SPEC® CFP2006 Result

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NEC Corporation

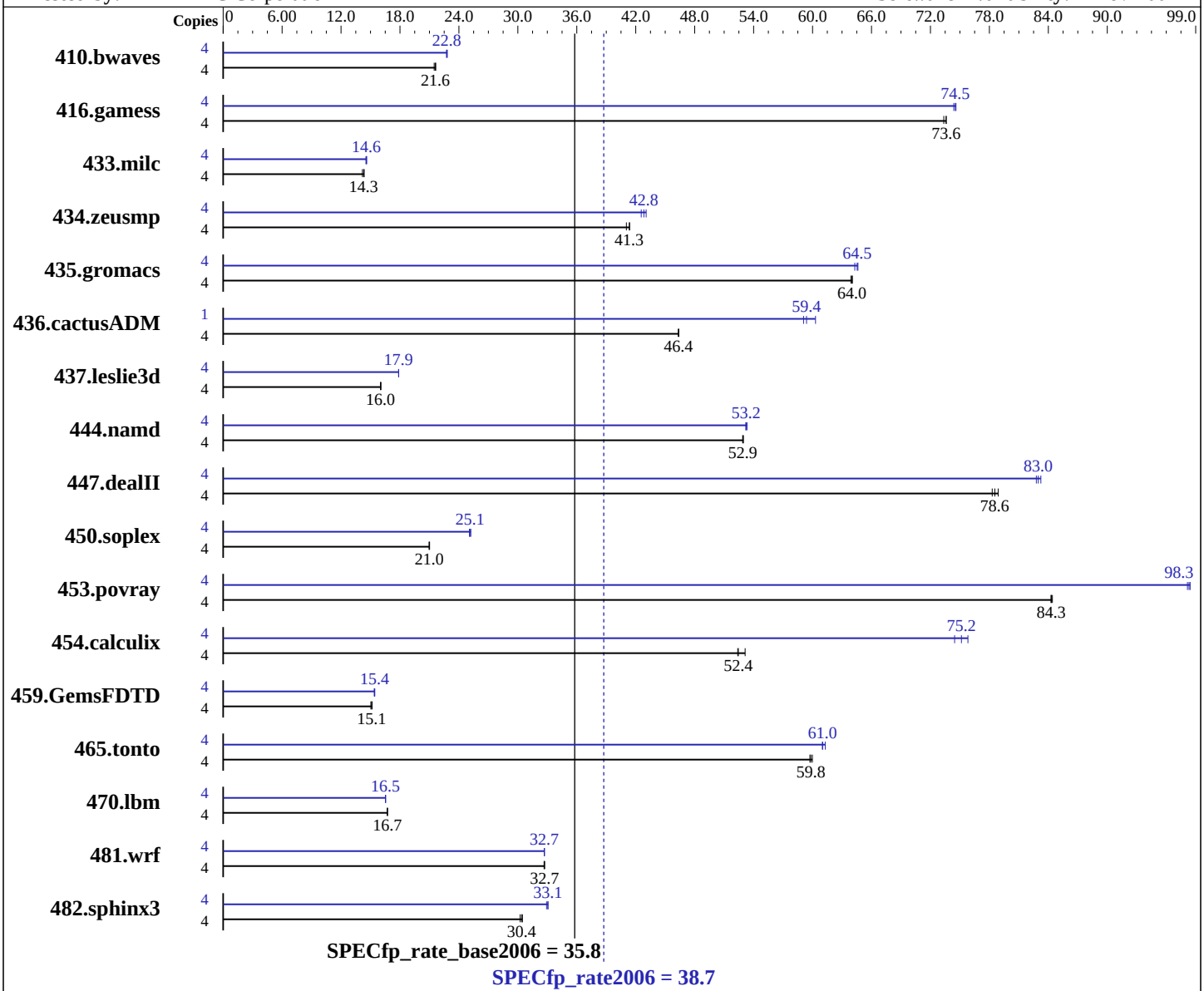
Express5800/120Bb-m6
(Intel Xeon L5420)

