SPEC® CFP2006 Result

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Hewlett-Packard Company

ProLiant DL380 G5
(3.33 GHz, Intel Xeon X5470)

$SPECfp®\_rate2006 =$ 48.5

$SPECfp\_rate\_base2006 =$ 45.1

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

Test date: Sep-2008
Hardware Availability: Sep-2008
Software Availability: Nov-2008

	Copies	
410.bwaves	4	23.8
416.gamess	4	101
	4	99.6
433.milc	4	26.0
	4	26.0
434.zeusmp	4	46.5
	4	46.3
435.gromacs	4	82.5
	4	81.8
436.cactusADM	1	68.6
	4	53.6
437.leslie3d	4	21.2
444.namd	4	71.7
447.dealII	4	78.4
	4	76.5
450.soplex	4	27.9
	4	25.2
453.povray	4	133
	4	111
454.calculix	4	89.3
	4	88.9
459.GemsFDTD	4	19.3
465.tonto	4	72.1
	4	67.4
470.lbm	2	25.9
	4	18.4
481.wrf	4	34.7
482.sphinx3	2	56.0
	4	44.8

SPECfp_rate_base2006 = 45.1
SPECfp_rate2006 = 48.5

Hardware

CPU Name: Intel Xeon X5470
CPU Characteristics: 3.33 GHz, 2x6 MB L2 shared, 1333 MHz system bus
CPU MHz: 3333
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
CPU(s) orderable: 1,2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

Continued on next page

Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
Auto Parallel: Yes
File System: ext2
System State: Run level 3 (multi-user)
Base Pointers: 64-bit

