



SPEC® CFP2006 Result

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Dell Inc.

SPECfp®2006 = 49.3

PowerEdge R610 (Intel Xeon X5677, 3.46 GHz)

SPECfp_base2006 = 45.7

CPU2006 license: 55

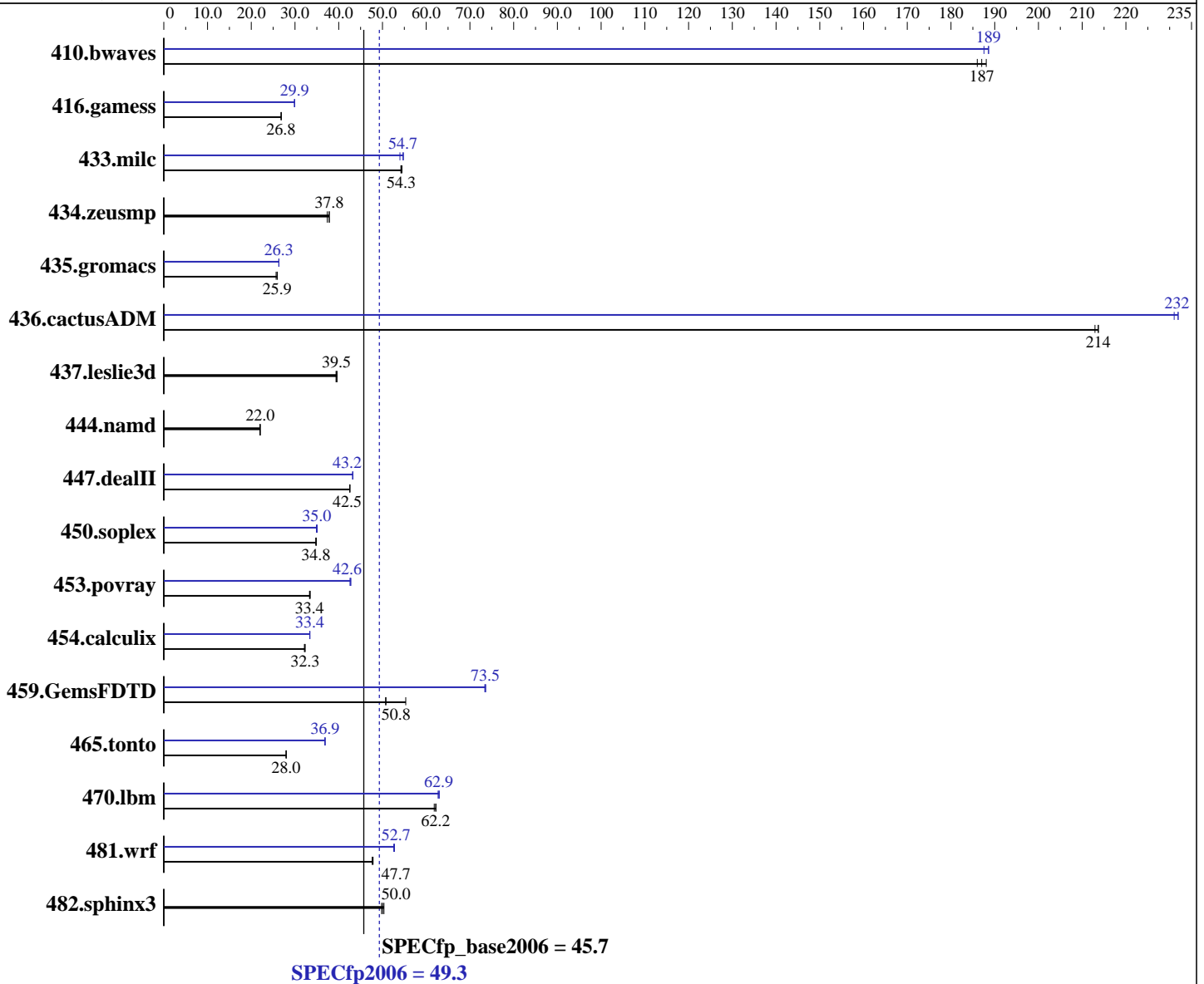
Test date: May-2010

Test sponsor: Dell Inc.

Hardware Availability: Mar-2010

Tested by: Dell Inc.

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	73.1	186	72.3	188	<u>72.7</u>	<u>187</u>	<u>72.1</u>	<u>189</u>	72.5	188	72.1	189
416.gamess	<u>730</u>	<u>26.8</u>	728	26.9	730	26.8	655	29.9	655	29.9	<u>655</u>	<u>29.9</u>
433.milc	<u>169</u>	<u>54.3</u>	169	54.2	169	54.5	168	54.8	<u>168</u>	<u>54.7</u>	170	54.0
434.zeusmp	240	37.8	243	37.4	<u>241</u>	<u>37.8</u>	240	37.8	243	37.4	<u>241</u>	<u>37.8</u>
435.gromacs	<u>276</u>	<u>25.9</u>	278	25.7	275	26.0	271	26.3	<u>271</u>	<u>26.3</u>	271	26.3
436.cactusADM	55.9	214	<u>55.9</u>	<u>214</u>	56.1	213	<u>51.5</u>	<u>232</u>	51.7	231	51.5	232
437.leslie3d	237	39.6	239	39.4	<u>238</u>	<u>39.5</u>	237	39.6	239	39.4	<u>238</u>	<u>39.5</u>
444.namd	<u>364</u>	<u>22.0</u>	364	22.0	364	22.0	<u>364</u>	<u>22.0</u>	364	22.0	364	22.0
447.dealII	269	42.6	269	42.5	<u>269</u>	<u>42.5</u>	<u>265</u>	<u>43.2</u>	265	43.2	265	43.2
450.soplex	239	34.9	240	34.8	<u>240</u>	<u>34.8</u>	239	34.9	<u>238</u>	<u>35.0</u>	238	35.1
453.povray	159	33.5	160	33.3	<u>159</u>	<u>33.4</u>	125	42.6	<u>125</u>	<u>42.6</u>	124	42.8
454.calculix	255	32.3	257	32.1	<u>255</u>	<u>32.3</u>	247	33.4	<u>247</u>	<u>33.4</u>	247	33.4
459.GemsFDTD	<u>209</u>	<u>50.8</u>	209	50.7	192	55.3	145	73.4	144	73.6	<u>144</u>	<u>73.5</u>
465.tonto	<u>352</u>	<u>28.0</u>	352	27.9	351	28.0	267	36.9	267	36.9	<u>267</u>	<u>36.9</u>
470.lbm	<u>221</u>	<u>62.2</u>	222	61.8	221	62.2	218	63.0	<u>218</u>	<u>62.9</u>	219	62.7
481.wrf	<u>234</u>	<u>47.7</u>	234	47.7	233	47.9	<u>212</u>	<u>52.7</u>	212	52.6	212	52.7
482.sphinx3	391	49.8	<u>390</u>	<u>50.0</u>	387	50.3	391	49.8	<u>390</u>	<u>50.0</u>	387	50.3

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 R610 and
the Bull NovaScale R440 F2 models are electronically equivalent.
The results have been measured on a Dell PowerEdge R610 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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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 08:48:00 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 June 2010.