SPEC® CFP2006 Result

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Hewlett-Packard Company

ProLiant ML150 G5
(2.5 GHz, Intel Xeon E5420)

$SPECfp®_rate2006 = $ 64.0

$SPECfp_rate_base2006 = $ 60.3

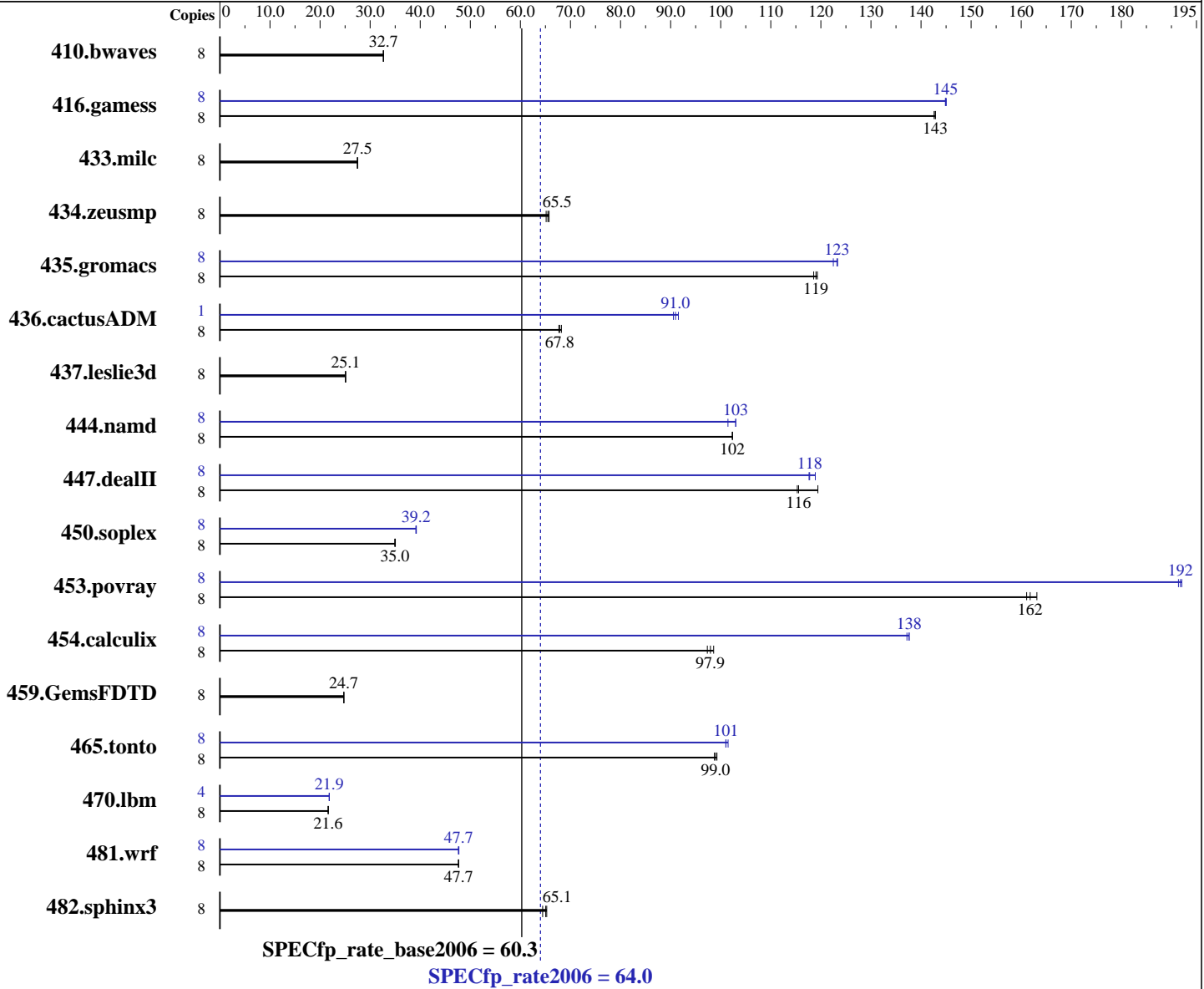|	
CPU2006 license: 3	**Test date:** Jun-2008
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Mar-2008
Tested by: Hewlett-Packard Company	**Software Availability:** Nov-2007

Copies

Benchmark	Copies	Result
410.bwaves	8	32.7
416.gamess	8	145
416.gamess	8	143
433.milc	8	27.5
434.zeusmp	8	65.5
435.gromacs	8	123
435.gromacs	8	119
436.cactusADM	1	91.0
436.cactusADM	8	67.8
437.leslie3d	8	25.1
444.namd	8	103
444.namd	8	102
447.dealII	8	118
447.dealII	8	116
450.soplex	8	39.2
450.soplex	8	35.0
453.povray	8	192
453.povray	8	162
454.calculix	8	138
454.calculix	8	97.9
459.GemsFDTD	8	24.7
465.tonto	8	101
465.tonto	8	99.0
470.lbm	4	21.9
470.lbm	8	21.6
481.wrf	8	47.7
481.wrf	8	47.7
482.sphinx3	8	65.1

