



# SPEC® CFP2006 Result

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## Bull SAS

SPECfp®2006 = 49.2

NovaScale T840 F2 (Intel Xeon X5677, 3.46 GHz)

SPECfp\_base2006 = 45.6

CPU2006 license: 20

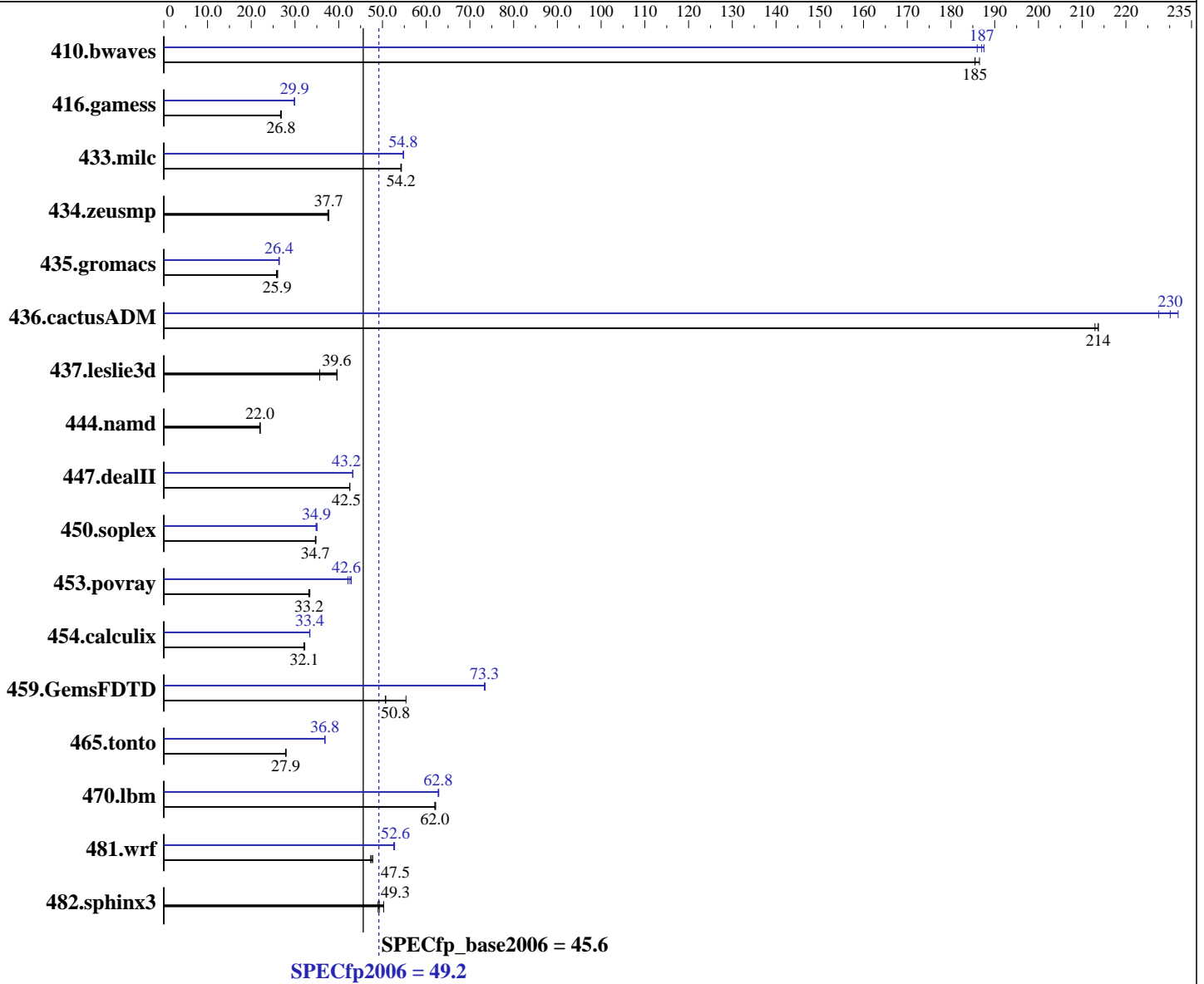
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: May-2010

Hardware Availability: Mar-2010

Software Availability: Dec-2009



### Hardware

CPU Name: Intel Xeon X5677  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz  
 CPU MHz: 3467  
 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 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: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)

