SPEC® CINT2006 Result
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Tyan
(Test Sponsor: Advanced Micro Devices)

Tyan YR190B8228,
AMD Opteron 4180

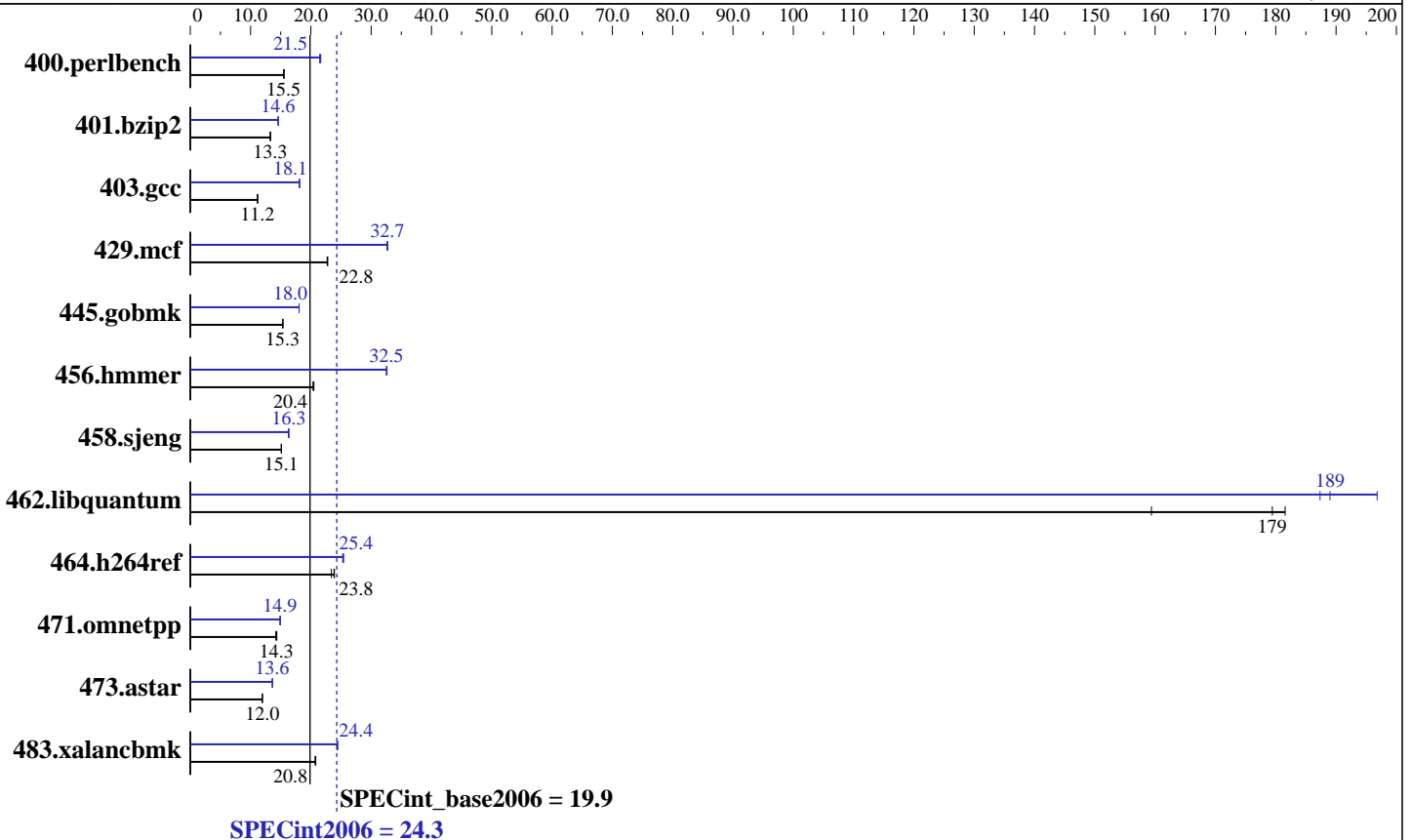SPECint®2006 = 24.3

SPECint_base2006 = 19.9

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-2010

Hardware Availability: Aug-2010

Software Availability: May-2010

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Hardware

CPU Name:	AMD Opteron 4180
CPU Characteristics:	
CPU MHz:	2600
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 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem:	1 x 128 GB SATA SSD Crucial RealSSD C300 CTFDDAC128MAG-1G1
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler:	x86 Open64 4.2.3.2 Compiler Suite (from AMD)
Auto Parallel:	Yes
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

