



# SPEC® CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Sugon

SPECint®\_rate2006 = 1200

### Sugon A320-G30 (AMD EPYC 7551P)

SPECint\_rate\_base2006 = 1070

CPU2006 license: 9046

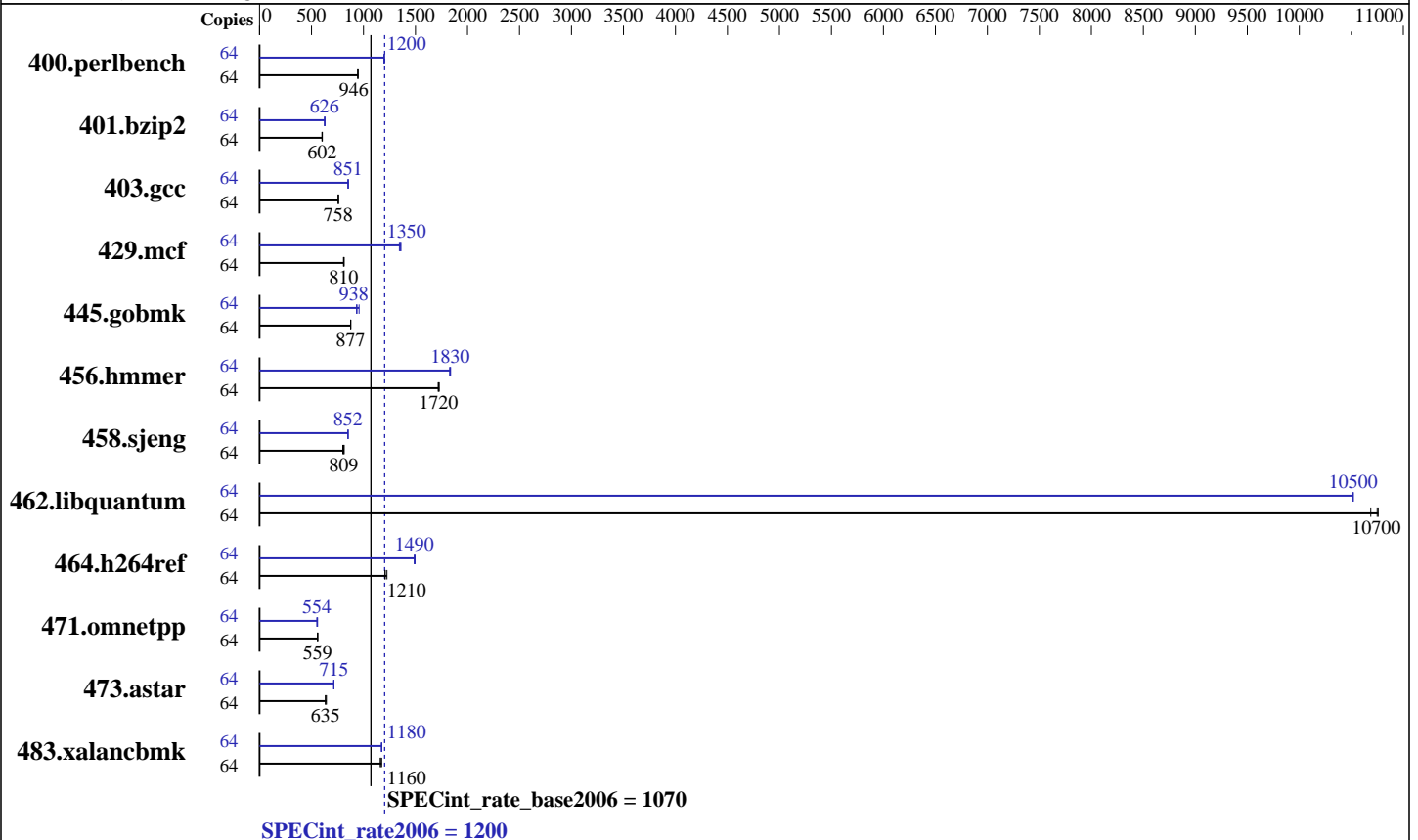
Test date: Dec-2017

Test sponsor: Sugon

Hardware Availability: Dec-2017

Tested by: Sugon

Software Availability: Oct-2017



### Hardware

CPU Name: AMD EPYC 7551P  
 CPU Characteristics: AMD Turbo CORE technology up to 3.00 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 1 chip, 32 cores/chip, 2 threads/core  
 CPU(s) orderable: 1 chip  
 Primary Cache: 64 KB I + 32 KB D on chip per core  
 Secondary Cache: 512 KB I+D on chip per core  
 L3 Cache: 64 MB I+D on chip per chip, 8 MB shared / 4 cores  
 Other Cache: None  
 Memory: 512 GB (8 x 64 GB 4Rx4 PC4-2667V-L)  
 Disk Subsystem: 1 x 2000 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server 7.4  
 Kernel 3.10.0-693.2.2  
 Compiler: C/C++: Version 4.5.2.1 of x86 Open64 Compiler Suite (from AMD)  
 Auto Parallel: No  
 File System: xfs  
 System State: Run level 3 (Multi User)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: MicroQuill SmartHeap 10.0 32-bit Library for Linux



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Sugon

SPECint\_rate2006 = 1200

### Sugon A320-G30 (AMD EPYC 7551P)

SPECint\_rate\_base2006 = 1070

CPU2006 license: 9046  
Test sponsor: Sugon  
Tested by: Sugon

Test date: Dec-2017  
Hardware Availability: Dec-2017  
Software Availability: Oct-2017

## Results Table

Benchmark	Base						Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	64	659	948	<b><u>661</u></b>	<b><u>946</u></b>	662	945	64	520	1200	522	1200	<b><u>521</u></b>	<b><u>1200</u></b>
