



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]_rate2006 = 515

PowerEdge R910 (Intel Xeon X7550, 2.00 GHz)

SPECfp_rate_base2006 = 503

CPU2006 license: 55

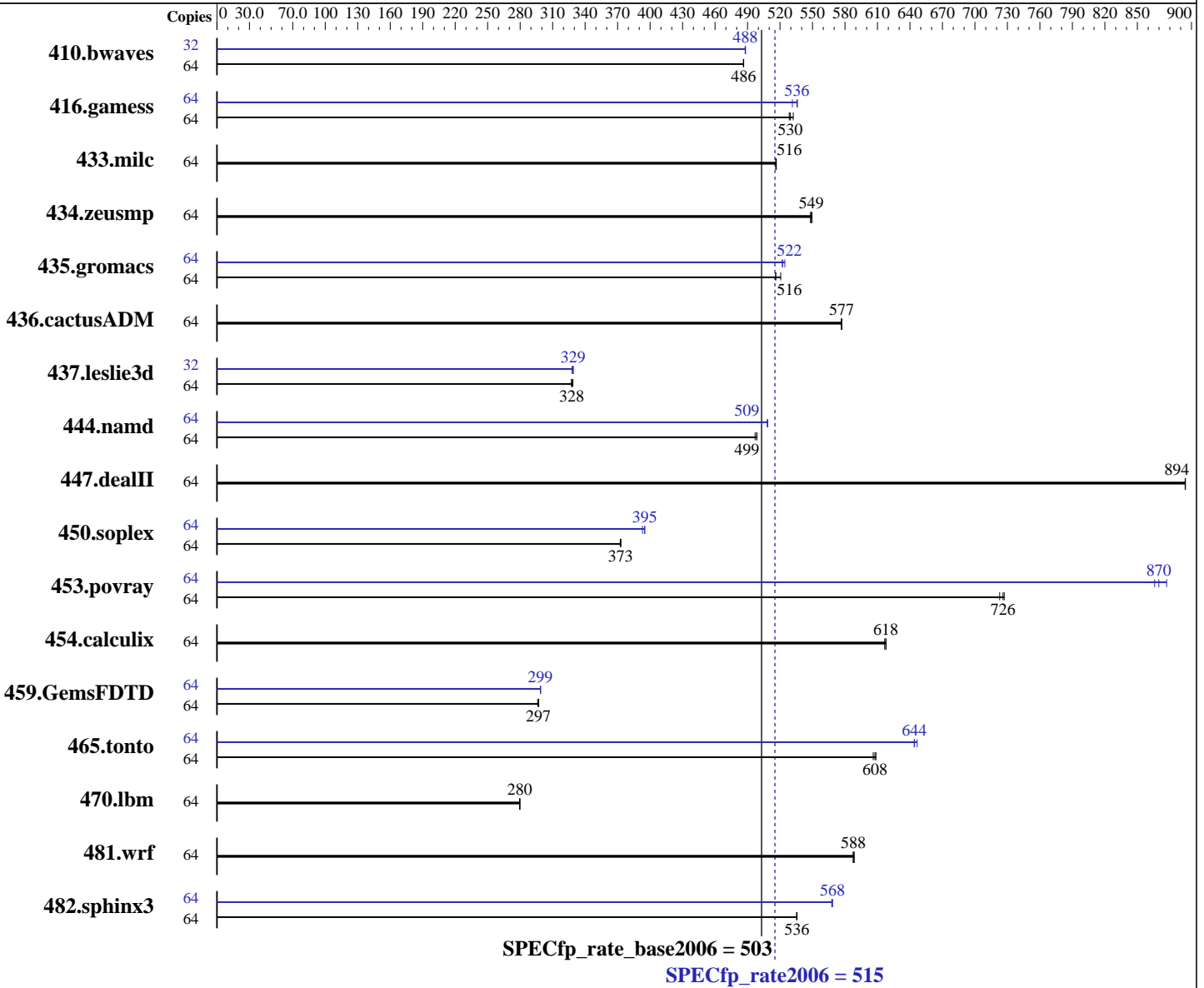
Test date: Mar-2010

Test sponsor: Dell Inc.

Hardware Availability: Mar-2010

Tested by: Dell Inc.

Software Availability: Dec-2009



Hardware

CPU Name: Intel Xeon X7550
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
 CPU MHz: 2000
 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: Red Hat Linux Enterprise Linux 5 (x86_64) Update 4 errata kernel (RHEL 5.4.z) kernel-2.6.18-164.9.1.el5.x86_64
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: I_cproc_p_11.1.064, I_cprof_p_11.1.064
 Auto Parallel: No
 File System: ext3

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L3 Cache: 18 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (64 x 4 GB DDR3-1067 QR RDIMM)
 Disk Subsystem: 1 x 300 GB 10000 RPM SAS 6Gb
 Other Hardware: None

System State: Run level 5 (multi-user mode, with display manager as well as console logins)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: Binutils 2.17.50.0.6-12.el5

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	64	1788	486	1789	486	1788	486	32	891	488	891	488	891	488
416.gamess	64	2371	528	2366	530	2354	532	64	2340	536	2358	531	2338	536
433.milc	64	1138	516	1138	516	1137	517	64	1138	516	1138	516	1137	517
434.zeusmp	64	1060	550	1063	548	1061	549	64	1060	550	1063	548	1061	549
435.gromacs	64	878	521	885	516	886	516	64	875	522	875	522	871	524
436.cactusADM	64	1326	577	1325	577	1326	577	64	1326	577	1325	577	1326	577
437.leslie3d	64	1830	329	1838	327	1836	328	32	917	328	914	329	915	329
444.namd	64	1033	497	1029	499	1030	499	64	1010	508	1009	509	1009	509
447.dealII	64	819	894	819	894	819	894	64	819	894	819	894	819	894
450.soplex	64	1433	372	1432	373	1431	373	64	1351	395	1358	393	1351	395
453.povray	64	468	727	469	726	471	723	64	388	877	391	870	393	866
454.calculix	64	855	618	856	617	854	618	64	855	618	856	617	854	618
459.GemsFDTD	64	2287	297	2285	297	2293	296	64	2274	299	2272	299	2273	299
465.tonto	64	1039	606	1036	608	1035	609	64	974	647	978	644	977	644
470.lbm	64	3143	280	3144	280	3145	280	64	3143	280	3144	280	3145	280
481.wrf	64	1217	588	1215	589	1216	588	64	1217	588	1215	589	1216	588
482.sphinx3	64	2330	535	2329	536	2328	536	64	2194	568	2195	568	2197	568

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

Submit Notes

The config file option 'submit' was used.
numactl was used to bind copies to the cores

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

Platform Notes

vm.zone_reclaim_mode = 1 in /etc/sysctl.conf file
BIOS Settings:
Power Management = Maximum Performance (Default = Active Power Controller)



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General Notes

The Dell PowerEdge R910 and the Bull NovaScale R480 F2 models are electronically equivalent. 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

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

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Base Optimization Flags (Continued)

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak 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
 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



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Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -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.deallI: 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

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

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

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

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

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

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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

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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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 06:13:50 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 31 March 2010.