SPEC® CFP2006 Result
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NEC Corporation

$SPECfp^{®}\_rate2006 =$ 63.7

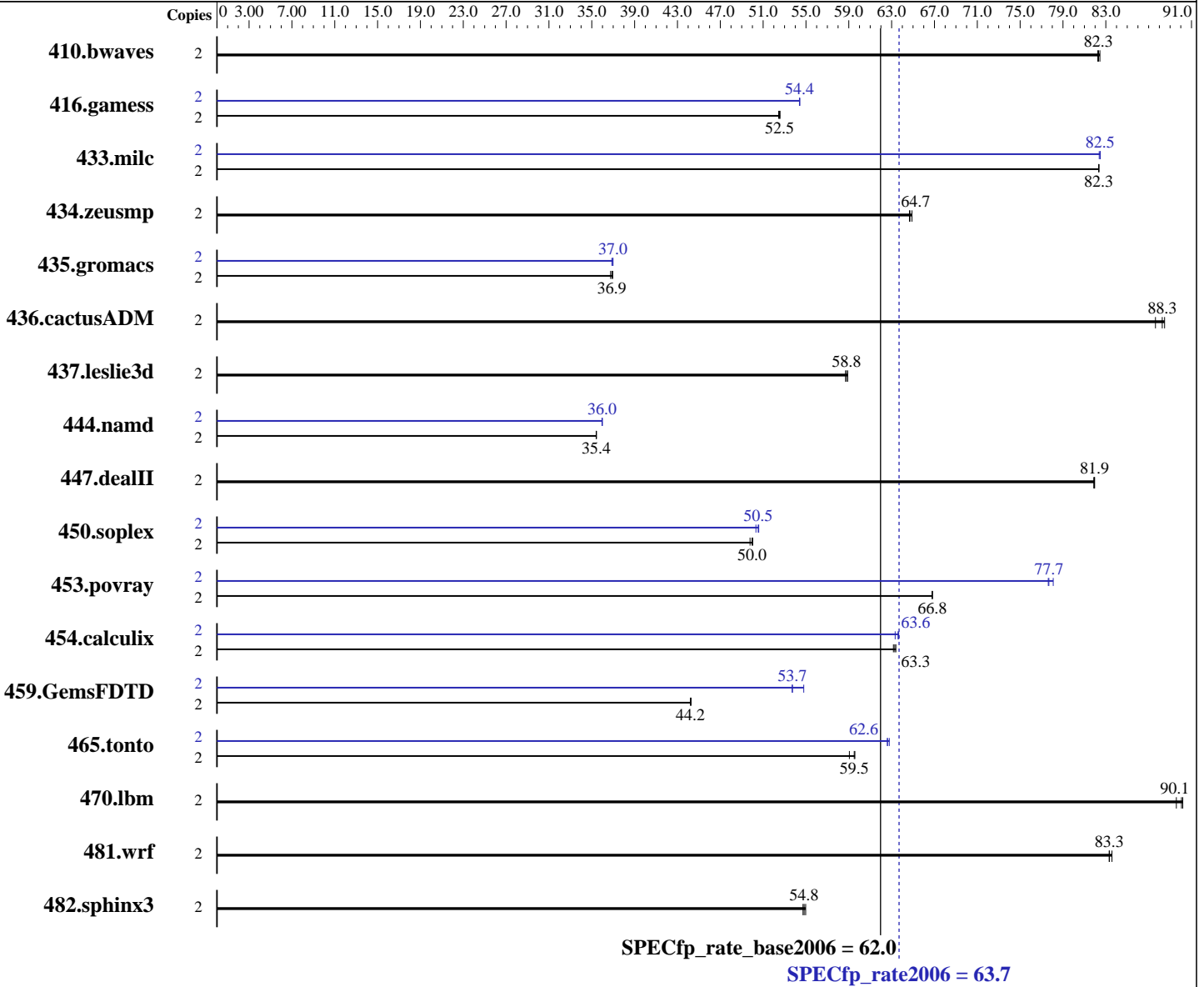Express5800/R110d-1M (Intel Pentium 1403)

SPECfp_rate_base2006 = 62.0

CPU2006 license: 9006	**Test date:** Jun-2012
Test sponsor: NEC Corporation	**Hardware Availability:** May-2012
Tested by: NEC Corporation	**Software Availability:** Dec-2011

Copies	
410.bwaves	2 — 82.3
416.gamess	2 — 54.4 / 2 — 52.5
433.milc	2 — 82.5 / 2 — 82.3
434.zeusmp	2 — 64.7
435.gromacs	2 — 37.0 / 2 — 36.9
436.cactusADM	2 — 88.3
437.leslie3d	2 — 58.8
444.namd	2 — 36.0 / 2 — 35.4
447.dealII	2 — 81.9
450.soplex	2 — 50.5 / 2 — 50.0
453.povray	2 — 77.7 / 2 — 66.8
454.calculix	2 — 63.6 / 2 — 63.3
459.GemsFDTD	2 — 53.7 / 2 — 44.2
465.tonto	2 — 62.6 / 2 — 59.5
470.lbm	2 — 90.1
481.wrf	2 — 83.3
482.sphinx3	2 — 54.8

