



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge M820 (Intel Xeon E5-4657L v2, 2.40 GHz)

SPECfp®_rate2006 = 1320

SPECfp_rate_base2006 = 1290

CPU2006 license: 55

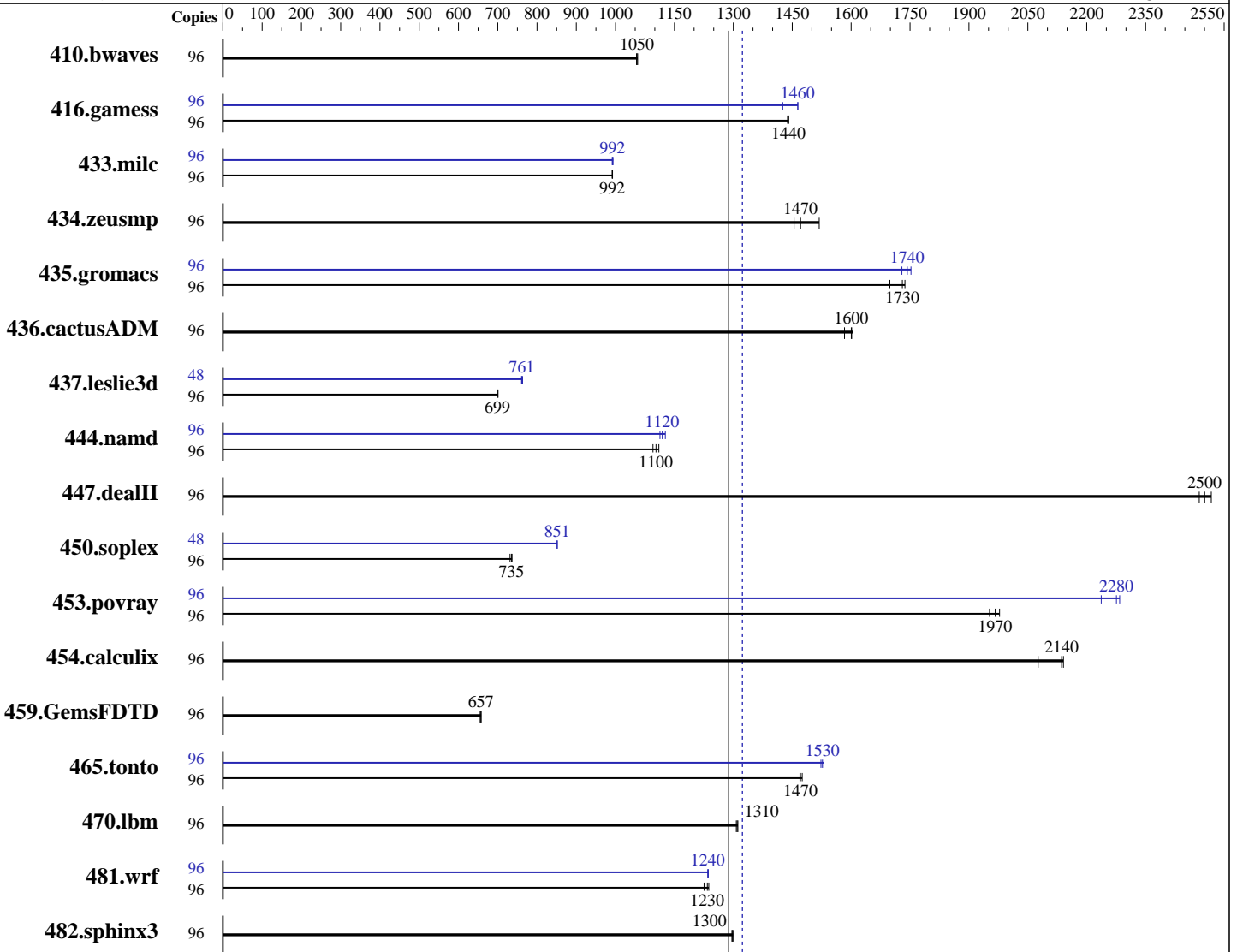
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Feb-2014

Hardware Availability: Mar-2014

Software Availability: Aug-2013



SPECfp_rate_base2006 = 1290

SPECfp_rate2006 = 1320

Hardware

CPU Name: Intel Xeon E5-4657L v2
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip, 2 threads/core
 CPU(s) orderable: 4 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64)
 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;
 Fortran: Version 14.0.0.080 of Intel Fortran Studio XE for Linux
 Auto Parallel: No
 File System: ext2

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge M820 (Intel Xeon E5-4657L v2, 2.40 GHz)

