Dell Inc.

PowerEdge M520 (Intel Xeon E5-2407, 2.20 GHz)

SPECfp®2006 = 52.2
SPECfp_base2006 = 49.6

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

Hardware

CPU Name: Intel Xeon E5-2407
CPU Characteristics:
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
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

Software

Operating System: SUSE Linux Enterprise Server 11 SP2 (x86_64) 3.0.13-0.27-default
Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux
Auto Parallel: Yes
File System: ext3
System State: Run level 3 (add definition here)
Dell Inc.
PowerEdge M520 (Intel Xeon E5-2407, 2.20 GHz)

SPEC CFP2006 Result
Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.
PowerEdge M520 (Intel Xeon E5-2407, 2.20 GHz)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base Pointers: 64-bit</th>
<th>Peak Pointers: 32/64-bit</th>
<th>Other Software: None</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>66.5</td>
<td>204</td>
<td>65.9</td>
<td>206</td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td>1030</td>
<td>19.0</td>
<td>1042</td>
<td>18.8</td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
<td>224</td>
<td>40.9</td>
<td>224</td>
<td>40.9</td>
<td></td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>106</td>
<td>85.5</td>
<td>108</td>
<td>84.2</td>
<td></td>
</tr>
<tr>
<td>435.gromacs</td>
<td>288</td>
<td>24.8</td>
<td>288</td>
<td>24.8</td>
<td></td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>58.1</td>
<td>206</td>
<td>57.8</td>
<td>207</td>
<td></td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>98.9</td>
<td>95.1</td>
<td>98.7</td>
<td>95.3</td>
<td></td>
</tr>
<tr>
<td>444.namd</td>
<td>534</td>
<td>15.0</td>
<td>534</td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>447.dealII</td>
<td>340</td>
<td>33.7</td>
<td>339</td>
<td>33.8</td>
<td></td>
</tr>
<tr>
<td>450.soplex</td>
<td>334</td>
<td>25.0</td>
<td>334</td>
<td>25.0</td>
<td></td>
</tr>
<tr>
<td>453.povray</td>
<td>191</td>
<td>27.8</td>
<td>190</td>
<td>28.0</td>
<td></td>
</tr>
<tr>
<td>454.calculix</td>
<td>340</td>
<td>24.3</td>
<td>337</td>
<td>24.5</td>
<td></td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>127</td>
<td>83.4</td>
<td>128</td>
<td>83.2</td>
<td></td>
</tr>
<tr>
<td>465.tonto</td>
<td>447</td>
<td>22.0</td>
<td>406</td>
<td>24.2</td>
<td></td>
</tr>
<tr>
<td>470.lbm</td>
<td>50.2</td>
<td>274</td>
<td>50.0</td>
<td>275</td>
<td></td>
</tr>
<tr>
<td>481.wrf</td>
<td>225</td>
<td>49.7</td>
<td>228</td>
<td>48.9</td>
<td></td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>405</td>
<td>48.1</td>
<td>419</td>
<td>46.6</td>
<td></td>
</tr>
</tbody>
</table>

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

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 $ $Date:: 2011-10-11 #$ 6f2ebd5f5032aaa42e583f96b07f99d3
running on Blur-2P Tue Mar 6 17:44:55 2012

This section contains SUT (System Under Test) info as seen by
Continued on next page
Dell Inc. PowerEdge M520 (Intel Xeon E5-2407, 2.20 GHz)

SPECfp2006 = 52.2
SPECfp_base2006 = 49.6

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

Platform Notes (Continued)

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 E5-2407 0 @ 2.20GHz
  2 "physical id"s (chips)
  8 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 4
siblings : 4
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3
cache size : 10240 KB

From /proc/meminfo
MemTotal:       99092560 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:
VERSION = 11
PATCHLEVEL = 2

uname -a:
Linux Blur-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 6 08:33 last=S

SPEC is set to: /root/CPU2006-1.2
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1      ext3  913G  11G  857G   2% /

Additional information from dmidecode:

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/CPU2006-1.2/libs/32:/root/CPU2006-1.2/libs/64"
OMP_NUM_THREADS = "8"

Continued on next page
Dell Inc.
PowerEdge M520 (Intel Xeon E5-2407, 2.20 GHz)

SPECfp2006 = 52.2
SPECfp_base2006 = 49.6

CPU2006 license: 55
Test date: Mar-2012
Test sponsor: Dell Inc.
Hardware Availability: May-2012
Tested by: Dell Inc.
Software Availability: Feb-2012

General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5
Transparent Huge Pages disabled with:
echo never > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches

Base Compiler Invocation

C benchmarks:
  icc  -m64

C++ benchmarks:
  icpc -m64

Fortran benchmarks:
  ifort -m64

Benchmarks using both Fortran and C:
  icc  -m64 ifort -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
  433.milc: -DSPEC_CPU_LP64
  434.zeusmp: -DSPEC_CPU_LP64
  435.gromacs: -DSPEC_CPU_LP64 -nofor_main
  436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
  437.leslie3d: -DSPEC_CPU_LP64
  444.namd: -DSPEC_CPU_LP64
  447.dealII: -DSPEC_CPU_LP64
  450.soplex: -DSPEC_CPU_LP64
  453.povray: -DSPEC_CPU_LP64
  454.calculix: -DSPEC_CPU_LP64 -nofor_main
  459.GemsFDTD: -DSPEC_CPU_LP64
  465.tonto: -DSPEC_CPU_LP64
  470.lbm: -DSPEC_CPU_LP64
  481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
  482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
  -xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
  -ansi-alias

Continued on next page
Base Optimization Flags (Continued)

C++ benchmarks:
- `xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias`

Fortran benchmarks:
- `xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:
- `xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch -ansi-alias`

Peak Compiler Invocation

C benchmarks:
- `icc -m64`

C++ benchmarks:
- `icpc -m64`

Fortran benchmarks:
- `ifort -m64`

Benchmarks using both Fortran and C:
- `icc -m64 ifort -m64`

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

- `433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
  -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
  -ansi-alias`

- `470.lbm: basepeak = yes`

- `482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
  -parallel`

C++ benchmarks:

Continued on next page
Dell Inc.
PowerEdge M520 (Intel Xeon E5-2407, 2.20 GHz)

SPECfp2006 = 52.2
SPECfp_base2006 = 49.6

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

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

Peak Optimization Flags (Continued)

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes
450.soplex: basepeak = yes
453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
-static
416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep -static

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel
465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc
-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes
454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

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
Dell Inc.

PowerEdge M520 (Intel Xeon E5-2407, 2.20 GHz)

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>52.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>49.6</td>
</tr>
</tbody>
</table>

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

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

SPEC and SPECfp 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 5 June 2012.