SPEC® CFP2006 Result

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Hewlett-Packard Company

ProLiant DL370 G6
(3.2 GHz, Intel Xeon W5580)

$SPECfp^{®}\_rate2006 =$ 201

$SPECfp\_rate\_base2006 =$ 195

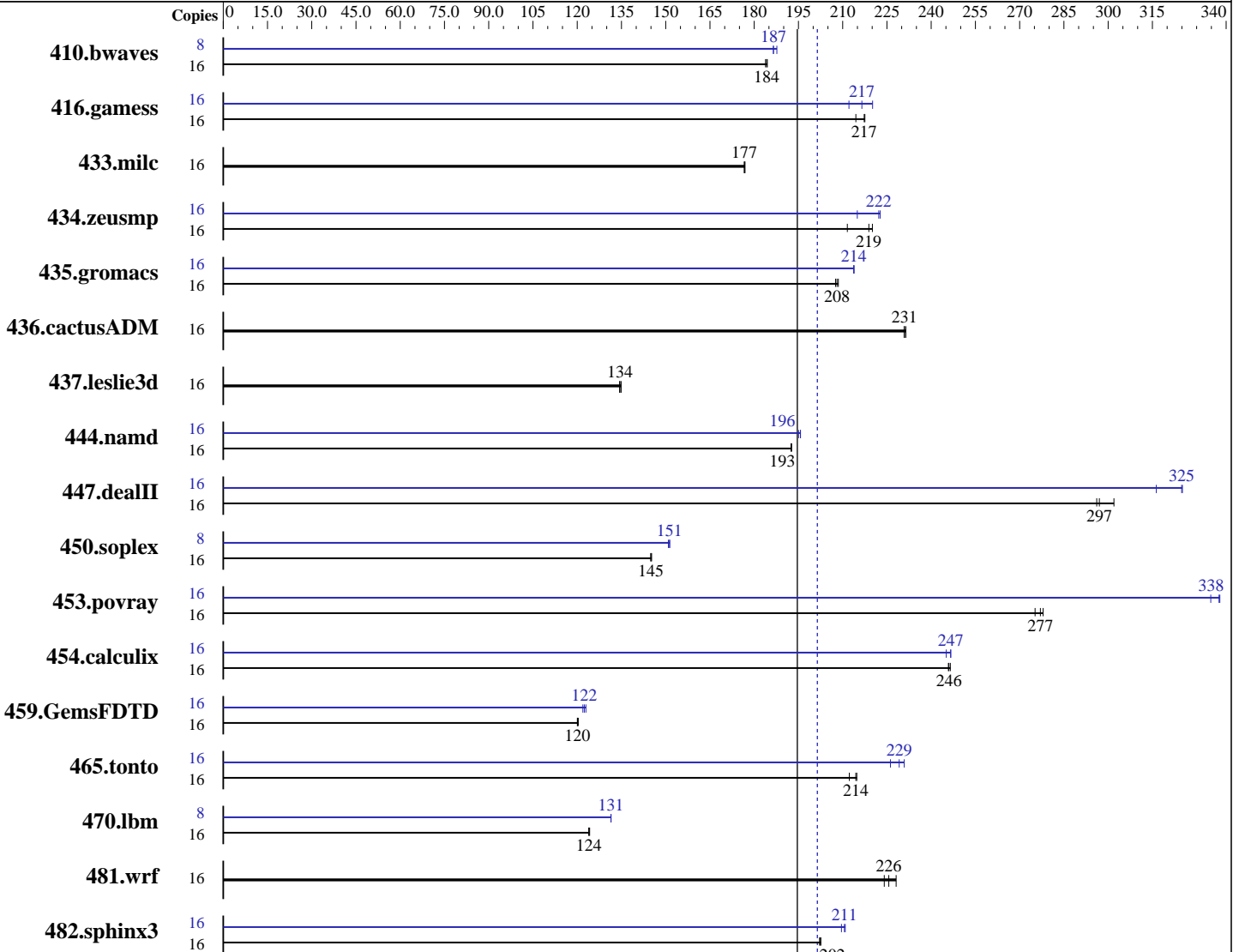|	
CPU2006 license: 3	**Test date:** Apr-2009
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Apr-2009
Tested by: Hewlett-Packard Company	**Software Availability:** Feb-2009

