



SPEC[®] CINT2006 Result

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Hewlett-Packard Company

SPECint[®]_rate2006 = 380

ProLiant DL785 G5
(2.7 GHz AMD Opteron 8384)

SPECint_rate_base2006 = 309

CPU2006 license: 3

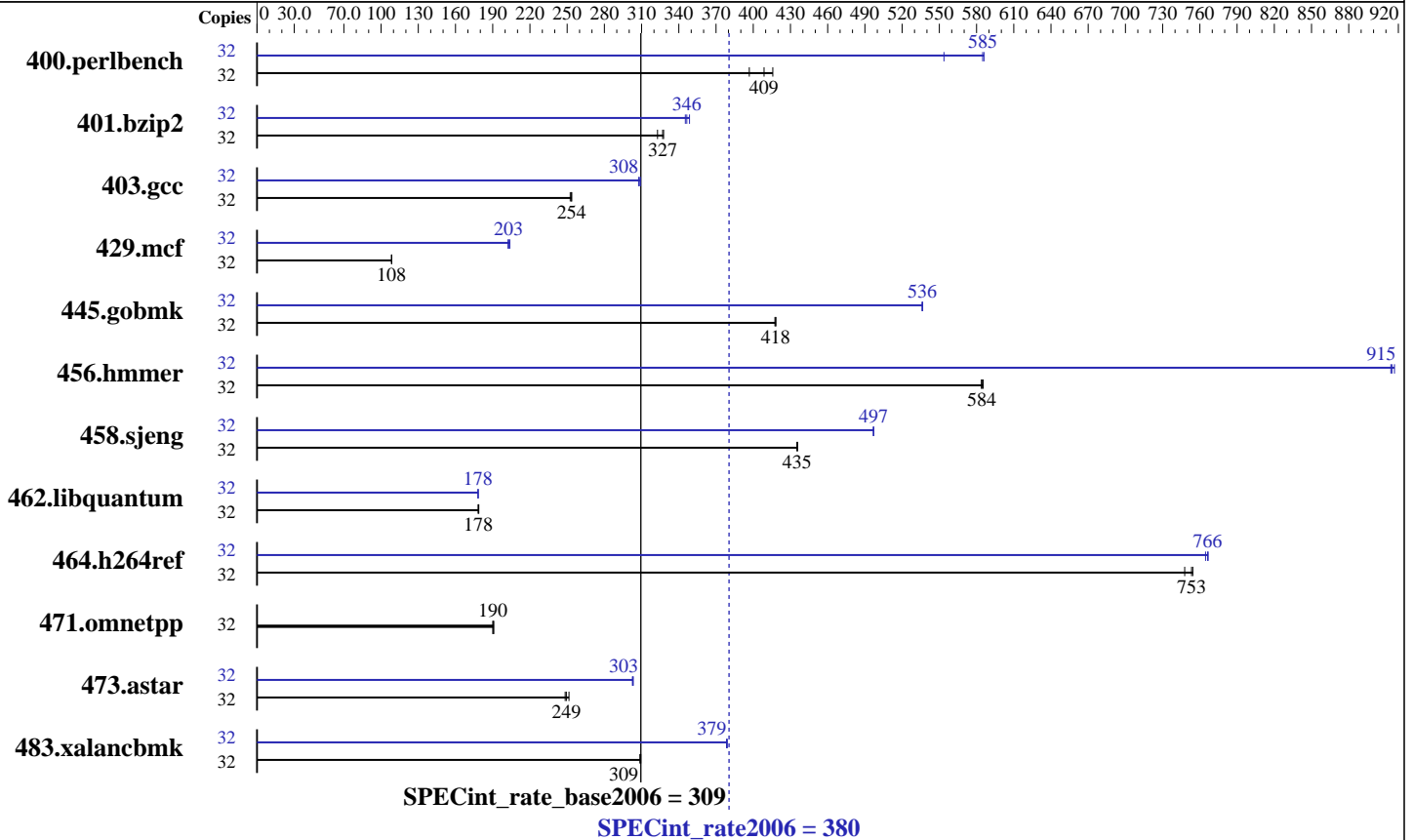
Test date: Nov-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Nov-2008

Tested by: Hewlett-Packard Company

Software Availability: Jan-2009



Hardware

CPU Name: AMD Opteron 8384
 CPU Characteristics:
 CPU MHz: 2700
 FPU: Integrated
 CPU(s) enabled: 32 cores, 8 chips, 4 cores/chip
 CPU(s) orderable: 4,8 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: 6 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (32x4 GB, PC2-5300 CL5)
 Disk Subsystem: 4x146 GB 10 K SAS
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 5.3, Kernel 2.6.18-121.el5
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.2
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: binutils 2.18
 32-bit and 64-bit libhugetlbfs libraries
 SmartHeap 8.1 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	32	752	416	788	397	765	409	32	534	585	565	554	534	586
401.bzip2	32	942	328	944	327	957	323	32	894	345	891	346	886	349
403.gcc	32	1020	252	1016	254	1016	254	32	836	308	838	308	833	309
429.mcf	32	2692	108	2686	109	2690	108	32	1442	202	1439	203	1432	204
445.gobmk	32	804	417	803	418	803	418	32	626	536	626	537	626	536
456.hammer	32	510	585	511	584	511	584	32	326	915	326	917	327	914
458.sjeng	32	889	436	890	435	889	435	32	779	497	779	497	779	497
462.libquantum	32	3717	178	3718	178	3709	179	32	3719	178	3722	178	3721	178
464.h264ref	32	940	753	947	748	939	754	32	924	767	924	766	926	765
471.omnetpp	32	1051	190	1052	190	1048	191	32	1051	190	1052	190	1048	191
473.astar	32	901	249	893	251	904	248	32	741	303	742	303	742	303
483.xalancbmk	32	715	309	714	309	715	309	32	583	379	583	378	583	379

