



SPEC® CINT2006 Result

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Supermicro

SPECint®_rate2006 = 136

A+ Server 1021M-UR+B, AMD Opteron 2384

SPECint_rate_base2006 = 113

CPU2006 license: 49

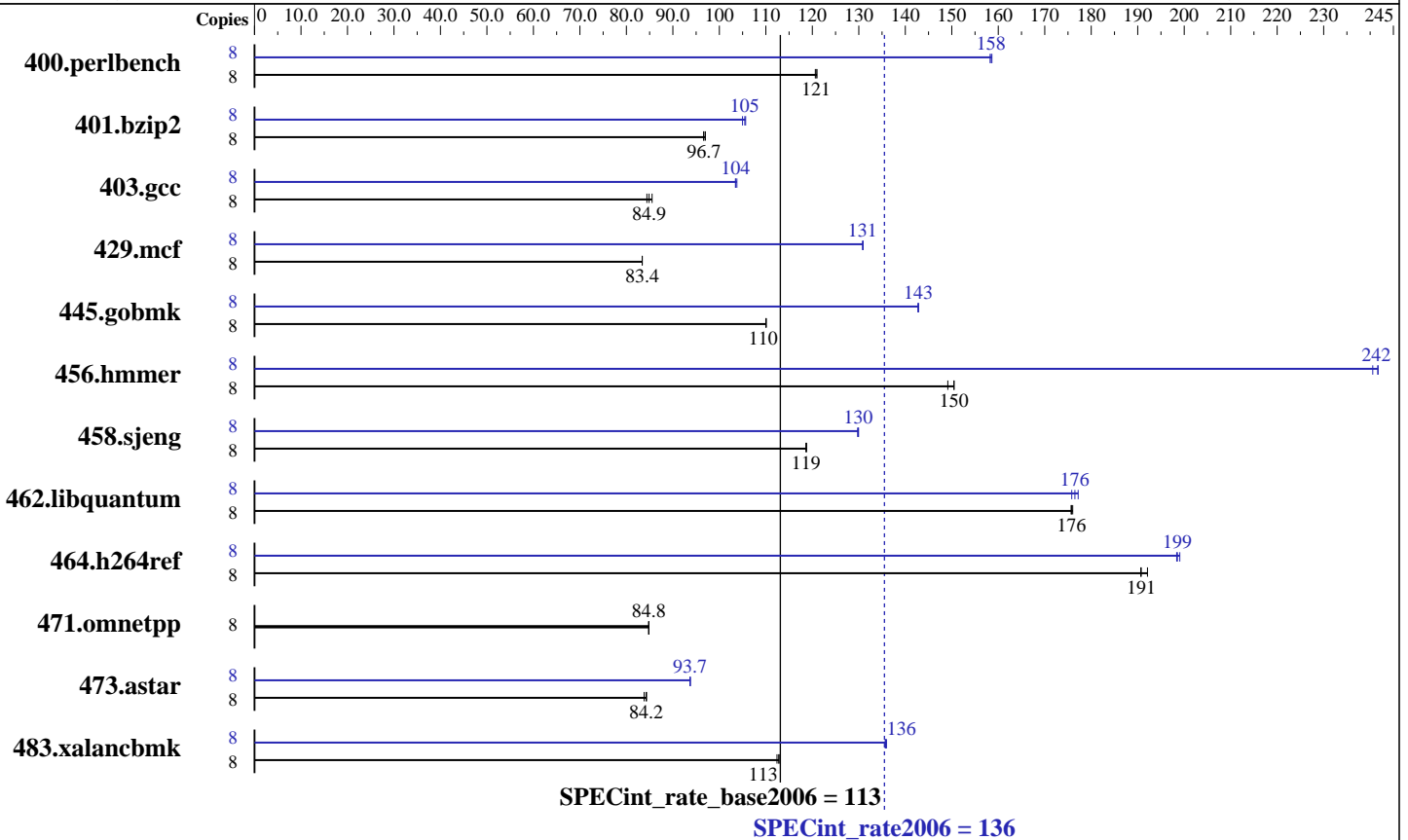
Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Oct-2008

Hardware Availability: Nov-2008

Software Availability: Jun-2008



Hardware

CPU Name: AMD Opteron 2384
 CPU Characteristics:
 CPU MHz: 2700
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 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 (8x4 GB, DDR2-800, CL5, Reg, Dual Rank)
 Disk Subsystem: 1 x 300 GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.2
 Auto Parallel: No
 File System: ReiserFS
 System State: Run level 3 (Full multiuser with network)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: binutils 2.18 32-bit and 64-bit libhugetlbfs libraries SmartHeap 8.1 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	8	648	121	646	121	647	121	8	493	158	494	158	493	159
401.bzip2	8	799	96.6	796	97.0	799	96.7	8	735	105	731	106	732	105
403.gcc	8	759	84.9	763	84.4	753	85.5	8	621	104	622	103	622	104
429.mcf	8	875	83.4	875	83.4	875	83.4	8	558	131	557	131	558	131
445.gobmk	8	763	110	762	110	763	110	8	588	143	588	143	587	143
456.hammer	8	496	150	500	149	496	150	8	309	242	310	241	309	242
458.sjeng	8	816	119	816	119	815	119	8	746	130	745	130	745	130
462.libquantum	8	942	176	943	176	944	176	8	936	177	939	176	943	176
464.h264ref	8	922	192	929	191	928	191	8	889	199	892	198	892	199
471.omnetpp	8	589	84.8	590	84.8	589	84.8	8	589	84.8	590	84.8	589	84.8
473.astar	8	670	83.8	667	84.2	666	84.3	8	599	93.7	599	93.8	600	93.7
483.xalancbmk	8	491	112	489	113	489	113	8	407	136	406	136	407	136

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

Operating System Notes

The libhugetlbfs libraries were installed using the installation rpms that came with the distribution.

