SPEC® CINT2006 Result
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IBM Corporation
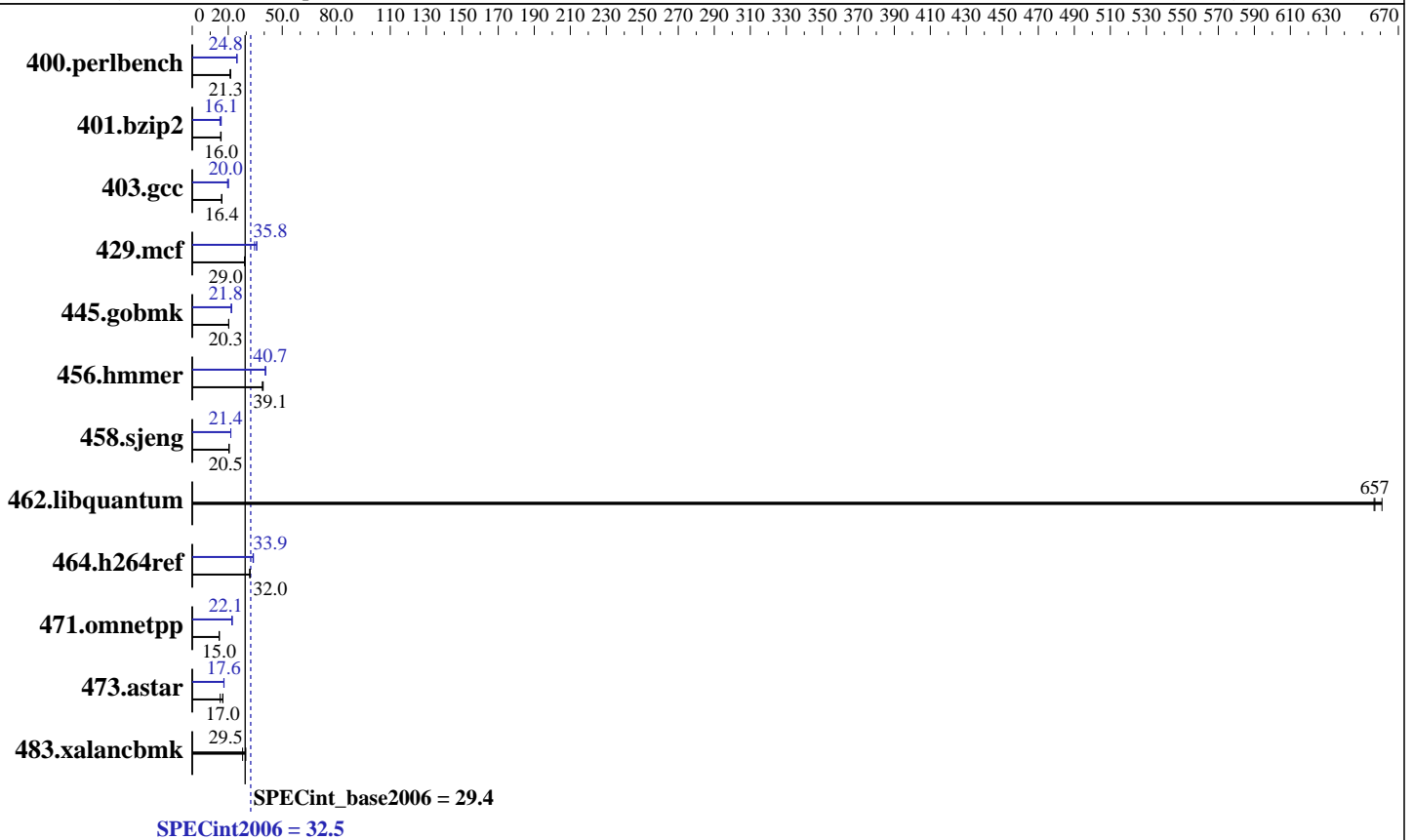
IBM BladeCenter HX5 (Intel Xeon X7542)

