



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4170 HE

SPECfp®2006 = 27.5

SPECfp_base2006 = 22.9

CPU2006 license: 49

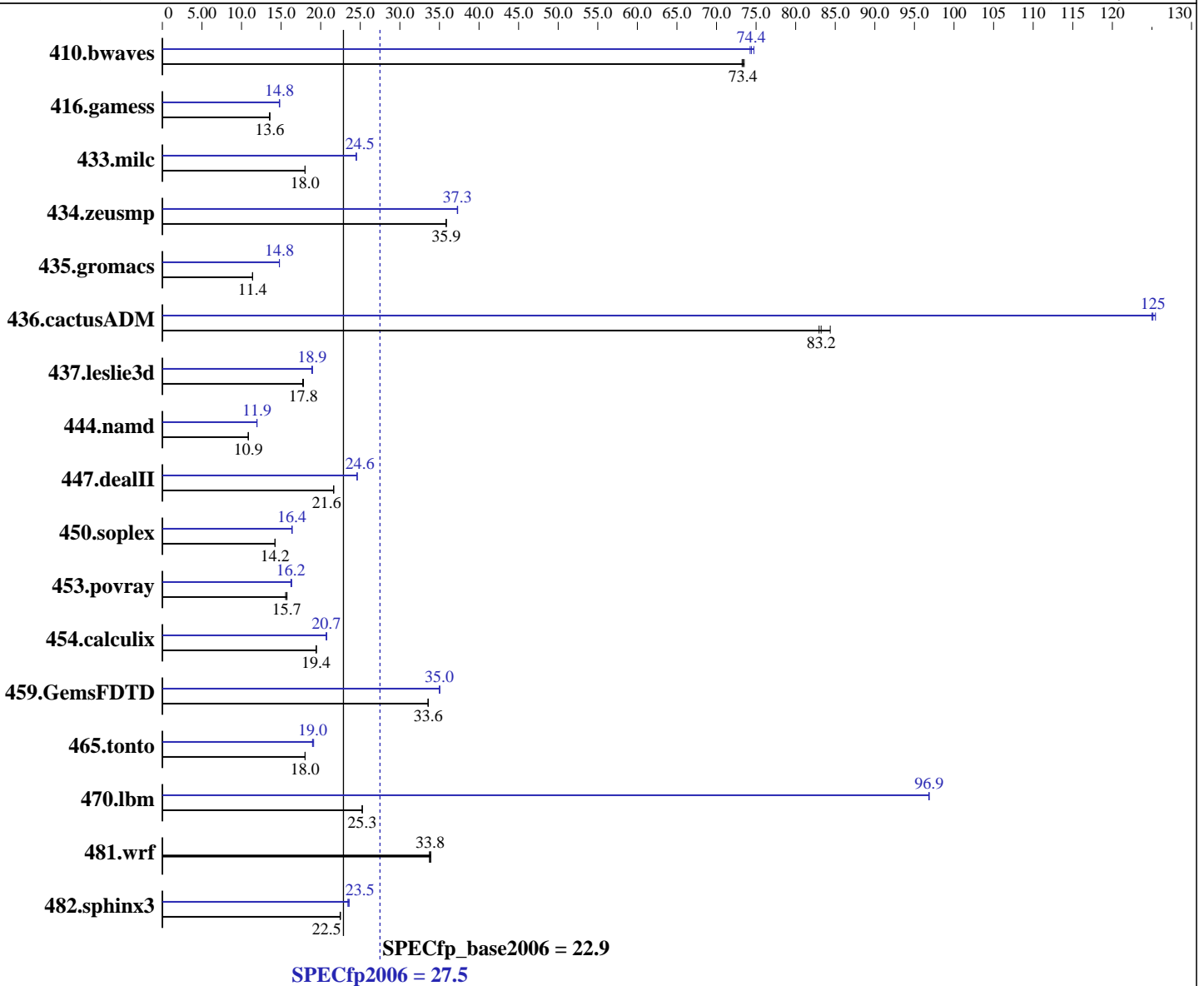
Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-2010

Hardware Availability: Aug-2010

Software Availability: May-2010



Hardware

CPU Name: AMD Opteron 4170 HE
 CPU Characteristics:
 CPU MHz: 2100
 FPU: Integrated
 CPU(s) enabled: 6 cores, 1 chip, 6 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

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4170 HE

SPECfp2006 = **27.5**

SPECfp_base2006 = **22.9**

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	186	73.2	185	73.4	185	73.5	183	74.4	183	74.2	182	74.7
416.gamess	1449	13.5	1443	13.6	1441	13.6	1323	14.8	1325	14.8	1322	14.8
433.milc	509	18.0	510	18.0	509	18.0	374	24.5	375	24.5	375	24.5
434.zeusmp	254	35.9	254	35.9	254	35.8	244	37.3	244	37.3	244	37.3
435.gromacs	627	11.4	626	11.4	626	11.4	483	14.8	483	14.8	483	14.8
436.cactusADM	142	84.4	144	83.0	144	83.2	95.3	125	95.5	125	95.6	125
437.leslie3d	530	17.7	528	17.8	527	17.8	496	18.9	498	18.9	496	19.0
444.namd	739	10.9	738	10.9	739	10.9	672	11.9	671	11.9	671	12.0
447.dealII	529	21.6	529	21.6	528	21.7	465	24.6	465	24.6	465	24.6
450.soplex	586	14.2	586	14.2	586	14.2	509	16.4	509	16.4	509	16.4
453.povray	338	15.7	342	15.6	339	15.7	327	16.2	328	16.2	325	16.3
454.calculix	425	19.4	424	19.5	425	19.4	397	20.8	398	20.7	399	20.7
459.GemsFDTD	316	33.6	316	33.6	316	33.6	303	35.0	303	35.0	303	35.0
465.tonto	546	18.0	546	18.0	546	18.0	519	19.0	515	19.1	517	19.0
470.lbm	544	25.3	544	25.3	544	25.2	142	96.9	142	96.9	142	96.8
481.wrf	330	33.8	329	33.9	331	33.7	330	33.8	329	33.9	331	33.7
482.sphinx3	868	22.4	866	22.5	868	22.5	830	23.5	831	23.5	826	23.6

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 4170 HE

SPECfp2006 = 27.5

SPECfp_base2006 = 22.9

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 = "0,1,2,3,4,5"

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 4170 HE

SPECfp2006 = 27.5

SPECfp_base2006 = 22.9

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/

Page 4



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4170 HE

SPECfp2006 = 27.5

SPECfp_base2006 = 22.9

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.dealIII: -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 4170 HE

SPECfp2006 = 27.5

SPECfp_base2006 = 22.9

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 4170 HE

SPECfp2006 = 27.5

SPECfp_base2006 = 22.9

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 15:24:58 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 February 2011.