



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4122

SPECfp[®]2006 = 26.9

SPECfp_base2006 = 22.8

CPU2006 license: 49

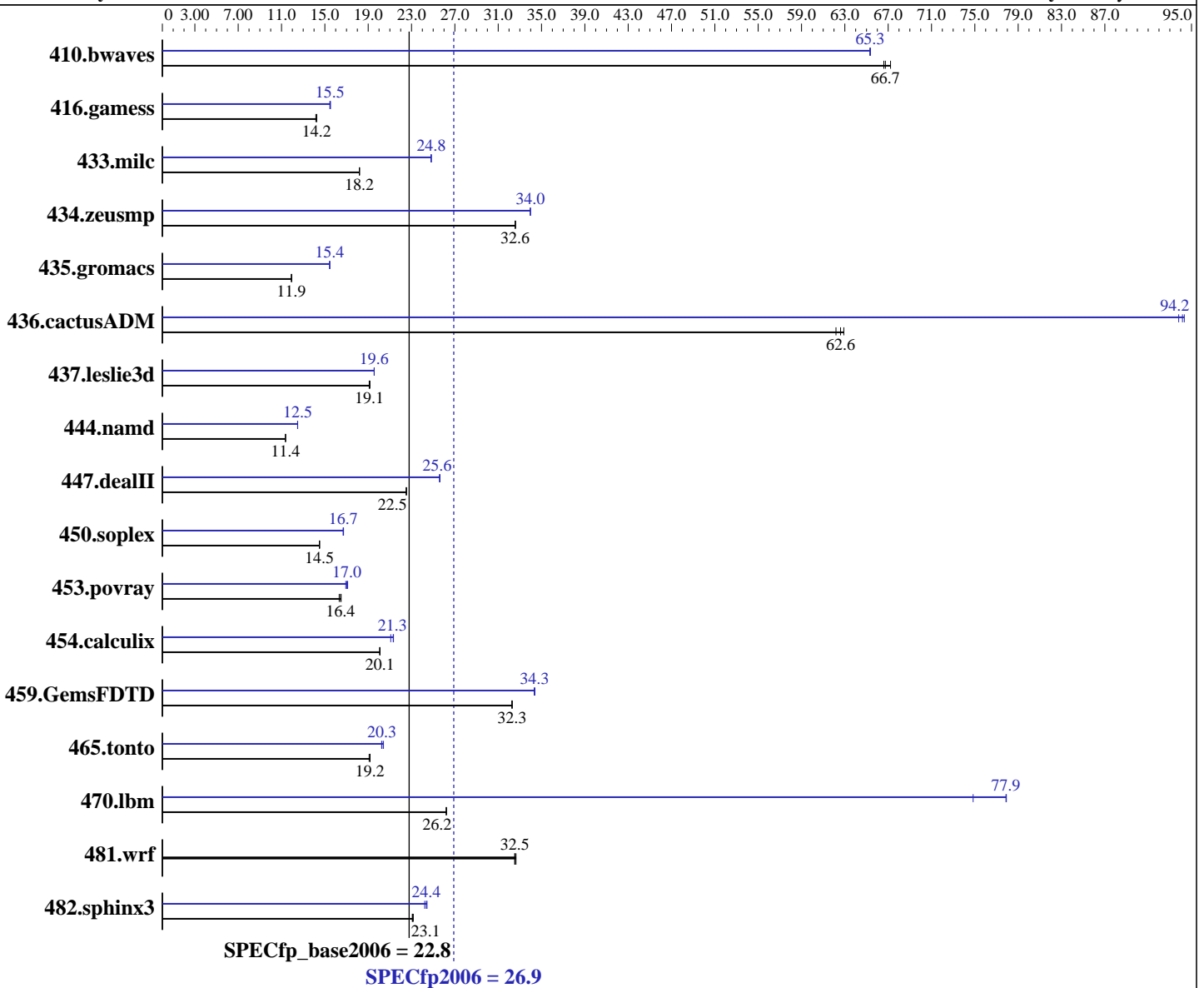
Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-2010

Hardware Availability: Aug-2010

Software Availability: May-2010



Hardware

CPU Name: AMD Opteron 4122
 CPU Characteristics:
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1,2 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 11 (x86_64),
Kernel 2.6.27.19-5-default
 Compiler: x86 Open64 4.2.3.2 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
 Other Software: None



