# SPEC® CINT2006 Result

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## Supermicro

(Test Sponsor: Intel Corporation)

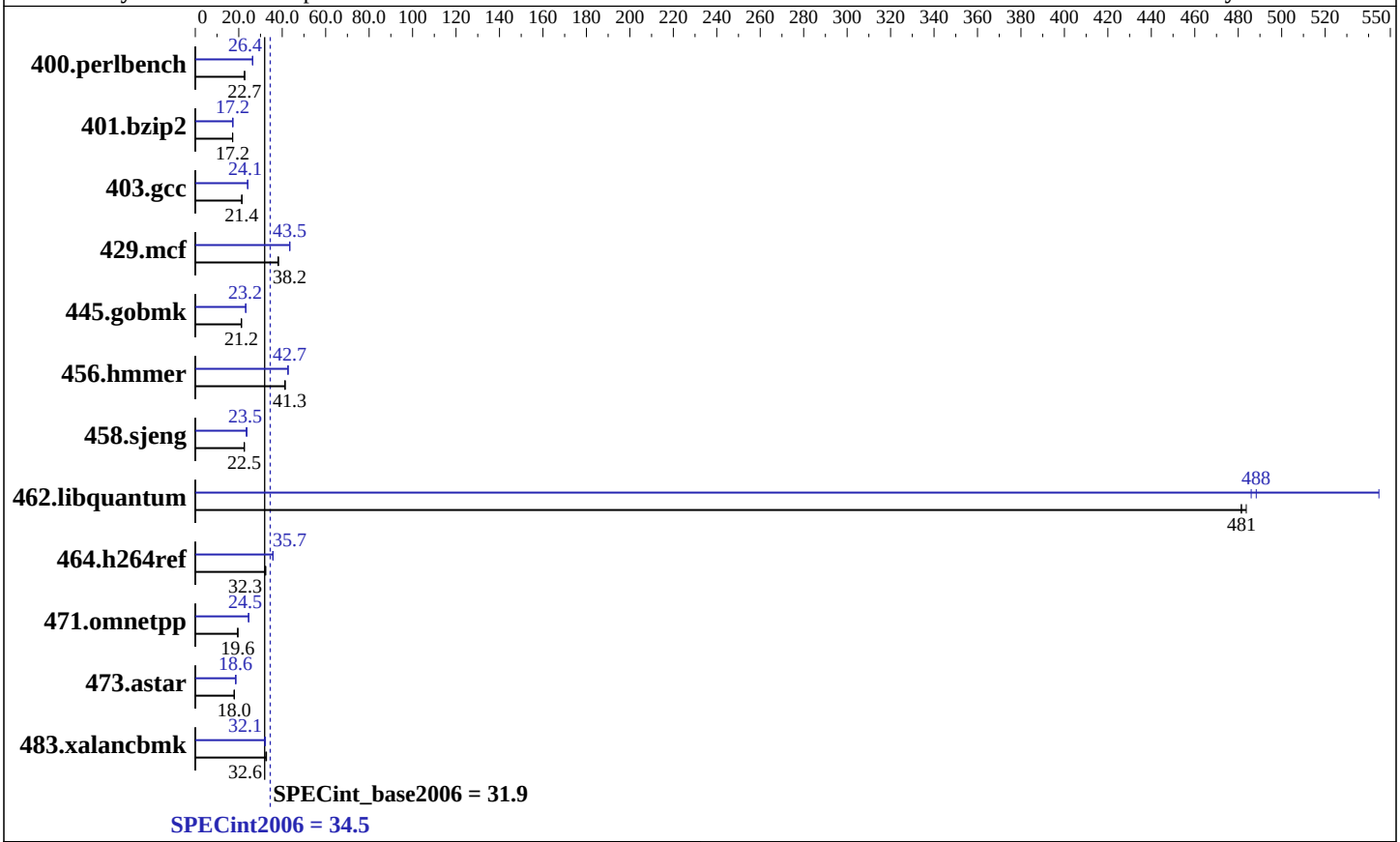
Supermicro SuperServer 6026T-NTR+ (Intel Xeon E5640, 2.66 GHz)

SPECint®2006 = 34.5

SPECint_base2006 = 31.9

**CPU2006 license:** 13
**Test sponsor:** Intel Corporation
**Tested by:** Intel Corporation

**Test date:** Mar-2010
**Hardware Availability:** Mar-2010
**Software Availability:** Jan-2010




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5640 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.93 GHz |
| CPU MHz: | 2666 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip, 2 threads/core |
| 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 (12 x 4GB DDR3-1066, CL7) |
| Disk Subsystem: | 1 x 150 GB SATA, 10000RPM |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | SuSe Linux SLES11 |
| Compiler: | Intel C++ Professional Compiler for IA32 and Intel 64, Version 11.1<br>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: | 64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V8.1<br>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 | 432 | 22.6 | **431** | **22.7** | 430 | 22.7 | 371 | 26.3 | **370** | **26.4** | 370 | 26.4 |
| 401.bzip2 | **562** | **17.2** | 561 | 17.2 | 562 | 17.2 | **561** | **17.2** | 561 | 17.2 | 557 | 17.3 |
| 403.gcc | 375 | 21.4 | 376 | 21.4 | **376** | **21.4** | **334** | **24.1** | 334 | 24.1 | 334 | 24.1 |
| 429.mcf | 238 | 38.2 | 240 | 38.1 | **239** | **38.2** | 210 | 43.5 | **210** | **43.5** | 210 | 43.4 |
| 445.gobmk | 495 | 21.2 | **495** | **21.2** | 493 | 21.3 | **452** | **23.2** | 452 | 23.2 | 451 | 23.2 |
| 456.hmmer | 225 | 41.4 | 227 | 41.1 | **226** | **41.3** | 219 | 42.7 | **219** | **42.7** | 219 | 42.7 |
| 458.sjeng | 537 | 22.5 | 536 | 22.6 | **537** | **22.5** | 515 | 23.5 | 509 | 23.8 | **514** | **23.5** |
| 462.libquantum | 43.0 | 481 | **43.0** | **481** | 42.8 | 484 | 42.6 | 486 | **42.4** | **488** | 38.0 | 545 |
| 464.h264ref | **685** | **32.3** | 682 | 32.4 | 685 | 32.3 | 620 | 35.7 | **619** | **35.7** | 618 | 35.8 |
| 471.omnetpp | 320 | 19.6 | 319 | 19.6 | **320** | **19.6** | **255** | **24.5** | 255 | 24.6 | 255 | 24.5 |
| 473.astar | 393 | 17.9 | 391 | 18.0 | **391** | **18.0** | 376 | 18.7 | 378 | 18.6 | **378** | **18.6** |
| 483.xalancbmk | 210 | 32.8 | **212** | **32.6** | 212 | 32.5 | **215** | **32.1** | 215 | 32.0 | 214 | 32.3 |

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 cores
KMP_AFFINITY set to granularity=fine,scatter
Bios settings:
LRU hint:  Disabled
Fan Speed: Full speed
```

## Base Compiler Invocation

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

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

## 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`

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## Base Portability Flags (Continued)

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 -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) -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: -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel
-opt-prefetch -par-schedule-static=32768 -ansi-alias

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

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

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## Peak Optimization Flags (Continued)

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: `-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch`
`-Wl,-z,muldefs`
`-L/home/cmplr/usr3/alrahate/cpu2006.1.1.ic11.1/libic11.1-32bit -lsmartheap`

## 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-revG.html`

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


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