Intel® Server Board STL2 Performance Brief

Ziff Davis* WebBench* 4.0 Test Results

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Revision History		
Date	**Rev**	**Modifications**
1/23/01	0.5	Preliminary Draft
2/15/01	1.0	Initial Release
2/21/01	1.1	Incorporated final reviewer feedback
3/5/01	1.12	Incorporated additional Legal feedback

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1. Introduction

1.1 Scope

The information contained in this performance report is intended to assist in characterizing the application, performance features, and price of the Intel® Server Board STL2 when compared to other system designs. The STL2 server architecture features dual Pentium® III processors with a 133 MHz system bus. This entry-level server offers traditional high-end reliability, availability, and serviceability (RAS) features at an affordable price range.

This platform report is comprised of results from Ziff Davis* WebBench* 4.0. The configurations used for this benchmark was designed to put maximum stress on the system and achieve reasonable performance results. These are called baseline numbers. These results should be easily duplicated when using the same configuration. No special modifications were made to any BIOS, software, or hardware in order to achieve these results.

Because resources are limited, a complete and comprehensive set of tests at any given time is difficult to achieve. Moreover, new revisions of both hardware and software will inevitably become available. Therefore, as resources become available, this report may be updated periodically with new data for additional hardware and software configurations. In addition, the versions of the benchmarks used may have been updated since testing was conducted and reported in this document.

1.2 The "True Benchmark"

The phrase "true benchmark" is a misnomer. Numerous committees, forums, individuals, and companies have allocated vast resources in the attempt to develop a "true benchmark" for computer systems. While no benchmark has completely achieved the desired result, these efforts have not been completely in vain. Many methods, techniques, and approaches for benchmarking have been developed. Choosing an appropriate server depends on the desired performance level and monetary investment. Buying higher performance does not always guarantee a faster system. For this reason, buyers must understand and characterize the applications being measured. The task is to select the benchmarks that test and simulate the desired computing environment in which the server will eventually be placed.

Many of the popular benchmarks are associated with workstations. However, workstations and servers have a different set of requirements. Therefore, blindly using many of the workstation "true benchmarks" for servers will lead to confusion, not to an informed buying decision.

Quality server benchmarks are based on workloads that relate to specific elements and subsystems. These elements, which include the processor, cache, memory, I/O subsystem bandwidth, disk subsystem, and network operating system, are stressed by the benchmark routines and properly evaluated. Many of the market-driven factors, such as high performance, low cost, and standard components, which have driven the numerous choices made in both the PC desktop and workstation market segments, still apply to the server market segment. However, additional requirements such as high availability, relatively fast serviceability, and manageability are important when evaluating a server system.

1.3 Intel® Server Board STL2 Features

The Intel Server Board STL2 is a highly integrated entry-level server based on the Pentium® III processor. It provides a low-cost entry-level path to the performance premium of the Pentium III processor with a 133 MHz system bus.

Features	Benefits
Supports dual Intel Pentium III processor at 667 MHz to 1GHz and 256 KB of ECC L2 cache	Build entry-level servers with room for growth
133 MHz System Bus speed	Higher system bandwidth using Pentium III processor at 667 MHz to 1GHz
Integrated dual-channel SCSI, LAN, and graphics (with 4 MB SGRAM)	Validated and tested SCSI, LAN, and graphics support saves integration time and money.
DIMM sockets support 4 GB SDRAM ECC memory	Greater memory expandability and reliability
Six PCI slots on two PCI buses. Support for 64-bit, 66 MHz PCI	Higher I/O throughput with 64-bit, 66MHz PCI and greater system configuration flexibility and performance with multiple PCI buses.
Intel® Server Control software	Built-in server management features for lower cost of ownership.

2. Performance Test Results and Analyses

2.1 WebBench* 4.0 Description

Ziff Davis* WebBench is designed to measure web server software performance by running different web server packages on the same server hardware or by running the same web server package on several server platforms. The WebBench standard test suites produce two overall scores for the server: requests per second and throughput as measured in bytes per second. WebBench provides both static standard test suites and dynamic standard test suites that execute applications that run on the server.

Version 4.0 of the benchmark software allows for additional connections per client to more accurately depict real world workloads and to allow for additional stress on larger servers, file not found (Error 404) errors to simulate real world usage, and a 128-bit encryption version for simulating secure connections for e-commerce type applications.

For a full description of the WebBench benchmark, visit the Ziff Davis eTesting Labs website at http://www.zdnet.com/zdbop and click on the WebBench link.

