SPEC® CFP2006 Result

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Hewlett-Packard Company

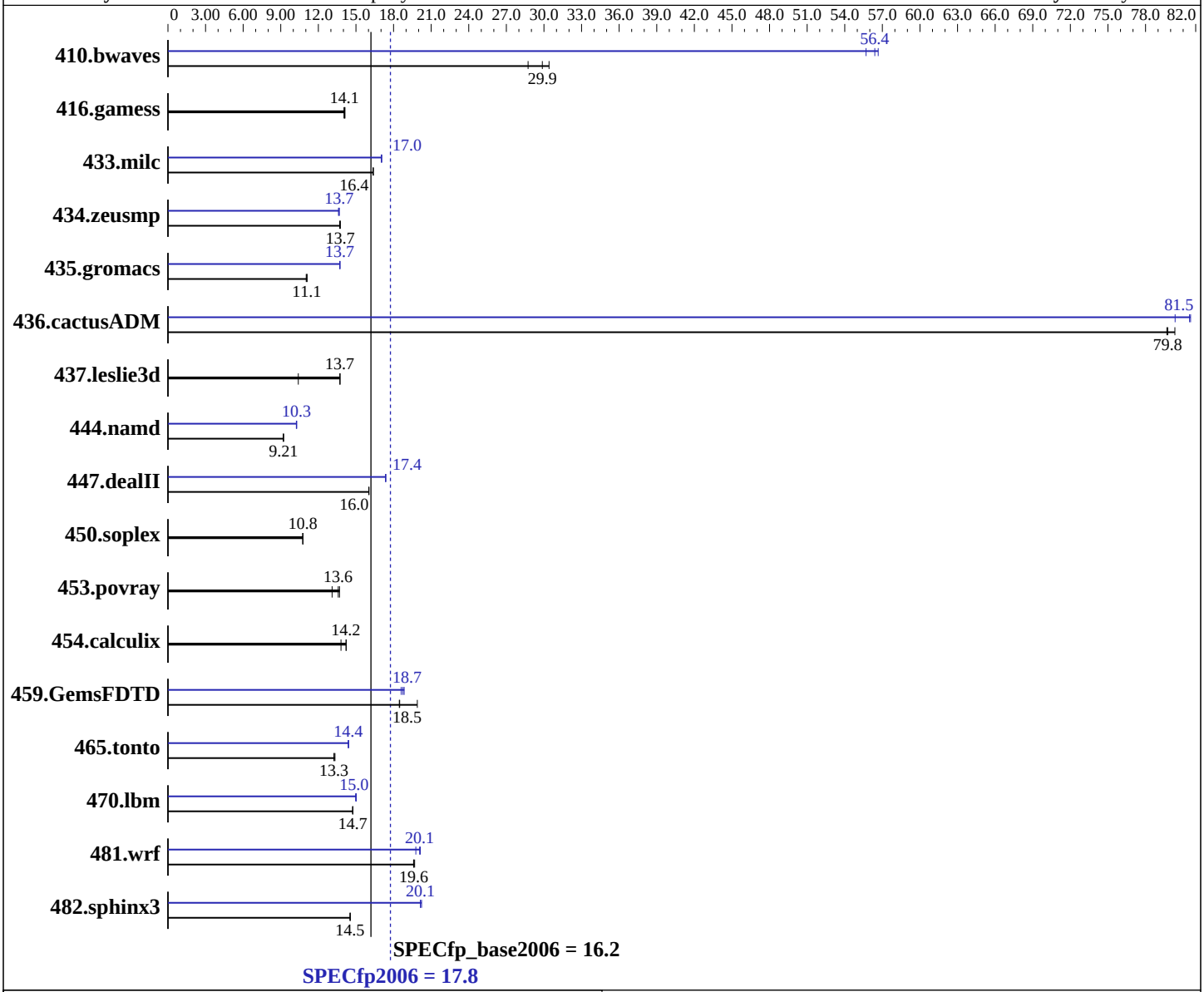
ProLiant DL385 G5
(2.3 GHz AMD Opteron 2356)

SPECfp®2006 = 17.8

SPECfp_base2006 = 16.2

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

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: basepeak = yes

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: `-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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