## SPECint® CINT2006 Result

**Dell Inc.**

PowerEdge R730 (Intel Xeon E5-2698 v3, 2.30 GHz)

### SPECint Rate

<table>
<thead>
<tr>
<th>Test sponsor</th>
<th>Dell Inc.</th>
<th>Hardware Availability</th>
<th>Test date</th>
<th>Software Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tested by</td>
<td>Dell Inc.</td>
<td></td>
<td>Jun-2014</td>
<td>Sep-2014</td>
</tr>
</tbody>
</table>

### SPECint Rate2006

- SPECint_rate2006 = 1270
- SPECint_rate_base2006 = 1230

### CPU Details

- **CPU Name:** Intel Xeon E5-2698 v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.60 GHz
- **CPU MHZ:** 2300
- **FPU:** Integrated
- **CPU(s) enabled:** 32 cores, 2 chips, 16 cores/chip, 2 threads/core
- **CPU(s) orderable:** 1.2 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:** 40 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
- **Disk Subsystem:** 1 x 300 GB 15000 RPM SAS
- **Other Hardware:** None

### Software Details

- **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:** No
- **File System:** ext2
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 32-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** Microquill SmartHeap V10.0

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Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/
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CPU2006 license: 55
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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>
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<tbody>
<tr>
<td>Base</td>
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<td>1010</td>
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<td>1010</td>
<td>623</td>
<td>1000</td>
<td>624</td>
<td>1000</td>
</tr>
<tr>
<td>Peak</td>
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<td></td>
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<td>510</td>
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<td>510</td>
<td>1230</td>
<td>511</td>
<td>1220</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl 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 settings:
- Snoop Mode set to Cluster on Die
- Virtualization Technology disabled
- Execute Disable disabled
- System Profile set to Performance

Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17#$ e86d102572650a6e4d596a3cee98f191
running on linux Wed Jun 4 16:57:44 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 E5-2698 v3 @ 2.30GHz
- 2 "physical id"s (chips)
- 64 "processors"

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Platform Notes (Continued)

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 : 16
- siblings : 32
- physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
- physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
- cache size : 20480 KB

From /proc/meminfo

- MemTotal: 264571716 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /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 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 Jun 4 16:48 last=S

SPEC is set to: /root/cpu2006-1.2

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 ext2 267G 8.6G 258G 4% /

Additional information from dmidecode:

- BIOS Dell Inc. 0.3.22 05/29/2014
- Memory:
  - 1x 00AD00B300AD HMA42GR7MFR4N-TFTD 16 GB 2133 MHz
  - 8x 00AD063200AD HMA42GR7MFR4N-TFT1 16 GB 2133 MHz
  - 7x 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"

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

Transparent Huge Pages enabled with:

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General Notes (Continued)
- 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.:
  - numactl --interleave=all runspec <etc>

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

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Peak Compiler Invocation (Continued)

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<td>401.bzip2</td>
<td>icc -m64</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>icc -m64</td>
</tr>
<tr>
<td>458.sjeng</td>
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C++ benchmarks:

icpc -m32

Peak Portability Flags

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<td>483.xalancbmk</td>
<td>-DSPEC_CPU_LINUX</td>
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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: basepeak = yes
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

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### Peak Optimization Flags (Continued)

- 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:

- 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 -L/sh -lsmartheap
- 473.astar: basepeak = yes
- 483.xalancbmk: basepeak = yes

### Peak Other Flags

- 403.gcc: -Dalloca=_alloca

You can also download the XML flags sources by saving the following links:


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For other inquiries, please contact webmaster@spec.org.

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