



SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190-B8228
AMD Opteron 4276 HE

SPECint®_rate2006 = 259

SPECint_rate_base2006 = 230

CPU2006 license: 49

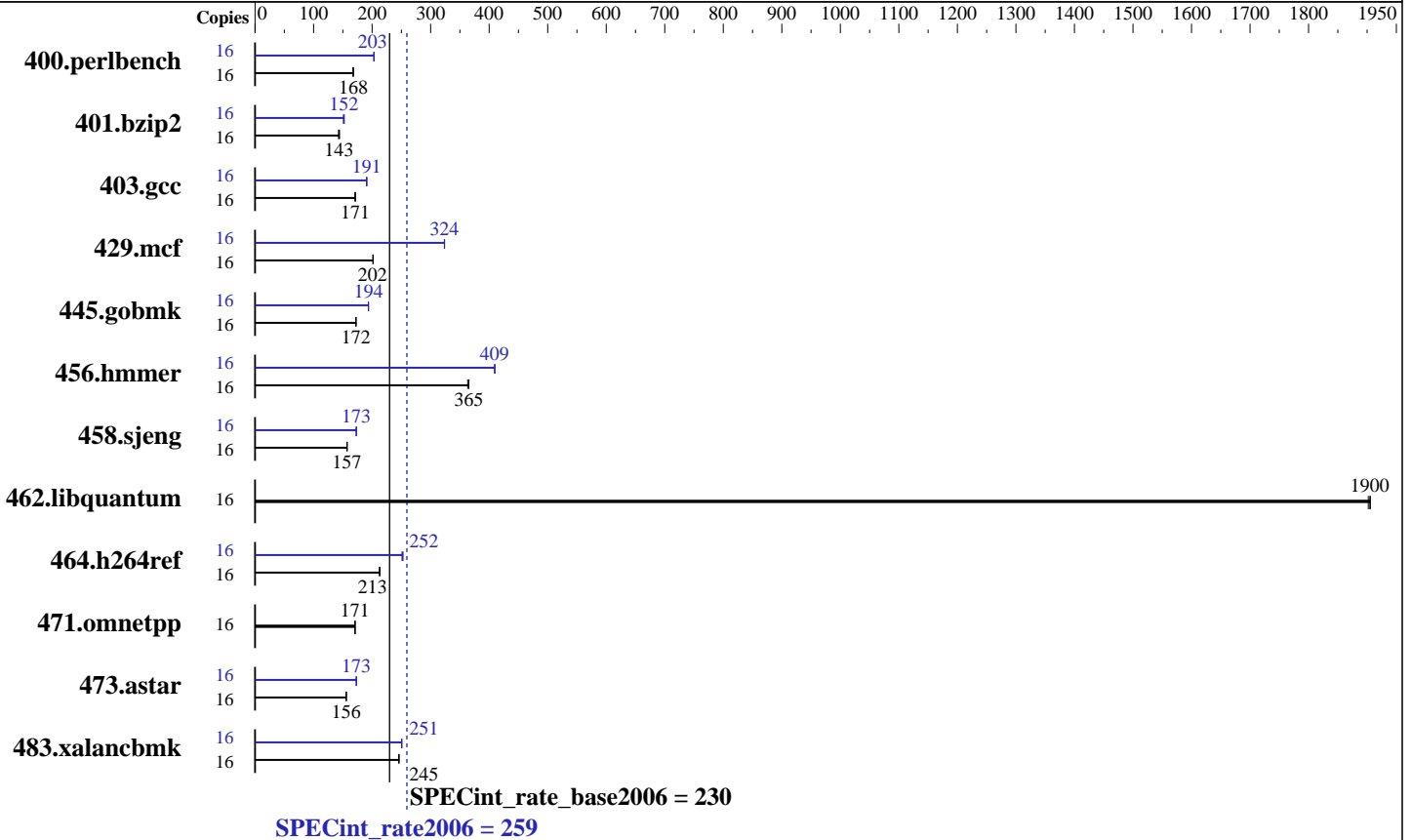
Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Mar-2012

Hardware Availability: Jun-2012

Software Availability: Jul-2011



Hardware

CPU Name: AMD Opteron 4276 HE
 CPU Characteristics: AMD Turbo CORE technology up to 3.60 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
 CPU(s) orderable: 1,2 chips
 Primary Cache: 256 KB I on chip per chip,
 64 KB I shared / 2 cores;
 16 KB D on chip per core
 Secondary Cache: 8 MB I+D on chip per chip, 2 MB shared / 2 cores
 L3 Cache: 8 MB I+D on chip per chip
 Other Cache: None
 Memory: 32 GB (4 x 8 GB 2Rx4 PC3-12800R-11, ECC)
 Disk Subsystem: 1 x 128 GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.1,
 Kernel 2.6.32-131.0.15.el6.x86_64
 Compiler: C/C++: Version 4.5.1 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

