SPEC® CFP2006 Result

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NEC Corporation

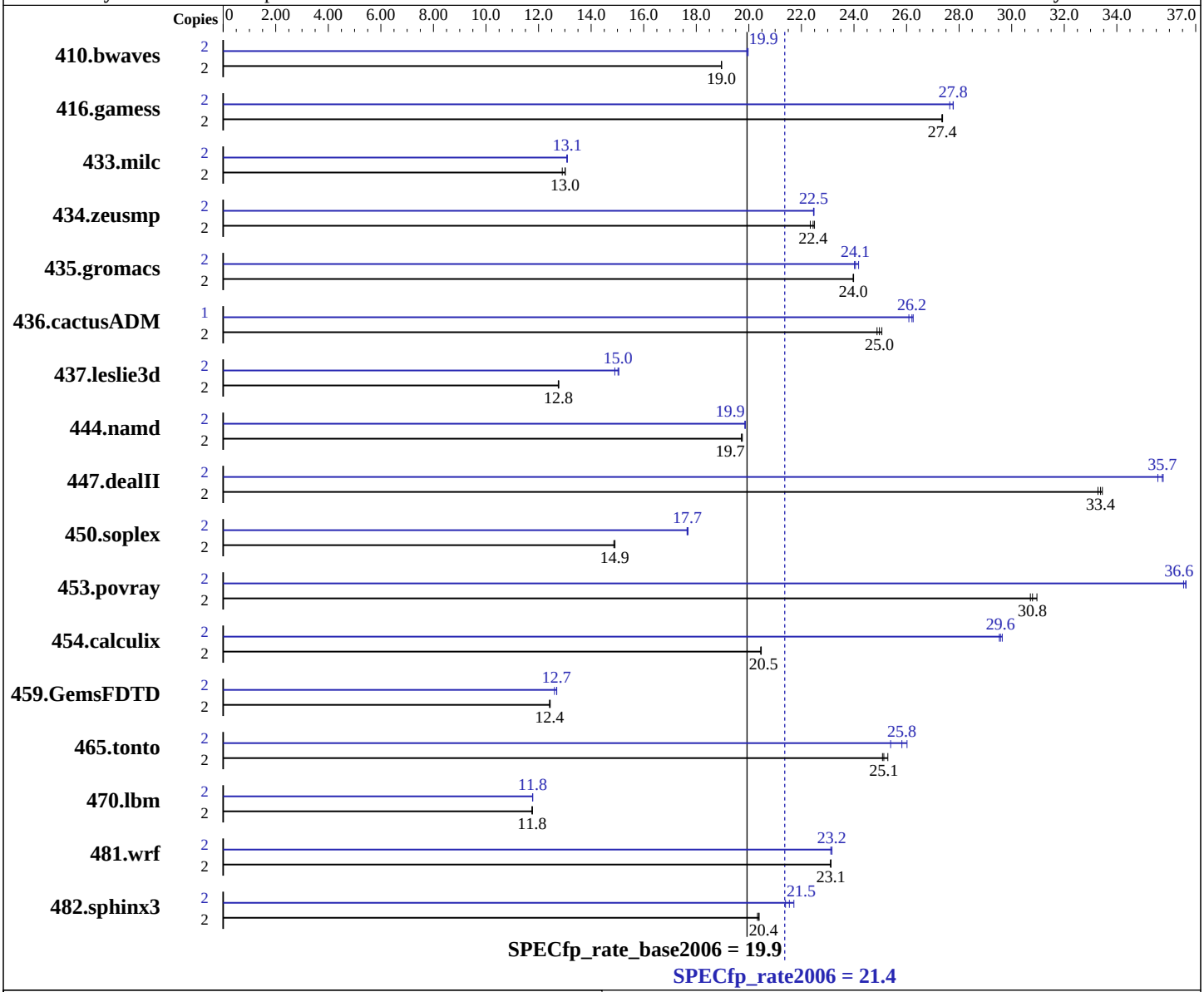
Express5800/120Lj
(Intel Xeon E5205)

SPECfp®_rate2006 = 21.4

SPECfp_rate_base2006 = 19.9

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 E5205
CPU Characteristics:	1.86 GHz, 6 MB L2 shared, 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 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	2	1433	19.0	1434	19.0	**1434**	**19.0**	2	**1363**	**19.9**	1361	20.0	1364	19.9
416.gamess	2	1432	27.3	**1431**	**27.4**	1431	27.4	2	1417	27.6	1410	27.8	**1410**	**27.8**
433.milc	2	**1411**	**13.0**	1410	13.0	1423	12.9	2	**1403**	**13.1**	1402	13.1	1404	13.1
434.zeusmp	2	815	22.3	809	22.5	**811**	**22.4**	2	810	22.5	**810**	**22.5**	810	22.5
435.gromacs	2	**595**	**24.0**	596	24.0	595	24.0	2	595	24.0	**594**	**24.1**	591	24.2
436.cactusADM	2	954	25.1	961	24.9	**957**	**25.0**	1	455	26.3	458	26.1	**456**	**26.2**
437.leslie3d	2	**1474**	**12.8**	1472	12.8	1475	12.7	2	1249	15.1	1262	14.9	**1251**	**15.0**
444.namd	2	813	19.7	812	19.8	**813**	**19.7**	2	**808**	**19.9**	808	19.9	807	19.9
447.dealII	2	687	33.3	**685**	**33.4**	684	33.5	2	643	35.6	**640**	**35.7**	640	35.8
450.soplex	2	1119	14.9	1122	14.9	**1120**	**14.9**	2	943	17.7	**945**	**17.7**	945	17.6
453.povray	2	**346**	**30.8**	346	30.7	344	31.0	2	290	36.6	291	36.5	**291**	**36.6**
454.calculix	2	806	20.5	**806**	**20.5**	807	20.4	2	557	29.6	559	29.5	**558**	**29.6**
459.GemsFDTD	2	**1708**	**12.4**	1709	12.4	1705	12.4	2	**1672**	**12.7**	1672	12.7	1683	12.6
465.tonto	2	778	25.3	785	25.1	**783**	**25.1**	2	**762**	**25.8**	756	26.0	775	25.4
470.lbm	2	2335	11.8	**2338**	**11.8**	2338	11.8	2	2333	11.8	2335	11.8	**2334**	**11.8**
481.wrf	2	**966**	**23.1**	967	23.1	966	23.1	2	964	23.2	**965**	**23.2**	966	23.1
482.sphinx3	2	1917	20.3	**1914**	**20.4**	1911	20.4	2	1822	21.4	1795	21.7	**1810**	**21.5**

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
  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 Express5800/120Lj(Intel Xeon E5205) and
 the Bull NovaScale T860 E1(Intel Xeon E5205,1.86GHz) models are electronically equivalent.
 The results have been measured on a NEC Express5800/120Lj(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`

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Base Optimization Flags (Continued)

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`

Continued on next page

Peak Portability Flags (Continued)

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:

Continued on next page

Peak Optimization Flags (Continued)

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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