



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®2006 = 20.3

ProLiant BL685c G5
(2.7 GHz AMD Opteron 8384)

SPECfp_base2006 = 18.2

CPU2006 license: 3

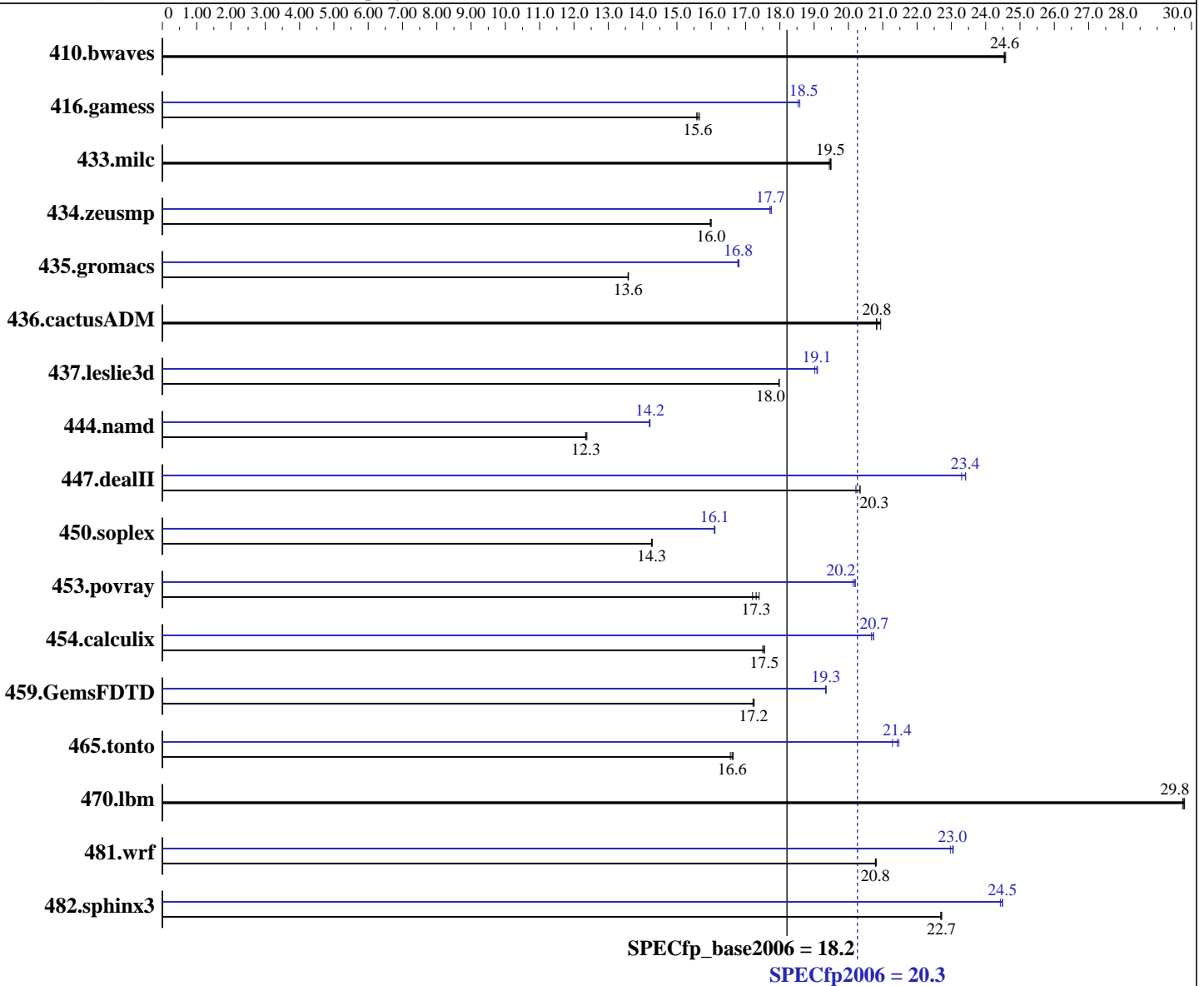
Test date: Nov-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Nov-2008

