



SPEC® CFP2006 Result

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Oracle Corporation

SPECfp®_rate2006 = 218

Sun Fire X2270 M2 (Intel Xeon E5649 2.53 GHz)

SPECfp_rate_base2006 = 212

CPU2006 license: 6

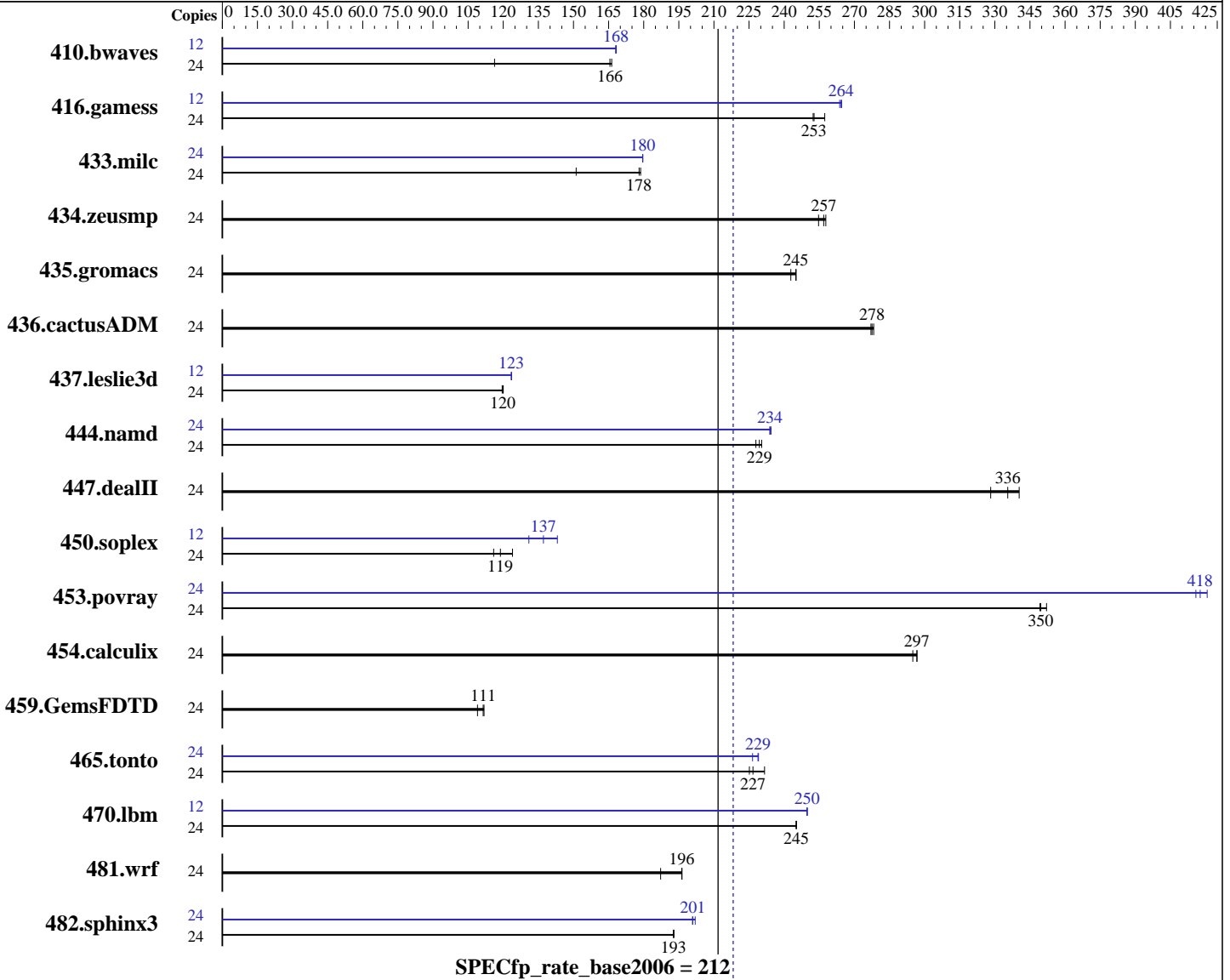
Test sponsor: Oracle Corporation

Tested by: Oracle Corporation

Test date: Feb-2011

Hardware Availability: Mar-2011

Software Availability: Nov-2010



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Hardware

CPU Name: Intel Xeon E5649
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz
 CPU MHz: 2533
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 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: Oracle Linux 5.5 kernel 2.6.18-194.el5
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 1 TB, SATA, 7200 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	2805	116	<u>1970</u>	<u>166</u>	1961	166	12	969	168	970	168	<u>970</u>	<u>168</u>
416.gamess	24	1826	257	<u>1859</u>	<u>253</u>	1862	252	12	<u>889</u>	<u>264</u>	891	264	888	265
433.milc	24	1458	151	<u>1238</u>	<u>178</u>	1233	179	24	<u>1227</u>	<u>180</u>	1227	180	1227	180
434.zeusmp	24	847	258	857	255	<u>850</u>	<u>257</u>	24	847	258	857	255	<u>850</u>	<u>257</u>
435.gromacs	24	<u>699</u>	<u>245</u>	706	243	699	245	24	<u>699</u>	<u>245</u>	706	243	699	245
436.cactusADM	24	<u>1033</u>	<u>278</u>	1031	278	1035	277	24	<u>1033</u>	<u>278</u>	1031	278	1035	277
437.leslie3d	24	1880	120	<u>1882</u>	<u>120</u>	1887	120	12	914	123	913	124	<u>913</u>	<u>123</u>
444.namd	24	835	230	<u>839</u>	<u>229</u>	844	228	24	821	234	<u>823</u>	<u>234</u>	823	234
447.dealII	24	837	328	<u>818</u>	<u>336</u>	807	340	24	837	328	<u>818</u>	<u>336</u>	807	340
450.soplex	24	1727	116	1615	124	<u>1685</u>	<u>119</u>	12	764	131	<u>730</u>	<u>137</u>	699	143
453.povray	24	366	349	<u>365</u>	<u>350</u>	363	352	24	307	416	<u>306</u>	<u>418</u>	303	421
454.calculix	24	667	297	671	295	<u>667</u>	<u>297</u>	24	667	297	671	295	<u>667</u>	<u>297</u>
