



# SPEC<sup>®</sup> CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

### SPECint<sup>®</sup>\_rate2006 = 380

### Motherboard H8QI6-F, AMD Opteron 8431

### SPECint\_rate\_base2006 = 296

CPU2006 license: 001176

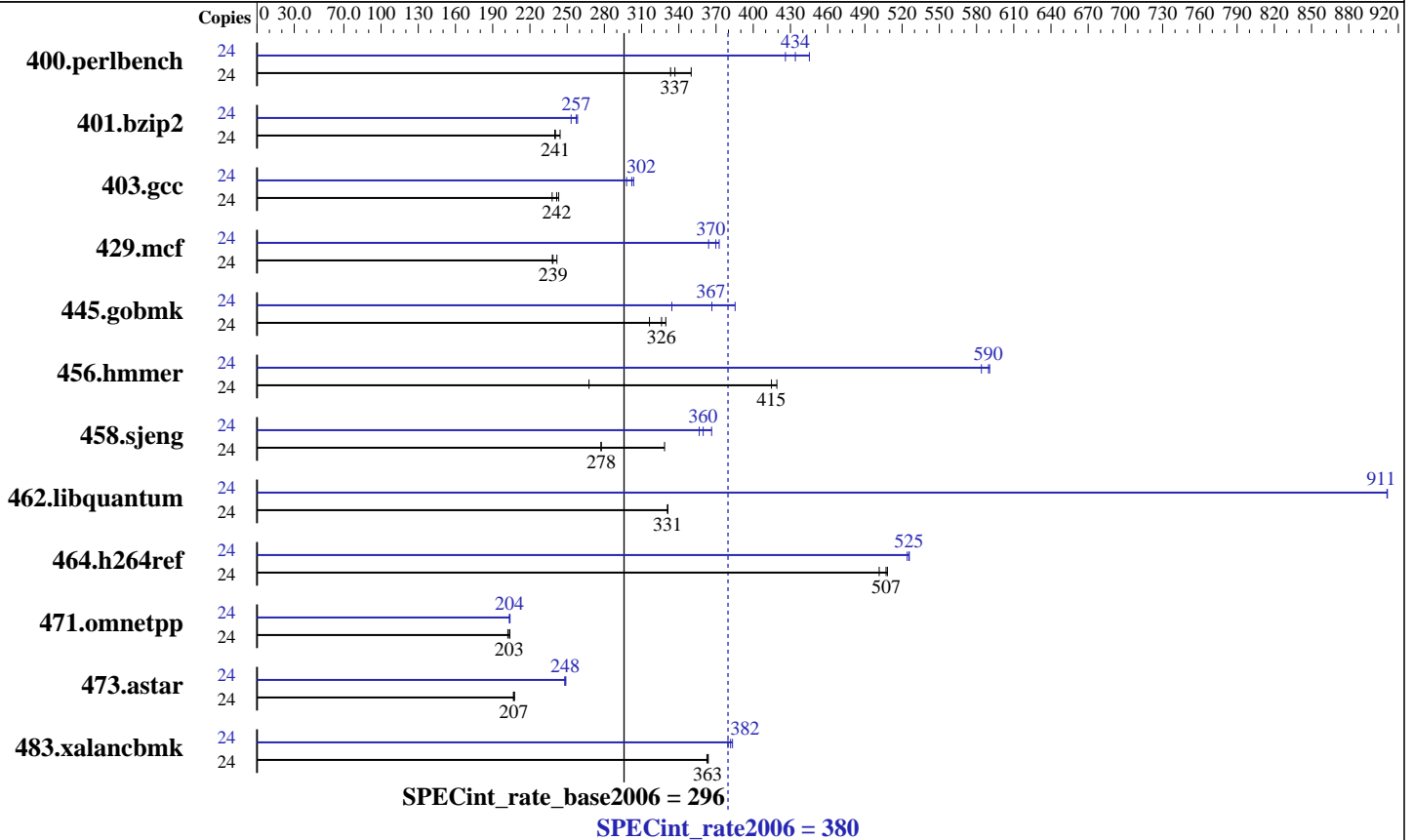
Test date: Nov-2009

Test sponsor: Supermicro

Hardware Availability: Jun-2009

Tested by: Supermicro

Software Availability: Apr-2009



### Hardware

CPU Name: AMD Opteron 8431  
 CPU Characteristics:  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip  
 CPU(s) orderable: 2,4 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 512 KB I+D on chip per core  
 L3 Cache: 6 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 64 GB (16x4 GB, DDR2-800, CL5, Reg, Dual Rank)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 5.4, Advanced Platform, Kernel 2.6.18-164.el5  
 Compiler: PGI Server Complete Version 8.0  
 x86 Open64 4.2.2 Compiler Suite (from AMD)  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 2 (Local multiuser without remote network)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: binutils 2.18  
 SmartHeap 8.1 32-bit Library for Linux



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

SPECint\_rate2006 = 380

Motherboard H8QI6-F, AMD Opteron 8431

SPECint\_rate\_base2006 = 296

CPU2006 license: 001176

Test date: Nov-2009

Test sponsor: Supermicro

Hardware Availability: Jun-2009

Tested by: Supermicro

Software Availability: Apr-2009

## Results Table

| Benchmark      | Base   |            |            |            |            |             |            |        | Peak        |            |            |            |            |            |  |  |
|----------------|--------|------------|------------|------------|------------|-------------|------------|--------|-------------|------------|------------|------------|------------|------------|--|--|
|                | Copies | Seconds    | Ratio      | Seconds    | Ratio      | Seconds     | Ratio      | Copies | Seconds     | Ratio      | Seconds    | Ratio      | Seconds    | Ratio      |  |  |
| 400.perlbench  | 24     | 670        | 350        | 703        | 333        | <b>696</b>  | <b>337</b> | 24     | 550         | 426        | <b>540</b> | <b>434</b> | 527        | 445        |  |  |
