



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp®2006 = 65.1

PowerEdge R610 (Intel Xeon X5690, 3.46 GHz)

SPECfp\_base2006 = 62.6

CPU2006 license: 55

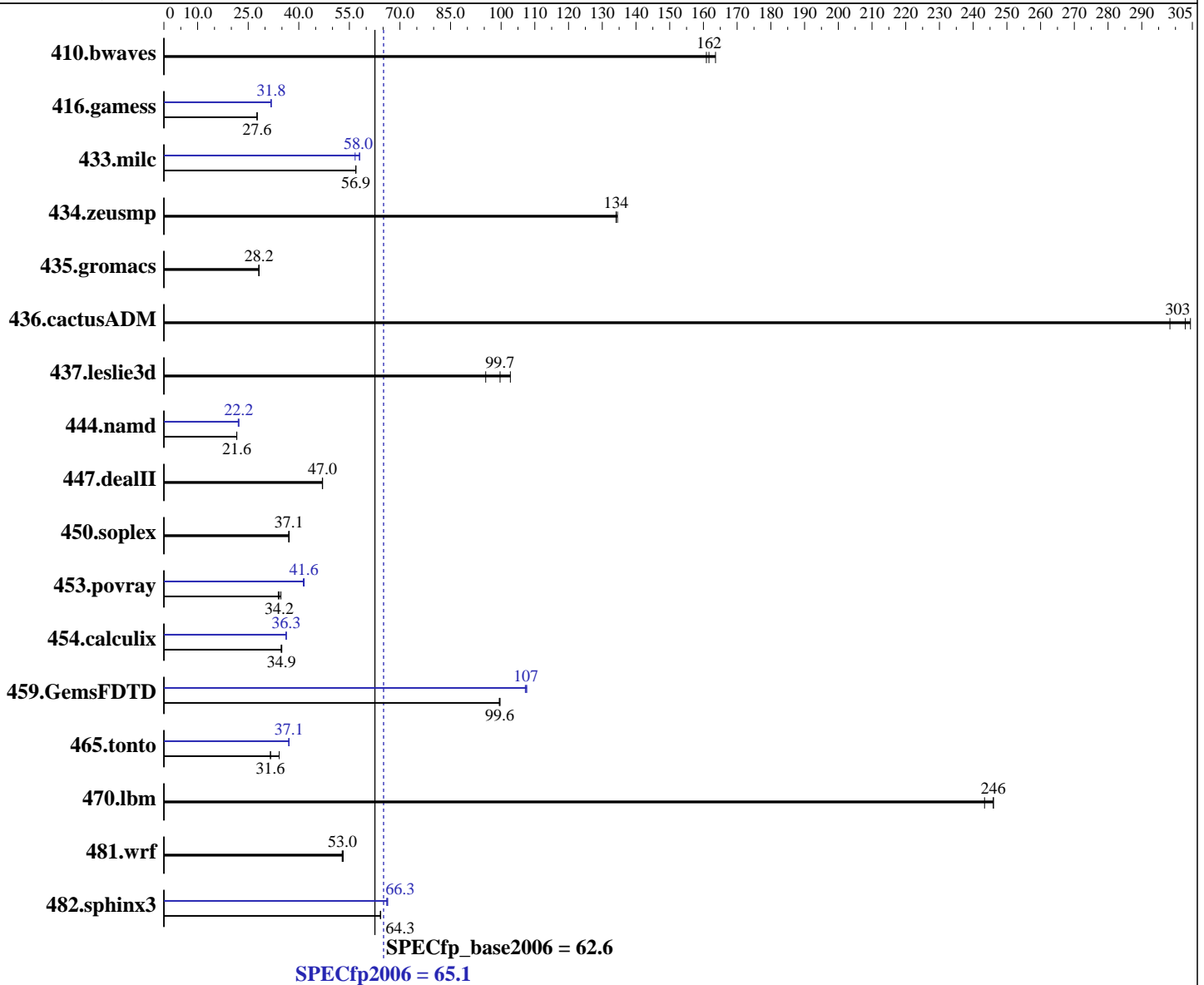
Test date: Dec-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Oct-2011



## Hardware

CPU Name: Intel Xeon X5690  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz  
 CPU MHz: 3467  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chips  
 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: Red Hat Enterprise Linux Server release 6.1 (Santiago)  
 2.6.32-131.0.15.el6.x86\_64  
 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: ext4

