



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE,  
Opteron 6338P)  
AMD Opteron 6338P

SPECint®\_rate2006 = 780

SPECint\_rate\_base2006 = 681

CPU2006 license: 001176

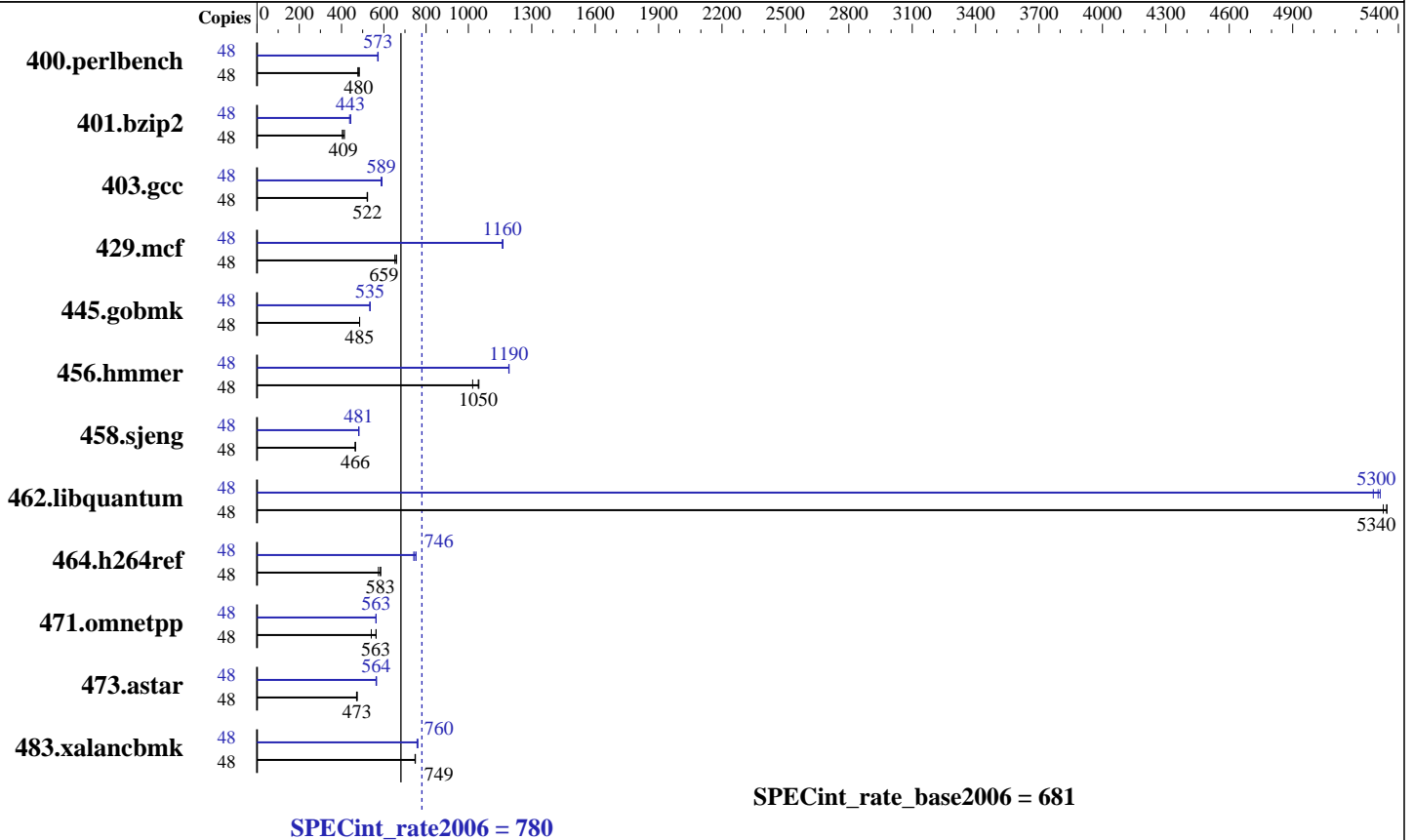
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2013

Hardware Availability: Jan-2014

Software Availability: Aug-2012



### Hardware

CPU Name: AMD Opteron 6338P  
 CPU Characteristics: AMD Turbo CORE technology up to 2.80 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip  
 CPU(s) orderable: 2,4 chips  
 Primary Cache: 384 KB I on chip per chip,  
 64 KB I shared / 2 cores;  
 16 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 2 MB shared / 2 cores  
 L3 Cache: 16 MB I+D on chip per chip, 8 MB shared / 6 cores  
 Other Cache: None  
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 500 GB SATA II, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.4,  
 Kernel 2.6.32-358.el6.x86\_64  
 Compiler: C/C++: Version 4.5.2 of x86 Open64 Compiler Suite  
 (from AMD)  
 Auto Parallel: No  
 File System: ext4  
 System State: Run level 3 (Full multiuser with network)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: SmartHeap 10.0 32-bit Library for Linux



