



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®2006 = 17.8

ProLiant DL365 G5
(2.3 GHz AMD Opteron 2356)

SPECfp_base2006 = 16.1

CPU2006 license: 3

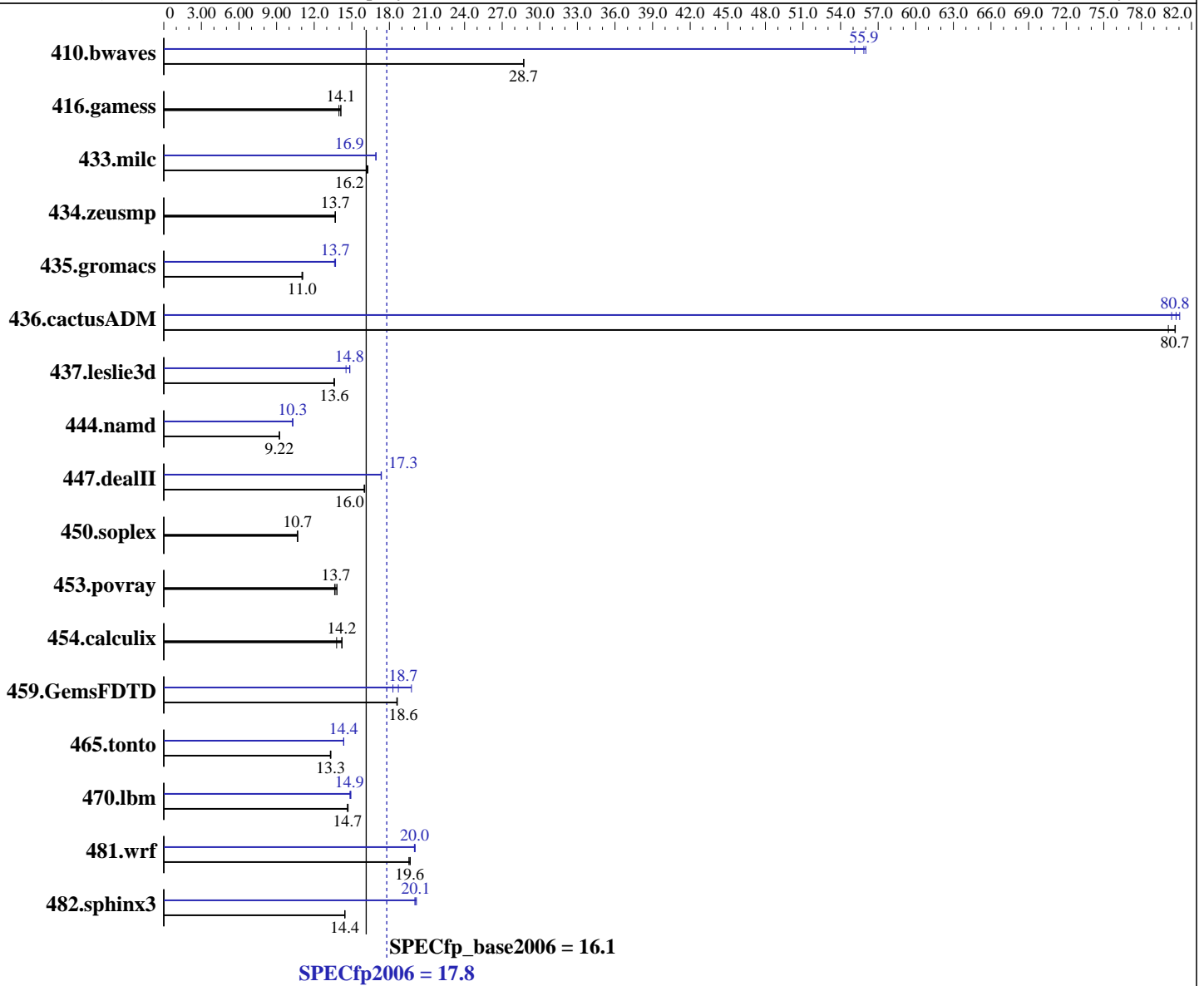
Test date: Mar-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2008

Tested by: Hewlett-Packard Company

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 2356
 CPU Characteristics:
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 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 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: PGI Server Complete Version 7.2
 Auto Parallel: Yes
 File System: ext2
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other Software: binutils-2.18.50

