SPEC® CFP2006 Result

NEC Corporation

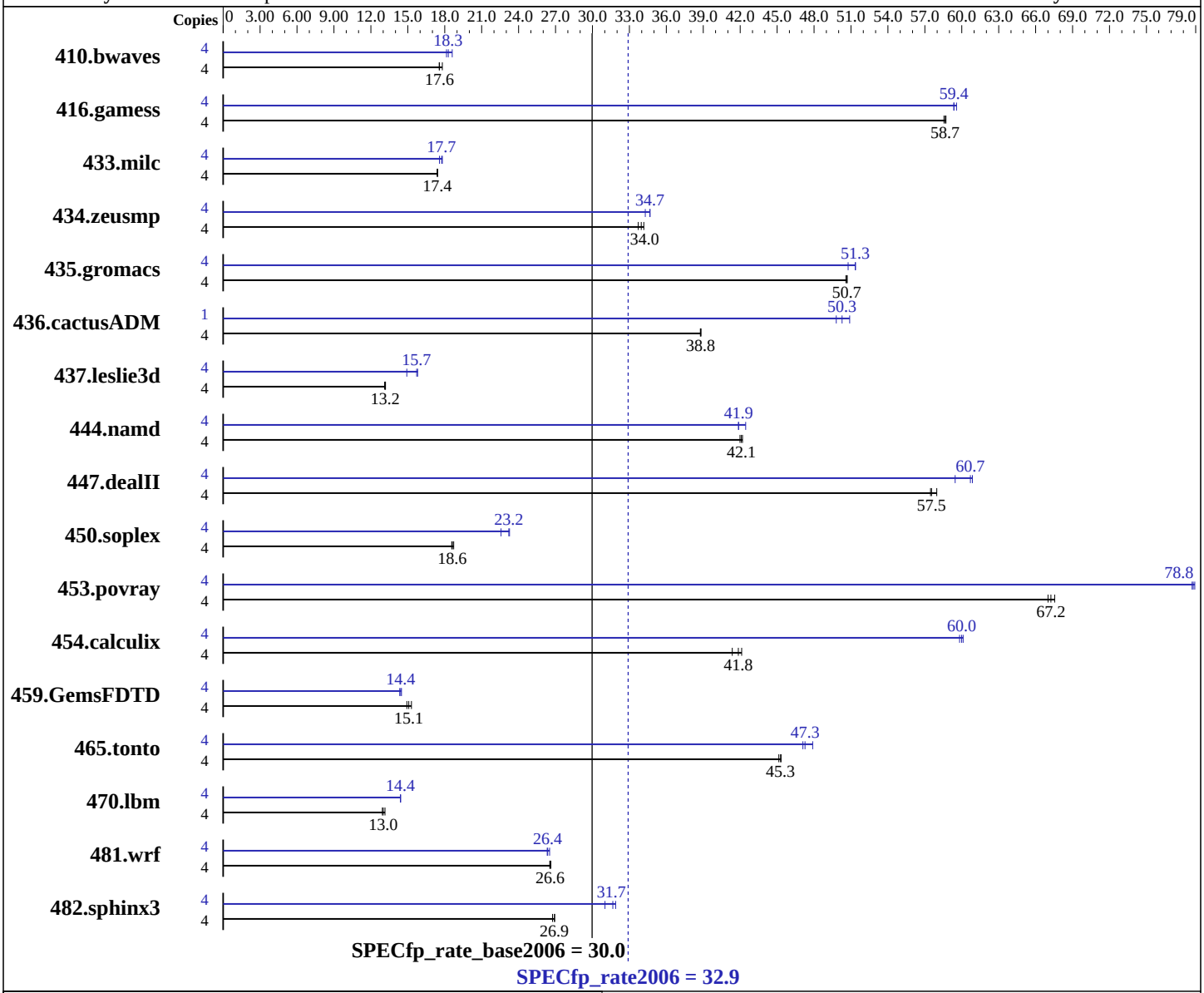
Express5800/120Gd
(Intel Xeon E5405)

SPECfp®_rate2006 = 32.9

SPECfp_rate_base2006 = 30.0

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

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



Hardware

CPU Name:	Intel Xeon E5405
CPU Characteristics:	2.00 GHz, 2x6 MB L2 shared, 1333 MHz bus
CPU MHz:	2000
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:	ext2

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L3 Cache: None
Other Cache: None
Memory: 8 GB (8x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x250 GB SATAII, 7200RPM
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	3053	17.8	3098	17.5	**3093**	**17.6**	4	**2972**	**18.3**	2996	18.1	2921	18.6
416.gamess	4	1338	58.5	1334	58.7	**1335**	**58.7**	4	1319	59.4	1315	59.6	**1319**	**59.4**
433.milc	4	**2111**	**17.4**	2111	17.4	2107	17.4	4	2090	17.6	**2069**	**17.7**	2062	17.8
434.zeusmp	4	1080	33.7	**1072**	**34.0**	1065	34.2	4	1061	34.3	**1050**	**34.7**	1050	34.7
435.gromacs	4	563	50.7	**564**	**50.7**	565	50.6	4	563	50.8	**556**	**51.3**	556	51.4
436.cactusADM	4	1231	38.8	1233	38.8	**1232**	**38.8**	1	240	49.8	**238**	**50.3**	235	50.9
437.leslie3d	4	2851	13.2	2867	13.1	**2854**	**13.2**	4	2520	14.9	**2392**	**15.7**	2380	15.8
444.namd	4	**762**	**42.1**	764	42.0	760	42.2	4	**766**	**41.9**	756	42.4	766	41.9
447.dealII	4	789	58.0	796	57.5	**795**	**57.5**	4	**754**	**60.7**	770	59.5	752	60.9
450.soplex	4	1781	18.7	1797	18.6	**1792**	**18.6**	4	1478	22.6	1434	23.3	**1438**	**23.2**
453.povray	4	**316**	**67.2**	315	67.5	318	67.0	4	**270**	**78.8**	270	78.7	270	78.9
454.calculix	4	783	42.1	**789**	**41.8**	798	41.4	4	**550**	**60.0**	552	59.8	549	60.1
459.GemsFDTD	4	2775	15.3	2844	14.9	**2814**	**15.1**	4	2930	14.5	2959	14.3	**2942**	**14.4**
465.tonto	4	**869**	**45.3**	869	45.3	872	45.1	4	822	47.9	836	47.1	**833**	**47.3**
470.lbm	4	4250	12.9	4181	13.1	**4227**	**13.0**	4	3817	14.4	3814	14.4	**3814**	**14.4**
481.wrf	4	**1682**	**26.6**	1684	26.5	1678	26.6	4	1697	26.3	1685	26.5	**1695**	**26.4**
482.sphinx3	4	**2897**	**26.9**	2895	26.9	2914	26.8	4	2514	31.0	**2463**	**31.7**	2445	31.9

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
```

Platform Notes

```
Bios settings:
Hardware Prefetcher:          Disabled
Adjacent Cache Line Prefetch: Disabled
Intel SpeedStep Technology:   Disabled
```

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

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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):
`/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`

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`

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Peak Optimization Flags (Continued)

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`

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

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