



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp®2006 = 51.6

PowerEdge T620 (Intel Xeon E5-2603 v2, 1.80 GHz)

SPECfp_base2006 = 50.0

CPU2006 license: 55

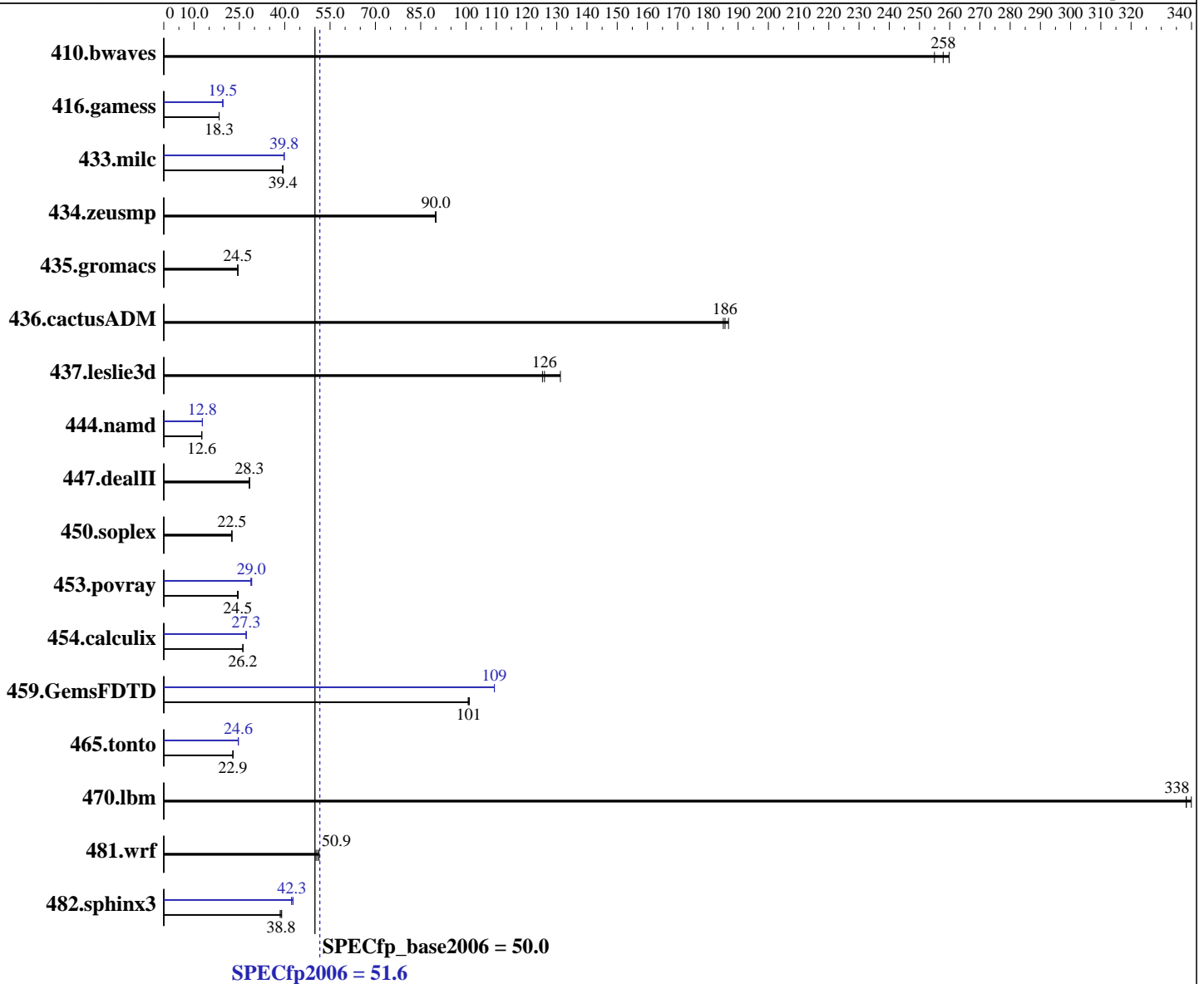
Test date: Aug-2013

Test sponsor: Dell Inc.

Hardware Availability: Sep-2013

Tested by: Dell Inc.

