SPEC® CINT2006 Result
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Supermicro

Supermicro A+ Server 1012G-MTF
(H8SGL-F, AMD Opteron 6262 HE)

$SPECint^{®}_rate2006 = $ 187

$SPECint_rate_base2006 = $ 166

CPU2006 license: 001176	**Test date:** May-2012
Test sponsor: Supermicro	**Hardware Availability:** Nov-2011
Tested by: Supermicro	**Software Availability:** Dec-2011

Copies

Benchmark	Peak	Base
400.perlbench	139	114
401.bzip2	109	103
403.gcc	147	136
429.mcf	291	189
445.gobmk	131	118
456.hmmer	257	227
458.sjeng	121	111
462.libquantum	1260	1290
464.h264ref	161	137
471.omnetpp	142	
473.astar	132	112
483.xalancbmk	178	173

(All copies = 16)

SPECint_rate_base2006 = 166

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Hardware

CPU Name:	AMD Opteron 6262 HE
CPU Characteristics:	AMD Turbo CORE technology up to 2.90 GHz
CPU MHz:	1600
FPU:	Integrated
CPU(s) enabled:	16 cores, 1 chip, 16 cores/chip
CPU(s) orderable:	1 chip
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:	64 GB (8 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem:	1 x 300 GB SATA, 10000 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 4.5.1 of x86 Open64 Compiler Suite (from AMD)
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	SmartHeap 10.0 32-bit Library for Linux

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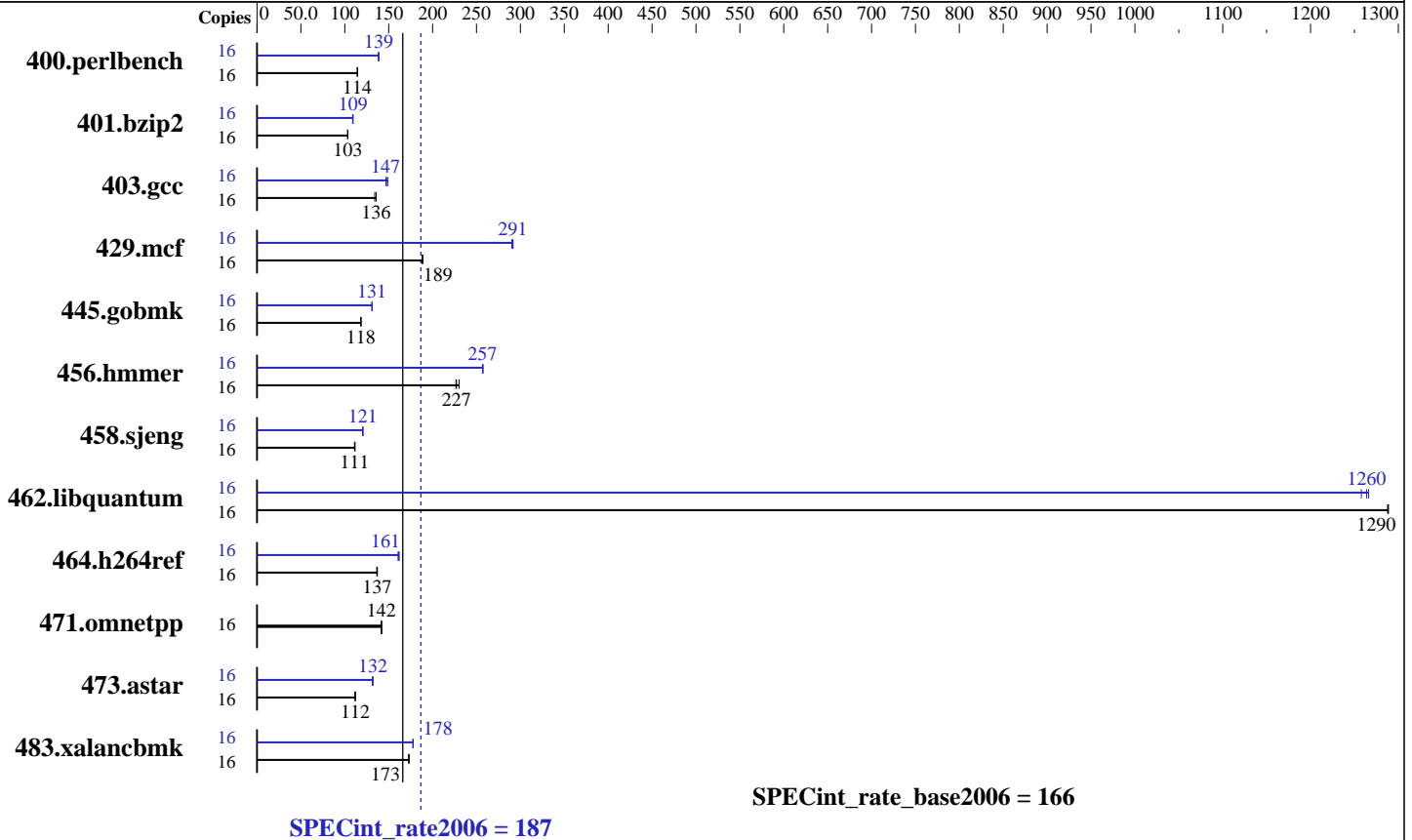
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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	1366	114	**1367**	**114**	1368	114	16	1126	139	**1128**	**139**	1130	138
401.bzip2	16	1496	103	1493	103	**1494**	**103**	16	1412	109	1418	109	**1413**	**109**
403.gcc	16	949	136	**949**	**136**	960	134	16	865	149	**874**	**147**	877	147
429.mcf	16	**774**	**189**	775	188	773	189	16	**501**	**291**	500	292	503	290
445.gobmk	16	**1418**	**118**	1418	118	1420	118	16	1281	131	**1281**	**131**	1282	131
456.hmmer	16	659	227	649	230	**657**	**227**	16	**581**	**257**	580	258	581	257
458.sjeng	16	**1737**	**111**	1743	111	1735	112	16	**1606**	**121**	1603	121	1610	120
462.libquantum	16	257	1290	**257**	**1290**	257	1290	16	264	1260	262	1270	**262**	**1260**
464.h264ref	16	2584	137	**2585**	**137**	2596	136	16	2203	161	2186	162	**2197**	**161**
471.omnetpp	16	706	142	**706**	**142**	704	142	16	706	142	**706**	**142**	704	142
473.astar	16	**1004**	**112**	1003	112	1006	112	16	**851**	**132**	850	132	855	131
483.xalancbmk	16	639	173	**638**	**173**	638	173	16	621	178	621	178	**621**	**178**

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=14336 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 = "/usr/cpu2006/amd1104-rate-libs-revC/32:/usr/cpu2006/amd1104-rate-libs-revC/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 6274 chips + 64GB Memory using RHEL 6.1

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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=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 -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
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:bdt=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:bdt=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 -CG:dsched=on
               -GRA:prioritize_by_density=on -m32 -HP:bdt=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

   456.hmmer: -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:bdt=2m:heap=2m
```

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Peak Optimization Flags (Continued)

```
    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:heap=2m:bd=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
               -CG:p2align=0 -INLINE:aggressive=ON -IPA:plimit=15000
               -IPA:small_pu=100 -HP:bdt=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:bdt=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
               -CG:p2align=1 -CG:dsched=on -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=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 -CG:p2align=1 -GRA:unspill=on
               -TENV:frame_pointer=off -fno-emit-exceptions
               -L/root/work/libraries/SmartHeap-10/lib -lsmartheap
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/x86-open64-451-flags-rate-revC-I.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/x86-open64-451-flags-rate-revC-I.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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