SPEC® CFP2006 Result
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Hewlett-Packard Company

ProLiant DL180 G6
(2.93 GHz, Intel Xeon X5570)

$SPECfp®\_rate2006 =$ 196

$SPECfp\_rate\_base2006 =$ 189

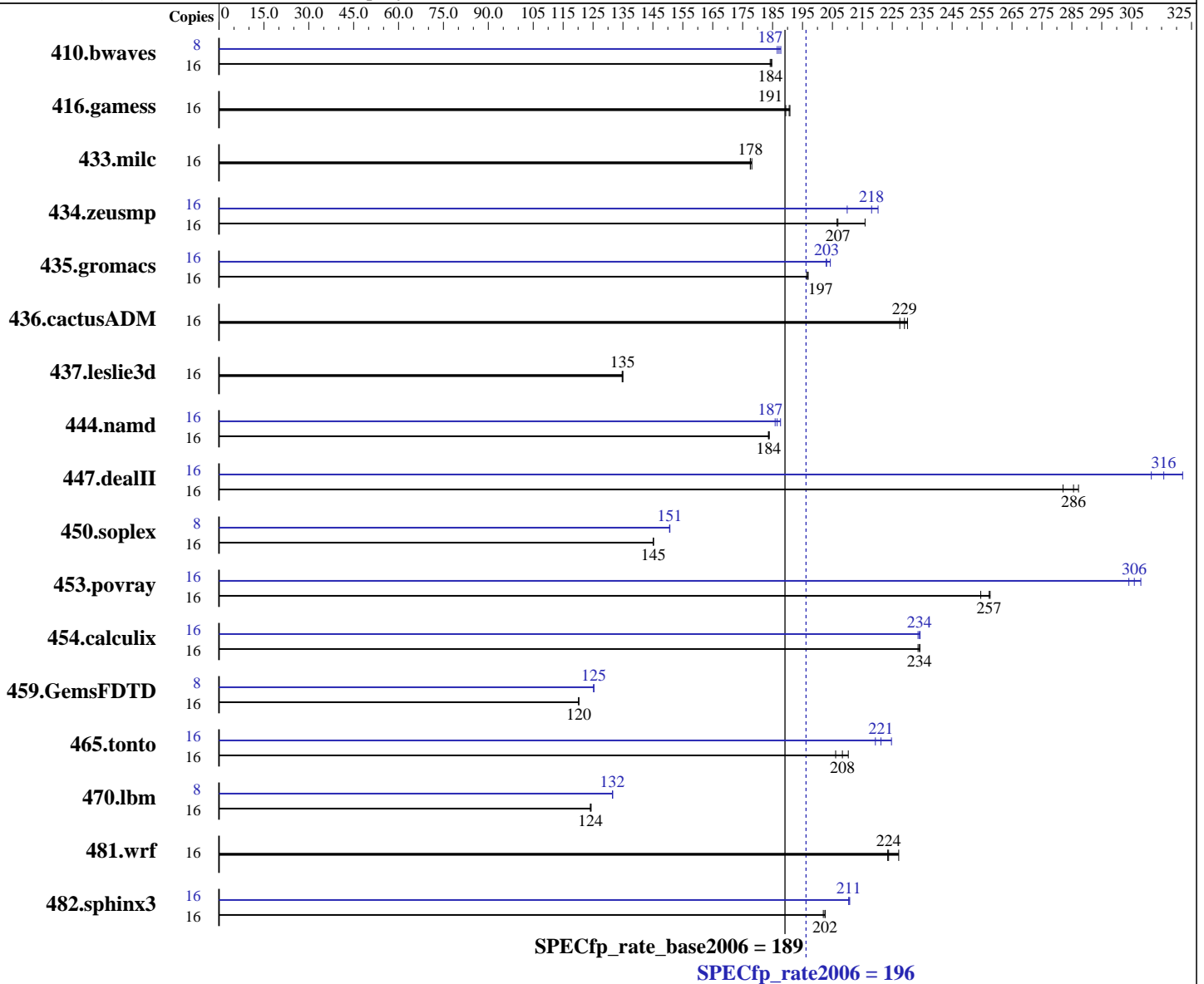|	
CPU2006 license: 3	**Test date:** Apr-2009
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Mar-2009
Tested by: Hewlett-Packard Company	**Software Availability:** Feb-2009