SPECfp®_rate2006 = 38.7

SPECfp_rate_base2006 = 35.8

CPU2006 license: 9006
Test sponsor: NEC Corporation
Tested by: NEC Corporation

Test date: Jun-2008
Hardware Availability: Apr-2008
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon L5420
CPU Characteristics:	2.50 GHz, 2x6 MB L2 shared, 1333 MHz bus
CPU MHz:	2500
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

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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 for Linux32 and Linux64 version 10.1 Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
Auto Parallel:	Yes
File System:	ReiserFS

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x73.2 GB SAS, 15000RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils-2.17.tar.gz, Version 2.17

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	2512	21.6	**2517**	**21.6**	2531	21.5	4	2390	22.7	**2388**	**22.8**	2382	22.8
416.gamess	4	1068	73.4	**1064**	**73.6**	1064	73.6	4	**1051**	**74.5**	1053	74.4	1050	74.6
433.milc	4	2558	14.4	2590	14.2	**2567**	**14.3**	4	2527	14.5	2513	14.6	**2519**	**14.6**
434.zeusmp	4	**880**	**41.3**	887	41.0	880	41.4	4	845	43.1	**850**	**42.8**	855	42.6
435.gromacs	4	**446**	**64.0**	447	63.9	446	64.1	4	442	64.6	444	64.3	**443**	**64.5**
436.cactusADM	4	1032	46.3	1031	46.4	**1031**	**46.4**	1	**201**	**59.4**	198	60.3	202	59.1
437.leslie3d	4	2346	16.0	2341	16.1	**2345**	**16.0**	4	2104	17.9	**2104**	**17.9**	2106	17.9
444.namd	4	**606**	**52.9**	606	53.0	607	52.9	4	603	53.2	602	53.3	**603**	**53.2**
447.dealII	4	585	78.3	**583**	**78.6**	580	78.9	4	553	82.8	550	83.2	**552**	**83.0**
450.soplex	4	1587	21.0	1591	21.0	**1590**	**21.0**	4	1323	25.2	**1328**	**25.1**	1331	25.1
453.povray	4	252	84.4	253	84.3	**252**	**84.3**	4	216	98.4	217	98.2	**216**	**98.3**
454.calculix	4	621	53.1	**629**	**52.4**	630	52.4	4	443	74.5	435	75.8	**439**	**75.2**
459.GemsFDTD	4	2823	15.0	2798	15.2	**2807**	**15.1**	4	2760	15.4	2749	15.4	**2753**	**15.4**
465.tonto	4	**658**	**59.8**	656	60.0	659	59.7	4	**645**	**61.0**	642	61.3	645	61.0
470.lbm	4	**3287**	**16.7**	3287	16.7	3287	16.7	4	**3325**	**16.5**	3325	16.5	3325	16.5
481.wrf	4	**1366**	**32.7**	1366	32.7	1368	32.7	4	1367	32.7	**1367**	**32.7**	1366	32.7
482.sphinx3	4	2559	30.5	**2566**	**30.4**	2579	30.2	4	**2359**	**33.1**	2357	33.1	2368	32.9

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

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
  except for 436.cactusADM at peak.
 OMP_NUM_THREADS set to number of cores
```

General Notes

```
All benchmarks compiled in 64-bit mode except 437.leslie3d,
450.soplex, 470.lbm and 482.sphinx3, for peak, are
compiled in 32-bit mode
```

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

Fortran benchmarks:
-fast

Benchmarks using both Fortran and C:
-fast

Peak Compiler Invocation

C benchmarks (except as noted below):
`/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

433.milc: `icc`

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 (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib -I/opt/intel/fc/10.1.008/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`
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) `-fast -fno-alias -auto-ilp32`

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

Continued on next page

Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

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: -fast -prefetch

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

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch

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

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.html

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.xml`

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