



SPEC® CFP2006 Result

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Bull SAS

NovaScale R460 F2
(Intel Xeon X5570, 2.93 GHz)

SPECfp®2006 = 43.6

SPECfp_base2006 = 40.8

CPU2006 license: 20

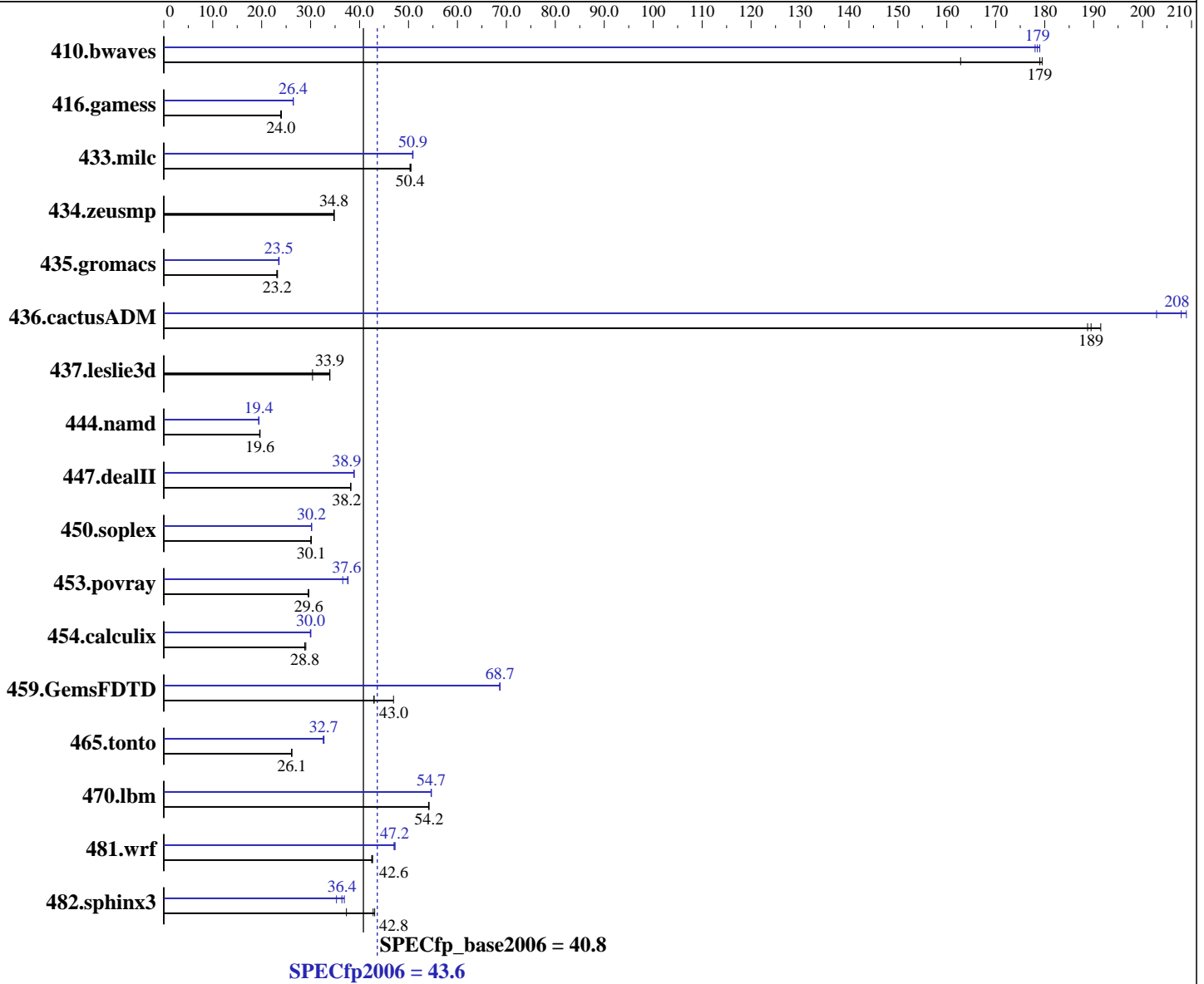
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Mar-2010

Hardware Availability: Jan-2010

Software Availability: Dec-2009



Hardware

CPU Name: Intel Xeon X5570
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 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

Continued on next page

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 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: ReiserFS

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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)
Disk Subsystem: 1 x 73 GB SAS, 10000 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	83.5	163	<u>75.9</u>	<u>179</u>	75.7	179	76.3	178	<u>76.1</u>	<u>179</u>	75.9	179
416.gamess	815	24.0	<u>817</u>	<u>24.0</u>	819	23.9	<u>741</u>	<u>26.4</u>	741	26.4	739	26.5
433.milc	182	50.5	182	50.3	<u>182</u>	<u>50.4</u>	180	50.9	<u>180</u>	<u>50.9</u>	181	50.8
434.zeusmp	261	34.8	<u>262</u>	<u>34.8</u>	262	34.8	261	34.8	<u>262</u>	<u>34.8</u>	262	34.8
435.gromacs	307	23.2	<u>308</u>	<u>23.2</u>	309	23.1	<u>304</u>	<u>23.5</u>	304	23.5	303	23.6
436.cactusADM	62.4	191	63.3	189	<u>63.1</u>	<u>189</u>	58.9	203	57.2	209	<u>57.5</u>	<u>208</u>
437.leslie3d	<u>277</u>	<u>33.9</u>	309	30.4	277	33.9	<u>277</u>	<u>33.9</u>	309	30.4	277	33.9
444.namd	410	19.6	<u>408</u>	<u>19.6</u>	408	19.7	412	19.5	<u>413</u>	<u>19.4</u>	414	19.4
447.dealII	300	38.2	<u>300</u>	<u>38.2</u>	299	38.2	<u>294</u>	<u>38.9</u>	294	38.9	294	38.9
450.soplex	277	30.2	<u>277</u>	<u>30.1</u>	278	30.0	276	30.2	276	30.2	<u>276</u>	<u>30.2</u>
453.povray	180	29.5	180	29.6	<u>180</u>	<u>29.6</u>	141	37.7	<u>142</u>	<u>37.6</u>	145	36.6
454.calculix	286	28.8	284	29.0	<u>286</u>	<u>28.8</u>	<u>275</u>	<u>30.0</u>	276	29.9	275	30.0
459.GemsFDTD	226	46.9	<u>247</u>	<u>43.0</u>	247	42.9	<u>154</u>	<u>68.7</u>	154	68.7	155	68.6
465.tonto	376	26.2	<u>376</u>	<u>26.1</u>	377	26.1	<u>301</u>	<u>32.7</u>	301	32.7	302	32.6
470.lbm	254	54.1	254	54.2	<u>254</u>	<u>54.2</u>	252	54.6	251	54.7	<u>251</u>	<u>54.7</u>
481.wrf	<u>262</u>	<u>42.6</u>	262	42.7	263	42.5	<u>237</u>	<u>47.2</u>	236	47.2	237	47.0
482.sphinx3	452	43.1	<u>456</u>	<u>42.8</u>	522	37.3	528	36.9	552	35.3	<u>536</u>	<u>36.4</u>

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

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
The Dell PowerEdge R710 and
the Bull NovaScale R460 F2 models are electronically equivalent.
The results have been measured on a Bull NovaScale R460 F2 model.



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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

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



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

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

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Peak Optimization Flags (Continued)

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.20100316.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.20100316.xml>



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