



SPEC[®] CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp[®]2006 = 14.7

IBM System x3755 (AMD Opteron 8360 SE)

SPECfp_base2006 = 13.0

CPU2006 license: 11

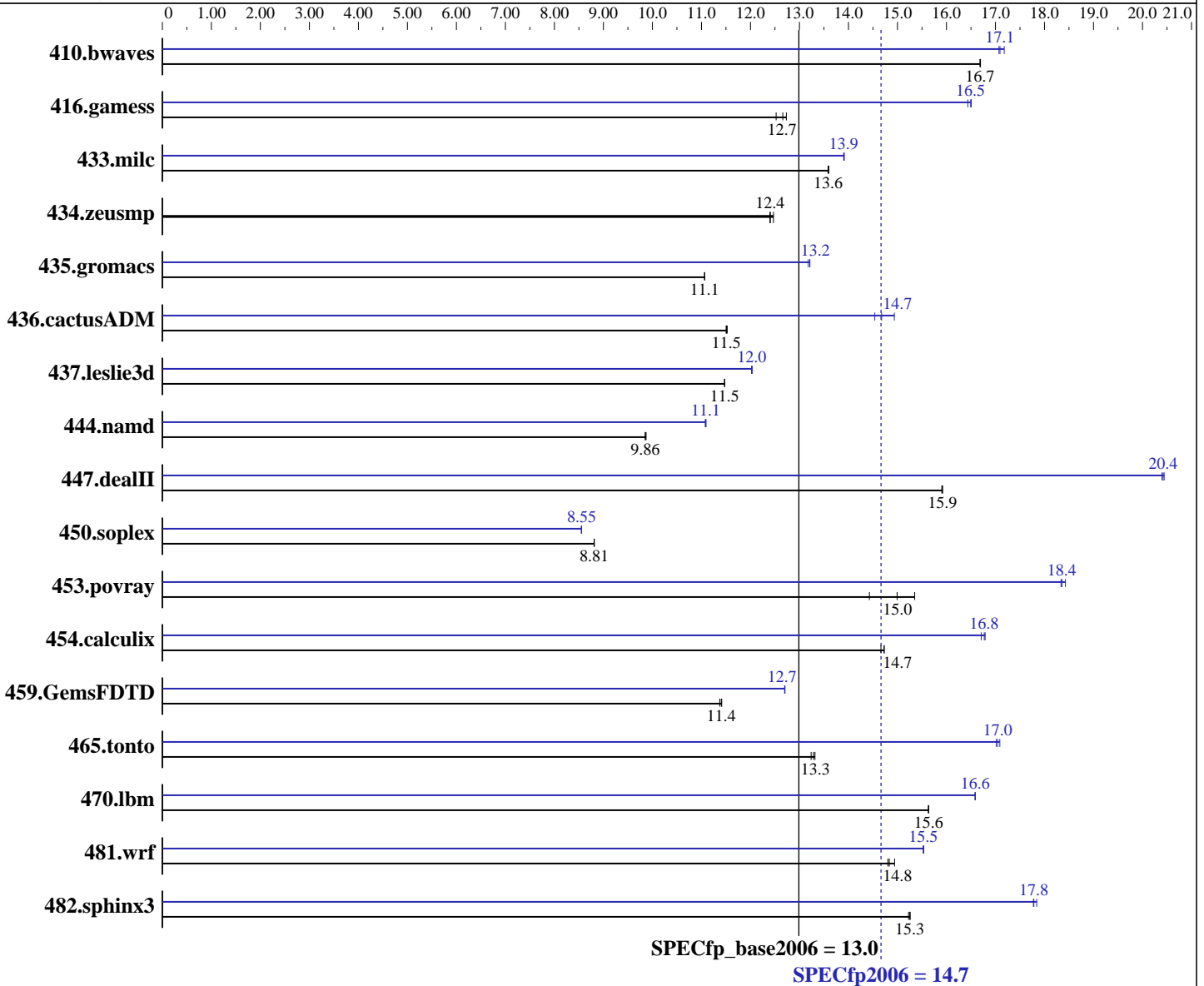
Test sponsor: IBM Corporation

Tested by: Advanced Micro Devices

Test date: Jul-2008

Hardware Availability: Jul-2008

Software Availability: Jun-2008



Hardware

CPU Name: AMD Opteron 8360 SE
 CPU Characteristics:
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 16 cores, 4 chips, 4 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: SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.2
 Auto Parallel: No
 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 2006-2016 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = **14.7**