2.1.1 WebBench Results; Dual Processor

Number of Clients	STL2 2P 1000 256 KB WebBench 4.0 r1	STL2 2P 1000 256 KB WebBench 4.0 r2	STL2 2P 1000 256 KB WebBench 4.0 avg	STL2 2P 933 256 KB WebBench 4.0 r1	STL2 2P 933 256 KB WebBench 4.0 r2	STL2 2P 933 256 KB WebBench 4.0 avg
1	156.208	153.775	154.9915	155.15	153.183	154.1665
4	609.467	607.283	608.375	600.125	604.533	602.329
8	828.679	824.666	826.6725	805.75	812.175	808.9625
12	810.254	805.487	807.8705	789.854	800.029	794.9415
16	794.737	797.717	796.227	778.617	783.867	781.242
20	785.962	785.579	785.7705	759.575	770.021	764.798
24	770.358	769.012	769.685	758.708	763.012	760.86
28	765.475	767.783	766.629	748.079	754.738	751.4085
32	766.329	755.913	761.121	740.442	752.125	746.2835
36	757.671	751.283	754.477	742.008	744.05	743.029
40	766.146	761.921	764.0335	749.925	757.975	753.95
44	769.037	768.584	768.8105	755.333	755.517	755.425
48	762.034	762.183	762.1085	746.55	759.996	753.273
52	768.217	764.133	766.175	751.937	758.254	755.0955
56	767.329	765.988	766.6585	750.129	760.492	755.3105
60	769.629	762.933	766.281	750.437	750.654	750.5455

** avg column is the average result between Run 1 and Run 2

WebBench 4.0 eCommerce 2P
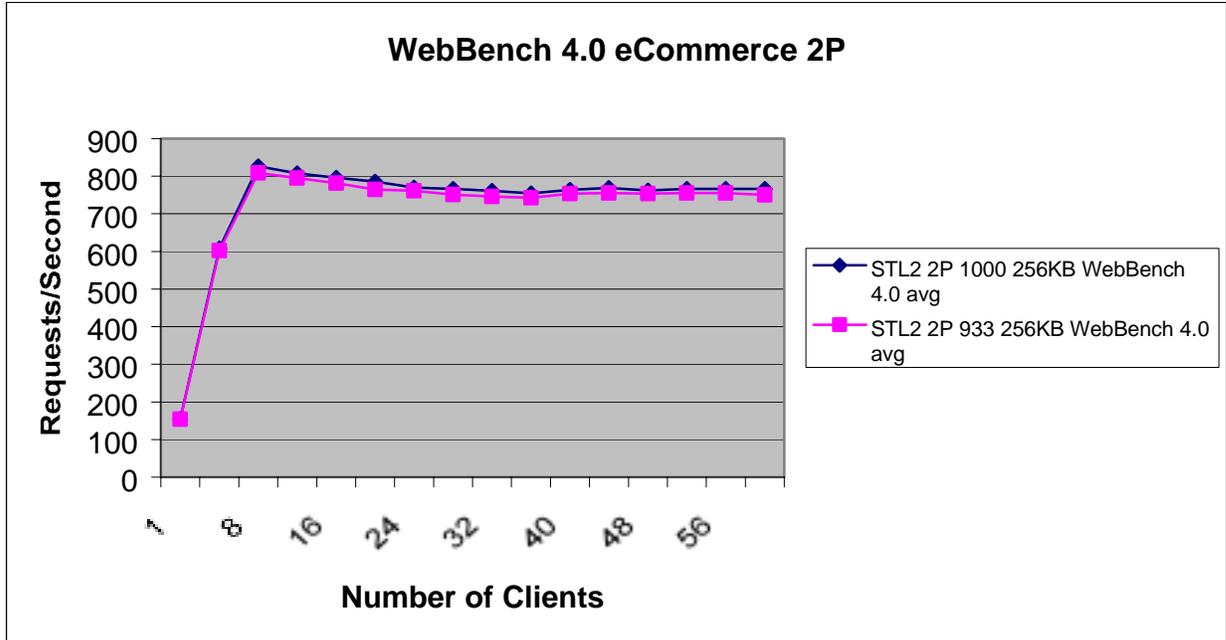
2.1.2 WebBench Results; Single Processor