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L3 Cache: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 x 4 GB DDR3-1333 DR RDIMM, CL9, ECC)  
 Disk Subsystem: 1 x 146 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	73.3	185	<b><u>73.3</u></b>	<b><u>185</u></b>	72.9	187	<b><u>72.7</u></b>	<b><u>187</u></b>	73.1	186	72.5	188
416.gamess	<b><u>730</u></b>	<b><u>26.8</u></b>	733	26.7	729	26.8	656	29.8	655	29.9	<b><u>655</u></b>	<b><u>29.9</u></b>
433.milc	169	54.3	<b><u>169</u></b>	<b><u>54.2</u></b>	169	54.2	168	54.8	167	54.8	<b><u>168</u></b>	<b><u>54.8</u></b>
434.zeusmp	241	37.7	<b><u>241</u></b>	<b><u>37.7</u></b>	243	37.5	241	37.7	<b><u>241</u></b>	<b><u>37.7</u></b>	243	37.5
435.gromacs	277	25.8	274	26.0	<b><u>275</u></b>	<b><u>25.9</u></b>	271	26.4	<b><u>271</u></b>	<b><u>26.4</u></b>	271	26.3
436.cactusADM	56.1	213	<b><u>55.9</u></b>	<b><u>214</u></b>	55.9	214	<b><u>51.9</u></b>	<b><u>230</u></b>	51.5	232	52.5	228
437.leslie3d	264	35.6	<b><u>238</u></b>	<b><u>39.6</u></b>	237	39.6	264	35.6	<b><u>238</u></b>	<b><u>39.6</u></b>	237	39.6
444.namd	364	22.0	<b><u>364</u></b>	<b><u>22.0</u></b>	364	22.0	364	22.0	<b><u>364</u></b>	<b><u>22.0</u></b>	364	22.0
447.dealII	<b><u>269</u></b>	<b><u>42.5</u></b>	269	42.5	269	42.5	265	43.2	265	43.2	<b><u>265</u></b>	<b><u>43.2</u></b>
450.soplex	241	34.7	<b><u>240</u></b>	<b><u>34.7</u></b>	240	34.8	238	35.0	<b><u>239</u></b>	<b><u>34.9</u></b>	240	34.8
453.povray	159	33.4	160	33.2	<b><u>160</u></b>	<b><u>33.2</u></b>	<b><u>125</u></b>	<b><u>42.6</u></b>	126	42.1	124	42.9
454.calculix	256	32.2	258	32.0	<b><u>257</u></b>	<b><u>32.1</u></b>	247	33.4	<b><u>247</u></b>	<b><u>33.4</u></b>	247	33.3
459.GemsFDTD	<b><u>209</u></b>	<b><u>50.8</u></b>	192	55.4	209	50.7	<b><u>145</u></b>	<b><u>73.3</u></b>	145	73.3	144	73.5
465.tonto	353	27.9	<b><u>353</u></b>	<b><u>27.9</u></b>	352	28.0	<b><u>267</u></b>	<b><u>36.8</u></b>	267	36.9	267	36.8
470.lbm	221	62.2	<b><u>222</u></b>	<b><u>62.0</u></b>	222	62.0	219	62.8	<b><u>219</u></b>	<b><u>62.8</u></b>	219	62.9
481.wrf	234	47.8	236	47.3	<b><u>235</u></b>	<b><u>47.5</u></b>	<b><u>212</u></b>	<b><u>52.6</u></b>	212	52.8	212	52.6
482.sphinx3	398	49.0	388	50.3	<b><u>396</u></b>	<b><u>49.3</u></b>	398	49.0	388	50.3	<b><u>396</u></b>	<b><u>49.3</u></b>

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

## 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)

## General Notes

OMP\_NUM\_THREADS set to number of cores  
 KMP\_AFFINITY set to granularity=fine,scatter  
 KMP\_STACKSIZE set to 200M

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## General Notes (Continued)

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502  
The Dell PowerEdge T610 and  
the Bull NovaScale T840 F2 models are electronically equivalent.  
The results have been measured on a Dell PowerEdge T610 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 -parallel -opt-prefetch

C++ benchmarks:

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

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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`

## 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) -static(pass 2) -prof-use(pass 2)  
-ansi-alias`

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)  
-parallel -ansi-alias -auto-ilp32`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `basepeak = yes`

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- -auto-ilp32`

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## Peak Optimization Flags (Continued)

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 -auto-ilp32

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  
-parallel

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: basepeak = yes

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 -parallel

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)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

### 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: -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 -parallel -auto-ilp32

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

481.wrf: Same as 454.calculix

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>



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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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