



SPEC® CFP2006 Result

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SGI

SPECfp®_rate2006 = 272

SGI Altix ICE 8400EX (Intel Xeon X5690, 3.46 GHz)

SPECfp_rate_base2006 = 263

CPU2006 license: 4

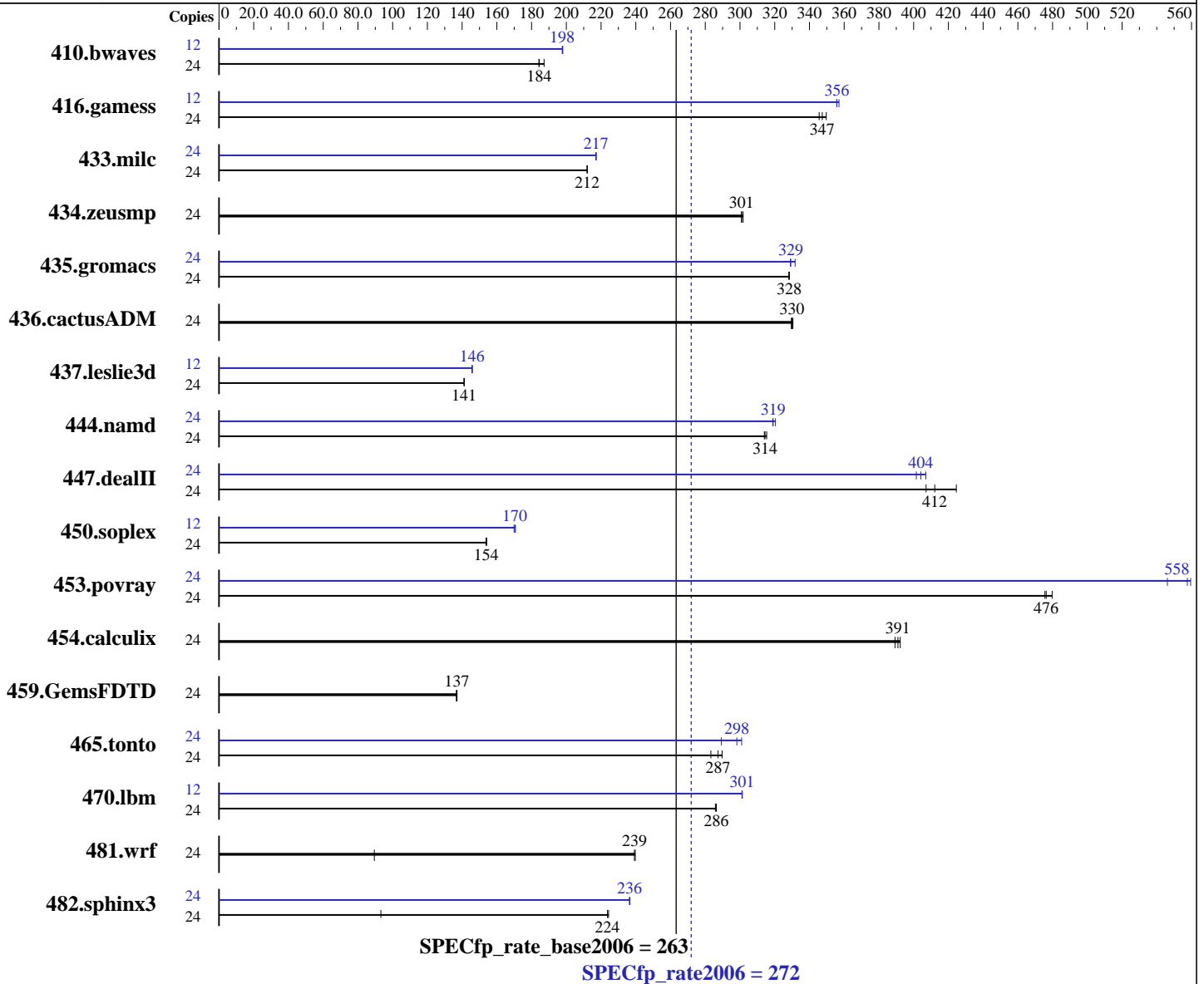
Test sponsor: SGI

Tested by: SGI

Test date: Mar-2011

Hardware Availability: Feb-2011

Software Availability: Dec-2010



Hardware

CPU Name: Intel Xeon X5690
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz
 CPU MHz: 3467
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.13-0.4-default
 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: NFSv3 IPoIB
 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: 8.8 TB RAID 5
 60 x 146 GB SAS (Seagate Cheetah 15k.5)
 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	1742	187	<u>1768</u>	<u>184</u>	1771	184	12	824	198	<u>825</u>	<u>198</u>	825	198
416.gamess	24	<u>1353</u>	<u>347</u>	1344	350	1360	346	12	658	357	661	356	<u>660</u>	<u>356</u>
433.milc	24	1039	212	1040	212	<u>1039</u>	<u>212</u>	24	1015	217	1015	217	<u>1015</u>	<u>217</u>
434.zeusmp	24	726	301	724	302	<u>726</u>	<u>301</u>	24	726	301	724	302	<u>726</u>	<u>301</u>
435.gromacs	24	<u>522</u>	<u>328</u>	522	328	522	328	24	<u>520</u>	<u>329</u>	521	329	517	332
436.cactusADM	24	<u>869</u>	<u>330</u>	870	330	868	330	24	<u>869</u>	<u>330</u>	870	330	868	330
437.leslie3d	24	1597	141	<u>1598</u>	<u>141</u>	1599	141	12	<u>774</u>	<u>146</u>	774	146	773	146
444.namd	24	613	314	<u>612</u>	<u>314</u>	610	315	24	604	319	601	320	<u>603</u>	<u>319</u>
447.dealII	24	<u>666</u>	<u>412</u>	647	425	674	407	24	684	402	675	407	<u>679</u>	<u>404</u>
450.soplex	24	1298	154	<u>1301</u>	<u>154</u>	1302	154	12	589	170	586	171	<u>587</u>	<u>170</u>
453.povray	24	<u>268</u>	<u>476</u>	268	476	266	480	24	234	546	<u>229</u>	<u>558</u>	228	560
