# SPEC® CINT2006 Result
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## IBM Corporation

SPECint®2006 = 22.7

### IBM System x3650 (Intel Xeon L5410)
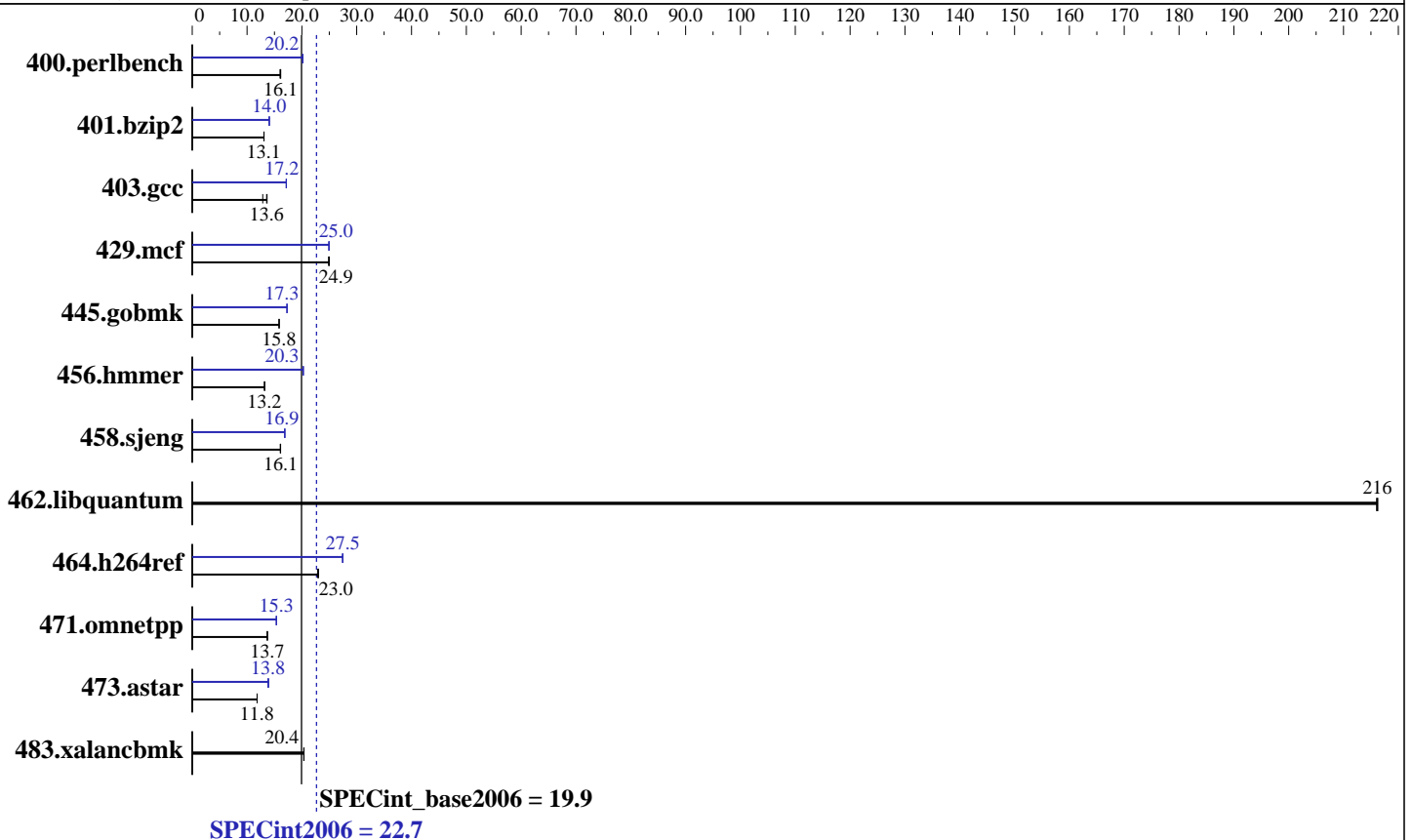
SPECint_base2006 = 19.9

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

**Test date:** Oct-2008
**Hardware Availability:** Nov-2008
**Software Availability:** Nov-2008



Benchmark results chart (scale 0 to 220):

- 400.perlbench: 20.2 / 16.1
- 401.bzip2: 14.0 / 13.1
- 403.gcc: 17.2 / 13.6
- 429.mcf: 25.0 / 24.9
- 445.gobmk: 17.3 / 15.8
- 456.hmmer: 20.3 / 13.2
- 458.sjeng: 16.9 / 16.1
- 462.libquantum: 216
- 464.h264ref: 27.5 / 23.0
- 471.omnetpp: 15.3 / 13.7
- 473.astar: 13.8 / 11.8
- 483.xalancbmk: 20.4

