SPEC® CFP2006 Result
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Hewlett-Packard Company

ProLiant BL680c G5
(2.4 GHz, Intel Xeon E7458)

$SPECfp^®2006 =$ 21.6
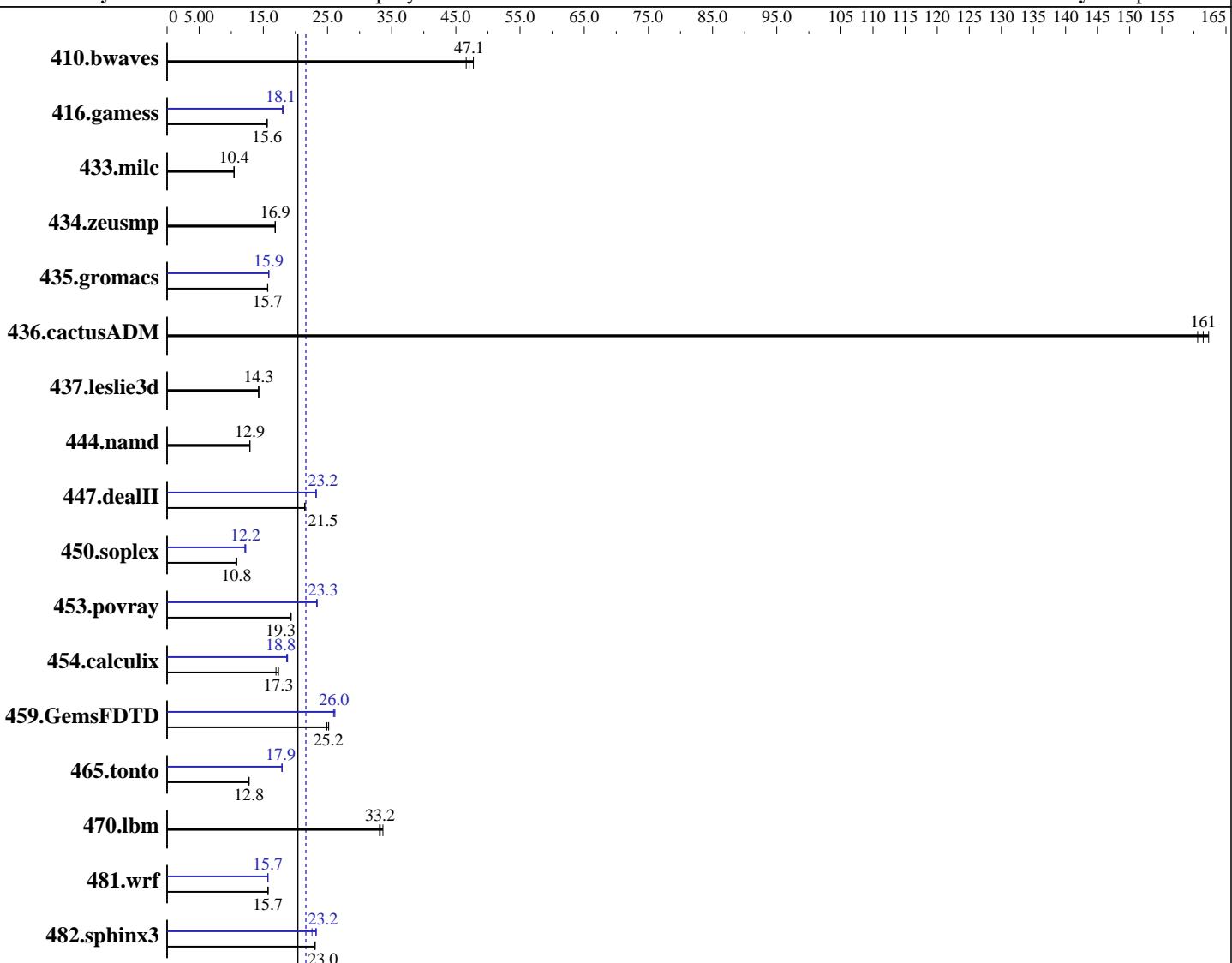
$SPECfp\_base2006 =$ 20.4

