SPEC® CFP2006 Result

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Hewlett-Packard Company

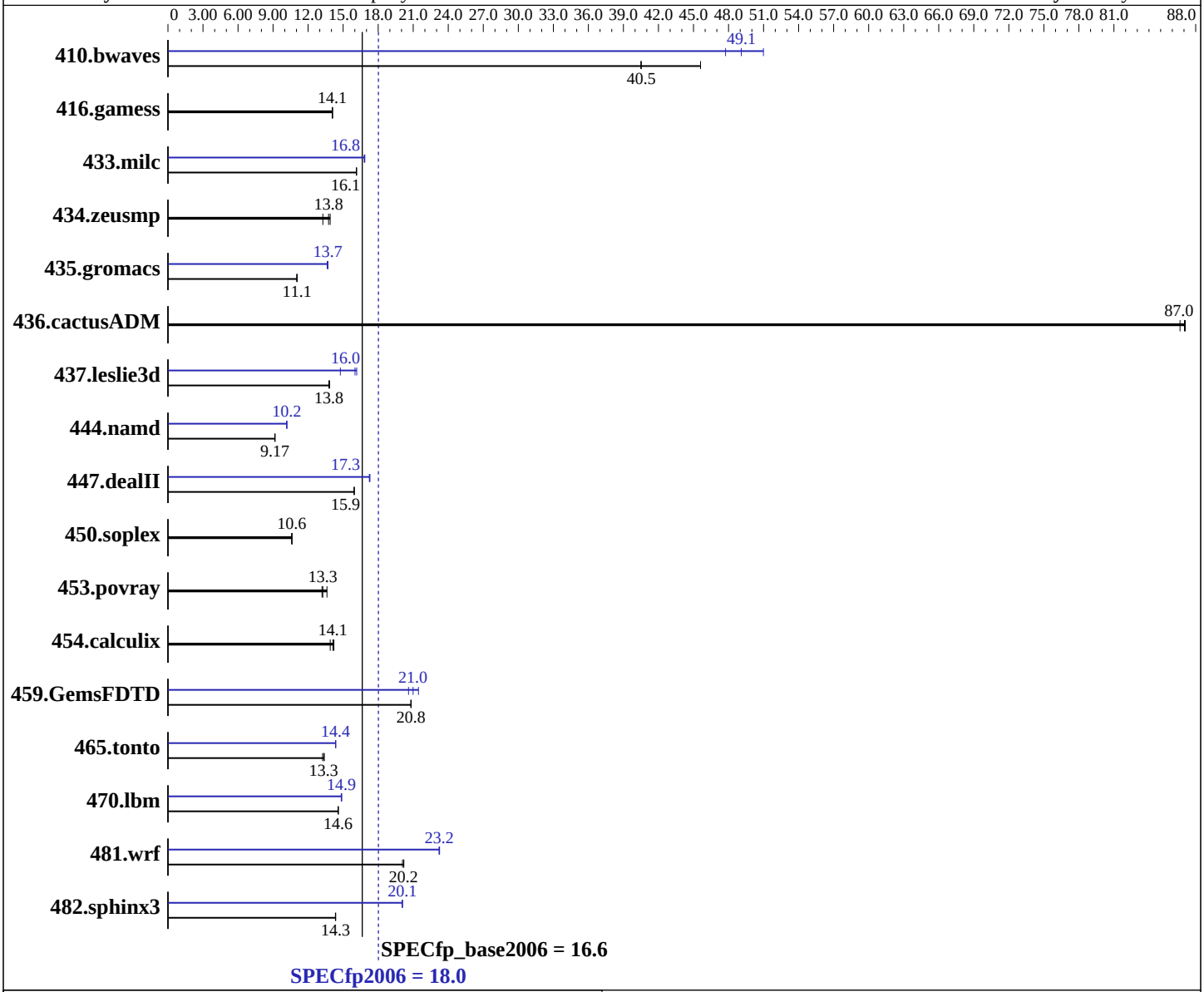
ProLiant DL185 G5
(2.3 GHz AMD Opteron 2356)

SPECfp®2006 = 18.0

SPECfp_base2006 = 16.6

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	298	45.6	336	40.5	**335**	**40.5**	267	51.0	285	47.7	**277**	**49.1**
416.gamess	1389	14.1	**1391**	**14.1**	1391	14.1	1389	14.1	**1391**	**14.1**	1391	14.1
433.milc	**569**	**16.1**	569	16.1	568	16.2	546	16.8	**545**	**16.8**	544	16.9
434.zeusmp	686	13.3	655	13.9	**662**	**13.8**	686	13.3	655	13.9	**662**	**13.8**
435.gromacs	**645**	**11.1**	648	11.0	645	11.1	**521**	**13.7**	524	13.6	521	13.7
436.cactusADM	138	86.7	137	87.1	**137**	**87.0**	138	86.7	137	87.1	**137**	**87.0**
437.leslie3d	682	13.8	**681**	**13.8**	679	13.8	637	14.8	**587**	**16.0**	582	16.2
444.namd	877	9.15	**875**	**9.17**	875	9.17	788	10.2	789	10.2	**788**	**10.2**
447.dealII	718	15.9	717	15.9	**717**	**15.9**	663	17.2	662	17.3	**662**	**17.3**
450.soplex	**786**	**10.6**	787	10.6	785	10.6	**786**	**10.6**	787	10.6	785	10.6
453.povray	**401**	**13.3**	403	13.2	391	13.6	**401**	**13.3**	403	13.2	391	13.6
454.calculix	581	14.2	594	13.9	**584**	**14.1**	581	14.2	594	13.9	**584**	**14.1**
459.GemsFDTD	510	20.8	509	20.8	**510**	**20.8**	495	21.5	515	20.6	**505**	**21.0**
465.tonto	735	13.4	**737**	**13.3**	743	13.2	685	14.4	**685**	**14.4**	686	14.3
470.lbm	942	14.6	**943**	**14.6**	943	14.6	924	14.9	926	14.8	**924**	**14.9**
481.wrf	556	20.1	553	20.2	**553**	**20.2**	**481**	**23.2**	481	23.2	480	23.3
482.sphinx3	1357	14.4	1359	14.3	**1359**	**14.3**	**971**	**20.1**	972	20.0	970	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.
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
```

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: -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: 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: -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

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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: `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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