

Industry First: Sun Fire™ V250 Server Achieves Best Price/Performance While Delivering “Data Warehouse in a Box” Solution

Sun Fire V250 server sets TWO new 2-way TPC-H world records for price/performance with the first-ever TPC-H “data warehouse in a box” result²



Key Feature Highlights:

Sun Fire™ V250 Server:

- Solaris™ 8 or later
- One to two UltraSPARC® IIIi CPUs
- Portable system configuration card
- 512 MB to 8 GB memory (16 GB with 2GB DIMMs)
- Up to eight internal Ultra160 SCSI HDD, 36 or 73 GB
- DVD-ROM
- Optional DDS-4 DAT
- Six full-length PCI slots
- 10/100/1000 BaseT Ethernet port
- Advanced Lights Out Management
- Redundant (1+1) PSUs
- Four USB 1.1 ports

iForce™ Solution for Economical Data Management:

- Industry first—Benchmark results with redundant data achieved WITHOUT external storage
- Better performance allows you to leverage information to quickly understand business opportunities
- Enterprise strength at PC prices
- Internal storage means more reliability, easier manageability, and lower cost

Sun Fire V250 Server Sets TWO New 2-Way TPC-H World Records for Price/Performance with the First-Ever TPC-H “Data Warehouse in a Box” Result²

The Sun Fire V250 server, powered by two UltraSPARC IIIi 1.28-GHz processors combined with Sybase® IQ 12.5 and the Solaris 9 Operating System, has achieved two world records for price/performance under the TPC-H benchmark. Records were set in both the QphH @ 100 GB and QphH @ 300 GB metrics at 1442.7 and 1283.3, respectively, with a price/performance of \$23 US per QphH @ 100 GB and \$27 US per QphH @ 300 GB. The most outstanding factor regarding the QphH @ 300 world record is that, together with the previously submitted Sun Fire V240 server result, these are the only 300-GB submissions in the history of TPC-H made on systems with two processors. No other vendor has been able to run and submit a 300-GB benchmark with less than eight processors.

The price/performance are overall records at both the 100 and 300 scale factors. The QphH @ 100 result is also the best performance for a 2-way system, beating the previous 2-way world record of 1386 QphH @ 100 GB set by the HP ML370 G3 3.06-GHz Xeon. In addition to a price/performance increase of 7% over the previous QphH @ 100 GB world record (see Table 1-4), the Sun Fire V250 solution with Sybase’s IQ software is the first-ever TPC-H “data warehouse in a box,” using only internal disks. The Sun-Sybase IQ solution offers a significant increase in data availability over all other TPC-H submissions based on SQLServer. The Sun-Sybase IQ solution protects all data by utilizing RAID data redundancy; by contrast, none of the SQLServer-based submissions provide any kind of data redundancy. With any of the SQLServer solutions, the loss of a disk would require a lengthy database recovery; with Sun and Sybase IQ, the recovery is instantaneous.

The Sun Fire V250 server is among Sun Microsystems’ latest servers based on UltraSPARC technology. Sun Fire servers deliver enterprise scalability for a much-needed solution that’s both “good to go” and “good to grow” for small and mid-market enterprises. In summary, the solution represents a greatly simplified configuration, with streamlined system management, inherent high reliability, and fully mirrored enterprise data.

Regulatory Squeeze—Answering the Call for Information Storage and Rapid Analysis

The advent of numerous government and industry acts sparked by recent examples of inadequate data management has placed increased responsibilities upon financial institutions and enterprises throughout the private sector for effective data archiving and analysis. Examples include the US Patriot Act to assist detection of terrorist financial activities, the Sarbanes-Oxley Act of 2002 for

private-sector financial accounting, and the Basel Committee of the Bank for International Settlements (BIS) risk-analysis accord (Basel II) for the financial sector. The increased complexity and granularity required for compliance with these regulatory acts is forcing banks and enterprises to revise existing credit and operational risk-management systems and data standards. Critical to this is the management of large volumes of valuable enterprise data that must be archived and leveraged for rapid analysis. Effective risk management can mean the difference between financial success and business failure for enterprises large or small. A sea of data must be analyzed to meet compliance. Numerous risk factors feed complex models, which may need to be run hundreds of times for each assessment. The data must be reliable, instantly accessible, dynamically updated, and effectively replicated. This requires a strong information-management foundation with a unified, adaptable approach that enables central management and distributed operation.

