



SPEC® CINT2006 Result

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Acer Incorporated

SPECint®_rate2006 = 279

Acer AW2000h-AW175h F1 (AMD Opteron 6212)

SPECint_rate_base2006 = 247

CPU2006 license: 97

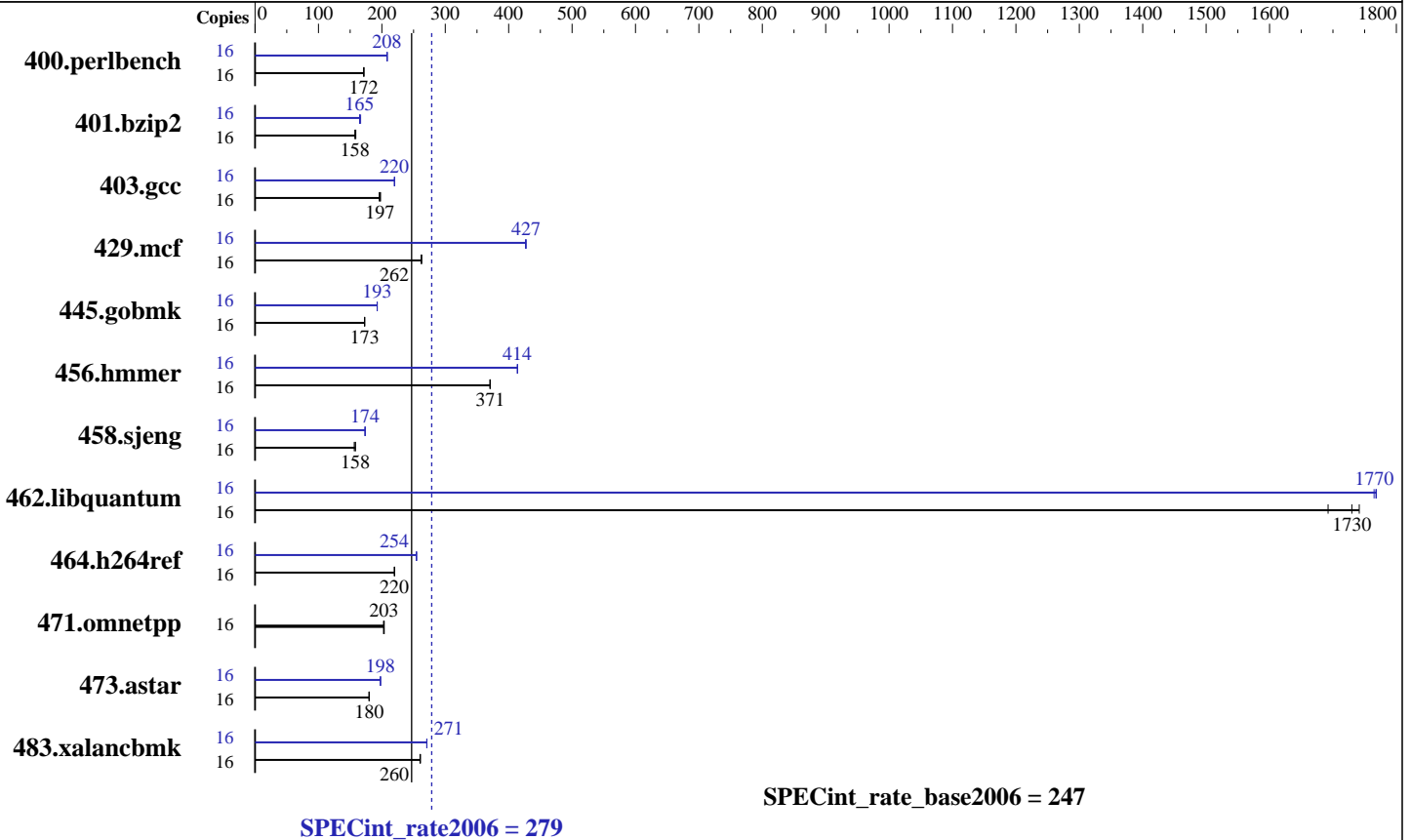
Test date: Dec-2011

Test sponsor: Acer Incorporated

Hardware Availability: Nov-2011

Tested by: Acer Incorporated

Software Availability: Jul-2011



Hardware

CPU Name: AMD Opteron 6212
 CPU Characteristics: AMD Turbo CORE technology up to 3.20 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: 16 MB I+D on chip per chip, 8 MB shared / 4 cores
 Other Cache: None
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-10600R-9, ECC)
 Disk Subsystem: 1 x 1000 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++/Fortran: Version 4.2.5.2 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



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	<u>911</u>	<u>172</u>	911	172	912	171	16	751	208	749	209	<u>751</u>	<u>208</u>
401.bzip2	16	972	159	<u>978</u>	<u>158</u>	980	158	16	936	165	927	167	<u>936</u>	<u>165</u>
403.gcc	16	658	196	654	197	651	198	16	586	220	585	220	585	220
429.mcf	16	557	262	555	263	556	262	16	341	427	341	427	342	427
445.gobmk	16	<u>971</u>	<u>173</u>	970	173	972	173	16	872	193	871	193	871	193
456.hammer	16	<u>403</u>	<u>371</u>	402	371	403	370	16	361	414	361	414	361	414
458.sjeng	16	<u>1225</u>	<u>158</u>	1237	156	1224	158	16	1116	174	1117	173	1113	174
462.libquantum	16	<u>192</u>	<u>1730</u>	190	1740	196	1690	16	187	1770	188	1760	<u>188</u>	<u>1770</u>
464.h264ref	16	<u>1610</u>	<u>220</u>	1611	220	1610	220	16	1389	255	1392	254	<u>1392</u>	<u>254</u>
471.omnetpp	16	491	204	<u>492</u>	<u>203</u>	493	203	16	491	204	<u>492</u>	<u>203</u>	493	203
473.astar	16	624	180	625	180	624	180	16	568	198	568	198	567	198
483.xalancbmk	16	423	261	424	260	424	260	16	408	271	408	271	407	271

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

Set vm/nr_hugepages=14336 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

Platform Notes

BIOS Settings:
PowerNow = Disabled
Fan Speed Control Modes = Full Speed

General Notes

Environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "896"
LD_LIBRARY_PATH = "/usr/cpu2006/amd1104-rate-libs-revB/32:/usr/cpu2006/amd1104-rate-libs-revB/64"

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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 6282SE chips + 64GB Memory using RHEL 6.1

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.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:
openc

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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
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:bd=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:bd=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
          -GRA:prioritize_by_density=on -m32 -HP:bd=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

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Peak Optimization Flags (Continued)

```
456.hmmmer: -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:bd=2m:heap=2m
```

```
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:bd=2m:heap=2m
           -WOPT:sib=on
```

```
462.libquantum: -march=bdver1 -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
                -INLINE:aggressive=on -IPA:plimit=15000 -IPA:small_pu=100
                -HP:bd=2m:heap=2m,limit=300
```

```
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
           -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 -GRA:unspill=on -TENV:frame_pointer=off
               -fno-emit-exceptions
               -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-open64-425-flags-rate-revB.html>

<http://www.spec.org/cpu2006/flags/acer-amd-platform-rate-revB.html>

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

<http://www.spec.org/cpu2006/flags/x86-open64-425-flags-rate-revB.xml>

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



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For other inquiries, please contact webmaster@spec.org.

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