## Dell Inc.

### PowerEdge R930 (Intel Xeon E7-8870 v3, 2.10 GHz)

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>56.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_base2006</td>
<td>55.0</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name: Intel Xeon E7-8870 v3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz</td>
</tr>
<tr>
<td>CPU MHz: 2100</td>
</tr>
<tr>
<td>FPU: Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled: 72 cores, 4 chips, 18 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable: 2,4 chip</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache: 45 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache: None</td>
</tr>
<tr>
<td>Memory: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)</td>
</tr>
<tr>
<td>Disk Subsystem: 2 x 300 GB 15000 RPM SAS6, RAID0</td>
</tr>
<tr>
<td>Other Hardware: None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System: SUSE Linux Enterprise Server 12 3.12.28-4-default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel: Yes</td>
</tr>
<tr>
<td>File System: ext4</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Other Software: Microquill SmartHeap V10.0</td>
</tr>
</tbody>
</table>

### Test Details

- **Dell Inc.**
- **Test date:** Apr-2015
- **Hardware Availability:** Jun-2015
- **Software Availability:** Oct-2014
Dell Inc.  

PowerEdge R930 (Intel Xeon E7-8870 v3, 2.10 GHz)  

SPECint2006 = 56.4  

SPECint_base2006 = 55.0  

CPU2006 license: 55  

Test sponsor: Dell Inc.  

Tested by: Dell Inc.  

Test date: Apr-2015  

Hardware Availability: Jun-2015  

Software Availability: Oct-2014  

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>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>294</td>
<td>33.2</td>
<td>292</td>
<td>33.5</td>
<td>292</td>
<td>33.5</td>
<td>254</td>
<td>38.4</td>
<td>254</td>
<td>38.4</td>
<td>255</td>
<td>38.4</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>471</td>
<td>20.5</td>
<td>470</td>
<td>20.5</td>
<td>470</td>
<td>20.4</td>
<td>470</td>
<td>20.5</td>
<td>471</td>
<td>20.5</td>
<td>470</td>
<td>20.5</td>
</tr>
<tr>
<td>403.gcc</td>
<td>268</td>
<td>30.0</td>
<td>269</td>
<td>29.9</td>
<td>270</td>
<td>29.8</td>
<td>265</td>
<td>30.4</td>
<td>266</td>
<td>30.3</td>
<td>268</td>
<td>30.0</td>
</tr>
<tr>
<td>429.mcf</td>
<td>180</td>
<td>50.6</td>
<td>179</td>
<td>51.1</td>
<td>181</td>
<td>50.3</td>
<td>180</td>
<td>50.6</td>
<td>179</td>
<td>51.1</td>
<td>181</td>
<td>50.3</td>
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<tr>
<td>445.globmk</td>
<td>433</td>
<td>24.2</td>
<td>434</td>
<td>24.2</td>
<td>434</td>
<td>24.2</td>
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<tr>
<td>456.hmmer</td>
<td>164</td>
<td>56.9</td>
<td>164</td>
<td>56.9</td>
<td>164</td>
<td>57.0</td>
<td>164</td>
<td>56.9</td>
<td>164</td>
<td>56.9</td>
<td>164</td>
<td>57.0</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>426</td>
<td>28.4</td>
<td>424</td>
<td>28.5</td>
<td>425</td>
<td>28.5</td>
<td>423</td>
<td>28.6</td>
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<td>28.6</td>
<td>423</td>
<td>28.6</td>
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<tr>
<td>462.libquantum</td>
<td>2.61</td>
<td>7950</td>
<td>2.59</td>
<td>8000</td>
<td>2.58</td>
<td>8020</td>
<td>2.61</td>
<td>7950</td>
<td>2.59</td>
<td>8000</td>
<td>2.58</td>
<td>8020</td>
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<tr>
<td>464.h264ref</td>
<td>559</td>
<td>39.6</td>
<td>555</td>
<td>39.8</td>
<td>554</td>
<td>40.0</td>
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<td>39.6</td>
<td>555</td>
<td>39.8</td>
<td>554</td>
<td>40.0</td>
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<tr>
<td>471.omnetpp</td>
<td>163</td>
<td>38.3</td>
<td>164</td>
<td>38.2</td>
<td>163</td>
<td>38.4</td>
<td>141</td>
<td>44.3</td>
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<td>44.4</td>
<td>132</td>
<td>47.4</td>
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<tr>
<td>473.astar</td>
<td>252</td>
<td>27.9</td>
<td>252</td>
<td>27.9</td>
<td>252</td>
<td>27.9</td>
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<td>252</td>
<td>27.9</td>
<td>252</td>
<td>27.9</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>128</td>
<td>53.9</td>
<td>123</td>
<td>56.0</td>
<td>125</td>
<td>55.2</td>
<td>128</td>
<td>53.9</td>
<td>123</td>
<td>56.0</td>
<td>125</td>
<td>55.2</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:  
Virtualization Technology disabled  
System Profile set to Custom  
CPU Power Management set to Maximum Performance  
Memory Frequency set to Maximum Performance  
Turbo Boost enabled  
Energy Efficient Turbo disabled  
C1E disabled  
C States disabled  
Collaborative CPU Performance Control disabled  
Memory Patrol Scrub disabled  
Memory Refresh Rate set to 1x  
Uncore Frequency set to Maximum  
Energy Efficient Policy set to Performance  
Monitor/MWait enabled

