



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server AS-2022TG-HIBQRF,  
AMD Opteron 6128 HE

SPECint®\_rate2006 = 256

SPECint\_rate\_base2006 = 222

CPU2006 license: 001176

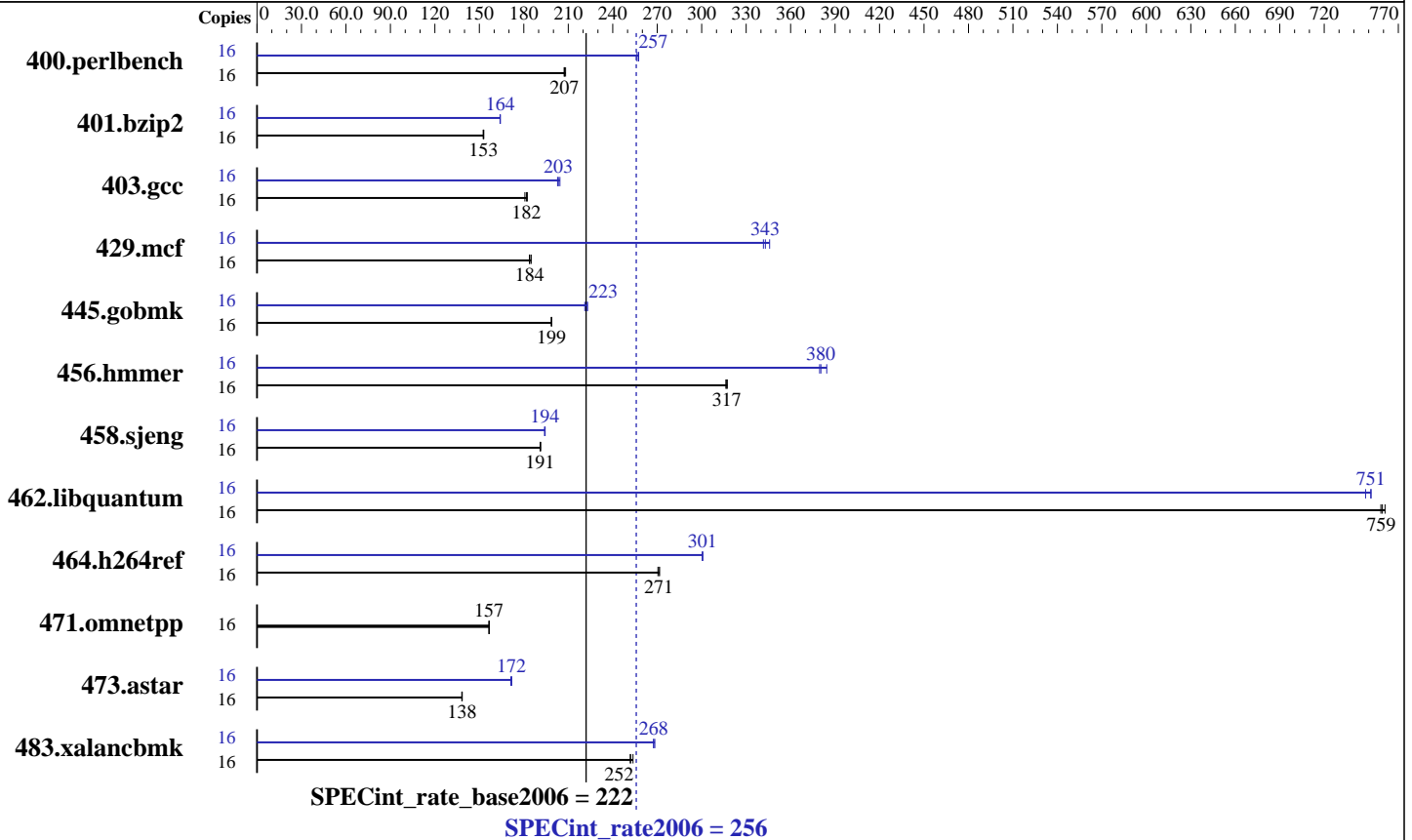
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Dec-2010

Hardware Availability: Mar-2010

Software Availability: Jul-2010



### Hardware

CPU Name: AMD Opteron 6128 HE  
 CPU Characteristics:  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip  
 CPU(s) orderable: 1,2 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: 12 MB I+D on chip per chip, 6 MB shared / 4 cores  
 Other Cache: None  
 Memory: 64 GB (16 x 4 GB 2Rx8 PC3-10600R-9, ECC)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: SUSE Linux Enterprise Server 11 SP1,  
Kernel 2.6.32.12-0.7-default  
 Compiler: x86 Open64 4.2.4 Compiler Suite (from AMD)  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (Full multiuser with 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

Supermicro A+ Server AS-2022TG-HIBQRF,  
AMD Opteron 6128 HE

SPECint\_rate2006 = 256

SPECint\_rate\_base2006 = 222

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

Test date: Dec-2010  
Hardware Availability: Mar-2010  
Software Availability: Jul-2010

