



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp<sup>®</sup>\_rate2006 = 215

PowerEdge R410 (Intel Xeon E5649, 2.53 GHz)

SPECfp\_rate\_base2006 = 210

CPU2006 license: 55

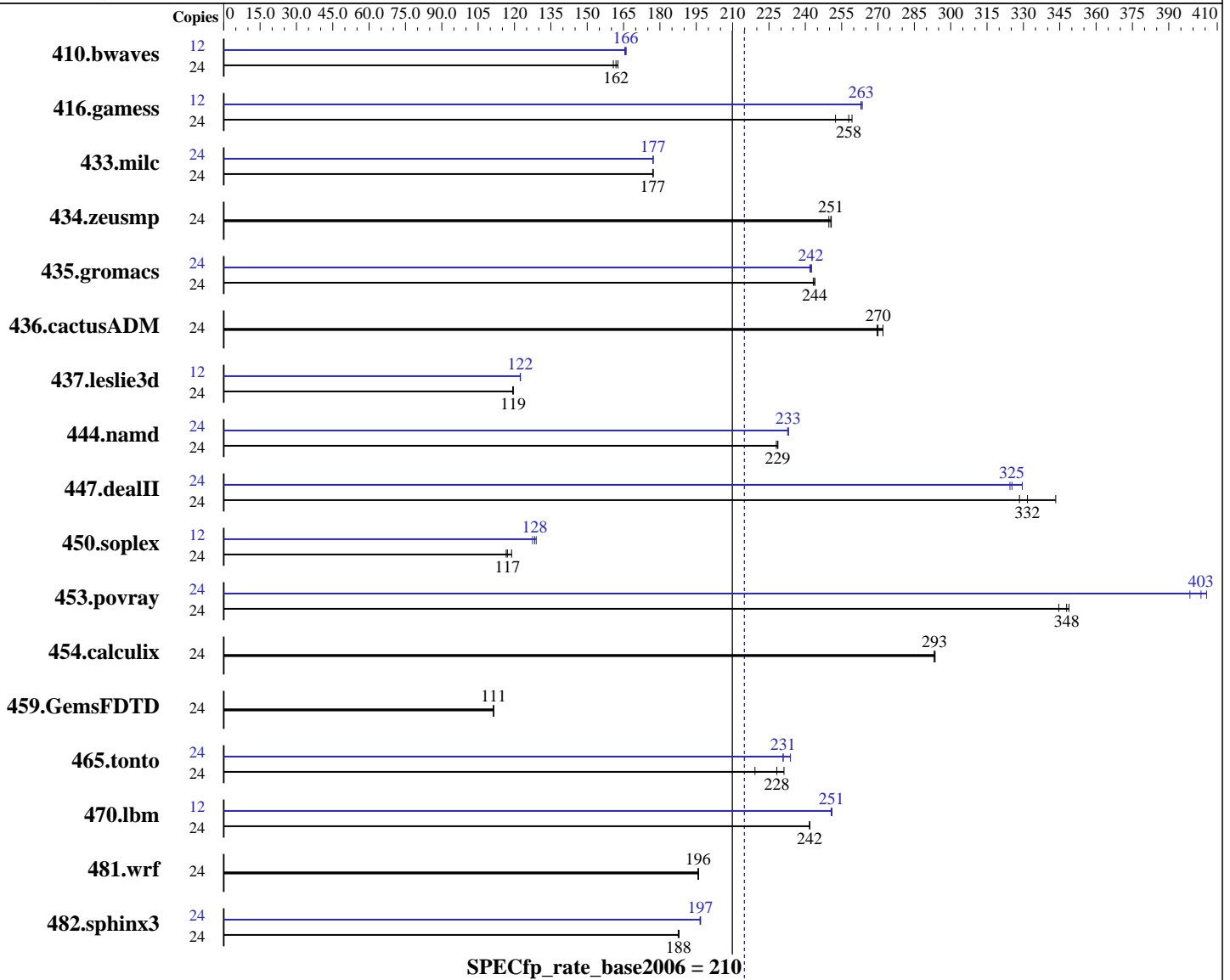
Test date: Apr-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Jan-2011



### Hardware

CPU Name: Intel Xeon E5649  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz  
 CPU MHz: 2533  
 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: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 215

PowerEdge R410 (Intel Xeon E5649, 2.53 GHz)

SPECfp\_rate\_base2006 = 210

CPU2006 license: 55

Test date: Apr-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Jan-2011

L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 48 GB (6 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
Disk Subsystem: 1 x 146 GB 15000 RPM SAS  
Other Hardware: None

