SPEC® CFP2006 Result
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NEC Corporation

Express5800/E110d-M (Intel Pentium 1403)

$SPECfp®\_rate2006 =$ 64.3

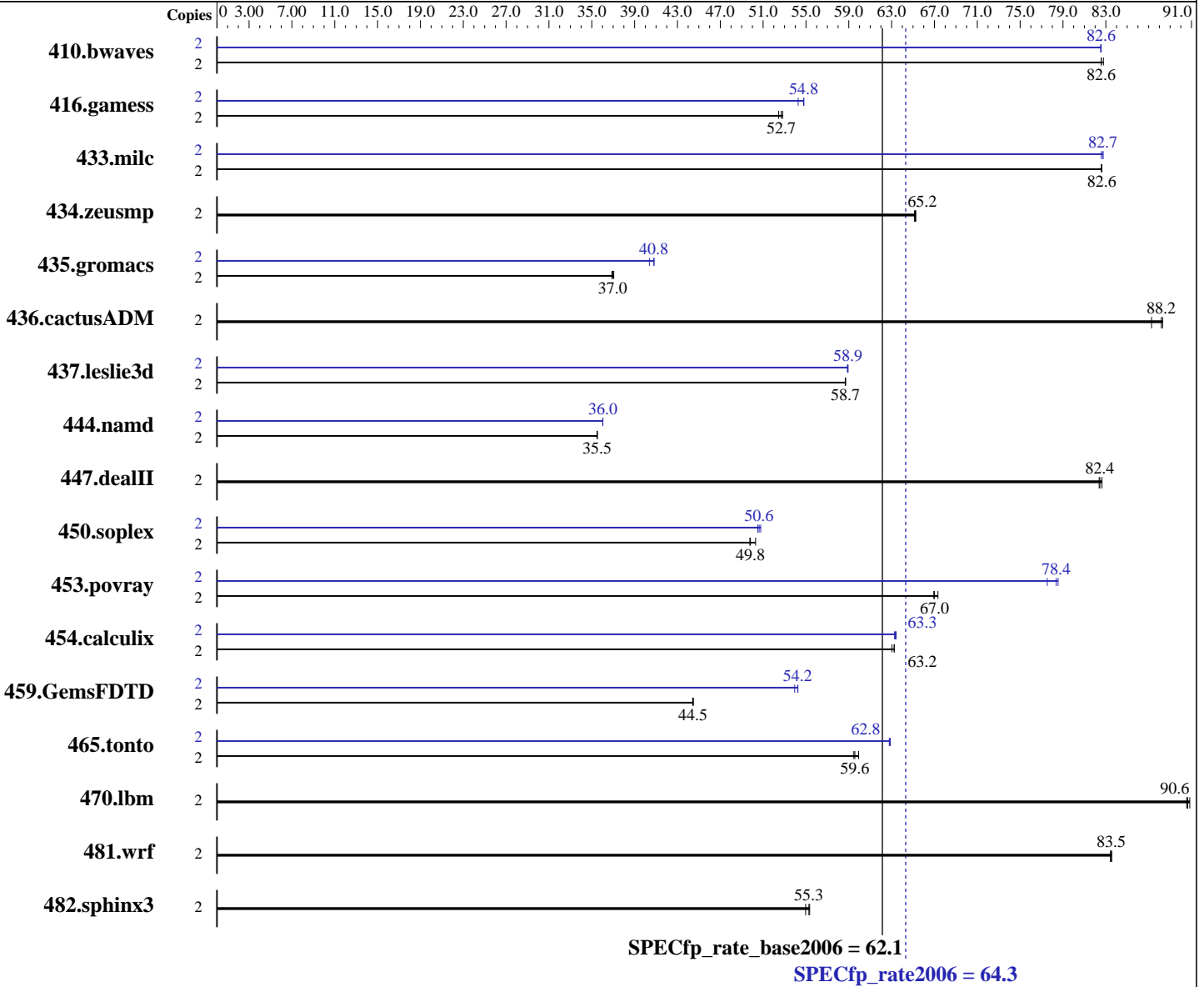$SPECfp\_rate\_base2006 =$ 62.1

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

Test date: Dec-2012
Hardware Availability: Dec-2012
Software Availability: Feb-2012

