



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sun Microsystems

SPECfp[®]_rate2006 = 252

Sun Fire X4440 (AMD Opteron 8435 2.6GHz)

SPECfp_rate_base2006 = 228

CPU2006 license: 6

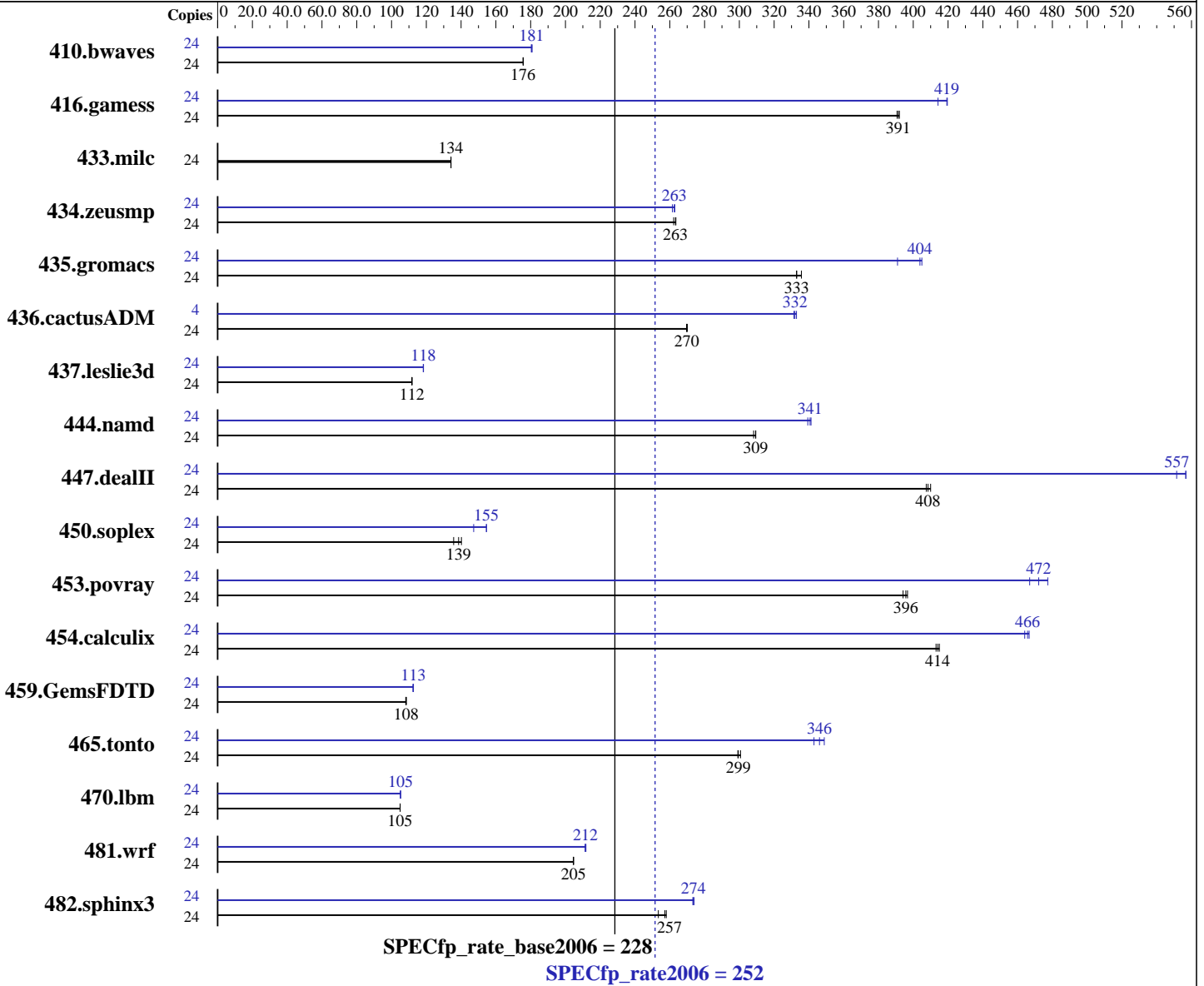
Test date: Aug-2009

Test sponsor: Sun Microsystems

Hardware Availability: Jul-2009

Tested by: Sun Microsystems

Software Availability: Apr-2009



Hardware

CPU Name: AMD Opteron 8435
 CPU Characteristics:
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip
 CPU(s) orderable: 2 or 4 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 5.3, Kernel 2.6.18-128.el5 for x86_64
 Compiler: PGI Server Complete Version 8.0 x86 Open64 4.2.2 Compiler Suite (from AMD)
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (Full multiuser with network)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sun Microsystems

SPECfp_rate2006 = 252

Sun Fire X4440 (AMD Opteron 8435 2.6GHz)

SPECfp_rate_base2006 = 228

CPU2006 license: 6

Test date: Aug-2009

Test sponsor: Sun Microsystems

Hardware Availability: Jul-2009

Tested by: Sun Microsystems

Software Availability: Apr-2009

L3 Cache: 6 MB I+D on chip per chip
 Other Cache: None
 Memory: 64 GB (16x4GB, DDR2-667, CL5, Reg, Dual Rank)
 Disk Subsystem: 1 x 146 GB SATA 10 K RPM
 Other Hardware: None

Other Software: binutils 2.18

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1856	176	1855	176	1857	176	24	1808	180	1807	181	1804	181
416.gamess	24	1199	392	1200	391	1203	391	24	1120	420	1121	419	1134	414
433.milc	24	1642	134	1642	134	1642	134	24	1642	134	1642	134	1642	134
434.zeusmp	24	833	262	830	263	829	264	24	835	261	832	263	831	263
435.gromacs	24	515	333	510	336	515	333	24	424	404	438	391	423	405
436.cactusADM	24	1062	270	1063	270	1064	270	4	144	331	144	333	144	332
