SPEC® CFP2006 Result
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NEC Corporation

Express5800/140Rf-4
(Intel Xeon processor E7210)

$SPECfp^{®}2006 =$ 18.9
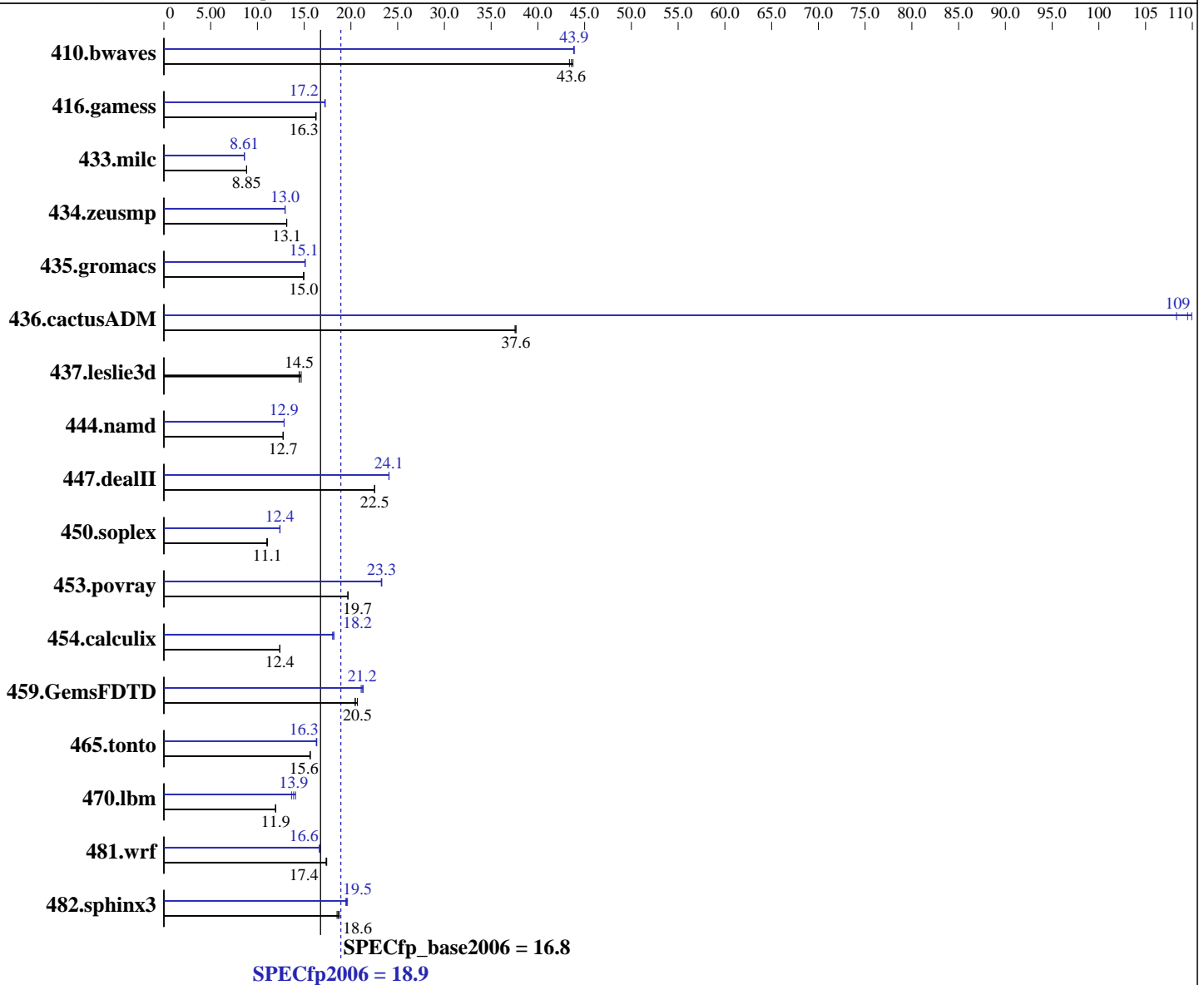
$SPECfp\_base2006 =$ 16.8

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

Test date: Jan-2008
Hardware Availability: Dec-2007
Software Availability: Nov-2007

