IBM Corporation

IBM System x3250 M5
(Intel Core i3-4330, 3.50 GHz)

SPECint\_rate2006 = 114
SPECint\_rate\_base2006 = 111

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

Product:
IBM System x3250 M5

Hardware:
- CPU Name: Intel Core i3-4330
- CPU Characteristics: 3500 MHz
- FPU: Integrated
- CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core
- CPU(s) orderable: 1 chip
- Primary Cache: 32 KB I + 32 KB D on chip per core
- Secondary Cache: 256 KB I+D on chip per core
- L3 Cache: 4 MB I+D on chip per chip
- Other Cache: None
- Memory: 16 GB (2 x 8 GB 2Rx8 PC3-12800E-11, ECC)
- Disk Subsystem: 1 x 1 TB SATA, 7200 RPM
- Other Hardware: None

Software:
- Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
- Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
- Auto Parallel: No
- File System: ext4
- System State: Run level 3 (multi-user)
- Base Pointers: 32-bit
- Peak Pointers: 32/64-bit
- Other Software: Microquill SmartHeap V10.0

Test date: Mar-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

Tested by: IBM Corporation

Copyright 2006-2014 Standard Performance Evaluation Corporation

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
IBM Corporation
IBM System x3250 M5
(Intel Core i3-4330, 3.50 GHz)

SPEC CINT2006 Result

Test date: Mar-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>4</td>
<td>467</td>
<td>83.7</td>
<td>468</td>
<td>83.5</td>
<td>466</td>
<td>83.8</td>
<td>4</td>
<td>384</td>
<td>102</td>
<td>387</td>
<td>101</td>
<td>384</td>
<td>102</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>4</td>
<td>734</td>
<td>52.6</td>
<td>730</td>
<td>52.9</td>
<td>734</td>
<td>52.6</td>
<td>4</td>
<td>710</td>
<td>54.4</td>
<td>703</td>
<td>54.9</td>
<td>700</td>
<td>55.1</td>
</tr>
<tr>
<td>403.gcc</td>
<td>4</td>
<td>375</td>
<td>85.9</td>
<td>378</td>
<td>85.3</td>
<td>374</td>
<td>86.1</td>
<td>4</td>
<td>376</td>
<td>85.5</td>
<td>381</td>
<td>84.6</td>
<td>376</td>
<td>85.5</td>
</tr>
<tr>
<td>429.mcf</td>
<td>4</td>
<td>260</td>
<td>140</td>
<td>256</td>
<td>143</td>
<td>252</td>
<td>145</td>
<td>4</td>
<td>260</td>
<td>140</td>
<td>256</td>
<td>143</td>
<td>252</td>
<td>145</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>4</td>
<td>576</td>
<td>72.8</td>
<td>581</td>
<td>72.2</td>
<td>580</td>
<td>72.4</td>
<td>4</td>
<td>570</td>
<td>73.7</td>
<td>569</td>
<td>73.8</td>
<td>561</td>
<td>74.8</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>4</td>
<td>232</td>
<td>161</td>
<td>232</td>
<td>161</td>
<td>232</td>
<td>161</td>
<td>4</td>
<td>230</td>
<td>162</td>
<td>231</td>
<td>162</td>
<td>231</td>
<td>162</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>4</td>
<td>629</td>
<td>76.9</td>
<td>629</td>
<td>76.9</td>
<td>629</td>
<td>77.0</td>
<td>4</td>
<td>610</td>
<td>79.3</td>
<td>610</td>
<td>79.4</td>
<td>611</td>
<td>79.2</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>4</td>
<td>76.6</td>
<td>1080</td>
<td>75.8</td>
<td>1090</td>
<td>75.4</td>
<td>1100</td>
<td>4</td>
<td>76.6</td>
<td>1080</td>
<td>75.8</td>
<td>1090</td>
<td>75.4</td>
<td>1100</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>4</td>
<td>661</td>
<td>134</td>
<td>663</td>
<td>133</td>
<td>662</td>
<td>134</td>
<td>4</td>
<td>636</td>
<td>139</td>
<td>641</td>
<td>138</td>
<td>637</td>
<td>139</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>4</td>
<td>417</td>
<td>60.0</td>
<td>421</td>
<td>59.4</td>
<td>416</td>
<td>60.1</td>
<td>4</td>
<td>395</td>
<td>63.2</td>
<td>405</td>
<td>61.7</td>
<td>401</td>
<td>62.3</td>
</tr>
<tr>
<td>473.astar</td>
<td>4</td>
<td>449</td>
<td>62.6</td>
<td>452</td>
<td>62.1</td>
<td>456</td>
<td>61.6</td>
<td>4</td>
<td>449</td>
<td>62.6</td>
<td>452</td>
<td>62.1</td>
<td>456</td>
<td>61.6</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>4</td>
<td>216</td>
<td>128</td>
<td>218</td>
<td>127</td>
<td>217</td>
<td>127</td>
<td>4</td>
<td>216</td>
<td>128</td>
<td>218</td>
<td>127</td>
<td>217</td>
<td>127</td>
</tr>
</tbody>
</table>

