



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Hewlett-Packard Company

### SPECfp®\_rate2006 = 161

ProLiant BL685c G5  
(2.3 GHz AMD Opteron 8356)

### SPECfp\_rate\_base2006 = 147

CPU2006 license: 3

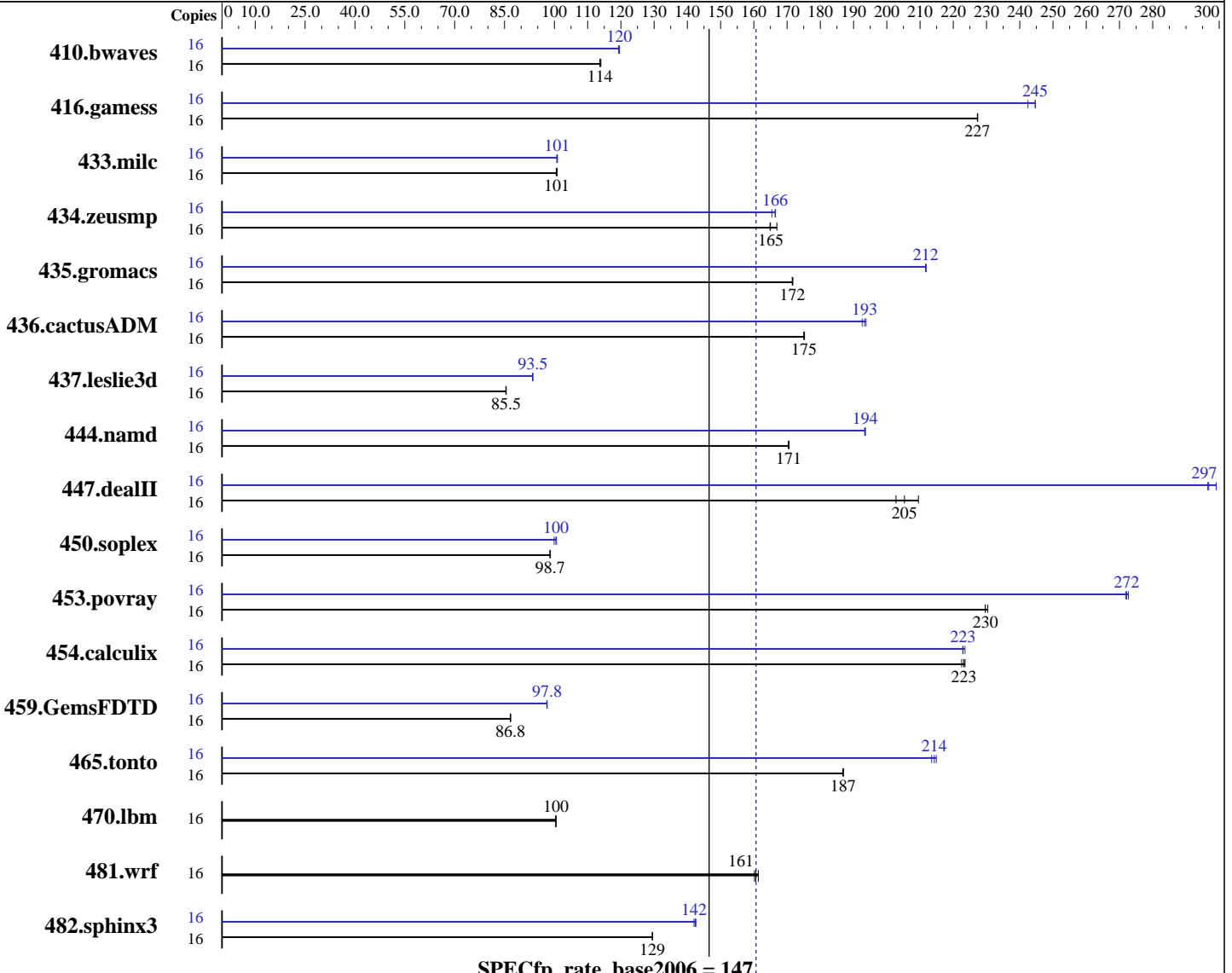
Test date: Mar-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

Software Availability: May-2008



SPECfp\_rate\_base2006 = 147

SPECfp\_rate2006 = 161

### Hardware

CPU Name: AMD Opteron 8356  
 CPU Characteristics:  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 4 chips, 4 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: 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 3.1  
 Auto Parallel: No  
 File System: ext2  
 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 = 161

ProLiant BL685c G5  
(2.3 GHz AMD Opteron 8356)

