SPEC® CINT2006 Result
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HITACHI

BladeSymphony BS320 (Intel Xeon X5690)

$SPECint^{®}2006 = $ 44.5
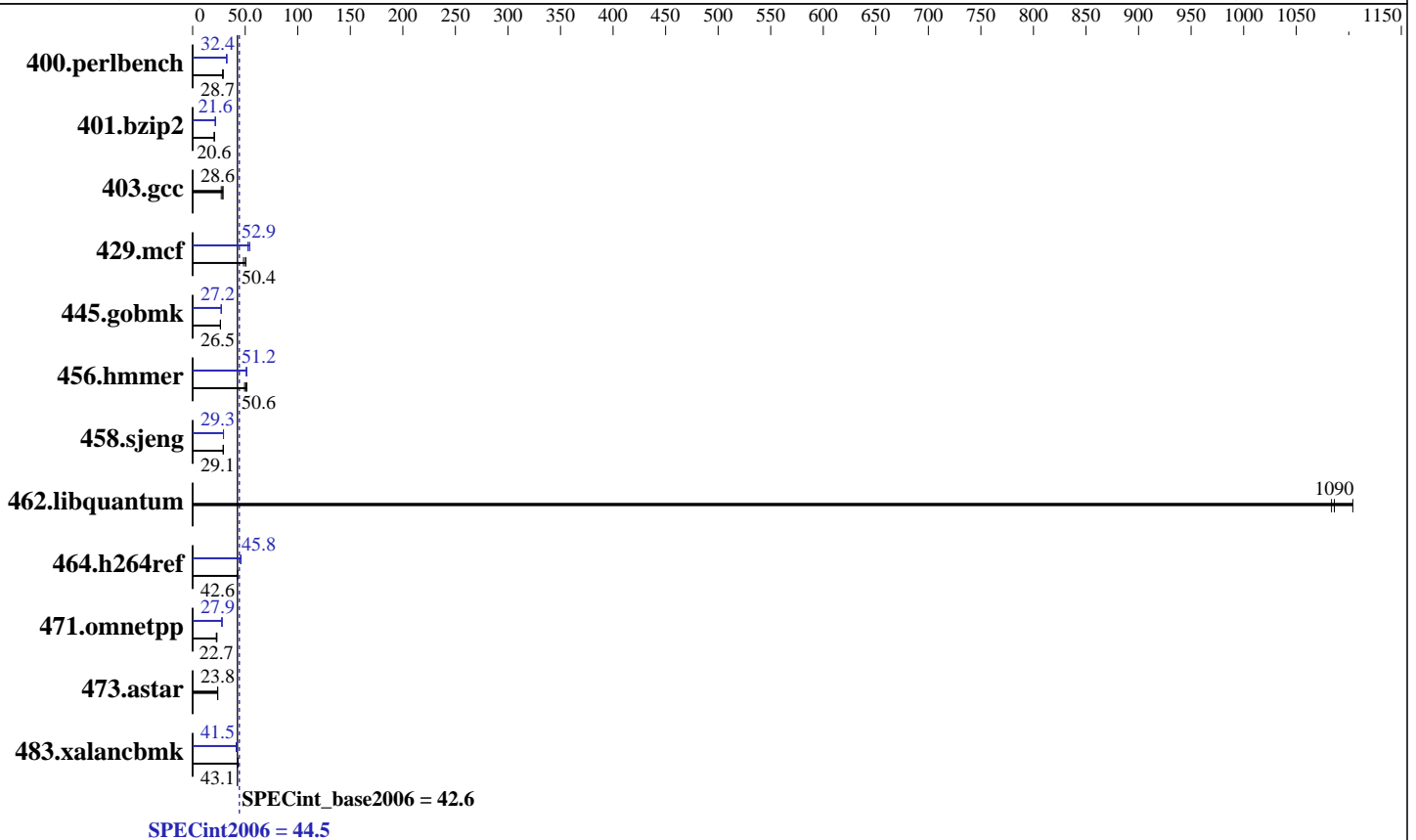
$SPECint_base2006 = $ 42.6

CPU2006 license: 35
Test sponsor: HITACHI
Tested by: HITACHI

Test date: Mar-2011
Hardware Availability: Mar-2011
Software Availability: Jan-2011

Benchmark	Value
400.perlbench	32.4 / 28.7
401.bzip2	21.6 / 20.6
403.gcc	28.6
429.mcf	52.9 / 50.4
445.gobmk	27.2 / 26.5
456.hmmer	51.2 / 50.6
458.sjeng	29.3 / 29.1
462.libquantum	1090
464.h264ref	45.8 / 42.6
471.omnetpp	27.9 / 22.7
473.astar	23.8
483.xalancbmk	41.5 / 43.1

