IBM Corporation

IBM System x3550 M4 (Intel Xeon E5-2665)

SPEClnt®2006 = 49.5
SPEClnt_base2006 = 46.3

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Hardware

<table>
<thead>
<tr>
<th>Software</th>
<th>Operating System: Red Hat Enterprise Linux Server release 6.1 (Santiago)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux</td>
<td></td>
</tr>
<tr>
<td>Auto Parallel: Yes</td>
<td></td>
</tr>
<tr>
<td>File System: ext4</td>
<td></td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
<td></td>
</tr>
<tr>
<td>Base Pointers: 32/64-bit</td>
<td></td>
</tr>
<tr>
<td>Peak Pointers: 32/64-bit</td>
<td></td>
</tr>
<tr>
<td>Other Software: Microquill SmartHeap V9.01</td>
<td></td>
</tr>
</tbody>
</table>

| CPU Name: | Intel Xeon E5-2665 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.10 GHz |
| CPU MHz: | 2400 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 2 chips, 8 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |
| L3 Cache: | 20 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC) |
| Disk Subsystem: | 1 x 1 TB SAS, 7200 RPM |
| Other Hardware: | None |
IBM Corporation

IBM System x3550 M4 (Intel Xeon E5-2665)

SPECint2006 = 49.5
SPECint_base2006 = 46.3

CPU2006 license: 11
Test date: Apr-2012
Test sponsor: IBM Corporation
Hardware Availability: Mar-2012
Tested by: IBM Corporation
Software Availability: Oct-2011

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400.perlbench</td>
<td>354</td>
<td>27.6</td>
<td>353</td>
<td>27.7</td>
<td>353</td>
<td>27.7</td>
<td>297</td>
<td>32.9</td>
<td>298</td>
<td>32.8</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>469</td>
<td>20.6</td>
<td>470</td>
<td>20.5</td>
<td>469</td>
<td>20.6</td>
<td>459</td>
<td>21.0</td>
<td>459</td>
<td>21.0</td>
</tr>
<tr>
<td>403.gcc</td>
<td>274</td>
<td>29.4</td>
<td>274</td>
<td>29.4</td>
<td>274</td>
<td>29.4</td>
<td>270</td>
<td>29.8</td>
<td>270</td>
<td>29.8</td>
</tr>
<tr>
<td>429.mcf</td>
<td>151</td>
<td>60.4</td>
<td>151</td>
<td>60.3</td>
<td>152</td>
<td>60.1</td>
<td>151</td>
<td>60.4</td>
<td>151</td>
<td>60.3</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>471</td>
<td>22.2</td>
<td>472</td>
<td>22.2</td>
<td>472</td>
<td>22.2</td>
<td>442</td>
<td>23.7</td>
<td>442</td>
<td>23.7</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>200</td>
<td>46.7</td>
<td>200</td>
<td>46.7</td>
<td>200</td>
<td>46.6</td>
<td>200</td>
<td>46.7</td>
<td>200</td>
<td>46.7</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>474</td>
<td>25.5</td>
<td>475</td>
<td>25.5</td>
<td>475</td>
<td>25.5</td>
<td>472</td>
<td>25.6</td>
<td>472</td>
<td>25.6</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>7.28</td>
<td>2840</td>
<td>7.28</td>
<td>2840</td>
<td>7.28</td>
<td>2840</td>
<td>7.28</td>
<td>2840</td>
<td>7.28</td>
<td>2840</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>547</td>
<td>40.5</td>
<td>550</td>
<td>40.3</td>
<td>545</td>
<td>40.6</td>
<td>462</td>
<td>47.9</td>
<td>457</td>
<td>48.5</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>255</td>
<td>24.5</td>
<td>260</td>
<td>24.0</td>
<td>256</td>
<td>24.4</td>
<td>189</td>
<td>33.1</td>
<td>185</td>
<td>33.8</td>
</tr>
<tr>
<td>473.astar</td>
<td>256</td>
<td>27.4</td>
<td>257</td>
<td>27.3</td>
<td>255</td>
<td>27.5</td>
<td>256</td>
<td>27.4</td>
<td>257</td>
<td>27.3</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>147</td>
<td>46.9</td>
<td>148</td>
<td>46.8</td>
<td>148</td>
<td>46.7</td>
<td>144</td>
<td>47.8</td>
<td>144</td>
<td>47.9</td>
</tr>
</tbody>
</table>

