Tyan
(Test Sponsor: Advanced Micro Devices)
Tyan YR190B8228, AMD Opteron 4176 HE

SPECint®2006 = 22.3
SPECint_base2006 = 18.4

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

CPU Name: AMD Opteron 4176 HE
CPU Characteristics:
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 6 cores, 1 chip, 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: 16 GB (2 x 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 128 GB SATA SSD
Other Hardware: None

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
SPEC CINT2006 Result

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Results Table

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<th>Ratio</th>
<th>Seconds</th>
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<td>14.0</td>
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<td>295</td>
<td>23.4</td>
</tr>
</tbody>
</table>

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=1000 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:
O64_OMP_AFFINITY_MAP = "0,1,2,3,4,5"
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

C benchmarks:
opencc

C++ benchmarks:
openCC

Peak Compiler Invocation

C benchmarks:
opencc

C++ benchmarks:
openCC

Peak Portability Flags

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Test sponsor: Advanced Micro Devices
Tested by: Advanced Micro Devices
Test date: Nov-2010
Hardware Availability: Aug-2010
Software Availability: May-2010

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: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:cm=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

Continued on next page
Peek 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:fussion=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

You can also download the XML flags sources by saving the following links:
## SPEC CINT2006 Result

**Tyran**  
(Test Sponsor: Advanced Micro Devices)

Tyran YR190B8228,  
AMD Opteron 4176 HE

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<tr>
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**Software Availability:** May-2010

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

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