



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

SPECint®\_rate2006 = 207

Tyan YR190B8228, AMD Opteron 4174 HE

SPECint\_rate\_base2006 = 180

CPU2006 license: 49

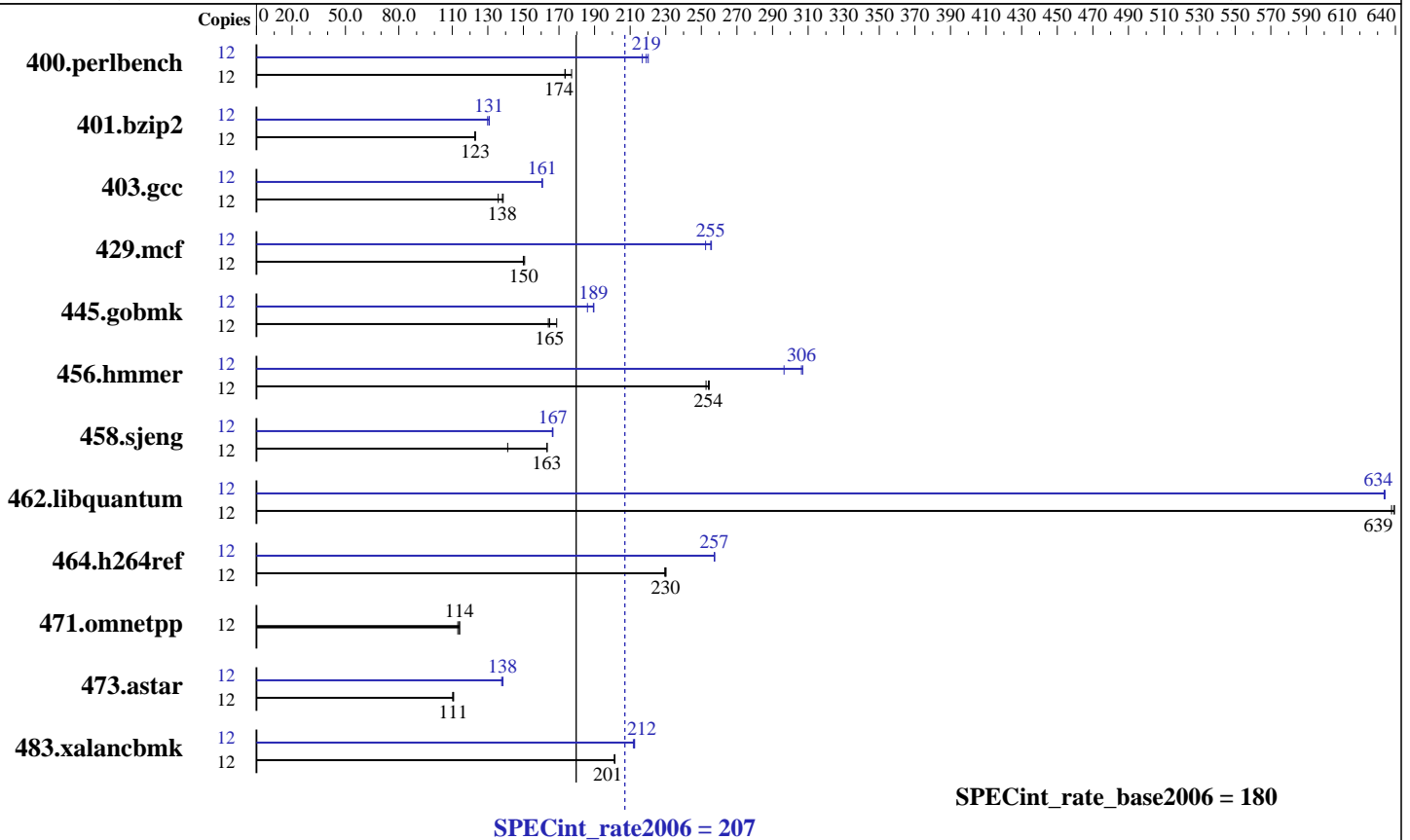
Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Aug-2010

Hardware Availability: Aug-2010

Software Availability: Jul-2010



## Hardware

CPU Name: AMD Opteron 4174 HE  
 CPU Characteristics:  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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: 6 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 32 GB (4 x 8 GB, DDR3-1333, CL9, Reg, Dual Rank)  
 Disk Subsystem: 1 x 128 GB SATA SSD,  
 Western Digital SiliconEdge Blue SSC-D0128SC-2100  
 Other Hardware: None

## Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64),  
 Kernel 2.6.27.19-5-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: SmartHeap 8.1 32-bit Library for Linux



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

SPECint\_rate2006 = 207

Tyan YR190B8228, AMD Opteron 4174 HE

SPECint\_rate\_base2006 = 180

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Aug-2010

Hardware Availability: Aug-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	12	662	177	676	173	<b>675</b>	<b>174</b>	12	541	217	533	220	<b>535</b>	<b>219</b>
401.bzip2	12	941	123	<b>942</b>	<b>123</b>	944	123	12	892	130	<b>886</b>	<b>131</b>	885	131
403.gcc	12	697	139	<b>699</b>	<b>138</b>	711	136	12	602	160	<b>602</b>	<b>161</b>	601	161
429.mcf	12	726	151	730	150	<b>729</b>	<b>150</b>	12	434	252	428	256	<b>429</b>	<b>255</b>
445.gobmk	12	746	169	<b>764</b>	<b>165</b>	767	164	12	<b>665</b>	<b>189</b>	677	186	664	190
456.hammer	12	<b>441</b>	<b>254</b>	443	253	440	254	12	378	296	365	307	<b>366</b>	<b>306</b>
458.sjeng	12	889	163	<b>890</b>	<b>163</b>	1029	141	12	873	166	<b>872</b>	<b>167</b>	872	167
462.libquantum	12	390	638	389	639	<b>389</b>	<b>639</b>	12	392	634	<b>392</b>	<b>634</b>	392	634
464.h264ref	12	1157	229	<b>1155</b>	<b>230</b>	1154	230	12	1032	257	1031	258	<b>1032</b>	<b>257</b>
471.omnetpp	12	663	113	657	114	<b>657</b>	<b>114</b>	12	663	113	657	114	<b>657</b>	<b>114</b>
473.astar	12	760	111	<b>761</b>	<b>111</b>	764	110	12	611	138	608	139	<b>609</b>	<b>138</b>
483.xalancbmk	12	412	201	<b>411</b>	<b>201</b>	411	201	12	390	212	<b>390</b>	<b>212</b>	391	212

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=5400 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 = "450"

LD\_LIBRARY\_PATH = "/root/work/cpu2006/amd1002li-rate-libs-revC/64:/root/work/cpu2006/amd1002li-rate-libs-revC/32"

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

Binaries were compiled on SLES10 SP2 with binutils 2.18



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Tyan**

(Test Sponsor: Advanced Micro Devices)

**SPECint\_rate2006 = 207**

**Tyan YR190B8228, AMD Opteron 4174 HE**

**SPECint\_rate\_base2006 = 180**

**CPU2006 license:** 49

**Test sponsor:** Advanced Micro Devices

**Tested by:** Advanced Micro Devices

**Test date:** Aug-2010

**Hardware Availability:** Aug-2010

**Software Availability:** Jul-2010

## 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:  
-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:  
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

**Tyan**

(Test Sponsor: Advanced Micro Devices)

**SPECint\_rate2006 = 207**

**Tyan YR190B8228, AMD Opteron 4174 HE**

**SPECint\_rate\_base2006 = 180**

**CPU2006 license:** 49

**Test sponsor:** Advanced Micro Devices

**Tested by:** Advanced Micro Devices

**Test date:** Aug-2010

**Hardware Availability:** Aug-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

**Tyan**

(Test Sponsor: Advanced Micro Devices)

**SPECint\_rate2006 = 207**

**Tyan YR190B8228, AMD Opteron 4174 HE**

**SPECint\_rate\_base2006 = 180**

**CPU2006 license:** 49

**Test sponsor:** Advanced Micro Devices

**Tested by:** Advanced Micro Devices

**Test date:** Aug-2010

**Hardware Availability:** Aug-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.html>

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

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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Tyan**

(Test Sponsor: Advanced Micro Devices)

**SPECint\_rate2006 = 207**

**Tyan YR190B8228, AMD Opteron 4174 HE**

**SPECint\_rate\_base2006 = 180**

**CPU2006 license:** 49

**Test sponsor:** Advanced Micro Devices

**Tested by:** Advanced Micro Devices

**Test date:** Aug-2010

**Hardware Availability:** Aug-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 12:09:58 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 31 August 2010.