# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

(Test Sponsor: Advanced Micro Devices)

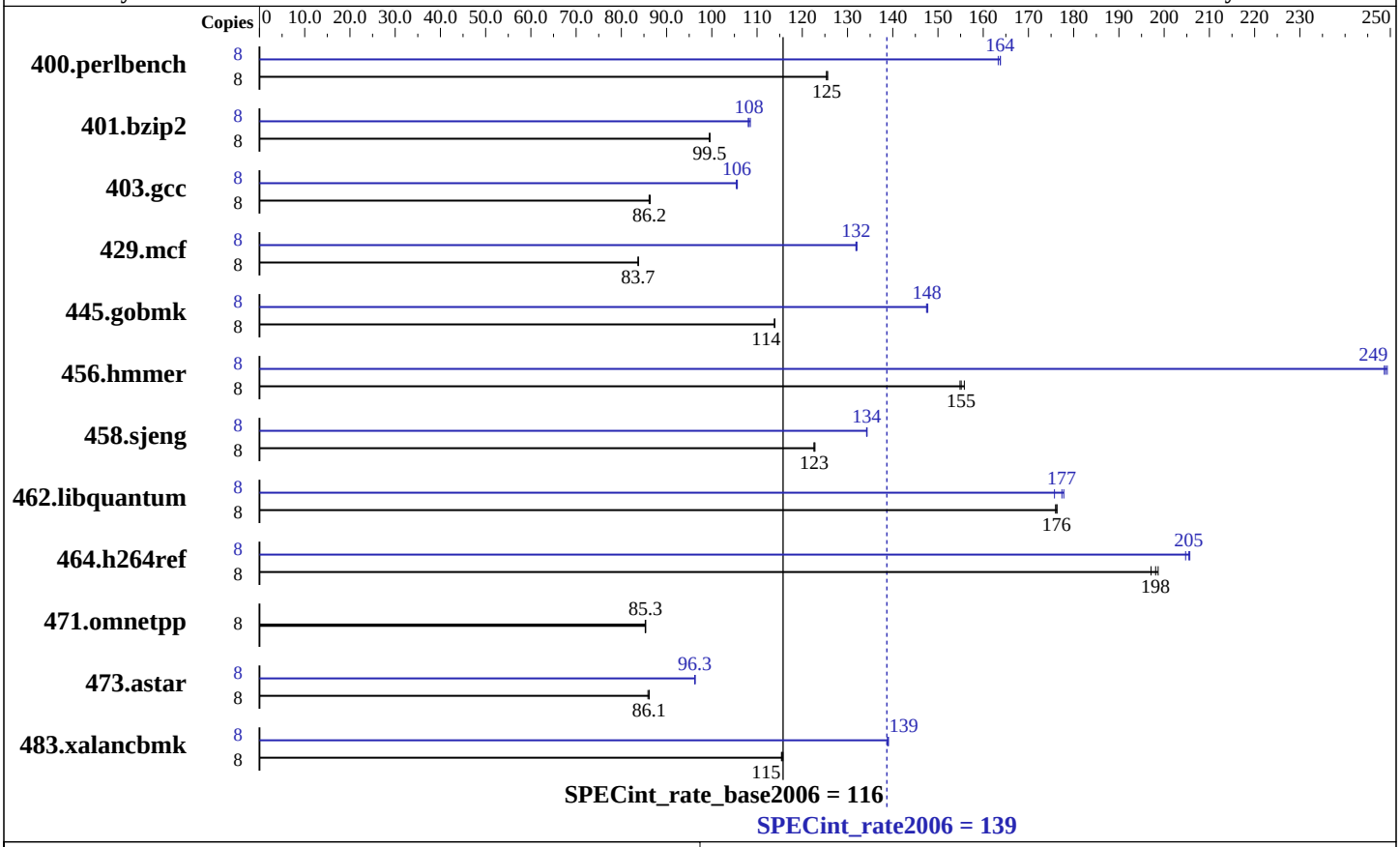
A+ Server 1021M-UR+B, AMD Opteron 2386 SE

