Dell Inc.

PowerEdge R230 (Intel Xeon E3-1280 v5, 3.70 GHz)

SPECint\textsuperscript{2006} = 75.3
SPECint\textsubscript{base2006} = 72.7

CPU2006 license: 55
Test date: Oct-2015
Test sponsor: Dell Inc.
Hardware Availability: Nov-2015
Tested by: Dell Inc.
Software Availability: Sep-2015

CPU Name: Intel Xeon E3-1280 v5
Operating System: SUSE Linux Enterprise Server 12 3.12.28-4-default
CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz
Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
CPU MHz: 3700
Auto Parallel: Yes
FPU: Integrated
File System: ext4
CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
System State: Run level 3 multi-user
CPU(s) orderable: 1 chip
Base Pointers: 32/64-bit
Primary Cache: 32 KB I + 32 KB D on chip per core
Peak Pointers: 32/64-bit
Secondary Cache: 256 KB I+D on chip per core
Other Software: Microquill SmartHeap V10.2
L3 Cache: 8 MB I+D on chip per chip

Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2133P-U)

Disk Subsystem: 1 x 500 GB 7200 RPM SATA

Other Hardware: None

Software

Hardware
Dell Inc.  
PowerEdge R230 (Intel Xeon E3-1280 v5, 3.70 GHz)  

SPECint2006 = 75.3  
SPECint_base2006 = 72.7

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>190</td>
<td>51.4</td>
<td>190</td>
<td>51.5</td>
<td>190</td>
<td>51.5</td>
<td>192</td>
</tr>
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<td>401.bzip2</td>
<td>309</td>
<td>31.2</td>
<td>309</td>
<td>31.2</td>
<td>310</td>
<td>31.1</td>
<td>306</td>
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<tr>
<td>403.mcf</td>
<td>160</td>
<td>50.4</td>
<td>160</td>
<td>50.4</td>
<td>160</td>
<td>50.2</td>
<td>158</td>
</tr>
<tr>
<td>429.mcf</td>
<td>105</td>
<td>87.1</td>
<td>109</td>
<td>83.7</td>
<td>106</td>
<td>86.2</td>
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</tr>
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<td>445.gobmk</td>
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<td>35.7</td>
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<td>35.7</td>
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<td>35.6</td>
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<td>456.hmmer</td>
<td>89.4</td>
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<td>89.2</td>
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<tr>
<td>458.sjeng</td>
<td>302</td>
<td>40.0</td>
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<td>40.0</td>
<td>298</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>300</td>
<td>73.8</td>
<td>299</td>
<td>74.0</td>
<td>300</td>
<td>73.8</td>
<td>300</td>
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<tr>
<td>471.omnetpp</td>
<td>193</td>
<td>32.4</td>
<td>190</td>
<td>32.9</td>
<td>192</td>
<td>32.5</td>
<td>153</td>
</tr>
<tr>
<td>473.astar</td>
<td>168</td>
<td>41.8</td>
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<td>41.7</td>
<td>167</td>
<td>41.9</td>
<td>168</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>72.4</td>
<td>95.4</td>
<td>72.6</td>
<td>95.1</td>
<td>72.4</td>
<td>95.3</td>
<td>67.9</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 Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-a54a Fri Oct 2 18:23:30 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 E3-1280 v5 @ 3.70GHz
  1 "physical id"s (chips)
  8 "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 : 4

Continued on next page
spec

SPEC CINT2006 Result

Dell Inc.

PowerEdge R230 (Intel Xeon E3-1280 v5, 3.70 GHz)

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Platform Notes (Continued)

siblings : 8
physical 0: cores 0 1 2 3
cache size : 8192 KB

From /proc/meminfo
MemTotal: 66066084 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-a54a 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 Oct 2 18:21

SPEC is set to: /root/cpu2006-1.2

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. 0.3.16 09/09/2015
Memory:
  1x 00AD00000000 HMA82GU7MFR8N-TF 16 GB 2 rank 2133 MHz
  2x 00AD0000020B HMA82GU7MFR8N-TF 16 GB 2 rank 2133 MHz
  1x 00AD00000800 HMA82GU7MFR8N-TF 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)
## Dell Inc. PowerEdge R230 (Intel Xeon E3-1280 v5, 3.70 GHz)

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### CPU2006 license: 55

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### General Notes

Environment variables set by runspec before the start of the run:
- `KMP_AFFINITY = "granularity=fine,scatter"
- `LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"
- `OMP_NUM_THREADS = "4"

Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1

Transparent Huge Pages enabled with:
- `echo always > /sys/kernel/mm/transparent_hugepage/enabled`

### 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 -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/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

C++ benchmarks (except as noted below):

- `icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`
  
  473.astar: `icpc -m64`

### Peak Portability Flags

400.perlbench: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32`

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: `-D_FILE_OFFSET_BITS=64`

473.astar: `-DSPEC_CPU_LP64`

483.xalancbmk: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX`

### Peak Optimization Flags

C benchmarks:

- 400.perlbench: `-xCORE-AVX2(pass 2) -prof-gen:threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch -ansi-alias`

401.bzip2: `-xCORE-AVX2(pass 2) -prof-gen:threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div -par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ipl32 -opt-prefetch -ansi-alias`

Continued on next page
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Peak Optimization Flags (Continued)

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:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threatds=1(pass 1) -prof-use(pass 2) -unroll

462.libquantum: basepeak = yes
464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
-par-num-threatds=1(pass 1) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes
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/Intel-ic16.0-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revD.20151006.xml
**SPEC CINT2006 Result**

Dell Inc.

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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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