SPECfp\_rate\_base2006 = 147

CPU2006 license: 3

Test date: Mar-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

Software Availability: May-2008

L3 Cache: 2 MB I+D on chip per chip  
Other Cache: None  
Memory: 64 GB (16x4 GB, PC2-5300P CL5)  
Disk Subsystem: 1x146 GB 10 K SAS  
Other Hardware: None

Other Software: binutils-2.18.50

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1912	114	<u>1912</u>	<u>114</u>	1908	114	16	<u>1819</u>	<u>120</u>	1818	120	1823	119
416.gamess	16	1379	227	1378	227	<u>1378</u>	<u>227</u>	16	<u>1281</u>	<u>245</u>	1292	242	1280	245
433.milc	16	1457	101	1461	101	<u>1458</u>	<u>101</u>	16	1458	101	<u>1457</u>	<u>101</u>	1455	101
434.zeusmp	16	<u>882</u>	<u>165</u>	872	167	883	165	16	<u>875</u>	<u>166</u>	880	165	874	167
435.gromacs	16	<u>666</u>	<u>172</u>	666	172	665	172	16	539	212	540	212	<u>539</u>	<u>212</u>
436.cactusADM	16	<u>1092</u>	<u>175</u>	1092	175	1091	175	16	987	194	<u>989</u>	<u>193</u>	993	193
437.leslie3d	16	1761	85.4	1759	85.5	<u>1760</u>	<u>85.5</u>	16	<u>1609</u>	<u>93.5</u>	1608	93.6	1610	93.4
444.namd	16	753	170	752	171	<u>753</u>	<u>171</u>	16	664	193	663	194	<u>663</u>	<u>194</u>
447.dealII	16	903	203	874	210	<u>891</u>	<u>205</u>	16	612	299	<u>617</u>	<u>297</u>	617	297
450.soplex	16	1351	98.8	1353	98.6	<u>1352</u>	<u>98.7</u>	16	1335	99.9	1326	101	<u>1328</u>	<u>100</u>
453.povray	16	369	230	371	230	<u>371</u>	<u>230</u>	16	312	273	313	272	<u>313</u>	<u>272</u>
454.calculix	16	590	224	593	223	<u>591</u>	<u>223</u>	16	592	223	<u>592</u>	<u>223</u>	591	224
459.GemsFDTD	16	1957	86.7	<u>1956</u>	<u>86.8</u>	1955	86.8	16	1736	97.8	1737	97.7	<u>1736</u>	<u>97.8</u>
465.tonto	16	842	187	843	187	<u>843</u>	<u>187</u>	16	737	213	<u>735</u>	<u>214</u>	733	215
470.lbm	16	<u>2188</u>	<u>100</u>	2188	100	2189	100	16	<u>2188</u>	<u>100</u>	2188	100	2189	100
481.wrf	16	1108	161	<u>1113</u>	<u>161</u>	1116	160	16	1108	161	<u>1113</u>	<u>161</u>	1116	160
482.sphinx3	16	<u>2408</u>	<u>129</u>	2408	130	2409	129	16	2196	142	<u>2190</u>	<u>142</u>	2187	143

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

## Operating System Notes

Environment stack size set to 'unlimited'  
Max locked memory set to 2097152  
PGI\_HUGE\_PAGES set to 896  
Total number of huge pages available is 14336  
NCPUS set to number of cores  
numactl used to bind processes to CPUs

## Platform Notes

BIOS configuration:  
Power Regulator set to Static High Performance Mode



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECfp\_rate2006 = 161**

ProLiant BL685c G5  
(2.3 GHz AMD Opteron 8356)

**SPECfp\_rate\_base2006 = 147**

**CPU2006 license:** 3

**Test date:** Mar-2008

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Mar-2008

**Tested by:** Hewlett-Packard Company

**Software Availability:** May-2008

## Base Compiler Invocation

C benchmarks:

pgcc

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:

-fast -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed  
-Msmartalloc=huge:150 -tp barcelona-64 -Bstatic\_pgi

C++ benchmarks:

-fast -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed  
-Msmartalloc=huge:150 --zc\_eh -tp barcelona-64 -Bstatic\_pgi

Fortran benchmarks:

-fast -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed  
-Msmartalloc=huge:150 -tp barcelona-64 -Bstatic\_pgi

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECfp\_rate2006 = 161**

ProLiant BL685c G5  
(2.3 GHz AMD Opteron 8356)

