SPEC® CFP2006 Result
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Hewlett-Packard Company

ProLiant BL680c G5
(2.4 GHz, Intel Xeon E7458)

$SPECfp^{®}\_rate2006 = 141$

$SPECfp\_rate\_base2006 = 130$

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Apr-2009
Hardware Availability: Apr-2009
Software Availability: Apr-2009

Benchmark	Copies	Result
410.bwaves	24	56.5
410.bwaves	24	56.5
416.gamess	24	417
416.gamess	24	413
433.milc	24	63.5
433.milc	24	63.4
434.zeusmp	24	133
434.zeusmp	24	129
435.gromacs	24	332
435.gromacs	24	332
436.cactusADM	1	171
436.cactusADM	24	138
437.leslie3d	24	51.6
437.leslie3d	24	51.2
444.namd	24	304
447.dealII	24	234
447.dealII	24	224
450.soplex	24	70.8
450.soplex	24	64.0
453.povray	24	480
453.povray	24	427
454.calculix	24	332
454.calculix	24	332
459.GemsFDTD	24	46.6
459.GemsFDTD	24	46.6
465.tonto	24	213
465.tonto	24	201
470.lbm	12	50.5
470.lbm	24	36.7
481.wrf	24	88.1
482.sphinx3	12	175
482.sphinx3	24	101

SPECfp_rate_base2006 = 130
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Hardware

CPU Name:	Intel Xeon E7458
CPU Characteristics:	2.4 GHz, 16 MB L3 shared, 1066 MHz system bus
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
CPU(s) orderable:	2,4 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	9 MB I+D on chip per chip, 3 MB shared / 2 cores

Continued on next page

Software

Operating System:	Red Hat Enterprise Linux Server release 5.3, Kernel 2.6.18-128.el5 on an x86_64
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.074 l_cprof_b_11.0.074
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)

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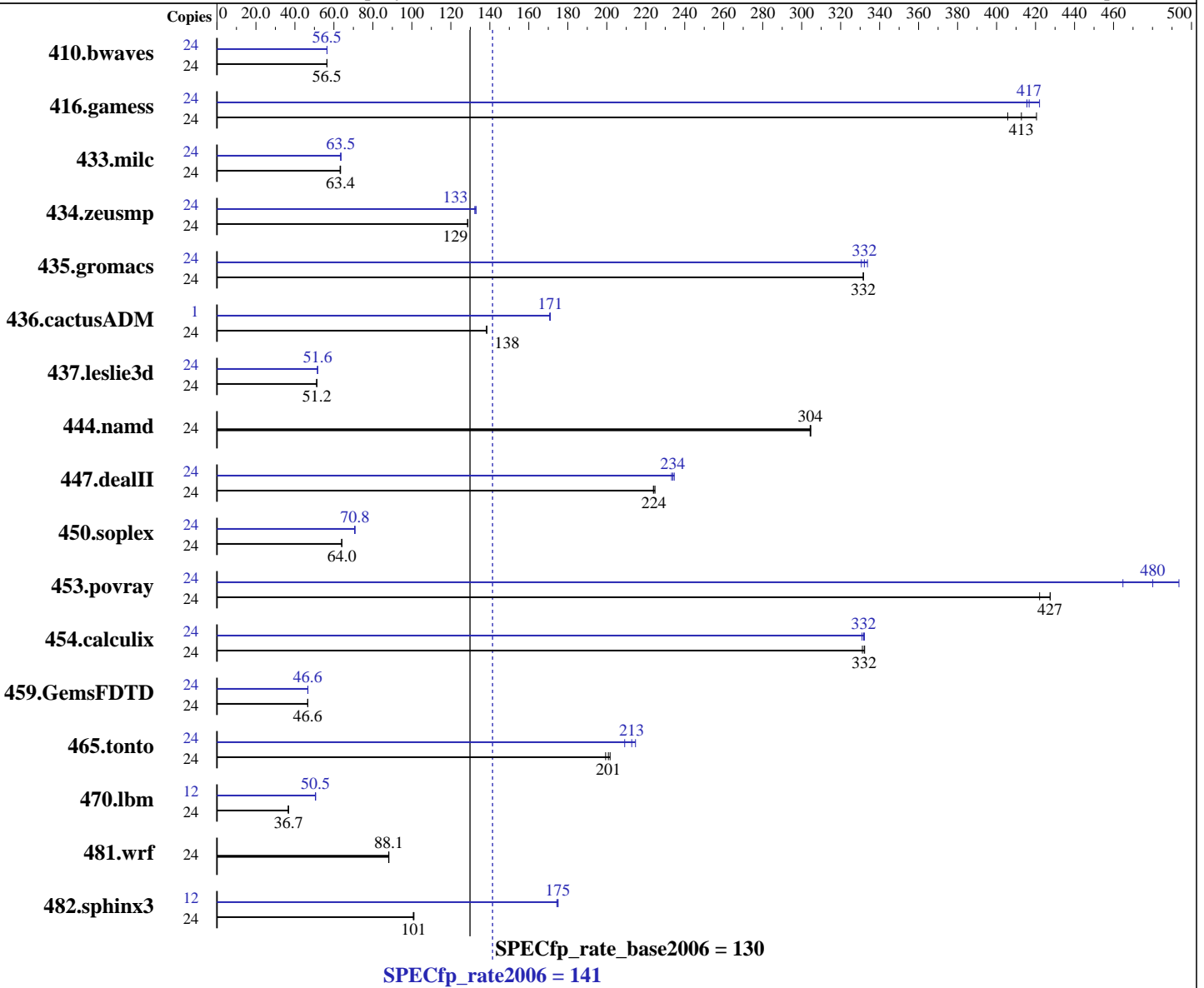|	
CPU2006 license: 3	**Test date:** Apr-2009
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L3 Cache:	16 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	64 GB (16x4 GB PC2-5300F CL5)	Other Software:	Binutils-2.17.50
Disk Subsystem:	1x146 GB 10 K 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	24	5785	56.4	**5776**	**56.5**	5774	56.5	24	**5775**	**56.5**	5774	56.5	5777	56.5
416.gamess	24	**1139**	**413**	1118	420	1158	406	24	1131	416	**1128**	**417**	1113	422
433.milc	24	3488	63.2	**3476**	**63.4**	3476	63.4	24	3465	63.6	3468	63.5	**3468**	**63.5**
434.zeusmp	24	1696	129	1698	129	**1698**	**129**	24	1651	132	**1645**	**133**	1643	133
435.gromacs	24	**517**	**332**	517	332	517	332	24	**516**	**332**	513	334	518	331
436.cactusADM	24	2074	138	2070	139	**2072**	**138**	1	69.9	171	**69.9**	**171**	70.0	171
437.leslie3d	24	4414	51.1	**4403**	**51.2**	4397	51.3	24	4371	51.6	**4369**	**51.6**	4366	51.7
444.namd	24	632	305	**632**	**304**	632	304	24	632	305	**632**	**304**	632	304
447.dealII	24	1226	224	1222	225	**1225**	**224**	24	1177	233	**1174**	**234**	1170	235
450.soplex	24	3126	64.0	**3125**	**64.0**	3123	64.1	24	2827	70.8	2833	70.7	**2827**	**70.8**
453.povray	24	303	422	**299**	**427**	299	428	24	**266**	**480**	275	465	259	494
454.calculix	24	**596**	**332**	598	331	596	332	24	598	331	**597**	**332**	596	332
459.GemsFDTD	24	5465	46.6	5465	46.6	**5465**	**46.6**	24	**5461**	**46.6**	5462	46.6	5455	46.7
465.tonto	24	**1176**	**201**	1171	202	1184	199	24	1100	215	1129	209	**1110**	**213**
470.lbm	24	9016	36.6	**8991**	**36.7**	8973	36.7	12	**3263**	**50.5**	3264	50.5	3258	50.6
481.wrf	24	3044	88.1	3038	88.2	**3042**	**88.1**	24	3044	88.1	3038	88.2	**3042**	**88.1**
482.sphinx3	24	**4636**	**101**	4627	101	4643	101	12	1336	175	1341	174	**1338**	**175**