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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	628	15.6	**631**	**15.5**	631	15.5	**455**	**21.5**	451	21.6	455	21.5
401.bzip2	726	13.3	**727**	**13.3**	727	13.3	663	14.6	**662**	**14.6**	661	14.6
403.gcc	720	11.2	**721**	**11.2**	723	11.1	444	18.1	**445**	**18.1**	445	18.1
429.mcf	400	22.8	**401**	**22.8**	402	22.7	279	32.7	**279**	**32.7**	279	32.6
445.gobmk	683	15.4	684	15.3	**684**	**15.3**	581	18.1	**581**	**18.0**	581	18.0
456.hmmer	458	20.4	455	20.5	**457**	**20.4**	286	32.6	**287**	**32.5**	287	32.5
458.sjeng	802	15.1	**801**	**15.1**	800	15.1	**740**	**16.3**	740	16.3	744	16.3
462.libquantum	130	159	114	182	**115**	**179**	**110**	**189**	105	197	111	187
464.h264ref	**928**	**23.8**	926	23.9	946	23.4	876	25.3	**873**	**25.4**	870	25.4
471.omnetpp	435	14.4	**438**	**14.3**	441	14.2	420	14.9	419	14.9	**419**	**14.9**
473.astar	**587**	**12.0**	587	12.0	589	11.9	**516**	**13.6**	516	13.6	515	13.6
483.xalancbmk	**332**	**20.8**	332	20.8	333	20.7	282	24.5	**283**	**24.4**	284	24.3

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=2000 in /etc/sysctl.conf
    mount -t hugetlbfs nodev /mnt/hugepages

    powersave -f was used to set the CPU frequency to its maximum.

    Binaries were compiled on SLES10 SP2 with binutils 2.18

General Notes

    Environment variables set by runspec before the start of the run:
    LD_LIBRARY_PATH = "/root/work/cpu2006/amd1002-speed-libs-revA/64:/root/work/cpu2006/amd1002-speed-libs-revA/32"
    O64_OMP_AFFINITY_MAP = "0,1,2,3,4,5,6,7,8,9,10,11"
    O64_OMP_SPIN_USER_LOCK = "true"

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

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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 -Ofast -apo -CG:local_sched_alg=1`
    `-HP:bdt=2m:heap=2m,limit=450 -LNO:parallel_overhead=10000`

C++ benchmarks:
    `-march=barcelona -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`
            401.bzip2: `-DSPEC_CPU_LP64`

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Peak Portability Flags (Continued)

```
   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 -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 -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 -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 -O3 -ipa -INLINE:aggressive=on
               -CG:gcm=off -GRA:prioritize_by_density=on -m32
               -HP:bdt=2m:heap=2m

   445.gobmk: -march=barcelona -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 -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
```

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Peak Optimization Flags (Continued)

458.sjeng: `-march=barcelona -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 -IPA:min_hotness=32 -CG:ptr_load_use=0`
`-OPT:unroll_times_max=8 -INLINE:aggressive=on`
`-HP:bdt=2m:heap=2m`

462.libquantum: `-march=barcelona -Ofast -apo -LNO:pf2=0 -CG:gcm=off`
`-CG:use_prefetchnta=on -CG:cmp_peep=on -WOPT:aggstr=0`
`-OPT:alias=disjoint -INLINE:aggressive=on -IPA:space=1000`
`-IPA:plimit=20000 -mso`

464.h264ref: `-march=barcelona -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 -HP:bdt=2m:heap=2m`

C++ benchmarks:

471.omnetpp: `-march=barcelona -Ofast -CG:gcm=off -INLINE:aggressive=on`
`-WOPT:if_conv=0 -m32 -HP:bdt=2m:heap=2m`

473.astar: `-march=barcelona -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 -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 -lsmartheap`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/x86-open64-423-flags-speed-revA.20101207.html
http://www.spec.org/cpu2006/flags/amd-platform-speed-revA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/x86-open64-423-flags-speed-revA.20101207.xml
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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