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	24	2005	163	<b><u>2015</u></b>	<b><u>162</u></b>	2029	161	12	982	166	985	166	<b><u>983</u></b>	<b><u>166</u></b>
416.gamess	24	1861	252	<b><u>1822</u></b>	<b><u>258</u></b>	1812	259	12	892	264	894	263	<b><u>893</u></b>	<b><u>263</u></b>
433.milc	24	<b><u>1244</u></b>	<b><u>177</u></b>	1244	177	1243	177	24	1244	177	<b><u>1243</u></b>	<b><u>177</u></b>	1243	177
434.zeusmp	24	871	251	875	250	<b><u>872</u></b>	<b><u>251</u></b>	24	871	251	875	250	<b><u>872</u></b>	<b><u>251</u></b>
435.gromacs	24	704	243	<b><u>703</u></b>	<b><u>244</u></b>	702	244	24	708	242	<b><u>707</u></b>	<b><u>242</u></b>	706	243
436.cactusADM	24	1054	272	1064	270	<b><u>1062</u></b>	<b><u>270</u></b>	24	1054	272	1064	270	<b><u>1062</u></b>	<b><u>270</u></b>
437.leslie3d	24	1892	119	1888	119	<b><u>1889</u></b>	<b><u>119</u></b>	12	922	122	<b><u>921</u></b>	<b><u>122</u></b>	921	122
444.namd	24	844	228	842	229	<b><u>842</u></b>	<b><u>229</u></b>	24	827	233	826	233	<b><u>826</u></b>	<b><u>233</u></b>
447.dealII	24	836	328	<b><u>828</u></b>	<b><u>332</u></b>	800	343	24	833	330	<b><u>844</u></b>	<b><u>325</u></b>	846	324
450.soplex	24	<b><u>1710</u></b>	<b><u>117</u></b>	1685	119	1717	117	12	<b><u>780</u></b>	<b><u>128</u></b>	776	129	785	127
453.povray	24	<b><u>367</u></b>	<b><u>348</u></b>	370	345	366	349	24	315	406	320	399	<b><u>317</u></b>	<b><u>403</u></b>
454.calculix	24	674	294	675	293	<b><u>675</u></b>	<b><u>293</u></b>	24	674	294	675	293	<b><u>675</u></b>	<b><u>293</u></b>
459.GemsFDTD	24	2288	111	<b><u>2287</u></b>	<b><u>111</u></b>	2286	111	24	2288	111	<b><u>2287</u></b>	<b><u>111</u></b>	2286	111
465.tonto	24	<b><u>1035</u></b>	<b><u>228</u></b>	1077	219	1021	231	24	1010	234	<b><u>1023</u></b>	<b><u>231</u></b>	1023	231
470.lbm	24	1364	242	1364	242	<b><u>1364</u></b>	<b><u>242</u></b>	12	657	251	<b><u>657</u></b>	<b><u>251</u></b>	658	251
481.wrf	24	<b><u>1369</u></b>	<b><u>196</u></b>	1369	196	1368	196	24	<b><u>1369</u></b>	<b><u>196</u></b>	1369	196	1368	196
482.sphinx3	24	<b><u>2492</u></b>	<b><u>188</u></b>	2494	188	2490	188	24	2380	197	<b><u>2378</u></b>	<b><u>197</u></b>	2377	197

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

## Submit Notes

The config file option 'submit' was used.  
numactl was used to bind copies to the cores

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 10800 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
```



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 215

PowerEdge R410 (Intel Xeon E5649, 2.53 GHz)

SPECfp\_rate\_base2006 = 210

CPU2006 license: 55

Test date: Apr-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Jan-2011

## Platform Notes

BIOS Settings:

Power Management = Maximum Performance (Default = Active Power Controller)

Data Reuse = Disabled (Default = Enabled)

## General Notes

Binaries were compiled on RHEL5.5

The Dell PowerEdge R410 and

the Bull NovaScale R430 F2 models are electronically equivalent.

The results have been measured on a Dell PowerEdge R410 model.

## 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

```



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 215

PowerEdge R410 (Intel Xeon E5649, 2.53 GHz)

SPECfp\_rate\_base2006 = 210

CPU2006 license: 55

Test date: Apr-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Jan-2011

## Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:

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

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

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  
 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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 215

PowerEdge R410 (Intel Xeon E5649, 2.53 GHz)

SPECfp\_rate\_base2006 = 210

CPU2006 license: 55

Test date: Apr-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Jan-2011

## Peak Portability Flags (Continued)

470.lbm: -DSPEC\_CPU\_LP64

481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX

## 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

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3  
-ansi-alias -opt-prefetch -static -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

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

447.dealII: -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

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static

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: -xSSE4.2 -ipo -O3 -no-prec-div  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp\_rate2006 = 215

PowerEdge R410 (Intel Xeon E5649, 2.53 GHz)

SPECfp\_rate\_base2006 = 210

CPU2006 license: 55

Test date: Apr-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Jan-2011

## Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

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) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch  
-static -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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-ic12.0-linux64-revB.html>  
<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>  
<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.  
Report generated on Wed Jul 23 23:57:04 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 2 August 2011.