**SPECfp\_rate\_base2006 = 147**

**CPU2006 license:** 3

**Test date:** Mar-2008

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Mar-2008

**Tested by:** Hewlett-Packard Company

**Software Availability:** May-2008

## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

-fast -Mipa=jobs:4 -Mipa=fast -Mipa=inline -Mfprelaxed  
-Msmartalloc=huge:150 -tp barcelona-64 -Bstatic\_pgi

## Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

Fortran benchmarks:

-w

Benchmarks using both Fortran and C:

-w

## Peak Compiler Invocation

C benchmarks (except as noted below):

pgcc

482.sphinx3: pathcc

C++ benchmarks (except as noted below):

pathCC

444.namd: pgcpp

Fortran benchmarks (except as noted below):

pathf95

410.bwaves: pgf95

434.zeusmp: pgf95

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

pgcc pgf95

436.cactusADM: pathcc pathf95



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECfp\_rate2006 = 161

ProLiant BL685c G5  
(2.3 GHz AMD Opteron 8356)

SPECfp\_rate\_base2006 = 147

CPU2006 license: 3

Test date: Mar-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

Software Availability: May-2008

## 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
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=jobs:4 -Mipa=inline -Mipa=arg -Mipa=const -Mipa=ptr
-Mipa=shape -tp barcelona-64 -Bstatic_pgi

470.lbm: basepeak = yes

482.sphinx3: -march=barcelona -Ofast -LNO:vintr=2
-CG:locs_shallow_depth=1

```

C++ benchmarks:

```

444.namd: -Mphi(pass 1) -Mipa=jobs:4(pass 2) -Mipa=fast(pass 2)
-Mipa=inline(pass 2) -Mpfo(pass 2) -fast -Mfprelaxed
-Msmartalloc=huge:150 --zc_eh -Mnodepchk -Munroll=n:4
-Munroll=m:8 -tp barcelona-64 -Bstatic_pgi

447.deallI: -march=barcelona -Ofast -static -INLINE:aggressive=on
-OPT:malloc_alg=1 -m32 -fno-exceptions

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

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

```

Fortran benchmarks:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

**SPECfp\_rate2006 = 161**

ProLiant BL685c G5  
(2.3 GHz AMD Opteron 8356)

**SPECfp\_rate\_base2006 = 147**

**CPU2006 license:** 3

**Test date:** Mar-2008

**Test sponsor:** Hewlett-Packard Company

**Hardware Availability:** Mar-2008

**Tested by:** Hewlett-Packard Company

**Software Availability:** May-2008

## Peak Optimization Flags (Continued)

410.bwaves: -Mphi(pass 1) -Mipa=jobs:4(pass 2) -Mipa=fast(pass 2)  
-Mipa=inline(pass 2) -Mpfo(pass 2) -fastsse -Mfprelaxed  
-Msmartalloc -Mprefetch=distance:12 -Mprefetch=nta  
-tp barcelona-64 -Bstatic\_pgi

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: -fastsse -Mfprelaxed -Msmartalloc=huge:150 -Mipa=jobs:4  
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic\_pgi

437.leslie3d: -march=barcelona -Ofast -m3dnw -OPT:unroll\_size=256  
-CG:load\_exe=0

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: -fast -Mfpapprox=rsqrt -Mipa=jobs:4 -Mipa=fast  
-Mipa=inline -Mfprelaxed -Msmartalloc=huge:150  
-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: -fastsse -Mfprelaxed -Msmartalloc=huge:150 -Mipa=jobs:4  
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic\_pgi

481.wrf: basepeak = yes

## Peak Other Flags

C benchmarks (except as noted below):

-w

482.sphinx3: No flags used

C++ benchmarks:

444.namd: -w

Fortran benchmarks:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Hewlett-Packard Company**

ProLiant BL685c G5  
(2.3 GHz AMD Opteron 8356)

**SPECfp\_rate2006 = 161**

**SPECfp\_rate\_base2006 = 147**

**CPU2006 license:** 3

**Test sponsor:** Hewlett-Packard Company

**Tested by:** Hewlett-Packard Company

**Test date:** Mar-2008

**Hardware Availability:** Mar-2008

**Software Availability:** May-2008

## Peak Other Flags (Continued)

410.bwaves: -w

434.zeusmp: -w

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

-w

436.cactusADM: No flags used

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

<http://www.spec.org/cpu2006/flags/hp-PGI72-PS32-flags.html>

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

<http://www.spec.org/cpu2006/flags/hp-PGI72-PS32-flags.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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.0.  
Report generated on Tue Jul 22 17:52:18 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 3 April 2008.