# SPEC® CINT2006 Result

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Tyan
(Test Sponsor: Advanced Micro Devices)

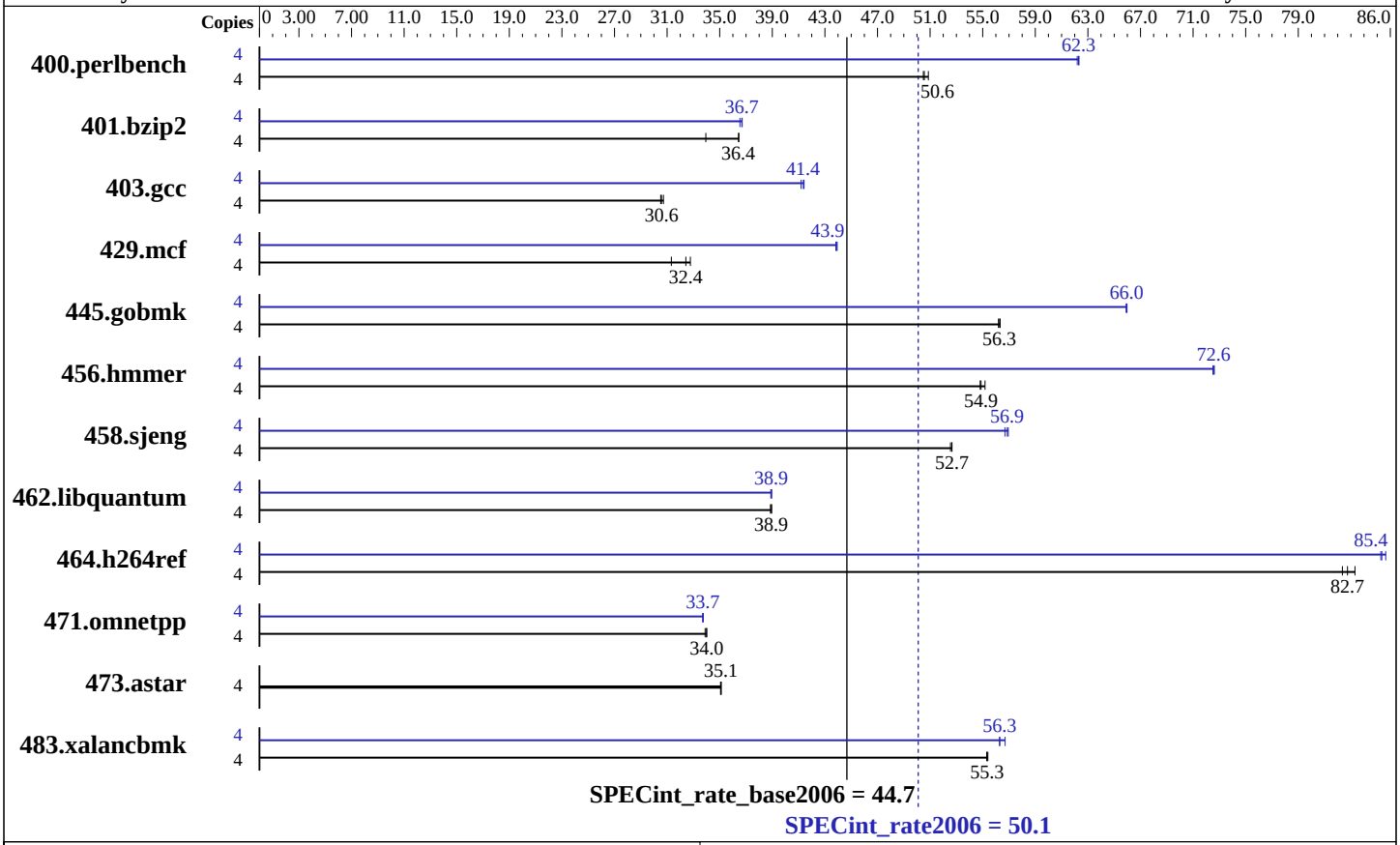
Thunder K8QW (S4881) Opteron 890

SPECint®_rate2006 = 50.1

SPECint_rate_base2006 = 44.7

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

**Test date:** Apr-2007
**Hardware Availability:** Feb-2007
**Software Availability:** Feb-2007




## Hardware

| | |
|---|---|
| CPU Name: | AMD Opteron 890 |
| CPU Characteristics: | |
| CPU MHz: | 2800 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 2 chips, 2 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 1 MB I+D on chip per core |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 8 GB (8x1GB, DDR-400 CL3 ECC Reg Dual Rank) |
| Disk Subsystem: | SATA, 250 GB |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 10 64-bit kernel |
| Compiler: | QLogic PathScale Compiler Suite, Release 3.0 |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Multi-user, run level 3 |
| Base Pointers: | 32/64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | SmartHeap 8.0 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 | 4 | 774 | 50.5 | **773** | **50.6** | 768 | 50.9 | 4 | 628 | 62.2 | **627** | **62.3** | 627 | 62.3 |
| 401.bzip2 | 4 | 1137 | 33.9 | **1060** | **36.4** | 1059 | 36.5 | 4 | 1056 | 36.5 | **1052** | **36.7** | 1051 | 36.7 |
| 403.gcc | 4 | 1055 | 30.5 | 1048 | 30.7 | **1053** | **30.6** | 4 | 782 | 41.2 | **779** | **41.4** | 777 | 41.4 |
| 429.mcf | 4 | 1165 | 31.3 | **1125** | **32.4** | 1113 | 32.8 | 4 | **831** | **43.9** | 832 | 43.8 | 830 | 43.9 |
| 445.gobmk | 4 | **746** | **56.3** | 745 | 56.3 | 747 | 56.2 | 4 | 637 | 65.9 | 636 | 66.0 | **636** | **66.0** |
| 456.hmmer | 4 | 676 | 55.2 | 681 | 54.8 | **680** | **54.9** | 4 | 514 | 72.6 | **514** | **72.6** | 515 | 72.5 |
| 458.sjeng | 4 | **919** | **52.7** | 921 | 52.6 | 919 | 52.7 | 4 | 850 | 56.9 | **851** | **56.9** | 854 | 56.7 |
| 462.libquantum | 4 | 2128 | 38.9 | 2133 | 38.9 | **2129** | **38.9** | 4 | **2129** | **38.9** | 2128 | 39.0 | 2131 | 38.9 |
| 464.h264ref | 4 | 1063 | 83.3 | 1075 | 82.4 | **1070** | **82.7** | 4 | **1037** | **85.4** | 1038 | 85.3 | 1034 | 85.6 |
| 471.omnetpp | 4 | 735 | 34.0 | **735** | **34.0** | 738 | 33.9 | 4 | **741** | **33.7** | 742 | 33.7 | 741 | 33.7 |
