SPEC® CFP2006 Result
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Hewlett-Packard Company

ProLiant DL380 G6
(2.53 GHz, Intel Xeon E5540)

$SPECfp®_rate2006 = $ 166

$SPECfp_rate_base2006 = $ 160

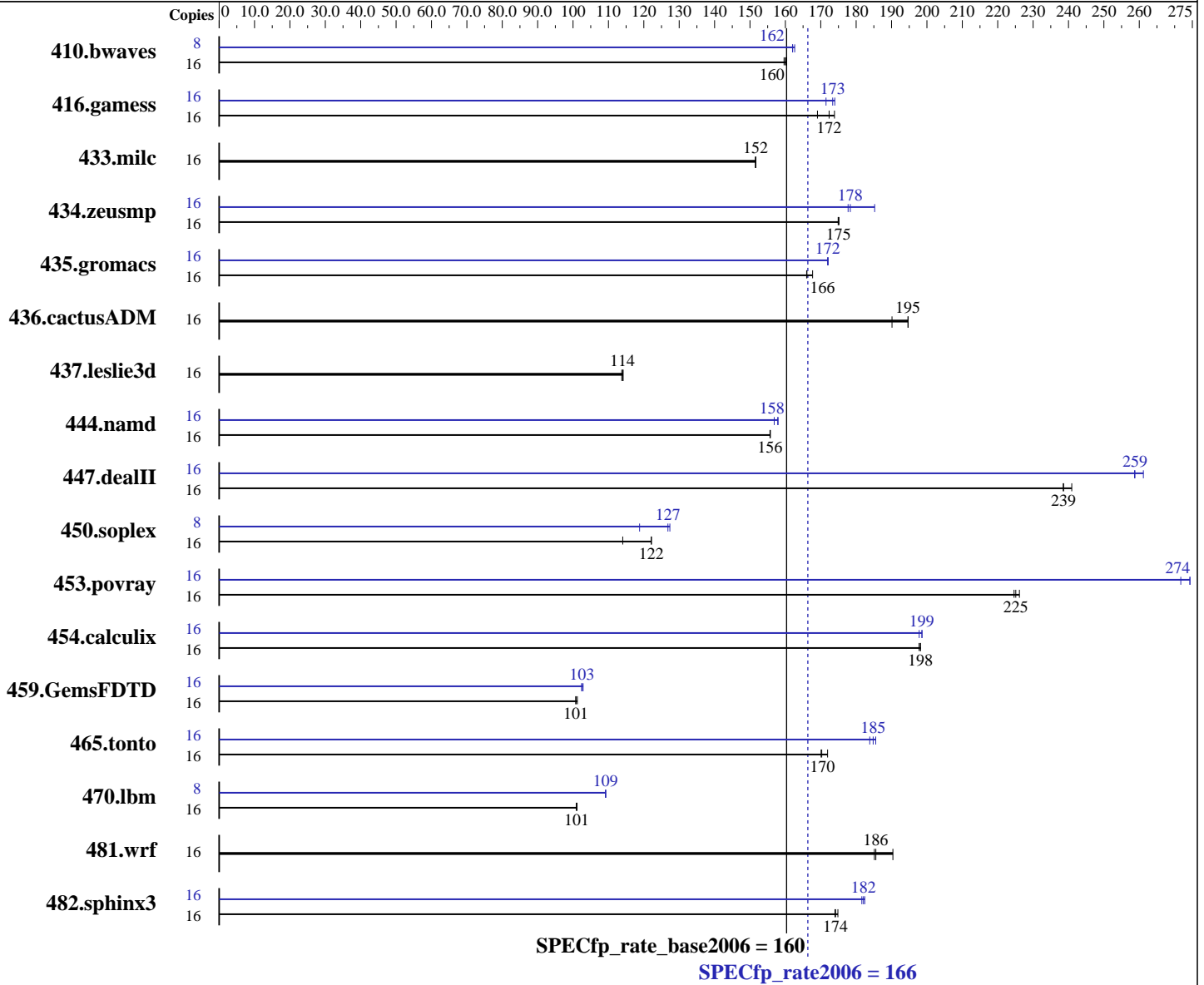|	
CPU2006 license: 3	**Test date:** May-2009
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Mar-2009
Tested by: Hewlett-Packard Company	**Software Availability:** Feb-2009

Copies

Benchmark	Copies	Value
410.bwaves	8	162
	16	160
416.gamess	16	173
	16	172
433.milc	16	152
434.zeusmp	16	178
	16	175
435.gromacs	16	172
	16	166
436.cactusADM	16	195
437.leslie3d	16	114
444.namd	16	158
	16	156
447.dealII	16	259
	16	239
450.soplex	8	127
	16	122
453.povray	16	274
	16	225
454.calculix	16	199
	16	198
459.GemsFDTD	16	103
	16	101
465.tonto	16	185
	16	170
470.lbm	8	109
	16	101
481.wrf	16	186
482.sphinx3	16	182
	16	174

SPECfp_rate_base2006 = 160

SPECfp_rate2006 = 166

Hardware

CPU Name:	Intel Xeon E5540
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2533
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++ 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:	32-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: Microquill SmartHeap V8.1
Memory: 48 GB (6x8 GB PC3-10600R CL9)	Binutils 2.18.50.0.7.20080502
Disk Subsystem: 1x146 GB 10K RPM 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	1362	160	1358	160	**1359**	**160**	8	671	162	668	163	**671**	**162**
416.gamess	16	**1818**	**172**	1802	174	1853	169	16	**1807**	**173**	1801	174	1827	171
433.milc	16	**969**	**152**	968	152	969	152	16	**969**	**152**	968	152	969	152
434.zeusmp	16	832	175	831	175	**832**	**175**	16	**816**	**178**	819	178	786	185
435.gromacs	16	681	168	**688**	**166**	688	166	16	664	172	**664**	**172**	664	172
436.cactusADM	16	1006	190	**982**	**195**	982	195	16	1006	190	**982**	**195**	982	195
437.leslie3d	16	**1319**	**114**	1322	114	1317	114	16	**1319**	**114**	1322	114	1317	114
444.namd	16	**824**	**156**	824	156	824	156	16	812	158	818	157	**813**	**158**
447.dealII	16	760	241	767	239	**767**	**239**	16	**707**	**259**	708	259	701	261
450.soplex	16	1170	114	**1093**	**122**	1092	122	8	562	119	**526**	**127**	524	127
453.povray	16	**378**	**225**	376	226	379	225	16	313	272	310	274	**310**	**274**
454.calculix	16	666	198	**666**	**198**	667	198	16	665	199	667	198	**665**	**199**
459.GemsFDTD	16	1677	101	1685	101	**1683**	**101**	16	**1656**	**103**	1657	102	1651	103
465.tonto	16	926	170	**925**	**170**	916	172	16	856	184	**852**	**185**	849	186
470.lbm	16	2174	101	**2176**	**101**	2178	101	8	1006	109	**1006**	**109**	1007	109
481.wrf	16	939	190	**963**	**186**	965	185	16	939	190	**963**	**186**	965	185
482.sphinx3	16	1792	174	1784	175	**1790**	**174**	16	1717	182	1709	182	**1713**	**182**

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

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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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

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

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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:

     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`

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Peak Optimization Flags (Continued)

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:

    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

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Peak Optimization Flags (Continued)

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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