



SPEC[®] CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp[®]_rate2006 = 269

IBM System x3755 M3 (AMD Opteron 6164 HE)

SPECfp_rate_base2006 = 249

CPU2006 license: 11

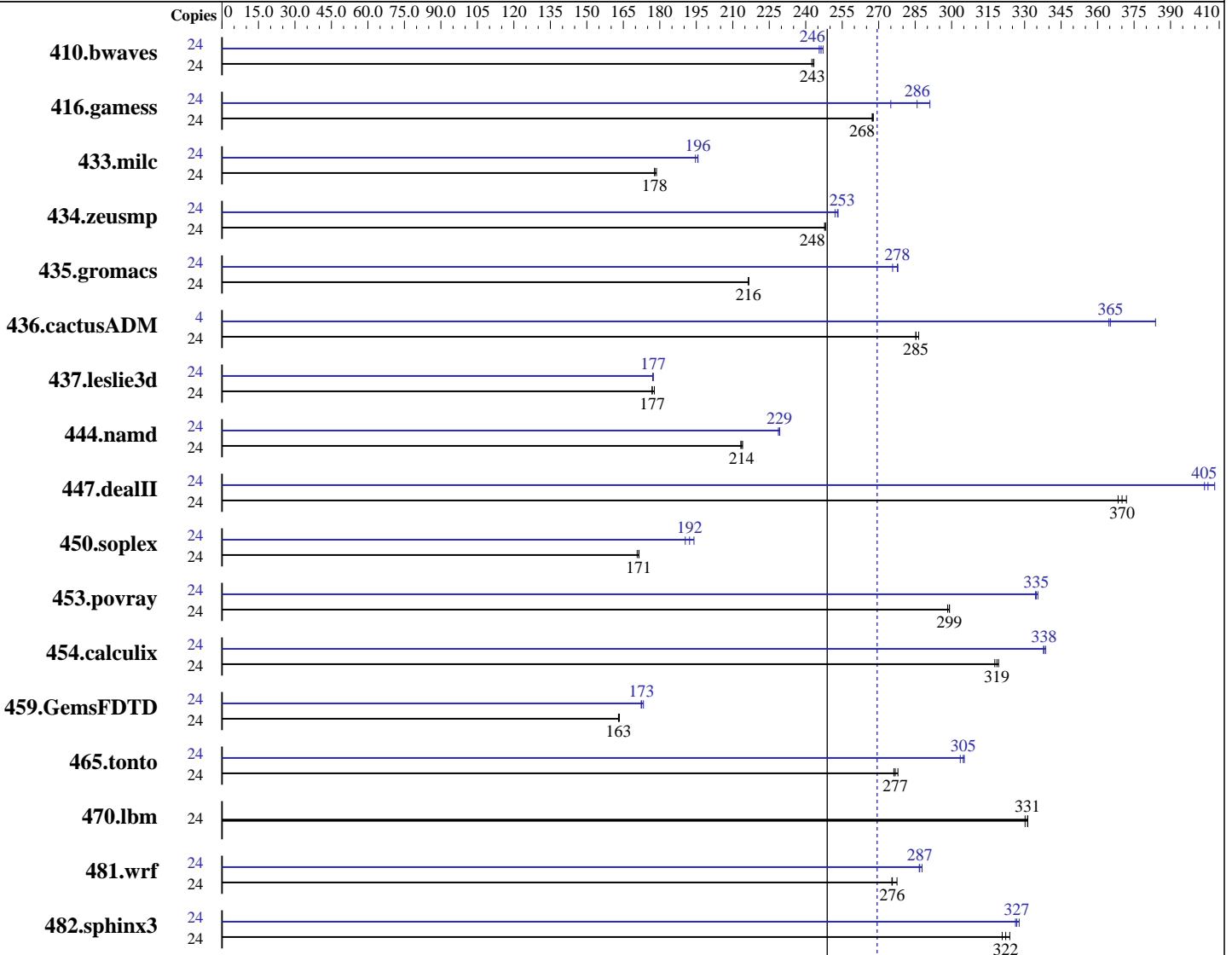
Test date: Jun-2011

Test sponsor: IBM Corporation

Hardware Availability: Dec-2010

Tested by: IBM Corporation

Software Availability: Jul-2010



SPECfp_rate_base2006 = 249

SPECfp_rate2006 = 269

Hardware

CPU Name: AMD Opteron 6164 HE
 CPU Characteristics:
 CPU MHz: 1700
 FPU: Integrated
 CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip
 CPU(s) orderable: 2,4 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 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
 Compiler: x86 Open64 4.2.4 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

