**SPEC® CINT2006 Result**

**Dell Inc.**

PowerEdge FC830 (Intel Xeon E5-4660 v3, 2.10 GHz)

| SPECint®2006 | 53.6 |
| SPECint_base2006 | 51.9 |

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

**CPU Name:** Intel Xeon E5-4660 v3  
**CPU Characteristics:** Intel Turbo Boost Technology up to 2.90 GHz  
**CPU MHz:** 2100  
**FPU:** Integrated  
**CPU(s) enabled:** 56 cores, 4 chips, 14 cores/chip, 2 threads/core  
**CPU(s) orderable:** 4 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:** 35 MB I+D on chip per chip  
**Other Cache:** None  
**Memory:** 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R)  
**Disk Subsystem:** 1 x 400 GB 7200 RPM SATA  
**Other Hardware:** None  

**Software**

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

**Hardware Availability:** Jun-2015  
**Software Availability:** Jun-2015  
**Test date:** Jan-2015
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### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Ratio</th>
<th>Seconds Peak</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>296</td>
<td>33.0</td>
<td>295</td>
<td>33.2</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>483</td>
<td>20.0</td>
<td>484</td>
<td>20.0</td>
</tr>
<tr>
<td>403.gcc</td>
<td>288</td>
<td>28.0</td>
<td>288</td>
<td>28.0</td>
</tr>
<tr>
<td>429.mcf</td>
<td>435</td>
<td>24.1</td>
<td>434</td>
<td>24.2</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>164</td>
<td>56.9</td>
<td>164</td>
<td>56.8</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>418</td>
<td>29.0</td>
<td>418</td>
<td>29.0</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>3.51</td>
<td>5900</td>
<td>3.64</td>
<td>5690</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>575</td>
<td>38.5</td>
<td>579</td>
<td>38.2</td>
</tr>
<tr>
<td>471.onettp</td>
<td>195</td>
<td>32.0</td>
<td>194</td>
<td>32.2</td>
</tr>
<tr>
<td>473.astar</td>
<td>256</td>
<td>27.4</td>
<td>258</td>
<td>27.2</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>133</td>
<td>51.9</td>
<td>127</td>
<td>54.4</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
- System Profile set to Performance

Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914

$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-3aq4 Tue Jan 20 17:26:53 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 E5-4660 v3 @ 2.10GHz
- 4 "physical id"s (chips)
- 112 "processors"
- cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

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Platform Notes (Continued)

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
physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14

cache size : 35840 KB

From /proc/meminfo
MemTotal:       529334376 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-3aq4 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 Jan 20 17:25

SPEC is set to: /root/cpu2006-1.2

run-level 3 Jan 20 17:25

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. 0.4.0 01/08/2015
Memory:
   3x 00AD063200AD HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz

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Platform Notes (Continued)

29x 00CE00B300CE M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
16x 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/cpu2006-1.2/32:/root/cpu2006-1.2/64:/root/cpu2006-1.2/sh"
OMP_NUM_THREADS = "56"

Binaries compiled on a system with 1x Intel i5-4670K CPU + 16GB memory using Redhat EL 7.0
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

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Base Optimization Flags (Continued)

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

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
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445.gobmk: -DSPEC_CPU_LP64
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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

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<tr>
<td>403.gcc</td>
<td>-xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32</td>
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<tr>
<td>429.mcf</td>
<td>basepeak = yes</td>
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<td>445.gobmk</td>
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<td>basepeak = yes</td>
</tr>
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<td>458.sjeng</td>
<td>-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4</td>
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<td>-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</td>
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Peak Other Flags

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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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