Tested by: Hewlett-Packard Company

Software Availability: Jun-2008



Hardware

CPU Name: AMD Opteron 8384
 CPU Characteristics:
 CPU MHz: 2700
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 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

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Software

Operating System: Red Hat Enterprise Linux Server release 5.2, Kernel 2.6.18-92.el5
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.2
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

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L3 Cache: 6 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (8x4 GB, PC2-6400P CL5)
Disk Subsystem: 1x146 GB 10 K SAS
Other Hardware: None

Other Software: binutils 2.18
32-bit and 64-bit libhugetlbfs libraries

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	554	24.6	554	24.5	553	24.6	554	24.6	554	24.5	553	24.6
416.gamess	1257	15.6	1251	15.7	1255	15.6	1057	18.5	1054	18.6	1057	18.5
433.milc	471	19.5	471	19.5	472	19.4	471	19.5	471	19.5	472	19.4
434.zeusmp	569	16.0	570	16.0	569	16.0	514	17.7	513	17.7	513	17.8
435.gromacs	525	13.6	526	13.6	526	13.6	425	16.8	425	16.8	426	16.8
436.cactusADM	574	20.8	571	20.9	574	20.8	574	20.8	571	20.9	574	20.8
437.leslie3d	523	18.0	523	18.0	523	18.0	494	19.0	492	19.1	493	19.1
444.namd	648	12.4	650	12.3	649	12.3	564	14.2	565	14.2	564	14.2
447.dealII	562	20.3	566	20.2	563	20.3	489	23.4	489	23.4	491	23.3
450.soplex	585	14.3	585	14.3	584	14.3	518	16.1	518	16.1	518	16.1
453.povray	307	17.3	306	17.4	309	17.2	264	20.1	264	20.2	263	20.2
454.calculix	470	17.5	470	17.6	471	17.5	398	20.7	399	20.7	398	20.7
459.GemsFDTD	616	17.2	615	17.3	616	17.2	548	19.3	549	19.3	549	19.3
465.tonto	594	16.6	593	16.6	591	16.6	458	21.5	459	21.4	462	21.3
470.lbm	461	29.8	462	29.7	461	29.8	461	29.8	462	29.7	461	29.8
481.wrf	537	20.8	537	20.8	537	20.8	484	23.1	486	23.0	485	23.0
482.sphinx3	858	22.7	858	22.7	859	22.7	796	24.5	798	24.4	796	24.5

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

Operating System Notes

Environment stack size set to 'unlimited'
Max locked memory set to 2097152
The libhugetlbfs libraries were installed using the installation rpms that came with the distribution.
PGI_HUGE_PAGES set to 896.
Total number of huge pages available is 7168.
NCPUS set to number of cores



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Platform Notes

BIOS configuration:
Power Regulator set to Static High Performance Mode

General Notes

Environment variables set by runspec before the start of the run:
HUGETLB_MORECORE = "yes"

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.deallI: -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



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Base Optimization Flags

C benchmarks:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
--zc_eh -Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

Fortran benchmarks:

-Mvect=cachesize:6291456 -fastsse -Mfprelaxed -Msmartalloc=huge
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

Benchmarks using both Fortran and C:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

Base Other Flags

C benchmarks:

-Mipa=jobs:4

C++ benchmarks:

-Mipa=jobs:4

Fortran benchmarks:

-Mipa=jobs:4

Benchmarks using both Fortran and C:

-Mipa=jobs:4

Peak Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks (except as noted below):

pathCC

444.namd: pgcpp

Fortran benchmarks (except as noted below):

pathf95

410.bwaves: pgf95

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Peak Compiler Invocation (Continued)

434.zeusmp: pgf95

437.leslie3d: pgf95

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

pgcc pgf95

435.gromacs: pathcc pathf95

481.wrf: pathcc pathf95

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 -Mnomain

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_LINUX -fno-second-underscore

482.sphinx3: -DSPEC_CPU_LP64

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)

