## Dell Inc.
### PowerEdge M420 (Intel Xeon E5-2450L, 1.80 GHz)

**SPECint®_rate2006 = 439**  
**SPECint_rate_base2006 = 421**

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name: Intel Xeon E5-2450L</td>
<td>Operating System: SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.27-default</td>
</tr>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 2.30 GHz</td>
<td>Compiler: C++/C++ Version 12.1.0.225 of Intel C++ Studio XE for Linux</td>
</tr>
<tr>
<td>CPU MHz: 1800</td>
<td>Auto Parallel: No</td>
</tr>
<tr>
<td>FPU: Integrated</td>
<td>File System: ext3</td>
</tr>
<tr>
<td>CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core</td>
<td>System State: Run level 3 (add definition here)</td>
</tr>
<tr>
<td>CPU(s) orderable: 1.2 chip</td>
<td>Base Pointers: 32-bit</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
<td>Peak Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
<td>Other Software: Microquill SmartHeap V9.01</td>
</tr>
<tr>
<td>L3 Cache: 20 MB I+D on chip per chip</td>
<td></td>
</tr>
<tr>
<td>Other Cache: None</td>
<td></td>
</tr>
<tr>
<td>Memory: 48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC)</td>
<td></td>
</tr>
<tr>
<td>Disk Subsystem: 2 x 50 GB SATA SSD, RAID 0</td>
<td></td>
</tr>
<tr>
<td>Other Hardware: None</td>
<td></td>
</tr>
</tbody>
</table>

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**Test date:** Mar-2012  
**Software Availability:** Feb-2012  
**Test sponsor:** Dell Inc.  
**Hardware Availability:** May-2012  
**Tested by:** Dell Inc.
## SPEC CINT2006 Result

**Dell Inc.**

**PowerEdge M420 (Intel Xeon E5-2450L, 1.80 GHz)**

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**SPECint_rate_base2006 = 421**

**CPU2006 license:** 55  
**Test date:** Mar-2012  
**Hardware Availability:** May-2012  
**Test sponsor:** Dell Inc.  
**Software Availability:** Feb-2012  
**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>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>32</td>
<td>987</td>
<td>317</td>
<td>990</td>
<td>316</td>
<td><strong>989</strong></td>
<td><strong>316</strong></td>
<td>32</td>
<td>844</td>
<td>370</td>
<td><strong>838</strong></td>
<td><strong>373</strong></td>
<td>836</td>
<td>374</td>
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<tr>
<td>401.bzip2</td>
<td>32</td>
<td>1296</td>
<td>238</td>
<td><strong>1298</strong></td>
<td>238</td>
<td>1311</td>
<td>235</td>
<td>32</td>
<td>1265</td>
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<tr>
<td>403.gcc</td>
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<td><strong>340</strong></td>
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<td>761</td>
<td>339</td>
<td><strong>759</strong></td>
<td><strong>340</strong></td>
<td>758</td>
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<tr>
<td>429.mcf</td>
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<td>445</td>
<td>656</td>
<td><strong>444</strong></td>
<td><strong>657</strong></td>
<td>439</td>
<td>664</td>
<td>32</td>
<td>445</td>
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<td>664</td>
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<tr>
<td>445.gobmk</td>
<td>32</td>
<td>1065</td>
<td>315</td>
<td><strong>1063</strong></td>
<td><strong>316</strong></td>
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<td>32</td>
<td>1043</td>
<td>322</td>
<td>1042</td>
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<td>456.hmmer</td>
<td>32</td>
<td>562</td>
<td>532</td>
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<td><strong>471</strong></td>
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<tr>
<td>458.sjeng</td>
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<td>315</td>
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<tr>
<td>462.libquantum</td>
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<td>262</td>
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<td>2530</td>
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<td>464.h264ref</td>
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<td>529</td>
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<td>1332</td>
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<td><strong>537</strong></td>
<td>1297</td>
<td>546</td>
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<tr>
<td>471.omnetpp</td>
<td>32</td>
<td>762</td>
<td>263</td>
<td>760</td>
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<td>762</td>
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<td>32</td>
<td>720</td>
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<td>729</td>
<td>275</td>
<td><strong>726</strong></td>
<td><strong>276</strong></td>
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<tr>
<td>473.astar</td>
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<td>889</td>
<td>253</td>
<td>890</td>
<td>252</td>
<td>889</td>
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<td><strong>889</strong></td>
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<td>890</td>
<td>252</td>
<td>889</td>
<td>253</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>32</td>
<td>557</td>
<td>396</td>
<td>557</td>
<td>397</td>
<td>557</td>
<td>396</td>
<td>32</td>
<td><strong>557</strong></td>
<td><strong>396</strong></td>
<td>557</td>
<td>397</td>
<td>557</td>
<td>396</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 $ $Date:: 2011-10-11 #$ 6f2ebd7f5a32aaa42e583f96b07f99d3  
running on HIFI-SPA-2P Thu Mar 29 14:15:02 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 E5-2450L 0 @ 1.80GHz  
  2 "physical id"s (chips)  
  32 "processors" cores, siblings (Caution: counting these is hw and system dependent. The Continued on next page
Dell Inc. PowerEdge M420 (Intel Xeon E5-2450L, 1.80 GHz)

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Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
cpu cores : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

From /proc/meminfo
MemTotal:  49348648 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 HIFI-SPA-2P 3.0.13-0.27-default #1 SMP Wed Feb 15 13:33:49 UTC 2012
(d73692b) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Mar 29 14:13 last=S
SPEC is set to: /root/CPU2006-1.2

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda1      ext3   87G  7.4G   75G   9% /

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
runspec command invoked through numactl i.e.:
umactl --interleave=all runspec <etc>
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Software Availability: Feb-2012

Base Compiler Invocation

C benchmarks:
icc -m32

C++ benchmarks:
icc -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:
-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: -Dalloca=_alloca

Peak Compiler Invocation

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

400.perlbench: icc -m64
401.bzip2: icc -m64
456.hmmer: icc -m64
458.sjeng: icc -m64

C++ benchmarks:
icpc -m32
**SPEC CINT2006 Result**

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### 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

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### 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: -xSSE4.2 -ipo -o3 -no-prec-div

- 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

#### C++ benchmarks:

- 471.omnetpp: -xSSE4.2 (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 -Wl,-z,muldefs
  -L/smartheap -lsmartheap

- 473.astar: basepeak = yes

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Continued on next page
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Peak Optimization Flags (Continued)

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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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