SPEC® CFP2006 Result

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Hewlett-Packard Company

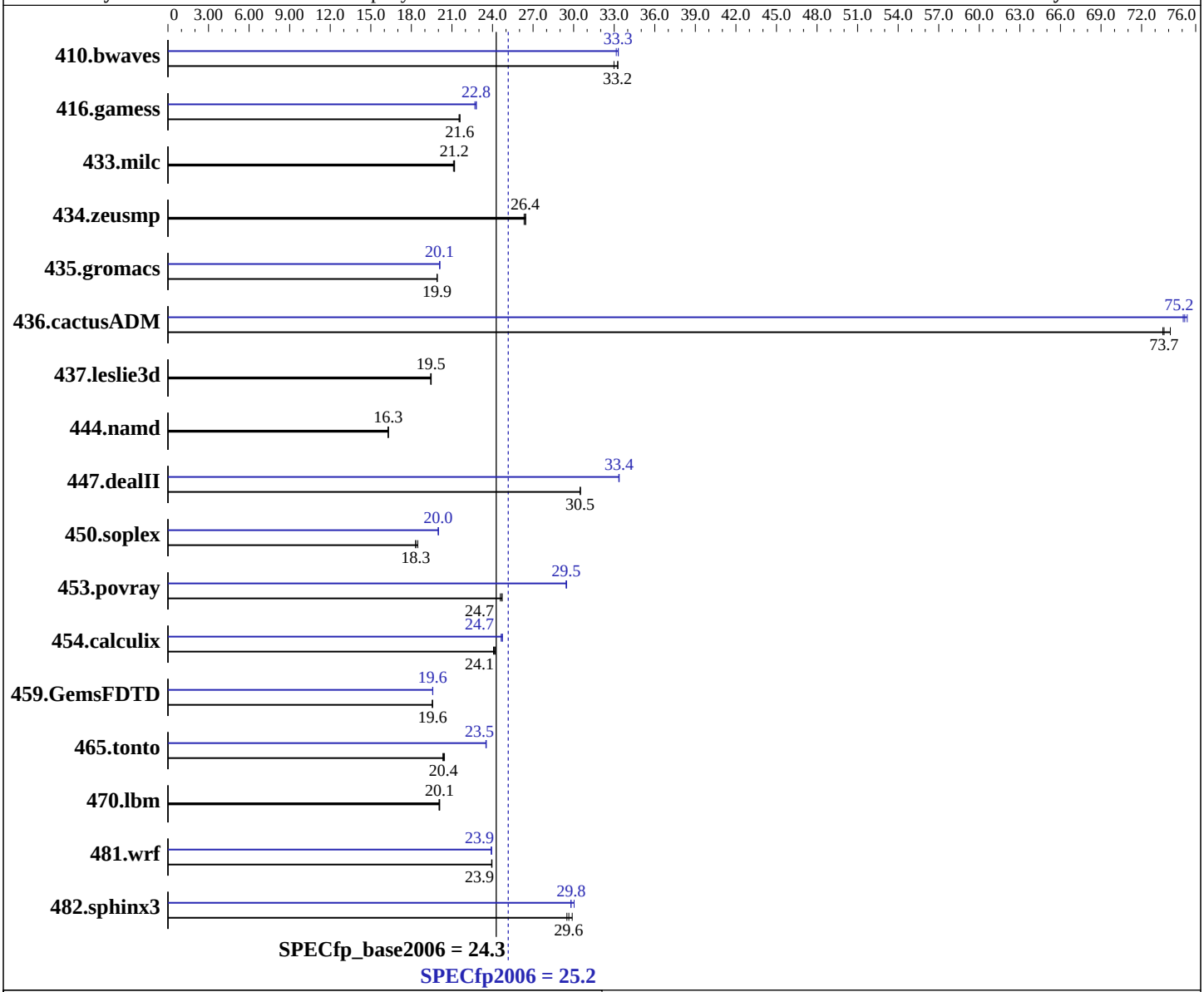
ProLiant DL320 G5p
(3.00 GHz, Intel Xeon X3370)

SPECfp®2006 = 25.2

SPECfp_base2006 = 24.3

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Sep-2008
Hardware Availability: Sep-2008
Software Availability: Nov-2008



Hardware

CPU Name:	Intel Xeon X3370
CPU Characteristics:	3.0 GHz, 2x6MB L2 shared, 1333 MHz system bus
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 6 MB shared / 2 cores

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Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ and Fortran Compiler 10.1 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache: None
Other Cache: None
Memory: 8 GB(4x2 GB PC2-6400E CL6)
Disk Subsystem: 250 GB 7.2 K SATA
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	412	33.0	408	33.3	**409**	**33.2**	**408**	**33.3**	408	33.3	410	33.2
416.gamess	**908**	**21.6**	910	21.5	907	21.6	863	22.7	**859**	**22.8**	858	22.8
433.milc	**433**	**21.2**	433	21.2	435	21.1	**433**	**21.2**	433	21.2	435	21.1
434.zeusmp	346	26.3	**344**	**26.4**	344	26.5	346	26.3	**344**	**26.4**	344	26.5
435.gromacs	**359**	**19.9**	359	19.9	359	19.9	**355**	**20.1**	355	20.1	356	20.1
436.cactusADM	162	73.6	161	74.1	**162**	**73.7**	159	75.1	159	75.4	**159**	**75.2**
437.leslie3d	484	19.4	483	19.5	**483**	**19.5**	484	19.4	483	19.5	**483**	**19.5**
444.namd	**492**	**16.3**	493	16.3	492	16.3	**492**	**16.3**	493	16.3	492	16.3
447.dealII	375	30.5	375	30.5	**375**	**30.5**	343	33.3	343	33.4	**343**	**33.4**
450.soplex	451	18.5	455	18.3	**455**	**18.3**	417	20.0	**417**	**20.0**	417	20.0
453.povray	**216**	**24.7**	216	24.6	215	24.7	181	29.4	180	29.5	**181**	**29.5**
454.calculix	**342**	**24.1**	343	24.1	341	24.2	335	24.6	334	24.7	**334**	**24.7**
459.GemsFDTD	**542**	**19.6**	543	19.5	542	19.6	542	19.6	**542**	**19.6**	542	19.6
465.tonto	481	20.4	**483**	**20.4**	484	20.3	418	23.5	419	23.5	**418**	**23.5**
470.lbm	685	20.0	**684**	**20.1**	684	20.1	685	20.0	**684**	**20.1**	684	20.1
481.wrf	466	24.0	467	23.9	**466**	**23.9**	467	23.9	467	23.9	**467**	**23.9**
482.sphinx3	652	29.9	**657**	**29.6**	661	29.5	649	30.0	**654**	**29.8**	654	29.8

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

General Notes

```
All benchmarks compiled in 64-bit mode except 450.soplex
and 482.sphinx3, at peak, are compiled in 32-bit mode
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 200M
```

Base Compiler Invocation

C benchmarks:
icc

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Base Compiler Invocation (Continued)

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

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 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
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 -nofor_main
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:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Peak Compiler Invocation

C benchmarks (except as noted below):
icc

482.sphinx3: /opt/intel/Compiler/11.0/042/bin/ia32/icc
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

C++ benchmarks (except as noted below):
icpc

450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

Peak 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 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
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

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

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Peak Optimization Flags (Continued)

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias -scalar-rep- -opt-prefetch

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -opt-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel -auto-ilp32

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090713.html
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revD.20090713.00.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090713.xml
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revD.20090713.00.xml

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