SPEC® CFP2006 Result
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HITACHI

BladeSymphony BS320 (Intel Xeon E5450)

$SPECfp^®2006 =$ 22.4

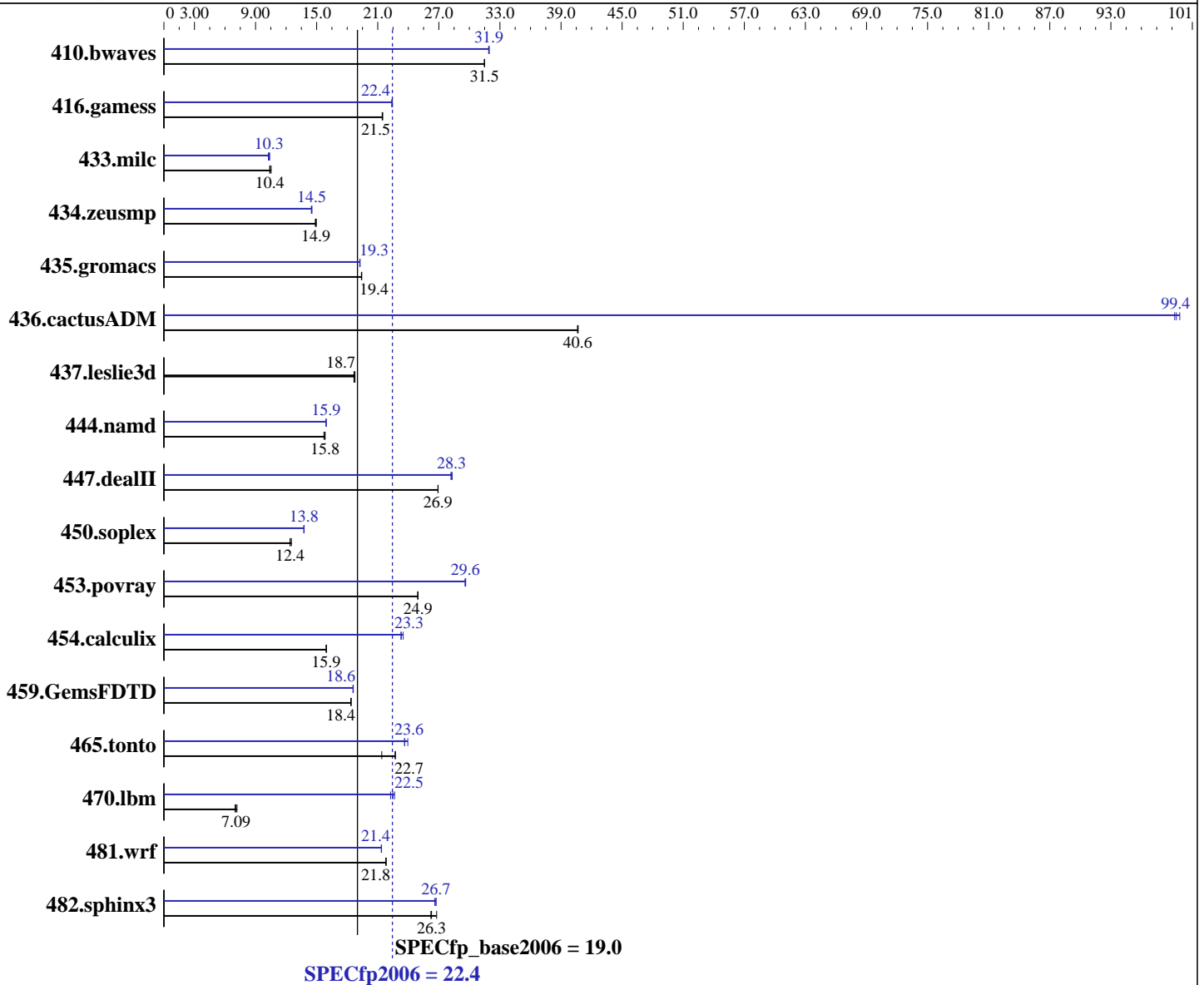$SPECfp\_base2006 =$ 19.0

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

Test date: Feb-2008
Hardware Availability: Nov-2007
Software Availability: Nov-2007

