



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server 2022G-URF  
(H8DGPU-F, AMD Opteron 6338P)

SPECint®\_rate2006 = 405

SPECint\_rate\_base2006 = 356

CPU2006 license: 001176

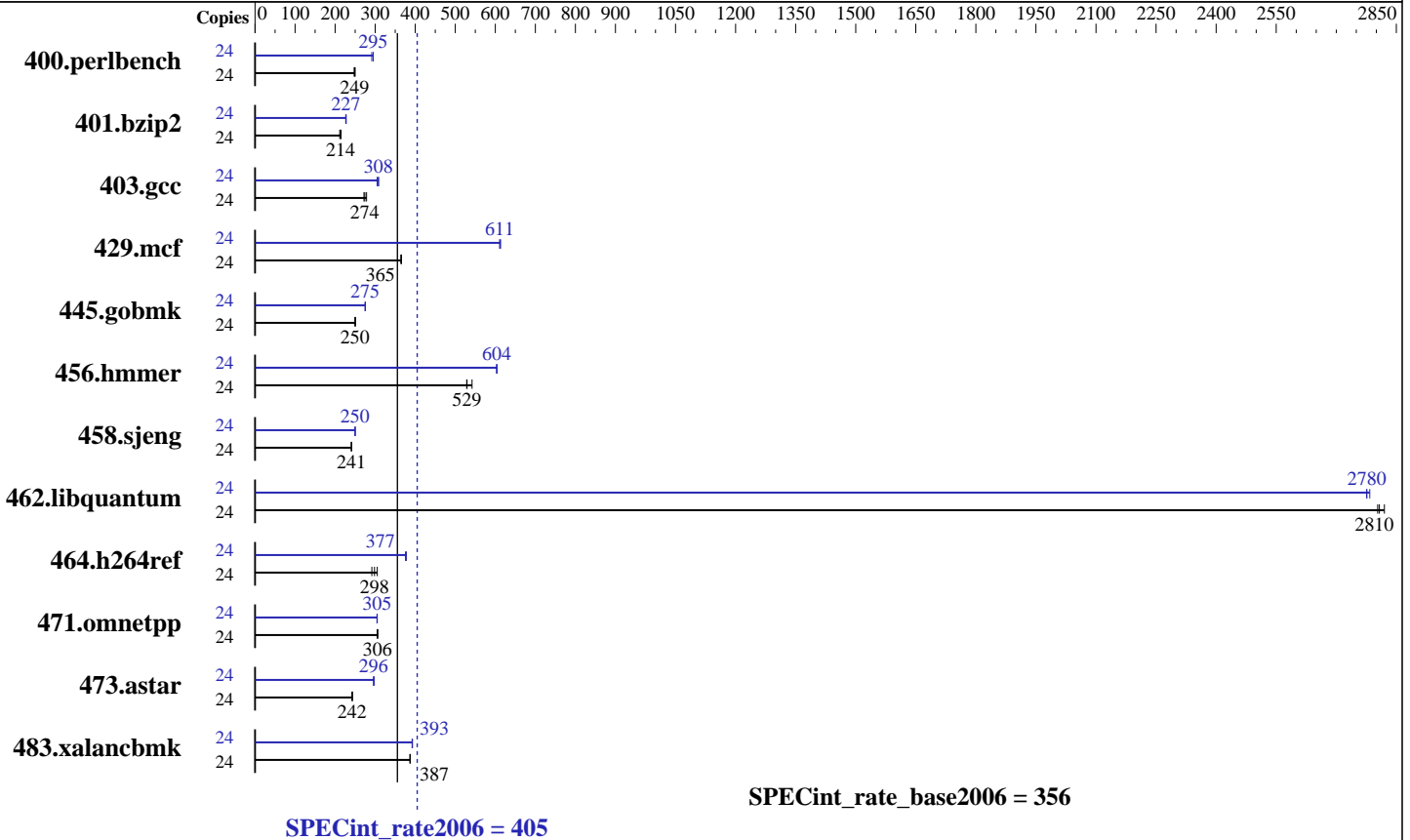
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Nov-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: 24 cores, 2 chips, 12 cores/chip  
 CPU(s) orderable: 1,2 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 (16 x 16 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 500 GB SATAIII, 7200 RPM  
 Other Hardware: None

### Software

Operating System: CentOS 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 A+ Server 2022G-URF  
(H8DGPU-F, AMD Opteron 6338P)