Copies 0 15.0 30.0 45.0 60.0 75.0 90.0 105 115 125 135 145 155 165 175 185 195 205 215 225 235 245 255 265 275 285 295 305 325

- 410.bwaves — 8: 187, 16: 184
- 416.gamess — 16: 191
- 433.milc — 16: 178
- 434.zeusmp — 16: 218, 16: 207
- 435.gromacs — 16: 203, 16: 197
- 436.cactusADM — 16: 229
- 437.leslie3d — 16: 135
- 444.namd — 16: 187, 16: 184
- 447.dealII — 16: 316, 16: 286
- 450.soplex — 8: 151, 16: 145
- 453.povray — 16: 306, 16: 257
- 454.calculix — 16: 234, 16: 234
- 459.GemsFDTD — 8: 125, 16: 120
- 465.tonto — 16: 221, 16: 208
- 470.lbm — 8: 132, 16: 124
- 481.wrf — 16: 224
- 482.sphinx3 — 16: 211, 16: 202

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Hardware

CPU Name:	Intel Xeon X5570
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
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

Continued on next page

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
Other Cache:	None
Memory:	48 GB (6x8 GB PC3-10600R CL9)
Disk Subsystem:	1x160 GB 7.2K LFF SATA
Other Hardware:	None
Peak Pointers:	32/64-bit
Other Software:	Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	1177	185	**1179**	**184**	1181	184	8	**581**	**187**	579	188	583	187
416.gamess	16	1654	189	**1644**	**191**	1642	191	16	1654	189	**1644**	**191**	1642	191
433.milc	16	825	178	**827**	**178**	827	178	16	825	178	**827**	**178**	827	178
434.zeusmp	16	674	216	**704**	**207**	705	207	16	661	220	694	210	**668**	**218**
435.gromacs	16	582	196	580	197	**581**	**197**	16	**563**	**203**	559	204	563	203
436.cactusADM	16	840	228	831	230	**835**	**229**	16	840	228	831	230	**835**	**229**
437.leslie3d	16	1115	135	1116	135	**1115**	**135**	16	1115	135	1116	135	**1115**	**135**
444.namd	16	699	184	698	184	**699**	**184**	16	684	188	690	186	**688**	**187**
447.dealII	16	637	287	**641**	**286**	649	282	16	568	322	587	312	**580**	**316**
450.soplex	16	919	145	920	145	**919**	**145**	8	**443**	**151**	443	151	443	151
453.povray	16	**331**	**257**	334	255	330	258	16	276	308	280	304	**278**	**306**
454.calculix	16	**564**	**234**	564	234	565	234	16	563	234	**564**	**234**	565	234
459.GemsFDTD	16	1412	120	**1412**	**120**	1412	120	8	**678**	**125**	677	125	678	125
465.tonto	16	749	210	764	206	**756**	**208**	16	**712**	**221**	718	219	701	225
470.lbm	16	1768	124	**1771**	**124**	1771	124	8	836	131	**836**	**132**	835	132
481.wrf	16	800	223	787	227	**799**	**224**	16	800	223	787	227	**799**	**224**
482.sphinx3	16	1539	203	1544	202	**1540**	**202**	16	**1481**	**211**	1479	211	1482	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 Efficiency Mode set to Custom
     C1E Support Disabled
     Intel C-STATE tech Disabled

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Platform Notes (Continued)

```
Intel SpeedStep tech Enabled
```

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

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

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Base Optimization Flags (Continued)

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
```

Peak Optimization Flags

C benchmarks:

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Peak Optimization Flags (Continued)

```
    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: basepeak = yes

   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:

```
  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
```

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Peak Optimization Flags (Continued)

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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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