Number of Clients	STL2 1P 1000 256 KB WebBench 4.0 r1	STL2 1P 1000 256 KB WebBench 4.0 r2	STL2 1P 1000 256 KB WebBench 4.0 avg	STL2 1P 933 256 KB WebBench 4.0 r1	STL2 1P 933 256 KB WebBench 4.0 r2	STL2 1P 933 256 KB WebBench 4.0 avg
1	154.558	152.371	153.4645	152.446	151.708	152.077
4	507.554	507.813	507.6835	498.058	496.396	497.227
8	551.467	551.738	551.6025	532.588	535.867	534.2275
12	544.862	550.667	547.7645	528.987	538.367	533.677
16	544.104	548.267	546.1855	530.304	532.317	531.3105
20	544.704	547.412	546.058	526.067	528.383	527.225
24	547.417	552.588	550.0025	537.433	536.63	537.0315
28	560.121	555.896	558.0085	543.929	541.279	542.604
32	553.441	560.85	557.1455	544.342	546.958	545.65
36	565.087	558.188	561.6375	545.521	544.696	545.1085
40	553.621	556.237	554.929	545.563	550.104	547.8335
44	563.546	554.346	558.946	542.521	546.133	544.327
48	560.471	561.433	560.952	543.625	546.305	544.965
52	558.409	553.583	555.996	540.408	547.191	543.7995
56	559.054	557.121	558.0875	547.117	542.738	544.9275
60	551.112	555.408	553.26	545.246	549.175	547.2105

** avg column is the average result between Run 1 and Run 2
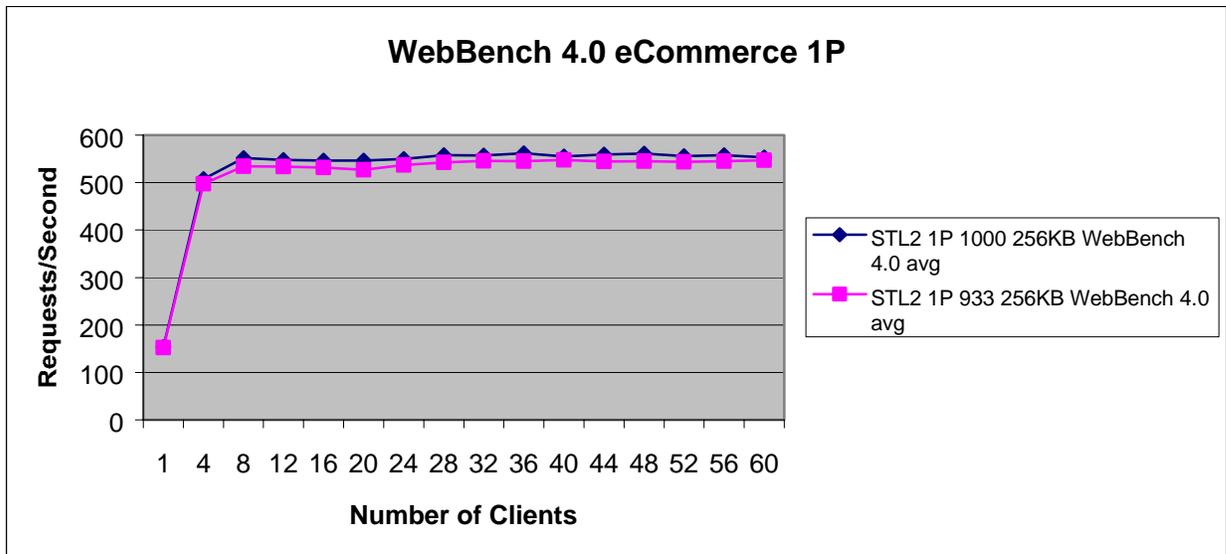
3. Appendix A – References

Ziff Davis e-Testing Labs Website: http://www.zdlabs.com/zdbop

Ziff Davis WebBench website:
http://www.zdnet.com/etestinglabs/stories/benchmarks/0,8829,2326243,00.html

4. Appendix B – System Configuration

Processor	1-2 Intel® Pentium III Processors operating at 933MHz or 1GHz
Memory	1GB PC133 SDRAM
RAID	AMI* 438 Firmware version GH8E, Windows* 2000 driver version 2.62
Hard Drives	Eighteen 9.1 GB Seagate ST38103LC, 10,000RPM, LVD Ultra 2 SCSI drives
NIC	Intel® PRO/1000 Gigabit Server Adapter, Windows* 2000 driver version 2.7, Coalesce Buffers = 200, Receive Buffers = 768, Transmit Control Blocks = 448
OS	Microsoft* Windows* 2000 Server SP1 Server service optimized for network applications HKLM\system\currentcontrolset\services\inetinfo\parameters\ObjectCacheTTL=7200 HKLM\system\currentcontrolset\services\inetinfo\parameters\MaxCachedFileSize=600000
Supporting Applications	Microsoft IIS* 5.0 SSL configured with 128-bit encryption Set for 100,000+ connections, low application priority, logging disabled
WebBench	WebBench* 4.0, standard Windows NT* eCommerce CGI test suite zd_ecommerce_nt_cgi_v30.tst