Sysinfo program  
/root/Desktop/Performance/ic15.0_Aug29_2014/config/sysinfo.rev6914  
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1  
Continued on next page
**SPEC CINT2006 Result**

**Dell Inc.**

PowerEdge R930 (Intel Xeon E7-8870 v3, 2.10 GHz)

| SPECint2006 | 56.4 |
| SPECint_base2006 | 55.0 |

**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test date:** Apr-2015  
**Hardware Availability:** Jun-2015  
**Software Availability:** Oct-2014

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**Platform Notes (Continued)**

running on linux-wq6y Sun Apr 12 13:22:54 2015

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 E7-8870 v3 @ 2.10GHz  
4 "physical id"s (chips)  
144 "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 : 18  
siblings : 36  
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27  
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27  
physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27  
physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27  
cache size : 46080 KB

From /proc/meminfo  
MemTotal: 529169424 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d  
SUSE Linux Enterprise Server 12

From /etc/*release* /etc/*version*  
SuSE-release:  
SUSE Linux Enterprise Server 12 (x86_64)  
VERSION = 12  
PATCHLEVEL = 0  
# This file is deprecated and will be removed in a future service pack or release.  
# Please check /etc/os-release for details about this release.

os-release:  
NAME="SLES"  
VERSION="12"  
VERSION_ID="12"  
PRETTY_NAME="SUSE Linux Enterprise Server 12"  
ID="sles"  
ANSI_COLOR="0;32"  
CPE_NAME="cpe:/o:suse:sles:12"

uname -a:  
Linux linux-wq6y 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014  
(9879bd4) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Apr 10 21:48 last=5

Continued on next page
Dell Inc. PowerEdge R930 (Intel Xeon E7-8870 v3, 2.10 GHz)  

SPECint2006 = 56.4  
SPECint_base2006 = 55.0  

CPU2006 license: 55  
Test sponsor: Dell Inc.  
Tested by: Dell Inc.  
Test date: Apr-2015  
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Platform Notes (Continued)  
SPEC is set to: /root/Desktop/Performance/ic15.0_Aug29_2014  
Filesystem     Type  Size  Used Avail Use% Mounted on  
/dev/sdb2      ext4  366G   19G  346G   6% /  
Additional information from dmidecode:  
Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.  
BIOS Dell Inc. 1.0.1 [MRC_096] 03/27/2015  
Memory:  
32x 00AD00B300AD Not Specified 16 GB 2 rank 2133 MHz, configured at 1600 MHz  
64x Not Specified Not Specified  

(End of data from sysinfo program)  

General Notes  
Environment variables set by runspec before the start of the run:  
KMP_AFFINITY = "granularity=fine,scatter"  
LD_LIBRARY_PATH = "/root/Desktop/Performance/ic15.0_Aug29_2014/libs/32:/root/Desktop/Performance/ic15.0_Aug29_2014/libs/64:/root/Desktop/Performance/ic15.0_Aug29_2014/sh"  
OMP_NUM_THREADS = "72"  

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0  
Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/transparent_hugepage/enable  

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  

Continued on next page  

Standard Performance Evaluation Corporation  
info@spec.org  
http://www.spec.org/
## Dell Inc.

**PowerEdge R930 (Intel Xeon E7-8870 v3, 2.10 GHz)**

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### CPU2006 license: 55

- **Test sponsor:** Dell Inc.
- **Tested by:** Dell Inc.

<table>
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### Base Portability Flags (Continued)

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX</td>
</tr>
<tr>
<td>464.h264ref: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>471.omnetpp: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>473.astar: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX</td>
</tr>
</tbody>
</table>

### 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 -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 -L/opt/intel/composer_xe_2015/lib/ia32

- **C++ benchmarks (except as noted below):**
  - icpc -m64
  - 471.omnetpp: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

### Peak Portability Flags

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench: -DSPEC_CPU_LINUX_IA32</td>
</tr>
<tr>
<td>401.bzip2: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>403.gcc: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>429.mcf: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>445.gobmk: -DSPEC_CPU_LP64</td>
</tr>
<tr>
<td>456.hmmer: -DSPEC_CPU_LP64</td>
</tr>
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</table>

Continued on next page
SPEC CINT2006 Result

Dell Inc.
PowerEdge R930 (Intel Xeon E7-8870 v3, 2.10 GHz)

SPECint2006 = 56.4
SPECint_base2006 = 55.0

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

Test date: Apr-2015
Hardware Availability: Jun-2015
Software Availability: Oct-2014

Peak Portability Flags (Continued)

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_LP64 -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

429.mcf: basepeak = yes
445.gobmk: basepeak = yes
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 -lsmarthep

473.astar: basepeak = yes
483.xalancbmk: basepeak = yes
Dell Inc. PowerEdge R930 (Intel Xeon E7-8870 v3, 2.10 GHz) SPECint2006 = 56.4 SPECint_base2006 = 55.0

CPU2006 license: 55
Test sponsor: Dell Inc.
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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-ic15.0-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revE.20150421.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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