SPECfp_rate_base2006 = 60.3

SPECfp_rate2006 = 64.0

Hardware

CPU Name:	Intel Xeon E5420
CPU Characteristics:	2.5 GHz, 2x6 MB L2 shared, 1333 MHz system bus
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 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++ Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008 Intel Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008
Auto Parallel:	Yes
File System:	ext2
System State:	Run level 3 (multi-user)

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L3 Cache:	None
Other Cache:	None
Memory:	16 GB (4x4 GB PC2-5300P CL5)
Disk Subsystem:	1x160 GB 7.2 K SATA
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	binutils-2.17.50

Results Table

Benchmark		Base							Peak					
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3332	32.6	3329	32.7	**3329**	**32.7**	8	3332	32.6	3329	32.7	**3329**	**32.7**
416.gamess	8	1098	143	**1097**	**143**	1096	143	8	1080	145	1081	145	**1081**	**145**
433.milc	8	2671	27.5	**2673**	**27.5**	2676	27.4	8	2671	27.5	**2673**	**27.5**	2676	27.4
434.zeusmp	8	1108	65.7	**1112**	**65.5**	1118	65.1	8	1108	65.7	**1112**	**65.5**	1118	65.1
435.gromacs	8	**480**	**119**	479	119	482	119	8	463	123	466	122	**464**	**123**
436.cactusADM	8	1412	67.7	1402	68.2	**1409**	**67.8**	1	**131**	**91.0**	132	90.6	131	91.6
437.leslie3d	8	2999	25.1	2996	25.1	**2997**	**25.1**	8	2999	25.1	2996	25.1	**2997**	**25.1**
444.namd	8	627	102	**627**	**102**	627	102	8	632	101	623	103	**623**	**103**
447.dealII	8	**792**	**116**	794	115	766	119	8	770	119	**777**	**118**	778	118
450.soplex	8	1910	34.9	1904	35.0	**1909**	**35.0**	8	1701	39.2	**1703**	**39.2**	1705	39.1
453.povray	8	261	163	**263**	**162**	264	161	8	**222**	**192**	222	191	222	192
454.calculix	8	**674**	**97.9**	669	98.6	678	97.3	8	**480**	**138**	481	137	480	138
459.GemsFDTD	8	3432	24.7	**3430**	**24.7**	3429	24.8	8	3432	24.7	**3430**	**24.7**	3429	24.8
465.tonto	8	797	98.7	793	99.3	**795**	**99.0**	8	776	101	779	101	**779**	**101**
470.lbm	8	5082	21.6	**5082**	**21.6**	5082	21.6	4	2520	21.8	**2515**	**21.9**	2515	21.9
481.wrf	8	1877	47.6	**1875**	**47.7**	1875	47.7	8	1876	47.6	**1875**	**47.7**	1872	47.7
482.sphinx3	8	2389	65.3	2419	64.4	**2397**	**65.1**	8	2389	65.3	2419	64.4	**2397**	**65.1**

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.
     '/usr/bin/taskset' used to bind processes to CPUs, except for 436.cactusADM at 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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Test date: Jun-2008
Hardware Availability: Mar-2008
Software Availability: Nov-2007

Platform Notes

```
BIOS configuration:
  Adjacent Cache Line 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:
```
-fast
```

C++ benchmarks:
```
-fast
```

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Base Optimization Flags (Continued)

Fortran benchmarks:
```
-fast
```

Benchmarks using both Fortran and C:
```
-fast
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

```
470.lbm: /opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
         -I/opt/intel/cc/10.1.008/include
```

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

```
450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib
            -I/opt/intel/cc/10.1.008/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
      481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
   482.sphinx3: -DSPEC_CPU_LP64
```

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Peak Optimization Flags

C benchmarks:

      433.milc: `basepeak = yes`

      470.lbm: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2`
           `-scalar-rep- -prefetch -opt-malloc-options=3`

      482.sphinx3: `basepeak = yes`

C++ benchmarks:

      444.namd: `-prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias`
           `-auto-ilp32`

      447.dealII: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2`
           `-ansi-alias -scalar-rep-`

      450.soplex: `-prof-gen(pass 1) -prof-use(pass 2) -fast`
           `-opt-malloc-options=3`

      453.povray: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4`
           `-ansi-alias`

Fortran benchmarks:

      410.bwaves: `basepeak = yes`

      416.gamess: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0`
           `-ansi-alias -scalar-rep-`

      434.zeusmp: `basepeak = yes`

      437.leslie3d: `basepeak = yes`

    459.GemsFDTD: `basepeak = yes`

      465.tonto: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto`

Benchmarks using both Fortran and C:

      435.gromacs: `-prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch`
           `-auto-ilp32`

    436.cactusADM: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2`
           `-prefetch -parallel -auto-ilp32`

      454.calculix: `-fast -unroll-aggressive -auto-ilp32`

      481.wrf: `-fast -auto-ilp32`

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$SPECfp\_rate2006 = \quad 64.0$

$SPECfp\_rate\_base2006 = \quad 60.3$

The flags file that was used to format this result can be browsed at

`http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-fp-flags.20090713.html`

You can also download the XML flags source by saving the following link:

`http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-fp-flags.20090713.xml`

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

Tested with SPEC CPU2006 v1.1.
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