



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp®_rate2006 = 619

ProLiant DL585 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECfp_rate_base2006 = 572

CPU2006 license: 3

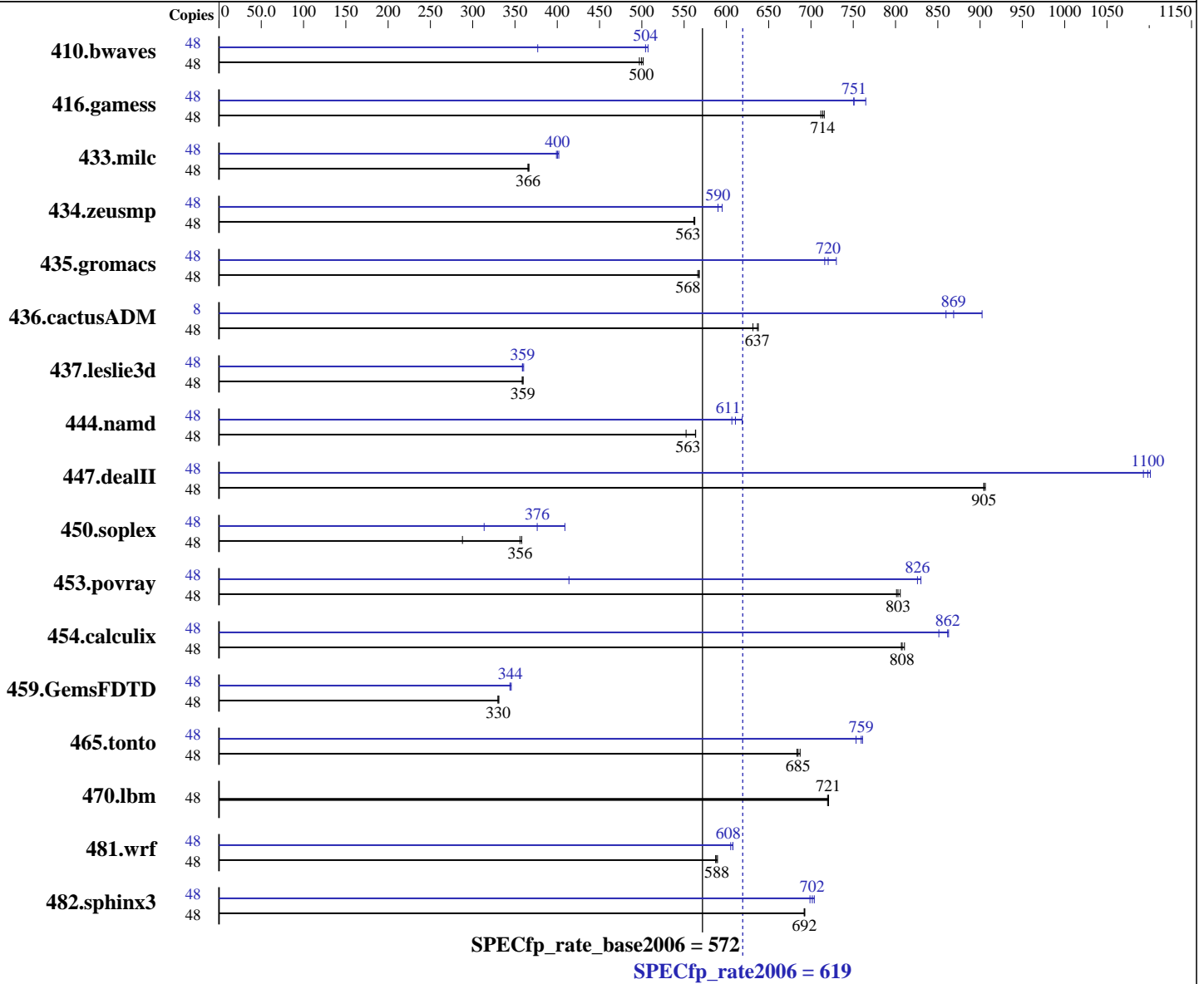
Test date: Apr-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2010

Tested by: Hewlett-Packard Company

Software Availability: Mar-2010



Hardware

CPU Name: AMD Opteron 6176 SE
 CPU Characteristics:
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 48 cores, 4 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

Continued on next page

Software

Operating System: Red Hat Enterprise Linux Server release 5.4, Advanced Platform with patch RHSA-2009:1670, Kernel 2.6.18-164.9.1.el5
 Compiler: x86 Open64 4.2.3 Compiler Suite
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 619

ProLiant DL585 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECfp_rate_base2006 = 572