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	Score (base)	Score (peak)
410.bwaves	47.1	
416.gamess	15.6	18.1
433.milc	10.4	
434.zeusmp	16.9	
435.gromacs	15.7	15.9
436.cactusADM	161	
437.leslie3d	14.3	
444.namd	12.9	
447.dealII	21.5	23.2
450.soplex	10.8	12.2
453.povray	19.3	23.3
454.calculix	17.3	18.8
459.GemsFDTD	25.2	26.0
465.tonto	12.8	17.9
470.lbm	33.2	
481.wrf	15.7	15.7
482.sphinx3	23.0	23.2

SPECfp_base2006 = 20.4

SPECfp2006 = 21.6

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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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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	285	47.7	**289**	**47.1**	292	46.6	285	47.7	**289**	**47.1**	292	46.6
416.gamess	**1256**	**15.6**	1255	15.6	1257	15.6	1084	18.1	**1084**	**18.1**	1089	18.0
433.milc	879	10.4	**879**	**10.4**	879	10.4	879	10.4	**879**	**10.4**	879	10.4
434.zeusmp	539	16.9	**540**	**16.9**	540	16.8	539	16.9	**540**	**16.9**	540	16.8
435.gromacs	**455**	**15.7**	456	15.7	455	15.7	451	15.8	450	15.9	**450**	**15.9**
436.cactusADM	73.6	162	**74.0**	**161**	74.4	161	73.6	162	**74.0**	**161**	74.4	161
437.leslie3d	**658**	**14.3**	659	14.3	658	14.3	**658**	**14.3**	659	14.3	658	14.3
444.namd	**621**	**12.9**	622	12.9	621	12.9	**621**	**12.9**	622	12.9	621	12.9
447.dealII	533	21.5	533	21.5	**533**	**21.5**	**493**	**23.2**	492	23.3	493	23.2
450.soplex	768	10.9	777	10.7	**772**	**10.8**	680	12.3	688	12.1	**682**	**12.2**
453.povray	276	19.3	**275**	**19.3**	275	19.3	228	23.3	**228**	**23.3**	227	23.4
454.calculix	**476**	**17.3**	476	17.3	486	17.0	443	18.6	439	18.8	**440**	**18.8**
459.GemsFDTD	426	24.9	421	25.2	**422**	**25.2**	406	26.2	409	25.9	**407**	**26.0**
465.tonto	**770**	**12.8**	770	12.8	772	12.7	548	17.9	**549**	**17.9**	550	17.9
470.lbm	408	33.6	**414**	**33.2**	415	33.1	408	33.6	**414**	**33.2**	415	33.1
481.wrf	710	15.7	711	15.7	**710**	**15.7**	710	15.7	712	15.7	**711**	**15.7**
482.sphinx3	847	23.0	844	23.1	**847**	**23.0**	838	23.3	863	22.6	**841**	**23.2**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Platform Notes

```
    BIOS configuration:
      Power Regulator set to Static High Performance Mode
```

General Notes

```
    'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
    OMP_NUM_THREADS set to number of cores
    KMP_AFFINITY set to physical,0
    KMP_STACKSIZE set to 64M
```

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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:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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

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

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

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Peak Compiler Invocation

C benchmarks (except as noted below):
        icc

        482.sphinx3: /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

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:
        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: basepeak = yes

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Peak Optimization Flags (Continued)

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- -opt-prefetch`

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: `basepeak = yes`

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: `basepeak = yes`

437.leslie3d: `basepeak = yes`

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

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

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: `basepeak = yes`

454.calculix: `-xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel -auto-ilp32`

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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.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.xml
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.13.xml

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 00:17:00 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 May 2009.