SPEC® CFP2006 Result

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NEC Corporation

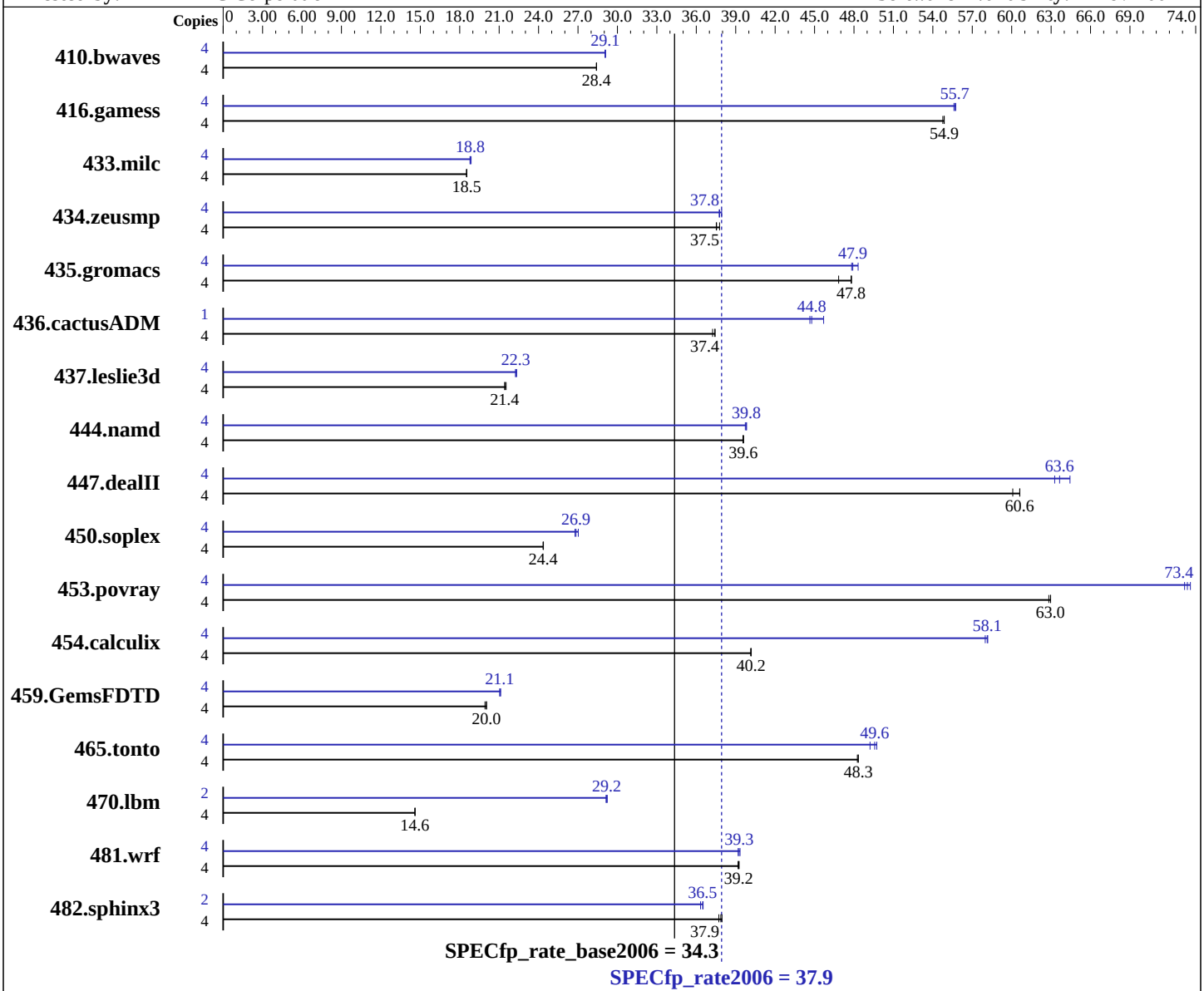
Express5800/120Bb-6
(Intel Xeon E5205)

SPECfp®_rate2006 = 37.9

SPECfp_rate_base2006 = 34.3

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

Test date: Feb-2008
Hardware Availability: Feb-2008
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon E5205
CPU Characteristics:	1.86 GHz, 6 MB L2, 1066 MHz bus
CPU MHz:	1867
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	6 MB I+D on chip per chip

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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:	ext2

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L3 Cache: None
Other Cache: None
Memory: 8 GB (4x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x73.2 GB SAS, 10000RPM
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	1913	28.4	1914	28.4	**1913**	**28.4**	4	1871	29.1	**1870**	**29.1**	1868	29.1
416.gamess	4	1430	54.8	**1428**	**54.9**	1427	54.9	4	1408	55.6	1405	55.7	**1407**	**55.7**
433.milc	4	**1982**	**18.5**	1981	18.5	1982	18.5	4	1946	18.9	**1953**	**18.8**	1955	18.8
434.zeusmp	4	970	37.5	964	37.8	**970**	**37.5**	4	960	37.9	**964**	**37.8**	964	37.7
435.gromacs	4	**598**	**47.8**	597	47.8	610	46.8	4	**596**	**47.9**	591	48.3	597	47.8
436.cactusADM	4	**1278**	**37.4**	1283	37.2	1277	37.4	1	262	45.7	**267**	**44.8**	268	44.6
437.leslie3d	4	**1754**	**21.4**	1755	21.4	1746	21.5	4	1683	22.3	1690	22.3	**1689**	**22.3**
444.namd	4	810	39.6	**811**	**39.6**	811	39.5	4	805	39.8	**806**	**39.8**	807	39.7
447.dealII	4	762	60.1	**755**	**60.6**	755	60.6	4	723	63.3	710	64.4	**719**	**63.6**
450.soplex	4	1369	24.4	1371	24.3	**1369**	**24.4**	4	1235	27.0	1246	26.8	**1242**	**26.9**
453.povray	4	**338**	**63.0**	338	63.0	339	62.8	4	**290**	**73.4**	289	73.6	291	73.2
454.calculix	4	821	40.2	**822**	**40.2**	822	40.1	4	567	58.2	569	58.0	**568**	**58.1**
459.GemsFDTD	4	**2118**	**20.0**	2130	19.9	2118	20.0	4	2009	21.1	2016	21.0	**2016**	**21.1**
465.tonto	4	816	48.3	814	48.3	**814**	**48.3**	4	791	49.7	800	49.2	**794**	**49.6**
470.lbm	4	**3765**	**14.6**	3764	14.6	3766	14.6	2	**942**	**29.2**	943	29.1	940	29.2
481.wrf	4	1140	39.2	1138	39.3	**1139**	**39.2**	4	**1138**	**39.3**	1136	39.3	1140	39.2
482.sphinx3	4	**2059**	**37.9**	2054	38.0	2067	37.7	2	1073	36.3	**1069**	**36.5**	1067	36.5

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
 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.20090714.02.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.20090714.02.xml`

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