SPECfp_rate2006 = 1320

SPECfp_rate_base2006 = 1290

CPU2006 license: 55

Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Feb-2014

Hardware Availability: Mar-2014

Software Availability: Aug-2013

L3 Cache: 30 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (32 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 1 x 1TB 7200 RPM Near-Line SAS
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	96	<u>1237</u>	<u>1050</u>	1238	1050	1235	1060	96	<u>1237</u>	<u>1050</u>	1238	1050	1235	1060
416.gamess	96	<u>1305</u>	<u>1440</u>	1307	1440	1305	1440	96	<u>1284</u>	<u>1460</u>	1318	1430	1284	1460
433.milc	96	888	992	889	992	<u>889</u>	<u>992</u>	96	889	992	<u>888</u>	<u>992</u>	887	994
434.zeusmp	96	575	1520	<u>594</u>	<u>1470</u>	601	1450	96	575	1520	<u>594</u>	<u>1470</u>	601	1450
435.gromacs	96	395	1740	<u>396</u>	<u>1730</u>	404	1700	96	391	1750	396	1730	<u>393</u>	<u>1740</u>
436.cactusADM	96	725	1580	<u>717</u>	<u>1600</u>	715	1600	96	725	1580	<u>717</u>	<u>1600</u>	715	1600
437.leslie3d	96	1288	701	1291	699	<u>1291</u>	<u>699</u>	48	<u>593</u>	<u>761</u>	591	763	593	761
444.namd	96	693	1110	<u>698</u>	<u>1100</u>	703	1100	96	<u>688</u>	<u>1120</u>	683	1130	692	1110
447.dealII	96	436	2520	442	2490	<u>439</u>	<u>2500</u>	96	436	2520	442	2490	<u>439</u>	<u>2500</u>
450.soplex	96	1087	736	<u>1089</u>	<u>735</u>	1095	731	48	470	852	471	849	<u>470</u>	<u>851</u>
453.povray	96	262	1950	<u>260</u>	<u>1970</u>	258	1980	96	224	2280	228	2240	<u>224</u>	<u>2280</u>
454.calculix	96	381	2080	<u>371</u>	<u>2140</u>	370	2140	96	381	2080	<u>371</u>	<u>2140</u>	370	2140
459.GemsFDTD	96	1555	655	1549	658	<u>1550</u>	<u>657</u>	96	1555	655	1549	658	<u>1550</u>	<u>657</u>
465.tonto	96	643	1470	640	1480	<u>642</u>	<u>1470</u>	96	<u>619</u>	<u>1530</u>	620	1520	617	1530
470.lbm	96	1006	1310	1009	1310	<u>1007</u>	<u>1310</u>	96	1006	1310	1009	1310	<u>1007</u>	<u>1310</u>
481.wrf	96	867	1240	875	1230	<u>869</u>	<u>1230</u>	96	<u>868</u>	<u>1240</u>	868	1230	867	1240
482.sphinx3	96	1443	1300	1440	1300	<u>1443</u>	<u>1300</u>	96	1443	1300	1440	1300	<u>1443</u>	<u>1300</u>

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

Virtualization Technology disabled
Execute Disable disabled
Logical Processor enabled

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 1320

PowerEdge M820 (Intel Xeon E5-4657L v2, 2.40 GHz)

SPECfp_rate_base2006 = 1290

CPU2006 license: 55

Test date: Feb-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Aug-2013

Platform Notes (Continued)

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 Feb 28 09:51:19 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 E5-4657L v2 @ 2.40GHZ
  4 "physical id"s (chips)
  96 "processors"
  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
  physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
  cache size : 30720 KB
```

```
From /proc/meminfo
MemTotal:      529392220 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 Feb 27 20:40 last=S
```

```
SPEC is set to: /root/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        ext2  909G   90G  818G  10% /
```

```
Additional information from dmidecode:
BIOS Dell Inc. 2.0.24 01/21/2014
Memory:
8x 002C04B3002C 36JSF2G72PZ-1G9E1 16 GB 1866 MHz
Continued on next page
```



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp_rate2006 = 1320

PowerEdge M820 (Intel Xeon E5-4657L v2, 2.40 GHz)

SPECfp_rate_base2006 = 1290

CPU2006 license: 55

Test date: Feb-2014

Test sponsor: Dell Inc.

Hardware Availability: Mar-2014

Tested by: Dell Inc.

Software Availability: Aug-2013

Platform Notes (Continued)

21x 00CE00B300CE M393B2G70DB0-CMA 16 GB 1866 MHz
3x 00CE04B300CE M393B2G70DB0-CMA 16 GB 1866 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

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 4



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge M820 (Intel Xeon E5-4657L v2,
2.40 GHz)

SPECfp_rate2006 = 1320

SPECfp_rate_base2006 = 1290

CPU2006 license: 55

Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Feb-2014

Hardware Availability: Mar-2014

Software Availability: Aug-2013

Base Portability Flags (Continued)

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 -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -ansi-alias
-opt-mem-layout-trans=3

Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge M820 (Intel Xeon E5-4657L v2,
2.40 GHz)

SPECfp_rate2006 = 1320

SPECfp_rate_base2006 = 1290

CPU2006 license: 55

Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Feb-2014

Hardware Availability: Mar-2014

Software Availability: Aug-2013

Peak Portability Flags (Continued)

```

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
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

```

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) -opt-mem-layout-trans=3(pass 2)
         -prof-use(pass 2) -auto-ilp32

```

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

```

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
         -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
         -prof-use(pass 2) -fno-alias -auto-ilp32

```

447.dealII: basepeak = yes

```

450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
         -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
         -prof-use(pass 2) -opt-malloc-options=3

```

```

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
         -no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
         -prof-use(pass 2) -unroll4 -ansi-alias

```

Fortran benchmarks:

410.bwaves: basepeak = yes

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge M820 (Intel Xeon E5-4657L v2, 2.40 GHz)

SPECfp_rate2006 = 1320

SPECfp_rate_base2006 = 1290

CPU2006 license: 55

Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Feb-2014

Hardware Availability: Mar-2014

Software Availability: Aug-2013

Peak Optimization Flags (Continued)

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-

434.zeusmp: basepeak = yes

437.leslie3d: -xAVX -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
-inline-calloc -opt-malloc-options=3

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -opt-mem-layout-trans=3(pass 2)
-prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xAVX -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revC.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revC.xml>

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.
Report generated on Thu Jul 24 22:33:10 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 April 2014.