'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=7168 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

General Notes

Environment variables set by runspec before the start of the run:

HUGETLB_MORECORE = "yes"

LD_LIBRARY_PATH = "/root/work/cpu2006-amd909gh/amd909gh-libs/64:/root/work/cpu2006-amd909gh/amd909gh-libs/32"



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Base Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

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:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
--zc_eh -Mipa=fast -Mipa=inline:10 -tp barcelona-32 -Bstatic_pgi

Base Other Flags

C benchmarks:

-Mipa=jobs:4

C++ benchmarks:

-Mipa=jobs:4

Peak Compiler Invocation

C benchmarks (except as noted below):

pathcc

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Peak Compiler Invocation (Continued)

456.hmmcr: pgcc

462.libquantum: pgcc

C++ benchmarks (except as noted below):

pgcpp

483.xalancbmk: pathCC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
 401.bzip2: -DSPEC_CPU_LP64
 445.gobmk: -DSPEC_CPU_LP64
 456.hmmcr: -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)
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
 -L/usr/lib64 -lhugetlbfs(pass 2) -Ofast -IPA:plimit=20000
 -IPA:field_reorder=on -LNO:opt=0 -WOPT:if_conv=0
 -CG:local_sched_alg=1

401.bzip2: -march=barcelona -O3 -OPT:alias=disjoint -OPT:Ofast
 -OPT:goto=off -INLINE:aggressive=on -CG:local_sched_alg=1
 -m3dnow
 -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT
 -L/usr/lib64 -lhugetlbfs

403.gcc: -march=barcelona -fb_create fbdata(pass 1)
 -fb_opt fbdata(pass 2) -Ofast -OPT:malloc_alg=1
 -LNO:trip_count=256 -LNO:prefetch_ahead=10
 -CG:prefer_lru_reg=off -m32

429.mcf: -march=barcelona -O3 -ipa -INLINE:aggressive=on
 -CG:gcm=off -GRA:prioritize_by_density=on -m32
 -L/usr/lib -lhugetlbfs

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Peak Optimization Flags (Continued)

```
445.gobmk: -march=barcelona -fb_create fbdata(pass 1)
           -fb_opt fbdata(pass 2)
           -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
           -L/usr/lib64 -lhugetlbfs(pass 2) -O3 -OPT:alias=restrict
           -LNO:prefetch=1 -LNO:ignore_feedback=off -CG:p2align=on
```

```
456.hmmr: -Mvect=cachesize:6291456 -fastsse -Mvect=partial
           -Munroll=n:8 -Msmartalloc=huge -Msafeptr -Mprefetch=t0
           -Mfprelaxed -Mipa=const -Mipa=ptr -Mipa=arg -Mipa=inline
           -tp barcelona-64 -Bstatic_pgi
```

```
458.sjeng: -march=barcelona -fb_create fbdata(pass 1)
           -fb_opt fbdata(pass 2)
           -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
           -L/usr/lib64 -lhugetlbfs(pass 2) -O3 -ipa
           -LNO:ignore_feedback=off -LNO:full_unroll=10 -LNO:fusion=0
           -LNO:fission=2 -IPA:pu_reorder=2 -CG:ptr_load_use=0
           -OPT:unroll_times_max=8 -INLINE:aggressive=on
```

```
462.libquantum: -Mvect=cachesize:6291456 -fastsse -Munroll=m:8
                -Msmartalloc=huge -Mprefetch=distance:4 -Mfprelaxed
                -Mipa=fast -Mipa=inline -Mipa=noarg -tp barcelona-64
                -Bstatic_pgi
```

```
464.h264ref: -march=barcelona -fb_create fbdata(pass 1)
             -fb_opt fbdata(pass 2)
             -Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
             -L/usr/lib64 -lhugetlbfs(pass 2) -O3 -IPA:plimit=20000
             -OPT:alias=disjoint -LNO:prefetch=0 -CG:ptr_load_use=0
             -CG:push_pop_int_saved_regs=off -CG:prefer_lru_reg=off
```

C++ benchmarks:

471.omnetpp: basepeak = yes

```
473.astar: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
           -Mipa=inline:6(pass 2) -Mvect=cachesize:6291456 -fastsse
           -O4 -Msmartalloc=huge -Msafeptr=global -Mfprelaxed
           --zc_eh -tp barcelona-32 -Bstatic_pgi
```

```
483.xalancbmk: -march=barcelona -Ofast -INLINE:aggressive=on -m32
               -L/root/work/libraries/SmartHeap_8.1/lib -lsmarheap
```

Peak Other Flags

Same as Base Other Flags



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The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/pgi72_linux_flags.html
http://www.spec.org/cpu2006/flags/CPU2006_flags.20081112.html
<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.html>

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/pgi72_linux_flags.xml
http://www.spec.org/cpu2006/flags/CPU2006_flags.20081112.xml
<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.xml>

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

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