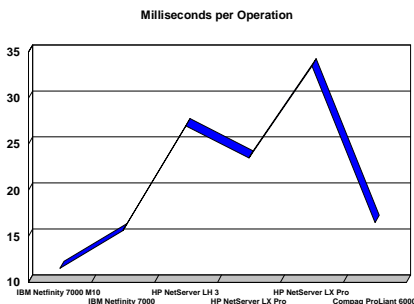
Except for the Netfinity 7000 M10, the following are published results for the SAP Centralized SD benchmark run on 4-way, Intel Pentium Pro-based systems.



| | Centralized SD Users | Response Time | Certification Number* | Software Platform |
|---------------------------|----------------------|---------------|-----------------------|--|
| IBM Netfinity 7000 M10 | 229 | 1.98 | N/A | NT 4.0 / Oracle 8.0.4 SAP R/3 3.1H |
| Bull Express 5800 HV 8000 | 200 | 1.69 | #1998013 | NT 4.0 EE / Oracle 8.0.4 SAP R/3 3.1H |
| Bull Escala Series T | 121 | 1.84 | #1997041 | AIX 4.2.1 / Oracle 7.2.3 SAP R/3 3.1G |

SPECweb96 Benchmark

With the best-ever SPECweb96 results on Windows NT Server 4.0, the IBM Netfinity 7000 M10 achieved 5,100 operations per second with a response time of 11.5 milliseconds per operation, running the Apache HTTP Server Version 1.3.1 and research-developed technology that accelerates Web server performance.



Except for the Netfinity 7000 M10, the following are published results for the SPECweb96 benchmark run on servers using Windows NT Server 4.0 and Intel Pentium Pro or Pentium II processors.

| | Date | Type and # Processors | Ops/Second | Msec/Op |
|------------------------|---------------|------------------------------|-------------------|----------------|
| IBM Netfinity 7000 M10 | June 29, 1998 | 4 x Pentium II Xeon | 5,100 | 11.5 |
| IBM Netfinity 7000 | June 1998 | 2 x 200MHz Pentium Pro | 1,527 | 15.6 |
| HP NetServer LH 3 | May 1998 | 1 x 400MHz Pentium II | 2,131 | 27 |
| HP NetServer LX Pro | February 1998 | 2 x 200MHz Pentium Pro | 1,525 | 23.5 |
| HP NetServer LX Pro | January 1998 | 4 x 200MHz Pentium Pro | 1,878 | 33.5 |
| Compaq ProLiant 6000 | July 1997 | 2 x 200MHz Pentium Pro | 1,359 | 16.5 |

SPECweb96, with its standardized workload and implementation, measures a system's ability to perform as a World Wide Web server for static pages. The workload simulates the accesses to a Web service provider, where the server supports multiple pages for a number of different organizations. This benchmark is useful in evaluating systems that handle millions of hits per day and multiple hits per second. SPECweb96 provides the most objective, most representative benchmarks for measuring Web server performance.



Results for the IBM Netfinity 7000 M10 referenced in this document are current as of June 29, 1998.

The results in the tables are provided for comparison. All competitive results shown are based on the benchmark measurements conducted by the respective companies. IBM did not test or in any way verify the test results obtained by these companies. The configuration of the server under test as well as the test environment may vary. Readers are encouraged to examine the companies' audited disclosure reports for details concerning the server configuration and methodology used to obtain the published results. Data on competitive products obtained from publicly available information and is subject to change without notice. Contact the manufacturer for the most recent information.

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