437.leslie3d	24	2019	112	2021	112	2018	112	24	1908	118	1907	118	1906	118
444.namd	24	625	308	622	309	622	309	24	567	339	564	341	565	341
447.dealII	24	674	407	672	408	670	410	24	498	551	493	557	493	557
450.soplex	24	1475	136	1444	139	1428	140	24	1359	147	1295	155	1295	155
453.povray	24	322	397	323	396	324	394	24	273	467	270	472	267	477
454.calculix	24	479	413	477	415	478	414	24	424	467	425	466	427	464
459.GemsFDTD	24	2348	108	2354	108	2349	108	24	2261	113	2262	113	2268	112
465.tonto	24	789	299	789	299	785	301	24	682	346	677	349	689	343
470.lbm	24	3143	105	3142	105	3143	105	24	3136	105	3136	105	3135	105
481.wrf	24	1310	205	1310	205	1310	205	24	1269	211	1267	212	1266	212
482.sphinx3	24	1813	258	1819	257	1846	253	24	1712	273	1710	274	1707	274

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.
 See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size
 'ulimit -l 2097152' was used to set environment locked pages in memory limit

Set vm/nr_hugepages=10800 in /etc/sysctl.conf
 mount -t hugetlbfs nodev /mnt/hugepages



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sun Microsystems

SPECfp_rate2006 = 252

Sun Fire X4440 (AMD Opteron 8435 2.6GHz)

SPECfp_rate_base2006 = 228

CPU2006 license: 6

Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Aug-2009

Hardware Availability: Jul-2009

Software Availability: Apr-2009

Platform Notes

Default BIOS settings used except:
DCT Unganged Mode set to "Always" to enable Unganged Mode

General Notes

Environment variables set by runspec before the start of the run:

HUGETLB_LIMIT = "450"

LD_LIBRARY_PATH = "/data1/SPECcpu2006v1.1/amd0905is-libs/64:/data1/SPECcpu2006v1.1/amd0905is-libs/32"

NCPUS = "6"

PGI_HUGE_PAGES = "450"

The x86 Open64 Compiler Suite is only available from (and supported by) AMD at
http://developer.amd.com/cpu/open64.

