## SPEC® CINT2006 Result

**Supermicro**

Supermicro A+ Server AS-2042G-7RF4 (H8QG7-LN4F, Opteron 6386 SE)
AMD Opteron 6386 SE

<table>
<thead>
<tr>
<th>CPU2006 license</th>
<th>001176</th>
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<tbody>
<tr>
<td>Test sponsor</td>
<td>Supermicro</td>
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<td>Tested by</td>
<td>Supermicro</td>
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</tbody>
</table>

**SPECint® rate2006 = 1230**

**SPECint_rate_base2006 = 1070**

### Hardware

- **CPU Name:** AMD Opteron 6386 SE
- **CPU Characteristics:** AMD Turbo CORE technology up to 3.50 GHz
- **CPU MHz:** 2800
- **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
- **Memory:** 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)
- **Disk Subsystem:** 1 x 500 GB SATA, 7200 RPM
- **Other Cache:** None
- **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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**Test date:** Nov-2012
**Hardware Availability:** Nov-2012
**Software Availability:** Aug-2012
Supermicro

Supermicro A+ Server AS-2042G-72RF4 (H8QG7-LN4F, Opteron 6386 SE)  
AMD Opteron 6386 SE

CPU2006 license: 001176  
Test sponsor: Supermicro  
Tested by: Supermicro

SPEC_rate2006 = 1230  
SPECint_rate_base2006 = 1070

Results Table

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</table>

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
Supermicro
Supermicro A+ Server AS-2042G-72RF4 (H8QG7-LN4F, Opteron 6386 SE)
AMD Opteron 6386 SE

SPECint_rate2006 = 1230
SPECint_rate_base2006 = 1070

CPU2006 license: 001176
Test date: Nov-2012
Test sponsor: Supermicro
Hardware Availability: Nov-2012
Tested by: Supermicro
Software Availability: Aug-2012

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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**SPEC CINT2006 Result**

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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:smallPu=200
-WOPT:sib=on -march=bdver2 -m32 -march=bdver1

429.mcf: -O3 -OPT:unroll_times_max=5 -ipa -INLINE:aggressive=on
-CG:gc=off -CG:dsched=on -GRA:prioritize_by_density=on
-m32 -HP:bd=2m:heap=2m -ms0 -march=bdver1

445.gobmk: -fb_create_fbdata(pass 1) -fb_opt_fbdata(pass 2) -O3
-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
-HP:bd=2m:heap=2m

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
-HP:bd=2m:heap=2m

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Supermicro A+ Server AS-2042G-72RF4 (H8QG7-LN4F, Opteron 6386 SE)

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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 -lsmartheap

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
-LINLINE: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 -lsmartheap

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

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

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