459.GemsFDTD	24	2336	109	2278	112	<u>2285</u>	<u>111</u>	24	2336	109	2278	112	<u>2285</u>	<u>111</u>
465.tonto	24	1049	225	<u>1042</u>	<u>227</u>	1020	232	24	<u>1032</u>	<u>229</u>	1031	229	1043	226
470.lbm	24	<u>1345</u>	<u>245</u>	1345	245	1345	245	12	<u>660</u>	<u>250</u>	660	250	660	250
481.wrf	24	1432	187	1365	196	<u>1366</u>	<u>196</u>	24	1432	187	1365	196	<u>1366</u>	<u>196</u>
482.sphinx3	24	2424	193	<u>2427</u>	<u>193</u>	2427	193	24	<u>2328</u>	<u>201</u>	2329	201	2316	202

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
Hugepages was enabled with the following:
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 10800 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so



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Platform Notes

Load Default BIOS Settings and then change the following
Data Reuse Optimization Disabled

General Notes

Binaries were compiled on RHEL5.5 with Binutils binutils-2.17.50.0.6-14.el5

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 -ansi-alias

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Base Optimization Flags (Continued)

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

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.deallI: -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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
-ansi-alias -opt-prefetch -static -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
-inline-calloc -opt-malloc-options=3
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

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Peak Optimization Flags (Continued)

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.html>

http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.html

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.xml>

http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.20101027.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 16:25:27 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 3 March 2011.