



# SPEC® CFP2006 Result

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## Bull SAS

BL265  
(Intel Xeon E5540, 2.53 GHz)

SPECfp®\_rate2006 = 167

SPECfp\_rate\_base2006 = 162

CPU2006 license: 20

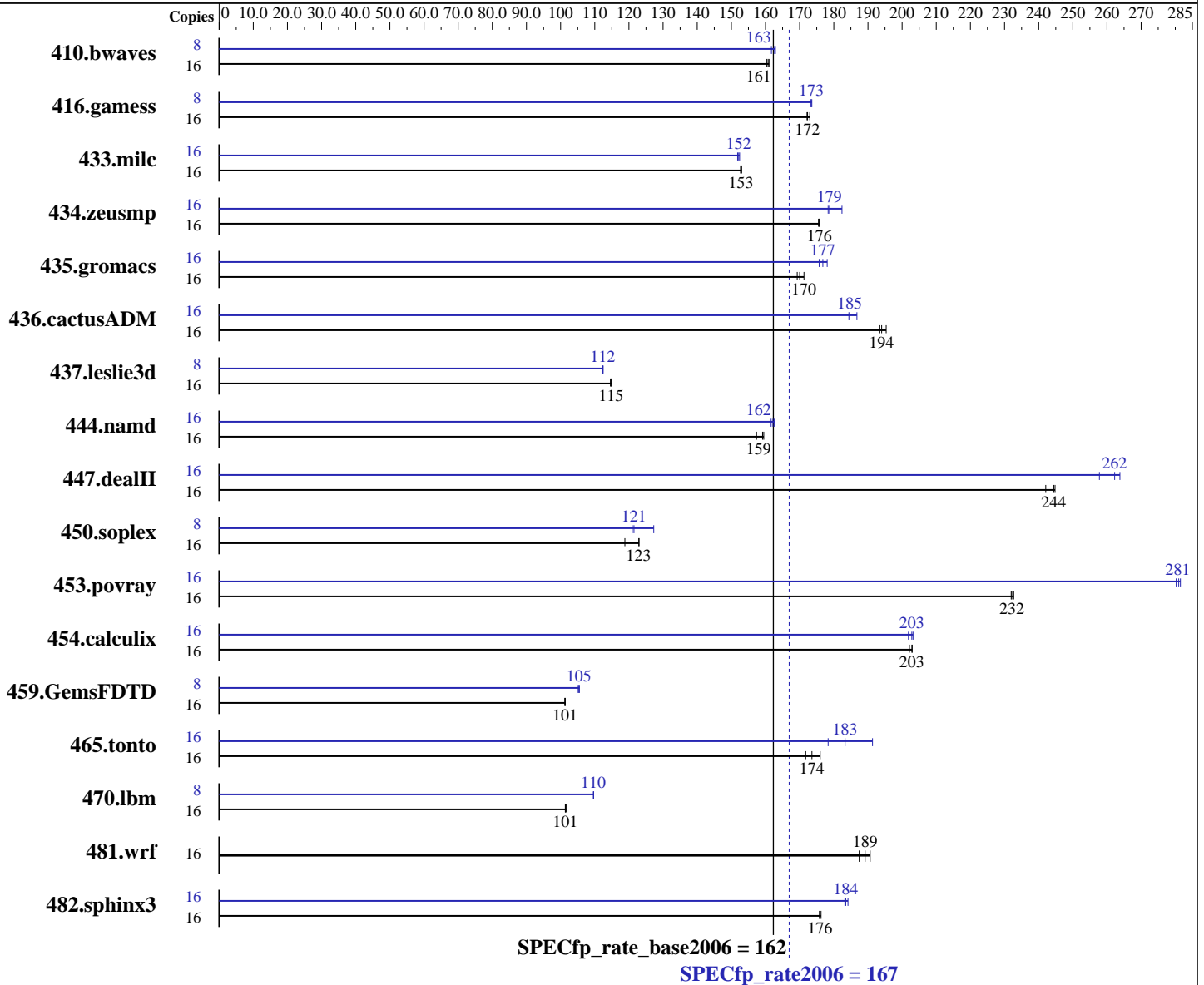
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Jan-2010

Hardware Availability: May-2009

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon E5540  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2533  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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

