SPEC® CFP2006 Result
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NEC Corporation

$SPECfp^®\_rate2006 =$ 120

Express5800/R110d-1E (Intel Xeon E3-1270)

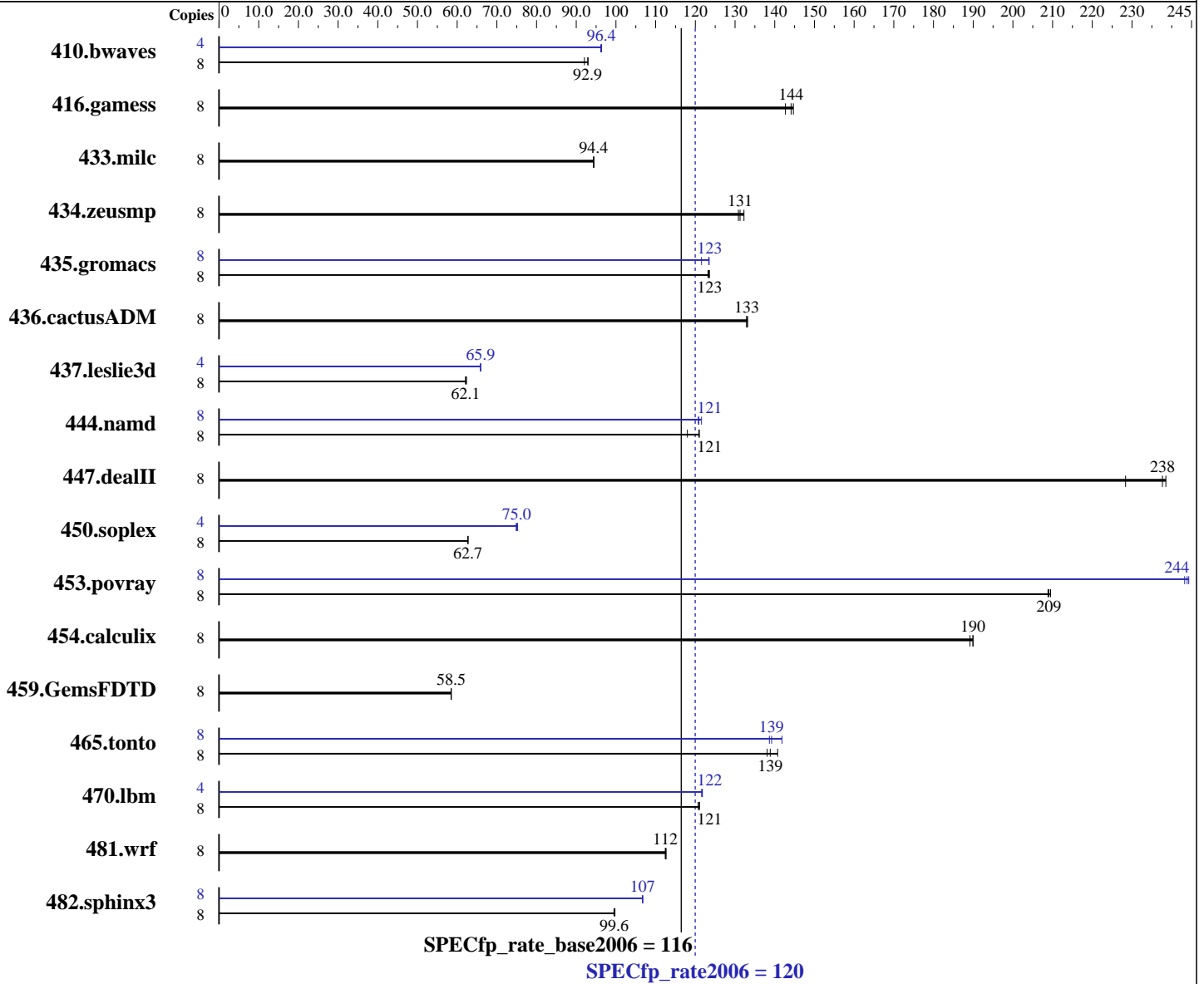$SPECfp\_rate\_base2006 =$ 116

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

Test date: Jul-2011
Hardware Availability: Jun-2011
Software Availability: Mar-2011

Copies scale: 0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0 90.0 100 110 120 130 140 150 160 170 180 190 200 210 220 230 245

