



SPEC[®] CINT2006 Result

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Hewlett-Packard Company

SPECint[®]2006 = 21.1

ProLiant DL365 G5
(2.7 GHz AMD Opteron 2384)

SPECint_base2006 = 17.4

CPU2006 license: 3

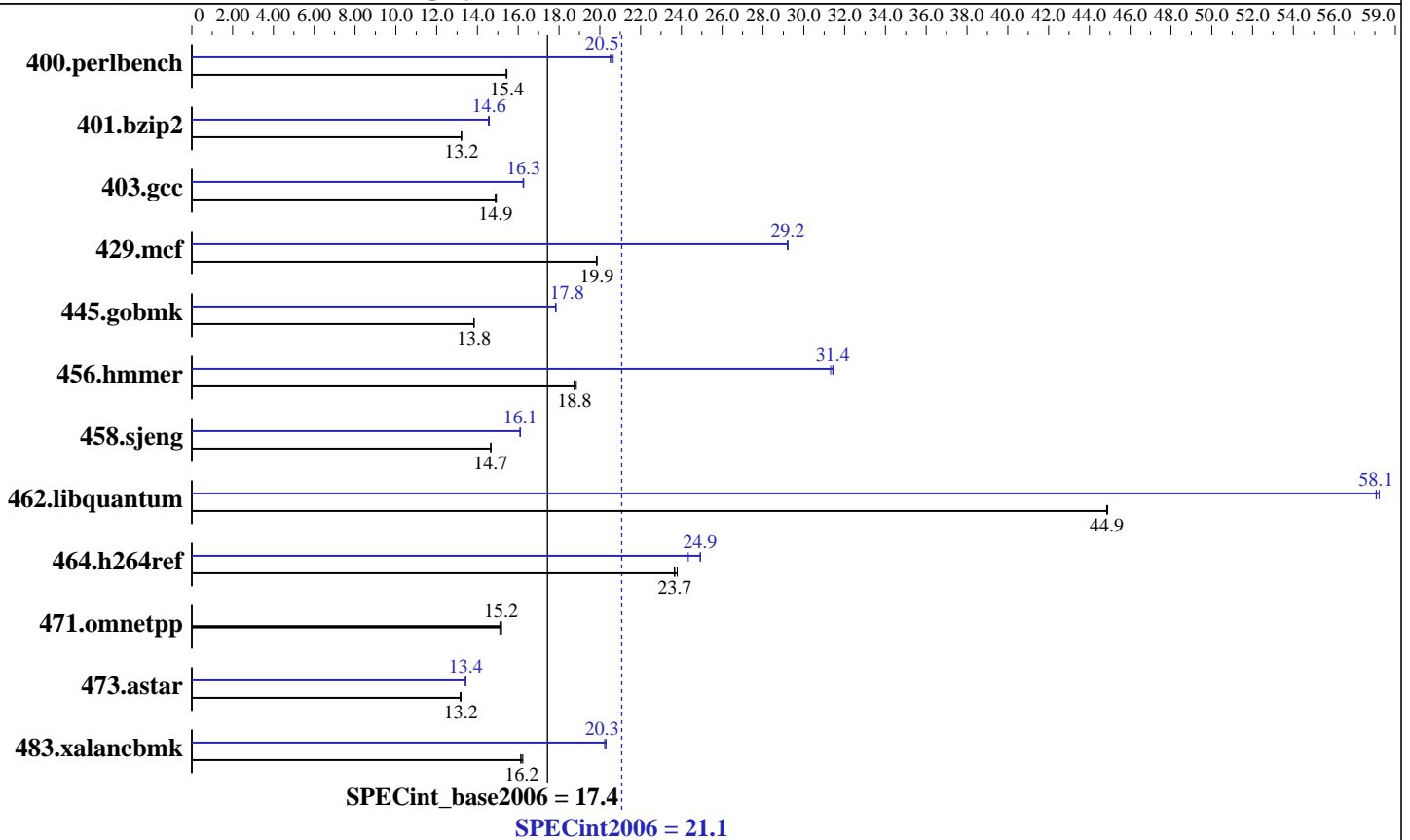
Test date: Dec-2008

Test sponsor: Hewlett-Packard Company

Hardware Availability: Nov-2008

Tested by: Hewlett-Packard Company

Software Availability: Jun-2008



Hardware

CPU Name: AMD Opteron 2384
 CPU Characteristics:
 CPU MHz: 2700
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1,2 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: 32 GB (8x4 GB, PC2-6400P CL5)
 Disk Subsystem: 1x72 GB 15 K SAS
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 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 2.17.50
 32-bit and 64-bit libhugetlbfs libraries
 SmartHeap 8.1 32-bit Library for Linux



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	633	15.4	634	15.4	632	15.4	476	20.5	473	20.7	476	20.5
401.bzip2	730	13.2	730	13.2	731	13.2	664	14.5	662	14.6	662	14.6
403.gcc	539	14.9	540	14.9	541	14.9	495	16.3	495	16.3	496	16.2
429.mcf	459	19.9	459	19.9	460	19.8	312	29.2	312	29.2	312	29.2
445.gobmk	758	13.8	758	13.8	759	13.8	588	17.8	588	17.8	588	17.8
456.hammer	498	18.7	498	18.8	495	18.8	298	31.3	297	31.4	297	31.4
458.sjeng	826	14.7	825	14.7	825	14.7	751	16.1	751	16.1	752	16.1
462.libquantum	462	44.9	462	44.9	462	44.9	356	58.2	357	58.1	357	58.1
464.h264ref	930	23.8	935	23.7	936	23.7	888	24.9	909	24.3	887	24.9
471.omnetpp	414	15.1	412	15.2	412	15.2	414	15.1	412	15.2	412	15.2
473.astar	534	13.2	532	13.2	532	13.2	523	13.4	523	13.4	524	13.4
483.xalancbmk	425	16.2	427	16.2	428	16.1	341	20.2	340	20.3	340	20.3

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 7168.
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.20090710.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.20090710.xml>

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