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE,  
Opteron 6338P)  
AMD Opteron 6338P

SPECint\_rate2006 = 780

SPECint\_rate\_base2006 = 681

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2013

Hardware Availability: Jan-2014

Software Availability: Aug-2012

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	48	983	477	968	484	<u>977</u>	<u>480</u>	48	821	571	<u>819</u>	<u>573</u>	818	573
401.bzip2	48	1119	414	1148	404	<u>1134</u>	<u>409</u>	48	<u>1046</u>	<u>443</u>	1058	438	1044	444
403.gcc	48	<u>740</u>	<u>522</u>	741	521	739	523	48	658	587	<u>656</u>	<u>589</u>	653	592
429.mcf	48	<u>664</u>	<u>659</u>	664	660	671	652	48	377	1160	<u>377</u>	<u>1160</u>	376	1160
445.gobmk	48	1037	485	1037	486	<u>1037</u>	<u>485</u>	48	942	534	942	535	<u>942</u>	<u>535</u>
456.hammer	48	427	1050	439	1020	<u>428</u>	<u>1050</u>	48	<u>376</u>	<u>1190</u>	375	1190	376	1190
458.sjeng	48	1247	466	<u>1247</u>	<u>466</u>	1251	464	48	1205	482	1207	481	<u>1206</u>	<u>481</u>
462.libquantum	48	186	5350	187	5330	<u>186</u>	<u>5340</u>	48	187	5310	<u>188</u>	<u>5300</u>	188	5280
464.h264ref	48	<u>1820</u>	<u>583</u>	1815	585	1849	575	48	<u>1424</u>	<u>746</u>	1432	742	1411	753
471.omnetpp	48	555	541	532	564	<u>533</u>	<u>563</u>	48	532	564	<u>533</u>	<u>563</u>	533	563
473.astar	48	715	471	711	474	<u>712</u>	<u>473</u>	48	596	566	598	563	<u>597</u>	<u>564</u>
483.xalancbmk	48	442	749	<u>442</u>	<u>749</u>	443	748	48	437	757	435	761	<u>436</u>	<u>760</u>

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 transparent\_hugepage=never as a boot parameter in /boot/grub/menu.lst

Set vm/nr\_hugepages=43008 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages

## Platform Notes

C State mode set to disabled under Processor & Clock Options in BIOS.  
HPC Mode set to enabled under Processor & Clock Options in BIOS.  
C1E Support set to disabled under Processor & Clock Options in BIOS.  
Power Down Enable set to disabled in Memory Configuration in BIOS.

## General Notes

Environment variables set by runspec before the start of the run:  
HUGETLB\_LIMIT = "896"  
LD\_LIBRARY\_PATH = "/home/spec/amd1206-rate-libs-revA/32:/home/spec/amd1206-rate-libs-revA/64"

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE,  
Opteron 6338P)  
AMD Opteron 6338P

SPECint\_rate2006 = 780

SPECint\_rate\_base2006 = 681

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

**Test date:** Oct-2013  
**Hardware Availability:** Jan-2014  
**Software Availability:** Aug-2012

## General Notes (Continued)

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

Binaries were compiled on a system with 2x AMD Opteron 6386SE chips + 128GB Memory using RHEL 6.3

## 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.hmmr: -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:  
-Ofast -CG:local\_sched\_alg=1 -INLINE:aggressive=ON -IPA:plimit=8000  
-IPA:small\_pu=100 -HP:bd=2m:heap=2m -mso -LNO:prefetch=2  
-march=bdver1

C++ benchmarks:  
-Ofast -m32 -INLINE:aggressive=on -CG:cmp\_peep=on -D\_\_OPEN64\_FAST\_SET  
-march=bdver1 -L/root/work/libraries/SmartHeap-10/lib -lsmarheap

## Peak Compiler Invocation

C benchmarks:  
openc

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE,  
Opteron 6338P)  
AMD Opteron 6338P

SPECint\_rate2006 = 780

SPECint\_rate\_base2006 = 681

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2013

Hardware Availability: Jan-2014

Software Availability: Aug-2012

## Peak Compiler Invocation (Continued)

C++ benchmarks:  
openCC

## 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
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX
```

## Peak Optimization Flags

C benchmarks:

```
400.perlbench: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:prefetch=2 -LNO:opt=0 -IPA:plimit=20000
-OPT:unroll_times_max=8 -OPT:unroll_size=256
-OPT:unroll_level=2 -OPT:keep_ext=on -WOPT:if_conv=0
-WOPT:sib=on -CG:local_sched_alg=1 -CG:unroll_fb_req=on
-CG:movext_icmp=off -HP:bd=2m:heap=2m -march=bdver1
-GRA:aggr_loop_splitting=off -GRA:loop_splitting=off