$SPECint^®2006 = $ 32.5

$SPECint_base2006 = $ 29.4

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Aug-2010
Hardware Availability: Oct-2010
Software Availability: Jan-2010

0 20.0   50.0   80.0   110 130 150 170 190 210 230 250 270 290 310 330 350 370 390 410 430 450 470 490 510 530 550 570 590 610 630   670

Benchmark	Peak	Base
400.perlbench	24.8	21.3
401.bzip2	16.1	16.0
403.gcc	20.0	16.4
429.mcf	35.8	29.0
445.gobmk	21.8	20.3
456.hmmer	40.7	39.1
458.sjeng	21.4	20.5
462.libquantum		657
464.h264ref	33.9	32.0
471.omnetpp	22.1	15.0
473.astar	17.6	17.0
483.xalancbmk	29.5	

SPECint_base2006 = 29.4

SPECint2006 = 32.5

Hardware

CPU Name: Intel Xeon X7542
CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz: 2667
FPU: Integrated
CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip
CPU(s) orderable: 1,2,3,4 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: 18 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (32 x 8 GB PC3-8500R CL7, Quad Rank, running at 978 MHz)
Disk Subsystem: 2 x 50 GB SATA, SSD, RAID 0
Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler: Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1
Build 20091130 Package ID: l_cproc_p_11.1.064
Auto Parallel: Yes
File System: ext3
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V8.1

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Results Table

Benchmark	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	465	21.0	458	21.3	**458**	**21.3**	393	24.8	394	24.8	**394**	**24.8**
401.bzip2	**602**	**16.0**	602	16.0	613	15.8	**601**	**16.1**	627	15.4	601	16.1
403.gcc	**490**	**16.4**	493	16.3	489	16.5	**403**	**20.0**	400	20.1	410	19.6
429.mcf	314	29.0	**314**	**29.0**	314	29.0	264	34.6	255	35.8	**255**	**35.8**
445.gobmk	**517**	**20.3**	517	20.3	517	20.3	**482**	**21.8**	479	21.9	484	21.7
456.hmmer	**239**	**39.1**	237	39.4	239	39.0	229	40.7	**229**	**40.7**	229	40.7
458.sjeng	590	20.5	**591**	**20.5**	594	20.4	**565**	**21.4**	564	21.4	565	21.4
462.libquantum	31.6	657	**31.5**	**657**	31.4	661	31.6	657	**31.5**	**657**	31.4	661
464.h264ref	689	32.1	692	32.0	**691**	**32.0**	651	34.0	656	33.7	**653**	**33.9**
471.omnetpp	417	15.0	**417**	**15.0**	416	15.0	**283**	**22.1**	281	22.2	283	22.1
473.astar	452	15.5	**414**	**17.0**	413	17.0	**399**	**17.6**	400	17.6	397	17.7
483.xalancbmk	**234**	**29.5**	232	29.8	247	28.0	**234**	**29.5**	232	29.8	247	28.0

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

Operating System Notes

```
echo 1 > /proc/sys/vm/zone_reclaim_mode
```

Platform Notes

```
Turbo Boost set to Traditional
```

General Notes

```
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
```

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 -static -parallel -opt-prefetch
```

C++ benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
    -L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64
```

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
```

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

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Peak Compiler Invocation (Continued)

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) -static(pass 2)
               -prof-use(pass 2) -ansi-alias -opt-prefetch

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

     403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -static -inline-calloc
               -opt-malloc-options=3 -auto-ilp32

     429.mcf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

   445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -O2
               -ipo -no-prec-div -ansi-alias

   456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2
               -ansi-alias -auto-ilp32

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

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) -static(pass 2)
               -prof-use(pass 2) -unroll2 -ansi-alias
```

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Peak Optimization Flags (Continued)

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/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap`

473.astar: `-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=routine -Wl,-z,muldefs`
`-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-64bit -lsmartheap64`

483.xalancbmk: `basepeak = yes`

Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.xml

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 12:10:32 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 31 August 2010.