Base Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

Fortran benchmarks:

pgf95

Benchmarks using both Fortran and C:

pgcc pgf95

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 -Mnomain
436.cactusADM: -DSPEC_CPU_LP64 -Mnomain
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 -Mnomain
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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sun Microsystems

SPECfp_rate2006 = 252

Sun Fire X4440 (AMD Opteron 8435 2.6GHz)

SPECfp_rate_base2006 = 228

CPU2006 license: 6

Test date: Aug-2009

Test sponsor: Sun Microsystems

Hardware Availability: Jul-2009

Tested by: Sun Microsystems

Software Availability: Apr-2009

Base Portability Flags (Continued)

482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-fastsse -Msmartalloc=huge -Mfprelaxed -Mipa=fast -Mipa=inline
-tp shanghai-64 -Bstatic_pgi

C++ benchmarks:

-fastsse -Msmartalloc=huge -Mfprelaxed --zc_eh -Mipa=fast
-Mipa=inline -tp shanghai-64 -Bstatic_pgi

Fortran benchmarks:

-fastsse -Msmartalloc=huge -Mfprelaxed -Mvect=short -Mipa=fast
-Mipa=inline -tp shanghai-64 -Bstatic_pgi

Benchmarks using both Fortran and C:

-fastsse -Msmartalloc=huge -Mfprelaxed -Mipa=fast -Mipa=inline
-tp shanghai-64 -Mvect=short -Bstatic_pgi

Base Other Flags

C benchmarks:

-Mipa=jobs:4

C++ benchmarks:

-Mipa=jobs:4

Fortran benchmarks:

-Mipa=jobs:4

Benchmarks using both Fortran and C:

-Mipa=jobs:4

Peak Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks (except as noted below):

openCC

444.namd: pgcpp

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sun Microsystems

SPECfp_rate2006 = 252

Sun Fire X4440 (AMD Opteron 8435 2.6GHz)

SPECfp_rate_base2006 = 228

CPU2006 license: 6

Test date: Aug-2009

Test sponsor: Sun Microsystems

Hardware Availability: Jul-2009

Tested by: Sun Microsystems

Software Availability: Apr-2009

Peak Compiler Invocation (Continued)

Fortran benchmarks (except as noted below):

openf95
410.bwaves: pgf95
434.zeusmp: pgf95
437.leslie3d: pgf95

Benchmarks using both Fortran and C (except as noted below):

pgcc pgf95
435.gromacs: opencc openf95

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
436.cactusADM: -DSPEC_CPU_LP64 -Mnomain
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -Mnomain
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

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes
470.lbm: -fastsse -Msmartalloc=huge -Mprefetch=t0 -Mloop32
-Mfprefaxed -Mipa=fast -Mipa=inline -tp shanghai-64
-Bstatic_pgi
482.sphinx3: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Mfprefaxed -Msmartalloc -tp shanghai-64 -Bstatic_pgi

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sun Microsystems

SPECfp_rate2006 = 252

Sun Fire X4440 (AMD Opteron 8435 2.6GHz)

SPECfp_rate_base2006 = 228

CPU2006 license: 6

Test date: Aug-2009

Test sponsor: Sun Microsystems

Hardware Availability: Jul-2009

Tested by: Sun Microsystems

Software Availability: Apr-2009

Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
 -Mipa=inline(pass 2) -fastsse -Munroll=n:4 -Munroll=m:8
 -Msmartalloc=huge -Mnodepchk -Mfprelaxed --zc_eh
 -tp shanghai-64 -Bstatic_pgi

447.dealIII: -march=barcelona -Ofast -static -INLINE:aggressive=on
 -LNO:opt=0 -Wf,-fno-exceptions -m32 -OPT:unroll_times_max=8
 -OPT:unroll_size=256 -OPT:unroll_level=2 -HP:bdt=2m:heap=2m
 -GRA:unspill=on -CG:cmp_peep=on -TENV:frame_pointer=off