Sun and Sybase Provide the Foundation for Information Liquidity

Effective solutions for data management must also leverage vast investments in proprietary applications, while enabling continual evolution of new technologies and architectures. Sun and Sybase bring together all of the elements necessary to create this foundation, to achieve “Information Liquidity: The unimpeded flow of information across diverse technologies, vendors, and locations.” The iForce Solution for Economical Data Management from Sun and Sybase stores transaction data for fast retrieval. Based upon the Sybase IQ enterprise analytical engine and the Sun Fire-class servers from Sun, the iForce Solution for Economical Data Management is designed to allow resellers and IT managers to bring enterprise-strength data processing power to organizations that could not previously afford the necessary investment. The

solution also provides enterprise-strength data management, analytical ability, and disaster-recovery functionality at PC-server prices. Plus, the combination of Sun Fire servers and Sybase software has been pre-tested to help customers reduce risk, speed time to implementation, and more quickly realize a return on their IT investments.

Enterprise Strength at PC Prices

The iForce Solution for Economical Data Management delivers a high-performance, highly scalable relational data repository for all your operational data. Many years of detailed transactional data can be instantly accessible online. Customers can be confident in the iForce Solution for Economical Data Management, as it is based on the solid technology foundation of Sun/Sybase Data Warehousing Reference Architecture for The Enterprise, which is proven to deliver a sized, tuned, tested solution that is economical for small to medium-sized businesses, yet able to scale up to 48 TB¹. The Sun and Sybase solutions can smartly manage terabytes of information while providing a low Total Cost of Ownership. For example, at \$33,495 (@ 100 GB) and \$34,600 (@ 300 GB), the three-year Total Cost of Ownership of the Sun Fire V250 Sybase IQ combination is the lowest overall price of any TPC-H submission to date². There are no NT technologies as scalable and cost-effective!

Integrateable Architectures and Systems

Sun is responding directly to customers’ needs by offering solutions that go beyond standalone products and services. With Reference Architectures and the Sun Customer Ready Systems (CRS) program, Sun aims to speed design and deployment times while reducing complexity and risk for its customers. The Sun CRS program delivers added value for vendors looking to capitalize on the benefits of the Data Warehousing Reference Architecture. The Sun

Table 1-1: Three Years’ Total Cost of Ownership comparison, TPC-H @ 300 GB submissions.

System	Total CPUs	Clock/CPU	3 Years’ Total Cost of Ownership (TCO)
Sun Fire V250	2	1.28-GHz USIII	34,600 US \$
Sun Fire V240	2	1.02-GHz USIII	50,297 US \$
HP DL760 G2	8	2-GHz Xeon mp	235,058 US \$
IBM eServer 445	8	2.8-GHz Xeon	435,373 US \$
IBM eServer 325	16	2-GHz Xeon mp	863,410 US \$
UNISYS	16	1-GHz Itanium	988,328 US \$
HP DL760	64	900-MHz Xeon	2,636,750 US \$

Table 1-2: Three Years’ Total Cost of Ownership comparison, TPC-H @ 100 GB submissions.

System	Total CPUs	Clock/CPU	3 Years’ Total Cost of Ownership (TCO)
Sun Fire V250	2	1.28-GHz USIII	33,495 US \$
HP ML370 G3 2P	2	3.06-GHz Xeon	38,683 US \$
Sun Fire V240	2	1-GHz USIII	45,021 US \$
Sun Fire V440	4	1.28-GHz USIII	67,690 US \$
Dell pe6650	4	2-GHz Xeon mp	89,748 US \$
Sun Fire V480	4	1.05-GHz USIII	94,956 US \$
HP DL580 G2	4	2-GHz Xeon mp	99,545 US \$
Sun Fire V480	4	900-MHz USIII	105,832 US \$
HP DL580 G2	4	1.6-GHz Xeon mp	111,460 US \$
HP DL760 G2 8P	8	2.8-GHz Xeon	180,721 US \$
HP DL760	8	2-GHz Xeon mp	216,782 US \$
MaxData 9000-4R	4	1.5-GHz Itan2	302,451 Euros
IBM eServer 445	8	2.8-GHz Xeon	410,229 US \$
IBM eServer 325	16	2-GHz/AMD Opt	863,410 US \$

CRS program offers customers flexible factory-integration capabilities and a wide range of other Sun services that deliver enhanced reliability, faster deployment times, and lower Total Cost of Ownership.

The TPC-H Benchmark

TPC-H is a data warehousing-oriented, non-industry-specific benchmark that consists of a large number of complex queries typical of decision-support applications. It also includes insert and delete activity that is intended to simulate loading and purging data from a warehouse. TPC-H measures the combined performance of a particular database manager on a specific computer system.