	Copies	Results
410.bwaves	2	82.6
	2	82.6
416.gamess	2	54.8
	2	52.7
433.milc	2	82.7
	2	82.6
434.zeusmp	2	65.2
435.gromacs	2	40.8
	2	37.0
436.cactusADM	2	88.2
437.leslie3d	2	58.9
	2	58.7
444.namd	2	36.0
	2	35.5
447.dealII	2	82.4
450.soplex	2	50.6
	2	49.8
453.povray	2	78.4
	2	67.0
454.calculix	2	63.3
	2	63.2
459.GemsFDTD	2	54.2
	2	44.5
465.tonto	2	62.8
	2	59.6
470.lbm	2	90.6
481.wrf	2	83.5
482.sphinx3	2	55.3

SPECfp_rate_base2006 = 62.1
SPECfp_rate2006 = 64.3

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 12.1.3.293 of Intel C++ Studio XE for Linux;
Fortran: Version 12.1.3.293 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	System State:	Run level 3 (multi-user)	
Other Cache:	None	Base Pointers:	32/64-bit	
Memory:	48 GB (6 x 8 GB 2Rx4 PC3L-12800R-11, ECC, running at 1066 MHz and CL7)	Peak Pointers:	32/64-bit	
		Other Software:	None	
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM			
Other Hardware:	None			

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	328	82.8	**329**	**82.6**	329	82.6	2	**329**	**82.6**	329	82.6	329	82.5
416.gamess	2	741	52.8	**743**	**52.7**	747	52.5	2	**715**	**54.8**	714	54.8	722	54.3
433.milc	2	**222**	**82.6**	222	82.6	222	82.6	2	222	82.6	222	82.7	**222**	**82.7**
434.zeusmp	2	**279**	**65.2**	279	65.3	279	65.1	2	**279**	**65.2**	279	65.3	279	65.1
435.gromacs	2	**386**	**37.0**	387	36.9	385	37.1	2	354	40.4	**350**	**40.8**	350	40.8
436.cactusADM	2	271	88.3	274	87.3	**271**	**88.2**	2	271	88.3	274	87.3	**271**	**88.2**
437.leslie3d	2	320	58.7	320	58.7	**320**	**58.7**	2	**319**	**58.9**	319	58.9	319	58.9
444.namd	2	452	35.5	**452**	**35.5**	452	35.5	2	**445**	**36.0**	445	36.0	445	36.0
447.dealII	2	277	82.6	**278**	**82.4**	278	82.4	2	277	82.6	**278**	**82.4**	278	82.4
450.soplex	2	332	50.3	**335**	**49.8**	335	49.8	2	**329**	**50.6**	330	50.5	328	50.8
453.povray	2	**159**	**67.0**	158	67.3	159	66.9	2	137	77.5	135	78.5	**136**	**78.4**
454.calculix	2	262	63.0	**261**	**63.2**	261	63.2	2	261	63.3	**260**	**63.3**	260	63.4
459.GemsFDTD	2	477	44.5	**477**	**44.5**	478	44.4	2	391	54.3	**391**	**54.2**	393	53.9
465.tonto	2	331	59.5	328	59.9	**330**	**59.6**	2	313	62.8	313	62.9	**313**	**62.8**
470.lbm	2	**303**	**90.6**	303	90.6	303	90.8	2	**303**	**90.6**	303	90.6	303	90.8
481.wrf	2	268	83.4	267	83.5	**267**	**83.5**	2	268	83.4	267	83.5	**267**	**83.5**
482.sphinx3	2	704	55.3	709	55.0	**705**	**55.3**	2	704	55.3	709	55.0	**705**	**55.3**

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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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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$SPECfp\_rate2006 =$ 64.3

$SPECfp\_rate\_base2006 =$ 62.1

CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: Dec-2012

Hardware Availability: Dec-2012

Software Availability: Feb-2012

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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Test date: Dec-2012

Hardware Availability: Dec-2012

Software Availability: Feb-2012

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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div(pass 2) -prof-use(pass 2) -static
```

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

```
  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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
                 -auto-p32 -ansi-alias -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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