IBM System x3755 (AMD Opteron 8360 SE)

SPECfp_base2006 = **13.0**

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: Advanced Micro Devices

Test date: Jul-2008

Hardware Availability: Jul-2008

Software Availability: Jun-2008

L3 Cache: 2 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (16 x 2 GB, DDR2-667 CL5 Reg Dual Rank)
Disk Subsystem: 1 x 73.4 GB SAS, 15000 RPM
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	814	16.7	814	16.7	814	16.7	791	17.2	796	17.1	795	17.1
416.gamess	1547	12.7	1563	12.5	1538	12.7	1187	16.5	1186	16.5	1191	16.4
433.milc	676	13.6	675	13.6	676	13.6	660	13.9	660	13.9	660	13.9
434.zeusmp	734	12.4	730	12.5	734	12.4	734	12.4	730	12.5	734	12.4
435.gromacs	645	11.1	645	11.1	645	11.1	541	13.2	540	13.2	542	13.2
436.cactusADM	1037	11.5	1038	11.5	1039	11.5	814	14.7	800	14.9	822	14.5
437.leslie3d	820	11.5	819	11.5	819	11.5	782	12.0	781	12.0	781	12.0
444.namd	812	9.87	814	9.86	814	9.85	724	11.1	723	11.1	723	11.1
447.dealII	719	15.9	719	15.9	719	15.9	560	20.4	560	20.4	561	20.4
450.soplex	947	8.81	946	8.81	946	8.81	975	8.56	976	8.55	975	8.55
453.povray	355	15.0	347	15.4	369	14.4	289	18.4	290	18.4	290	18.3
454.calculix	563	14.7	560	14.7	560	14.7	492	16.8	491	16.8	494	16.7
459.GemsFDTD	930	11.4	933	11.4	930	11.4	835	12.7	836	12.7	835	12.7
465.tonto	739	13.3	741	13.3	743	13.2	576	17.1	578	17.0	577	17.0
470.lbm	879	15.6	879	15.6	879	15.6	828	16.6	829	16.6	828	16.6
481.wrf	753	14.8	748	14.9	754	14.8	719	15.5	720	15.5	719	15.5
482.sphinx3	1278	15.3	1280	15.2	1277	15.3	1096	17.8	1092	17.8	1097	17.8

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

Operating System Notes

'numactl' was used to bind copies to the cores
'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit
Environment variable PGI_HUGE_PAGES set to 896
Set vm/nr_hugepages=3584 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
powersave -f was used to set the CPU frequency to its maximum.

Base Compiler Invocation

C benchmarks:
pgcc

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 14.7

IBM System x3755 (AMD Opteron 8360 SE)

SPECfp_base2006 = 13.0

CPU2006 license: 11

Test date: Jul-2008

Test sponsor: IBM Corporation

Hardware Availability: Jul-2008

Tested by: Advanced Micro Devices

Software Availability: Jun-2008

Base Compiler Invocation (Continued)

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
 482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-fastsse -Msmartalloc=huge:150 -Mfprelaxed -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

-fastsse -Msmartalloc=huge:150 -Mfprelaxed --zc_eh -Mipa=fast
-Mipa=inline -tp barcelona-64 -Bstatic_pgi

Fortran benchmarks:

-fastsse -Mfprelaxed -Msmartalloc=huge:150 -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

Benchmarks using both Fortran and C:

-fastsse -Msmartalloc=huge:150 -Mfprelaxed -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 14.7

IBM System x3755 (AMD Opteron 8360 SE)

SPECfp_base2006 = 13.0

CPU2006 license: 11

Test date: Jul-2008

Test sponsor: IBM Corporation

Hardware Availability: Jul-2008

Tested by: Advanced Micro Devices

Software Availability: Jun-2008

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 (except as noted below):
pgcc