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

Submit Notes
The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes
Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes
BIOS setting:
Operating Mode set to Maximum Performance
Sysinfo program /home/SPECcpu-new/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on x3250M5 Mon Mar 17 15:50:42 2014

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) Core(TM) i3-4330 CPU @ 3.50GHz
 1 "physical id"s (chips)
 14 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
IBM Corporation
IBM System x3250 M5
(Intel Core i3-4330, 3.50 GHz)

SPECint_rate2006 = 114
SPECint_rate_base2006 = 111

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

Platform Notes (Continued)

  cpu cores : 2
  siblings : 4
  physical 0: cores 0 1
  cache size : 4096 KB

From /proc/meminfo
  MemTotal:    16299404 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
  Red Hat Enterprise Linux Server release 6.4 (Santiago)

From /etc/*release*/etc/*version*    
  redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
  system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)

uname -a:
  Linux x3250M5 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
  x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 17 15:45

SPEC is set to: /home/SPECcpu-new
  Filesystem    Type    Size  Used Avail Use% Mounted on
  /dev/mapper/vg_x3250m5-lv_home
    ext4  852G  14G   795G  2% /home

Additional information from dmidecode:
  BIOS IBM -[JUE109OUS-1.00]- 11/20/2013
  Memory:
    2x 0000    1600 MHz
    2x Micron 18KSFI72AZ-1G6E1 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
"2x 0000    1600 MHz" memory information from dmidecode indicates unused DIMM slots.

General Notes

Environment variables set by runspec before the start of the run:
  LD_LIBRARY_PATH = "/home/SPECcpu-new/libs/32:/home/SPECcpu-new/libs/64:/home/SPECcpu-new/sh"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
SPEC CINT2006 Result

IBM Corporation
IBM System x3250 M5
(Intel Core i3-4330, 3.50 GHz)

SPECint_rate2006 = 114
SPECint_rate_base2006 = 111

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

Test date: Mar-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

Base Compiler Invocation

C benchmarks:
  icc -m32

C++ benchmarks:
  icpc -m32

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
  -opt-mem-layout-trans=3

C++ benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
  -opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap

Base Other Flags

C benchmarks:
  403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
  icc -m32

  400.perlbench: icc -m64
  401.bzip2: icc -m64
  456.hmmer: icc -m64
  458.sjeng: icc -m64

Continued on next page
IBM Corporation

IBM System x3250 M5
(Intel Core i3-4330, 3.50 GHz)

SPECint_rate2006 = 114
SPECint_rate_base2006 = 111

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

Test date: Mar-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

Peak Compiler Invocation (Continued)

C++ benchmarks:
   icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
   400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
                -auto-ilp32
   401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
               -opt-prefetch -auto-ilp32 -ansi-alias
   403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div
   429.mcf: basepeak = yes
   445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
                -ansi-alias -opt-mem-layout-trans=3
   456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
   458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
              -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
              -unroll4 -auto-ilp32
   462.libquantum: basepeak = yes
   464.h264ref: -xCORE-AVX2(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:

Continued on next page
IBM Corporation
IBM System x3250 M5
(Intel Core i3-4330, 3.50 GHz)

SPECint_rate2006 = 114
SPECint_rate_base2006 = 111

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

Test date: Mar-2014
Hardware Availability: Dec-2013
Software Availability: Sep-2013

Peak Optimization Flags (Continued)

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-o3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/sh -lsmartheap

473.astar: basepeak = yes
483.xalancbmk: basepeak = yes

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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-HSW-A.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-HSW-A.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 16 April 2014.