Continued on next page



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L3 Cache: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
 Disk Subsystem: 1 x 146 GB 15000 RPM SAS  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 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	84.5	161	<b>84.1</b>	<b>162</b>	83.1	164	84.5	161	<b>84.1</b>	<b>162</b>	83.1	164
416.gamess	709	27.6	708	27.6	<b>709</b>	<b>27.6</b>	<b>616</b>	<b>31.8</b>	615	31.8	617	31.8
433.milc	161	56.9	161	57.0	<b>161</b>	<b>56.9</b>	<b>158</b>	<b>58.0</b>	158	58.0	162	56.7
434.zeusmp	67.9	134	<b>67.9</b>	<b>134</b>	67.7	135	67.9	134	<b>67.9</b>	<b>134</b>	67.7	135
435.gromacs	<b>253</b>	<b>28.2</b>	253	28.2	254	28.1	<b>253</b>	<b>28.2</b>	253	28.2	254	28.1
436.cactusADM	39.3	304	40.1	298	<b>39.5</b>	<b>303</b>	39.3	304	40.1	298	<b>39.5</b>	<b>303</b>
437.leslie3d	98.5	95.4	<b>94.3</b>	<b>99.7</b>	91.5	103	98.5	95.4	<b>94.3</b>	<b>99.7</b>	91.5	103
444.namd	371	21.6	371	21.6	<b>371</b>	<b>21.6</b>	364	22.0	361	22.2	<b>361</b>	<b>22.2</b>
447.dealII	243	47.0	243	47.0	<b>243</b>	<b>47.0</b>	243	47.0	243	47.0	<b>243</b>	<b>47.0</b>
450.soplex	226	37.0	224	37.2	<b>225</b>	<b>37.1</b>	226	37.0	224	37.2	<b>225</b>	<b>37.1</b>
453.povray	153	34.7	157	33.9	<b>155</b>	<b>34.2</b>	129	41.3	128	41.6	<b>128</b>	<b>41.6</b>
454.calculix	<b>236</b>	<b>34.9</b>	236	35.0	237	34.8	227	36.3	<b>227</b>	<b>36.3</b>	228	36.2
459.GemsFDTD	107	99.5	<b>106</b>	<b>99.6</b>	106	99.6	98.6	108	99.0	107	<b>98.8</b>	<b>107</b>
465.tonto	<b>311</b>	<b>31.6</b>	288	34.2	311	31.6	265	37.1	<b>265</b>	<b>37.1</b>	266	37.0
470.lbm	56.5	243	<b>55.9</b>	<b>246</b>	55.9	246	56.5	243	<b>55.9</b>	<b>246</b>	55.9	246
481.wrf	<b>211</b>	<b>53.0</b>	210	53.2	211	52.9	<b>211</b>	<b>53.0</b>	210	53.2	211	52.9
482.sphinx3	304	64.2	<b>303</b>	<b>64.3</b>	303	64.3	295	66.1	<b>294</b>	<b>66.3</b>	294	66.3

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

Sysinfo program /home/CPU2006v1.2/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on R610 Wed Dec 7 05:40:47 2011

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 X5690 @ 3.47GHz  
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## Platform Notes (Continued)

```

2 "physical id"s (chips)
24 "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 : 6
siblings  : 12
physical 0: cores 0 1 2 8 9 10
physical 1: cores 0 1 2 8 9 10
cache size : 12288 KB

From /proc/meminfo
MemTotal:      99059436 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.1 (Santiago)

From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.1 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
Linux R610 2.6.32-131.0.15.el6.x86_64 #1 SMP Tue May 10 15:42:40 EDT 2011
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 29 09:20

SPEC is set to: /home/CPU2006v1.2
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_r610-lv_home
                ext4      56G   3.7G   49G   7% /home

Additional information from dmidecode:
Memory:
10x 00CE00B380CE M393B1K70BH1-CH9 8 GB 1333 MHz 2 rank
2x 00CE04B380CE M393B1K70BH1-CH9 8 GB 1333 MHz 2 rank

(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 = "/home/CPU2006v1.2/libs/32:/home/CPU2006v1.2/libs/64"
OMP_NUM_THREADS = "12"

```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

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## General Notes (Continued)

Transparent Huge Pages enabled with:  
echo always > /sys/kernel/mm/redhat\_transparent\_hugepage/enabled

## 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:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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## Base Optimization Flags (Continued)

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.2 -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: `-xSSE4.2(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: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel`

C++ benchmarks:

444.namd: `-xSSE4.2(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`

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## Peak Optimization Flags (Continued)

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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