470.lbm: pathcc

C++ benchmarks (except as noted below):
pathCC

444.namd: pgcpp

Fortran benchmarks (except as noted below):
pgf95

416.gamess: pathf95

459.GemsFDTD: pathf95

465.tonto: pathf95

Benchmarks using both Fortran and C (except as noted below):
pgcc pgf95

436.cactusADM: pathcc pathf95

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 -Mnomain

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 14.7

IBM System x3755 (AMD Opteron 8360 SE)

SPECfp_base2006 = 13.0

CPU2006 license: 11

Test date: Jul-2008

Test sponsor: IBM Corporation

Hardware Availability: Jul-2008

Tested by: Advanced Micro Devices

Software Availability: Jun-2008

Peak Portability Flags (Continued)

```

436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
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: -fastsse -Msmartalloc=huge:150 -Msafeptr -Mfprelaxed
-Mipa=inline -Mipa=arg -Mipa=const -Mipa=ptr -Mipa=shape
-tp barcelona-64 -Bstatic_pgi

470.lbm: -march=barcelona -Ofast -CG:sse_cse_regs=0
-CG:locs_shallow_depth=1 -m3dnow

482.sphinx3: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Mfprelaxed -Msmartalloc -tp barcelona-64 -Bstatic_pgi

```

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:150 -Mnodepchk -Mfprelaxed --zc_eh
-tp barcelona-64 -Bstatic_pgi

447.dealII: -march=barcelona -Ofast -static -INLINE:aggressive=on
-fno-exceptions -m32

450.soplex: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -TENV:frame_pointer=off
-LNO:prefetch=1 -OPT:malloc_alg=1 -CG:load_exe=0 -m32

453.povray: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast

```

Fortran benchmarks:

```

410.bwaves: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
-Mipa=inline(pass 2) -fastsse -Msmartalloc
-Mprefetch=distance:12 -Mprefetch=nta -Mpre -Mfprelaxed
-tp barcelona-64 -Bstatic_pgi

```

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 14.7

IBM System x3755 (AMD Opteron 8360 SE)

SPECfp_base2006 = 13.0

CPU2006 license: 11

Test date: Jul-2008

Test sponsor: IBM Corporation

Hardware Availability: Jul-2008

Tested by: Advanced Micro Devices

Software Availability: Jun-2008

Peak Optimization Flags (Continued)

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

434.zeusmp: basepeak = yes

437.leslie3d: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Mvect=fuse -Msmartalloc=huge:150 -Mprefetch=distance:8
-Mprefetch=t0 -Mfprefetch -tp barcelona-64 -Bstatic_pgi

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

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

Benchmarks using both Fortran and C:

435.gromacs: -fastsse -Msmartalloc=huge:150 -Mfprefetch -Mfpapprox=rsqrt
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

436.cactusADM: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -LNO:blocking=off

454.calculix: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Msmartalloc=huge:150 -Mprefetch=t0 -Mpre -Mfprefetch
-tp barcelona-64 -Bstatic_pgi

481.wrf: -fastsse -Mvect=noaltcode -Msmartalloc
-Mprefetch=distance:8 -Mfprefetch -tp barcelona-64
-Bstatic_pgi

Peak Other Flags

C benchmarks (except as noted below):
-Mipa=jobs:4(pass 2)

470.lbm: No flags used

C++ benchmarks:

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp2006 = 14.7

IBM System x3755 (AMD Opteron 8360 SE)

SPECfp_base2006 = 13.0

CPU2006 license: 11

Test date: Jul-2008

Test sponsor: IBM Corporation

Hardware Availability: Jul-2008

Tested by: Advanced Micro Devices

Software Availability: Jun-2008

Peak Other Flags (Continued)

Fortran benchmarks (except as noted below):

-Mipa=jobs:4(pass 2)

416.gamess: No flags used

459.GemsFDTD: No flags used

465.tonto: No flags used

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

-Mipa=jobs:4(pass 2)

436.cactusADM: No flags used

481.wrf: No flags used

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/amd421GH-flags.20090713.00.html>

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

<http://www.spec.org/cpu2006/flags/amd421GH-flags.20090713.00.xml>

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 v1.0.

Report generated on Tue Sep 13 11:34:46 2016 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 5 August 2008.