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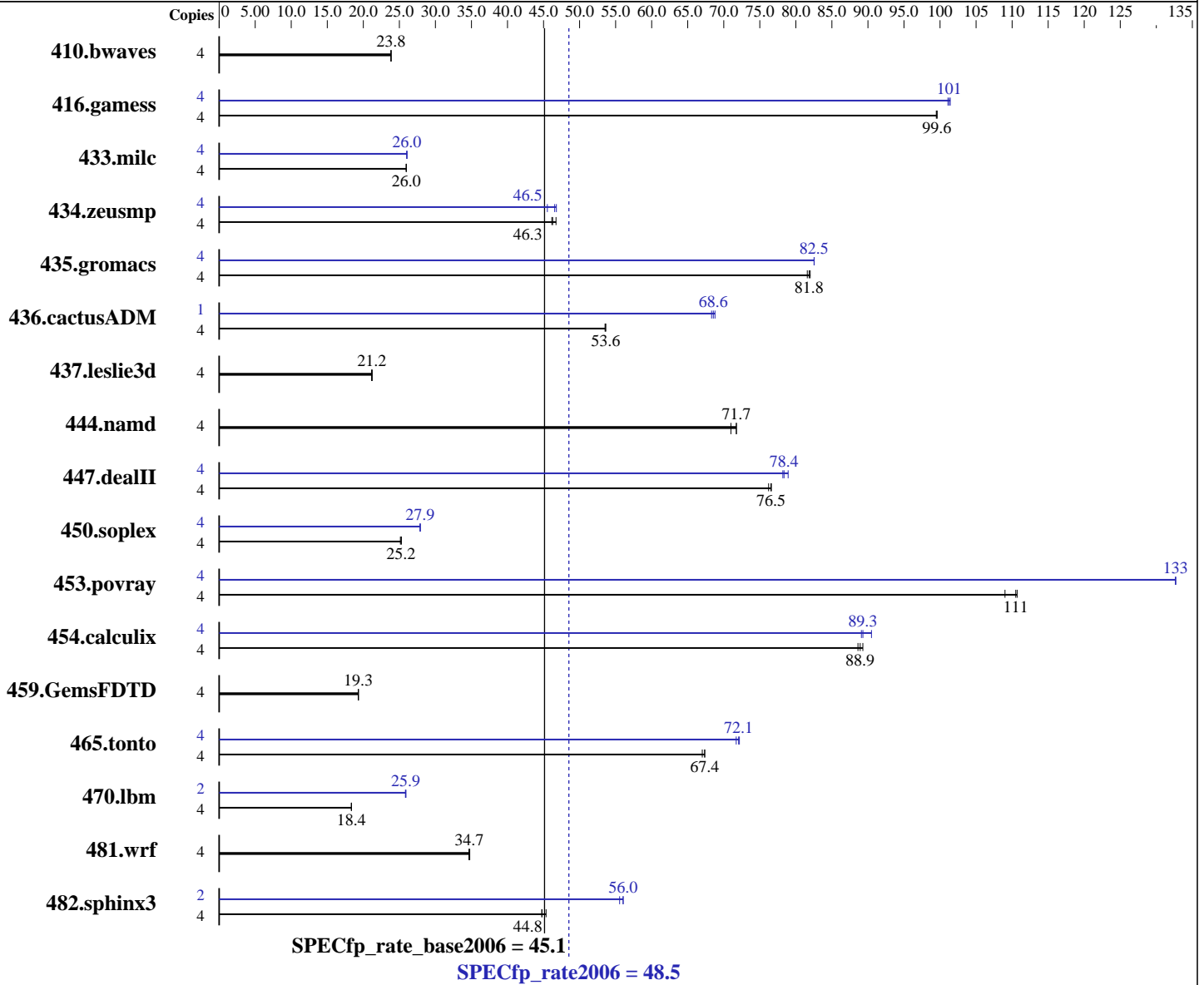|	
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L3 Cache:	None	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	MicroQuill SmartHeap Library 8.1
Memory:	16 GB (8x2 GB PC2-5300F CL5)		Binutils 2.18.50.0.7.20080502
Disk Subsystem:	1x72 GB 10 K SAS		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	2281	23.8	2279	23.8	**2280**	**23.8**	4	2281	23.8	2279	23.8	**2280**	**23.8**
416.gamess	4	787	99.5	786	99.6	**787**	**99.6**	4	**773**	**101**	772	101	775	101
433.milc	4	1415	25.9	**1414**	**26.0**	1414	26.0	4	**1410**	**26.0**	1410	26.0	1410	26.0
434.zeusmp	4	779	46.7	**787**	**46.3**	789	46.2	4	778	46.8	**782**	**46.5**	800	45.5
435.gromacs	4	**349**	**81.8**	350	81.6	348	82.0	4	346	82.5	346	82.5	**346**	**82.5**
436.cactusADM	4	893	53.5	892	53.6	**892**	**53.6**	1	175	68.3	**174**	**68.6**	174	68.8
437.leslie3d	4	1772	21.2	1778	21.2	**1774**	**21.2**	4	1772	21.2	1778	21.2	**1774**	**21.2**
444.namd	4	**447**	**71.7**	447	71.8	452	71.0	4	**447**	**71.7**	447	71.8	452	71.0
447.dealII	4	597	76.6	600	76.2	**598**	**76.5**	4	580	78.9	585	78.2	**584**	**78.4**
450.soplex	4	**1322**	**25.2**	1327	25.1	1320	25.3	4	1197	27.9	1196	27.9	**1196**	**27.9**
453.povray	4	**193**	**111**	195	109	192	111	4	**160**	**133**	160	133	160	133
454.calculix	4	**371**	**88.9**	372	88.6	370	89.3	4	370	89.1	365	90.5	**370**	**89.3**
459.GemsFDTD	4	2199	19.3	**2198**	**19.3**	2196	19.3	4	2199	19.3	**2198**	**19.3**	2196	19.3
465.tonto	4	587	67.0	**584**	**67.4**	584	67.4	4	545	72.2	549	71.7	**546**	**72.1**
470.lbm	4	2997	18.3	**2995**	**18.4**	2994	18.4	2	1061	25.9	1064	25.8	**1061**	**25.9**
481.wrf	4	1285	34.8	**1288**	**34.7**	1289	34.7	4	1285	34.8	**1288**	**34.7**	1289	34.7
482.sphinx3	4	1719	45.4	**1741**	**44.8**	1742	44.8	2	**696**	**56.0**	695	56.0	702	55.6

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.
     taskset was used to bind processes to cores except
     for 436.cactusADM peak

Operating System 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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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):
```
icc
```

```
482.sphinx3: /opt/intel/Compiler/11.0/042/bin/ia32/icc
        -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
        -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

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

```
450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
        -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
        -I/opt/intel/Compiler/11.0/042/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
```

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

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

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `basepeak = yes`

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

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Peak Optimization Flags (Continued)

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/Intel-ic11.0-fp-linux64-revD.20090713.html
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090713.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revD.20090713.xml
http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20090713.xml

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

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