SPEC® CFP2006 Result

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NEC Corporation

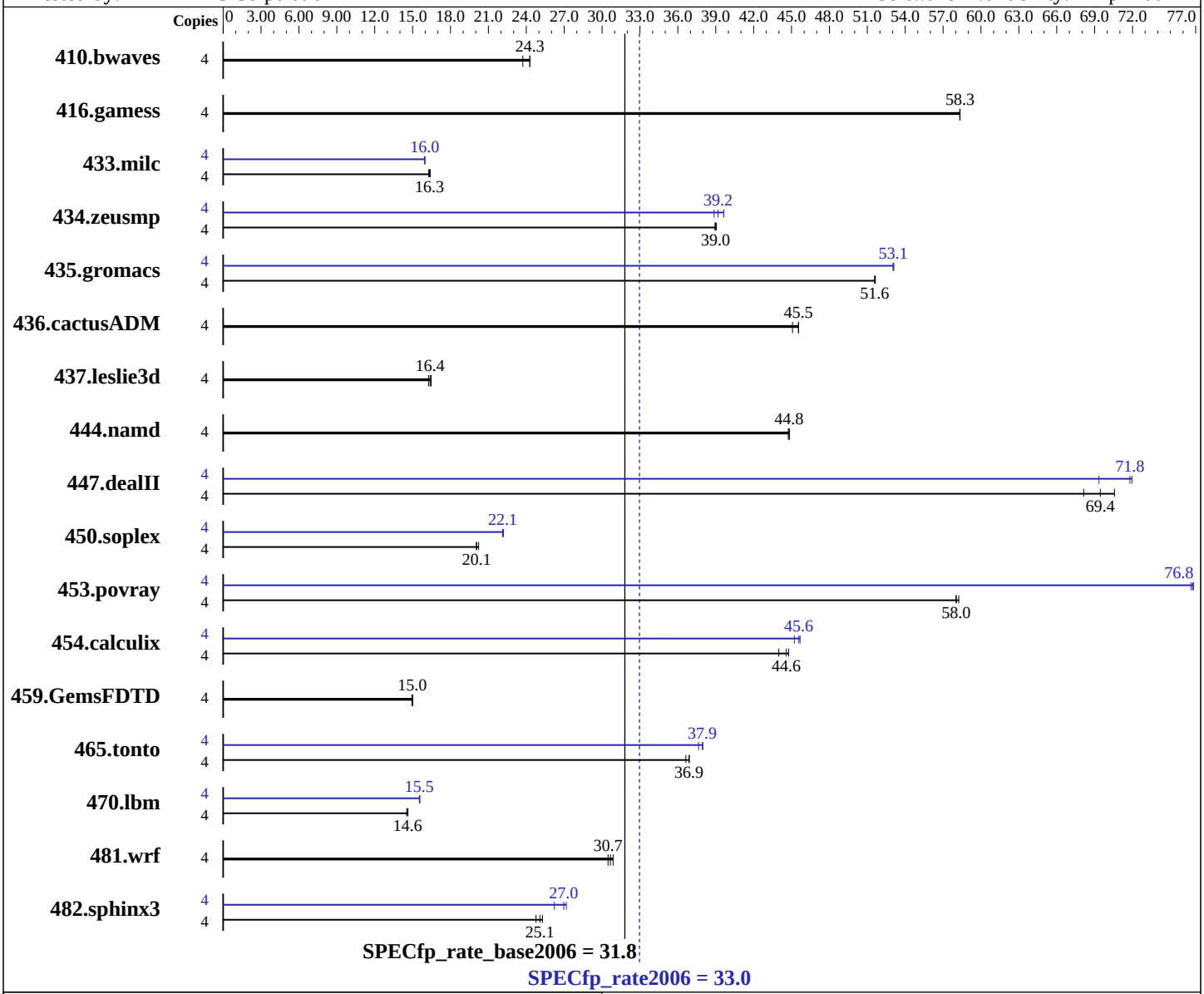
Express5800/110Rh-1
(Intel Xeon processor X3210)

SPECfp®_rate2006 = 33.0

SPECfp_rate_base2006 = 31.8

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

Test date: Nov-2007
Hardware Availability: Jan-2007
Software Availability: Apr-2007



Hardware

CPU Name:	Intel Xeon X3210
CPU Characteristics:	2.13 GHz, 2x4 MB L2 shared, 1066 MHz bus
CPU MHz:	2133
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	8 MB I+D on chip per chip, 4 MB shared / 2 cores

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Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64), Kernel 2.6.16.21-0.8-smp
Compiler:	Intel C++ Compiler for IA32/EM64T application, Version 9.1 - Build 20070320, Package-ID: l_cc_c_9.1.049 Intel Fortran Compiler for IA32/EM64T application, Version 9.1 - Build 20070320, Package ID: l_fc_c_9.1.045
Auto Parallel:	No
File System:	ext2

