



# SPEC<sup>®</sup> CFP2006 Result

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## Bull SAS

SPECfp<sup>®</sup>\_rate2006 = 255

NovaScale T860 F2 (Intel Xeon X5680, 3.33 GHz)

SPECfp\_rate\_base2006 = 247

CPU2006 license: 20

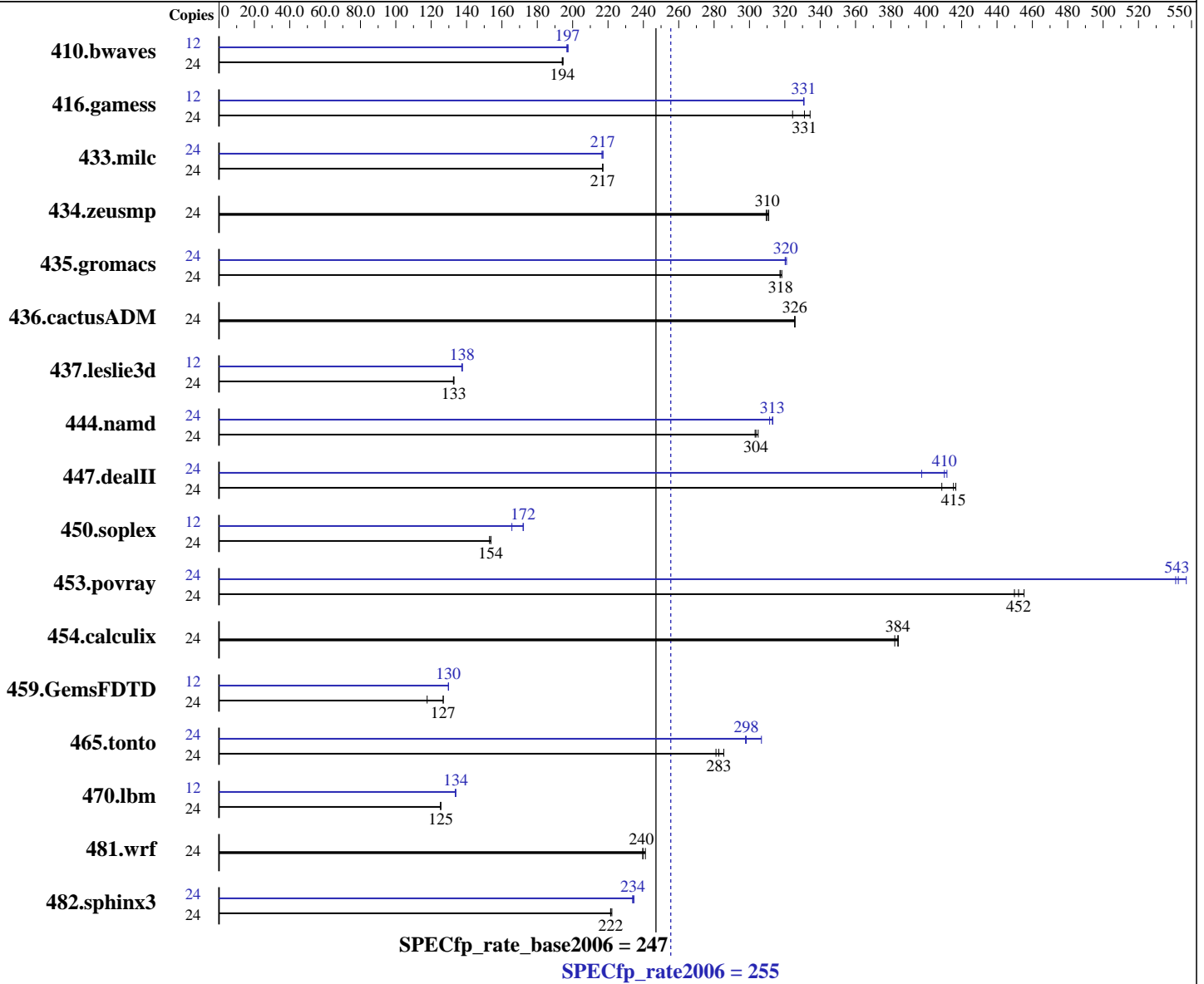
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Feb-2010

Hardware Availability: Mar-2010

Software Availability: Dec-2009



### Hardware

CPU Name: Intel Xeon X5680  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 3333  
 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