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4122

SPECfp2006 = 26.9

SPECfp_base2006 = 22.8

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-2010

Hardware Availability: Aug-2010

Software Availability: May-2010

L3 Cache: 6 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (2 x 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 128 GB SATA SSD
Crucial RealSSD C300 CTFDDAC128MAG-1G1
Other Hardware: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	204	66.6	202	67.2	204	66.7	208	65.3	208	65.3	208	65.4
416.gamess	1376	14.2	1382	14.2	1374	14.2	1265	15.5	1266	15.5	1261	15.5
433.milc	505	18.2	504	18.2	505	18.2	370	24.8	370	24.8	370	24.8
434.zeusmp	279	32.6	279	32.6	279	32.6	268	34.0	268	34.0	268	34.0
435.gromacs	599	11.9	599	11.9	599	11.9	462	15.4	462	15.4	462	15.4
436.cactusADM	191	62.6	192	62.2	190	62.9	127	94.2	127	94.3	127	93.8
437.leslie3d	492	19.1	492	19.1	490	19.2	481	19.6	481	19.6	481	19.5
444.namd	705	11.4	706	11.4	706	11.4	642	12.5	642	12.5	642	12.5
447.dealII	508	22.5	508	22.5	508	22.5	447	25.6	446	25.6	447	25.6
450.soplex	575	14.5	576	14.5	574	14.5	500	16.7	499	16.7	499	16.7
453.povray	323	16.4	322	16.5	326	16.3	311	17.1	312	17.0	314	16.9
454.calculix	411	20.1	411	20.1	411	20.1	387	21.3	391	21.1	387	21.3
459.GemsFDTD	329	32.3	329	32.3	328	32.3	309	34.4	309	34.3	309	34.3
465.tonto	513	19.2	516	19.1	513	19.2	485	20.3	486	20.2	482	20.4
470.lbm	524	26.2	524	26.2	524	26.2	176	77.9	176	77.9	184	74.8
481.wrf	342	32.6	343	32.5	343	32.5	342	32.6	343	32.5	343	32.5
482.sphinx3	844	23.1	841	23.2	845	23.1	805	24.2	800	24.4	798	24.4

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=1000 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

powersave -f was used to set the CPU frequency to its maximum.

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4122

SPECfp2006 = 26.9

SPECfp_base2006 = 22.8

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-2010

Hardware Availability: Aug-2010

Software Availability: May-2010

Operating System Notes (Continued)

Binaries were compiled on SLES10 SP2 with binutils 2.18

General Notes

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

LD_LIBRARY_PATH = "/root/work/cpu2006/amd1002-speed-libs-revA/64:/root/work/cpu2006/amd1002-speed-libs-revA/32"

O64_OMP_AFFINITY_MAP = "0,1,2,3"

O64_OMP_SPIN_USER_LOCK = "true"

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:

opencc

C++ benchmarks:

openCC

Fortran benchmarks:

openf95

Benchmarks using both Fortran and C:

opencc openf95

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
 436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
 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
 459.GemsFDTD: -DSPEC_CPU_LP64
 465.tonto: -DSPEC_CPU_LP64
 470.lbm: -DSPEC_CPU_LP64
 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -DSPEC_CPU_CASE_FLAG
 -fno-second-underscore

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

<http://www.spec.org/>

Page 3



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4122

SPECfp2006 = 26.9

SPECfp_base2006 = 22.8

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-2010

Hardware Availability: Aug-2010

Software Availability: May-2010

Base Portability Flags (Continued)

482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-march=barcelona -Ofast -HP:bdt=2m:heap=2m

C++ benchmarks:

-march=barcelona -Ofast -static -INLINE:aggressive=on
-HP:bdt=2m:heap=2m

Fortran benchmarks:

-march=barcelona -Ofast -apo -LNO:parallel_overhead=10000
-LNO:fusion_peeling_limit=0 -HP:bdt=2m:heap=2m

Benchmarks using both Fortran and C:

-march=barcelona -Ofast -HP:bdt=2m:heap=2m -apo
-LNO:parallel_overhead=10000 -LNO:fusion_peeling_limit=0

Peak Compiler Invocation

C benchmarks:

openc

C++ benchmarks:

openCC

Fortran benchmarks:

openf95

Benchmarks using both Fortran and C:

openc 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 -fno-second-underscore

437.leslie3d: -DSPEC_CPU_LP64

444.namd: -DSPEC_CPU_LP64

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4122

SPECfp2006 = 26.9

SPECfp_base2006 = 22.8

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-2010

Hardware Availability: Aug-2010

Software Availability: May-2010

Peak Portability Flags (Continued)

