SPEC® CFP2006 Result
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HITACHI

HA8000-bd (Intel Core i7-610E)

$SPECfp^{®}2006 =$ 25.2
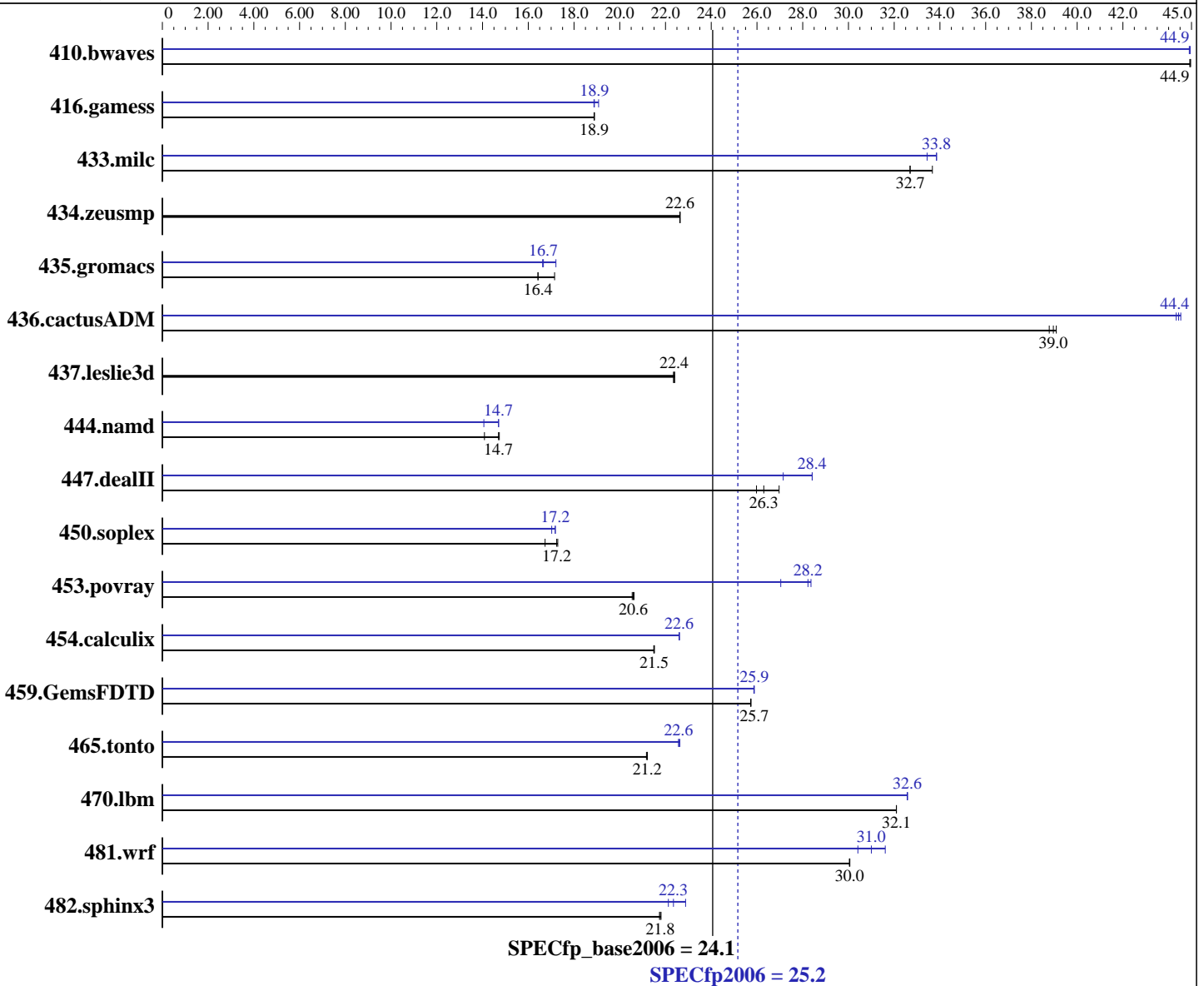
$SPECfp\_base2006 =$ 24.1

CPU2006 license: 872
Test sponsor: HITACHI
Tested by: HITACHI

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

Benchmark	base	peak
410.bwaves	44.9	44.9
416.gamess	18.9	18.9
433.milc	32.7	33.8
434.zeusmp	22.6	
435.gromacs	16.4	16.7
436.cactusADM	39.0	44.4
437.leslie3d	22.4	
444.namd	14.7	14.7
447.dealII	26.3	28.4
450.soplex	17.2	17.2
453.povray	20.6	28.2
454.calculix	21.5	22.6
459.GemsFDTD	25.7	25.9
465.tonto	21.2	22.6
470.lbm	32.1	32.6
481.wrf	30.0	31.0
482.sphinx3	21.8	22.3

