



# SPEC® CINT2006 Result

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Tyan

(Test Sponsor: Advanced Micro Devices)

SPECint®\_rate2006 = 60.7

Thunder h2000M (S3992) AMD Opteron 2224 SE

SPECint\_rate\_base2006 = 56.2

CPU2006 license: 49

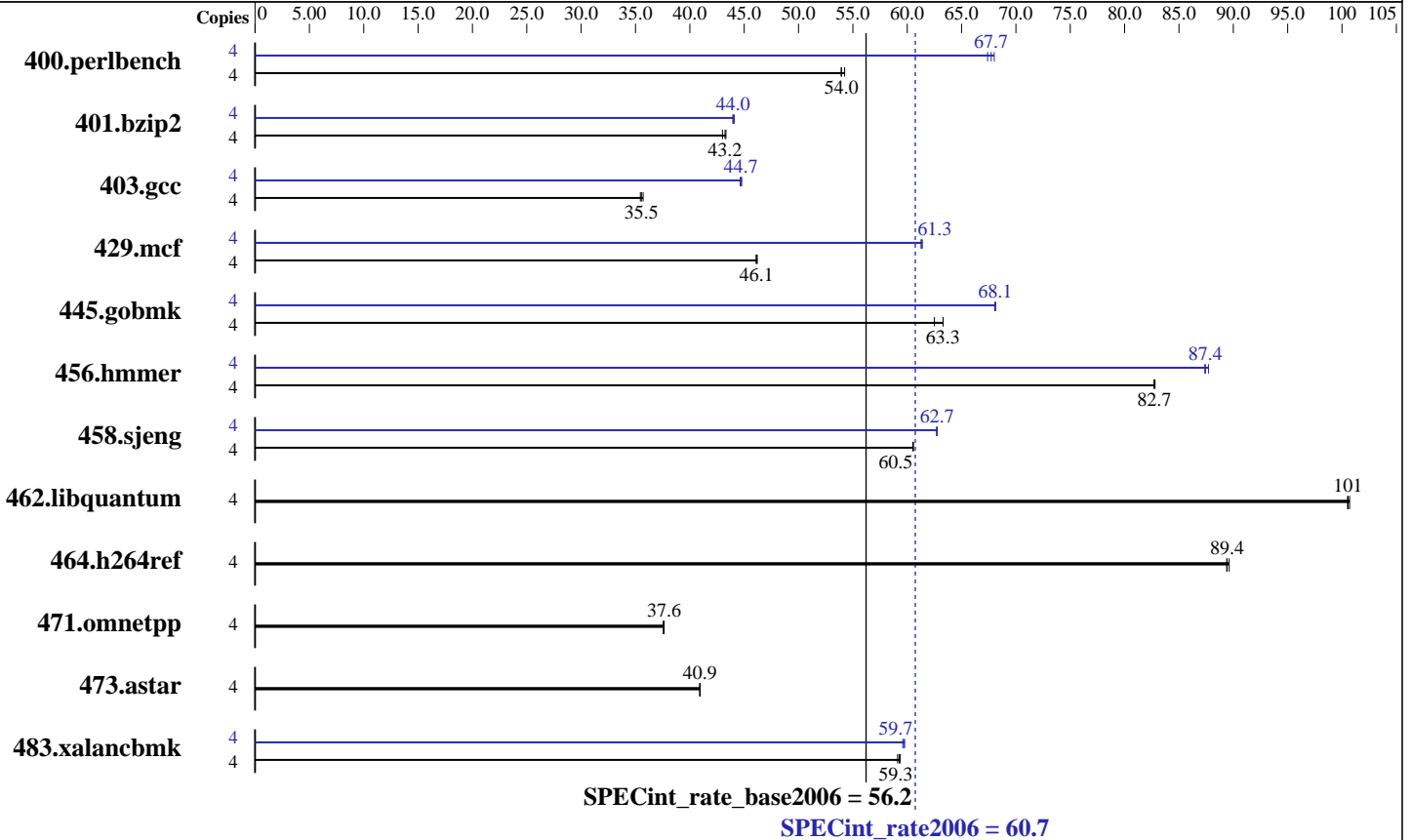
Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Jul-2007

Hardware Availability: Aug-2007

Software Availability: Oct-2007



## Hardware

CPU Name: AMD Opteron 2224 SE  
 CPU Characteristics:  
 CPU MHz: 3200  
 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, DDR2-667 CL4 ECC Reg Dual Rank)  
 Disk Subsystem: SATA, 80GB  
 Other Hardware: None

