



SPEC[®] CFP2006 Result

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HITACHI

SPECfp[®]2006 = 30.7

BladeSymphony BS320 (Intel Xeon E5603)

SPECfp_base2006 = 29.5

CPU2006 license: 35

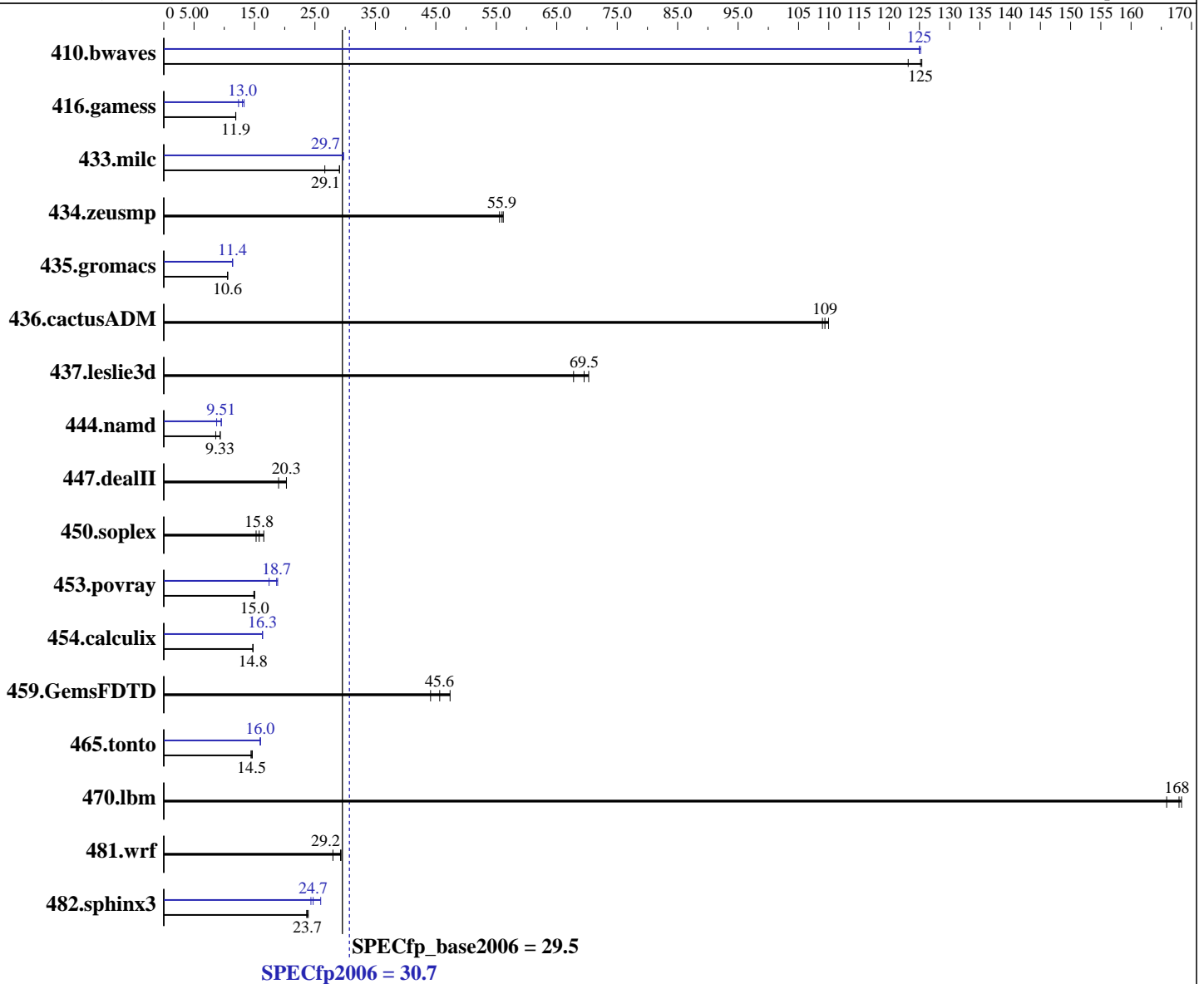
Test sponsor: HITACHI

Tested by: HITACHI

Test date: Apr-2011

Hardware Availability: Feb-2011

Software Availability: Apr-2011



Hardware

CPU Name: Intel Xeon E5603
 CPU Characteristics:
 CPU MHz: 1600
 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

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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 XE for Linux
 Version 12.0.3.174 Build 20110309
 Intel Fortran Compiler XE for Linux
 Version 12.0.3.174 Build 20110309
 Auto Parallel: Yes
 File System: ext3

Continued on next page



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L3 Cache: 4 MB I+D on chip per chip
 Other Cache: None
 Memory: 48 GB (6 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1066 MHz)
 Disk Subsystem: 2 x 147 GB 10000 rpm SAS RAID1 configuration
 Other Hardware: None

System State: Run level 3 (multi-user)
 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	110	123	109	125	108	125	109	125	109	125	109	125
416.gamess	1645	11.9	1647	11.9	1644	11.9	1584	12.4	1474	13.3	1505	13.0
433.milc	316	29.1	345	26.6	316	29.1	309	29.7	309	29.7	309	29.7
434.zeusmp	164	55.5	163	55.9	162	56.2	164	55.5	163	55.9	162	56.2
435.gromacs	677	10.5	676	10.6	676	10.6	628	11.4	628	11.4	627	11.4
436.cactusADM	109	110	109	109	110	109	109	110	109	109	110	109
437.leslie3d	135	69.5	139	67.8	134	70.3	135	69.5	139	67.8	134	70.3
444.namd	933	8.59	860	9.33	860	9.33	917	8.74	843	9.51	843	9.51
447.dealII	602	19.0	564	20.3	564	20.3	602	19.0	564	20.3	564	20.3
450.soplex	529	15.8	546	15.3	504	16.5	529	15.8	546	15.3	504	16.5
453.povray	357	14.9	354	15.0	354	15.0	282	18.8	305	17.4	285	18.7
454.calculix	559	14.8	559	14.8	560	14.7	506	16.3	505	16.3	505	16.3
459.GemsFDTD	240	44.1	232	45.6	224	47.4	240	44.1	232	45.6	224	47.4
465.tonto	672	14.6	682	14.4	677	14.5	616	16.0	617	16.0	616	16.0
470.lbm	81.6	168	81.8	168	82.8	166	81.6	168	81.8	168	82.8	166
481.wrf	399	28.0	381	29.3	382	29.2	399	28.0	381	29.3	382	29.2
482.sphinx3	815	23.9	821	23.7	825	23.6	751	26.0	789	24.7	801	24.3

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
Hugepages was enabled with the following:
'nudev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

BIOS Settings:
 Data Reuse Optimization = 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
-ansi-alias

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

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
-ansi-alias



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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) -prof-use(pass 2) -static -auto-ilp32
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

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Peak Optimization Flags (Continued)

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

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc -opt-malloc-options=3 -auto -unroll4 -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

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) -prof-use(pass 2) -static -auto-ilp32 -ansi-alias

436.cactusADM: basepeak = yes

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

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/PlatformHitachi.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/PlatformHitachi.xml>

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For other inquiries, please contact webmaster@spec.org.

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