Benchmark	Copies	Value
410.bwaves	4	96.4
	8	92.9
416.gamess	8	144
433.milc	8	94.4
434.zeusmp	8	131
435.gromacs	8	123
	8	123
436.cactusADM	8	133
437.leslie3d	4	65.9
	8	62.1
444.namd	8	121
	8	121
447.dealII	8	238
450.soplex	4	75.0
	8	62.7
453.povray	8	244
	8	209
454.calculix	8	190
459.GemsFDTD	8	58.5
465.tonto	8	139
	8	139
470.lbm	4	122
	8	121
481.wrf	8	112
482.sphinx3	8	107
	8	99.6

SPECfp_rate_base2006 = 116

SPECfp_rate2006 = 120

Hardware

CPU Name: Intel Xeon E3-1270
CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz: 3400
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
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: SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64, Version 12.0.3.174 Build 20110309
Auto Parallel: No
File System: ext3
System State: Run level 3 (multi-user)
Base Pointers: 64-bit

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L3 Cache:	8 MB I+D on chip per chip	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	None
Memory:	8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC)		
Disk Subsystem:	1 x 160 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1181	92.1	1169	93.0	**1171**	**92.9**	4	565	96.2	564	96.4	**564**	**96.4**
416.gamess	8	1083	145	1098	143	**1087**	**144**	8	1083	145	1098	143	**1087**	**144**
433.milc	8	**778**	**94.4**	778	94.4	778	94.4	8	**778**	**94.4**	778	94.4	778	94.4
434.zeusmp	8	550	132	**555**	**131**	556	131	8	550	132	**555**	**131**	556	131
435.gromacs	8	**463**	**123**	462	124	464	123	8	463	123	**463**	**123**	470	122
436.cactusADM	8	718	133	719	133	**719**	**133**	8	718	133	719	133	**719**	**133**
437.leslie3d	8	1206	62.4	1211	62.1	**1210**	**62.1**	4	**571**	**65.9**	570	65.9	571	65.9
444.namd	8	530	121	544	118	**531**	**121**	8	528	122	531	121	**531**	**121**
447.dealII	8	401	228	**385**	**238**	384	239	8	401	228	**385**	**238**	384	239
450.soplex	8	**1064**	**62.7**	1063	62.7	1064	62.7	4	446	74.9	443	75.2	**445**	**75.0**
453.povray	8	203	209	**204**	**209**	204	209	8	174	244	**175**	**244**	175	243
454.calculix	8	**348**	**190**	347	190	349	189	8	**348**	**190**	347	190	349	189
459.GemsFDTD	8	1452	58.5	1450	58.5	**1451**	**58.5**	8	1452	58.5	1450	58.5	**1451**	**58.5**
465.tonto	8	570	138	**567**	**139**	559	141	8	568	139	555	142	**565**	**139**
470.lbm	8	908	121	**910**	**121**	910	121	4	451	122	**452**	**122**	452	122
481.wrf	8	795	112	793	113	**794**	**112**	8	795	112	793	113	**794**	**112**
482.sphinx3	8	1563	99.7	**1566**	**99.6**	1567	99.5	8	1462	107	1460	107	**1461**	**107**

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
     Huge pages were not configured for this run
```

Platform Notes

```
    Default BIOS settings were used.
```

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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
```

Base Optimization Flags

C benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -ansi-alias
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -ansi-alias
```

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

Benchmarks using both Fortran and C:
```
-xAVX -ipo -O3 -no-prec-div -static -ansi-alias
```

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Test date: Jul-2011
Hardware Availability: Jun-2011
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Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc    -m64
```

    482.sphinx3: `icc -m32`

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
  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
```

Peak Optimization Flags

C benchmarks:

    433.milc: `basepeak = yes`

    470.lbm: `-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`
           `-ansi-alias -opt-prefetch -static -auto-ilp32`

    482.sphinx3: `-xAVX -ipo -O3 -no-prec-div -unroll2`

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Peak Optimization Flags (Continued)

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
> -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

> 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
> -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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: basepeak = yes

> 434.zeusmp: basepeak = yes

> 437.leslie3d: -xAVX -ipo -O3 -no-prec-div
> -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

> 459.GemsFDTD: basepeak = yes

> 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
> -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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

> 436.cactusADM: basepeak = yes

> 454.calculix: basepeak = yes

> 481.wrf: basepeak = yes

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The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml
http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revF.xml

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

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