SPECint®_rate2006 = 139

SPECint_rate_base2006 = 116

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

**Test date:** Dec-2008
**Hardware Availability:** Jan-2009
**Software Availability:** Jun-2008




## Hardware

| | |
|---|---|
| CPU Name: | AMD Opteron 2386 SE |
| CPU Characteristics: | |
| CPU MHz: | 2800 |
| 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 250 GB SATA, 7200 RPM |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smp |
| Compiler: | PGI Server Complete Version 7.2<br>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<br>32-bit and 64-bit libhugetlbfs libraries<br>SmartHeap 8.1 32-bit Library for Linux |

# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Supermicro
(Test Sponsor: Advanced Micro Devices)

A+ Server 1021M-UR+B, AMD Opteron 2386 SE

SPECint_rate2006 = 139

SPECint_rate_base2006 = 116

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

**Test date:** Dec-2008
**Hardware Availability:** Jan-2009
**Software Availability:** Jun-2008

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 8 | 624 | 125 | 622 | 126 | **623** | **125** | 8 | **477** | **164** | 477 | 164 | 479 | 163 |
| 401.bzip2 | 8 | **776** | **99.5** | 775 | 99.6 | 776 | 99.5 | 8 | 711 | 109 | **713** | **108** | 715 | 108 |
| 403.gcc | 8 | 746 | 86.4 | **747** | **86.2** | 748 | 86.1 | 8 | 610 | 106 | **610** | **106** | 611 | 105 |
| 429.mcf | 8 | **871** | **83.7** | 872 | 83.7 | 871 | 83.8 | 8 | 552 | 132 | **553** | **132** | 553 | 132 |
| 445.gobmk | 8 | **737** | **114** | 737 | 114 | 737 | 114 | 8 | 569 | 147 | 568 | 148 | **569** | **148** |
| 456.hmmer | 8 | 479 | 156 | **481** | **155** | 482 | 155 | 8 | 299 | 249 | 300 | 249 | **300** | **249** |
| 458.sjeng | 8 | 789 | 123 | **789** | **123** | 788 | 123 | 8 | 721 | 134 | **721** | **134** | 721 | 134 |
| 462.libquantum | 8 | 940 | 176 | 942 | 176 | **941** | **176** | 8 | **934** | **177** | 932 | 178 | 943 | 176 |
| 464.h264ref | 8 | **894** | **198** | 891 | 199 | 898 | 197 | 8 | **862** | **205** | 865 | 205 | 861 | 206 |
| 471.omnetpp | 8 | 586 | 85.4 | 586 | 85.3 | **586** | **85.3** | 8 | 586 | 85.4 | 586 | 85.3 | **586** | **85.3** |
| 473.astar | 8 | **652** | **86.1** | 654 | 85.9 | 652 | 86.1 | 8 | 583 | 96.3 | **583** | **96.3** | 584 | 96.2 |
| 483.xalancbmk | 8 | 477 | 116 | **478** | **115** | 478 | 115 | 8 | 398 | 139 | 397 | 139 | **397** | **139** |

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/cpu2006v1.1/amd909gh-libs/64:/root/work/cpu2006v1.1/amd909gh-libs/32"
```

## 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

Continued on next page

## Peak Compiler Invocation (Continued)

456.hmmer: 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.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)
-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

Continued on next page

## 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.hmmer: -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 -lsmartheap

## Peak Other Flags

C benchmarks:

Continued on next page

## Peak Other Flags (Continued)

456.hmmer: `-Mipa=jobs:4`

462.libquantum: `-Mipa=jobs:4`

C++ benchmarks (except as noted below):
`-Mipa=jobs:4`(pass 2)

483.xalancbmk: `No flags used`

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.20090710.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.20090710.xml`
`http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.xml`


SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.


For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 22:45:43 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 13 January 2009.