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	<b><u>754</u></b>	<b><u>207</u></b>	754	207	751	208	16	607	257	610	256	<b><u>608</u></b>	<b><u>257</u></b>
401.bzip2	16	1009	153	1012	153	<b><u>1010</u></b>	<b><u>153</u></b>	16	<b><u>941</u></b>	<b><u>164</u></b>	942	164	941	164
403.gcc	16	713	181	706	182	<b><u>708</u></b>	<b><u>182</u></b>	16	630	204	635	203	<b><u>633</u></b>	<b><u>203</u></b>
429.mcf	16	794	184	789	185	<b><u>793</u></b>	<b><u>184</u></b>	16	<b><u>425</u></b>	<b><u>343</u></b>	427	342	422	346
445.gobmk	16	845	199	844	199	<b><u>845</u></b>	<b><u>199</u></b>	16	<b><u>753</u></b>	<b><u>223</u></b>	753	223	759	221
456.hammer	16	472	316	470	317	<b><u>471</u></b>	<b><u>317</u></b>	16	388	384	<b><u>392</u></b>	<b><u>380</u></b>	393	380
458.sjeng	16	<b><u>1013</u></b>	<b><u>191</u></b>	1013	191	1011	191	16	998	194	<b><u>997</u></b>	<b><u>194</u></b>	996	194
462.libquantum	16	437	758	436	761	<b><u>437</u></b>	<b><u>759</u></b>	16	441	752	<b><u>441</u></b>	<b><u>751</u></b>	443	748
464.h264ref	16	1304	272	<b><u>1306</u></b>	<b><u>271</u></b>	1309	270	16	1178	301	<b><u>1178</u></b>	<b><u>301</u></b>	1179	300
471.omnetpp	16	<b><u>639</u></b>	<b><u>157</u></b>	639	157	638	157	16	<b><u>639</u></b>	<b><u>157</u></b>	639	157	638	157
473.astar	16	811	138	<b><u>812</u></b>	<b><u>138</u></b>	813	138	16	656	171	<b><u>654</u></b>	<b><u>172</u></b>	654	172
483.xalancbmk	16	<b><u>438</u></b>	<b><u>252</u></b>	435	254	438	252	16	<b><u>412</u></b>	<b><u>268</u></b>	411	268	413	268

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=14336 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages

## Platform Notes

Fan Speed set to Full Speed in BIOS Setup.  
The system uses a Supermicro H8DGT-HIBQF motherboard.

## General Notes

Environment variables set by runspec before the start of the run:  
HUGETLB\_LIMIT = "896"  
LD\_LIBRARY\_PATH = "/usr/cpu2006/amd1002-rate-libs-revC/64:/usr/cpu2006/amd1002-rate-libs-revC/32"

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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server AS-2022TG-HIBQRF,  
AMD Opteron 6128 HE

SPECint\_rate2006 = 256

SPECint\_rate\_base2006 = 222

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

Test date: Dec-2010  
Hardware Availability: Mar-2010  
Software Availability: Jul-2010

## 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 -mso -Ofast -CG:local\_sched\_alg=1  
-INLINE:aggressive=on -IPA:plimit=8000 -IPA:small\_pu=100  
-HP:bdt=2m:heap=2m

C++ benchmarks:  
-march=barcelona -mso -Ofast -m32 -INLINE:aggressive=on  
-CG:cmp\_peep=on -L/root/work/libraries/SmartHeap-8.1/lib -lsmartheap

## Peak Compiler Invocation

C benchmarks:  
openc

C++ benchmarks:  
openCC

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server AS-2022TG-HIBQRF,  
AMD Opteron 6128 HE

SPECint\_rate2006 = 256

SPECint\_rate\_base2006 = 222

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Dec-2010

Hardware Availability: Mar-2010

Software Availability: Jul-2010

## Peak Portability Flags (Continued)

```

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.xalancbmk: -DSPEC_CPU_LINUX

```

## Peak Optimization Flags

C benchmarks:

```

400.perlbench: -march=barcelona -mso -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 -mso -fb_create fbdata(pass 1)
           -fb_opt fbdata(pass 2) -O3 -OPT:alias=disjoint
           -OPT:goto=off -CG:local_sched_alg=1 -HP:bdt=2m:heap=2m

403.gcc: -march=barcelona -mso -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 -IPA:small_pu=200

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

445.gobmk: -march=barcelona -mso -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: -march=barcelona -mso -fb_create fbdata(pass 1)
           -fb_opt fbdata(pass 2) -Ofast -LNO:prefetch=0
           -OPT:alias=disjoint -OPT:unroll_times_max=8
           -OPT:unroll_size=256 -OPT:unroll_level=2 -OPT:keep_ext=on
           -CG:local_sched_alg=1 -CG:cflow=0
           -CG:push_pop_int_saved_regs=off -CG:cmp_peep=on
           -HP:bdt=2m:heap=2m

```

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server AS-2022TG-HIBQRF,  
AMD Opteron 6128 HE

SPECint\_rate2006 = 256

SPECint\_rate\_base2006 = 222

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Dec-2010

Hardware Availability: Mar-2010

Software Availability: Jul-2010

## Peak Optimization Flags (Continued)

458.sjeng: -march=barcelona -mso -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

462.libquantum: -march=barcelona -mso -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 -mso -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

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=barcelona -mso -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -Ofast -TENV:frame\_pointer=off  
-WOPT:if\_conv=0 -GRA:optimize\_boundary=on  
-OPT:alias=disjoint -INLINE:aggressive=on  
-IPA:small\_pu=3000 -IPA:plimit=3000 -m32  
-HP:bdt=2m:heap=2m

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

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

<http://www.spec.org/cpu2006/flags/x86-open64-424-flags-rate-revC.20100901.html>

<http://www.spec.org/cpu2006/flags/amd-platform-rate-revC.20110119.html>

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

<http://www.spec.org/cpu2006/flags/x86-open64-424-flags-rate-revC.20100901.xml>

<http://www.spec.org/cpu2006/flags/amd-platform-rate-revC.20110119.xml>



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server AS-2022TG-HIBQRF,  
AMD Opteron 6128 HE

SPECint\_rate2006 = 256

SPECint\_rate\_base2006 = 222

**CPU2006 license:** 001176

**Test sponsor:** Supermicro

**Tested by:** Supermicro

**Test date:** Dec-2010

**Hardware Availability:** Mar-2010

**Software Availability:** Jul-2010

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 16:53:53 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 18 January 2011.