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190-B8228
AMD Opteron 4276 HE

SPECint_rate2006 = 259

SPECint_rate_base2006 = 230

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Mar-2012

Hardware Availability: Jun-2012

Software Availability: Jul-2011

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	<u>932</u>	<u>168</u>	931	168	932	168	16	770	203	<u>769</u>	<u>203</u>	769	203
401.bzip2	16	1069	144	<u>1077</u>	<u>143</u>	1082	143	16	<u>1018</u>	<u>152</u>	1013	152	1023	151
403.gcc	16	<u>752</u>	<u>171</u>	752	171	754	171	16	<u>675</u>	<u>191</u>	677	190	674	191
429.mcf	16	<u>724</u>	<u>202</u>	724	202	723	202	16	451	324	<u>451</u>	<u>324</u>	451	324
445.gobmk	16	973	173	<u>974</u>	<u>172</u>	974	172	16	867	194	866	194	<u>866</u>	<u>194</u>
456.hammer	16	411	363	<u>409</u>	<u>365</u>	409	365	16	365	409	<u>365</u>	<u>409</u>	364	410
458.sjeng	16	1228	158	1235	157	<u>1233</u>	<u>157</u>	16	1119	173	<u>1119</u>	<u>173</u>	1119	173
462.libquantum	16	174	1910	<u>174</u>	<u>1900</u>	174	1900	16	174	1910	<u>174</u>	<u>1900</u>	174	1900
464.h264ref	16	<u>1664</u>	<u>213</u>	1665	213	1662	213	16	<u>1406</u>	<u>252</u>	1400	253	1410	251
471.omnetpp	16	586	171	<u>585</u>	<u>171</u>	585	171	16	586	171	<u>585</u>	<u>171</u>	585	171
473.astar	16	721	156	<u>721</u>	<u>156</u>	721	156	16	649	173	<u>649</u>	<u>173</u>	649	173
483.xalancbmk	16	448	246	450	245	<u>450</u>	<u>245</u>	16	440	251	441	250	<u>441</u>	<u>251</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

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

Huge pages were not configured for this run.

Set kernel/randomize_va_space=0 in /etc/sysctl.conf

General Notes

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

LD_LIBRARY_PATH = "/root/work/cpu2006v1.2/amd1104-rate-libs-revC/32:/root/work/cpu2006v1.2/amd1104-rate-libs-revC/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 6274 chips + 64GB Memory using RHEL 6.1



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190-B8228
AMD Opteron 4276 HE

SPECint_rate2006 = 259

SPECint_rate_base2006 = 230

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Mar-2012

Hardware Availability: Jun-2012

Software Availability: Jul-2011

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=bdver1 -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

C++ benchmarks:
-march=bdver1 -Ofast -m32 -INLINE:aggressive=on -CG:cmp_peep=on
-D__OPEN64_FAST_SET -L/root/work/libraries/SmartHeap-10/lib -lsmarheap

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)

Tyan YR190-B8228
AMD Opteron 4276 HE

SPECint_rate2006 = 259

SPECint_rate_base2006 = 230

CPU2006 license: 49
Test sponsor: Advanced Micro Devices
Tested by: Advanced Micro Devices

Test date: Mar-2012
Hardware Availability: Jun-2012
Software Availability: Jul-2011

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=bdver1 -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

401.bzip2: -march=bdver1 -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

403.gcc: -march=bdver1 -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

429.mcf: -march=bdver1 -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

445.gobmk: -march=bdver1 -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

456.hmmer: -march=bdver1 -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

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190-B8228
AMD Opteron 4276 HE

SPECint_rate2006 = 259

SPECint_rate_base2006 = 230

CPU2006 license: 49
Test sponsor: Advanced Micro Devices
Tested by: Advanced Micro Devices

Test date: Mar-2012
Hardware Availability: Jun-2012
Software Availability: Jul-2011

Peak Optimization Flags (Continued)

458.sjeng: -march=bdver1 -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

462.libquantum: basepeak = yes

464.h264ref: -march=bdver1 -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

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -TENV:frame_pointer=off
-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 -m32
-HP:bd=2m:heap=2m

483.xalancbmk: -march=bdver1 -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
-L/root/work/libraries/SmartHeap-10/lib -lsmartheap

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/x86-open64-451-flags-rate-revC-I.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/x86-open64-451-flags-rate-revC-I.xml>



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Tyan

(Test Sponsor: Advanced Micro Devices)

Tyan YR190-B8228
AMD Opteron 4276 HE

SPECint_rate2006 = 259

SPECint_rate_base2006 = 230

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Mar-2012

Hardware Availability: Jun-2012

Software Availability: Jul-2011

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.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 04:26:12 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 6 June 2012.