401.bzip2	64	1022	604	1028	601	<b><u>1025</u></b>	<b><u>602</u></b>	64	988	625	<b><u>987</u></b>	<b><u>626</u></b>	980	630
403.gcc	64	678	760	681	756	<b><u>680</u></b>	<b><u>758</u></b>	64	<b><u>605</u></b>	<b><u>851</u></b>	602	855	606	851
429.mcf	64	<b><u>720</u></b>	<b><u>810</u></b>	717	814	723	807	64	<b><u>431</u></b>	<b><u>1350</u></b>	429	1360	434	1350
445.gobmk	64	765	877	766	877	<b><u>765</u></b>	<b><u>877</u></b>	64	701	958	719	933	<b><u>716</u></b>	<b><u>938</u></b>
456.hammer	64	345	1730	<b><u>347</u></b>	<b><u>1720</u></b>	347	1720	64	<b><u>326</u></b>	<b><u>1830</u></b>	327	1830	325	1840
458.sjeng	64	967	801	<b><u>957</u></b>	<b><u>809</u></b>	951	814	64	909	852	<b><u>909</u></b>	<b><u>852</u></b>	910	851
462.libquantum	64	123	10800	124	10700	<b><u>123</u></b>	<b><u>10700</u></b>	64	126	10500	126	10500	<b><u>126</u></b>	<b><u>10500</u></b>
464.h264ref	64	1156	1230	<b><u>1172</u></b>	<b><u>1210</u></b>	1173	1210	64	947	1500	951	1490	<b><u>951</u></b>	<b><u>1490</u></b>
471.omnetpp	64	<b><u>715</u></b>	<b><u>559</u></b>	714	560	718	557	64	725	552	716	558	<b><u>722</u></b>	<b><u>554</u></b>
473.astar	64	698	643	<b><u>708</u></b>	<b><u>635</u></b>	708	634	64	630	713	628	716	<b><u>629</u></b>	<b><u>715</u></b>
483.xalancbmk	64	376	1170	380	1160	<b><u>380</u></b>	<b><u>1160</u></b>	64	377	1170	376	1180	<b><u>376</u></b>	<b><u>1180</u></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

runspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>

Set dirty\_ratio=8 to limit dirty cache to 8% of memory  
Set swappiness=1 to swap only if necessary  
Set zone\_reclaim\_mode=1 to free local node memory and avoid remote memory  
sync then drop\_caches=3 to reset caches before invoking runcpu

