



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]2006 = 37.9

PowerEdge R910 (Intel Xeon L7555, 1.87 GHz)

SPECfp_base2006 = 35.0

CPU2006 license: 55

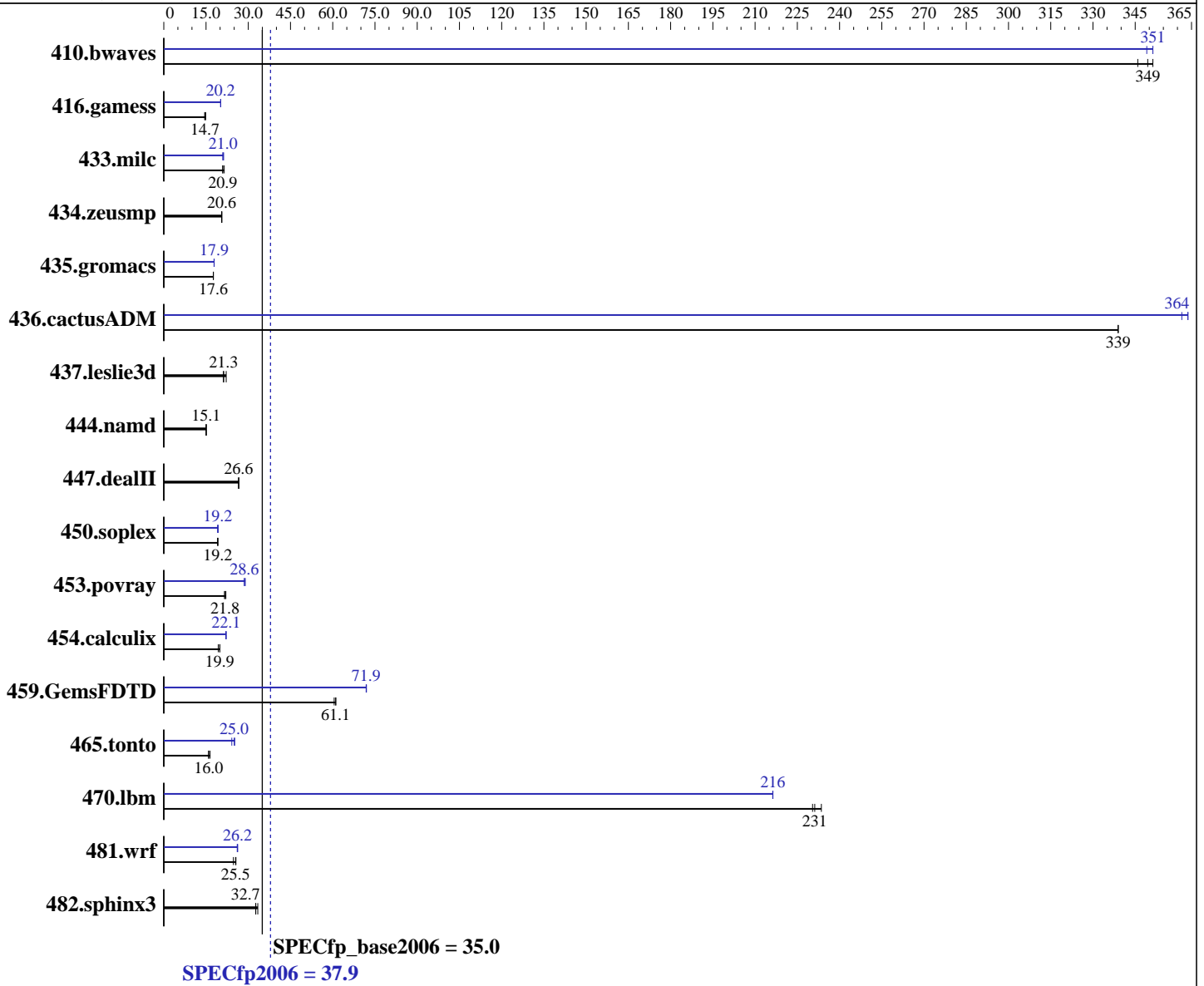
Test date: May-2010

Test sponsor: Dell Inc.