450.soplex: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -O3 -INLINE:aggressive=on
 -OPT:IEEE_arith=3 -OPT:IEEE_NaN_Inf=off
 -OPT:fold_unsigned_relops=on -OPT:malloc_alg=1
 -CG:load_exe=0 -fno-exceptions -m32 -HP:bdt=2m

453.povray: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -INLINE:aggressive=on
 -HP:bdt=2m:heap=2m

Fortran benchmarks:

410.bwaves: -fastsse -Msmartalloc -Mprefetch=nta -Mfprelaxed
 -Mipa=fast -Mipa=inline -tp shanghai-64 -Bstatic_pgi

416.gamess: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -O2 -OPT:Ofast -OPT:ro=3
 -OPT:unroll_size=256 -HP:bdt=2m:heap=2m

434.zeusmp: -fastsse -Mfprelaxed -Mprefetch=distance:8 -Mprefetch=t0
 -Msmartalloc=huge -Msmartalloc=hugebss -Mipa=fast
 -Mipa=inline -tp shanghai-64 -Bstatic_pgi

437.leslie3d: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
 -Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
 -Mvect=fuse -Msmartalloc=huge -Mprefetch=distance:8
 -Mprefetch=t0 -Mfprelaxed -tp shanghai-64 -Bstatic_pgi

459.GemsFDTD: -march=barcelona -Ofast -LNO:fission=2 -LNO:simd=2
 -LNO:prefetch_ahead=1 -CG:load_exe=0 -HP

465.tonto: -march=barcelona -Ofast -OPT:alias=no_f90_pointer_alias
 -LNO:blocking=off -CG:load_exe=1 -IPA:plimit=525 -HP

Benchmarks using both Fortran and C:

435.gromacs: -march=barcelona -Ofast -OPT:rsqrt=2 -HP:bdt=2m:heap=2m

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sun Microsystems

SPECfp_rate2006 = 252

Sun Fire X4440 (AMD Opteron 8435 2.6GHz)

SPECfp_rate_base2006 = 228

CPU2006 license: 6

Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Aug-2009

Hardware Availability: Jul-2009

Software Availability: Apr-2009

Peak Optimization Flags (Continued)

436.cactusADM: -fastsse -Mconcur -Msmartalloc=huge -Mfprelaxed -Mipa=fast
-Mipa=inline -tp shanghai-64 -Bstatic_pgi

454.calculix: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Mvect=short -Msmartalloc=huge -Mprefetch=t0 -Mpre
-Mfprelaxed -tp shanghai-64 -Bstatic_pgi

481.wrf: -fastsse -Mvect=noaltcode -Msmartalloc=huge
-Mprefetch=distance:8 -Mfprelaxed -tp shanghai-64
-Bstatic_pgi

Peak Other Flags

C benchmarks:

-Mipa=jobs:4(pass 2)

C++ benchmarks:

444.namd: -Mipa=jobs:4(pass 2)

Fortran benchmarks:

410.bwaves: -Mipa=jobs:4

434.zeusmp: -Mipa=jobs:4

437.leslie3d: -Mipa=jobs:4(pass 2)

Benchmarks using both Fortran and C:

436.cactusADM: -Mipa=jobs:4

454.calculix: -Mipa=jobs:4(pass 2)

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

<http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags-revE.html>

http://www.spec.org/cpu2006/flags/pgi80_linux_flags.20090710.html

<http://www.spec.org/cpu2006/flags/amd-platform.20090710.html>

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

<http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags-revE.xml>

http://www.spec.org/cpu2006/flags/pgi80_linux_flags.20090710.xml

<http://www.spec.org/cpu2006/flags/amd-platform.20090710.xml>



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Sun Microsystems

SPECfp_rate2006 = 252

Sun Fire X4440 (AMD Opteron 8435 2.6GHz)

SPECfp_rate_base2006 = 228

CPU2006 license: 6

Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Aug-2009

Hardware Availability: Jul-2009

Software Availability: Apr-2009

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 02:11:41 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 1 September 2009.