



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server AS-2042G-72RF4, (H8QG7-LN4F,  
Opteron 6370P)  
AMD Opteron 6370P)

SPECint®\_rate2006 = 905

SPECint\_rate\_base2006 = 794

CPU2006 license: 001176

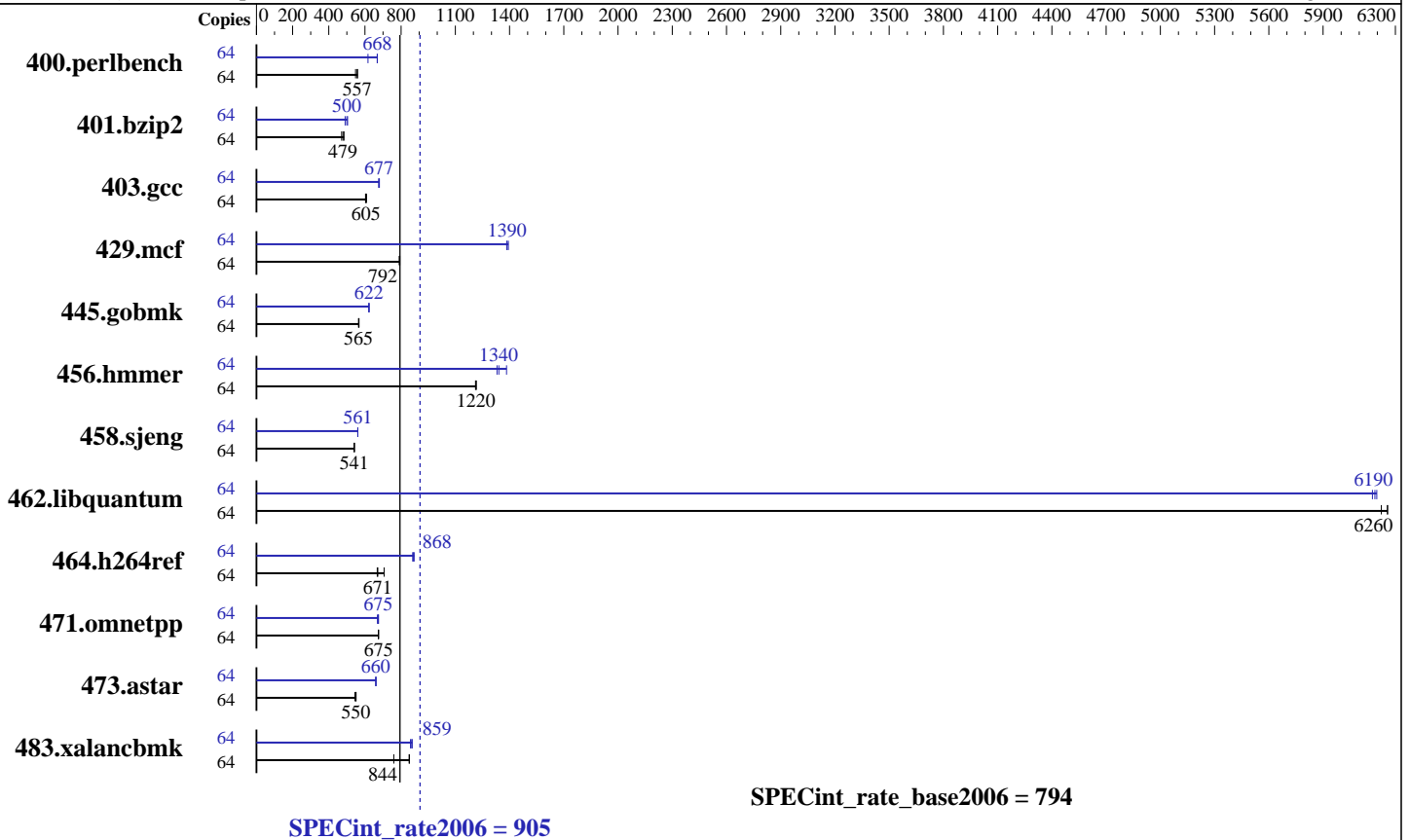
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Oct-2013

