SPEC® CINT2006 Result
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HITACHI

Compute Blade 320 (Intel Xeon X5675)

$SPECint®2006 =$ 43.2

$SPECint\_base2006 =$ 41.6
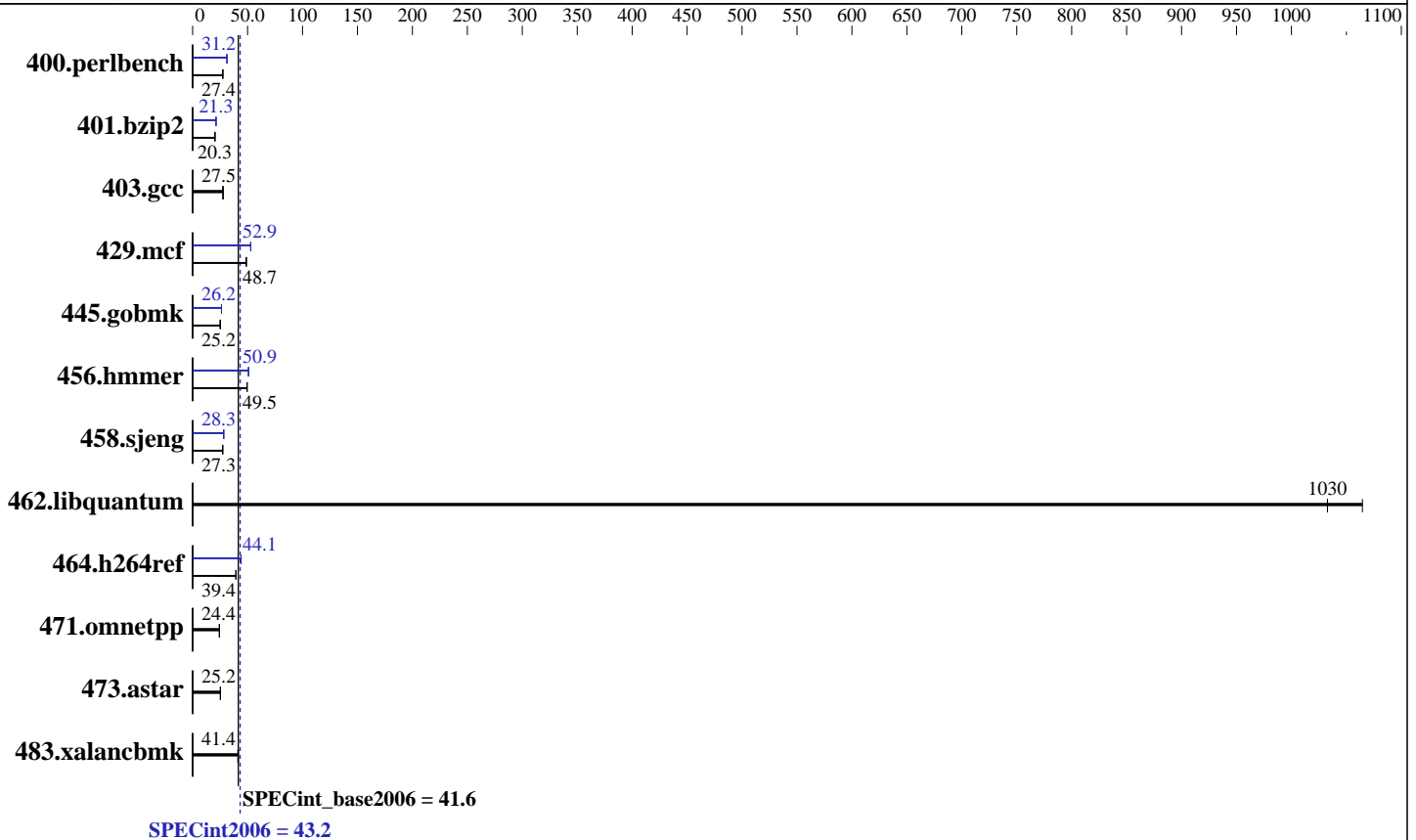
CPU2006 license: 35
Test sponsor: HITACHI
Tested by: HITACHI

Test date: Jun-2011
Hardware Availability: Feb-2011
Software Availability: Jan-2011

400.perlbench	31.2 / 27.4
401.bzip2	21.3 / 20.3
403.gcc	27.5
429.mcf	52.9 / 48.7
445.gobmk	26.2 / 25.2
456.hmmer	50.9 / 49.5
458.sjeng	28.3 / 27.3
462.libquantum	1030
464.h264ref	44.1 / 39.4
471.omnetpp	24.4
473.astar	25.2
483.xalancbmk	41.4

SPECint_base2006 = 41.6

SPECint2006 = 43.2

Hardware

CPU Name:	Intel Xeon X5675
CPU Characteristics:	Intel Turbo Boost Technology up to 3.46 GHz
CPU MHz:	3060
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 146 GB 10000 rpm Fibre Channel RAID1 configuration
Other Hardware:	None

Software

Operating System:	SuSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
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 V9.01

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	356	27.4	**356**	**27.4**	355	27.5	**313**	**31.2**	313	31.2	313	31.2
401.bzip2	475	20.3	475	20.3	**475**	**20.3**	453	21.3	453	21.3	**453**	**21.3**
403.gcc	289	27.8	292	27.5	**292**	**27.5**	289	27.8	292	27.5	**292**	**27.5**
429.mcf	**187**	**48.7**	187	48.7	186	48.9	173	52.8	172	52.9	**172**	**52.9**
445.gobmk	**416**	**25.2**	415	25.3	421	24.9	**400**	**26.2**	400	26.2	399	26.3
456.hmmer	**188**	**49.5**	188	49.6	188	49.5	**183**	**50.9**	183	50.8	183	50.9
458.sjeng	443	27.3	442	27.4	**442**	**27.3**	428	28.3	**428**	**28.3**	428	28.3
462.libquantum	**20.1**	**1030**	20.1	1030	19.5	1060	**20.1**	**1030**	20.1	1030	19.5	1060
464.h264ref	**561**	**39.4**	562	39.4	561	39.4	502	44.1	502	44.1	**502**	**44.1**
471.omnetpp	257	24.3	**257**	**24.4**	257	24.4	257	24.3	**257**	**24.4**	257	24.4
473.astar	278	25.3	278	25.2	**278**	**25.2**	278	25.3	278	25.2	**278**	**25.2**
483.xalancbmk	**166**	**41.4**	166	41.7	168	41.1	**166**	**41.4**	166	41.7	168	41.1

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:
    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
      471.omnetpp: -DSPEC_CPU_LP64
         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
```

Continued on next page

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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: basepeak = yes

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

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

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