



SPEC[®] CFP2006 Result

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Bull SAS

SPECfp[®]2006 = 38.3

NovaScale R450 F2 (Intel Xeon E5630, 2.53 GHz)

SPECfp_base2006 = 35.7

CPU2006 license: 20

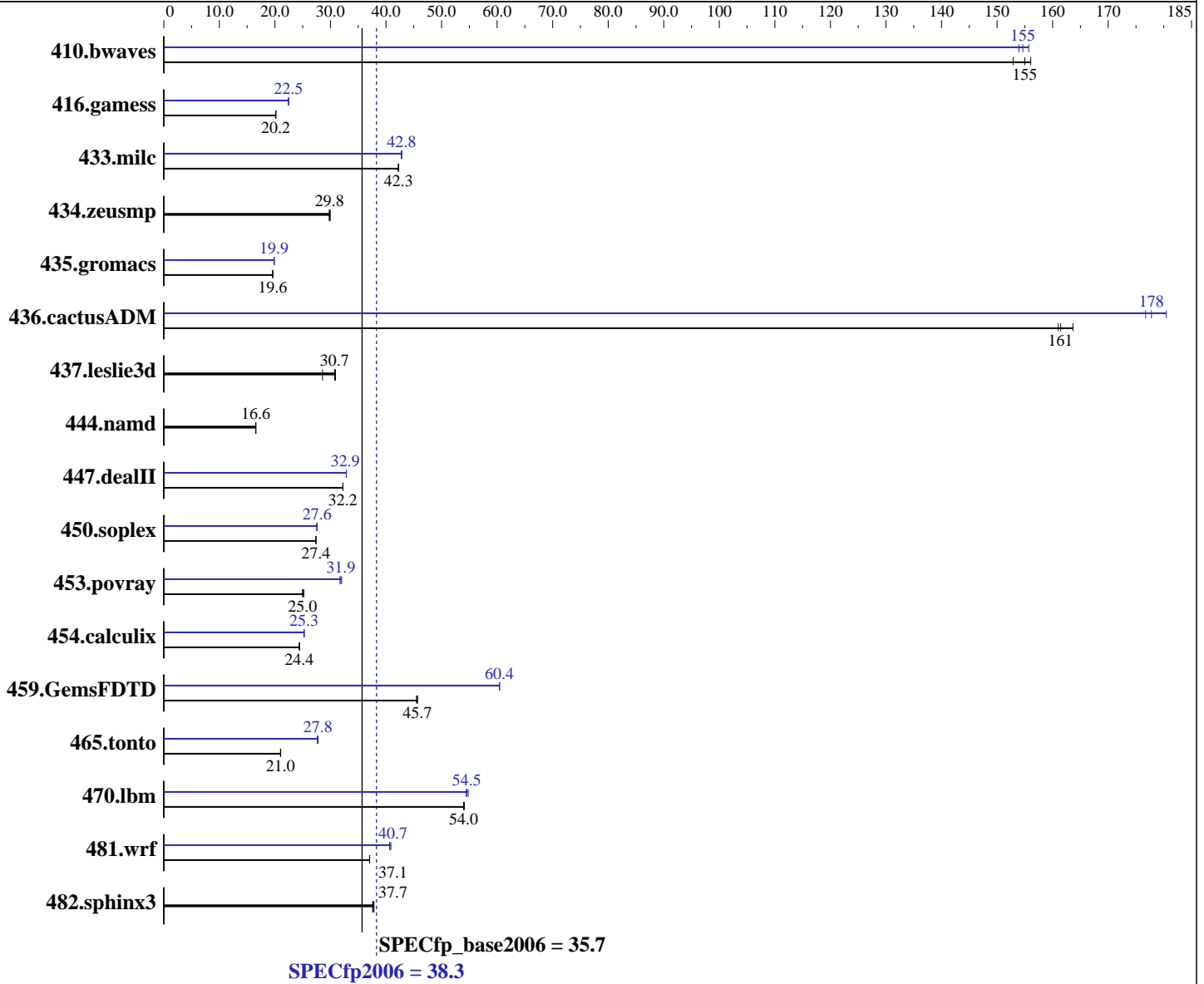
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Jun-2010

Hardware Availability: Mar-2010

Software Availability: Dec-2009



Hardware

CPU Name: Intel Xeon E5630
 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 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: 24 GB (6 x 4 GB 2Rx4 PC3L-10600R, ECC, running at 1066 MHz and CL8)
 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	88.9	153	<u>87.7</u>	<u>155</u>	87.1	156	87.3	156	<u>87.9</u>	<u>155</u>	88.3	154
416.gamess	972	20.1	<u>971</u>	<u>20.2</u>	971	20.2	<u>872</u>	<u>22.5</u>	873	22.4	871	22.5
433.milc	218	42.2	<u>217</u>	<u>42.3</u>	217	42.3	<u>215</u>	<u>42.8</u>	214	42.8	215	42.7
434.zeusmp	<u>305</u>	<u>29.8</u>	306	29.8	304	30.0	<u>305</u>	<u>29.8</u>	306	29.8	304	30.0
435.gromacs	364	19.6	364	19.6	<u>364</u>	<u>19.6</u>	360	19.8	<u>360</u>	<u>19.9</u>	359	19.9
436.cactusADM	73.0	164	<u>74.0</u>	<u>161</u>	74.2	161	67.6	177	<u>67.2</u>	<u>178</u>	66.2	180
437.leslie3d	304	30.9	329	28.6	<u>306</u>	<u>30.7</u>	304	30.9	329	28.6	<u>306</u>	<u>30.7</u>
444.namd	<u>484</u>	<u>16.6</u>	484	16.6	484	16.6	<u>484</u>	<u>16.6</u>	484	16.6	484	16.6
447.dealII	355	32.2	<u>355</u>	<u>32.2</u>	355	32.3	348	32.9	<u>348</u>	<u>32.9</u>	348	32.9
450.soplex	<u>305</u>	<u>27.4</u>	305	27.4	304	27.4	303	27.5	302	27.6	<u>302</u>	<u>27.6</u>
453.povray	213	25.0	<u>213</u>	<u>25.0</u>	211	25.2	<u>167</u>	<u>31.9</u>	166	32.0	168	31.7
454.calculix	337	24.5	<u>338</u>	<u>24.4</u>	338	24.4	327	25.3	<u>327</u>	<u>25.3</u>	327	25.3
459.GemsFDTD	233	45.5	<u>232</u>	<u>45.7</u>	232	45.7	176	60.4	<u>176</u>	<u>60.4</u>	176	60.4
465.tonto	468	21.0	<u>468</u>	<u>21.0</u>	468	21.0	354	27.8	<u>354</u>	<u>27.8</u>	356	27.6
470.lbm	<u>254</u>	<u>54.0</u>	254	54.1	254	54.0	251	54.8	<u>252</u>	<u>54.5</u>	252	54.4
481.wrf	302	37.0	<u>301</u>	<u>37.1</u>	301	37.1	273	40.9	275	40.6	<u>274</u>	<u>40.7</u>
482.sphinx3	<u>517</u>	<u>37.7</u>	515	37.8	519	37.6	<u>517</u>	<u>37.7</u>	515	37.8	519	37.6

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)



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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 R510 and
the Bull NovaScale R450 F2 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R510 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.lelie3d: -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

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Base Optimization Flags (Continued)

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`

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:

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Peak Optimization Flags (Continued)

444.namd: basepeak = yes

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

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



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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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