SPEC® CFP2006 Result
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NEC Corporation

Express5800/GT120a
(Intel Xeon E5502)

$SPECfp^®\_rate2006 =$ 70.9
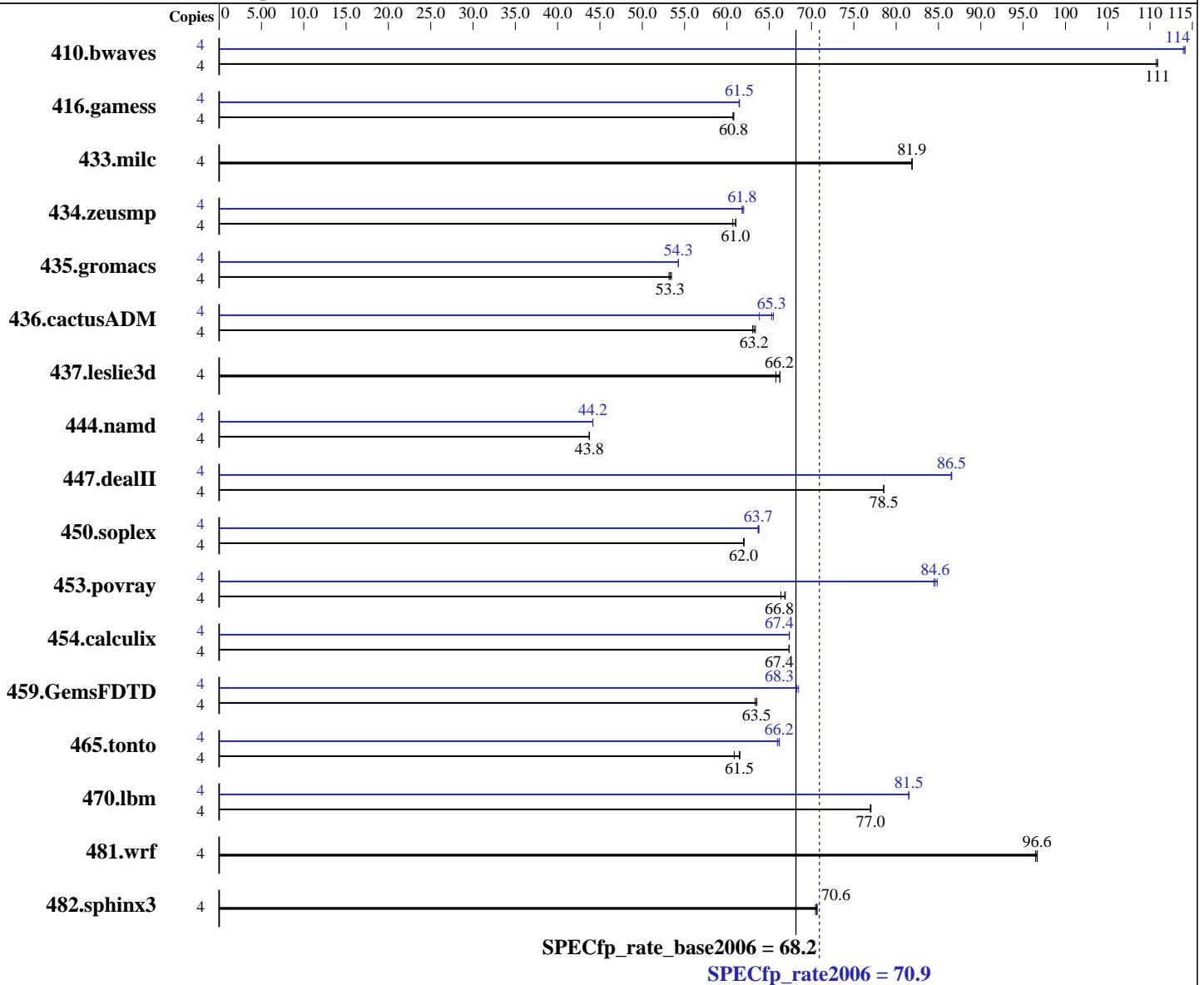
$SPECfp\_rate\_base2006 =$ 68.2

Copies		
410.bwaves	4	114
	4	111
416.gamess	4	61.5
	4	60.8
433.milc	4	81.9
434.zeusmp	4	61.8
	4	61.0
435.gromacs	4	54.3
	4	53.3
436.cactusADM	4	65.3
	4	63.2
437.leslie3d	4	66.2
444.namd	4	44.2
	4	43.8
447.dealII	4	86.5
	4	78.5
450.soplex	4	63.7
	4	62.0
453.povray	4	84.6
	4	66.8
454.calculix	4	67.4
	4	67.4
459.GemsFDTD	4	68.3
	4	63.5
465.tonto	4	66.2
	4	61.5
470.lbm	4	81.5
	4	77.0
481.wrf	4	96.6
482.sphinx3	4	70.6

SPECfp_rate_base2006 = 68.2

SPECfp_rate2006 = 70.9

Hardware

CPU Name: Intel Xeon E5502
CPU Characteristics:
CPU MHz: 1867
FPU: Integrated
CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
CPU(s) orderable: 1,2 chips
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: SUSE Linux Enterprise Server 10 (x86_64) SP2 with patch Linux kernel 20090119, Kernel 2.6.16.60-0.34-smp
Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l_cproc_p_11.0.081, l_cprof_p_11.0.081
Auto Parallel: No
File System: ReiserFS
System State: Run level 3 (multi-user)