| 401.bzip2      | 24     | 948        | 244        | <b>963</b> | <b>241</b> | 965         | 240        | 24     | 915         | 253        | 896        | 258        | <b>900</b> | <b>257</b> |  |  |
| 403.gcc        | 24     | <b>800</b> | <b>242</b> | 794        | 243        | 812         | 238        | 24     | 636         | 304        | 649        | 298        | <b>639</b> | <b>302</b> |  |  |
| 429.mcf        | 24     | <b>917</b> | <b>239</b> | 919        | 238        | 905         | 242        | 24     | <b>592</b>  | <b>370</b> | 588        | 373        | 601        | 364        |  |  |
| 445.gobmk      | 24     | <b>772</b> | <b>326</b> | 764        | 330        | 796         | 316        | 24     | 653         | 385        | 753        | 334        | <b>687</b> | <b>367</b> |  |  |
| 456.hammer     | 24     | 837        | 268        | 534        | 419        | <b>540</b>  | <b>415</b> | 24     | 383         | 584        | 379        | 591        | <b>380</b> | <b>590</b> |  |  |
| 458.sjeng      | 24     | 1048       | 277        | 884        | 329        | <b>1046</b> | <b>278</b> | 24     | 815         | 356        | 792        | 366        | <b>807</b> | <b>360</b> |  |  |
| 462.libquantum | 24     | 1502       | 331        | 1503       | 331        | <b>1502</b> | <b>331</b> | 24     | 546         | 911        | 546        | 911        | <b>546</b> | <b>911</b> |  |  |
| 464.h264ref    | 24     | 1059       | 502        | 1045       | 508        | <b>1047</b> | <b>507</b> | 24     | <b>1011</b> | <b>525</b> | 1013       | 524        | 1010       | 526        |  |  |
| 471.omnetpp    | 24     | 736        | 204        | 742        | 202        | <b>737</b>  | <b>203</b> | 24     | 735         | 204        | <b>737</b> | <b>204</b> | 737        | 203        |  |  |
| 473.astar      | 24     | <b>815</b> | <b>207</b> | 815        | 207        | 812         | 208        | 24     | <b>678</b>  | <b>248</b> | 679        | 248        | 677        | 249        |  |  |
| 483.xalancbmk  | 24     | 457        | 363        | 455        | 364        | <b>456</b>  | <b>363</b> | 24     | 436         | 380        | 432        | 383        | <b>434</b> | <b>382</b> |  |  |

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

## Submit Notes

The config file option 'submit' was used.  
'numactl' was used to bind copies to the cores.  
See the configuration file for details.