-Mipa=fast(pass 2) -Mipa=inline(pass 2)

-Mvect=cachesize:6291456 -fastsse -Mfprelaxed -Msmartalloc

-tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

444.namd: -Mphi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)

-Mipa=inline(pass 2) -Mvect=cachesize:6291456 -fastsse

-Munroll=n:4 -Munroll=m:8 -Msmartalloc=huge -Mnodepchk

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Peak Optimization Flags (Continued)

444.namd (continued):

-Mfprelaxed --zc_eh -tp barcelona-64 -Bstatic_pgi

447.dealII: -march=barcelona -Ofast -INLINE:aggressive=on -LNO:opt=0

-OPT:alias=disjoint -fno-exceptions -m32

450.soplex: -march=barcelona -fb_create fbdata(pass 1)

-fb_opt fbdata(pass 2) -L/usr/lib -lhugetlbfs(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

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

-fb_opt fbdata(pass 2) -Ofast -INLINE:aggressive=on

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -march=barcelona -fb_create fbdata(pass 1)

-fb_opt fbdata(pass 2)

-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)

-L/usr/lib64 -lhugetlbfs(pass 2) -O2 -OPT:Ofast -OPT:ro=3

-OPT:unroll_size=256

434.zeusmp: -Mvect=cachesize:6291456 -fastsse -Mfprelaxed

-Mprefetch=distance:8 -Mprefetch=t0 -Msmartalloc=huge

-Msmartalloc=hugebss -Mipa=fast -Mipa=inline

-tp barcelona-64 -Bstatic_pgi

437.leslie3d: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)

-Mipa=fast(pass 2) -Mipa=inline(pass 2)

-Mvect=cachesize:6291456 -fastsse -Mvect=fuse

-Msmartalloc=huge -Mprefetch=distance:8 -Mprefetch=t0

-Mfprelaxed -tp barcelona-64 -Bstatic_pgi

459.GemsFDTD: -march=barcelona -Ofast -LNO:fission=2 -LNO:simd=2

-LNO:prefetch_ahead=1 -CG:load_exe=0 -CG:prefer_lru_reg=off

-OPT:malloc_alg=1

-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT

-L/usr/lib64 -lhugetlbfs

465.tonto: -march=barcelona -Ofast -OPT:alias=no_f90_pointer_alias

-LNO:blocking=off -CG:load_exe=1 -IPA:plimit=525

-OPT:malloc_alg=1

-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT

-L/usr/lib64 -lhugetlbfs

Benchmarks using both Fortran and C:

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Peak Optimization Flags (Continued)

435.gromacs: -march=barcelona -Ofast -OPT:rsqrt=2 -OPT:malloc_alg=1
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT
-L/usr/lib64 -lugetlbfs

436.cactusADM: basepeak = yes

454.calculix: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2)
-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge
-Mprefetch=t0 -Mpre -Mfprelaxed -tp barcelona-64
-Bstatic_pgi

481.wrf: -march=barcelona -Ofast -LNO:blocking=off
-LNO:prefetch_ahead=10 -LANG:copyinout=off
-IPA:callee_limit=5000 -GRA:prioritize_by_density=on
-OPT:malloc_alg=1 -m3dnow
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT
-L/usr/lib64 -lugetlbfs

Peak Other Flags

C benchmarks:
-Mipa=jobs:4(pass 2)

C++ benchmarks:
444.namd: -Mipa=jobs:4(pass 2)

Fortran benchmarks (except as noted below):
-Mipa=jobs:4(pass 2)

416.gamess: No flags used

459.GemsFDTD: No flags used

465.tonto: No flags used

Benchmarks using both Fortran and C (except as noted below):
-Mipa=jobs:4(pass 2)

435.gromacs: No flags used

481.wrf: No flags used

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

<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.20090710.html>

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.html

http://www.spec.org/cpu2006/flags/pgi72_linux_flags.html



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

- <http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.20090710.xml>
- http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.xml
- http://www.spec.org/cpu2006/flags/pgi72_linux_flags.xml

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