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L3 Cache: 2 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (8x4 GB, PC2-5300P CL5)
Disk Subsystem: 1x72 GB 10 K SAS
Other Hardware: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	473	28.7	473	28.7	473	28.7	<u>243</u>	<u>55.9</u>	247	55.1	243	56.0
416.gamess	1386	14.1	1401	14.0	1387	14.1	1386	14.1	1401	14.0	1387	14.1
433.milc	564	16.3	566	16.2	566	16.2	542	16.9	542	16.9	542	16.9
434.zeusmp	665	13.7	666	13.7	665	13.7	665	13.7	666	13.7	665	13.7
435.gromacs	644	11.1	647	11.0	647	11.0	521	13.7	524	13.6	521	13.7
436.cactusADM	148	80.7	148	80.7	149	80.2	148	80.8	149	80.4	147	81.1
437.leslie3d	693	13.6	691	13.6	690	13.6	633	14.8	646	14.5	634	14.8
444.namd	869	9.23	869	9.22	870	9.22	780	10.3	781	10.3	779	10.3
447.dealII	714	16.0	714	16.0	716	16.0	660	17.3	659	17.4	660	17.3
450.soplex	781	10.7	781	10.7	782	10.7	781	10.7	781	10.7	782	10.7
453.povray	390	13.6	385	13.8	387	13.7	390	13.6	385	13.8	387	13.7
454.calculix	580	14.2	581	14.2	598	13.8	580	14.2	581	14.2	598	13.8
459.GemsFDTD	570	18.6	571	18.6	570	18.6	567	18.7	580	18.3	537	19.8
465.tonto	738	13.3	741	13.3	739	13.3	685	14.4	685	14.4	686	14.3
470.lbm	937	14.7	938	14.7	934	14.7	922	14.9	925	14.9	920	14.9
481.wrf	569	19.6	571	19.6	568	19.7	558	20.0	557	20.1	559	20.0
482.sphinx3	1349	14.4	1350	14.4	1348	14.5	967	20.2	970	20.1	973	20.0

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 7168
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



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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:8 -Mipa=fast -Mipa=inline -Mfprelaxed -Mconcur
-Msmartalloc=huge:896 -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

-fast -Mipa=jobs:8 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:896 --zc_eh -tp barcelona-64 -Bstatic_pgi

Fortran benchmarks:

-fast -Mipa=jobs:8 -Mipa=fast -Mipa=inline -Mfprelaxed -Mconcur
-Msmartalloc=huge:896 -tp barcelona-64 -Bstatic_pgi

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

-fast -Mipa=jobs:8 -Mipa=fast -Mipa=inline -Mfprelaxed -Mconcur
-Msmartalloc=huge:896 -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:

pgcc

C++ benchmarks:

pgcpp

Fortran benchmarks:

pgf95

Benchmarks using both Fortran and C:

pgcc pgf95

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -fastsse -Msmartalloc=huge:896 -Mconcur -Msafepr
-Mfprelaxed -Mipa=jobs:8 -Mipa=inline -Mipa=arg
-Mipa=const -Mipa=ptr -Mipa=shape -tp barcelona-64

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Peak Optimization Flags (Continued)

433.milc (continued):

-Bstatic_pgi

470.lbm: -fastsse -Mfprelaxed -Msmartalloc=huge:896 -Mipa=fast

-Mipa=inline -Mipa=noarg -Mprefetch=distance:12

-Mprefetch=nta -tp barcelona-64 -Bstatic_pgi

482.sphinx3: -Mphi(pass 1) -Mipa=jobs:8(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

C++ benchmarks:

444.namd: -Mphi(pass 1) -Mipa=jobs:8(pass 2) -Mipa=fast(pass 2)

-Mipa=inline(pass 2) -Mconcur=noaltcode(pass 2)

-Mpfo(pass 2) -fast -Mfprelaxed -Msmartalloc=huge:896

--zc_eh -Mnodepchk -Munroll=n:4 -Munroll=m:8

-tp barcelona-64 -Bstatic_pgi

447.deallI: -fast -Mfprelaxed -Msmartalloc=huge:896 --zc_eh -Mnovect

-alias=ansi -Mipa=jobs:8 -Mipa=fast -Mipa=inline

-tp barcelona-64 -Bstatic_pgi

450.soplex: basepeak = yes

453.povray: basepeak = yes

Fortran benchmarks:

410.bwaves: -fastsse -Mloop32 -Mfprelaxed -Msmartalloc

-Mprefetch=distance:12 -Mprefetch=nta -Mconcur -Mipa=jobs:8

-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: -fast -Mipa=jobs:8 -Mipa=fast -Mipa=inline -Mfprelaxed

-Mconcur=noaltcode -Msmartalloc=huge:896 -tp barcelona-64

-Bstatic_pgi

459.GemsFDTD: -Mphi(pass 1) -Mipa=jobs:8(pass 2) -Mipa=fast(pass 2)

-Mipa=inlinenopfo(pass 2) -Mconcur(pass 2) -Mpfo(pass 2)

-fast -Mfprelaxed -Msmartalloc=huge:896 -Mprefetch=nta

-tp barcelona-64 -Bstatic_pgi

465.tonto: -fast -O4 -Mfprelaxed -Msmartalloc=huge:896

-Mprefetch=distance:8 -Mipa=jobs:8 -Mipa=fast -Mipa=inline

-Mvect=noaltcode -tp barcelona-64 -Bstatic_pgi

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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: -fast -Mconcur -Mfpapprox=rsqrt -Mipa=jobs:8 -Mipa=fast
-Mipa=inline -Mfprelaxed -Msmartalloc=huge:896
-tp barcelona-64 -Bstatic_pgi

436.cactusADM: -fastsse -Mfprelaxed -Mconcur -Msmartalloc -Mdse
-Mipa=jobs:8 -Mipa=fast -Mipa=inline -tp barcelona-64
-Bstatic_pgi

454.calculix: basepeak = yes

481.wrf: -fast -Mfprelaxed -Msmartalloc=huge:896 -Mconcur=noaltcode
-Mvect=noaltcode -Mprefetch=distance:8 -tp barcelona-64
-Bstatic_pgi

Peak Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

Fortran benchmarks:

-w

Benchmarks using both Fortran and C:

-w

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>

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For other inquiries, please contact webmaster@spec.org.

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