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.

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'/usr/bin/taskset' used to bind processes to CPUs
 OMP_NUM_THREADS set to number of cores
 KMP_AFFINITY set to physical,0
 KMP_STACKSIZE set to 64M

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Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Apr-2009
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Platform Notes

```
BIOS configuration:
  Power Regulator set to Static High Performance Mode
  Adjacent Sector Prefetch Disabled
  Hardware Prefetcher 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:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

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Base Optimization Flags (Continued)

Fortran benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
/opt/intel/Compiler/11.0/074/bin/ia32/icc
-L/opt/intel/Compiler/11.0/074/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/074/ipp/ia32/include
```

     433.milc: `icc`

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

     450.soplex: `/opt/intel/Compiler/11.0/074/bin/ia32/icpc`
```
         -L/opt/intel/Compiler/11.0/074/ipp/ia32/lib
         -I/opt/intel/Compiler/11.0/074/ipp/ia32/include
```

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

     437.leslie3d: `/opt/intel/Compiler/11.0/074/bin/ia32/ifort`
```
          -L/opt/intel/Compiler/11.0/074/ipp/ia32/lib
          -I/opt/intel/Compiler/11.0/074/ipp/ia32/include
```

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
```

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Peak Portability Flags (Continued)

```
465.tonto: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
433.milc: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -fno-alias

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
         -no-prec-div -static -unroll2 -scalar-rep- -opt-prefetch
         -opt-malloc-options=3

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2
```

C++ benchmarks:

```
444.namd: basepeak = yes

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

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

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

Fortran benchmarks:

```
410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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

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

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
              -no-prec-div -static -opt-malloc-options=3 -opt-prefetch

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

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

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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

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

    436.cactusADM: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
              `-no-prec-div -static -unroll2 -opt-prefetch -parallel`
              `-auto-ilp32`

    454.calculix: `-xSSE4.1 -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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