Interpreting the TPC-H Benchmark Metrics

The main performance metric reported by TPC-H is called the TPC-H Composite Query-per-Hour Performance Metric (QphH @ SF, where SF is the number of GB of raw data, referred to as the scale factor). QphH @ SF is intended to summarize the ability of the system to process queries in both single- and multi-user modes. The benchmark requires reporting of price/performance, which is the ratio of QphH to total HW/SW cost plus three years' maintenance. A secondary metric is the storage efficiency, which is the ratio of total configured disk space in GB to the scale factor. Tables 1-3 and 1-4 illustrate the leading price/performance of the Sun Fire V250 servers.

The Sybase IQ Software

The results reported here were collected on a Sun Fire V250 server using Sybase IQ as the database manager. The Sybase IQ product is designed specifically for data warehousing applications. Sybase IQ was developed as a totally separate product from the mainline Sybase database management system (Sybase Adaptive Server).

Conclusions

The Sun Fire V250 server sets new standards for price/performance and lowers the Total Cost of Ownership for customers looking for enterprise-class features and performance at PC-server pricing. With an internal storage capacity of 584 GB, it offers the potential for

Table 1-3: Competitive TPC-H @ 300 GB Version 2 results (increasing price/performance order)²

System	Total CPUs	Clock/CPU	QphH @ 300	Price/QphH @ 300	Database	Storage Availability Ratio	Date
Sun Fire V250	2	1.28-GHz USIIIi	1283.3	27 US \$	SyblQ	1.8	11/26/03
Sun Fire V240	2	1.02-GHz USIIIi	1026	47 US \$	SyblQ	3.2	05/23/03
IBM eServer 325	16	2-GHz Xeon mp	13,194	65 US \$	DB2 8.1	19.4	07/29/03
IBM eServer 445	8	2.8-GHz Xeon	6354	69 US \$	DB2 8.1	15.6	02/07/04
HP DL760 G2	8	2-GHz Xeon mp	3334	71 US \$	SQLSvr	11.4	05/28/03
HP DL760	64	900-MHz Xeon	12,995	203 US \$	DB2 7.3	22.6	06/20/02
UNISYS	16	1-GHz Itanium	4774	207 US \$	SQLSvr	20.1	03/31/03

Table 1-4: Competitive TPC-H @ 100 GB Version 2 results (increasing price/performance order)²

System	Total CPUs	Clock/CPU	QphH @ 300	Price/QphH @ 300	Database	Storage Availability Ratio	Date
Sun Fire V250	2	1.28-GHz USIIIi	1442.7	23 US \$	SyblQ	4.1	11/26/03
HP ML370 G3 2P	2	3.06-GHz Xeon	1386	28 US \$	SQLSvr	3.7	08/15/03
Sun Fire V240	2	1-GHz USIIIi	1124	40 US \$	SyblQ	4.1	06/23/03
HP DL760 G2 8P	8	2.8-GHz Xeon	4224	43 US \$	SQLSvr	24.4	08/15/03
Sun Fire V480	4	1.05-GHz USIII	2140	44 US \$	SyblQ	8.2	11/26/03
Dell pe6650	4	2-GHz Xeon mp	1984	45 US \$	SQLSvr	16.8	05/27/03
HP DL580 G2	4	2-GHz Xeon mp	2106	48 US \$	SQLSvr	12.5	05/28/03
Sun Fire V480	4	900-MHz USIII	1760	60 US \$	SyblQ	4.1	04/02/03
HP DL760	8	2-GHz Xeon mp	3346	65 US \$	SQLSvr	31.5	04/24/03
HP DL580 G2	4	1.6-GHz Xeon mp	1695	66 US \$	SQLSvr	12.4	06/26/02
MaxData 9000-4R	4	1.5-GHz Itan2	4307	70 Euro	DB2 8.1	19.8	11/08/03
IBM eServer 325	16	2-GHz/AMD Opt	12,216	70 US \$	DB2 8.1	58.3	11/08/03
IBM eServer 445	8	2.8-GHz Xeon	5602	73 US \$	DB2 8.1	24.4	12/31/03

the world's first-ever "TPC-H data warehouse in a box," using only internal storage. The Solaris and UltraSPARC combination that has provided a 64-bit operating system and hardware platform for over seven years is ideally suited to handling large datasets, tables over 4 GB, or interprocess communications on very large processes.

