SPEC® CFP2006 Result

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NEC Corporation

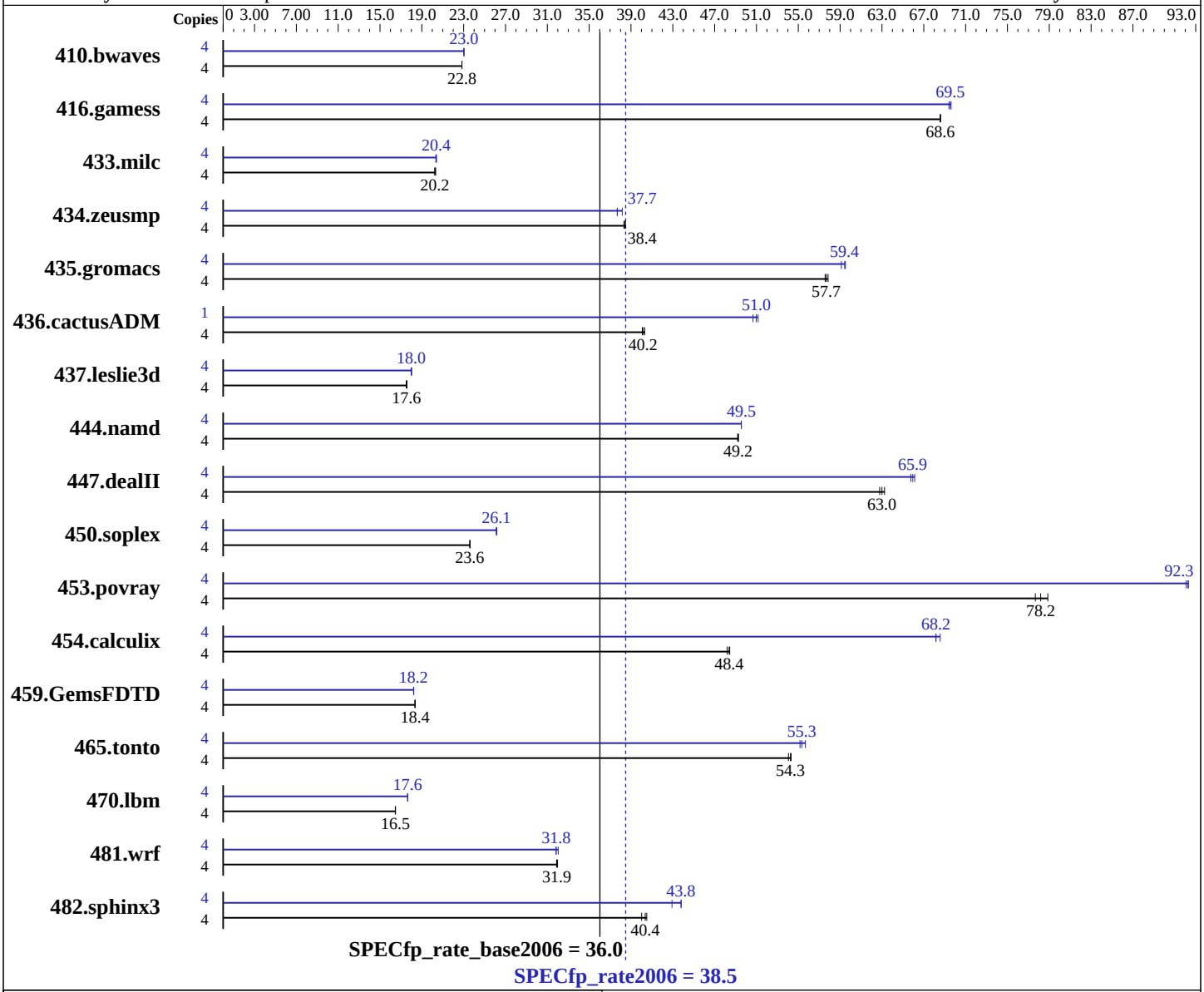
Express5800/i120Ra-e1
(Intel Xeon L5410)

SPECfp®_rate2006 = 38.5

SPECfp_rate_base2006 = 36.0

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

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



Hardware

CPU Name:	Intel Xeon L5410
CPU Characteristics:	2.33 GHz, 2x6 MB L2 shared, 1333 MHz bus
CPU MHz:	2333
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 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 (4x4 GB PC2-5300P, 2 rank, CL5-5-5, ECC)
Disk Subsystem: 1x80.0 GB SATAII, 7200RPM
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	4	2381	22.8	**2381**	**22.8**	2380	22.8	4	2362	23.0	**2361**	**23.0**	2361	23.0
416.gamess	4	**1142**	**68.6**	1142	68.6	1142	68.6	4	1128	69.4	1125	69.6	**1126**	**69.5**
433.milc	4	1814	20.2	1807	20.3	**1813**	**20.2**	4	**1802**	**20.4**	1805	20.3	1800	20.4
434.zeusmp	4	**947**	**38.4**	947	38.4	950	38.3	4	**966**	**37.7**	954	38.2	966	37.7
435.gromacs	4	**495**	**57.7**	494	57.8	496	57.6	4	**481**	**59.4**	480	59.5	483	59.1
436.cactusADM	4	**1190**	**40.2**	1193	40.1	1186	40.3	1	236	50.7	234	51.2	**234**	**51.0**
437.leslie3d	4	2140	17.6	2148	17.5	**2142**	**17.6**	4	**2091**	**18.0**	2085	18.0	2092	18.0
444.namd	4	652	49.2	651	49.3	**651**	**49.2**	4	647	49.5	647	49.6	**647**	**49.5**
447.dealII	4	729	62.8	724	63.2	**726**	**63.0**	4	696	65.8	692	66.1	**694**	**65.9**
450.soplex	4	1414	23.6	1413	23.6	**1414**	**23.6**	4	1275	26.2	**1277**	**26.1**	1277	26.1
453.povray	4	270	78.9	**272**	**78.2**	274	77.7	4	231	92.1	**231**	**92.3**	231	92.3
454.calculix	4	**682**	**48.4**	685	48.2	681	48.4	4	481	68.6	484	68.2	**484**	**68.2**
459.GemsFDTD	4	2314	18.3	**2313**	**18.4**	2311	18.4	4	**2330**	**18.2**	2328	18.2	2331	18.2
465.tonto	4	725	54.3	728	54.1	**725**	**54.3**	4	**711**	**55.3**	707	55.7	714	55.2
470.lbm	4	3339	16.5	**3336**	**16.5**	3336	16.5	4	3115	17.6	**3114**	**17.6**	3114	17.6
481.wrf	4	**1400**	**31.9**	1401	31.9	1397	32.0	4	**1403**	**31.8**	1394	32.0	1404	31.8
482.sphinx3	4	**1931**	**40.4**	1924	40.5	1948	40.0	4	1780	43.8	1816	42.9	**1781**	**43.8**

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`

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