



SPEC[®] CFP2006 Result

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Hewlett-Packard Company

SPECfp[®]2006 = 17.8

ProLiant DL385 G5
(2.3 GHz AMD Opteron 2356)

SPECfp_base2006 = 16.2

CPU2006 license: 3

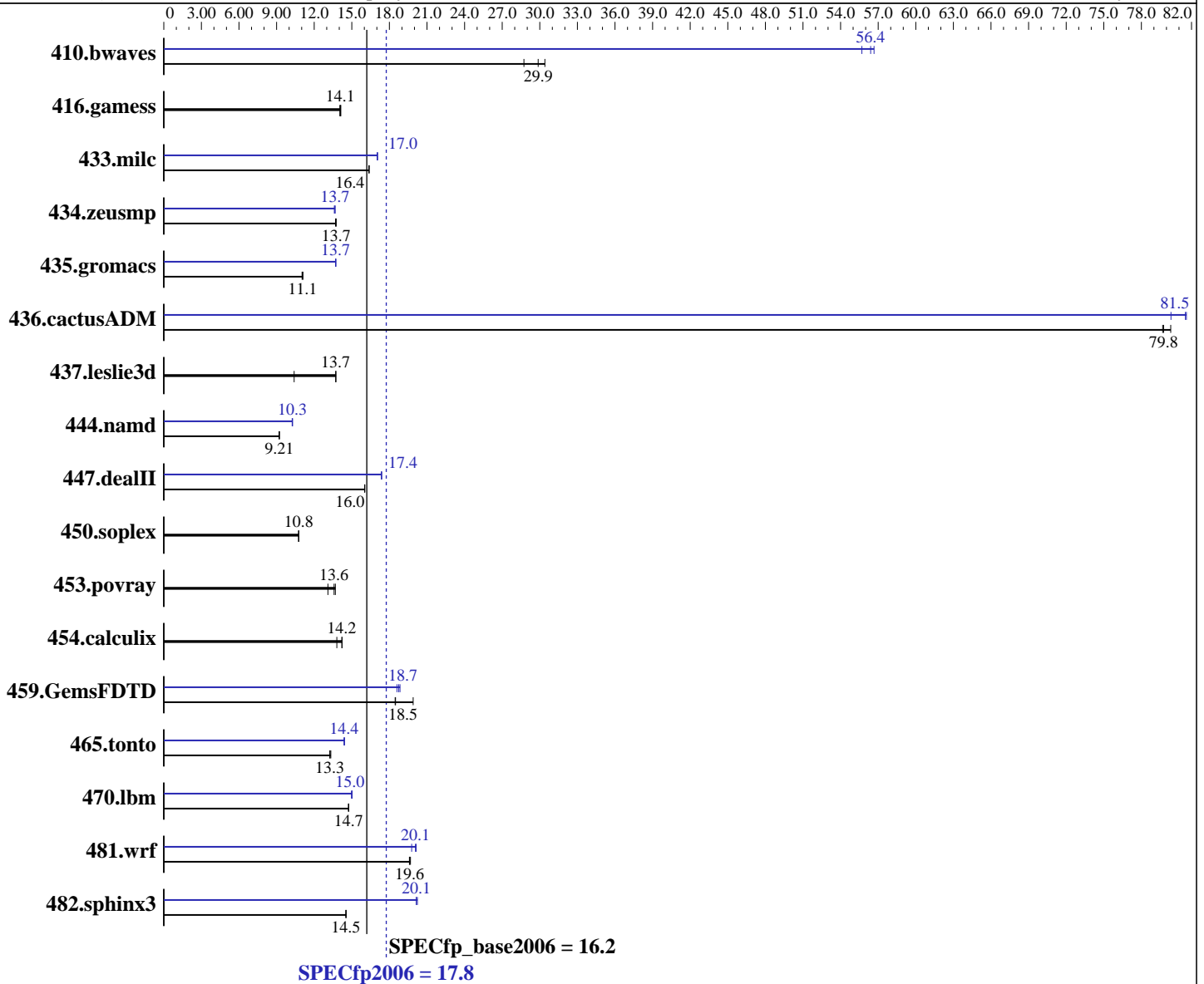
Test date: Mar-2008

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: 2x72 GB 15 K SAS
Other Hardware: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<u>455</u>	<u>29.9</u>	447	30.4	473	28.7	240	56.7	<u>241</u>	<u>56.4</u>	244	55.7
416.gamess	1394	14.0	<u>1389</u>	<u>14.1</u>	1386	14.1	1394	14.0	<u>1389</u>	<u>14.1</u>	1386	14.1
433.milc	<u>561</u>	<u>16.4</u>	561	16.4	560	16.4	539	17.0	<u>538</u>	<u>17.0</u>	538	17.1
434.zeusmp	<u>662</u>	<u>13.7</u>	662	13.7	664	13.7	669	13.6	<u>666</u>	<u>13.7</u>	666	13.7
435.gromacs	643	11.1	<u>644</u>	<u>11.1</u>	647	11.0	520	13.7	521	13.7	<u>520</u>	<u>13.7</u>
436.cactusADM	<u>150</u>	<u>79.8</u>	150	79.7	149	80.3	149	80.4	146	81.6	<u>147</u>	<u>81.5</u>
437.leslie3d	684	13.7	904	10.4	<u>686</u>	<u>13.7</u>	684	13.7	904	10.4	<u>686</u>	<u>13.7</u>
444.namd	<u>870</u>	<u>9.21</u>	870	9.22	871	9.21	783	10.2	781	10.3	<u>782</u>	<u>10.3</u>
447.dealII	713	16.0	<u>713</u>	<u>16.0</u>	714	16.0	<u>659</u>	<u>17.4</u>	659	17.4	658	17.4
450.soplex	775	10.8	<u>775</u>	<u>10.8</u>	775	10.8	775	10.8	<u>775</u>	<u>10.8</u>	775	10.8
453.povray	389	13.7	406	13.1	<u>392</u>	<u>13.6</u>	389	13.7	406	13.1	<u>392</u>	<u>13.6</u>
454.calculix	<u>581</u>	<u>14.2</u>	598	13.8	580	14.2	<u>581</u>	<u>14.2</u>	598	13.8	580	14.2
459.GemsFDTD	533	19.9	575	18.5	<u>574</u>	<u>18.5</u>	563	18.8	570	18.6	<u>566</u>	<u>18.7</u>
465.tonto	743	13.3	<u>742</u>	<u>13.3</u>	738	13.3	683	14.4	<u>683</u>	<u>14.4</u>	684	14.4
470.lbm	<u>932</u>	<u>14.7</u>	931	14.8	933	14.7	<u>915</u>	<u>15.0</u>	918	15.0	914	15.0
481.wrf	568	19.7	570	19.6	<u>569</u>	<u>19.6</u>	565	19.8	<u>556</u>	<u>20.1</u>	555	20.1
482.sphinx3	1340	14.5	<u>1341</u>	<u>14.5</u>	1341	14.5	<u>967</u>	<u>20.1</u>	963	20.2	968	20.1

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

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 -Msafeptr
-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 -Mnodepch -Munroll=n:4 -Munroll=m:8

-tp barcelona-64 -Bstatic_pgi

447.dealII: -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: -fast -Mloop32 -Mipa=jobs:8 -Mipa=fast -Mipa=inline

-Mfprelaxed -Mconcur -Msmartalloc -tp barcelona-64

-Bstatic_pgi

437.leslie3d: basepeak = yes

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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