Dell Inc.  

PowerEdge R730 (Intel Xeon E5-2695 v3, 2.30 GHz)  

SPECint®2006 = 61.3  
SPECint_base2006 = 58.1  

CPU2006 license: 55  
Test sponsor: Dell Inc.  
Tested by: Dell Inc.  

Test date: Sep-2014  
Hardware Availability: Sep-2014  
Software Availability: Sep-2014  

Software  
Operating System: SUSE Linux Enterprise Server 11 (x86_64) 3.0.76-0.11-default  
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux  
Auto Parallel: Yes  
File System: ext3  
System State: Run level 3 (multi-user)  
Base Pointers: 32/64-bit  
Peak Pointers: 32/64-bit  
Other Software: Microquill SmartHeap V10.0  

<table>
<thead>
<tr>
<th>SPECint2006</th>
<th>SPECint_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>61.3</td>
<td>58.1</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2695 v3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU:</td>
<td>Intel Turbo Boost Technology up to 3.30 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2300</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>28 cores, 2 chips, 14 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1,2 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>35 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>192 GB (8 x 16 GB, 8 x 8 GB 2Rx4 PC4-2133P-R)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 1000 GB 7200 RPM SATA</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

- Operating System: SUSE Linux Enterprise Server 11 (x86_64) 3.0.76-0.11-default
- Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
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SPEC CINT2006 Result

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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>
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</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>262</td>
<td>37.2</td>
<td>262</td>
<td>37.3</td>
<td>262</td>
<td>37.2</td>
<td>223</td>
<td>43.8</td>
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<tr>
<td>401.bzip2</td>
<td>423</td>
<td>22.8</td>
<td>423</td>
<td>22.8</td>
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<td>22.8</td>
<td>416</td>
<td>23.2</td>
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<tr>
<td>403.gcc</td>
<td>256</td>
<td>31.5</td>
<td>255</td>
<td>31.6</td>
<td>256</td>
<td>31.5</td>
<td>249</td>
<td>32.4</td>
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<tr>
<td>429.mcf</td>
<td>162</td>
<td>56.4</td>
<td>160</td>
<td>56.9</td>
<td>162</td>
<td>56.4</td>
<td>160</td>
<td>57.0</td>
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<tr>
<td>445.gobmk</td>
<td>436</td>
<td>24.1</td>
<td>447</td>
<td>23.5</td>
<td>436</td>
<td>24.0</td>
<td>388</td>
<td>27.1</td>
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<tr>
<td>456.hmmer</td>
<td>142</td>
<td>65.9</td>
<td>141</td>
<td>66.1</td>
<td>141</td>
<td>66.0</td>
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<tr>
<td>458.sjeng</td>
<td>378</td>
<td>32.0</td>
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<td>375</td>
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<td>462.libquantum</td>
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<td>3.46</td>
<td>5980</td>
<td>3.27</td>
<td>6340</td>
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<td>464.h264ref</td>
<td>531</td>
<td>41.7</td>
<td>538</td>
<td>41.2</td>
<td>748</td>
<td>29.6</td>
<td>531</td>
<td>41.7</td>
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<tr>
<td>471.omnetpp</td>
<td>159</td>
<td>39.4</td>
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<td>38.8</td>
<td>162</td>
<td>38.7</td>
<td>122</td>
<td>51.1</td>
</tr>
<tr>
<td>473.astar</td>
<td>224</td>
<td>31.4</td>
<td>225</td>
<td>31.3</td>
<td>225</td>
<td>31.2</td>
<td>223</td>
<td>31.4</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>114</td>
<td>60.6</td>
<td>114</td>
<td>60.7</td>
<td>113</td>
<td>60.9</td>
<td>111</td>
<td>62.2</td>
</tr>
</tbody>
</table>

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS settings:
Snoop Mode set to Home Snoop
Virtualization Technology disabled
Execute Disable disabled
System Profile set to Custom
CPU Power Management set to Maximum Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on linux-khqw Tue Sep 9 08:22:05 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) Xeon(R) CPU E5-2695 v3 @ 2.30GHz
  2 "physical id"s (chips)
  56 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page
SPEC CINT2006 Result

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Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 14
siblings : 28
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 35840 KB

From /proc/meminfo
MemTotal: 198249732 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release*/ etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 11 (x86_64)
VERSION = 11
PATCHLEVEL = 3

uname -a:
Linux linux-khwq 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
(ccab990) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Sep 8 08:32 last=S

SPEC is set to: /root/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext3 915G 10G 905G 2% /

Additional information from dmidecode:
BIOS Dell Inc. 1.0.4 08/28/2014
Memory:
1x 00AD00B300AD HMA42GR7MFR4N-TFTD 16 GB 2133 MHz
5x 00AD063200AD HMA42GR7MFR4N-TFT1 16 GB 2133 MHz
8x 00CE00B300CE M393A1G43DB0-CPB 8 GB 2133 MHz
2x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2133 MHz
8x Not Specified Not Specified

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = " /root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"
OMP_NUM_THREADS = "28"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4

Continued on next page
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General Notes (Continued)
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
umactl --interleave=all runspec <etc>

Base Compiler Invocation
C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -1smartheap64

Base Other Flags

Continued on next page
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Base Other Flags (Continued)

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

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

  400.perlbench: icc -m32
  445.gobmk: 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
464.h264ref: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
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)
                  -opt-prefetch -ansi-alias

  401.bzip2: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
           -opt-malloc-options=3 -auto-ilp32

Continued on next page
Dell Inc.
PowerEdge R730 (Intel Xeon E5-2695 v3, 2.30 GHz)

SPECint2006 = 61.3
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**Peak Optimization Flags (Continued)**

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

456.hmmer: basepeak = yes

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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

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)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -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/Dell-Platform-Settings-V1.2-revD.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.xml
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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