IBM Corporation

SPECfp_rate2006 = 269

IBM System x3755 M3 (AMD Opteron 6164 HE)

SPECfp_rate_base2006 = 249

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jun-2011
Hardware Availability: Dec-2010
Software Availability: Jul-2010

L3 Cache: 12 MB I+D on chip per chip, 6 MB shared / 6 cores
Other Cache: None
Memory: 64 GB (16 x 4 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 250 GB SATA, 7200 RPM
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1345	243	<u>1341</u>	<u>243</u>	1340	243	24	1320	247	1328	246	<u>1324</u>	<u>246</u>
416.gamess	24	<u>1756</u>	<u>268</u>	1755	268	1758	267	24	1615	291	<u>1644</u>	<u>286</u>	1709	275
433.milc	24	1233	179	1238	178	<u>1238</u>	<u>178</u>	24	<u>1126</u>	<u>196</u>	1132	195	1126	196
434.zeusmp	24	882	248	<u>880</u>	<u>248</u>	880	248	24	862	253	866	252	<u>863</u>	<u>253</u>
435.gromacs	24	792	216	791	217	<u>792</u>	<u>216</u>	24	617	278	622	276	<u>617</u>	<u>278</u>
436.cactusADM	24	1001	286	1005	285	<u>1005</u>	<u>285</u>	4	131	365	<u>131</u>	<u>365</u>	125	384
437.leslie3d	24	<u>1275</u>	<u>177</u>	1269	178	1276	177	24	1274	177	<u>1273</u>	<u>177</u>	1272	177
444.namd	24	902	213	899	214	<u>901</u>	<u>214</u>	24	841	229	<u>840</u>	<u>229</u>	839	229
447.dealII	24	745	368	<u>742</u>	<u>370</u>	738	372	24	680	404	<u>677</u>	<u>405</u>	673	408
450.soplex	24	1173	171	1167	171	<u>1168</u>	<u>171</u>	24	1051	190	<u>1041</u>	<u>192</u>	1031	194
453.povray	24	427	299	<u>427</u>	<u>299</u>	428	298	24	<u>381</u>	<u>335</u>	381	335	382	334
454.calculix	24	620	319	623	318	<u>621</u>	<u>319</u>	24	585	339	586	338	<u>586</u>	<u>338</u>
459.GemsFDTD	24	<u>1562</u>	<u>163</u>	1559	163	1562	163	24	1470	173	<u>1476</u>	<u>173</u>	1477	172
465.tonto	24	<u>853</u>	<u>277</u>	855	276	850	278	24	774	305	778	304	<u>775</u>	<u>305</u>
470.lbm	24	999	330	995	331	<u>996</u>	<u>331</u>	24	999	330	995	331	<u>996</u>	<u>331</u>
481.wrf	24	<u>973</u>	<u>276</u>	966	278	973	275	24	<u>934</u>	<u>287</u>	931	288	935	287
482.sphinx3	24	<u>1452</u>	<u>322</u>	1458	321	1444	324	24	1434	326	1427	328	<u>1431</u>	<u>327</u>

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

IBM Corporation

SPECfp_rate2006 = 269

IBM System x3755 M3 (AMD Opteron 6164 HE)

SPECfp_rate_base2006 = 249

CPU2006 license: 11

Test date: Jun-2011

Test sponsor: IBM Corporation

Hardware Availability: Dec-2010

Tested by: IBM Corporation

Software Availability: Jul-2010

Platform Notes

BIOS Settings:
Operating Mode set to Performance Mode

General Notes

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

HUGETLB_LIMIT = "450"

LD_LIBRARY_PATH = "/root/speccpu_2011-03-22/speccpu_rate_revC-3/amd1002mc-rate-libs-revC/64:/root/speccpu_2011-03-22/speccpu_rate_revC-3/amd1002mc-rate-libs-revC/32"

