



SPEC® CFP2006 Result

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Tyan

(Test Sponsor: Advanced Micro Devices)

SPECfp®_rate2006 = 53.1

Thunder h2000M (S3992) AMD Opteron 2224 SE

SPECfp_rate_base2006 = 52.1

CPU2006 license: 49

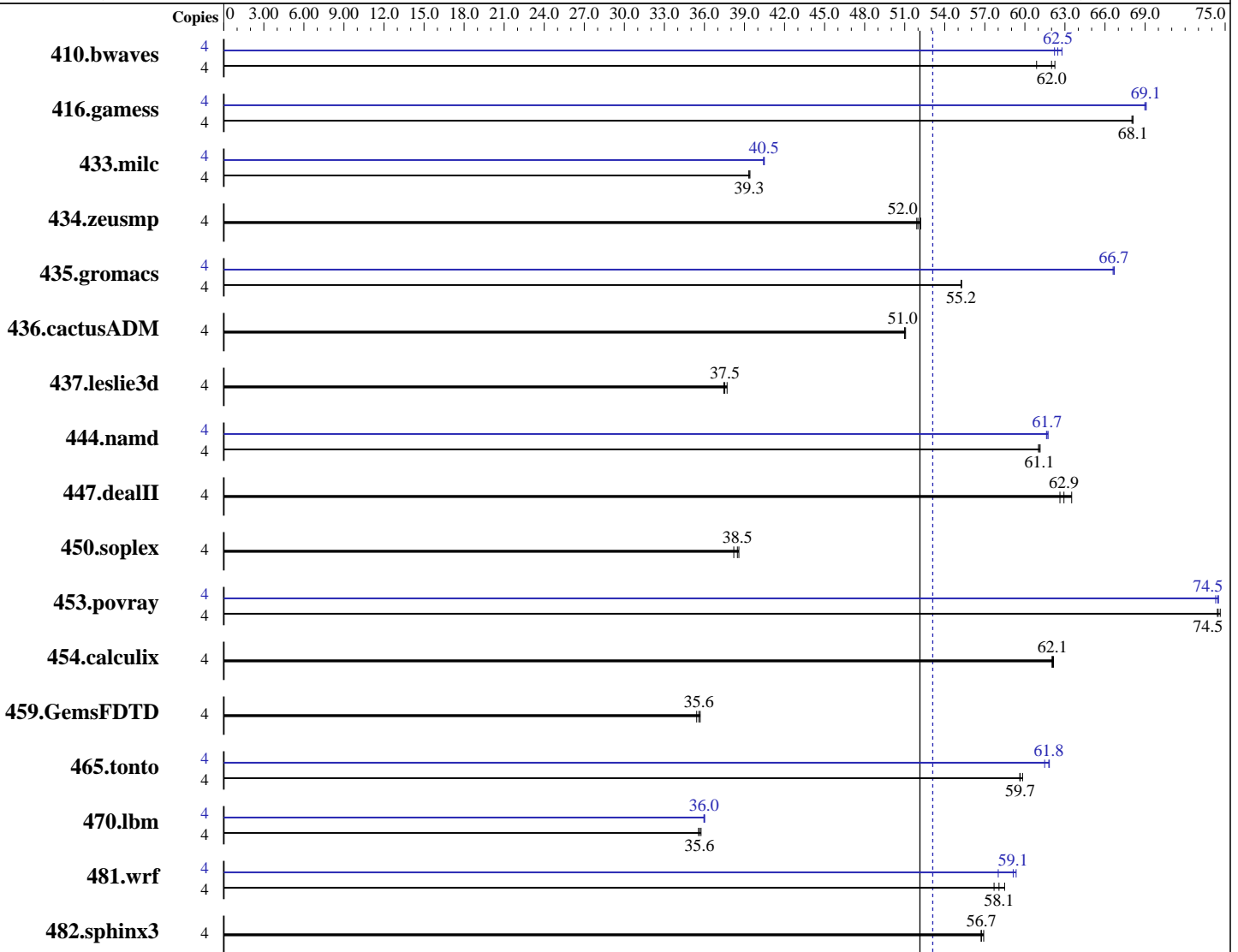
Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Jul-2007

Hardware Availability: Aug-2007

Software Availability: Oct-2007



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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

Continued on next page

Software

Operating System: SuSE Linux Enterprise Server 10 64-bit kernel
 Compiler: The Portland Group (PGI)
 PGI pgf90 7.1-0 Fortran Compiler
 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

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L3 Cache: None
Other Cache: None
Memory: 8 GB (8x1GB, DDR2-667 CL4 ECC Reg Dual Rank)
Disk Subsystem: SATA, 80GB
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 64-bit
Other Software: None