	410.bwaves	43.9 / 43.6
	416.gamess	17.2 / 16.3
	433.milc	8.61 / 8.85
	434.zeusmp	13.0 / 13.1
	435.gromacs	15.1 / 15.0
	436.cactusADM	109 / 37.6
	437.leslie3d	14.5
	444.namd	12.9 / 12.7
	447.dealII	24.1 / 22.5
	450.soplex	12.4 / 11.1
	453.povray	23.3 / 19.7
	454.calculix	18.2 / 12.4
	459.GemsFDTD	21.2 / 20.5
	465.tonto	16.3 / 15.6
	470.lbm	13.9 / 11.9
	481.wrf	16.6 / 17.4
	482.sphinx3	19.5 / 18.6

SPECfp_base2006 = 16.8
SPECfp2006 = 18.9

Hardware

CPU Name: Intel Xeon E7210
CPU Characteristics: 2.40 GHz, 2x4 MB L2 shared, 1066 MHz bus
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip
CPU(s) orderable: 1,2,4 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 4 MB I+D on chip per core
Continued on next page

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 Linux32 and Linux64
version 10.1 Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
Auto Parallel: Yes
File System: ext2
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L3 Cache:	None	System State:	Multiuser, Runlevel 3
Other Cache:	None	Base Pointers:	64-bit
Memory:	12 GB (12x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)	Peak Pointers:	32/64-bit
Disk Subsystem:	1x73.2 GB SAS, 15000RPM	Other Software:	binutils-2.17.tar.gz, Version 2.17
Other Hardware:	None		

Results Table

Benchmark	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	313	43.4	**312**	**43.6**	311	43.8	**310**	**43.9**	310	43.8	310	43.9
416.gamess	1203	16.3	1206	16.2	**1204**	**16.3**	1138	17.2	1135	17.3	**1136**	**17.2**
433.milc	1037	8.85	**1038**	**8.85**	1038	8.85	**1066**	**8.61**	1068	8.60	1066	8.61
434.zeusmp	**693**	**13.1**	693	13.1	693	13.1	702	13.0	**702**	**13.0**	702	13.0
435.gromacs	477	15.0	**477**	**15.0**	478	14.9	**473**	**15.1**	473	15.1	473	15.1
436.cactusADM	318	37.6	317	37.6	**317**	**37.6**	110	108	**109**	**109**	109	110
437.leslie3d	650	14.5	640	14.7	**649**	**14.5**	650	14.5	640	14.7	**649**	**14.5**
444.namd	629	12.7	628	12.8	**629**	**12.7**	624	12.9	624	12.8	**624**	**12.9**
447.dealII	507	22.5	**508**	**22.5**	508	22.5	**475**	**24.1**	475	24.1	475	24.1
450.soplex	754	11.1	**754**	**11.1**	758	11.0	671	12.4	**672**	**12.4**	673	12.4
453.povray	270	19.7	270	19.7	**270**	**19.7**	229	23.2	**228**	**23.3**	228	23.3
454.calculix	665	12.4	666	12.4	**665**	**12.4**	454	18.2	457	18.0	**454**	**18.2**
459.GemsFDTD	513	20.7	**518**	**20.5**	519	20.5	503	21.1	**500**	**21.2**	498	21.3
465.tonto	629	15.6	**629**	**15.6**	629	15.6	602	16.4	**603**	**16.3**	604	16.3
470.lbm	1151	11.9	**1151**	**11.9**	1148	12.0	1007	13.7	**990**	**13.9**	975	14.1
481.wrf	644	17.3	**642**	**17.4**	641	17.4	670	16.7	672	16.6	**671**	**16.6**
482.sphinx3	1038	18.8	1053	18.5	**1046**	**18.6**	992	19.6	**998**	**19.5**	1001	19.5

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
   OMP_NUM_THREADS set to number of cores (default).
```

Platform Notes

```
   Bios settings:
   Adjacent Sector Prefetch:    Enabled
   Intel SpeedStep Technology: Disabled
```

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General Notes

```
All benchmarks compiled in 64-bit mode except 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 -parallel
```

C++ benchmarks:
```
-fast -parallel
```

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Base Optimization Flags (Continued)

Fortran benchmarks:
```
-fast -parallel
```

Benchmarks using both Fortran and C:
```
-fast -parallel
```

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:
```
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`
      481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

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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 -parallel`

     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: `basepeak = yes`

     459.GemsFDTD: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch -parallel`

     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`

     454.calculix: `-fast -unroll-aggressive -auto-ilp32`

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Peak Optimization Flags (Continued)

481.wrf: `-fast -parallel -prefetch -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.20090714.01.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.20090714.01.xml

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