453.povray: -DSPEC_CPU_LP64
 454.calculix: -DSPEC_CPU_LP64
 459.GemsFDTD: -DSPEC_CPU_LP64
 465.tonto: -DSPEC_CPU_LP64
 470.lbm: -DSPEC_CPU_LP64
 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -DSPEC_CPU_CASE_FLAG
 -fno-second-underscore
 482.sphinx3: -DSPEC_CPU_LP64

Peak Optimization Flags

C benchmarks:

433.milc: -march=barcelona -Ofast -apo -CG:movnti=1
 -CG:local_sched_alg=1 -CG:locs_shallow_depth=1
 -CG:compute_to=on -HP:bdt=2m:heap=2m -LNO:prefetch=3

470.lbm: -march=barcelona -Ofast -mso -apo -CG:sse_cse_regs=0
 -LNO:prefetch_ahead=4 -CG:locs_shallow_depth=1
 -CG:cmp_peep=on -CG:compute_to=on -OPT:unroll_times_max=8
 -OPT:unroll_size=256 -OPT:unroll_level=2 -OPT:keep_ext=on
 -OPT:alias=restricted -m3dnow -IPA:inline=off

482.sphinx3: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -OPT:malloc_alg=2
 -CG:sse_cse_regs=0 -CG:locs_shallow_depth=1 -CG:cmp_peep=on
 -CG:local_sched_alg=1 -INLINE:aggressive=on

C++ benchmarks:

444.namd: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -LNO:ignore_feedback=off
 -CG:local_sched_alg=2 -CG:load_exe=0 -CG:compute_to=on
 -OPT:unroll_size=256 -fno-exceptions -HP:bdt=2m:heap=2m

447.deaIII: -march=barcelona -Ofast -static -INLINE:aggressive=on
 -LNO:opt=0 -fno-emit-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 -CG:load_exe=0 -fno-exceptions
 -m32 -HP:bdt=2m:heap=2m

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4122

SPECfp2006 = 26.9

SPECfp_base2006 = 22.8

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-2010

Hardware Availability: Aug-2010

Software Availability: May-2010

Peak Optimization Flags (Continued)

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: -march=barcelona -Ofast -apo -OPT:malloc_alg=2
-CG:use_prefetchnta=on -CG:cmp_peep=on -LNO:blocking=off
-LNO:prefetch=3 -LNO:prefetch_ahead=5
-LNO:ignore_feedback=off -LNO:apo_use_feedback=on
-WOPT:aggstr=0

416.gamess: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -LNO:fu=6 -LNO:blocking=0
-LNO:prefetch=0 -OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256
-HP:bdt=2m:heap=2m

434.zeusmp: -march=barcelona -Ofast -apo -LNO:blocking=off
-LNO:interchange=off -LNO:fusion_peeling_limit=0
-OPT:treeheight=on -OPT:unroll_size=256 -CG:cmp_peep=on
-CG:compute_to=on -GRA:prioritize_by_density=on
-HP:bdt=2m:heap=2m

437.leslie3d: -march=barcelona -Ofast -apo -OPT:unroll_size=256
-LNO:prefetch_ahead=4 -LNO:parallel_overhead=32768
-GRA:prioritize_by_density=on -m3dnow -HP:bdt=2m:heap=2m

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

465.tonto: -march=barcelona -Ofast -apo
-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 -apo -OPT:rsqrt=2
-HP:bdt=2m:heap=2m

436.cactusADM: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -apo
-LANG:heap_allocation_threshold=1000 -LNO:prefetch_ahead=1
-HP:bdt=2m:heap=2m

454.calculix: -march=barcelona -Ofast -LNO:prefetch_ahead=30
-CG:load_exe=0 -CG:ptr_load_use=0 -CG:local_sched_alg=2
-CG:compute_to=on -WOPT:unroll=2 -GRA:optimize_boundary=on
-HP:bdt=2m:heap=2m -apo

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4122

SPECfp2006 = 26.9

SPECfp_base2006 = 22.8

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-2010

Hardware Availability: Aug-2010

Software Availability: May-2010

Peak Optimization Flags (Continued)

481.wrf: basepeak = yes

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

<http://www.spec.org/cpu2006/flags/x86-open64-423-flags-speed-revA.20101207.html>

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

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

<http://www.spec.org/cpu2006/flags/x86-open64-423-flags-speed-revA.20101207.xml>

<http://www.spec.org/cpu2006/flags/amd-platform-speed-revA.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 v1.1.
Report generated on Wed Jul 23 15:23:32 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 February 2011.