



SPEC[®] CINT2006 Result

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Supermicro

Supermicro A+ Server AS-2042G-72RF4 (H8QG7-LN4F,
Opteron 6380)
AMD Opteron 6380

SPECint[®]_rate2006 = 1120

SPECint_rate_base2006 = 978

CPU2006 license: 001176

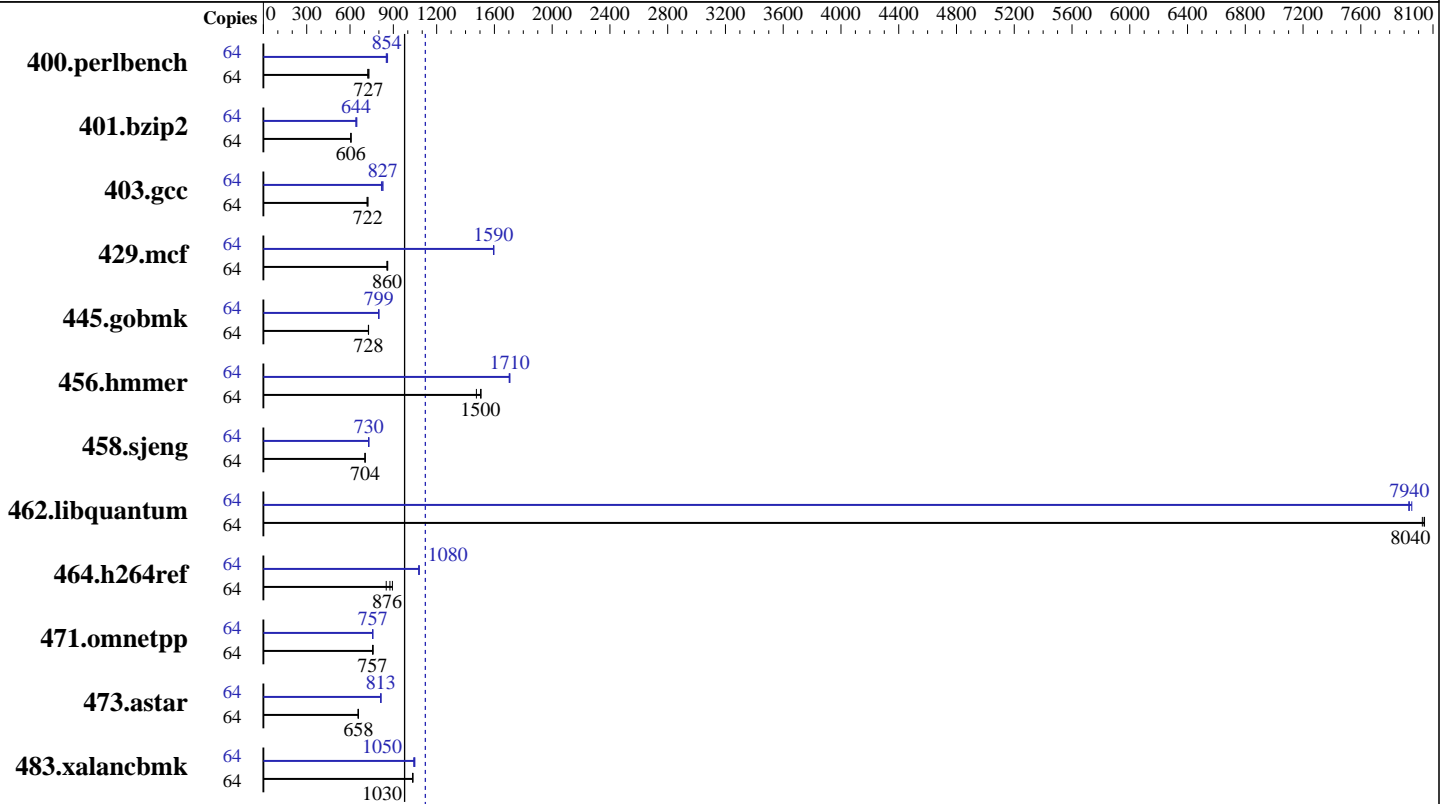
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Nov-2012