454.calculix	24	509	389	505	392	<u>506</u>	<u>391</u>	24	509	389	505	392	<u>506</u>	<u>391</u>
459.GemsFDTD	24	1858	137	<u>1860</u>	<u>137</u>	1863	137	24	1858	137	<u>1860</u>	<u>137</u>	1863	137
465.tonto	24	834	283	815	290	<u>822</u>	<u>287</u>	24	<u>792</u>	<u>298</u>	817	289	785	301
470.lbm	24	1151	286	<u>1152</u>	<u>286</u>	1154	286	12	547	301	<u>547</u>	<u>301</u>	548	301
481.wrf	24	2997	89.5	<u>1121</u>	<u>239</u>	1118	240	24	2997	89.5	<u>1121</u>	<u>239</u>	1118	240
482.sphinx3	24	5018	93.2	2085	224	<u>2091</u>	<u>224</u>	24	1977	237	<u>1978</u>	<u>236</u>	1979	236

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 environment stack size
 Set 10800 in /proc/sys/vm/nr_hugepages
 mount -t hugetlbfs nodev /tmp/hugepages



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General Notes

Binaries compiled on RHEL5.5 with 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

C++ benchmarks:

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

Fortran benchmarks:

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

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Base Optimization Flags (Continued)

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`

Peak Optimization Flags

C benchmarks:

Continued on next page



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Peak Optimization Flags (Continued)

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: -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

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

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-ic12.0-linux64-revB.html>

You can also download the XML flags source by saving the following link:

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

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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