Hardware Availability: Jan-2014

Software Availability: Aug-2012



### Hardware

CPU Name: AMD Opteron 6370P  
 CPU Characteristics: AMD Turbo CORE technology up to 2.50 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 64 cores, 4 chips, 16 cores/chip  
 CPU(s) orderable: 2,4 chips  
 Primary Cache: 512 KB I on chip per chip,  
64 KB I shared / 2 cores;  
16 KB D on chip per core  
 Secondary Cache: 16 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 / 8 cores  
 Other Cache: None  
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 500 GB SATA, 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: ext3  
 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 A+ Server AS-2042G-72RF4, (H8QG7-LN4F,  
Opteron 6370P)  
AMD Opteron 6370P)

SPECint\_rate2006 = 905

SPECint\_rate\_base2006 = 794

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	64	1141	548	<b><u>1123</u></b>	<b><u>557</u></b>	1118	559	64	1014	617	<b><u>936</u></b>	<b><u>668</u></b>	936	668
401.bzip2	64	1275	484	<b><u>1290</u></b>	<b><u>479</u></b>	1311	471	64	1225	504	1260	490	<b><u>1236</u></b>	<b><u>500</u></b>
403.gcc	64	854	603	846	609	<b><u>852</u></b>	<b><u>605</u></b>	64	762	676	<b><u>761</u></b>	<b><u>677</u></b>	758	680
429.mcf	64	739	790	736	793	<b><u>737</u></b>	<b><u>792</u></b>	64	<b><u>421</u></b>	<b><u>1390</u></b>	422	1380	419	1390
445.gobmk	64	1184	567	<b><u>1188</u></b>	<b><u>565</u></b>	1188	565	64	1079	622	<b><u>1079</u></b>	<b><u>622</u></b>	1079	622
456.hammer	64	493	1210	<b><u>491</u></b>	<b><u>1220</u></b>	491	1220	64	<b><u>445</u></b>	<b><u>1340</u></b>	432	1380	449	1330
458.sjeng	64	1430	541	1432	541	<b><u>1431</u></b>	<b><u>541</u></b>	64	1382	560	<b><u>1381</u></b>	<b><u>561</u></b>	1381	561
462.libquantum	64	212	6260	213	6220	<b><u>212</u></b>	<b><u>6260</u></b>	64	214	6200	<b><u>214</u></b>	<b><u>6190</u></b>	215	6170
464.h264ref	64	2006	706	2120	668	<b><u>2110</u></b>	<b><u>671</u></b>	64	<b><u>1631</u></b>	<b><u>868</u></b>	1639	864	1624	872
471.omnetpp	64	593	675	593	675	<b><u>593</u></b>	<b><u>675</u></b>	64	598	669	593	675	<b><u>593</u></b>	<b><u>675</u></b>
473.astar	64	825	544	<b><u>816</u></b>	<b><u>550</u></b>	816	551	64	<b><u>680</u></b>	<b><u>660</u></b>	681	660	679	661
483.xalancbmk	64	581	760	522	846	<b><u>523</u></b>	<b><u>844</u></b>	64	<b><u>514</u></b>	<b><u>859</u></b>	513	862	518	852

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=57344 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 A+ Server AS-2042G-72RF4, (H8QG7-LN4F,  
Opteron 6370P)  
AMD Opteron 6370P)

SPECint\_rate2006 = 905

SPECint\_rate\_base2006 = 794

**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 A+ Server AS-2042G-72RF4, (H8QG7-LN4F,  
Opteron 6370P)  
AMD Opteron 6370P)

SPECint\_rate2006 = 905

SPECint\_rate\_base2006 = 794

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 A+ Server AS-2042G-72RF4, (H8QG7-LN4F,  
Opteron 6370P)  
AMD Opteron 6370P)

SPECint\_rate2006 = 905

SPECint\_rate\_base2006 = 794

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 -lsmartheap

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 -lsmartheap

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 A+ Server AS-2042G-72RF4, (H8QG7-LN4F,  
Opteron 6370P)  
AMD Opteron 6370P)

**SPECint\_rate2006 = 905**

**SPECint\_rate\_base2006 = 794**

**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 22:07:31 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 13 February 2014.