SPEC® CFP2006 Result

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Hewlett-Packard Company

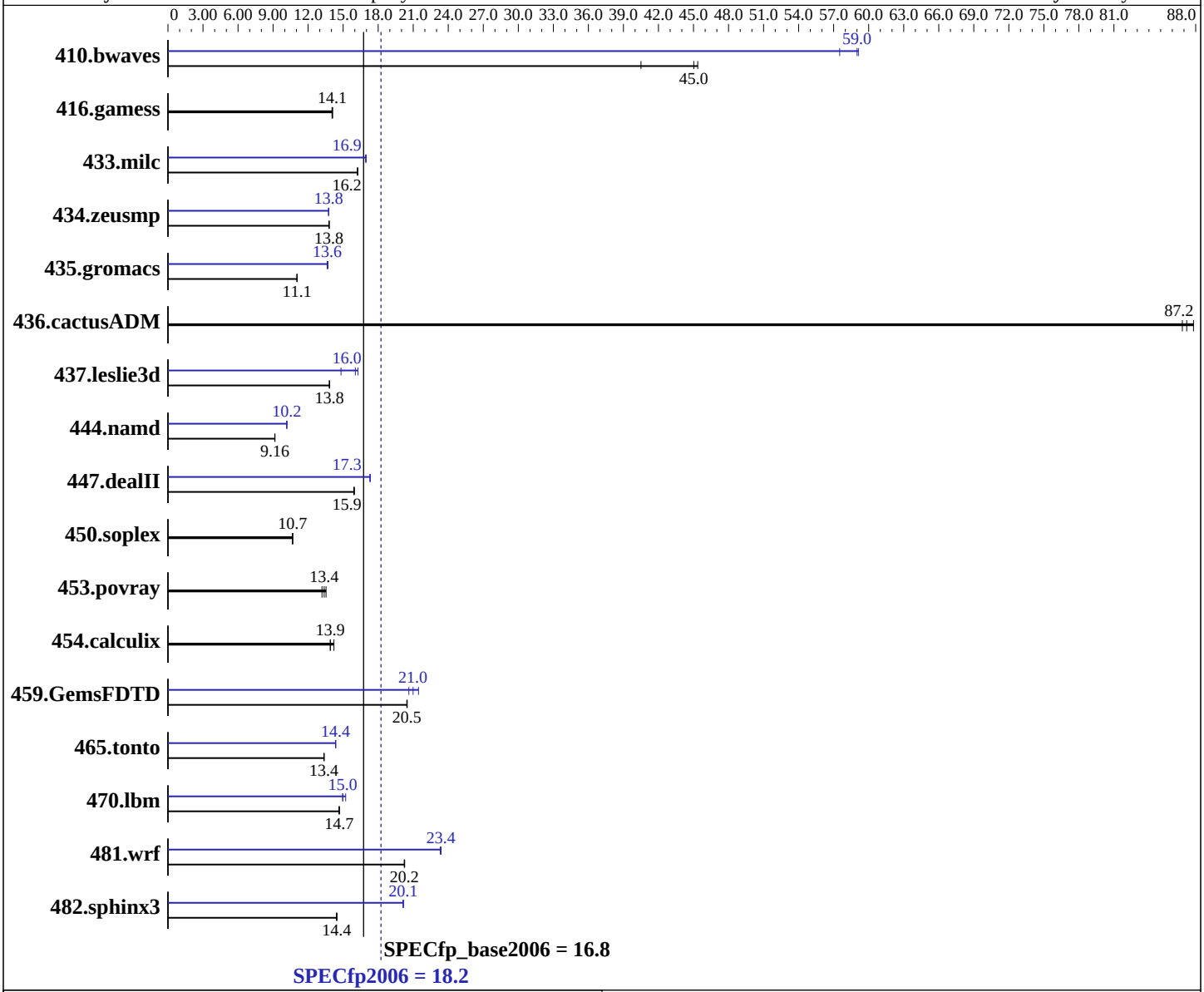
ProLiant DL165 G5
(2.3 GHz AMD Opteron 2356)

SPECfp®2006 = 18.2

SPECfp_base2006 = 16.8

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



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

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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: 1x146 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	336	40.5	300	45.4	**302**	**45.0**	230	59.1	236	57.5	**230**	**59.0**
416.gamess	**1392**	**14.1**	1394	14.0	1389	14.1	**1392**	**14.1**	1394	14.0	1389	14.1
433.milc	**565**	**16.2**	566	16.2	565	16.2	**542**	**16.9**	542	16.9	541	17.0
434.zeusmp	**659**	**13.8**	660	13.8	659	13.8	661	13.8	662	13.7	**662**	**13.8**
435.gromacs	645	11.1	**645**	**11.1**	648	11.0	**524**	**13.6**	521	13.7	524	13.6
436.cactusADM	138	86.9	136	87.8	**137**	**87.2**	138	86.9	136	87.8	**137**	**87.2**
437.leslie3d	**679**	**13.8**	681	13.8	679	13.9	634	14.8	578	16.3	**586**	**16.0**
444.namd	877	9.15	876	9.16	**876**	**9.16**	789	10.2	787	10.2	**789**	**10.2**
447.dealII	719	15.9	716	16.0	**719**	**15.9**	661	17.3	661	17.3	**661**	**17.3**
450.soplex	**782**	**10.7**	781	10.7	782	10.7	**782**	**10.7**	781	10.7	782	10.7
453.povray	403	13.2	393	13.5	**398**	**13.4**	403	13.2	393	13.5	**398**	**13.4**
454.calculix	594	13.9	580	14.2	**593**	**13.9**	594	13.9	580	14.2	**593**	**13.9**
459.GemsFDTD	**518**	**20.5**	519	20.5	518	20.5	495	21.5	514	20.6	**505**	**21.0**
465.tonto	735	13.4	**736**	**13.4**	737	13.3	**685**	**14.4**	686	14.4	685	14.4
470.lbm	936	14.7	938	14.6	**936**	**14.7**	919	15.0	903	15.2	**918**	**15.0**
481.wrf	**552**	**20.2**	551	20.3	552	20.2	479	23.3	478	23.4	**478**	**23.4**
482.sphinx3	**1349**	**14.4**	1347	14.5	1350	14.4	966	20.2	968	20.1	**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.
```

Base Compiler Invocation

C benchmarks:
pgcc

C++ benchmarks:
pgcpp

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Base Compiler Invocation (Continued)

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

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 -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`

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Peak Optimization Flags (Continued)

482.sphinx3: -Mpfi(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: -Mpfi(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.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: -fast -Mipa=jobs:8 -Mipa=fast -Mipa=inline -Mfprelaxed -Mconcur=noaltcode -Msmartalloc=huge:896 -tp barcelona-64 -Bstatic_pgi

459.GemsFDTD: -Mpfi(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

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

Continued on next page

Peak Optimization Flags (Continued)

436.cactusADM: `basepeak = yes`

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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