Transparent huge pages were enabled for this run (OS default)

Set vm/nr\_hugepages=57344 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages

## Platform Notes

BIOS settings:  
Determinism Slider = Power  
cTDP Control = Manual

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Sugon

SPECint\_rate2006 = 1200

Sugon A320-G30 (AMD EPYC 7551P)

SPECint\_rate\_base2006 = 1070

CPU2006 license: 9046  
Test sponsor: Sugon  
Tested by: Sugon

Test date: Dec-2017  
Hardware Availability: Dec-2017  
Software Availability: Oct-2017

## Platform Notes (Continued)

cTDP = 200

## General Notes

Environment variables set by runspec before the start of the run:

HUGETLB\_LIMIT = "896"

LD\_LIBRARY\_PATH = "/home/cpu2006/amd1603-rate-libs-revB/32:/home/cpu2006/amd1603-rate-libs-revB/64"

The binaries were built with the AMD supported x86 Open64 Compiler Suite, which is only available from AMD at

<http://developer.amd.com/tools-and-sdks/cpu-development/x86-open64-compiler-suite/>

Binaries were compiled on a system with 2 x AMD Opteron 6378 chips + 128 GB Memory using RHEL 6.3

## 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.hmmmer: -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 -mno-fma4 -mno-xop -mno-tbm

C++ benchmarks:  
-Ofast -m32 -INLINE:aggressive=on -CG:cmp\_peep=on -D\_\_OPEN64\_FAST\_SET  
-march=bdver1 -mno-fma4 -mno-xop -mno-tbm  
-L/root/work/libraries/SmartHeap-10/lib -lsmartheap



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Sugon

SPECint\_rate2006 = 1200

Sugon A320-G30 (AMD EPYC 7551P)

SPECint\_rate\_base2006 = 1070

CPU2006 license: 9046  
Test sponsor: Sugon  
Tested by: Sugon

Test date: Dec-2017  
Hardware Availability: Dec-2017  
Software Availability: Oct-2017

## Peak Compiler Invocation

C benchmarks:  
opencc

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  
-mno-fma4 -GRA:aggr\_loop\_splitting=off  
-GRA:loop\_splitting=off  
  
401.bzip2: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -Ofast  
-LNO:prefetch=2 -LNO:pf2=0 -OPT:alias=disjoint  
-OPT:goto=off -CG:local\_sched\_alg=1 -HP:bdt=2m:heap=2m  
-march=bdver2 -WB, -mno-fma4 -mno-tbm -mno-xop  
  
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 -WB, -mno-tbm  
-mno-xop  
  
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 -mno-fma4

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Sugon

SPECint\_rate2006 = 1200

Sugon A320-G30 (AMD EPYC 7551P)

SPECint\_rate\_base2006 = 1070

CPU2006 license: 9046

Test sponsor: Sugon

Tested by: Sugon

Test date: Dec-2017

Hardware Availability: Dec-2017

Software Availability: Oct-2017

## Peak Optimization Flags (Continued)

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 -mno-fma4

456.hmmr: -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  
 -mno-fma4

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 -mno-fma4

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 -mno-fma4

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  
 -mno-fma4

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 -mno-fma4

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



# SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

## Sugon

**SPECint\_rate2006 = 1200**

### Sugon A320-G30 (AMD EPYC 7551P)

**SPECint\_rate\_base2006 = 1070**

**CPU2006 license:** 9046

**Test sponsor:** Sugon

**Tested by:** Sugon

**Test date:** Dec-2017

**Hardware Availability:** Dec-2017

**Software Availability:** Oct-2017

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

<http://www.spec.org/cpu2006/flags/x86-openflags-rate-revA-I.html>

<http://www.spec.org/cpu2006/flags/Sugon-Naples-Platform-Settings-revC-I.html>

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

<http://www.spec.org/cpu2006/flags/x86-openflags-rate-revA-I.xml>

<http://www.spec.org/cpu2006/flags/Sugon-Naples-Platform-Settings-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 Wed Dec 27 12:04:46 2017 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 26 December 2017.