SPECfp_rate_base2006 = 195

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Hardware

CPU Name:	Intel Xeon W5580
CPU Characteristics:	Intel Turbo Boost Technology up to 3.46 GHz
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

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Software

Operating System:	Red Hat Enterprise Linux Server release 5.3 Kernel 2.6.18-128.el5
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache:	8 MB I+D on chip per chip	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	Binutils 2.18.50.0.7.20080502
Memory:	48 GB (6x8 GB PC3-10600R CL9)		
Disk Subsystem:	1x146 GB 10 K SAS		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	**1180**	**184**	1179	184	1183	184	8	583	187	579	188	**583**	**187**
416.gamess	16	1440	218	**1442**	**217**	1461	214	16	1423	220	1477	212	**1447**	**217**
433.milc	16	830	177	831	177	**831**	**177**	16	830	177	831	177	**831**	**177**
434.zeusmp	16	662	220	688	212	**665**	**219**	16	654	223	**655**	**222**	677	215
435.gromacs	16	548	209	550	208	**549**	**208**	16	**534**	**214**	534	214	534	214
436.cactusADM	16	**828**	**231**	828	231	826	231	16	**828**	**231**	828	231	826	231
437.leslie3d	16	**1118**	**134**	1115	135	1119	134	16	**1118**	**134**	1115	135	1119	134
444.namd	16	**666**	**193**	667	192	666	193	16	656	196	658	195	**656**	**196**
447.dealII	16	**616**	**297**	606	302	618	296	16	**563**	**325**	579	316	563	325
450.soplex	16	919	145	**920**	**145**	921	145	8	442	151	**441**	**151**	441	151
453.povray	16	309	275	306	278	**307**	**277**	16	254	335	252	338	**252**	**338**
454.calculix	16	**537**	**246**	537	246	535	247	16	535	247	539	245	**535**	**247**
459.GemsFDTD	16	1410	120	**1414**	**120**	1414	120	16	1392	122	**1387**	**122**	1381	123
465.tonto	16	733	215	**734**	**214**	742	212	16	**687**	**229**	696	226	682	231
470.lbm	16	1770	124	**1773**	**124**	1774	124	8	836	131	836	131	**836**	**131**
481.wrf	16	783	228	798	224	**792**	**226**	16	783	228	798	224	**792**	**226**
482.sphinx3	16	1543	202	1539	203	**1540**	**202**	16	**1481**	**211**	1479	211	1488	210

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

Submit Notes

```
    The config file option 'submit' was used.
     numactl was used to bind copies to the cores
```

Operating System Notes

```
     'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

Platform Notes

```
    BIOS configuration:
       Power Regulator set to Static High Performance Mode
       Power Profile set to Maximum Performance
       Thermal Configuration set to Increased Cooling
```

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General Notes

```
The HP Proliant DL370 G6 (Intel Xeon W5580) and
the HP Proliant ML370 G6 (Intel Xeon W5580) models are electronically equivalent.
The results have been measured on a HP Proliant ML370 G6 (Intel Xeon W5580) model.
```

Base Compiler Invocation

C benchmarks:
    `icc`

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:
    `-xSSE4.2 -ipo -O3 -no-prec-div -static`

C++ benchmarks:
    `-xSSE4.2 -ipo -O3 -no-prec-div -static`

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Base Optimization Flags (Continued)

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

482.sphinx3: `icc -m32`

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

450.soplex: `icpc -m32`

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`

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Peak Optimization Flags

C benchmarks:

        433.milc: basepeak = yes

        470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
                 -auto-ilp32

        482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

        444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                  -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                  -fno-alias -auto-ilp32

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

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

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

Fortran benchmarks:

        410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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

        434.zeusmp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                    -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)

        437.leslie3d: basepeak = yes

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

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

Benchmarks using both Fortran and C:

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Peak Optimization Flags (Continued)

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

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: basepeak = yes

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.20090710.html
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.13.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.20090710.xml
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.13.xml

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