Operating System Notes

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Stack size set to unlimited using "ulimit -s unlimited"
Zone reclaim mode enabled with:
echo 1 > /proc/sys/vm/zone_reclaim_mode

Platform Notes

BIOS Settings:
Operating Mode set to Maximum Performance
Sysinfo program /root/SPECcpu-v1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on x3550M4 Sun Apr 22 14:29:24 2012

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2665 0 @ 2.40GHz
  2 "physical id"s (chips)
  32 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7

Continued on next page
IBM Corporation

IBM System x3550 M4 (Intel Xeon E5-2665)

SPECint2006 = 49.5
SPECint_base2006 = 46.3

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Apr-2012
Hardware Availability: Mar-2012
Software Availability: Oct-2011

Platform Notes (Continued)

cache size : 20480 KB

From /proc/meminfo
MemTotal: 132236124 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.1 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)

uname -a:
Linux x3550M4 2.6.32-131.0.15.el6.x86_64 #1 SMP Tue May 10 15:42:40 EDT 2011
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Apr 20 15:38

SPEC is set to: /root/SPECcpu-v1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/vg_x3550m4-lv_root ext4 790G 69G 681G 10% /

Additional information from dmidecode:
Memory:
16x Samsung M393B1K70DH0-CK0 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/root/SPECcpu-v1.2/libs/32:/root/SPECcpu-v1.2/libs/64"
OMP_NUM_THREADS = "16"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

Base Compiler Invocation

C benchmarks:
  icc -m64

Continued on next page
IBM Corporation
IBM System x3550 M4 (Intel Xeon E5-2665)  

**SPECint2006 = 49.5**

**SPECint_base2006 = 46.3**

**CPU2006 license:** 11  
**Test date:** Apr-2012

**Test sponsor:** IBM Corporation  
**Hardware Availability:** Mar-2012

**Tested by:** IBM Corporation  
**Software Availability:** Oct-2011

---

**Base Compiler Invocation (Continued)**

C++ benchmarks:
- icpc -m64

---

**Base Portability Flags**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Portability Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>403.gcc</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>429.mcf</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>473.astar</td>
<td>-DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX</td>
</tr>
</tbody>
</table>

---

**Base Optimization Flags**

C benchmarks:
- xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
- xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
- L/smartheap -lsmartheap64

---

**Base Other Flags**

C benchmarks:
- 403.gcc -Dalloca=_alloca

---

**Peak Compiler Invocation**

C benchmarks (except as noted below):
- icc -m64

- 400.perlbench: icc -m32
- 445.gobmk: icc -m32

---

Continued on next page
IBM Corporation

IBM System x3550 M4 (Intel Xeon E5-2665)

SPECint2006 = 49.5
SPECint_base2006 = 46.3

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Apr-2012
Hardware Availability: Mar-2012
Software Availability: Oct-2011

Peak Compiler Invocation (Continued)

464.h264ref: icc -m32
C++ benchmarks (except as noted below):
icpc -m32
473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
-ansi-alias

401.bzip2: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch
-ansi-alias

403.gcc: -xAVX -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32
429.mcf: basepeak = yes

445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias

458.sjeng: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4

Continued on next page
IBM Corporation

IBM System x3550 M4 (Intel Xeon E5-2665)

SPECint2006 = 49.5
SPECint_base2006 = 46.3

CPU2006 license: 11
Test date: Apr-2012
Test sponsor: IBM Corporation
Hardware Availability: Mar-2012
Tested by: IBM Corporation
Software Availability: Oct-2011

Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes
464.h264ref: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
            -ansi-alias

C++ benchmarks:

471.omnetpp: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2)
            -opt-ra-region-strategy=block -ansi-alias
            -Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes
483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
             -Wl,-z,muldefs -L/smartheap -lsmartheap

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-SNB-C.xml

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Originally published on 9 May 2012.