# SPEC® CINT2006 Result

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Tyan
(Test Sponsor: Advanced Micro Devices)

Tyan Thunder n4250QE (S4985E), AMD Opteron 8350

SPECint®_rate2006 = NA

SPECint_rate_base2006 = NA

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

**Test date:** Aug-2007
**Hardware Availability:** Oct-2007
**Software Availability:** Oct-2007

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Not Available

| Copies | |
|---|---|
| 400.perlbench | |
| 401.bzip2 | |
| 403.gcc | |
| 429.mcf | |
| 445.gobmk | |
| 456.hmmer | |
| 458.sjeng | |
| 462.libquantum | |
| 464.h264ref | |
| 471.omnetpp | |
| 473.astar | |
| 483.xalancbmk | |

## Hardware

| | |
|---|---|
| CPU Name: | AMD Opteron 8350 |
| CPU Characteristics: | |
| CPU MHz: | 2000 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 4 chips, 4 cores/chip |
| CPU(s) orderable: | 1 to 4 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: | 2 MB I+D on chip per chip |
| Other Cache: | None |

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## Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 10 SP1 64-bit kernel |
| Compiler: | The Portland Group (PGI)<br>PGI pgcc 7.1-0 C Compiler<br>PGI pgCC 7.1-0 C++ Compiler<br>QLogic PathScale Compiler Suite<br>PathScale pathcc 3.0 C Compiler<br>PathScale pathCC 3.0 C++ Compiler |
| Auto Parallel: | No |
| File System: | ReiserFS |
| System State: | Multi-user, run level 3 |

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Memory: 32 GB (16x2GB, DDR2-667 CL5 Reg Dual Rank)
Disk Subsystem: SATA, 250 GB, 7200 RPM
Other Hardware: None

Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: SmartHeap 8.0 32-bit Library for Linux

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 401.bzip2 | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 403.gcc | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 429.mcf | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 445.gobmk | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 456.hmmer | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 458.sjeng | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 462.libquantum | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 464.h264ref | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 471.omnetpp | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 473.astar | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |
| 483.xalancbmk | 16 | NA | NA | NA | NA | NA | NA | 16 | NA | NA | NA | NA | NA | NA |

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

## Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 4915200' was used to set environment locked pages in memory quantity
'numactl' was used to bind copies to the cores
Set vm/nr_hugepages=2400 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
Environment variable PGI_HUGE_PAGES set to 150
```

## General Notes

```
The tested system can be assembled using an
EMACS PSL-6701P-SATA 700-Watt 12V power supply.
```

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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:
-fast -Mipa=fast -Mipa=inline -Mipa=noarg -Mfprelaxed
-Msmartalloc=huge:840 -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:
-fastsse -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448
--zc_eh -tp barcelona -Bstatic_pgi

## Base Other Flags

C benchmarks:
-w

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## Base Other Flags (Continued)

C++ benchmarks:
-w

## Peak Compiler Invocation

C benchmarks (except as noted below):
pgcc

400.perlbench: pathcc

403.gcc: pathcc

445.gobmk: pathcc

464.h264ref: pathcc

C++ benchmarks (except as noted below):
pgcpp

483.xalancbmk: pathCC

## Peak Portability Flags

-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

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Not Available

## Peak Optimization Flags

C benchmarks:

400.perlbench: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:opt=0

401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast
-Msmartalloc=huge:448 -tp barcelona-64 -Bstatic_pgi

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

429.mcf: -fastsse -Mipa=fast -Mipa=inline:1 -Msmartalloc=huge:420
-tp barcelona -Bstatic_pgi

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

456.hmmer: -fast -Msmartalloc=huge:448 -Mfprelaxed -Msafeptr
-Mipa=const -Mipa=ptr -Mipa=arg -tp barcelona-64
-Bstatic_pgi

458.sjeng: -Mpfi(pass 1) -Mipa=fast(pass 2) -Mipa=inline:1(pass 2)
-Mipa=noarg(pass 2) -Mpfo(pass 2) -fast
-Msmartalloc=huge:448 -Mfprelaxed -tp barcelona-64
-Bstatic_pgi

-fast -Mfprelaxed -Msmartalloc=huge:448 -Munroll=m:4
-Mipa=fast -Mipa=inline -Mipa=noarg -Bstatic_pgi

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: basepeak = yes

473.astar: basepeak = yes

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## Peak Optimization Flags (Continued)

483.xalancbmk: `-Ofast -m32 -OPT:unroll_times_max=8`
`-L/cpu2006/work/cpu2006/SmartHeap -lsmartheap`

## Peak Other Flags

C benchmarks (except as noted below):
`-w`

400.perlbench: `No flags used`

403.gcc: `No flags used`

445.gobmk: `No flags used`

464.h264ref: `No flags used`

C++ benchmarks (except as noted below):
`-w`

483.xalancbmk: `No flags used`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/amd814GH-flags.20090714.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/amd814GH-flags.20090714.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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