IBM®

Performance Brief

New IBM @server x135 delivers solid Linux® performance for dedicated Web serving

June 2001

In recent measurements with WebBench 4.01, the new xSeries 135[1] demonstrated solid performance as a dedicated Web Server Appliance solution for environments using open-source architecture. The xSeries Appliance servers are ideal for compute-intensive, Web-based applications where minimum space and reduced installation support are of primary importance.

The xSeries 135 is available as an SMP-capable system with the 1GHz[2] Intel® Pentium® III processor with 256KB full-speed cache, or as a uniprocessor system with the economical 800MHz Intel Celeron™ processor with 128KB L2 cache.

These new Web Server Appliances offer outstanding performance when compared with the competition. IBM evaluated the xSeries 135 Performance Model with the 1GHz Pentium III processor (Model 8654-5CX) and the Value Model with the 800MHz Celeron (Model 8672-24X) processor. IBM also evaluated competitive solutions from Sun Microsystems for comparison.[3]

The results show that these flexible Web server solutions easily outpace the competition as well as keep pace with customers' increasing needs for higher processor performance.

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[1] Planned availability in the USA for the xSeries 135 1GHz and 800MHz processor models is August 7, 2001.

[2] GHz and MHz only measure microprocessor internal speed, not application performance. Many factors affect application performance.

[3] Data on competitive products is based on publicly available information. Contact the manufacturer directly for the most current information.

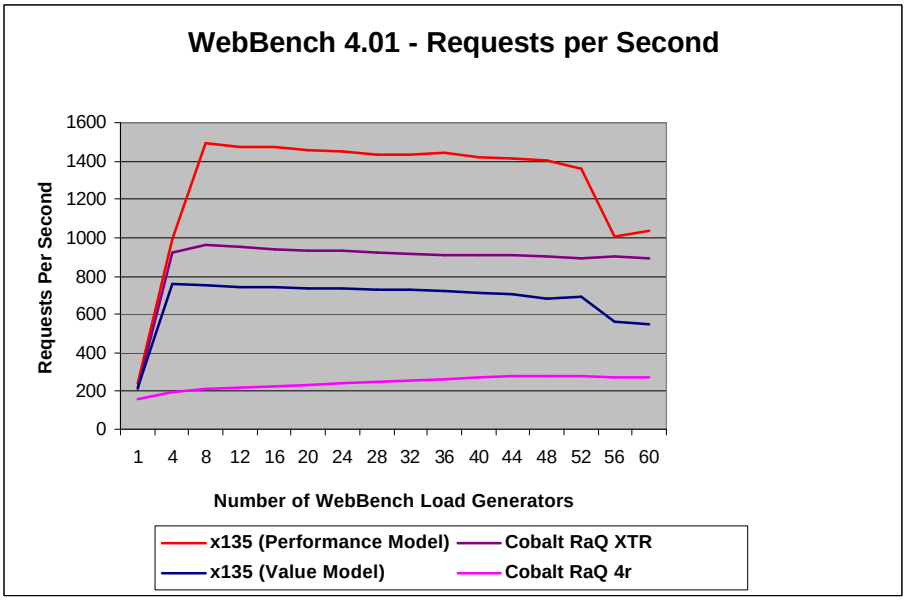
Test Environments and Results

WebBench 4.01

The WebBench 4.01 test suite "static_mt_wb401.tst" was used to generate load against the Web server under test. This test suite, which uses 100-percent static Web page content, was selected to ensure the maximum comparability between systems, while providing a high-load, multi-threaded environment for comparison of these servers.

The WebBench 4.01 benchmark reports its results in Requests per Second and Throughput. Since all tests performed for this comparison utilize the same default workload, each web page request maintains a fixed average size. This causes the Request per Second and Throughput graphs to differ only in unit labels. Therefore, the Throughput graphs are not shown in this report. The Requests per Second metric approximates the maximum number of Web page Hits per Second that each Web server appliance could handle in an environment with a similar data set.

