SPEC® CFP2006 Result
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HITACHI

BladeSymphony BS320 (Intel Xeon E5620)

$SPECfp^{®}2006 =$ 37.4

$SPECfp\_base2006 =$ 34.9

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

410.bwaves 143 / 142
416.gamess 21.1 / 18.7
433.milc 38.8
434.zeusmp 27.4
435.gromacs 18.6 / 18.5
436.cactusADM 180 / 156
437.leslie3d 30.8
444.namd 15.5 / 15.5
447.dealII 30.5 / 29.5
450.soplex 24.7 / 23.4
453.povray 29.9 / 22.4
454.calculix 24.2 / 22.1
459.GemsFDTD 61.2 / 56.0
465.tonto 26.0 / 19.5
470.lbm 95.4 / 96.5
481.wrf 36.3 / 35.7
482.sphinx3 34.9 / 33.7

SPECfp_base2006 = 34.9

SPECfp2006 = 37.4

Hardware

CPU Name:	Intel Xeon E5620
CPU Characteristics:	Intel Turbo Boost Technology up to 2.67 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 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:	Red Hat Enterprise Linux Server release 5.4.3, Advanced Platform, Kernel 2.6.18-164.9.1.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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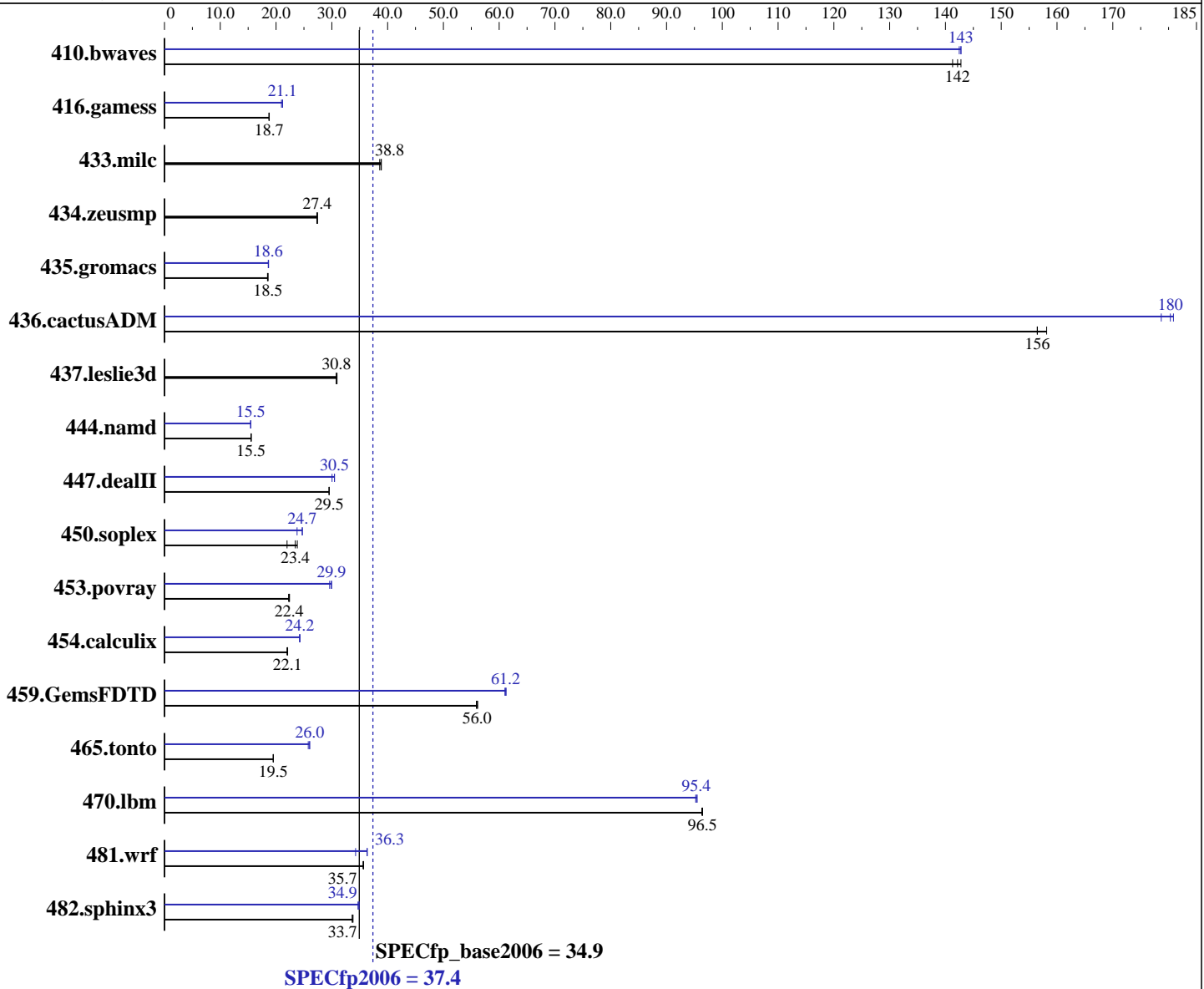**CPU2006 license:** 872
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L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (6 x 4 GB PC3-10600R, 2 rank, CL9-9-9)
Disk Subsystem:	1 x 73 GB 10000 rpm SAS
Other Hardware:	None

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

Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	96.2	141	**95.6**	**142**	95.2	143	95.4	142	**95.2**	**143**	95.2	143
416.gamess	1042	18.8	**1045**	**18.7**	1045	18.7	**926**	**21.1**	925	21.2	934	21.0
433.milc	**236**	**38.8**	236	38.9	238	38.6	**236**	**38.8**	236	38.9	238	38.6
434.zeusmp	**332**	**27.4**	333	27.3	332	27.4	**332**	**27.4**	333	27.3	332	27.4
435.gromacs	**385**	**18.5**	385	18.6	387	18.5	384	18.6	383	18.7	**383**	**18.6**
436.cactusADM	76.4	156	75.6	158	**76.4**	**156**	66.1	181	66.9	179	**66.3**	**180**
437.leslie3d	304	30.9	**305**	**30.8**	305	30.8	304	30.9	**305**	**30.8**	305	30.8
444.namd	517	15.5	**516**	**15.5**	516	15.5	518	15.5	**518**	**15.5**	520	15.4
447.dealII	388	29.5	388	29.5	**388**	**29.5**	381	30.0	375	30.5	**375**	**30.5**
450.soplex	350	23.8	**356**	**23.4**	380	22.0	337	24.7	**338**	**24.7**	351	23.8
453.povray	239	22.2	237	22.4	**238**	**22.4**	178	30.0	180	29.6	**178**	**29.9**
454.calculix	376	22.0	**374**	**22.1**	374	22.1	341	24.2	340	24.3	**340**	**24.2**
459.GemsFDTD	190	55.9	**189**	**56.0**	189	56.1	174	61.0	**173**	**61.2**	173	61.2
465.tonto	**505**	**19.5**	504	19.5	505	19.5	378	26.0	**378**	**26.0**	382	25.8
470.lbm	143	96.3	142	96.5	**142**	**96.5**	144	95.5	**144**	**95.4**	144	95.2
481.wrf	**313**	**35.7**	313	35.7	314	35.6	307	36.4	**308**	**36.3**	326	34.3
482.sphinx3	577	33.8	**578**	**33.7**	579	33.6	559	34.9	**559**	**34.9**	562	34.7

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
```

Platform Notes

```
BIOS Settings:
Intel HT Technology = Disabled
NUMA = Disabled
```

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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 (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: `-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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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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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.20100929.03.html

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You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100929.03.xml

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