SPEC® CFP2006 Result

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Hewlett-Packard Company

ProLiant DL380 G6
(2.40 GHz, Intel Xeon E5530)

$SPECfp®\_rate2006 = 163$

$SPECfp\_rate\_base2006 = 158$
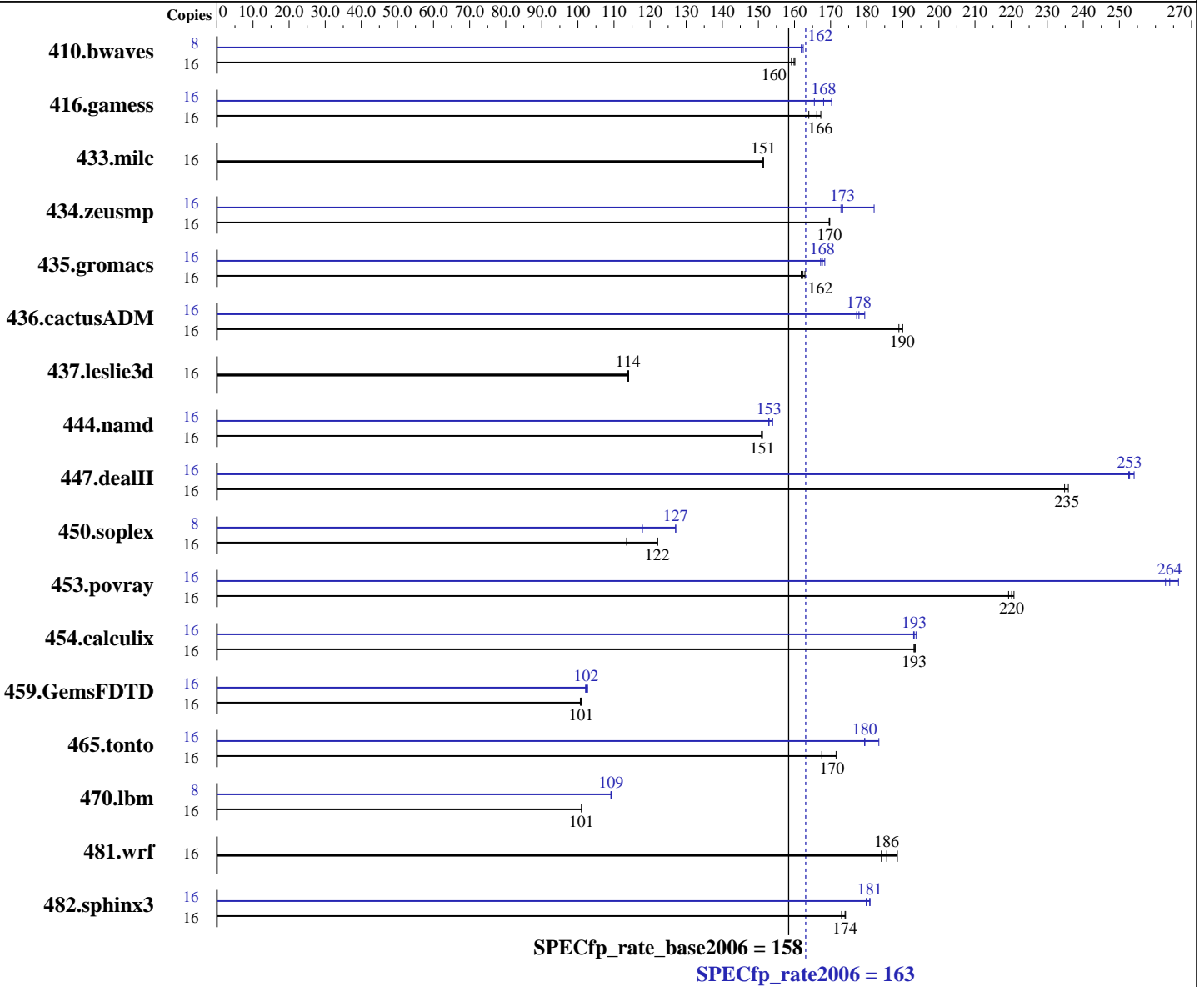
CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: May-2009

Hardware Availability: Mar-2009

Software Availability: Feb-2009

Copies	Benchmark	Result
8 / 16	410.bwaves	162 / 160
16 / 16	416.gamess	168 / 166
16	433.milc	151
16 / 16	434.zeusmp	173 / 170
16 / 16	435.gromacs	168 / 162
16 / 16	436.cactusADM	178 / 190
16	437.leslie3d	114
16 / 16	444.namd	153 / 151
16 / 16	447.dealII	253 / 235
8 / 16	450.soplex	127 / 122
16 / 16	453.povray	264 / 220
16 / 16	454.calculix	193 / 193
16 / 16	459.GemsFDTD	102 / 101
16 / 16	465.tonto	180 / 170
8 / 16	470.lbm	109 / 101
16	481.wrf	186
16 / 16	482.sphinx3	181 / 174

SPECfp_rate_base2006 = 158

SPECfp_rate2006 = 163

Hardware

CPU Name: Intel Xeon E5530

CPU Characteristics: Intel Turbo Boost Technology up to 2.67 GHz

CPU MHz: 2400

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	1366	159	1358	160	**1360**	**160**	8	**671**	**162**	669	162	671	162
416.gamess	16	1873	167	**1885**	**166**	1911	164	16	**1864**	**168**	1893	165	1840	170
433.milc	16	970	151	**970**	**151**	971	151	16	970	151	**970**	**151**	971	151
434.zeusmp	16	859	170	858	170	**858**	**170**	16	800	182	842	173	**840**	**173**
435.gromacs	16	701	163	706	162	**704**	**162**	16	678	168	**681**	**168**	683	167
436.cactusADM	16	1012	189	1007	190	**1007**	**190**	16	1065	179	**1075**	**178**	1079	177
437.leslie3d	16	**1320**	**114**	1321	114	1319	114	16	**1320**	**114**	1321	114	1319	114
444.namd	16	851	151	**849**	**151**	849	151	16	839	153	834	154	**839**	**153**
447.dealII	16	779	235	776	236	**777**	**235**	16	725	253	**724**	**253**	720	254
450.soplex	16	1176	113	1093	122	**1094**	**122**	8	566	118	525	127	**525**	**127**
453.povray	16	386	221	**387**	**220**	388	219	16	324	263	**322**	**264**	320	266
454.calculix	16	682	193	**683**	**193**	684	193	16	682	194	**683**	**193**	684	193
459.GemsFDTD	16	1686	101	**1683**	**101**	1681	101	16	1653	103	1662	102	**1660**	**102**
465.tonto	16	940	168	918	172	**924**	**170**	16	**877**	**180**	878	179	859	183
470.lbm	16	2176	101	2174	101	**2176**	**101**	8	1006	109	**1007**	**109**	1007	109
481.wrf	16	948	189	971	184	**963**	**186**	16	948	189	971	184	**963**	**186**
482.sphinx3	16	1802	173	1791	174	**1792**	**174**	16	1734	180	1723	181	**1724**	**181**

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: -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 -opt-prefetch -auto-ilp32

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Peak Optimization Flags (Continued)

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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