Dell Inc.
PowerEdge M420 (Intel Xeon E5-2420 v2, 2.20 GHz)

SPECint\_rate\_base2006 = 419

| SPECint\_rate2006 = 435 |

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

Hardware

| CPU Name: Intel Xeon E5-2420 v2 |
| CPU Characteristics: Intel Turbo Boost Technology up to 2.70 GHz |
| CPU MHz: 2200 |
| FPU: Integrated |
| CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core |
| CPU(s) orderable: 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: 15 MB I+D on chip per chip |
| Other Cache: None |
| Memory: 96 GB (6 x 16 GB 2Rx4 PC3L-12800R-11, ECC) |
| Disk Subsystem: 2 x 50 GB SATA SSD, RAID 0 |
| Other Hardware: None |

Software

| 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 |

Test date: Nov-2013
Hardware Availability: Jan-2014
Software Availability: Sep-2013
Dell Inc.

PowerEdge M420 (Intel Xeon E5-2420 v2, 2.20 GHz)

SPECint_rate2006 = 435
SPECint_rate_base2006 = 419

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>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>24</td>
<td>759</td>
<td>309</td>
<td>760</td>
<td>309</td>
<td>759</td>
<td>309</td>
<td>760</td>
<td>309</td>
<td>759</td>
<td>309</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>24</td>
<td>1036</td>
<td>223</td>
<td>1039</td>
<td>223</td>
<td>1008</td>
<td>229</td>
<td>1009</td>
<td>230</td>
<td></td>
<td></td>
</tr>
<tr>
<td>403.gcc</td>
<td>24</td>
<td>569</td>
<td>340</td>
<td>570</td>
<td>339</td>
<td>568</td>
<td>340</td>
<td>568</td>
<td>340</td>
<td></td>
<td></td>
</tr>
<tr>
<td>429.mcf</td>
<td>24</td>
<td>333</td>
<td>657</td>
<td>333</td>
<td>657</td>
<td>333</td>
<td>657</td>
<td>333</td>
<td>657</td>
<td></td>
<td></td>
</tr>
<tr>
<td>445.gobmk</td>
<td>24</td>
<td>835</td>
<td>302</td>
<td>820</td>
<td>307</td>
<td>834</td>
<td>302</td>
<td>834</td>
<td>302</td>
<td></td>
<td></td>
</tr>
<tr>
<td>456.hmmer</td>
<td>24</td>
<td>400</td>
<td>560</td>
<td>400</td>
<td>560</td>
<td>399</td>
<td>561</td>
<td>358</td>
<td>626</td>
<td>356</td>
<td>623</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>24</td>
<td>965</td>
<td>301</td>
<td>967</td>
<td>300</td>
<td>962</td>
<td>302</td>
<td>897</td>
<td>324</td>
<td>930</td>
<td>312</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>24</td>
<td>181</td>
<td>2750</td>
<td>181</td>
<td>2750</td>
<td>181</td>
<td>2750</td>
<td>181</td>
<td>2750</td>
<td></td>
<td></td>
</tr>
<tr>
<td>464.h264ref</td>
<td>24</td>
<td>1043</td>
<td>509</td>
<td>1040</td>
<td>511</td>
<td>1037</td>
<td>512</td>
<td>1031</td>
<td>515</td>
<td>1026</td>
<td>517</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>24</td>
<td>643</td>
<td>233</td>
<td>641</td>
<td>234</td>
<td>641</td>
<td>234</td>
<td>605</td>
<td>248</td>
<td>603</td>
<td>249</td>
</tr>
<tr>
<td>473.astar</td>
<td>24</td>
<td>695</td>
<td>242</td>
<td>701</td>
<td>240</td>
<td>698</td>
<td>241</td>
<td>695</td>
<td>242</td>
<td>698</td>
<td>241</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>24</td>
<td>354</td>
<td>468</td>
<td>356</td>
<td>466</td>
<td>354</td>
<td>468</td>
<td>354</td>
<td>468</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:
Virtualization Technology disabled
Execute Disable disabled
Logical Processor enabled
System Profile set to Performance
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on linux Thu Nov 7 10:07:49 2013

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 E5-2420 v2 @ 2.20GHz
  2 "physical id"s (chips)
  24 "processors"
Dell Inc.
PowerEdge M420 (Intel Xeon E5-2420 v2, 2.20 GHz)

**SPEC CINT2006 Result**

<table>
<thead>
<tr>
<th>SPECint_rate2006</th>
<th>435</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006</td>
<td>419</td>
</tr>
</tbody>
</table>

CPU2006 license: 55
Test date: Nov-2013

Test sponsor: Dell Inc.
Hardware Availability: Jan-2014

Tested by: Dell Inc.
Software Availability: Sep-2013

**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 : 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:       99156164 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 = 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 Nov 7 10:07 last=S

SPEC is set to: /root/cpu2006-1.2

Filesystem   Type   Size  Used  Avail  Use% Mounted on
/dev/sda2     ext2   83G  15G   67G  19%  /

Additional information from dmidecode:
- BIOS Dell Inc. 2.0.22 09/23/2013
- Memory:
  - 6x 00CE04B300CE M393B2G70BH0-YK0 16 GB 1600 MHz

(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:
- echo 1> /proc/sys/vm/drop_caches

(Continued on next page)
SPEC CINT2006 Result

Dell Inc.
PowerEdge M420 (Intel Xeon E5-2420 v2, 2.20 GHz)

SPECint_rate2006 = 435
SPECint_rate_base2006 = 419

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

Test date: Nov-2013
Hardware Availability: Jan-2014
Software Availability: Sep-2013

General Notes (Continued)
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:
  -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/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

  401.bzip2: icc -m64

Continued on next page
Dell Inc.
PowerEdge M420 (Intel Xeon E5-2420 v2, 2.20 GHz)

SPECint_rate2006 = 435
SPECint_rate_base2006 = 419

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

Test date: Nov-2013
Hardware Availability: Jan-2014
Software Availability: Sep-2013

Peak Compiler Invocation (Continued)

456.hmmer: 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
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)
-03(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)
-03(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 -03 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-03(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)
-03(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias

Continued on next page
# SPEC CINT2006 Result

## Dell Inc.

PowerEdge M420 (Intel Xeon E5-2420 v2, 2.20 GHz)

<table>
<thead>
<tr>
<th>SPECint_rate2006 = 435</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_rate_base2006 = 419</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2006 license: 55</th>
<th>Test date: Nov-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor: Dell Inc.</td>
<td>Hardware Availability: Jan-2014</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Sep-2013</td>
</tr>
</tbody>
</table>

## Peak Optimization Flags (Continued)

### 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/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:


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

- [http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.xml](http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.xml)

---

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.

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

Tested with SPEC CPU2006 v1.2.


Originally published on 28 January 2014.