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L3 Cache: None
Other Cache: None
Memory: 4 GB (4x1 GB PC2-5300E, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x80 GB SATAII, 7200RPM
Other Hardware: None

System State: Multiuser, Runlevel 3
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	2291	23.7	2239	24.3	**2239**	**24.3**	4	2291	23.7	2239	24.3	**2239**	**24.3**
416.gamess	4	1342	58.3	1343	58.3	**1343**	**58.3**	4	1342	58.3	1343	58.3	**1343**	**58.3**
433.milc	4	2256	16.3	**2248**	**16.3**	2240	16.4	4	**2300**	**16.0**	2300	16.0	2299	16.0
434.zeusmp	4	**933**	**39.0**	932	39.0	935	38.9	4	918	39.6	936	38.9	**929**	**39.2**
435.gromacs	4	**554**	**51.6**	554	51.6	553	51.6	4	538	53.0	538	53.1	**538**	**53.1**
436.cactusADM	4	1060	45.1	**1049**	**45.5**	1049	45.6	4	1060	45.1	**1049**	**45.5**	1049	45.6
437.leslie3d	4	2312	16.3	**2295**	**16.4**	2283	16.5	4	2312	16.3	**2295**	**16.4**	2283	16.5
444.namd	4	717	44.7	**716**	**44.8**	716	44.8	4	717	44.7	**716**	**44.8**	716	44.8
447.dealII	4	672	68.1	**659**	**69.4**	648	70.6	4	660	69.3	636	72.0	**637**	**71.8**
450.soplex	4	1649	20.2	**1662**	**20.1**	1664	20.0	4	1507	22.1	1503	22.2	**1507**	**22.1**
453.povray	4	**367**	**58.0**	365	58.2	367	58.0	4	**277**	**76.8**	277	76.8	278	76.6
454.calculix	4	750	44.0	**740**	**44.6**	737	44.8	4	722	45.7	730	45.2	**724**	**45.6**
459.GemsFDTD	4	2839	14.9	**2832**	**15.0**	2827	15.0	4	2839	14.9	**2832**	**15.0**	2827	15.0
465.tonto	4	1066	36.9	1074	36.6	**1067**	**36.9**	4	1046	37.6	**1037**	**37.9**	1036	38.0
470.lbm	4	**3764**	**14.6**	3783	14.5	3756	14.6	4	3538	15.5	**3536**	**15.5**	3528	15.6
481.wrf	4	1466	30.5	**1457**	**30.7**	1447	30.9	4	1466	30.5	**1457**	**30.7**	1447	30.9
482.sphinx3	4	3147	24.8	**3108**	**25.1**	3084	25.3	4	2869	27.2	2973	26.2	**2891**	**27.0**

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
```

General Notes

```
The system bus runs at 1066 MHz
All binaries were built with 64-bit Intel compiler except:
433.milc, 434.zeusmp, 450.soplex, 470.lbm and 482.sphinx3 in peak were built with
32-bit Intel compiler by changing the path for include and library files.
```

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:
`/opt/intel/cc/9.1.049/bin/icc -I/opt/intel/cc/9.1.049/include -L/opt/intel/cc/9.1.049/lib`

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

450.soplex: `/opt/intel/cc/9.1.049/bin/icpc -I/opt/intel/cc/9.1.049/include -L/opt/intel/cc/9.1.049/lib`

Fortran benchmarks (except as noted below):
`ifort`

434.zeusmp: `/opt/intel/fc/9.1.045/bin/ifort -I/opt/intel/fc/9.1.045/include -L/opt/intel/fc/9.1.045/lib`

Benchmarks using both Fortran and C:
`icc ifort`

Peak Portability Flags

410.bwaves: `-DSPEC_CPU_LP64`
416.gamess: `-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`

Peak Optimization Flags

C benchmarks:

433.milc: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast`

470.lbm: `Same as 433.milc`

482.sphinx3: `-fast`

C++ benchmarks:

Continued on next page

Peak Optimization Flags (Continued)

444.namd: `basepeak = yes`

447.dealII: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast`

450.soplex: `Same as 447.dealII`

453.povray: `Same as 447.dealII`

Fortran benchmarks:

410.bwaves: `basepeak = yes`

416.gamess: `basepeak = yes`

434.zeusmp: `-fast`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `basepeak = yes`

465.tonto: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast`

Benchmarks using both Fortran and C:

435.gromacs: `-prof_gen`(pass 1) `-prof_use`(pass 2) `-fast`

436.cactusADM: `basepeak = yes`

454.calculix: `Same as 435.gromacs`

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/NEC-ic91-FP-linux-flags.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/NEC-ic91-FP-linux-flags.xml`

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