Hardware Availability: Nov-2012

Software Availability: Aug-2012



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Hardware

CPU Name: AMD Opteron 6380
 CPU Characteristics: AMD Turbo CORE technology up to 3.40 GHz
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 64 cores, 4 chips, 16 cores/chip
 CPU(s) orderable: 2,4 chips
 Primary Cache: 512 KB I on chip per chip,
 64 KB I shared / 2 cores;
 16 KB D on chip per core
 Secondary Cache: 16 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 / 8 cores
 Other Cache: None
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.2,
 Kernel 2.6.32-220.el6.x86_64
 Compiler: C/C++: Version 4.5.2 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	64	865	723	860	727	855	731	64	735	851	732	854	727	860
401.bzip2	64	1016	608	1019	606	1021	605	64	954	647	964	640	959	644
403.gcc	64	713	722	718	718	711	724	64	630	818	623	827	623	827
429.mcf	64	678	861	683	855	679	860	64	366	1590	366	1590	366	1600
445.gobmk	64	922	728	921	729	923	727	64	840	800	841	799	840	799
456.hammer	64	397	1500	405	1480	396	1510	64	350	1710	350	1710	351	1700
458.sjeng	64	1100	704	1100	704	1099	705	64	1061	730	1060	731	1064	728
462.libquantum	64	165	8030	165	8040	165	8040	64	167	7930	167	7950	167	7940
464.h264ref	64	1665	851	1616	876	1585	894	64	1312	1080	1315	1080	1316	1080
471.omnetpp	64	526	760	529	757	529	757	64	528	757	528	758	528	757
473.astar	64	685	655	683	658	683	658	64	553	813	552	814	553	813
483.xalancbmk	64	427	1030	426	1040	427	1030	64	421	1050	424	1040	422	1050

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 vm/nr_hugepages=57344 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 = "896"

LD_LIBRARY_PATH = "/home/spec/amd1206-rate-libs-revA/32:/home/spec/amd1206-rate-libs-revA/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 6386SE chips + 128GB Memory using RHEL 6.3



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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:
-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
-march=bdver1

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

Peak Compiler Invocation

C benchmarks:
opencc

C++ benchmarks:
openCC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64

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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
 473.astar: -DSPEC_CPU_LP64
 483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -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 -march=bdver1
 -GRA:aggr_loop_splitting=off -GRA:loop_splitting=off

401.bzip2: -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
 -march=bdver2

403.gcc: -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 -march=bdver2 -mno-fma4

429.mcf: -O3 -OPT:unroll_times_max=5 -ipa -INLINE:aggressive=on
 -CG:gcm=off -CG:dsched=on -GRA:prioritize_by_density=on
 -m32 -HP:bd=2m:heap=2m -mso -march=bdver1

445.gobmk: -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 -march=bdver1

456.hmmer: -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
 -CG:p2align=0 -CG:load_exe=3 -CG:dsched=on -march=bdver1

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Peak Optimization Flags (Continued)

458.sjeng: -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 -march=bdver1

462.libquantum: -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 -CG:p2align=0 -INLINE:aggressive=ON
-IPA:plimit=15000 -IPA:small_pu=100
-HP:bd=2m:heap=2m,limit=300 -march=bdver2

464.h264ref: -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 -march=bdver1

C++ benchmarks:

471.omnetpp: -Ofast -m32 -INLINE:aggressive=on -CG:cmp_peep=on
-WOPT:sib=on -D__OPEN64_FAST_SET -march=bdver2 -mno-fma4
-L/root/work/libraries/SmartHeap-10/lib -lsmarheap

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

483.xalancbmk: -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 -march=bdver2
-mno-fma4
-L/root/work/libraries/SmartHeap-10/lib -lsmarheap

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

<http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-I.html>

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

<http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-I.xml>



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