# SPEC® CINT2006 Result
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## HITACHI

BladeSymphony BS320 (Intel Xeon E5649)

$SPECint®2006 = 35.8$
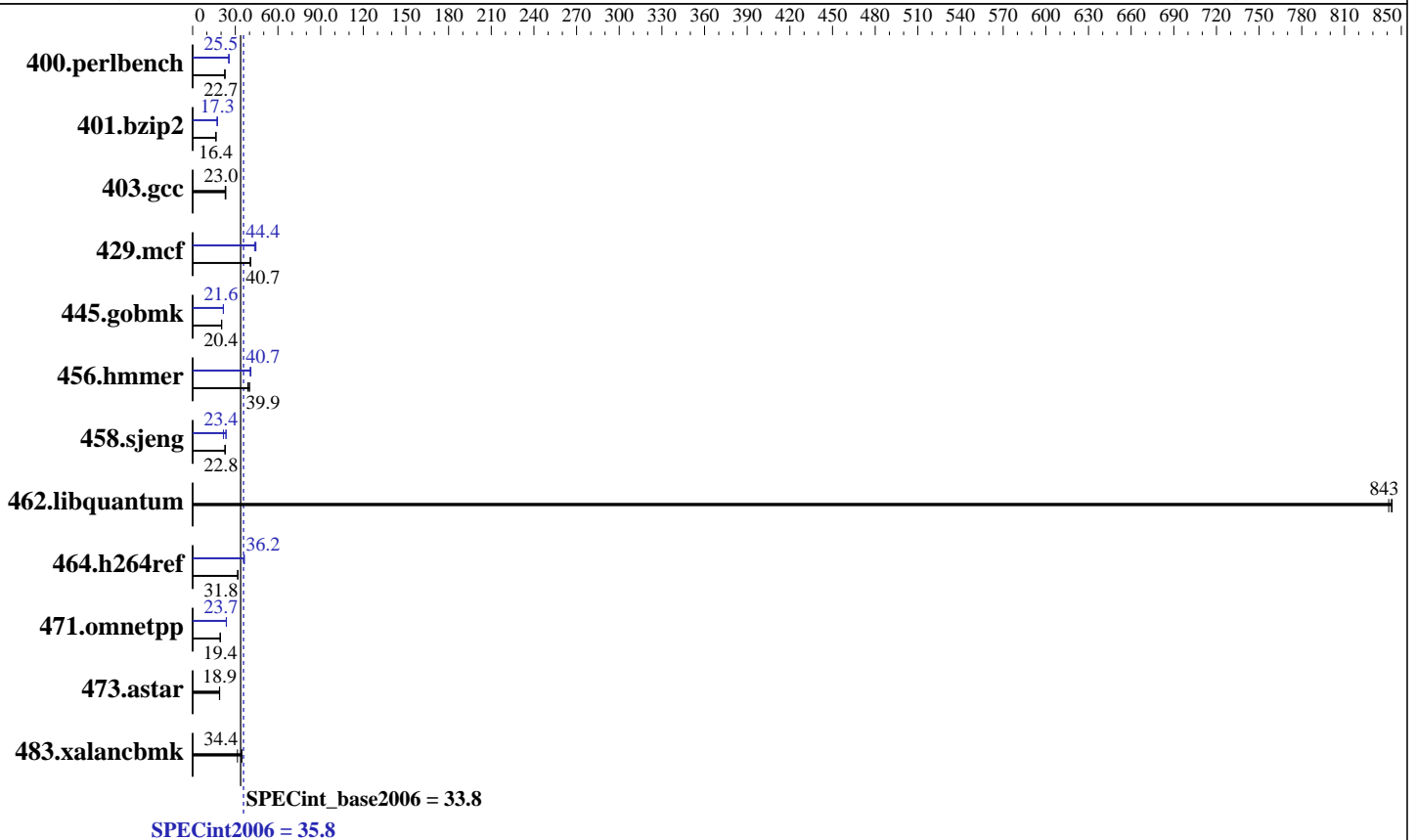
$SPECint\_base2006 = 33.8$

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

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

| Benchmark | base | peak |
|-----------|------|------|
| 400.perlbench | 22.7 | 25.5 |
| 401.bzip2 | 16.4 | 17.3 |
| 403.gcc | 23.0 | |
| 429.mcf | 40.7 | 44.4 |
| 445.gobmk | 20.4 | 21.6 |
| 456.hmmer | 39.9 | 40.7 |
| 458.sjeng | 22.8 | 23.4 |
| 462.libquantum | 843 | |
| 464.h264ref | 31.8 | 36.2 |
| 471.omnetpp | 19.4 | 23.7 |
| 473.astar | 18.9 | |
| 483.xalancbmk | 34.4 | |

**SPECint_base2006 = 33.8**

**SPECint2006 = 35.8**

## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5649 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.93 GHz |
| CPU MHz: | 2533 |
| 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) |
| Disk Subsystem: | 2 x 147 GB 10000 rpm SAS 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 | 430 | 22.7 | 432 | 22.6 | **430** | **22.7** | **383** | **25.5** | 384 | 25.4 | 382 | 25.6 |
| 401.bzip2 | 591 | 16.3 | **589** | **16.4** | 588 | 16.4 | **557** | **17.3** | 556 | 17.4 | 559 | 17.3 |
| 403.gcc | **350** | **23.0** | 351 | 22.9 | 345 | 23.4 | **350** | **23.0** | 351 | 22.9 | 345 | 23.4 |
| 429.mcf | 225 | 40.6 | 224 | 40.7 | **224** | **40.7** | 205 | 44.4 | 209 | 43.6 | **205** | **44.4** |
| 445.gobmk | 516 | 20.3 | 514 | 20.4 | **515** | **20.4** | **486** | **21.6** | 486 | 21.6 | 484 | 21.7 |
| 456.hmmer | 234 | 40.0 | **234** | **39.9** | 240 | 38.9 | 230 | 40.6 | **229** | **40.7** | 228 | 41.0 |
| 458.sjeng | 532 | 22.7 | **531** | **22.8** | 526 | 23.0 | **516** | **23.4** | 559 | 21.7 | 515 | 23.5 |
| 462.libquantum | **24.6** | **843** | 24.6 | 844 | 24.6 | 841 | **24.6** | **843** | 24.6 | 844 | 24.6 | 841 |
| 464.h264ref | 699 | 31.7 | 695 | 31.8 | **696** | **31.8** | 611 | 36.2 | 610 | 36.3 | **611** | **36.2** |
| 471.omnetpp | **322** | **19.4** | 322 | 19.4 | 321 | 19.5 | 264 | 23.7 | **264** | **23.7** | 264 | 23.7 |
| 473.astar | 372 | 18.8 | 370 | 19.0 | **371** | **18.9** | 372 | 18.8 | 370 | 19.0 | **371** | **18.9** |
| 483.xalancbmk | 200 | 34.6 | **201** | **34.4** | 219 | 31.5 | 200 | 34.6 | **201** | **34.4** | 219 | 31.5 |

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 -m64
```

471.omnetpp: `icpc -m32`

## 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_LP64 -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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| | | | |
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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: basepeak = yes

# 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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