# SPEC® CINT2006 Result

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Tyan
(Test Sponsor: Advanced Micro Devices)

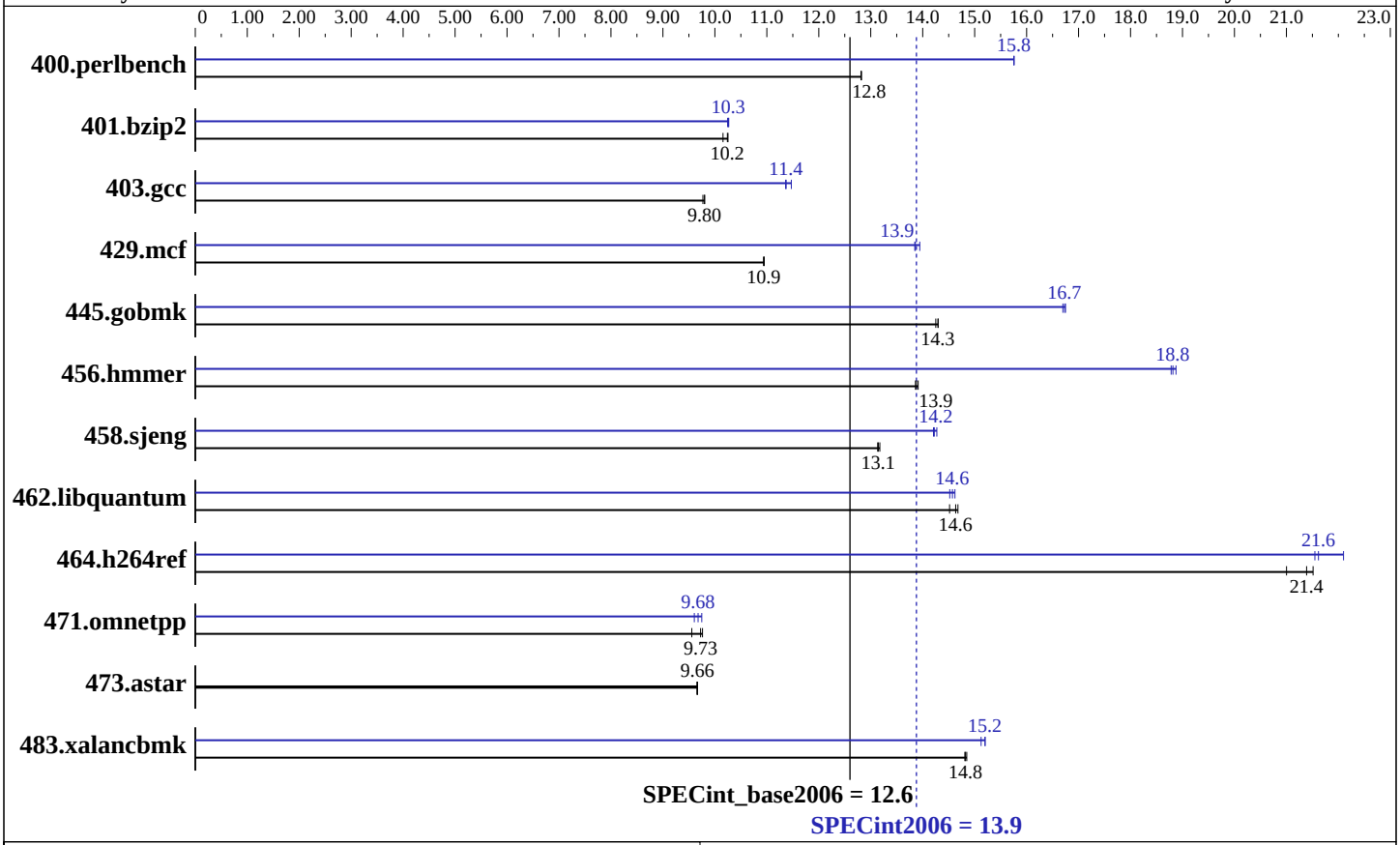
Thunder K8QW (S4881) Opteron 890

SPECint®2006 = 13.9

SPECint_base2006 = 12.6

**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: | 2 cores, 1 chip, 2 cores/chip |
| CPU(s) orderable: | 1,2,4 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: | 4 GB (4x1GB, 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 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 762 | 12.8 | 763 | 12.8 | **762** | **12.8** | **620** | **15.8** | 620 | 15.8 | 620 | 15.8 |
| 401.bzip2 | 941 | 10.3 | 950 | 10.2 | **942** | **10.2** | 940 | 10.3 | **941** | **10.3** | 942 | 10.2 |
| 403.gcc | **821** | **9.80** | 824 | 9.77 | 821 | 9.80 | 702 | 11.5 | **708** | **11.4** | 709 | 11.4 |
| 429.mcf | **833** | **10.9** | 833 | 11.0 | 834 | 10.9 | 659 | 13.8 | **658** | **13.9** | 654 | 13.9 |
| 445.gobmk | 736 | 14.3 | 734 | 14.3 | **734** | **14.3** | 628 | 16.7 | 626 | 16.7 | **627** | **16.7** |
| 456.hmmer | **672** | **13.9** | 671 | 13.9 | 673 | 13.9 | **496** | **18.8** | 497 | 18.8 | 494 | 18.9 |
| 458.sjeng | 921 | 13.1 | **920** | **13.1** | 918 | 13.2 | 852 | 14.2 | 848 | 14.3 | **851** | **14.2** |
| 462.libquantum | 1427 | 14.5 | 1412 | 14.7 | **1416** | **14.6** | 1427 | 14.5 | **1422** | **14.6** | 1417 | 14.6 |
| 464.h264ref | 1029 | 21.5 | 1054 | 21.0 | **1035** | **21.4** | 1027 | 21.5 | 1001 | 22.1 | **1024** | **21.6** |
| 471.omnetpp | **643** | **9.73** | 640 | 9.76 | 654 | 9.56 | 651 | 9.60 | **646** | **9.68** | 641 | 9.75 |
| 473.astar | 726 | 9.67 | **726** | **9.66** | 727 | 9.65 | 726 | 9.67 | **726** | **9.66** | 727 | 9.65 |
| 483.xalancbmk | **465** | **14.8** | 465 | 14.8 | 466 | 14.8 | 454 | 15.2 | 456 | 15.1 | **454** | **15.2** |

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

## General Notes

```
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`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

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## Base Portability Flags (Continued)

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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