



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

### SPECint®\_rate2006 = 420

### Motherboard H8QM3-2, AMD Opteron 8439 SE

### SPECint\_rate\_base2006 = 328

CPU2006 license: 001176

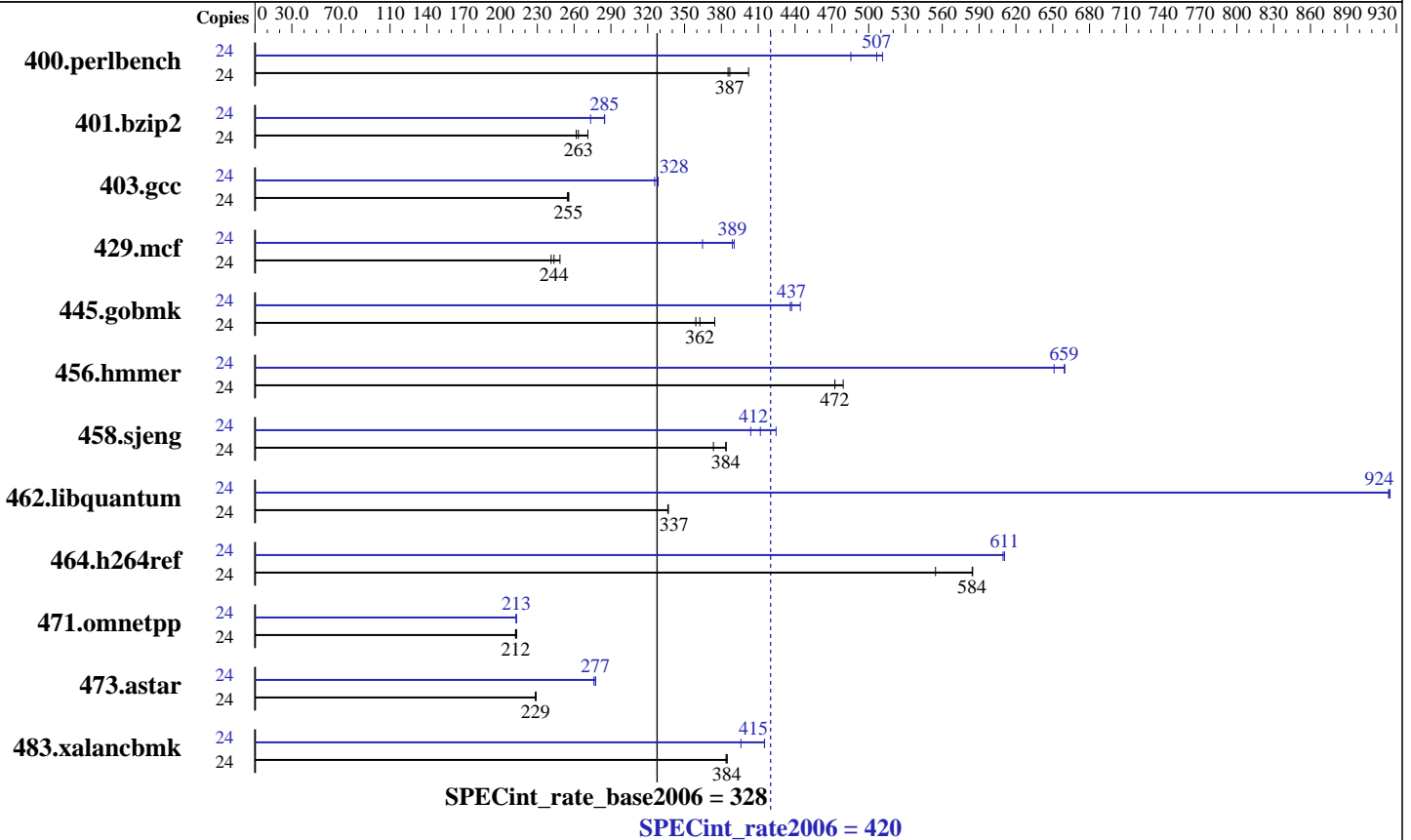
Test date: Jul-2009

Test sponsor: Supermicro

Hardware Availability: Jun-2009

Tested by: Supermicro

Software Availability: Apr-2009



### Hardware

CPU Name: AMD Opteron 8439 SE  
 CPU Characteristics: 2800  
 CPU MHz: Integrated  
 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 5.3, Advanced Platform, Kernel 2.6.18-128.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 = 420