## Operating System Notes

'ulimit -s unlimited' was used to set environment stack size  
'ulimit -l 2097152' was used to set environment locked pages in memory limit

Set vm/nr\_hugepages=10800 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages

## General Notes

Environment variables set by runspec before the start of the run:  
HUGETLB\_LIMIT = "450"  
LD\_LIBRARY\_PATH = "/spec/amd0905is-libs/64:/spec/amd0905is-libs/32"  
PGI\_HUGE\_PAGES = "450"

The x86 Open64 Compiler Suite is only available from (and supported by) AMD at  
<http://developer.amd.com/cpu/open64>

System was tested in an open environment.  
To ensure system stability, a 1000W (minimum) ATX power supply  
[ 8-pin & 8-pin (+12V) and 24-pin are required ]

Product description can be obtained at:

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Supermicro**

**SPECint\_rate2006 = 380**

**Motherboard H8QI6-F, AMD Opteron 8431**

**SPECint\_rate\_base2006 = 296**

**CPU2006 license:** 001176

**Test sponsor:** Supermicro

**Tested by:** Supermicro

**Test date:** Nov-2009

**Hardware Availability:** Jun-2009

**Software Availability:** Apr-2009

## General Notes (Continued)

<http://www.supermicro.com/Aplus/motherboard/Opteron8000/SR56x0/H8QI6-F.cfm>

## Base Compiler Invocation

C benchmarks:

openc

C++ benchmarks:

openCC

## 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  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

-march=barcelona -Ofast -CG:local\_sched\_alg=1 -HP:bdt=2m:heap=2m

C++ benchmarks:

-march=barcelona -Ofast -m32 -INLINE:aggressive=on  
-L/root/work/libraries/SmartHeap-8.1/lib -lsmarheap

## Peak Compiler Invocation

C benchmarks (except as noted below):

openc

456.hmmer: pgcc

C++ benchmarks (except as noted below):

openCC

473.astar: pgcpp



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

SPECint\_rate2006 = 380

Motherboard H8QI6-F, AMD Opteron 8431

SPECint\_rate\_base2006 = 296

CPU2006 license: 001176

Test date: Nov-2009

Test sponsor: Supermicro

Hardware Availability: Jun-2009

Tested by: Supermicro

Software Availability: Apr-2009

## Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -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
483.xalanbmk: -DSPEC_CPU_LINUX

```

## Peak Optimization Flags

C benchmarks:

```

400.perlbench: -march=barcelona -fb_create fbdata(pass 1)
               -fb_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0
               -OPT:unroll_times_max=8 -OPT:unroll_size=256
               -OPT:unroll_level=2 -OPT:keep_ext=on -WOPT:if_conv=0
               -CG:local_sched_alg=1 -CG:unroll_fb_req=on
               -HP:bdt=2m:heap=2m

401.bzip2: -march=barcelona -fb_create fbdata(pass 1)
            -fb_opt fbdata(pass 2) -O3 -OPT:alias=disjoint
            -OPT:unroll_size=0 -OPT:Ofast -OPT:goto=off
            -INLINE:aggressive=on -CG:local_sched_alg=1 -m3dnw
            -HP:bdt=2m:heap=2m

403.gcc: -march=barcelona -fb_create fbdata(pass 1)
          -fb_opt fbdata(pass 2) -Ofast -LNO:trip_count=256
          -LNO:prefetch_ahead=10 -CG:cmp_peep=on -m32
          -HP:bdt=2m:heap=2m -GRA:unspill=on

429.mcf: -march=barcelona -O3 -ipa -INLINE:aggressive=on
          -CG:gcm=off -GRA:prioritize_by_density=on -m32
          -HP:bdt=2m:heap=2m