SPECint\_rate2006 = 405

SPECint\_rate\_base2006 = 356

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Nov-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	24	<b>943</b>	<b>249</b>	947	248	938	250	24	<b>795</b>	<b>295</b>	794	295	804	291
401.bzip2	24	1079	215	<b>1084</b>	<b>214</b>	1095	211	24	1023	226	<b>1020</b>	<b>227</b>	1018	228
403.gcc	24	<b>704</b>	<b>274</b>	694	278	710	272	24	634	305	626	309	<b>628</b>	<b>308</b>
429.mcf	24	598	366	601	364	<b>600</b>	<b>365</b>	24	<b>358</b>	<b>611</b>	358	611	357	613
445.gobmk	24	1004	251	1008	250	<b>1008</b>	<b>250</b>	24	916	275	<b>915</b>	<b>275</b>	914	275
456.hammer	24	413	542	<b>423</b>	<b>529</b>	424	529	24	371	603	371	604	<b>371</b>	<b>604</b>
458.sjeng	24	1209	240	1204	241	<b>1205</b>	<b>241</b>	24	1162	250	1162	250	<b>1162</b>	<b>250</b>
462.libquantum	24	177	2800	176	2820	<b>177</b>	<b>2810</b>	24	179	2780	<b>179</b>	<b>2780</b>	179	2780
464.h264ref	24	1740	305	1821	292	<b>1780</b>	<b>298</b>	24	1407	378	1414	376	<b>1408</b>	<b>377</b>
471.omnetpp	24	489	307	492	305	<b>490</b>	<b>306</b>	24	492	305	493	304	<b>492</b>	<b>305</b>
473.astar	24	695	242	<b>695</b>	<b>242</b>	693	243	24	567	297	<b>569</b>	<b>296</b>	569	296
483.xalancbmk	24	428	387	<b>428</b>	<b>387</b>	428	387	24	421	393	422	392	<b>422</b>	<b>393</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 transparent\_hugepage=never as a boot parameter in /boot/grub/menu.lst

Set vm/nr\_hugepages=21504 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 = "896"

LD\_LIBRARY\_PATH = "/home/cpu2006/amd1206-rate-libs-revA/32:/home/cpu2006/amd1206-rate-libs-revA/64"

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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server 2022G-URF  
(H8DGPU-F, AMD Opteron 6338P)

SPECint\_rate2006 = 405

SPECint\_rate\_base2006 = 356

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Nov-2013

Hardware Availability: Jan-2014

Software Availability: Aug-2012

## Base Compiler Invocation

C benchmarks:  
opencc

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:  
-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 -lsmartheap

## Peak Compiler Invocation

C benchmarks:  
opencc

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 2022G-URF  
(H8DGU-F, AMD Opteron 6338P)

SPECint\_rate2006 = 405

SPECint\_rate\_base2006 = 356

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Nov-2013

Hardware Availability: Jan-2014

Software Availability: Aug-2012

## 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  
 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:bd=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:bd=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:bd=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

456.hmmer: -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:bd=2m:heap=2m  
 -CG:p2align=0 -CG:load\_exe=3 -CG:dsched=on -march=bdver1

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

SPECint\_rate2006 = 405

Supermicro A+ Server 2022G-URF  
(H8DGPU-F, AMD Opteron 6338P)

SPECint\_rate\_base2006 = 356

CPU2006 license: 001176

Test date: Nov-2013

Test sponsor: Supermicro

Hardware Availability: Jan-2014

Tested by: Supermicro

Software Availability: Aug-2012

## Peak Optimization Flags (Continued)

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:bd=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:bd=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:bd=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/amd-Supermicro-platform-rate-revC-I.html>  
<http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-III.html>

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

<http://www.spec.org/cpu2006/flags/amd-Supermicro-platform-rate-revC-I.xml>  
<http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-III.xml>



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

Supermicro A+ Server 2022G-URF  
(H8DGU-F, AMD Opteron 6338P)

SPECint\_rate2006 = 405

SPECint\_rate\_base2006 = 356

**CPU2006 license:** 001176

**Test sponsor:** Supermicro

**Tested by:** Supermicro

**Test date:** Nov-2013

**Hardware Availability:** Jan-2014

**Software Availability:** Aug-2012

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 20:47:39 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 25 March 2014.