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---------------|--------|------------|-------------|-------------|-------------|-------------|-------------|--------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | 893 | 60.9 | 877 | 62.0 | 873 | 62.2 | 4 | 866 | 62.8 | 874 | 62.2 | 870 | 62.5 |
| 416.gamess | 4 | 1150 | 68.1 | 1151 | 68.0 | 1150 | 68.1 | 4 | 1134 | 69.1 | 1135 | 69.0 | 1134 | 69.1 |
| 433.milc | 4 | 933 | 39.3 | 932 | 39.4 | 934 | 39.3 | 4 | 907 | 40.5 | 907 | 40.5 | 908 | 40.4 |
| 434.zeusmp | 4 | 701 | 51.9 | 700 | 52.0 | 697 | 52.2 | 4 | 701 | 51.9 | 700 | 52.0 | 697 | 52.2 |
| 435.gromacs | 4 | 517 | 55.3 | 517 | 55.2 | 517 | 55.2 | 4 | 429 | 66.6 | 428 | 66.7 | 428 | 66.7 |
| 436.cactusADM | 4 | 936 | 51.1 | 937 | 51.0 | 937 | 51.0 | 4 | 936 | 51.1 | 937 | 51.0 | 937 | 51.0 |
| 437.leslie3d | 4 | 997 | 37.7 | 1002 | 37.5 | 1004 | 37.4 | 4 | 997 | 37.7 | 1002 | 37.5 | 1004 | 37.4 |
| 444.namd | 4 | 525 | 61.1 | 526 | 61.0 | 525 | 61.1 | 4 | 520 | 61.7 | 521 | 61.6 | 520 | 61.7 |
| 447.dealII | 4 | 731 | 62.6 | 727 | 62.9 | 721 | 63.5 | 4 | 731 | 62.6 | 727 | 62.9 | 721 | 63.5 |
| 450.soplex | 4 | 873 | 38.2 | 865 | 38.6 | 867 | 38.5 | 4 | 873 | 38.2 | 865 | 38.6 | 867 | 38.5 |
| 453.povray | 4 | 286 | 74.4 | 286 | 74.5 | 285 | 74.6 | 4 | 286 | 74.5 | 286 | 74.3 | 286 | 74.5 |
| 454.calculix | 4 | 532 | 62.1 | 532 | 62.0 | 531 | 62.1 | 4 | 532 | 62.1 | 532 | 62.0 | 531 | 62.1 |
| 459.GemsFDTD | 4 | 1198 | 35.4 | 1193 | 35.6 | 1189 | 35.7 | 4 | 1198 | 35.4 | 1193 | 35.6 | 1189 | 35.7 |
| 465.tonto | 4 | 660 | 59.6 | 658 | 59.8 | 660 | 59.7 | 4 | 637 | 61.8 | 637 | 61.8 | 640 | 61.5 |
| 470.lbm | 4 | 1546 | 35.6 | 1542 | 35.6 | 1537 | 35.7 | 4 | 1528 | 36.0 | 1526 | 36.0 | 1528 | 36.0 |
| 481.wrf | 4 | 764 | 58.5 | 770 | 58.1 | 774 | 57.7 | 4 | 753 | 59.3 | 770 | 58.0 | 756 | 59.1 |
| 482.sphinx3 | 4 | 1370 | 56.9 | 1374 | 56.7 | 1374 | 56.7 | 4 | 1370 | 56.9 | 1374 | 56.7 | 1374 | 56.7 |

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.



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Software Availability: Oct-2007

General Notes

Submitted_by: "Raddatz, Dave" <Dave.Raddatz@amd.com>
Submitted: Tue Aug 7 13:14:49 2007
Submission: cpu2006-20070723-01516.sub

Base Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

Fortran benchmarks:

pgf95

Benchmarks using both Fortran and C:

pgcc pgf95

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -Mnomain
436.cactusADM: -DSPEC_CPU_LP64 -Mnomain
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -Mnomain
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:8
-tp k8-64 -Bstatic_pgi

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Base Optimization Flags (Continued)

C++ benchmarks:

-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:8
--zc_eh -tp k8-64 -Bstatic_pgi

Fortran benchmarks:

-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:8
-tp k8-64 -Bstatic_pgi

Benchmarks using both Fortran and C:

-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:8
-tp k8-64 -Bstatic_pgi

Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

Fortran benchmarks:

-w

Benchmarks using both Fortran and C:

-w

Peak Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

Fortran benchmarks:

pgf95

Benchmarks using both Fortran and C:

pgcc pgf95

Peak Portability Flags

Same as Base Portability Flags



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Peak Optimization Flags

C benchmarks:

433.milc: -Mphi(pass 1) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-Mipa=noarg(pass 2) -Mpfo(pass 2) -fast -O4 -Mdse
-Mfprelaxed -Msmartalloc=huge:8 -tp k8-64 -Bstatic_pgi

470.lbm: -fast -Mfprelaxed -Msmartalloc=huge:8 -Mipa=fast
-Mipa=noarg -tp k8-64 -Bstatic_pgi

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -Mphi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
-Mipa=inline(pass 2) -fast -O4 -Mfprelaxed
-Msmartalloc=huge:32 --zc_eh -tp k8-64 -Bstatic_pgi

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -fast -Mfprelaxed -Msmartalloc=huge:32 -Mipa=fast
-Mipa=inline --zc_eh -tp k8-64 -Bstatic_pgi

Fortran benchmarks:

410.bwaves: -fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc
-tp k8-64 -Bstatic_pgi

416.gamess: -fast -Mipa=fast -Mipa=inline -Mfprelaxed -Mvect=noaltcode
-Msmartalloc=huge:64 -tp k8-64 -Bstatic_pgi

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -fast -Mfprelaxed -Msmartalloc=huge:128 -Mipa=fast
-Mipa=inline -Mvect=noaltcode -tp k8-64 -Bstatic_pgi

Benchmarks using both Fortran and C:

435.gromacs: -fast -O4 -Mipa=fast -Mipa=inline -Mfprelaxed
-Msmartalloc=huge:16 -tp k8-64 -Mfpapprox=rsqrt
-Bstatic_pgi

436.cactusADM: basepeak = yes

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Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

481.wrf: -fast -Mfprelaxed -Msmartalloc=huge:32 -Mvect=noaltcode
-tp k8-64 -Bstatic_pgi

Peak Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

Fortran benchmarks:

-w

Benchmarks using both Fortran and C:

-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

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

http://www.spec.org/cpu2006/flags/pgi710_flags.20090714.00.xml

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For other inquiries, please contact webmaster@spec.org.

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