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### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) SP2, SP2 with patch Linux kernel 20090119, Kernel 2.6.16.60-0.34-smp  
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l\_cproc\_p\_11.0.080, l\_cprof\_p\_11.0.080  
 Auto Parallel: No  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)

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L3 Cache: 8 MB I+D on chip per chip  
Other Cache: None  
Memory: 24 GB (6 x 4 GB PC3-10600R, 2 Rank, CL9-9-9, ECC, running at 1066 MHz)  
Disk Subsystem: 1 x 73 GB SAS, 10000 RPM  
Other Hardware: None

Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1356	160	1350	161	<b>1353</b>	<b>161</b>	8	672	162	667	163	<b>668</b>	<b>163</b>
416.gamess	16	1811	173	<b>1818</b>	<b>172</b>	1820	172	8	902	174	904	173	<b>903</b>	<b>173</b>
433.milc	16	962	153	<b>961</b>	<b>153</b>	960	153	16	967	152	964	152	<b>965</b>	<b>152</b>
434.zeusmp	16	<b>828</b>	<b>176</b>	828	176	830	176	16	798	182	816	178	<b>815</b>	<b>179</b>
435.gromacs	16	<b>672</b>	<b>170</b>	667	171	675	169	16	<b>646</b>	<b>177</b>	642	178	650	176
436.cactusADM	16	988	193	<b>985</b>	<b>194</b>	979	195	16	<b>1035</b>	<b>185</b>	1037	184	1024	187
437.leslie3d	16	<b>1311</b>	<b>115</b>	1309	115	1313	115	8	670	112	669	112	<b>669</b>	<b>112</b>
444.namd	16	<b>806</b>	<b>159</b>	805	159	815	157	16	789	163	<b>791</b>	<b>162</b>	794	162
447.dealII	16	<b>749</b>	<b>244</b>	756	242	748	245	16	694	264	<b>698</b>	<b>262</b>	710	258
450.soplex	16	1123	119	1085	123	<b>1086</b>	<b>123</b>	8	551	121	<b>549</b>	<b>121</b>	524	127
453.povray	16	366	233	<b>367</b>	<b>232</b>	367	232	16	304	280	<b>303</b>	<b>281</b>	302	282
454.calculix	16	<b>651</b>	<b>203</b>	650	203	653	202	16	650	203	<b>651</b>	<b>203</b>	654	202
459.GemsFDTD	16	<b>1676</b>	<b>101</b>	1677	101	1675	101	8	805	106	<b>806</b>	<b>105</b>	807	105
465.tonto	16	917	172	894	176	<b>907</b>	<b>174</b>	16	<b>859</b>	<b>183</b>	883	178	823	191
470.lbm	16	2163	102	2169	101	<b>2168</b>	<b>101</b>	8	1002	110	<b>1003</b>	<b>110</b>	1003	110
481.wrf	16	<b>945</b>	<b>189</b>	937	191	953	187	16	<b>945</b>	<b>189</b>	937	191	953	187
482.sphinx3	16	1774	176	<b>1773</b>	<b>176</b>	1769	176	16	<b>1699</b>	<b>184</b>	1693	184	1702	183

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

## Base Compiler Invocation

C benchmarks:  
icc

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## Base Compiler Invocation (Continued)

C++ benchmarks:  
icpc

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
icc ifort

## 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

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:  
-xSSE4.2 -ipo -O3 -no-prec-div -static



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## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc

450.soplex: icpc -m32

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: ifort -m32

Benchmarks using both Fortran and C:

icc ifort

## 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  
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

## 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) -static(pass 2) -prof-use(pass 2)  
-fno-alias

470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
-auto-ilp32

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## Peak Optimization Flags (Continued)

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

### C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(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) -static(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias -scalar-rep-

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll4 -ansi-alias

### Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll2 -Ob0 -ansi-alias -scalar-rep-

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

437.leslie3d: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-opt-malloc-options=3 -opt-prefetch

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll2 -Ob0 -opt-prefetch

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll4 -auto

### 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) -static(pass 2) -prof-use(pass 2)  
-opt-prefetch -auto-ilp32

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## Peak Optimization Flags (Continued)

436.cactusADM: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll2 -opt-prefetch -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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-ic11.0-fp-linux64-revA.20100202.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20100202.xml>

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

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