## Software

Operating System: SuSE Linux Enterprise Server 10 64-bit kernel  
 Compiler: The Portland Group (PGI)  
 PGI pgcc 7.1-0 C Compiler  
 PGI pgCC 7.1-0 C++ Compiler  
 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	721	54.2	725	53.9	<u>724</u>	<u>54.0</u>	4	580	67.4	<u>577</u>	<u>67.7</u>	575	68.0
401.bzip2	4	891	43.3	898	43.0	<u>893</u>	<u>43.2</u>	4	878	44.0	<u>877</u>	<u>44.0</u>	876	44.1
403.gcc	4	902	35.7	908	35.5	<u>906</u>	<u>35.5</u>	4	721	44.6	<u>720</u>	<u>44.7</u>	719	44.8
429.mcf	4	790	46.2	<u>791</u>	<u>46.1</u>	791	46.1	4	594	61.4	595	61.3	<u>595</u>	<u>61.3</u>
445.gobmk	4	<u>663</u>	<u>63.3</u>	663	63.3	671	62.5	4	616	68.1	<u>616</u>	<u>68.1</u>	617	68.0
456.hammer	4	451	82.7	<u>451</u>	<u>82.7</u>	451	82.8	4	427	87.4	425	87.7	<u>427</u>	<u>87.4</u>
458.sjeng	4	<u>800</u>	<u>60.5</u>	799	60.6	800	60.5	4	<u>771</u>	<u>62.7</u>	771	62.8	772	62.7
462.libquantum	4	823	101	825	101	<u>824</u>	<u>101</u>	4	823	101	825	101	<u>824</u>	<u>101</u>
464.h264ref	4	<u>990</u>	<u>89.4</u>	990	89.4	988	89.6	4	<u>990</u>	<u>89.4</u>	990	89.4	988	89.6
471.omnetpp	4	664	37.6	666	37.6	<u>664</u>	<u>37.6</u>	4	664	37.6	666	37.6	<u>664</u>	<u>37.6</u>
473.astar	4	686	41.0	686	40.9	<u>686</u>	<u>40.9</u>	4	686	41.0	686	40.9	<u>686</u>	<u>40.9</u>
483.xalancbmk	4	467	59.1	<u>466</u>	<u>59.3</u>	465	59.3	4	463	59.6	462	59.8	<u>462</u>	<u>59.7</u>

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

## Operating System Notes

```
Environment stack size set to 'unlimited'
'numactl' was used to bind copies to the cores
Set vm/nr_hugepages=512 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
```

## Component Notes

SUT requires a Tyan Thunder h2000M motherboard (BIOS rev 2.00), a Seagate Barracuda 7200.10 SATA drive, a SSI EEB 3.51 specification compliant form-factor case, and a Delta Electronics 500 watt DPS-500GB power supply.

## General Notes

Submitted\_by: "Raddatz, Dave" <Dave.Raddatz@amd.com>  
 Submitted: Tue Aug 7 13:14:49 2007  
 Submission: cpu2006-20070723-01515.sub

## Base Compiler Invocation

C benchmarks:  
pgcc

C++ benchmarks:  
pgcpp



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## Base Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_HAVE_BOOL -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:64 -tp k8-64 -Bstatic_pgi

```

C++ benchmarks:

```

-fastsse -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc --zc_eh
-tp k8-32 -Bstatic_pgi -L/proj/qa/smartheap/SmartHeap_8/lib -lsmartheap

```

## Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

## Peak Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

## Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64

```

Continued on next page



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## Peak Portability Flags (Continued)

403.gcc: -DSPEC\_CPU\_HAVE\_BOOL  
 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: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=inline(pass 2) -fast  
 -O4 -Mfprelaxed -Msmartalloc=huge:8 -Mnounroll -tp k8-64  
 -Bstatic\_pgi

401.bzip2: -Mpfi(pass 1) -Mpfo(pass 2) -fast -O4  
 -Msmartalloc=huge:64 -tp k8-64 -Bstatic\_pgi

403.gcc: -fastsse -Mfprelaxed -Msmartalloc=huge:32 -Mipa=fast  
 -Mipa=inline -tp k8-32 -Bstatic\_pgi

429.mcf: -fastsse -Mipa=fast -Mipa=inline -Msmartalloc=huge:16  
 -tp k8-32 -Bstatic\_pgi

445.gobmk: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2) -fast -O4  
 -Msmartalloc=huge:32 -Mfprelaxed -Mnovect -tp k8-64  
 -Bstatic\_pgi

456.hmmer: -fast -Msmartalloc=huge:32 -Mfprelaxed -Msafeptr  
 -Mipa=const -Mipa=ptr -Mipa=arg -tp k8-64 -Bstatic\_pgi

458.sjeng: -Mpfi(pass 1) -Mipa=fast(pass 2) -Mipa=inline(pass 2)  
 -Mipa=noarg(pass 2) -Mpfo(pass 2) -fast  
 -Msmartalloc=huge:32 -Mfprelaxed -tp k8-64 -Bstatic\_pgi

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: basepeak = yes

483.xalancbmk: -fastsse -O4 -Mipa=fast -Mipa=inline -Mfprelaxed  
 -Msmartalloc --zc\_eh -tp k8-32 -Bstatic\_pgi  
 -L/proj/qa/smartheap/SmartHeap\_8/lib -lsmartheap



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## Peak Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

The flags file that was used to format this result can be browsed at

[http://www.spec.org/cpu2006/flags/pgi710\\_flags.20090714.00.html](http://www.spec.org/cpu2006/flags/pgi710_flags.20090714.00.html)

You can also download the XML flags source by saving the following link:

[http://www.spec.org/cpu2006/flags/pgi710\\_flags.20090714.00.xml](http://www.spec.org/cpu2006/flags/pgi710_flags.20090714.00.xml)

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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