SPEC® CFP2006 Result

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Hewlett-Packard Company

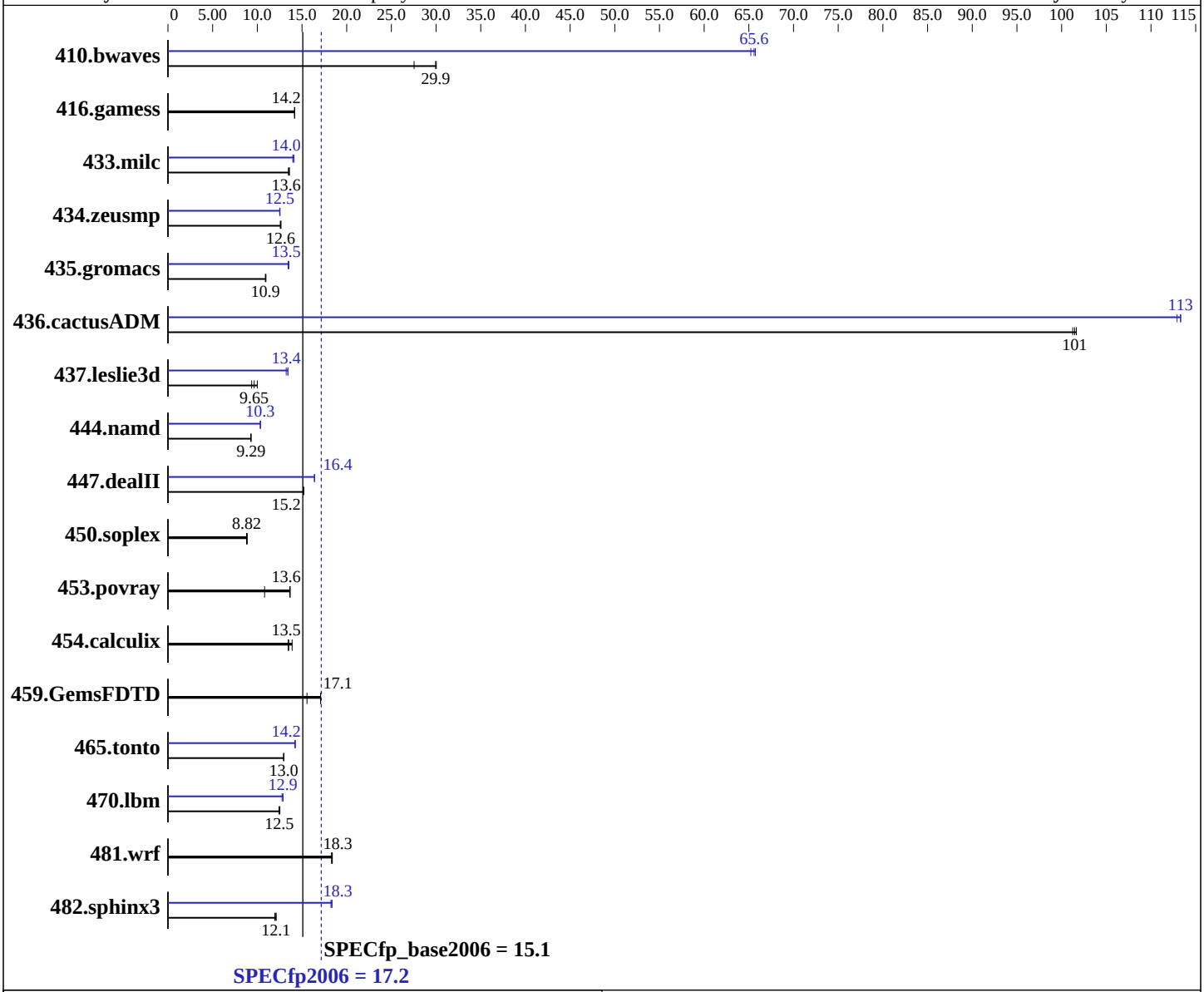
ProLiant DL585 G5
(2.3 GHz AMD Opteron 8356)

SPECfp®2006 = 17.2

SPECfp_base2006 = 15.1

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 8356
CPU Characteristics:	
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	16 cores, 4 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:	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: 64 GB (16x4 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	**454**	**29.9**	453	30.0	493	27.5	208	65.2	207	65.7	**207**	**65.6**
416.gamess	**1381**	**14.2**	1383	14.2	1380	14.2	**1381**	**14.2**	1383	14.2	1380	14.2
433.milc	**677**	**13.6**	681	13.5	676	13.6	**653**	**14.0**	651	14.1	657	14.0
434.zeusmp	724	12.6	**721**	**12.6**	720	12.6	725	12.5	728	12.5	**727**	**12.5**
435.gromacs	654	10.9	651	11.0	**654**	**10.9**	531	13.4	**531**	**13.5**	527	13.5
436.cactusADM	118	101	**118**	**101**	118	102	**105**	**113**	105	113	106	113
437.leslie3d	**974**	**9.65**	1003	9.37	940	10.0	**701**	**13.4**	711	13.2	700	13.4
444.namd	**863**	**9.29**	865	9.28	863	9.29	776	10.3	**776**	**10.3**	774	10.4
447.dealII	752	15.2	754	15.2	**753**	**15.2**	697	16.4	698	16.4	**698**	**16.4**
450.soplex	940	8.87	948	8.80	**945**	**8.82**	940	8.87	948	8.80	**945**	**8.82**
453.povray	492	10.8	**390**	**13.6**	389	13.7	492	10.8	**390**	**13.6**	389	13.7
454.calculix	594	13.9	613	13.5	**610**	**13.5**	594	13.9	613	13.5	**610**	**13.5**
459.GemsFDTD	621	17.1	**621**	**17.1**	682	15.6	621	17.1	**621**	**17.1**	682	15.6
465.tonto	758	13.0	**759**	**13.0**	761	12.9	691	14.2	692	14.2	**691**	**14.2**
470.lbm	1097	12.5	1105	12.4	**1102**	**12.5**	1066	12.9	**1068**	**12.9**	1076	12.8
481.wrf	607	18.4	610	18.3	**609**	**18.3**	607	18.4	610	18.3	**609**	**18.3**
482.sphinx3	1631	11.9	**1613**	**12.1**	1610	12.1	**1064**	**18.3**	1061	18.4	1069	18.2

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 14336.
```

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`

Continued on next page

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: -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: basepeak = yes

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: `basepeak = yes`

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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