Dell Inc.

PowerEdge R630(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECI\textsubscript{nt\_rate\_2006} = 1060
SPECI\textsubscript{nt\_rate\_base\_2006} = 1020

CPU\textsubscript{2006} license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2680 v3</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.30 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2500</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>24 cores, 2 chips, 12 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>30 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>256 GB (16 x 16 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>
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</tbody>
</table>

Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>SUSE Linux Enterprise Server 11 (x86_64)</td>
</tr>
<tr>
<td></td>
<td>3.0.76-0.11-default</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>No</td>
</tr>
<tr>
<td>File System</td>
<td>ext2</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>32-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other Software</td>
<td>Microquill SmartHeap V10.0</td>
</tr>
</tbody>
</table>

SpecInt\textsubscript{nt\_rate\_2006} = 1060
SpecInt\textsubscript{nt\_rate\_base\_2006} = 1020
Dell Inc.

PowerEdge R630(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECint_rate2006 = 1060
SPECint_rate_base2006 = 1020

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

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>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Second</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>48</td>
<td>578</td>
<td>811</td>
<td>587</td>
<td>799</td>
<td>589</td>
<td>797</td>
<td>48</td>
<td>486</td>
<td>966</td>
<td>483</td>
<td>971</td>
<td>484</td>
<td>969</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>48</td>
<td>899</td>
<td>515</td>
<td>904</td>
<td>512</td>
<td>900</td>
<td>515</td>
<td>48</td>
<td>863</td>
<td>537</td>
<td>864</td>
<td>536</td>
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<td>403.gcc</td>
<td>48</td>
<td>489</td>
<td>791</td>
<td>493</td>
<td>783</td>
<td>495</td>
<td>781</td>
<td>48</td>
<td>497</td>
<td>777</td>
<td>493</td>
<td>784</td>
<td>490</td>
<td>788</td>
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<td>429.mcf</td>
<td>48</td>
<td>311</td>
<td>1410</td>
<td>312</td>
<td>1400</td>
<td>313</td>
<td>1400</td>
<td>48</td>
<td>311</td>
<td>1410</td>
<td>313</td>
<td>1400</td>
<td>312</td>
<td>1400</td>
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<tr>
<td>445.gobmk</td>
<td>48</td>
<td>716</td>
<td>704</td>
<td>718</td>
<td>702</td>
<td>715</td>
<td>704</td>
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<td>721</td>
<td>697</td>
<td>722</td>
<td>694</td>
<td>725</td>
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<td>456.hmmer</td>
<td>48</td>
<td>314</td>
<td>1430</td>
<td>312</td>
<td>1440</td>
<td>315</td>
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<td>1430</td>
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<td>315</td>
<td>1420</td>
</tr>
<tr>
<td>458.sjeng</td>
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<td>779</td>
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<td>783</td>
<td>742</td>
<td>781</td>
<td>744</td>
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<td>748</td>
<td>777</td>
<td>750</td>
<td>774</td>
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<td>774</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>48</td>
<td>103</td>
<td>9650</td>
<td>103</td>
<td>9640</td>
<td>103</td>
<td>9610</td>
<td>48</td>
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<td>9650</td>
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<td>9640</td>
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<td>9610</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>48</td>
<td>881</td>
<td>1210</td>
<td>889</td>
<td>1190</td>
<td>885</td>
<td>1200</td>
<td>48</td>
<td>836</td>
<td>1270</td>
<td>870</td>
<td>1220</td>
<td>848</td>
<td>1250</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>48</td>
<td>532</td>
<td>563</td>
<td>538</td>
<td>557</td>
<td>534</td>
<td>562</td>
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<td>513</td>
<td>585</td>
<td>512</td>
<td>586</td>
<td>515</td>
<td>582</td>
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<tr>
<td>473.astar</td>
<td>48</td>
<td>606</td>
<td>556</td>
<td>610</td>
<td>552</td>
<td>605</td>
<td>557</td>
<td>48</td>
<td>606</td>
<td>556</td>
<td>610</td>
<td>552</td>
<td>605</td>
<td>557</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>48</td>
<td>306</td>
<td>1080</td>
<td>304</td>
<td>1090</td>
<td>304</td>
<td>1090</td>
<td>48</td>
<td>306</td>
<td>1080</td>
<td>304</td>
<td>1090</td>
<td>304</td>
<td>1090</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 Fri Jul 11 17:55:38 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 E5-2680 v3 @ 2.50GHz
  2 "physical id"s (chips)
  48 "processors"

Continued on next page
SPEC CINT2006 Result

Dell Inc.

PowerEdge R630(Intel Xeon E5-2680 v3, 2.50 GHz)

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

SPECint_rate2006 = 1060
SPECint_rate_base2006 = 1020

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

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 : 12
- siblings : 24
- physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
- physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
- cache size : 15360 KB

From /proc/meminfo

- MemTotal: 264440512 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 Jul 11 11:25 last=S

SPEC is set to: /root/cpu2006-1.2

- Filesystem Type Size Used Avail Use% Mounted on
  - /dev/sda2 ext2 726G 11G 715G 2% /

Additional information from dmidecode:

- BIOS Dell Inc. 0.3.25 06/19/2014
- Memory:
  - 16x 002C00B3002C 36ASF2G72PZ-2G1A1 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:
- echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:

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General Notes (Continued)

- 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

400.perlbench: icc -m64

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Dell Inc.
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Software Availability: Sep-2014

Peak Compiler Invocation (Continued)

401.bzip2: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalanchbmk: -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)
-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: -xCORE-AVX2 -ipo -O3 -no-prec-div
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: 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 -auto-ilp32
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

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SPEC CINT2006 Result

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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/sh -lsmartheap

473.astar: basepeak = yes
483.xalancbmk: basepeak = yes

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 other inquiries, please contact webmaster@spec.org.

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