401.bzip2: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-LNO:prefetch=2 -LNO:pf2=0 -OPT:alias=disjoint
-OPT:goto=off -CG:local_sched_alg=1 -HP:bdt=2m:heap=2m
-march=bdver2

403.gcc: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:trip_count=256 -CG:cmp_peep=on -CG:pre_minreg_level=2
-m32 -HP:bdt=2m:heap=2m -GRA:unspill=on -IPA:small_pu=200
-WOPT:sib=on -march=bdver2 -mno-fma4

429.mcf: -O3 -OPT:unroll_times_max=5 -ipa -INLINE:aggressive=on
-CG:gcm=off -CG:dsched=on -GRA:prioritize_by_density=on
-m32 -HP:bdt=2m:heap=2m -mso -march=bdver1

445.gobmk: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-OPT:unroll_size=256 -OPT:unroll_times_max=8
-OPT:keep_ext=on -IPA:plimit=750 -IPA:min_hotness=300
-IPA:pu_reorder=1 -LNO:ignore_feedback=off -WOPT:if_conv=2
-HP:bd=2m:heap=2m -march=bdver1
```

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE,  
Opteron 6338P)  
AMD Opteron 6338P

SPECint\_rate2006 = 780

SPECint\_rate\_base2006 = 681

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2013

Hardware Availability: Jan-2014

Software Availability: Aug-2012

## Peak Optimization Flags (Continued)

456.hmmcr: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -Ofast  
-LNO:prefetch=2 -OPT:alias=disjoint  
-OPT:unroll\_times\_max=16 -OPT:unroll\_size=512  
-OPT:unroll\_level=2 -OPT:keep\_ext=on -CG:cflow=0  
-CG:cmp\_peep=on -CG:pre\_local\_sched=off -HP:bdt=2m:heap=2m  
-CG:p2align=0 -CG:load\_exe=3 -CG:dsched=on -march=bdver1

458.sjeng: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -Ofast  
-CG:ptr\_load\_use=0 -CG:divrem\_opt=on -CG:movext\_icmp=off  
-CG:locs\_best=on -LNO:full\_unroll=10 -IPA:pu\_reorder=2  
-HP:heap=2m:bd=2m -WOPT:sib=on -march=bdver1

462.libquantum: -Ofast -mso -OPT:unroll\_size=512 -OPT:unroll\_times\_max=16  
-LNO:prefetch=2 -LNO:prefetch\_ahead=4 -LNO:pf2=0  
-CG:local\_sched\_alg=1 -CG:p2align=0 -INLINE:aggressive=ON  
-IPA:plimit=15000 -IPA:small\_pu=100  
-HP:bdt=2m:heap=2m,limit=300 -march=bdver2

464.h264ref: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -O3  
-OPT:unroll\_size=256 -OPT:unroll\_times\_max=2  
-IPA:plimit=20000 -OPT:alias=disjoint -CG:ptr\_load\_use=0  
-CG:local\_sched\_alg=1 -HP:bdt=2m:heap=2m -march=bdver1

C++ benchmarks:

471.omnetpp: -Ofast -m32 -INLINE:aggressive=on -CG:cmp\_peep=on  
-WOPT:sib=on -D\_\_OPEN64\_FAST\_SET -march=bdver2 -mno-fma4  
-L/root/work/libraries/SmartHeap-10/lib -lsmarheap

473.astar: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -Ofast  
-WOPT:if\_conv=0 -WOPT:sib=on -CG:divrem\_opt=on  
-CG:p2align=1 -CG:dsched=on -GRA:optimize\_boundary=on  
-OPT:alias=disjoint -INLINE:aggressive=on  
-IPA:small\_pu=3000 -IPA:plimit=3000 -HP:bdt=2m:heap=2m  
-march=bdver1

483.xalancbmk: -Ofast -LNO:prefetch=2 -OPT:unroll\_size=512  
-OPT:unroll\_times\_max=8 -D\_\_OPEN64\_FAST\_SET  
-INLINE:aggressive=on -m32 -CG:cmp\_peep=on  
-CG:local\_sched=off -CG:p2align=1 -GRA:unspill=on  
-TENV:frame\_pointer=off -fno-emit-exceptions -march=bdver2  
-mno-fma4  
-L/root/work/libraries/SmartHeap-10/lib -lsmarheap

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

<http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-III.html>

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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro Processor Blade SBA-7142G-T4 (BHQGE,  
Opteron 6338P)  
AMD Opteron 6338P

**SPECint\_rate2006 = 780**

**SPECint\_rate\_base2006 = 681**

**CPU2006 license:** 001176

**Test sponsor:** Supermicro

**Tested by:** Supermicro

**Test date:** Oct-2013

**Hardware Availability:** Jan-2014

**Software Availability:** Aug-2012

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

<http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-III.xml>

<http://www.spec.org/cpu2006/flags/amd-Supermicro-platform-rate-revC-I.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 v1.2.  
Report generated on Thu Jul 24 22:10:03 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 13 February 2014.