Dell Inc. PowerEdge R520 (Intel Xeon E5-2430L, 2.00 GHz)

| SPECint_rate2006 | 379 |
| SPECint_rate_base2006 | 363 |

**Hardware**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Intel Xeon E5-2430L</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 2.50 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2000</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>12 cores, 2 chips, 6 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1 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>15 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>2 x 600 GB 15000 RPM SAS, RAID 1</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

**Software**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System:</td>
<td>SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.9-default</td>
</tr>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</td>
</tr>
<tr>
<td>File System:</td>
<td>ext3</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 V9.01</td>
</tr>
</tbody>
</table>
## SPEC CINT2006 Result

### Dell Inc.

**PowerEdge R520 (Intel Xeon E5-2430L, 2.00 GHz)**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>24</td>
<td>862</td>
<td>272</td>
<td>872</td>
<td>269</td>
<td>24</td>
<td>737</td>
<td>318</td>
<td>736</td>
<td>319</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>24</td>
<td>1172</td>
<td>198</td>
<td>1143</td>
<td>203</td>
<td>24</td>
<td>1101</td>
<td>210</td>
<td>1106</td>
<td>209</td>
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<tr>
<td>403.gcc</td>
<td>24</td>
<td>651</td>
<td>297</td>
<td>651</td>
<td>297</td>
<td>24</td>
<td>651</td>
<td>297</td>
<td>651</td>
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<tr>
<td>429.mcf</td>
<td>24</td>
<td>386</td>
<td>567</td>
<td>375</td>
<td>584</td>
<td>24</td>
<td>386</td>
<td>567</td>
<td>375</td>
<td>584</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>24</td>
<td>931</td>
<td>271</td>
<td>930</td>
<td>271</td>
<td>24</td>
<td>913</td>
<td>276</td>
<td>908</td>
<td>277</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>24</td>
<td>502</td>
<td>446</td>
<td>502</td>
<td>446</td>
<td>24</td>
<td>427</td>
<td>525</td>
<td>422</td>
<td>531</td>
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<tr>
<td>458.sjeng</td>
<td>24</td>
<td>1078</td>
<td>269</td>
<td>1077</td>
<td>270</td>
<td>24</td>
<td>1031</td>
<td>282</td>
<td>1032</td>
<td>281</td>
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<tr>
<td>462.libquantum</td>
<td>24</td>
<td>236</td>
<td>2100</td>
<td>236</td>
<td>2110</td>
<td>24</td>
<td>236</td>
<td>2100</td>
<td>236</td>
<td>2110</td>
</tr>
<tr>
<td>464.h264ref</td>
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<td>1158</td>
<td>459</td>
<td>1126</td>
<td>471</td>
<td>24</td>
<td>1117</td>
<td>476</td>
<td>1114</td>
<td>477</td>
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<tr>
<td>471.omnetpp</td>
<td>24</td>
<td>681</td>
<td>220</td>
<td>682</td>
<td>220</td>
<td>24</td>
<td>640</td>
<td>234</td>
<td>639</td>
<td>235</td>
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<tr>
<td>473.astar</td>
<td>24</td>
<td>780</td>
<td>216</td>
<td>774</td>
<td>218</td>
<td>24</td>
<td>780</td>
<td>216</td>
<td>774</td>
<td>218</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>24</td>
<td>453</td>
<td>365</td>
<td>457</td>
<td>362</td>
<td>24</td>
<td>453</td>
<td>365</td>
<td>457</td>
<td>362</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

CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost set to Enabled
C States/C1E set to Enabled
Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdf5032aaa42e583f96b07f99d3
running on Silk-2P Wed May  2 05:44:22 2012

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 E5-2430L 0 @ 2.00GHz
2 "physical id"s (chips)
24 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The

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SPEC CINT2006 Result

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SPECint_rate_base2006 = 363

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

Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
  cpu cores : 6
  siblings : 12
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
  cache size : 15360 KB

From /proc/meminfo
  MemTotal: 49381468 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

/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 = 2

uname -a:
  Linux Silk-2P 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012
  (54ddfaf) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 2 05:43 last=S

SPEC is set to: /root/CPU2006-1.2
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sda1      ext3  493G  7.4G  460G   2% /

Additional information from dmidecode:

(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"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RHEL5.5
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1>/proc/sys/vm/drop_caches
runcspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
The Dell PowerEdge R520 and
the Bull NovaScale R450 F3 models are electronically equivalent.

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Tested by: Dell Inc.

Test date: May-2012
Hardware Availability: May-2012
Software Availability: Feb-2012

General Notes (Continued)
The results have been measured on a Dell PowerEdge R520 model.

Base Compiler Invocation

C benchmarks:
    icc -m32

C++ benchmarks:
    icpc -m32

Base Portability Flags

400.perlbmk: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
    -Wl,-z,muldefs -L/smartheap -lsmartheap

Base Other Flags

C benchmarks:
    403.gcc: -Dbcc傲旨_alloc

Peak Compiler Invocation

C benchmarks (except as noted below):
    icc -m32

400.perlbmk: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64

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Peak Compiler Invocation (Continued)

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
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(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: -xSSE4.2(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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Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: -xSSE4.2(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/smartheap -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/Intel-ic12.1-official-linux64.20111122.html
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml
http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.xml

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

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