

SPEC® CINT2006 Result

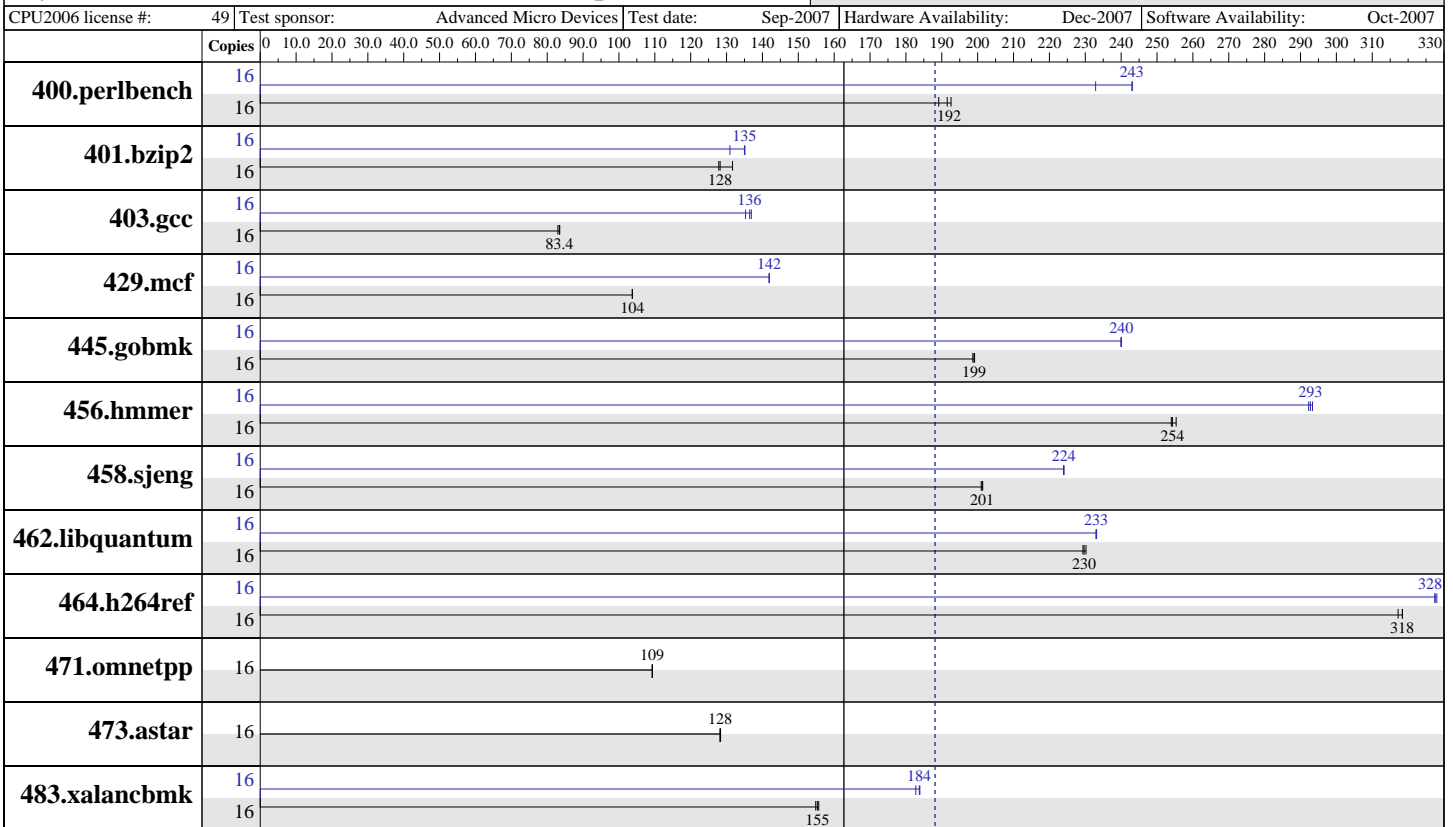
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Tyan