SPECint_base2006 = 42.6

SPECint2006 = 44.5

Hardware

CPU Name:	Intel Xeon X5690
CPU Characteristics:	Intel Turbo Boost Technology up to 3.73 GHz
CPU MHz:	3466
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
L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (6 x 8 GB 2Rx4 PC3-10600R-9, ECC, running at 1333 MHz)
Disk Subsystem:	2 x 146 GB 10000 rpm Fibre Channel RAID1 configuration
Other Hardware:	None

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 12.0.2.137 Build 20110112
Auto Parallel:	Yes
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V8.1

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Results Table

Benchmark	Base						Peak					
	Seconds	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
400.perlbench	336	29.1	342	28.6	**341**	**28.7**	301	32.5	**301**	**32.4**	301	32.4
401.bzip2	**468**	**20.6**	466	20.7	468	20.6	447	21.6	**447**	**21.6**	445	21.7
403.gcc	**281**	**28.6**	279	28.9	296	27.2	**281**	**28.6**	279	28.9	296	27.2
429.mcf	188	48.4	**181**	**50.4**	181	50.5	173	52.8	168	54.3	**173**	**52.9**
445.gobmk	398	26.4	396	26.5	**396**	**26.5**	**385**	**27.2**	385	27.2	385	27.2
456.hmmer	**184**	**50.6**	181	51.5	189	49.4	182	51.2	182	51.3	**182**	**51.2**
458.sjeng	415	29.2	**415**	**29.1**	416	29.1	412	29.4	**413**	**29.3**	413	29.3
462.libquantum	**19.1**	**1090**	18.8	1100	19.1	1080	**19.1**	**1090**	18.8	1100	19.1	1080
464.h264ref	**520**	**42.6**	517	42.8	522	42.4	**483**	**45.8**	484	45.7	483	45.8
471.omnetpp	276	22.6	**276**	**22.7**	270	23.1	224	27.9	224	27.9	**224**	**27.9**
473.astar	294	23.9	**294**	**23.8**	296	23.7	294	23.9	**294**	**23.8**	296	23.7
483.xalancbmk	160	43.1	160	43.1	**160**	**43.1**	**166**	**41.5**	166	41.5	166	41.5

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:
'nodev   /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:
Intel HT Technology = Disabled
Data Reuse Optimization = Disabled
```

Base Compiler Invocation

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

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

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Base Portability Flags

```
    400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
        401.bzip2: -DSPEC_CPU_LP64
          403.gcc: -DSPEC_CPU_LP64
          429.mcf: -DSPEC_CPU_LP64
       445.gobmk: -DSPEC_CPU_LP64
       456.hmmer: -DSPEC_CPU_LP64
        458.sjeng: -DSPEC_CPU_LP64
   462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
      464.h264ref: -DSPEC_CPU_LP64
      471.omnetpp: -DSPEC_CPU_LP64
        473.astar: -DSPEC_CPU_LP64
   483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:

```
    -xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

C++ benchmarks:

```
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
    -L/home/bsc/smartheap/lib -lsmartheap64
    -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

Base Other Flags

C benchmarks:

```
    403.gcc: -Dalloca=_alloca
```

Peak Compiler Invocation

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

```
400.perlbench: icc -m32
```

```
429.mcf: icc -m32
```

```
445.gobmk: icc -m32
```

```
464.h264ref: icc -m32
```

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Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):
```
icpc -m32
```

473.astar: `icpc -m64`

Peak Portability Flags

```
400.perlbench: -DSPEC_CPU_LINUX_IA32
     401.bzip2: -DSPEC_CPU_LP64
       403.gcc: -DSPEC_CPU_LP64
    456.hmmer: -DSPEC_CPU_LP64
     458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
      473.astar: -DSPEC_CPU_LP64
 483.xalancbmk: -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
               -ansi-alias -opt-prefetch
               -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

    401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32
               -opt-prefetch -ansi-alias

      403.gcc: basepeak = yes

      429.mcf: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
               -auto-ilp32 -ansi-alias
               -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

    445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
               -auto-ilp32 -ansi-alias
               -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

    456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
               -auto-ilp32
               -B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

     458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
               -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
               -unroll4
```

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/home/bsc/smartheap/lib -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

473.astar: basepeak = yes

483.xalancbmk: -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/home/bsc/smartheap/lib -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

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

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