Hardware Availability: Mar-2010

Tested by: Dell Inc.

Software Availability: Dec-2009



Hardware

CPU Name: Intel Xeon L7555
 CPU Characteristics: Intel Turbo Boost Technology up to 2.53 GHz
 CPU MHz: 1867
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 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-default
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cprof_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: 24 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (64 x 4 GB DDR3-1066 QR RDIMM, CL7, ECC, downclocked to 978 MHz)
Disk Subsystem: 1 x 300 GB 10000 RPM SAS 6Gb
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	39.3	346	<u>38.9</u>	<u>349</u>	38.7	351	38.7	351	<u>38.7</u>	<u>351</u>	38.9	349
416.gamess	1316	14.9	<u>1331</u>	<u>14.7</u>	1349	14.5	968	20.2	971	20.2	<u>968</u>	<u>20.2</u>
433.milc	428	21.5	<u>438</u>	<u>20.9</u>	439	20.9	432	21.3	438	21.0	<u>436</u>	<u>21.0</u>
434.zeusmp	<u>443</u>	<u>20.6</u>	443	20.5	441	20.6	<u>443</u>	<u>20.6</u>	443	20.5	441	20.6
435.gromacs	406	17.6	406	17.6	<u>406</u>	<u>17.6</u>	399	17.9	<u>400</u>	<u>17.9</u>	400	17.8
436.cactusADM	<u>35.3</u>	<u>339</u>	35.3	339	35.3	339	32.9	364	<u>32.9</u>	<u>364</u>	33.1	362
437.leslie3d	<u>442</u>	<u>21.3</u>	444	21.2	424	22.2	<u>442</u>	<u>21.3</u>	444	21.2	424	22.2
444.namd	<u>533</u>	<u>15.1</u>	533	15.0	533	15.1	<u>533</u>	<u>15.1</u>	533	15.0	533	15.1
447.dealII	430	26.6	<u>430</u>	<u>26.6</u>	430	26.6	430	26.6	<u>430</u>	<u>26.6</u>	430	26.6
450.soplex	436	19.1	435	19.2	<u>435</u>	<u>19.2</u>	<u>435</u>	<u>19.2</u>	433	19.3	435	19.2
453.povray	<u>244</u>	<u>21.8</u>	241	22.0	247	21.5	184	28.9	<u>186</u>	<u>28.6</u>	186	28.6
454.calculix	<u>415</u>	<u>19.9</u>	415	19.9	427	19.3	373	22.1	<u>373</u>	<u>22.1</u>	374	22.1
459.GemsFDTD	174	61.1	<u>174</u>	<u>61.1</u>	175	60.5	<u>148</u>	<u>71.9</u>	148	71.9	147	72.0
465.tonto	<u>617</u>	<u>16.0</u>	598	16.4	620	15.9	407	24.2	391	25.2	<u>393</u>	<u>25.0</u>
470.lbm	59.6	230	58.8	234	<u>59.4</u>	<u>231</u>	63.5	216	63.5	216	<u>63.5</u>	<u>216</u>
481.wrf	<u>438</u>	<u>25.5</u>	436	25.6	452	24.7	426	26.2	<u>426</u>	<u>26.2</u>	428	26.1
482.sphinx3	<u>597</u>	<u>32.7</u>	584	33.4	597	32.6	<u>597</u>	<u>32.7</u>	584	33.4	597	32.6

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)
Memory Settings: Node Interleaving = Enabled (Default = Disabled)

General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
The Dell PowerEdge R910 and
the Bull NovaScale R480 F2 models are electronically equivalent.

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General Notes (Continued)

The results have been measured on a Dell PowerEdge R910 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

Fortran benchmarks:

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

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Base Optimization Flags (Continued)

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: `basepeak = yes`

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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