The iForce Solution for Economical Data Management based on the Data Warehousing

Reference Architecture for The Enterprise joins a growing family of iForce Solutions based on Sybase and Sun technologies. iForce Solutions are the direct result of the strong working relationships established within the iForce Community, and they are an important manner in which Sun and its partners collaborate to address customer business issues through the global iForce initiative.

For more information on the iForce initiative, visit: <http://www.sun.com/iforce>

For more information on the Sun Fire V250 server and Sun Fire product range, visit: <http://www.sun.com/servers>

For more information and terms and conditions of membership to the iForce Partner Program, visit: <http://www.sun.com/partners/sdc>

For more information on the iForce Solution for Economical Data Management, visit: <http://www.sybase.com/sunfiresolution>

For more information on the iForce Data Warehousing Reference Architecture for The Enterprise, visit: <http://www.sun.com/products/architectures-platforms/refarch/specs.html>

For more information on the Sun Customer Ready Systems (CRS) program, visit: <http://www.sun.com/integration>

For more information on the Sybase IQ product, visit: <http://www.sybase.com/products/database-servers/sybaseiq>

For further reading:
 Datasheet — “iForce Solution for Economical Data Management” (Sun part no. DE1776-0)
 Datasheet — “iForce Data Warehousing Reference Architecture for The Enterprise” (Sun part no. BE1194-0)

References

1. Independent audit by InfoSizing, April 2002
2. Data as of 8/22/2003 from: <http://www.tpc.org/tpch/results/>

Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, CA 95054 USA 1-800-555-9sun or 1-650-960-1300 www.sun.com

ARGENTINA: +5411-43175600 • AUSTRALIA: +612-9844-5000 • AUSTRIA: +43-1-60563-0 • BELGIUM: +32-2-704-8000 • BRAZIL: +55-11-5187-2100 • CANADA: +905-477-6745 • CHILE: +56-2-3724500 • COLOMBIA: +571-629-2323 • COMMONWEALTH OF INDEPENDENT STATES: +7-502-935-8411
 CZECH REPUBLIC: +420-2-3300-9311 • DENMARK: +45 4556 5000 • EGYPT: +202-570-9442 • ESTONIA: +372-6-308-900 • FINLAND: +358-9-525-561 • FRANCE: +33-1-34-03-00-00 • GERMANY: +49-89-46008-0 • GREECE: +30-1-618-8111 • HUNGARY: +36-1-489-8900 • ICELAND: +354-563-3010
 INDIA: BANGALORE: +91-80-2298989/2295454; NEW DELHI: +91-11-6106000; MUMBAI: +91-22-697-8111 • IRELAND: +353-1-8055-666 • ISRAEL: +972-9-9710500 • ITALY: +39-02-641511 • JAPAN: +81-3-5717-5000 • KAZAKHSTAN: +7-3272-466774 • KOREA: +82-2-193-5114 • LATVIA: +371-750-3700
 • LITHUANIA: +370-729-8468 • LUXEMBOURG: +352-49 11 33 1 • MALAYSIA: +603-21161888 • MEXICO: +52-5-258-6100 • THE NETHERLANDS: +00-31-33-45-15-000 • NEW ZEALAND: AUCKLAND: +64-9-976-6800; WELLINGTON: +64-4-462-0780 • NORWAY: +47 23 36 96 00
 PEOPLE'S REPUBLIC OF CHINA: BEIJING: +86-10-6803-5588; CHENGDU: +86-28-619-9333; GUANGZHOU: +86-20-8755-5900; SHANGHAI: +86-21-6466-1228; HONG KONG: +852-2202-6688 • POLAND: +48-22-8747800 • PORTUGAL: +351-21-4134000 • RUSSIA: +7-502-935-8411 • SAUDI ARABIA: +9661 273 4567
 • SINGAPORE: +65-6438-1888 • SLOVAK REPUBLIC: +421-2-4342-9485 • SOUTH AFRICA: +27 11 256-6300 • SPAIN: +34-91-596-9900 • SWEDEN: +46-8-631-10-00 • SWITZERLAND: GERMAN: 41-1-908-90-00; FRENCH: 41-22-999-0444 • TAIWAN: +886-2-8712-9933
 THAILAND: +662-344-6888 • TURKEY: +90-212-335-22-00 • UNITED ARAB EMIRATES: +9714-3366333 • UNITED KINGDOM: +44 0 1252 420000 • UNITED STATES: +1-800-555-9SUN OR +1-650-960-1300 • VENEZUELA: +58-2-905-3800 • OR ONLINE AT SUN.COM/STORE

