SPEC® CFP2006 Result
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NEC Corporation

Express5800/B120b-d
(Intel Xeon L5640)

$SPECfp®2006 =$ 39.3
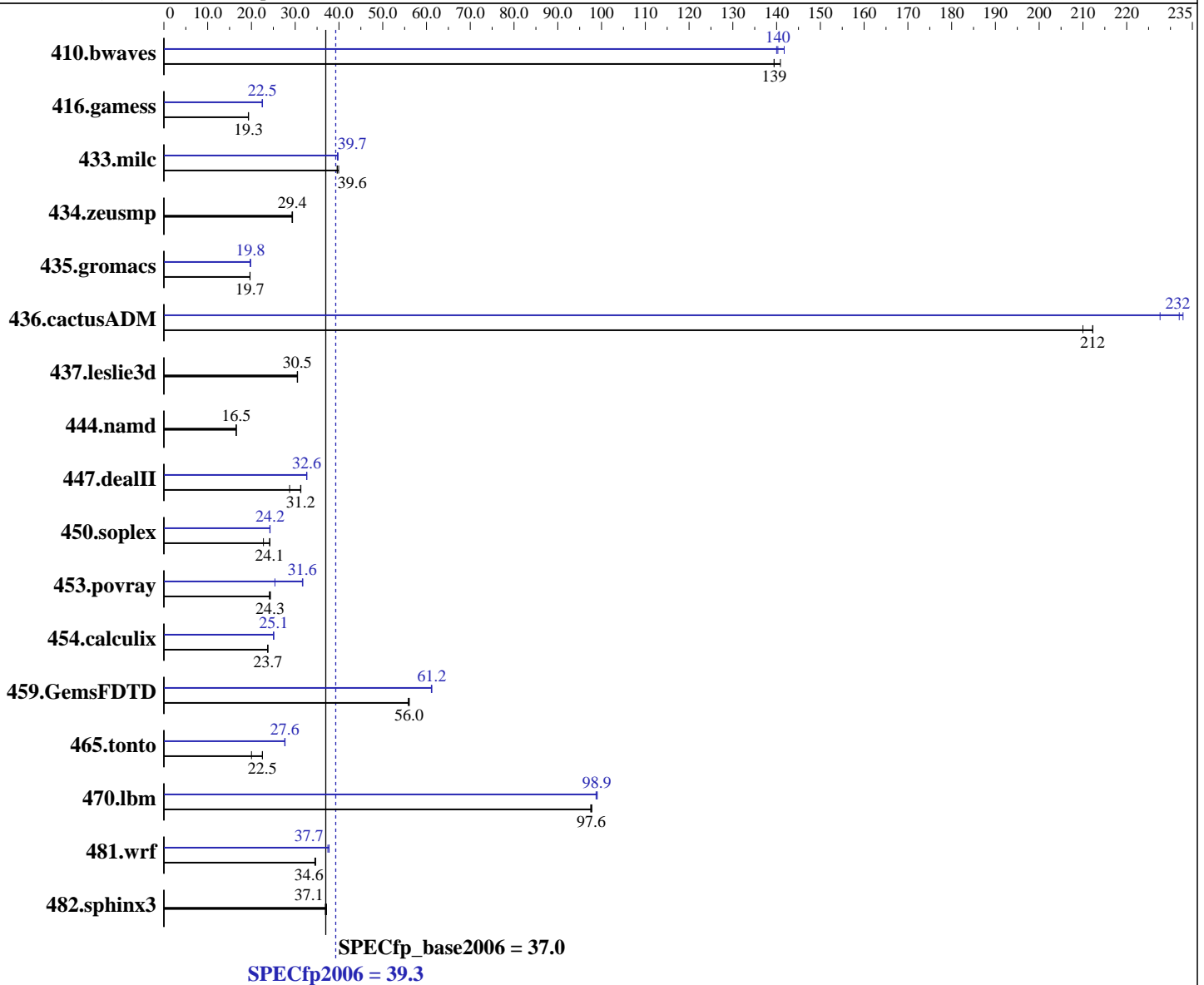
$SPECfp\_base2006 =$ 37.0

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

Test date: May-2010
Hardware Availability: Apr-2010
Software Availability: Dec-2009