CPU2006 license: 3

Test date: Apr-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2010

Tested by: Hewlett-Packard Company

Software Availability: Mar-2010

L3 Cache: 12 MB I+D on chip per chip, 6 MB shared / 6 cores
Other Cache: None
Memory: 128 GB (32x4 GB PC3-10600R, CL9)
Disk Subsystem: 4 x 72 GB 15 K SAS
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	48	1312	497	1300	502	<u>1305</u>	<u>500</u>	48	<u>1293</u>	<u>504</u>	1731	377	1286	507
416.gamess	48	1321	712	1313	716	<u>1316</u>	<u>714</u>	48	1229	765	<u>1251</u>	<u>751</u>	1252	751
433.milc	48	<u>1205</u>	<u>366</u>	1202	367	1206	365	48	1104	399	1097	402	<u>1101</u>	<u>400</u>
434.zeusmp	48	778	562	<u>776</u>	<u>563</u>	776	563	48	<u>740</u>	<u>590</u>	734	595	740	590
435.gromacs	48	605	566	604	568	<u>604</u>	<u>568</u>	48	<u>476</u>	<u>720</u>	478	716	469	730
436.cactusADM	48	<u>901</u>	<u>637</u>	899	638	908	631	8	111	860	<u>110</u>	<u>869</u>	106	902
437.leslie3d	48	1255	360	1259	358	<u>1255</u>	<u>359</u>	48	1258	359	1252	360	<u>1257</u>	<u>359</u>
444.namd	48	697	552	<u>683</u>	<u>563</u>	683	564	48	635	606	<u>630</u>	<u>611</u>	622	619
447.dealII	48	606	906	<u>607</u>	<u>905</u>	607	904	48	502	1090	499	1100	<u>500</u>	<u>1100</u>
450.soplex	48	1391	288	<u>1125</u>	<u>356</u>	1118	358	48	1277	314	<u>1064</u>	<u>376</u>	979	409
453.povray	48	319	801	317	806	<u>318</u>	<u>803</u>	48	<u>309</u>	<u>826</u>	308	830	617	414
454.calculix	48	489	811	<u>490</u>	<u>808</u>	491	807	48	459	863	<u>460</u>	<u>862</u>	465	851
459.GemsFDTD	48	<u>1543</u>	<u>330</u>	1543	330	1539	331	48	1474	346	<u>1479</u>	<u>344</u>	1480	344
465.tonto	48	<u>690</u>	<u>685</u>	691	683	687	687	48	<u>622</u>	<u>759</u>	621	761	627	753
470.lbm	48	915	721	916	720	<u>915</u>	<u>721</u>	48	915	721	916	720	<u>915</u>	<u>721</u>
481.wrf	48	<u>911</u>	<u>588</u>	910	589	913	587	48	<u>882</u>	<u>608</u>	882	608	886	605
482.sphinx3	48	1350	693	1352	692	<u>1351</u>	<u>692</u>	48	1329	704	1339	699	<u>1333</u>	<u>702</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=21600 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 619

ProLiant DL585 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECfp_rate_base2006 = 572

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Apr-2010
Hardware Availability: Jun-2010
Software Availability: Mar-2010

Platform Notes

BIOS Configuration:
HP Power Profile set to Maximum Performance
Thermal Configuration set to Increased Cooling

General Notes

Environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "450"
LD_LIBRARY_PATH = "/cpu2006/amd1002mc-rate-revA-libs/64:/cpu2006/amd1002mc-rate-revA-libs/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>

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.lelie3d: -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



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 619

ProLiant DL585 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECfp_rate_base2006 = 572

CPU2006 license: 3

Test date: Apr-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2010

Tested by: Hewlett-Packard Company

Software Availability: Mar-2010

Base Portability Flags (Continued)

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

453.povray: -DSPEC_CPU_LP64

454.calculix: -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

Hewlett-Packard Company

SPECfp_rate2006 = 619

ProLiant DL585 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECfp_rate_base2006 = 572

CPU2006 license: 3

Test date: Apr-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2010

Tested by: Hewlett-Packard Company

Software Availability: Mar-2010

Peak Portability Flags (Continued)

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.dealII: -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:

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

Continued on next page



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp_rate2006 = 619

ProLiant DL585 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECfp_rate_base2006 = 572

CPU2006 license: 3

Test date: Apr-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2010

Tested by: Hewlett-Packard Company

Software Availability: Mar-2010

Peak Optimization Flags (Continued)

410.bwaves (continued):

-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-open64-4.2.3-flags-revA.html>

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

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

<http://www.spec.org/cpu2006/flags/x86-open64-4.2.3-flags-revA.xml>

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



SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL585 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECfp_rate2006 = 619

SPECfp_rate_base2006 = 572

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Apr-2010

Hardware Availability: Jun-2010

Software Availability: Mar-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 08:26:33 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 June 2010.