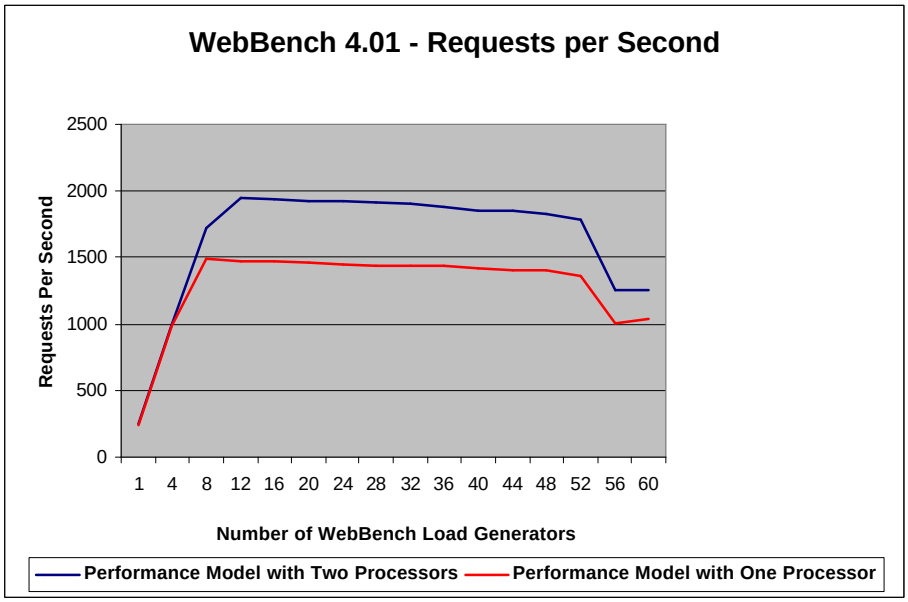
It is important to note that the number of Load Generators shown on the x-axis of the graph does not directly correspond to a set number of real-world users, but should be used only to provide a scale of linearly increasing load against which to measure each Web server.



Performance results achieved are based on the out-of-box configurations, with minimal changes made to the default settings. The server configurations and any modifications are shown in the following table and in the Test Disclosure Information section of this brief.

Features	xSeries 135 Performance Model (Model 8654-5CX)	xSeries 135 Value Model (Model 8672-24X)	Sun Cobalt RaQ XTR (Model RRAGL7V1U)	Sun Cobalt RaQ 4r (Model R46H60R1U)
Processor / L2 Cache	One 1GHz Pentium III with 256KB L2 Cache	One 800MHz Celeron with 128KB L2 Cache	One 733MHz Pentium III with 256KB L2 Cache	One 450MHz Intel-compatible
Memory	256MB 133MHz ECC SDRAM RDIMM	256MB 133MHz ECC SDRAM RDIMM	256MB 133MHz ECC SDRAM RDIMM	512MB SDRAM RDIMM
RAID Level	None	None	Linux Software RAID-0	Linux Software RAID-0
Disk Drive	One 18.2GB[4] Ultra160 SCSI Drive	One 20.4GB IDE Drive	Two 30GB IDE Drives	Two 30GB IDE Drives
Disk Drive Adapter	Integrated Ultra160 Controller	Integrated ATA-100 Controller	Integrated Ultra ATA Controller	Integrated Ultra ATA Controller
Network Adapter	Two Integrated 10/100Mbps Ethernet	Two integrated 10/100Mbps Ethernet	Two integrated 10/100Mbps Ethernet	Two integrated 10/100Mbps Ethernet
NOS	Red Hat Linux 6.2 using Version 2.2 Kernel	Red Hat Linux 6.2 using Version 2.2 Kernel	Linux 2.2 Multitasking Operating System	Linux 2.2 Multitasking Operating System
Web Server	IBM HTTP Server 1.3.12	IBM HTTP Server 1.3.12	Apache 1.3.12	Apache 1.3.12

The following graph shows the performance gains that result from adding a second processor to the xSeries 135 Performance Model.



[4] When referring to hard disk capacity, GB, or gigabyte, means one thousand million bytes. Total user-accessible capacity may be less.

Test Disclosure Information

WebBench 4.01

Version: WebBench 4.01

Mixes: static_mt_wb401.tst

Network Operating System: Linux 2.2 Kernel

- Network speed: 100Mbps
- Duplex mode: Auto-detect

Web Server:

- xSeries 135 Performance Model (1GHz Pentium III), IBM HTTP Server 1.3.12, out-of-box default configuration
- xSeries 135 Value Model (800MHz Celeron), IBM HTTP Server 1.3.12, out-of-box default configuration
- Cobalt RaQ XTR (733MHz Pentium III), Apache 1.3.12, disabled e-mail server
- Cobalt RaQ 4r (450MHz Intel-compatible), Apache 1.3.12, disabled e-mail server

Testbed Disclosure

All measurements were performed without independent verification by Ziff-Davis.

Client Systems	IBM Netfinity® 4000R
Client Network	100Mbps Ethernet, 1000Mbps uplink
Number of Clients	60
Switches	Four IBM 8271-F24 24-Port 100Mbps Ethernet One 3COM/Alteon ACEswitch 180
Number of Segments	1
CPU / Memory	650MHz Pentium III / 256MB
Network Adapter	Integrated 100/10 PCI Ethernet Controller
Client Operating System	Microsoft® Windows® 2000 Professional (SP1)
Cache	L2 = 512KB
Controller Operating System	Windows 2000 Professional (SP2)