SPECint®_rate2006 = 188

Tyan Thunder n425QE (S4985E), AMD Opteron 8360SE

SPECint_rate_base2006 = 163



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Hardware

CPU Name: AMD Opteron 8360SE
 CPU Characteristics:
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip
 CPU(s) orderable: 2,4 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
 Memory: 32 GB (16x2GB, DDR2-667 CL5 Reg Dual Rank)
 Disk Subsystem: 1x250GB SATA, 7200 RPM
 Other Hardware: None

Software

Operating System: SuSE Linux Enterprise Server 10 SP1 64-bit kernel
 Compiler: The Portland Group (PGI)
 PGI pgcc 7.1-0 C Compiler
 PGI pgCC 7.1-0 C++ Compiler
 The PathScale Compiler v3.0
 PathScale pathcc 3.0 C Compiler
 PathScale pathCC 3.0 C++ Compiler
 Auto Parallel: No
 File System: Linux/reiserfs
 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	16	826	189	812	193	816	192	16	671	233	643	243	643	243
401.bzip2	16	1170	132	1200	128	1210	128	16	1180	131	1140	135	1140	135
403.gcc	16	1540	83.5	1550	83.0	1540	83.4	16	941	137	944	136	952	135
429.mcf	16	1410	104	1410	104	1410	104	16	1030	142	1030	142	1030	142
445.gobmk	16	845	199	843	199	843	199	16	700	240	699	240	699	240
456.hmmer	16	585	255	587	254	588	254	16	510	293	511	292	509	293
458.sjeng	16	961	201	963	201	962	201	16	864	224	864	224	865	224
462.libquantum	16	1440	230	1450	229	1440	230	16	1420	233	1420	233	1420	233
464.h264ref	16	1110	318	1120	317	1110	318	16	1080	328	1080	328	1080	327
471.omnetpp	16	915	109	915	109	915	109	16	915	109	915	109	915	109
473.astar	16	876	128	875	128	876	128	16	876	128	875	128	876	128
483.xalancbmk	16	713	155	709	156	711	155	16	604	183	601	184	600	184

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

Operating System Notes

```
'ulimit -s unlimited' used to set environment stack size
'ulimit -l 4915200' was used to set environment lock pages 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 a
PC Power & Cooling T1KWSR 1000W Turbo-Cool 12V power supply.

Base Compiler Invocation

C benchmarks:
pgcc

C++ benchmarks:
pgcpp

Peak Compiler Invocation

C benchmarks (except as noted below):
pgcc

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Peak Compiler Invocation (Continued)

400.perlbench: pathcc

403.gcc: pathcc

445.gobmk: pathcc

464.h264ref: pathcc

C++ benchmarks:

483.xalanbmk: pathCC

Base Portability Flags

C benchmarks (except as noted below):

-DSPEC_CPU_LP64

400.perlbench: -DSPEC_CPU_LINUX_X64 -DSPEC_CPU_LP64

403.gcc: -DSPEC_CPU_LP64

462.libquantum: -DSPEC_CPU_LINUX -DSPEC_CPU_LP64

C++ benchmarks:

471.omnetpp: No flags used

473.astar: -DSPEC_CPU_LITTLE_ENDIAN

483.xalanbmk: -DSPEC_CPU_LINUX

Peak Portability Flags

C benchmarks (except as noted below):

-DSPEC_CPU_LP64

400.perlbench: -DSPEC_CPU_LINUX_X64 -DSPEC_CPU_LP64

403.gcc: No flags used

429.mcf: No flags used

462.libquantum: -DSPEC_CPU_LINUX -DSPEC_CPU_LP64

C++ benchmarks:

483.xalanbmk: -DSPEC_CPU_LINUX

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Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

Peak Optimization Flags

C benchmarks:

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

401.bzip2: -fast -Mpfi(pass 1) -Mpfo(pass 2) -Msmartalloc=huge:448
-Bstatic_pgi -O4 -tp barcelona-64

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

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

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

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

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

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

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

C++ benchmarks (except as noted below):

basepeak = yes

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

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Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

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:

483.xalancbmk: No flags used

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