Motherboard H8QM3-2, AMD Opteron 8439 SE

SPECint\_rate\_base2006 = 328

CPU2006 license: 001176  
Test sponsor: Supermicro  
Tested by: Supermicro

Test date: Jul-2009  
Hardware Availability: Jun-2009  
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	583	402	608	385	<b>606</b>	<b>387</b>	24	483	485	<b>463</b>	<b>507</b>	459	511
401.bzip2	24	854	271	<b>879</b>	<b>263</b>	885	262	24	847	273	<b>814</b>	<b>285</b>	813	285
403.gcc	24	759	254	756	256	<b>757</b>	<b>255</b>	24	593	326	<b>589</b>	<b>328</b>	588	328
429.mcf	24	907	241	<b>898</b>	<b>244</b>	881	248	24	<b>563</b>	<b>389</b>	561	390	600	365
445.gobmk	24	701	359	<b>695</b>	<b>362</b>	672	375	24	<b>576</b>	<b>437</b>	577	436	567	444
456.hammer	24	474	472	467	479	<b>474</b>	<b>472</b>	24	339	660	344	651	<b>340</b>	<b>659</b>
458.sjeng	24	777	374	<b>757</b>	<b>384</b>	756	384	24	<b>705</b>	<b>412</b>	684	425	719	404
462.libquantum	24	1477	337	1478	336	<b>1477</b>	<b>337</b>	24	538	925	<b>538</b>	<b>924</b>	538	924
464.h264ref	24	908	585	<b>909</b>	<b>584</b>	958	554	24	870	611	871	609	<b>870</b>	<b>611</b>
471.omnetpp	24	<b>706</b>	<b>212</b>	707	212	704	213	24	704	213	705	213	<b>704</b>	<b>213</b>
473.astar	24	<b>737</b>	<b>229</b>	737	229	736	229	24	607	278	<b>608</b>	<b>277</b>	610	276
483.xalancbmk	24	<b>431</b>	<b>384</b>	431	384	430	385	24	418	396	399	415	<b>399</b>	<b>415</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  
<a href="http://developer.amd.com/cpu/open64">http://developer.amd.com/cpu/open64</a>.

System was tested in an open environment.  
To ensure system stability, a 1200W (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 = 420**

Motherboard H8QM3-2, AMD Opteron 8439 SE

**SPECint\_rate\_base2006 = 328**

**CPU2006 license:** 001176  
**Test sponsor:** Supermicro  
**Tested by:** Supermicro

**Test date:** Jul-2009  
**Hardware Availability:** Jun-2009  
**Software Availability:** Apr-2009

## General Notes (Continued)

<http://www.supermicro.com/Aplus/motherboard/Opteron8000/MCP55/H8QM3-2.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 = 420

Motherboard H8QM3-2, AMD Opteron 8439 SE

SPECint\_rate\_base2006 = 328

CPU2006 license: 001176

Test date: Jul-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 = 420

Motherboard H8QM3-2, AMD Opteron 8439 SE

SPECint\_rate\_base2006 = 328

CPU2006 license: 001176

Test date: Jul-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.20090728.html>

[http://www.spec.org/cpu2006/flags/pgi80\\_linux\\_flags.20090710.html](http://www.spec.org/cpu2006/flags/pgi80_linux_flags.20090710.html)

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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

**SPECint\_rate2006 = 420**

Motherboard H8QM3-2, AMD Opteron 8439 SE

**SPECint\_rate\_base2006 = 328**

**CPU2006 license:** 001176

**Test sponsor:** Supermicro

**Tested by:** Supermicro

**Test date:** Jul-2009

**Hardware Availability:** Jun-2009

**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.20090728.xml>
- [http://www.spec.org/cpu2006/flags/pg180\\_linux\\_flags.20090710.xml](http://www.spec.org/cpu2006/flags/pg180_linux_flags.20090710.xml)
- <http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags-revB.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 03:27:09 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 18 August 2009.