	410.bwaves	140 / 139
	416.gamess	22.5 / 19.3
	433.milc	39.7 / 39.6
	434.zeusmp	29.4
	435.gromacs	19.8 / 19.7
	436.cactusADM	232 / 212
	437.leslie3d	30.5
	444.namd	16.5
	447.dealII	32.6 / 31.2
	450.soplex	24.2 / 24.1
	453.povray	31.6 / 24.3
	454.calculix	25.1 / 23.7
	459.GemsFDTD	61.2 / 56.0
	465.tonto	27.6 / 22.5
	470.lbm	98.9 / 97.6
	481.wrf	37.7 / 34.6
	482.sphinx3	37.1

SPECfp_base2006 = 37.0
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Hardware

CPU Name: Intel Xeon L5640
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2267
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 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 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1
Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel: Yes
File System: ext3
System State: Run level 3 (multi-user)
Continued on next page

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L3 Cache:	12 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	96 GB (12 x 8 GB PC3-10600R, 2 rank, CL9, ECC)	Other Software:	None
Disk Subsystem:	1x146.5 GB SAS, 10000 RPM in Express5800/AD106a		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	96.5	141	**97.5**	**139**	97.5	139	95.9	142	97.1	140	**96.9**	**140**
416.gamess	1012	19.3	**1014**	**19.3**	1015	19.3	869	22.5	872	22.5	**871**	**22.5**
433.milc	230	39.9	**232**	**39.6**	232	39.6	231	39.7	**231**	**39.7**	231	39.8
434.zeusmp	309	29.4	311	29.3	**310**	**29.4**	309	29.4	311	29.3	**310**	**29.4**
435.gromacs	**363**	**19.7**	363	19.7	363	19.7	361	19.8	**361**	**19.8**	362	19.7
436.cactusADM	**56.3**	**212**	56.3	212	56.9	210	51.3	233	52.5	228	**51.5**	**232**
437.leslie3d	**308**	**30.5**	308	30.5	309	30.5	**308**	**30.5**	308	30.5	309	30.5
444.namd	**485**	**16.5**	485	16.5	486	16.5	**485**	**16.5**	485	16.5	486	16.5
447.dealII	398	28.7	**366**	**31.2**	365	31.3	351	32.6	350	32.7	**350**	**32.6**
450.soplex	344	24.2	367	22.7	**346**	**24.1**	344	24.3	**344**	**24.2**	345	24.2
453.povray	219	24.3	**219**	**24.3**	221	24.1	**168**	**31.6**	210	25.4	168	31.8
454.calculix	348	23.7	**348**	**23.7**	347	23.8	329	25.1	**329**	**25.1**	329	25.0
459.GemsFDTD	190	55.8	189	56.1	**189**	**56.0**	173	61.2	174	61.1	**173**	**61.2**
465.tonto	**437**	**22.5**	492	20.0	437	22.5	**356**	**27.6**	355	27.7	356	27.6
470.lbm	141	97.8	**141**	**97.6**	141	97.5	139	99.0	**139**	**98.9**	139	98.7
481.wrf	324	34.5	322	34.7	**323**	**34.6**	298	37.5	**296**	**37.7**	296	37.7
482.sphinx3	**525**	**37.1**	525	37.2	528	36.9	**525**	**37.1**	525	37.2	528	36.9

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

Platform Notes

BIOS setting:
Hyper-Threading Technology : Disabled

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M

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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:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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

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Peak Compiler Invocation

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

C++ benchmarks:
```
icpc   -m64
```

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

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

Peak Portability Flags

```
Same as Base Portability Flags
```

Peak Optimization Flags

C benchmarks:

```
  433.milc: -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)
            -ansi-alias

  470.lbm: -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)
           -parallel -ansi-alias -auto-ilp32

  482.sphinx3: basepeak = yes
```

C++ benchmarks:

```
  444.namd: basepeak = yes

  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- -auto-ilp32

  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 -auto-ilp32

  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
```

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Peak Optimization Flags (Continued)

Fortran benchmarks:

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

    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: basepeak = yes

    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 -parallel

    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)
               -inline-calloc -opt-malloc-options=3 -auto -unroll4

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 -parallel -auto-ilp32

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

    481.wrf: Same as 454.calculix

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100609.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100609.xml

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

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