445.gobmk: -march=barcelona -fb_create fbdata(pass 1)
            -fb_opt fbdata(pass 2) -O3 -OPT:alias=restrict
            -OPT:unroll_times_max=8 -OPT:unroll_size=256
            -OPT:unroll_level=2 -OPT:keep_ext=on -ipa -IPA:plimit=750
            -IPA:min_hotness=300 -IPA:pu_reorder=1 -LNO:prefetch=1
            -LNO:ignore_feedback=off -CG:p2align=on
            -CG:unroll_fb_req=on -HP:bdt=2m:heap=2m

456.hmmer: -fastsse -Mvect=partial -Munroll=n:8 -Msmartalloc=huge
            -Msafeptr -Mprefetch=t0 -Mfprelaxed -Mipa=const -Mipa=ptr
            -Mipa=arg -Mipa=inline -tp shanghai-64 -Bstatic_pgi

```

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

SPECint\_rate2006 = 380

Motherboard H8QI6-F, AMD Opteron 8431

SPECint\_rate\_base2006 = 296

CPU2006 license: 001176

Test date: Nov-2009

Test sponsor: Supermicro

Hardware Availability: Jun-2009

Tested by: Supermicro

Software Availability: Apr-2009

## Peak Optimization Flags (Continued)

458.sjeng: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -O3 -ipa -LNO:ignore\_feedback=off  
 -LNO:full\_unroll=10 -LNO:fusion=0 -LNO:fission=2  
 -IPA:pu\_reorder=2 -CG:ptr\_load\_use=0  
 -OPT:unroll\_times\_max=8 -INLINE:aggressive=on  
 -HP:bdt=2m:heap=2m

462.libquantum: -march=barcelona -Ofast -LNO:pf2=0 -CG:gcm=off  
 -CG:use\_prefetchnta=on -CG:cmp\_peep=on -WOPT:aggstr=0  
 -HP:bdt=2m:heap=2m -OPT:alias=disjoint  
 -INLINE:aggressive=on -IPA:space=1000 -IPA:plimit=20000

464.h264ref: -march=barcelona -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -O3 -IPA:plimit=20000  
 -OPT:alias=disjoint -LNO:prefetch=0 -CG:ptr\_load\_use=0  
 -CG:push\_pop\_int\_saved\_regs=off -HP:bdt=2m:heap=2m

C++ benchmarks:

471.omnetpp: -march=barcelona -Ofast -CG:gcm=off -INLINE:aggressive=on  
 -OPT:alias=disjoint -WOPT:if\_conv=0 -m32  
 -L/root/work/libraries/SmartHeap-8.1/lib -lsmarheap

473.astar: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)  
 -Mipa=inline:6(pass 2) -fastsse -O4 -Msmartalloc=huge  
 -Msafeptr=global -Mfp relaxed --zc\_eh -tp shanghai-32  
 -Bstatic\_pgi

483.xalancbmk: -march=barcelona -Ofast -INLINE:aggressive=on -m32  
 -CG:cmp\_peep=on -GRA:unspill=on -TENV:frame\_pointer=off  
 -L/root/work/libraries/SmartHeap-8.1/lib -lsmarheap

## Peak Other Flags

C benchmarks:

456.hmmmer: -Mipa=jobs:4

C++ benchmarks:

473.astar: -Mipa=jobs:4(pass 2)

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/amd-platform.20090710.html>

[http://www.spec.org/cpu2006/flags/pgi80\\_linux\\_flags-revA.html](http://www.spec.org/cpu2006/flags/pgi80_linux_flags-revA.html)

<http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags-revE.html>



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro

SPECint\_rate2006 = 380

Motherboard H8QI6-F, AMD Opteron 8431

SPECint\_rate\_base2006 = 296

**CPU2006 license:** 001176

**Test date:** Nov-2009

**Test sponsor:** Supermicro

**Hardware Availability:** Jun-2009

**Tested by:** Supermicro

**Software Availability:** Apr-2009

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

<http://www.spec.org/cpu2006/flags/amd-platform.20090710.xml>  
[http://www.spec.org/cpu2006/flags/pgi80\\_linux\\_flags-revA.xml](http://www.spec.org/cpu2006/flags/pgi80_linux_flags-revA.xml)  
<http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags-revE.xml>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.  
Report generated on Wed Jul 23 03:44:56 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 22 December 2009.