SPECfp_rate_base2006 = 62.0

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Hardware

CPU Name:	Intel Pentium 1403
CPU Characteristics:	
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core

Continued on next page

Software

Operating System:	Red Hat Enterprise Linux Server release 6.2 (Santiago) Kernel 2.6.32-220.el6.x86_64
Compiler:	C/C++: Version 12.1.2.273 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.2.273 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	ext4

Continued on next page

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L3 Cache:	5 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (6 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1066 MHz and CL7)
Disk Subsystem:	1 x 500 GB SATA, 7200 RPM
Other Hardware:	None

System State:	Run level 3 (multi-user)
Base Pointers:	32/64-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	2	330	82.4	330	82.2	**330**	**82.3**		2	330	82.4	330	82.2	**330**	**82.3**
416.gamess	2	745	52.6	**745**	**52.5**	747	52.5		2	720	54.4	**720**	**54.4**	719	54.4
433.milc	2	**223**	**82.3**	223	82.3	223	82.4		2	**223**	**82.5**	223	82.4	223	82.5
434.zeusmp	2	280	64.9	281	64.7	**281**	**64.7**		2	280	64.9	281	64.7	**281**	**64.7**
435.gromacs	2	388	36.8	**387**	**36.9**	386	37.0		2	386	37.0	387	36.9	**386**	**37.0**
436.cactusADM	2	**271**	**88.3**	273	87.6	270	88.5		2	**271**	**88.3**	273	87.6	270	88.5
437.leslie3d	2	320	58.7	319	58.9	**320**	**58.8**		2	320	58.7	319	58.9	**320**	**58.8**
444.namd	2	453	35.4	453	35.4	**453**	**35.4**		2	**446**	**36.0**	446	36.0	446	36.0
447.dealII	2	279	81.9	279	81.9	**279**	**81.9**		2	279	81.9	279	81.9	**279**	**81.9**
450.soplex	2	335	49.8	333	50.0	**334**	**50.0**		2	**330**	**50.5**	330	50.6	331	50.3
453.povray	2	159	66.8	**159**	**66.8**	159	66.8		2	**137**	**77.7**	136	78.1	137	77.6
454.calculix	2	**261**	**63.3**	260	63.4	261	63.2		2	261	63.3	259	63.7	**259**	**63.6**
459.GemsFDTD	2	480	44.2	**480**	**44.2**	479	44.3		2	395	53.7	387	54.8	**395**	**53.7**
465.tonto	2	333	59.1	**331**	**59.5**	330	59.6		2	314	62.6	313	62.8	**314**	**62.6**
470.lbm	2	**305**	**90.1**	305	90.2	307	89.6		2	**305**	**90.1**	305	90.2	307	89.6
481.wrf	2	267	83.6	268	83.3	**268**	**83.3**		2	267	83.6	268	83.3	**268**	**83.3**
482.sphinx3	2	709	55.0	**711**	**54.8**	712	54.7		2	709	55.0	**711**	**54.8**	712	54.7

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS Settings:
Energy Performance: Performance

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$SPECfp\_rate\_base2006 =$ 62.0

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

Test date: Jun-2012
Hardware Availability: May-2012
Software Availability: Dec-2011

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"

 Added glibc-static-2.12-1.47.el6.x86_64.rpm
 to enable static linking

 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:
    icc   -m64

C++ benchmarks:
    icpc -m64

Fortran benchmarks:
    ifort -m64

Benchmarks using both Fortran and C:
    icc   -m64 ifort -m64

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
```

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Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Peak Compiler Invocation

C benchmarks:
```
icc    -m64
```

C++ benchmarks (except as noted below):
```
icpc   -m64
```
```
450.soplex: icpc -m32
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

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
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
465.tonto: -DSPEC_CPU_LP64
```

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Hardware Availability: May-2012
Software Availability: Dec-2011

Peak Portability Flags (Continued)

```
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64
```

Peak Optimization Flags

C benchmarks:

```
433.milc: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
          -opt-mem-layout-trans=3

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes
```

C++ benchmarks:

```
444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
          -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
          -auto-ilp32

447.dealII: basepeak = yes

450.soplex: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
```

Fortran benchmarks:

```
410.bwaves: basepeak = yes

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
            -no-prec-div(pass 2) -prof-use(pass 2) -unroll2
            -inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
              -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
           -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
           -inline-calloc -opt-malloc-options=3
```

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Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

        435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
                -static -auto-ilp32 -opt-mem-layout-trans=3

    436.cactusADM: basepeak = yes

        454.calculix: -xAVX -ipo -O3 -no-prec-div -static -auto-ilp32
                -opt-mem-layout-trans=3

        481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml
http://www.spec.org/cpu2006/flags/NEC-Platform-Settings-V1.2-R120d-RevA.xml

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

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