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### Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64), Kernel 2.6.27.19-5-smp  
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l\_cproc\_p\_11.1.064, l\_cprof\_p\_11.1.064  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)

Continued on next page



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L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 24 GB (6 x 4 GB DDR3-1333 DR RDIMM)  
Disk Subsystem: 2 x 300 GB 10000 RPM SAS  
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	24	<b><u>1679</u></b>	<b><u>194</u></b>	1676	195	1680	194	12	829	197	826	197	<b><u>827</u></b>	<b><u>197</u></b>
416.gamess	24	1406	334	1449	324	<b><u>1419</u></b>	<b><u>331</u></b>	12	711	331	710	331	<b><u>711</u></b>	<b><u>331</u></b>
433.milc	24	1015	217	1015	217	<b><u>1015</u></b>	<b><u>217</u></b>	24	<b><u>1015</u></b>	<b><u>217</u></b>	1017	217	1015	217
434.zeusmp	24	702	311	<b><u>704</u></b>	<b><u>310</u></b>	706	309	24	702	311	<b><u>704</u></b>	<b><u>310</u></b>	706	309
435.gromacs	24	<b><u>540</u></b>	<b><u>318</u></b>	538	318	540	317	24	<b><u>535</u></b>	<b><u>320</u></b>	534	321	535	320
436.cactusADM	24	<b><u>881</u></b>	<b><u>326</u></b>	881	326	880	326	24	<b><u>881</u></b>	<b><u>326</u></b>	881	326	880	326
437.leslie3d	24	1702	133	1698	133	<b><u>1699</u></b>	<b><u>133</u></b>	12	819	138	822	137	<b><u>820</u></b>	<b><u>138</u></b>
444.namd	24	<b><u>634</u></b>	<b><u>304</u></b>	635	303	631	305	24	618	311	615	313	<b><u>615</u></b>	<b><u>313</u></b>
447.dealII	24	659	417	672	409	<b><u>661</u></b>	<b><u>415</u></b>	24	667	412	691	397	<b><u>669</u></b>	<b><u>410</u></b>
450.soplex	24	1309	153	1302	154	<b><u>1302</u></b>	<b><u>154</u></b>	12	604	166	581	172	<b><u>582</u></b>	<b><u>172</u></b>
453.povray	24	284	450	<b><u>282</u></b>	<b><u>452</u></b>	280	455	24	<b><u>235</u></b>	<b><u>543</u></b>	233	547	236	541
454.calculix	24	515	384	518	382	<b><u>516</u></b>	<b><u>384</u></b>	24	515	384	518	382	<b><u>516</u></b>	<b><u>384</u></b>
459.GemsFDTD	24	2163	118	2008	127	<b><u>2009</u></b>	<b><u>127</u></b>	12	981	130	981	130	<b><u>981</u></b>	<b><u>130</u></b>
465.tonto	24	827	286	<b><u>835</u></b>	<b><u>283</u></b>	840	281	24	<b><u>792</u></b>	<b><u>298</u></b>	770	307	793	298
470.lbm	24	<b><u>2629</u></b>	<b><u>125</u></b>	2629	125	2632	125	12	1231	134	<b><u>1231</u></b>	<b><u>134</u></b>	1234	134
481.wrf	24	1112	241	<b><u>1118</u></b>	<b><u>240</u></b>	1119	240	24	1112	241	<b><u>1118</u></b>	<b><u>240</u></b>	1119	240
482.sphinx3	24	2112	221	2105	222	<b><u>2111</u></b>	<b><u>222</u></b>	24	1993	235	<b><u>1998</u></b>	<b><u>234</u></b>	2000	234

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

## Platform Notes

BIOS Settings:  
Power Management = Maximum Performance (Default = Active Power Controller)  
Data Reuse = Disabled (Default = Enabled)



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## General Notes

The Dell PowerEdge T710 and the Bull NovaScale T860 F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge T710 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

## Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

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## Base Optimization Flags (Continued)

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

## 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`  
 470.lbm: `-DSPEC_CPU_LP64`  
 481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`



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## 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 -opt-prefetch

470.lbm: -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 -ansi-alias -auto-ilp32

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.dealIII: -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: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static

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

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 -inline-calloc -opt-malloc-options=3

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## Peak Optimization Flags (Continued)

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

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

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-ic11.1-linux64-revE.20100330.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.xml>

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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 07:28:11 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 27 April 2010.