SPEC® CFP2006 Result
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Hewlett-Packard Company

ProLiant DL360 G7
(2.93 GHz, Intel Xeon X5670)

$SPECfp^{®}\_rate2006 =$ 243

$SPECfp\_rate\_base2006 =$ 235

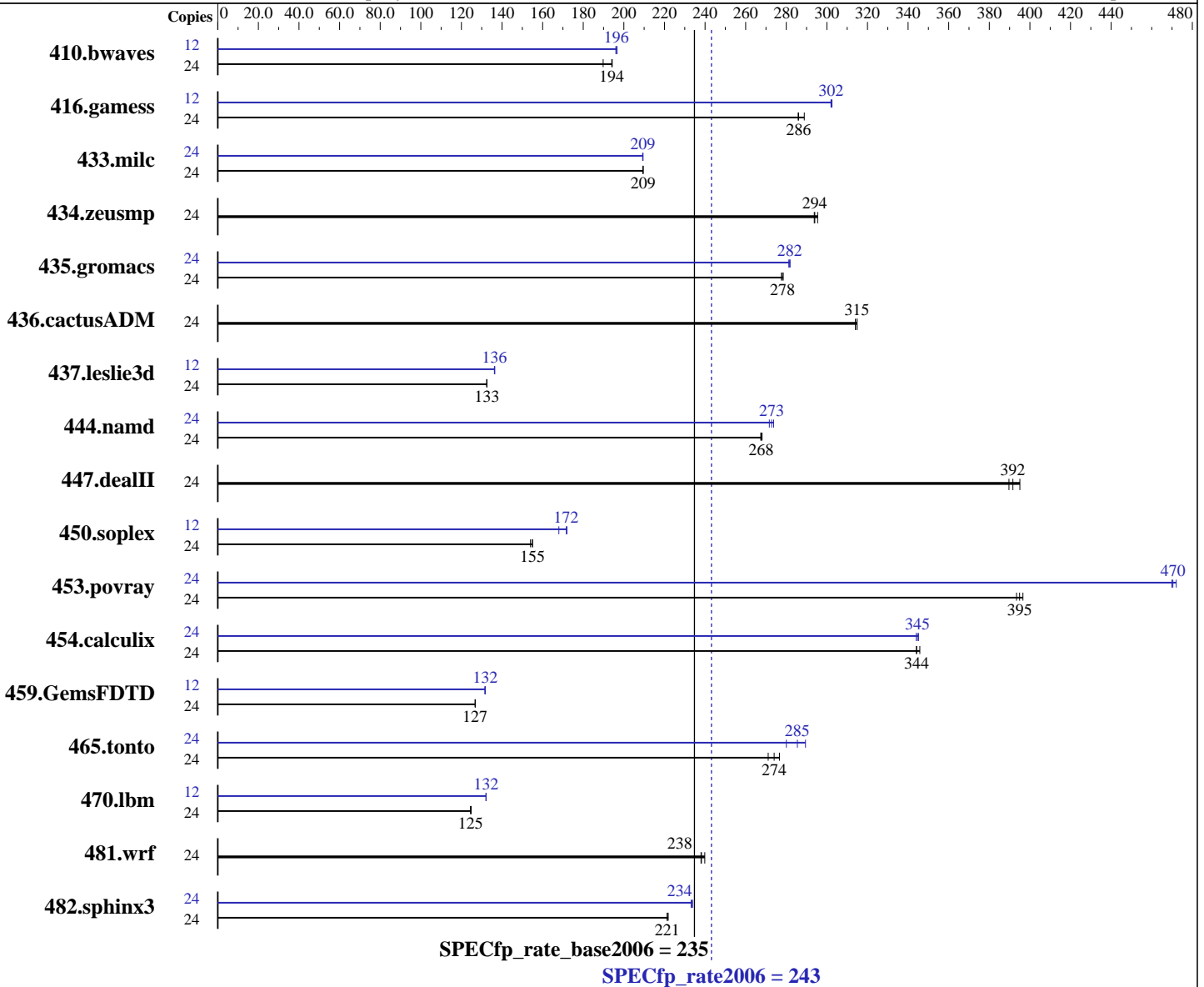|	
CPU2006 license: 3	**Test date:** Apr-2010
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Jun-2010
Tested by: Hewlett-Packard Company	**Software Availability:** Sep-2009

SPECfp_rate_base2006 = 235

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Hardware

CPU Name:	Intel Xeon X5670
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 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 5.4 Advanced Platform, Kernel 2.6.18-164.el5
Compiler:	Intel C++ and Fortran Compiler 11.1 for Linux Build 20090827 Package ID: l_cproc_p_11.1.056, l_cprof_p_11.1.056
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit

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L3 Cache:	12 MB I+D on chip per chip	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	Binutils 2.17.50.0.18
Memory:	48 GB (12x4 GB DDR3-10600R CL9)		
Disk Subsystem:	1x146 GB 10K 2.5" 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	24	1718	190	1679	194	**1681**	**194**	12	832	196	829	197	**830**	**196**
416.gamess	24	1644	286	1627	289	**1643**	**286**	12	**778**	**302**	778	302	777	303
433.milc	24	1051	210	1052	209	**1052**	**209**	24	1052	209	**1052**	**209**	1053	209
434.zeusmp	24	739	295	**743**	**294**	743	294	24	739	295	**743**	**294**	743	294
435.gromacs	24	**616**	**278**	617	278	615	279	24	609	281	**608**	**282**	608	282
436.cactusADM	24	913	314	**911**	**315**	911	315	24	913	314	**911**	**315**	911	315
437.leslie3d	24	1702	133	1703	132	**1702**	**133**	12	828	136	827	136	**827**	**136**
444.namd	24	718	268	720	267	**719**	**268**	24	709	272	**706**	**273**	703	274
447.dealII	24	695	395	**701**	**392**	705	390	24	695	395	**701**	**392**	705	390
450.soplex	24	1300	154	**1291**	**155**	1291	155	12	596	168	**583**	**172**	582	172
453.povray	24	325	393	**323**	**395**	322	397	24	**271**	**470**	270	472	272	470
454.calculix	24	573	346	575	344	**575**	**344**	24	576	344	**574**	**345**	574	345
459.GemsFDTD	24	2007	127	2009	127	**2009**	**127**	12	968	132	966	132	**966**	**132**
465.tonto	24	**862**	**274**	854	277	871	271	24	843	280	816	289	**827**	**285**
470.lbm	24	2642	125	**2646**	**125**	2649	124	12	1248	132	**1248**	**132**	1248	132
481.wrf	24	1118	240	**1125**	**238**	1126	238	24	1118	240	**1125**	**238**	1126	238
482.sphinx3	24	2113	221	**2113**	**221**	2108	222	24	2006	233	**2002**	**234**	2001	234

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:
     HP Power Profile set to Maximum Performance
     Thermal Configuration set to Increased Cooling
     Memory Speed with 2 DIMMs per Channel set to 1333Mhz Maximum
```

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Platform Notes (Continued)

```
Data Reuse set to Disabled
```

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: `/opt/intel/Compiler/11.1/056/bin/intel64/icpc -m32`

Fortran benchmarks (except as noted below):
```
ifort
```

437.leslie3d: `ifort -m32`

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`
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: -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

       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: basepeak = yes

     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: basepeak = yes

    437.leslie3d: -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 -opt-prefetch

   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/Intel-ic11.1-linux64-revF.20100511.html
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20100511.01.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revF.20100511.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20100511.01.xml

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

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