SPECint_base2006 = 19.9
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## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon L5410 |
| CPU Characteristics: | 1333MHz system bus |
| CPU MHz: | 2333 |
| 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: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 16 GB (8 x 2 GB DDR2-5300F ECC) |
| Disk Subsystem: | 1 x 36 GB SAS, 15000 RPM |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502 |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 610 | 16.0 | 605 | 16.1 | **606** | **16.1** | 484 | 20.2 | 486 | 20.1 | **484** | **20.2** |
| 401.bzip2 | 738 | 13.1 | **738** | **13.1** | 736 | 13.1 | 686 | 14.1 | 687 | 14.0 | **687** | **14.0** |
| 403.gcc | 626 | 12.9 | 590 | 13.7 | **593** | **13.6** | **469** | **17.2** | 469 | 17.2 | 469 | 17.2 |
| 429.mcf | 367 | 24.9 | 365 | 25.0 | **366** | **24.9** | 365 | 25.0 | 366 | 24.9 | **365** | **25.0** |
| 445.gobmk | 662 | 15.9 | **662** | **15.8** | 662 | 15.8 | 607 | 17.3 | 607 | 17.3 | **607** | **17.3** |
| 456.hmmer | 707 | 13.2 | **707** | **13.2** | 707 | 13.2 | 461 | 20.3 | **461** | **20.3** | 461 | 20.3 |
| 458.sjeng | 751 | 16.1 | **751** | **16.1** | 754 | 16.1 | 716 | 16.9 | **717** | **16.9** | 717 | 16.9 |
| 462.libquantum | 95.9 | 216 | **95.9** | **216** | 95.8 | 216 | 95.9 | 216 | **95.9** | **216** | 95.8 | 216 |
| 464.h264ref | **962** | **23.0** | 960 | 23.0 | 968 | 22.9 | **806** | **27.5** | 808 | 27.4 | 806 | 27.5 |
| 471.omnetpp | 456 | 13.7 | 456 | 13.7 | **456** | **13.7** | **407** | **15.3** | 407 | 15.4 | 407 | 15.3 |
| 473.astar | **593** | **11.8** | 593 | 11.8 | 593 | 11.8 | 508 | 13.8 | **507** | **13.8** | 504 | 13.9 |
| 483.xalancbmk | 338 | 20.4 | **339** | **20.4** | 339 | 20.4 | 338 | 20.4 | **339** | **20.4** | 339 | 20.4 |

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

## General Notes

    OMP_NUM_THREADS set to number of processors
    KMP_AFFINITY set to "physical,0"
    Hardware Prefetch Enabled, Adjacent Sector Prefetch Enabled
    'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

## Base Compiler Invocation

C benchmarks:
        icc

C++ benchmarks:
        icpc

## Base Portability Flags

    400.perlbench: -DSPEC_CPU_LINUX_IA32
    462.libquantum: -DSPEC_CPU_LINUX
    483.xalancbmk: -DSPEC_CPU_LINUX

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## Base Optimization Flags

C benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/spec/cpu2006.1.1/lib -lsmartheap
```

## Base Other Flags

C benchmarks:

       403.gcc: `-Dalloca=_alloca`

## Peak Compiler Invocation

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

    401.bzip2: `/opt/intel/Compiler/11.0/042/bin/intel64/icc`
            `-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib`
            `-I/opt/intel/Compiler/11.0/042/ipp/em64t/include`

    456.hmmer: `/opt/intel/Compiler/11.0/042/bin/intel64/icc`
              `-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib`
              `-I/opt/intel/Compiler/11.0/042/ipp/em64t/include`

C++ benchmarks:
```
icpc
```

## Peak Portability Flags

    400.perlbench: `-DSPEC_CPU_LINUX_IA32`
        401.bzip2: `-DSPEC_CPU_LP64`
       456.hmmer: `-DSPEC_CPU_LP64`
  462.libquantum: `-DSPEC_CPU_LINUX`
  483.xalancbmk: `-DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

Continued on next page

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## Peak Optimization Flags (Continued)

400.perlbench: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -static -ansi-alias -opt-prefetch`

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

403.gcc: `-xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc`
`-opt-malloc-options=3`

429.mcf: `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

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

456.hmmer: `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2`
`-ansi-alias -auto-ilp32`

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

462.libquantum: basepeak = yes

464.h264ref: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -static -unroll2 -ansi-alias`

C++ benchmarks:

471.omnetpp: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -ansi-alias -opt-ra-region-strategy=block`
`-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap`

473.astar: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3`
`-no-prec-div -ansi-alias -opt-ra-region-strategy=routine`
`-Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap`

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-ic11.0-int-linux64-revA.20090713.11.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.03.html

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

http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090713.11.xml
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.03.xml

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

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 20:22:26 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 November 2008.