SPEC® CFP2006 Result

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NEC Corporation

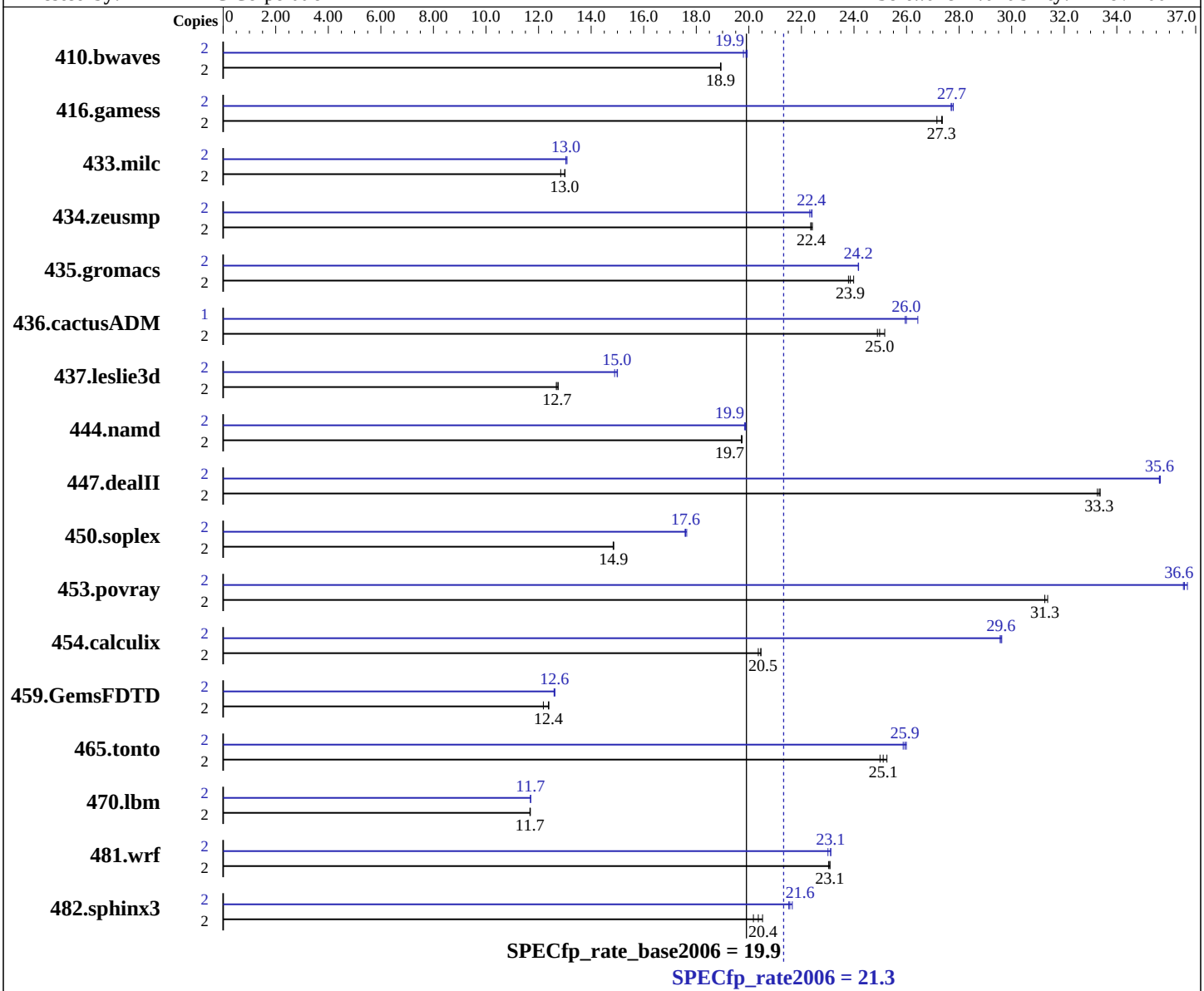
Express5800/120Rh-1
(Intel Xeon E5205)

SPECfp®_rate2006 = 21.3

SPECfp_rate_base2006 = 19.9

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 E5205
CPU Characteristics:	1.86 GHz, 6 MB L2, 1066 MHz bus
CPU MHz:	1867
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 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 Linux 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
System State:	Run level 3 (multi-user)

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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

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: binutils 2.17

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	1437	18.9	**1436**	**18.9**	1435	18.9	2	1363	19.9	1373	19.8	**1366**	**19.9**
416.gamess	2	1431	27.4	1442	27.2	**1433**	**27.3**	2	1414	27.7	1410	27.8	**1413**	**27.7**
433.milc	2	1411	13.0	**1413**	**13.0**	1430	12.8	2	**1408**	**13.0**	1403	13.1	1408	13.0
434.zeusmp	2	**813**	**22.4**	814	22.4	812	22.4	2	815	22.3	**813**	**22.4**	812	22.4
435.gromacs	2	600	23.8	595	24.0	**599**	**23.9**	2	591	24.2	591	24.2	**591**	**24.2**
436.cactusADM	2	950	25.2	960	24.9	**957**	**25.0**	1	452	26.4	461	25.9	**460**	**26.0**
437.leslie3d	2	1475	12.7	1483	12.7	**1480**	**12.7**	2	1253	15.0	1262	14.9	**1254**	**15.0**
444.namd	2	814	19.7	**813**	**19.7**	812	19.7	2	807	19.9	809	19.8	**807**	**19.9**
447.dealII	2	686	33.4	**686**	**33.3**	688	33.3	2	**642**	**35.6**	642	35.6	642	35.7
450.soplex	2	1123	14.9	1124	14.8	**1123**	**14.9**	2	946	17.6	**948**	**17.6**	949	17.6
453.povray	2	339	31.4	**340**	**31.3**	340	31.3	2	**291**	**36.6**	291	36.5	290	36.7
454.calculix	2	**807**	**20.5**	806	20.5	810	20.4	2	**558**	**29.6**	557	29.6	558	29.6
459.GemsFDTD	2	1712	12.4	1742	12.2	**1715**	**12.4**	2	**1683**	**12.6**	1681	12.6	1686	12.6
465.tonto	2	**784**	**25.1**	787	25.0	779	25.3	2	757	26.0	761	25.9	**759**	**25.9**
470.lbm	2	2351	11.7	**2353**	**11.7**	2354	11.7	2	2350	11.7	2349	11.7	**2349**	**11.7**
481.wrf	2	**968**	**23.1**	968	23.1	970	23.0	2	971	23.0	966	23.1	**967**	**23.1**
482.sphinx3	2	1932	20.2	1899	20.5	**1915**	**20.4**	2	1811	21.5	1800	21.7	**1808**	**21.6**

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:          Enabled
Adjacent Cache Line Prefetch: Enabled
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
 The NEC Express5800/120Rh-1(Intel Xeon E5205),
 the NEC Express5800/120Rj-2(Intel Xeon E5205),
 the Bull NovaScale R440 E1 (Intel Xeon E5205,1.86GHz) and
 the Bull NovaScale R460 E1 (Intel Xeon E5205,1.86GHz) models are electronically equivalent.
 The results have been measured on a NEC Express5800/120Rj-2(Intel Xeon E5205) model.
```

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`

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Peak Portability Flags (Continued)

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

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Peak Optimization Flags (Continued)

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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