Benchmark	Result (peak)	Result (base)
410.bwaves	31.9	31.5
416.gamess	22.4	21.5
433.milc	10.3	10.4
434.zeusmp	14.5	14.9
435.gromacs	19.3	19.4
436.cactusADM	99.4	40.6
437.leslie3d		18.7
444.namd	15.9	15.8
447.dealII	28.3	26.9
450.soplex	13.8	12.4
453.povray	29.6	24.9
454.calculix	23.3	15.9
459.GemsFDTD	18.6	18.4
465.tonto	23.6	22.7
470.lbm	22.5	7.09
481.wrf	21.4	21.8
482.sphinx3	26.7	26.3

SPECfp_base2006 = 19.0
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Hardware

CPU Name:	Intel Xeon E5450
CPU Characteristics:	1333MHz system bus
CPU MHz:	3000
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:	12 MB I+D on chip per chip, 6 MB shared / 2 cores

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Software

Operating System:	Red Hat Enterprise Linux Server release 5.1 (Tikanga) Kernel 2.6.18-53.el5 on an x86_64
Compiler:	Intel C++ and Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008

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L3 Cache:	None	Auto Parallel:	Yes
Other Cache:	None	File System:	ext3
Memory:	16 GB(4 x 4 GB PC2-5300F CAS 5-5-5)	System State:	Multi-user run level 3
Disk Subsystem:	1 x 147 GB 10000 rpm SAS	Base Pointers:	64-bit
Other Hardware:	None	Peak Pointers:	32/64-bit
		Other Software:	None

Results Table

Benchmark	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**432**	**31.5**	432	31.5	432	31.5	426	31.9	425	31.9	**426**	**31.9**
416.gamess	912	21.5	**912**	**21.5**	914	21.4	872	22.4	**873**	**22.4**	875	22.4
433.milc	**881**	**10.4**	872	10.5	883	10.4	884	10.4	**888**	**10.3**	895	10.3
434.zeusmp	608	15.0	612	14.9	**610**	**14.9**	626	14.5	628	14.5	**627**	**14.5**
435.gromacs	368	19.4	**368**	**19.4**	367	19.4	371	19.3	**371**	**19.3**	371	19.2
436.cactusADM	294	40.7	294	40.6	**294**	**40.6**	120	99.8	120	99.3	**120**	**99.4**
437.leslie3d	**502**	**18.7**	501	18.8	504	18.7	**502**	**18.7**	501	18.8	504	18.7
444.namd	507	15.8	**507**	**15.8**	511	15.7	**504**	**15.9**	504	15.9	503	15.9
447.dealII	425	26.9	425	26.9	**425**	**26.9**	**405**	**28.3**	406	28.2	404	28.3
450.soplex	674	12.4	666	12.5	**672**	**12.4**	605	13.8	607	13.7	**606**	**13.8**
453.povray	213	25.0	**213**	**24.9**	213	24.9	**180**	**29.6**	180	29.6	179	29.6
454.calculix	**517**	**15.9**	518	15.9	517	16.0	**354**	**23.3**	351	23.5	354	23.3
459.GemsFDTD	578	18.4	**577**	**18.4**	577	18.4	570	18.6	571	18.6	**571**	**18.6**
465.tonto	433	22.7	**433**	**22.7**	460	21.4	**416**	**23.6**	416	23.6	411	24.0
470.lbm	1968	6.98	**1939**	**7.09**	1914	7.18	**611**	**22.5**	607	22.7	617	22.3
481.wrf	**512**	**21.8**	512	21.8	513	21.8	523	21.4	523	21.3	**523**	**21.4**
482.sphinx3	728	26.8	743	26.2	**742**	**26.3**	733	26.6	729	26.7	**730**	**26.7**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

General 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 physical,0
```

Base Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

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Base Compiler Invocation (Continued)

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

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

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Peak Compiler Invocation (Continued)

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`

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`

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Peak Optimization Flags (Continued)

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`

        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/Intel-ic10.1-FP-intel64-linux-flags.20090713.01.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090713.01.xml`

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