| 473.astar | 4 | 800 | 35.1 | 801 | 35.1 | **800** | **35.1** | 4 | 800 | 35.1 | 801 | 35.1 | **800** | **35.1** |
| 483.xalancbmk | 4 | 498 | 55.4 | 499 | 55.3 | **499** | **55.3** | 4 | **490** | **56.3** | 487 | 56.7 | 490 | 56.3 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## General Notes

```
taskset utility used to bind cores to processes
All memory slots filled on all used CPU sockets.
Memory bank interleave is enabled.
The tested system can be assembled using an SSI-MEB case and
a Emacs PSL-6701P 700 watt ATX 12V Power Supply.
```

## Base Compiler Invocation

C benchmarks:
`pathcc`

C++ benchmarks:
`pathCC`

## 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`

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## Base Portability Flags (Continued)

462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

## Base Optimization Flags

C benchmarks:
-Ofast -OPT:malloc_alg=1

C++ benchmarks:
-Ofast -m32 -L/cpu2006/mpaton/1.0/amd514K8.lib/32 -lsmartheap

## Peak Compiler Invocation

C benchmarks:
pathcc

C++ benchmarks:
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: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:opt=0

401.bzip2: -O3 -LNO:ou_prod_max=10 -OPT:Ofast -OPT:alias=disjoint

403.gcc: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -m32 -O3
-OPT:Ofast

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## Peak Optimization Flags (Continued)

429.mcf: `-m32 -O3 -ipa -L/cpu2006/mpaton/1.0/amd514K8.lib/32 -lsmartheap`

445.gobmk: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-O3 -OPT:alias=disjoint -LNO:simd=0 -LNO:minvariant=off -WOPT:retype_expr=on`

456.hmmer: `-O2 -OPT:alias=disjoint -OPT:malloc_alg=1 -CG:cflow=0`

458.sjeng: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-O3 -IPA:plimit=50000 -IPA:pu_reorder=2`

462.libquantum: `-O3 -ipa -CG:local_fwd_sched=on -IPA:space=1000`

464.h264ref: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-O3 -IPA:plimit=20000 -OPT:alias=disjoint -LNO:prefetch=0`

C++ benchmarks:

471.omnetpp: `-Ofast -CG:gcm=off -m32 -L/cpu2006/mpaton/1.0/amd514K8.lib/32 -lsmartheap`

473.astar: `basepeak = yes`

483.xalancbmk: `-Ofast -m32 -OPT:unroll_times_max=8 -L/cpu2006/mpaton/1.0/amd514K8.lib/32 -lsmartheap`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.xml`


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