



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp®_rate2006 = 274

IBM BladeCenter LS42 (AMD Opteron 8435)

SPECfp_rate_base2006 = 250

CPU2006 license: 11

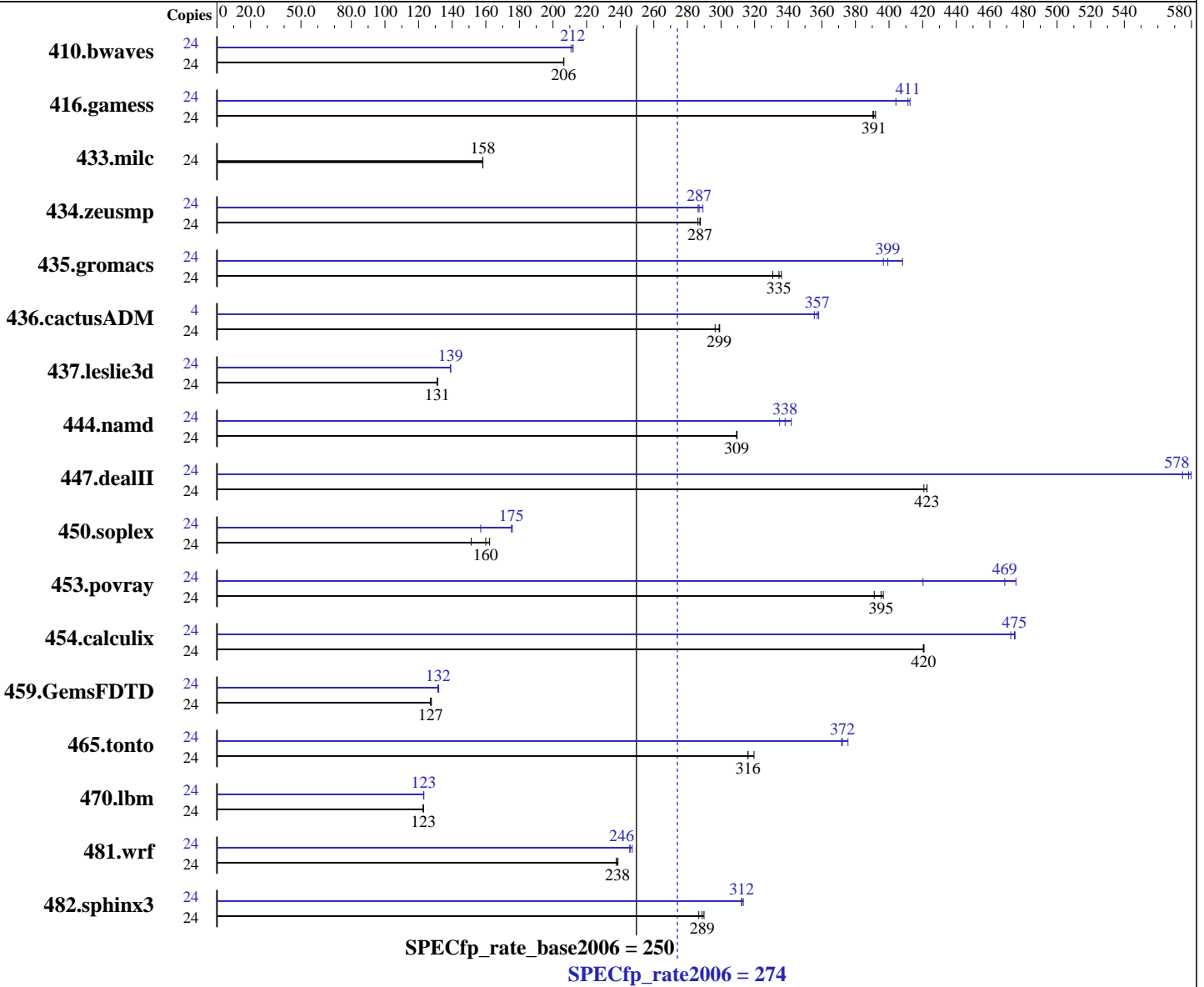
Test date: Jun-2009

Test sponsor: IBM Corporation

Hardware Availability: Sep-2009

Tested by: IBM Corporation

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: 1,2,3,4 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 on an x86_64
 Compiler: PGI Server Complete Version 8.0 x86 Open64 4.2.2 Compiler Suite (from AMD)
 Auto Parallel: Yes
 File System: ext3
 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

IBM Corporation

SPECfp_rate2006 = 274

IBM BladeCenter LS42 (AMD Opteron 8435)