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

Submit Notes

The config file option 'submit' was used.
numactl was used to bind copies to the cores

Operating System Notes

Environment stack size set to 'unlimited'
Max locked memory set to 2097152
The libhugetlbfs libraries were installed using the installation rpms that came with the distribution.
PGI_HUGE_PAGES set to 896.
Total number of huge pages available is 28672.
NCPUS set to number of cores

Platform Notes

BIOS configuration:
Power Regulator set to Static High Performance Mode

General Notes

Environment variables set by runspec before the start of the run:
HUGETLB_MORECORE = "yes"



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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:

```

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

```

C++ benchmarks:

```

-Mvect=cachesize:6291456 -fastsse -Msmartalloc=huge -Mfprelaxed
--zc_eh -Mipa=fast -Mipa=inline:6 -tp barcelona-32 -Bstatic_pgi

```

Base Other Flags

C benchmarks:

-Mipa=jobs:4

C++ benchmarks:

-Mipa=jobs:4

Peak Compiler Invocation

C benchmarks (except as noted below):

pathcc

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Peak Compiler Invocation (Continued)

456.hmmcr: pgcc

462.libquantum: pgcc

C++ benchmarks (except as noted below):

pgcpp

483.xalancbmk: pathCC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmcr: -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: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2)
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
-L/usr/lib64 -lhugetlbfs(pass 2) -Ofast -IPA:plimit=20000
-IPA:field_reorder=on -LNO:opt=0 -WOPT:if_conv=0
-CG:local_sched_alg=1
401.bzip2: -march=barcelona -O3 -OPT:alias=disjoint -OPT:Ofast
-OPT:goto=off -INLINE:aggressive=on -CG:local_sched_alg=1
-m3dnow
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT
-L/usr/lib64 -lhugetlbfs
403.gcc: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -OPT:malloc_alg=1
-LNO:trip_count=256 -LNO:prefetch_ahead=10
-CG:prefer_lru_reg=off -m32
429.mcf: -march=barcelona -O3 -ipa -INLINE:aggressive=on
-CG:gcm=off -GRA:prioritize_by_density=on -m32
-L/usr/lib -lhugetlbfs

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Peak Optimization Flags (Continued)

445.gobmk: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2)
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
-L/usr/lib64 -lhugetlbfs(pass 2) -O3 -OPT:alias=restrict
-LNO:prefetch=1 -LNO:ignore_feedback=off -CG:p2align=on

456.hmmcr: -Mvect=cachesize:6291456 -fastsse -Mvect=partial
-Munroll=n:8 -Msmartalloc=huge -Msafeptr -Mprefetch=t0
-Mfprelaxed -Mipa=const -Mipa=ptr -Mipa=arg -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

458.sjeng: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2)
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
-L/usr/lib64 -lhugetlbfs(pass 2) -O3 -ipa
-LNO:ignore_feedback=off -LNO:full_unroll=10 -LNO:fusion=0
-LNO:fission=2 -IPA:pu_reorder=2 -CG:ptr_load_use=0
-OPT:unroll_times_max=8 -INLINE:aggressive=on

462.libquantum: -Mvect=cachesize:6291456 -fastsse -Munroll=m:8
-Msmartalloc=huge -Mprefetch=distance:4 -Mfprelaxed
-Mipa=fast -Mipa=inline -Mipa=noarg -tp barcelona-64
-Bstatic_pgi

464.h264ref: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2)
-Wl,-T/usr/share/libhugetlbfs/ldscripts/elf_x86_64.xBDT(pass 2)
-L/usr/lib64 -lhugetlbfs(pass 2) -O3 -IPA:plimit=20000
-OPT:alias=disjoint -LNO:prefetch=0 -CG:ptr_load_use=0
-CG:push_pop_int_saved_regs=off -CG:prefer_lru_reg=off

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
-Mipa=inline:6(pass 2) -Mvect=cachesize:6291456 -fastsse
-O4 -Msmartalloc=huge -Msafeptr=global -Mfprelaxed
--zc_eh -tp barcelona-32 -Bstatic_pgi

483.xalancbmk: -march=barcelona -Ofast -INLINE:aggressive=on -m32
-L/cpu2006/SmartHeap_8.1/lib -lsmartheap

Peak Other Flags

C benchmarks:

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Peak Other Flags (Continued)

456.hmmer: -Mipa=jobs:4

462.libquantum: -Mipa=jobs:4

C++ benchmarks (except as noted below):
-Mipa=jobs:4(pass 2)

483.xalancbmk: No flags used

The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/pgi72_linux_flags.html
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.html
<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.html>

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/pgi72_linux_flags.xml
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090710.xml
<http://www.spec.org/cpu2006/flags/amd-platform-amd909gh.xml>

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