OMP_NUM_THREADS = "6"

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

Binaries were compiled on SLES10 SP2 with binutils 2.18

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.deallI: -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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 269

IBM System x3755 M3 (AMD Opteron 6164 HE)

SPECfp_rate_base2006 = 249

CPU2006 license: 11

Test date: Jun-2011

Test sponsor: IBM Corporation

Hardware Availability: Dec-2010

Tested by: IBM Corporation

Software Availability: Jul-2010

Base Portability Flags (Continued)

481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -DSPEC_CPU_CASE_FLAG
-fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-march=barcelona -mso -Ofast -OPT:malloc_alg=1 -HP:bdt=2m

C++ benchmarks:

-march=barcelona -mso -Ofast -static -INLINE:aggressive=on
-OPT:malloc_alg=1 -HP:bdt=2m

Fortran benchmarks:

-march=barcelona -mso -Ofast -HP

Benchmarks using both Fortran and C:

-march=barcelona -mso -Ofast -OPT:malloc_alg=1 -HP:bdt=2m -HP

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



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 269

IBM System x3755 M3 (AMD Opteron 6164 HE)

SPECfp_rate_base2006 = 249

CPU2006 license: 11

Test date: Jun-2011

Test sponsor: IBM Corporation

Hardware Availability: Dec-2010

Tested by: IBM Corporation

Software Availability: Jul-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 -mso -Ofast -CG:movnti=1
 -CG:local_sched_alg=1 -CG:locs_shallow_depth=1
 -HP:bdt=2m:heap=2m -LNO:prefetch=3

470.lbm: basepeak = yes

482.sphinx3: -march=barcelona -mso -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 -mso -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 -mso -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 -mso -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 -mso -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -INLINE:aggressive=on

Fortran benchmarks:

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 269

IBM System x3755 M3 (AMD Opteron 6164 HE)

SPECfp_rate_base2006 = 249

CPU2006 license: 11

Test date: Jun-2011

Test sponsor: IBM Corporation

Hardware Availability: Dec-2010

Tested by: IBM Corporation

Software Availability: Jul-2010

Peak Optimization Flags (Continued)

410.bwaves: -march=barcelona -mso -O3 -OPT:Ofast -OPT:treeheight=on
-LNO:blocking=off -LNO:prefetch_ahead=5
-LNO:ignore_feedback=off -WOPT:aggstr=0 -HP:bdt=2m:heap=2m
-CG:cmp_peep=on

416.gamess: -march=barcelona -mso -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 -mso -Ofast -LNO:blocking=off
-LNO:interchange=off -OPT:treeheight=on -OPT:unroll_size=256
-CG:cmp_peep=on -GRA:prioritize_by_density=on -HP

437.leslie3d: -march=barcelona -mso -Ofast -HP:bdt=2m:heap=2m

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

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

436.cactusADM: -march=barcelona -mso -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -apo -LNO:prefetch_ahead=1
-HP:bdt=2m:heap=2m -LANG:heap_allocation_threshold=100

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

481.wrf: -march=barcelona -mso -Ofast -LNO:blocking=off
-LNO:prefetch_ahead=10 -LANG:copyinout=off
-IPA:callee_limit=5000 -GRA:prioritize_by_density=on -m3dnow
-HP

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

<http://www.spec.org/cpu2006/flags/x86-open64-424-flags-rate-revC.20101109.html>
<http://www.spec.org/cpu2006/flags/amd-platform-rate-revC.html>

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

<http://www.spec.org/cpu2006/flags/x86-open64-424-flags-rate-revC.20101109.xml>
<http://www.spec.org/cpu2006/flags/amd-platform-rate-revC.xml>



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp_rate2006 = 269

IBM System x3755 M3 (AMD Opteron 6164 HE)

SPECfp_rate_base2006 = 249

CPU2006 license: 11

Test date: Jun-2011

Test sponsor: IBM Corporation

Hardware Availability: Dec-2010

Tested by: IBM Corporation

Software Availability: Jul-2010

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 22:19:28 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 August 2011.