SPECfp_rate_base2006 = 250

CPU2006 license: 11

Test date: Jun-2009

Test sponsor: IBM Corporation

Hardware Availability: Sep-2009

Tested by: IBM Corporation

Software Availability: Apr-2009

L3 Cache: 6 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (16 x 4 GB, PC2-6400 ECC)
Disk Subsystem: 1 x 73 GB SAS, 10000 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	1580	206	1581	206	1580	206	24	1540	212	1548	211	1539	212
416.gamess	24	1202	391	1204	390	1199	392	24	1143	411	1163	404	1139	412
433.milc	24	1392	158	1392	158	1393	158	24	1392	158	1392	158	1393	158
434.zeusmp	24	763	286	759	288	760	287	24	761	287	755	289	763	286
435.gromacs	24	512	335	518	331	510	336	24	420	408	432	397	429	399
436.cactusADM	24	958	299	967	296	960	299	4	134	356	133	358	134	357
437.leslie3d	24	1721	131	1716	131	1722	131	24	1624	139	1621	139	1623	139
444.namd	24	622	310	622	309	622	309	24	569	338	563	342	575	335
447.dealII	24	650	423	650	423	653	421	24	475	578	478	575	474	580
450.soplex	24	1323	151	1251	160	1233	162	24	1275	157	1142	175	1138	176
453.povray	24	322	397	323	395	326	391	24	304	420	272	469	269	476
454.calculix	24	471	420	470	421	471	420	24	417	475	419	472	417	475
459.GemsFDTD	24	2002	127	1995	128	2003	127	24	1936	132	1935	132	1929	132
465.tonto	24	747	316	748	316	739	320	24	635	372	629	376	634	372
470.lbm	24	2684	123	2686	123	2685	123	24	2681	123	2681	123	2677	123
481.wrf	24	1128	238	1124	238	1123	239	24	1090	246	1091	246	1085	247
482.sphinx3	24	1614	290	1631	287	1620	289	24	1498	312	1498	312	1493	313

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

Processor Performance States Disabled in BIOS
Memory ChipKill Disabled in BIOS



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 274

IBM BladeCenter LS42 (AMD Opteron 8435)

SPECfp_rate_base2006 = 250

CPU2006 license: 11

Test date: Jun-2009

Test sponsor: IBM Corporation

Hardware Availability: Sep-2009

Tested by: IBM Corporation

Software Availability: Apr-2009

General Notes

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

HUGETLB_LIMIT = "450"

LD_LIBRARY_PATH = "/cpu2006/amd0905is-libs/64:/cpu2006/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.deallI: -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
 482.sphinx3: -DSPEC_CPU_LP64



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 274

IBM BladeCenter LS42 (AMD Opteron 8435)

SPECfp_rate_base2006 = 250

CPU2006 license: 11

Test date: Jun-2009

Test sponsor: IBM Corporation

Hardware Availability: Sep-2009

Tested by: IBM Corporation

Software Availability: Apr-2009

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

Fortran benchmarks (except as noted below):

openf95

410.bwaves: pgf95

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 274

IBM BladeCenter LS42 (AMD Opteron 8435)

SPECfp_rate_base2006 = 250

CPU2006 license: 11

Test date: Jun-2009

Test sponsor: IBM Corporation

Hardware Availability: Sep-2009

Tested by: IBM Corporation

Software Availability: Apr-2009

Peak Compiler Invocation (Continued)

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
-Mfprelaxed -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
-Mfprelaxed -Msmartalloc -tp shanghai-64 -Bstatic_pgi

C++ benchmarks:

444.namd: -Mphi(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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 274

IBM BladeCenter LS42 (AMD Opteron 8435)

SPECfp_rate_base2006 = 250

CPU2006 license: 11

Test date: Jun-2009

Test sponsor: IBM Corporation

Hardware Availability: Sep-2009

Tested by: IBM Corporation

Software Availability: Apr-2009

Peak Optimization Flags (Continued)

447.deallI: -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: -Mphi=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

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

454.calculix: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Mvect=short -Msmartalloc=huge -Mprefetch=t0 -Mpre

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 274

IBM BladeCenter LS42 (AMD Opteron 8435)

SPECfp_rate_base2006 = 250

CPU2006 license: 11

Test date: Jun-2009

Test sponsor: IBM Corporation

Hardware Availability: Sep-2009

Tested by: IBM Corporation

Software Availability: Apr-2009

Peak Optimization Flags (Continued)

454.calculix (continued):

-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/pgi80_linux_flags.20090710.html

<http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags-revA.20090710.html>

<http://www.spec.org/cpu2006/flags/amd-platform.20090728.html>

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

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

<http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags-revA.20090710.xml>

<http://www.spec.org/cpu2006/flags/amd-platform.20090728.xml>



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 274

IBM BladeCenter LS42 (AMD Opteron 8435)

SPECfp_rate_base2006 = 250

CPU2006 license: 11

Test date: Jun-2009

Test sponsor: IBM Corporation

Hardware Availability: Sep-2009

Tested by: IBM Corporation

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 02:56:53 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 28 July 2009.