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CPU2006 license: 9006	**Test date:** May-2009
Test sponsor: NEC Corporation	**Hardware Availability:** Apr-2009
Tested by: NEC Corporation	**Software Availability:** Feb-2009

L3 Cache:	4 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	48 GB (12 X 4 GB PC3-8500R running at 800 MHz)	Other Software:	Binutils 2.18.50.0.7.20080502
Disk Subsystem:	1x160 GB SATA2, 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	4	490	111	491	111	**490**	**111**	4	476	114	**476**	**114**	477	114
416.gamess	4	1288	60.8	**1288**	**60.8**	1290	60.7	4	1275	61.4	1274	61.5	**1274**	**61.5**
433.milc	4	448	81.9	**448**	**81.9**	449	81.9	4	448	81.9	**448**	**81.9**	449	81.9
434.zeusmp	4	600	60.7	596	61.1	**597**	**61.0**	4	587	62.0	589	61.8	**589**	**61.8**
435.gromacs	4	**536**	**53.3**	537	53.2	534	53.5	4	526	54.3	526	54.3	**526**	**54.3**
436.cactusADM	4	758	63.0	**756**	**63.2**	754	63.4	4	730	65.5	749	63.8	**732**	**65.3**
437.leslie3d	4	567	66.3	**568**	**66.2**	571	65.8	4	567	66.3	**568**	**66.2**	571	65.8
444.namd	4	733	43.8	734	43.7	**733**	**43.8**	4	**726**	**44.2**	726	44.2	727	44.2
447.dealII	4	**583**	**78.5**	582	78.6	583	78.5	4	529	86.5	529	86.6	**529**	**86.5**
450.soplex	4	**538**	**62.0**	538	62.0	538	62.0	4	523	63.8	**524**	**63.7**	524	63.7
453.povray	4	318	66.9	**318**	**66.8**	321	66.4	4	**251**	**84.6**	251	84.8	252	84.5
454.calculix	4	490	67.3	**490**	**67.4**	490	67.4	4	**490**	**67.4**	490	67.4	490	67.4
459.GemsFDTD	4	668	63.5	670	63.3	**668**	**63.5**	4	**622**	**68.3**	622	68.2	620	68.5
465.tonto	4	647	60.9	640	61.5	**640**	**61.5**	4	597	66.0	594	66.2	**595**	**66.2**
470.lbm	4	713	77.0	**714**	**77.0**	714	77.0	4	674	81.5	675	81.5	**674**	**81.5**
481.wrf	4	**462**	**96.6**	463	96.5	462	96.7	4	**462**	**96.6**	463	96.5	462	96.7
482.sphinx3	4	1106	70.5	**1104**	**70.6**	1103	70.7	4	1106	70.5	**1104**	**70.6**	1103	70.7

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

Submit Notes

    The config file option 'submit' was used.
     numactl was used to bind copies to the cores

Operating System Notes

    'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

Platform Notes

    BIOS setting:
    NUMA configuration: Enabled

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CPU2006 license: 9006

Test sponsor: NEC Corporation

Tested by: NEC Corporation

Test date: May-2009

Hardware Availability: Apr-2009

Software Availability: Feb-2009

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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

Fortran benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

Benchmarks using both Fortran and C:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

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CPU2006 license: 9006
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Tested by: NEC Corporation

Test date: May-2009
Hardware Availability: Apr-2009
Software Availability: Feb-2009

Peak Compiler Invocation

C benchmarks:
    icc

C++ benchmarks (except as noted below):
    icpc

    450.soplex: icpc -m32

Fortran benchmarks:
    ifort

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
         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
      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

Peak Optimization Flags

C benchmarks:

        433.milc: basepeak = yes

        470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
                -auto-ilp32

    482.sphinx3: basepeak = yes

C++ benchmarks:

Continued on next page

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Tested by: NEC Corporation

Test date: May-2009

Hardware Availability: Apr-2009

Software Availability: Feb-2009

Peak Optimization Flags (Continued)

  444.namd: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)
`-fno-alias -auto-ilp32`

  447.dealII: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)
`-unroll2 -ansi-alias -scalar-rep-`

  450.soplex: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)
`-opt-malloc-options=3`

  453.povray: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)
`-unroll4 -ansi-alias`

Fortran benchmarks:

  410.bwaves: `-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`

  416.gamess: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)
`-unroll2 -Ob0 -ansi-alias -scalar-rep-`

  434.zeusmp: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)

  437.leslie3d: basepeak = yes

  459.GemsFDTD: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)
`-unroll2 -Ob0 -opt-prefetch`

  465.tonto: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)
`-unroll4 -auto`

Benchmarks using both Fortran and C:

  435.gromacs: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)
`-opt-prefetch -auto-ilp32`

  436.cactusADM: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2)
`-unroll2 -opt-prefetch -auto-ilp32`

  454.calculix: `-xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32`

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Peak Optimization Flags (Continued)

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-ic11.0-fp-linux64-revG.html
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revG.xml
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.xml

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

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