SPECfp_base2006 = 24.1
SPECfp2006 = 25.2

Hardware

CPU Name: Intel Core i7-610E
CPU Characteristics: Intel Turbo Boost Technology disabled
CPU MHz: 2533
FPU: Integrated
CPU(s) enabled: 2 cores, 1 chip, 2 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: Red Hat Enterprise Linux Server release 5.4, Advanced Platform, Kernel 2.6.18-164.el5 on an x86_64
Compiler: Intel C++ Compiler 11.1 for Linux Build 20091012 Package ID: l_cproc_p_11.1.059
Intel Fortran Compiler 11.1 for Linux Build 20091012 Package ID: l_cprof_p_11.1.059
Auto Parallel: Yes
File System: ext3

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L3 Cache:	4 MB I+D on chip per chip
Other Cache:	None
Memory:	8 GB(2 x 4 GB PC3-8500U, 2 rank, CL7)
Disk Subsystem:	1 x 160 GB 7200 rpm SATA2
Other Hardware:	None

System State:	Multi-user run level 3
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	302	44.9	302	45.0	**302**	**44.9**	302	44.9	**302**	**44.9**	303	44.9
416.gamess	1036	18.9	1037	18.9	**1037**	**18.9**	1038	18.9	**1036**	**18.9**	1026	19.1
433.milc	**281**	**32.7**	273	33.7	281	32.7	271	33.9	275	33.4	**271**	**33.8**
434.zeusmp	402	22.6	**402**	**22.6**	402	22.6	402	22.6	**402**	**22.6**	402	22.6
435.gromacs	435	16.4	**435**	**16.4**	416	17.2	415	17.2	429	16.6	**429**	**16.7**
436.cactusADM	**307**	**39.0**	308	38.8	306	39.1	**269**	**44.4**	268	44.5	270	44.3
437.leslie3d	421	22.3	**420**	**22.4**	420	22.4	421	22.3	**420**	**22.4**	420	22.4
444.namd	544	14.7	**546**	**14.7**	569	14.1	**546**	**14.7**	545	14.7	571	14.1
447.dealII	424	27.0	440	26.0	**435**	**26.3**	403	28.4	**403**	**28.4**	421	27.1
450.soplex	482	17.3	498	16.7	**484**	**17.2**	485	17.2	490	17.0	**485**	**17.2**
453.povray	259	20.5	**258**	**20.6**	258	20.6	188	28.4	**188**	**28.2**	197	27.0
454.calculix	384	21.5	**384**	**21.5**	384	21.5	365	22.6	**365**	**22.6**	365	22.6
459.GemsFDTD	**412**	**25.7**	412	25.7	412	25.7	410	25.9	410	25.9	**410**	**25.9**
465.tonto	**464**	**21.2**	465	21.2	464	21.2	435	22.6	436	22.6	**436**	**22.6**
470.lbm	428	32.1	428	32.1	**428**	**32.1**	422	32.6	**422**	**32.6**	422	32.6
481.wrf	372	30.0	**372**	**30.0**	372	30.1	**360**	**31.0**	353	31.6	367	30.4
482.sphinx3	894	21.8	897	21.7	**895**	**21.8**	852	22.9	881	22.1	**872**	**22.3**

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
KMP_AFFINITY set to granularity=fine,scatter
```

Base Compiler Invocation

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

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

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Base Compiler Invocation (Continued)

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
```

Peak Compiler Invocation

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

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HA8000-bd (Intel Core i7-610E)

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$SPECfp_base2006 = $ 24.1

CPU2006 license: 872
Test sponsor: HITACHI
Tested by: HITACHI

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

Peak Compiler Invocation (Continued)

    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: `-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: `-xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2`

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HA8000-bd (Intel Core i7-610E)

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$SPECfp\_base2006 =$　　24.1

CPU2006 license: 872
Test sponsor: HITACHI
Tested by: HITACHI

Test date: May-2010
Hardware Availability: Jul-2010
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Peak Optimization Flags (Continued)

C++ benchmarks:

```
    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- -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

   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
              -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
```

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HA8000-bd (Intel Core i7-610E)

$SPECfp2006 =$ 25.2

$SPECfp\_base2006 =$ 24.1

CPU2006 license: 872		**Test date:**	May-2010
Test sponsor:	HITACHI	**Hardware Availability:**	Jul-2010
Tested by:	HITACHI	**Software Availability:**	Dec-2009

Peak Optimization Flags (Continued)

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.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.xml`

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