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2603 v2
 CPU Characteristics:
 CPU MHz: 1800
 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

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Software

Operating System: SUSE Linux Enterprise Server 11 SP3 (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: Yes
 File System: ext2
 System State: Run level 3 (multi-user)

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L3 Cache: 10 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz)
 Disk Subsystem: 1 x 300 GB 15000 RPM SAS
 Other Hardware: None

Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	53.3	255	52.3	260	<u>52.7</u>	<u>258</u>	53.3	255	52.3	260	<u>52.7</u>	<u>258</u>
416.gamess	1070	18.3	1071	18.3	<u>1070</u>	<u>18.3</u>	1004	19.5	1002	19.5	<u>1003</u>	<u>19.5</u>
433.milc	234	39.3	<u>233</u>	<u>39.4</u>	233	39.4	231	39.8	<u>231</u>	<u>39.8</u>	230	39.8
434.zeusmp	101	90.0	<u>101</u>	<u>90.0</u>	101	89.8	101	90.0	<u>101</u>	<u>90.0</u>	101	89.8
435.gromacs	291	24.5	292	24.4	<u>291</u>	<u>24.5</u>	291	24.5	292	24.4	<u>291</u>	<u>24.5</u>
436.cactusADM	64.6	185	64.0	187	<u>64.4</u>	<u>186</u>	64.6	185	64.0	187	<u>64.4</u>	<u>186</u>
437.leslie3d	75.0	125	<u>74.6</u>	<u>126</u>	71.6	131	75.0	125	<u>74.6</u>	<u>126</u>	71.6	131
444.namd	638	12.6	<u>638</u>	<u>12.6</u>	638	12.6	628	12.8	<u>628</u>	<u>12.8</u>	628	12.8
447.dealII	404	28.3	<u>404</u>	<u>28.3</u>	404	28.3	404	28.3	<u>404</u>	<u>28.3</u>	404	28.3
450.soplex	371	22.5	<u>370</u>	<u>22.5</u>	370	22.5	371	22.5	<u>370</u>	<u>22.5</u>	370	22.5
453.povray	216	24.6	<u>217</u>	<u>24.5</u>	219	24.3	185	28.8	<u>184</u>	<u>29.0</u>	183	29.1
454.calculix	315	26.2	315	26.2	<u>315</u>	<u>26.2</u>	302	27.3	303	27.3	<u>303</u>	<u>27.3</u>
459.GemsFDTD	105	101	105	101	<u>105</u>	<u>101</u>	<u>97.0</u>	<u>109</u>	97.0	109	97.0	109
465.tonto	431	22.8	429	22.9	<u>430</u>	<u>22.9</u>	399	24.7	<u>399</u>	<u>24.6</u>	400	24.6
470.lbm	40.4	340	40.6	338	<u>40.6</u>	<u>338</u>	40.4	340	40.6	338	<u>40.6</u>	<u>338</u>
481.wrf	<u>219</u>	<u>50.9</u>	222	50.4	217	51.4	<u>219</u>	<u>50.9</u>	222	50.4	217	51.4
482.sphinx3	506	38.5	500	39.0	<u>502</u>	<u>38.8</u>	<u>460</u>	<u>42.3</u>	461	42.3	455	42.8

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

BIOS settings:
 Virtualization Technology disabled
 Execute Disable disabled
 Logical Processor disabled
 System Profile set to Performance
 Sysinfo program /root/cpu2006.1.2.ic13/config/sysinfo.rev6818
 \$Rev: 6818 \$ \$Date:: 2012-07-17 # \$ e86d102572650a6e4d596a3cee98f191
 running on linux Thu Aug 29 21:15:15 2013

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Platform Notes (Continued)

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 E5-2603 v2 @ 1.80GHz
 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
caution.)
  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:      264634596 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 Aug 29 10:41 last=S

```

SPEC is set to: /root/cpu2006.1.2.ic13
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext2  267G  14G  252G   6% /

```

```

Additional information from dmidecode:
BIOS Dell Inc. 2.0.18 08/10/2013
Memory:
16x 00CE00B300CE M393B2G70CB0-CMA 16 GB 1333 MHz

```

(End of data from sysinfo program)



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General Notes

Environment variables set by runspec before the start of the run:

```
LD_LIBRARY_PATH = "/root/cpu2006.1.2.ic13/libs/32:/root/cpu2006.1.2.ic13/libs/64:/root/cpu2006.1.2.ic13/sh"
OMP_NUM_THREADS = "8"
```

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
```

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
```



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Base Optimization Flags

C benchmarks:

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

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

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Peak Optimization Flags (Continued)

C++ benchmarks:

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.dealIII: 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: basepeak = yes

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-ic14.0-official-linux64.20140128.html>

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



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