



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®_rate2006 = 259

ProLiant BL685c G6
(2.9 GHz AMD Opteron 8389)

SPECint_rate_base2006 = 220

CPU2006 license: 3

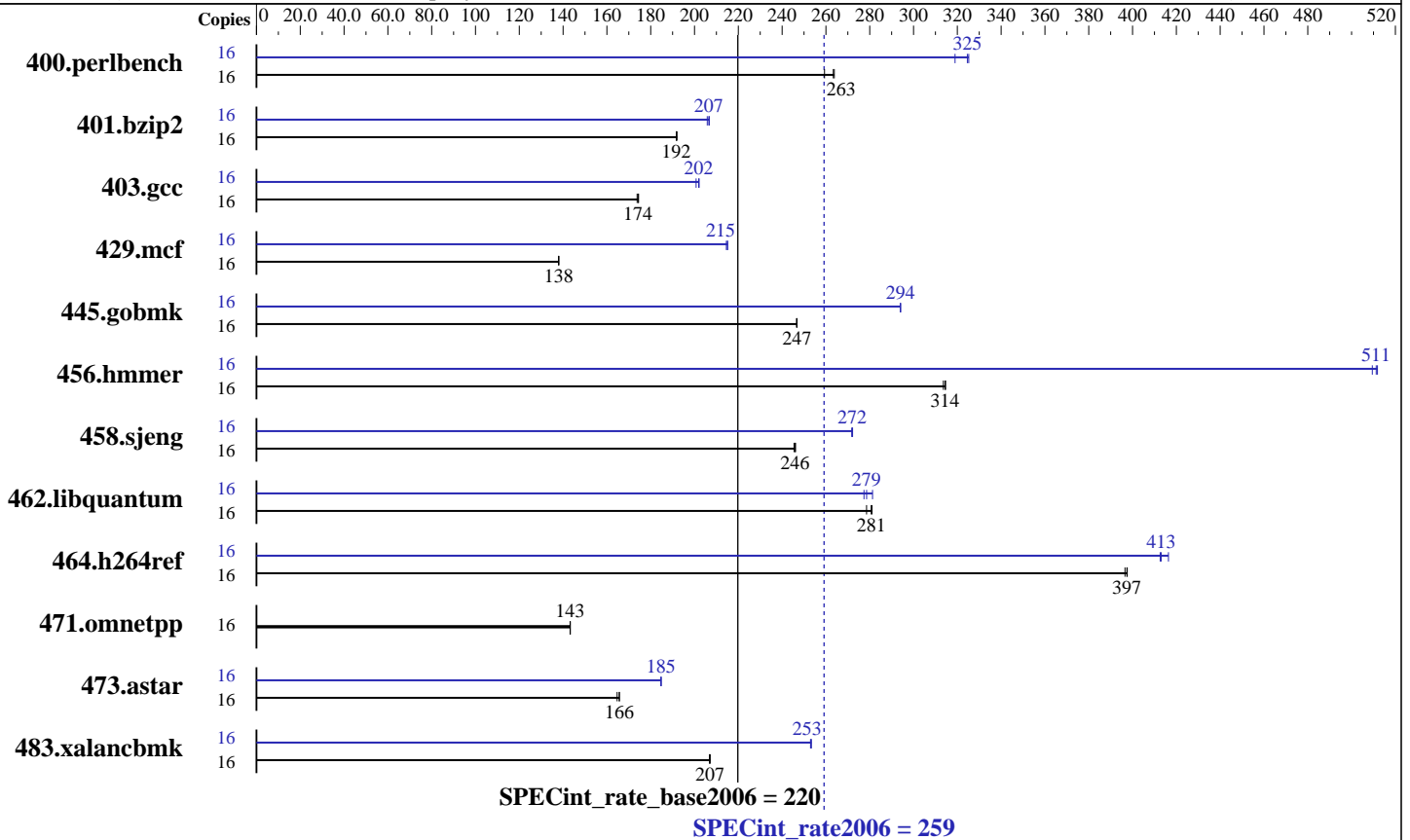
Test date: Mar-2009

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2009

Tested by: Hewlett-Packard Company

Software Availability: Mar-2009



Hardware

CPU Name: AMD Opteron 8389
 CPU Characteristics: 2900
 CPU MHz: 2900
 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: 6 MB I+D on chip per chip
 Other Cache: None
 Memory: 64 GB (16x4 GB, PC2-6400P CL5)
 Disk Subsystem: 1x72 GB 15 K SAS
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 5.3, Kernel 2.6.18-128.el5
 Compiler: PGI Server Complete Version 8.0 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	16	594	263	603	259	593	264	16	482	325	490	319	481	325
401.bzip2	16	804	192	805	192	805	192	16	748	207	747	207	750	206
403.gcc	16	738	174	741	174	739	174	16	637	202	638	202	642	201
429.mcf	16	1057	138	1057	138	1058	138	16	680	215	678	215	679	215
445.gobmk	16	680	247	681	247	680	247	16	571	294	571	294	571	294
456.hammer	16	475	314	476	314	474	315	16	292	512	292	511	293	509
458.sjeng	16	787	246	789	245	787	246	16	711	272	712	272	712	272
462.libquantum	16	1190	279	1180	281	1181	281	16	1195	277	1190	279	1179	281
464.h264ref	16	891	398	891	397	893	397	16	850	416	858	413	857	413
471.omnetpp	16	698	143	698	143	698	143	16	698	143	698	143	698	143
473.astar	16	682	165	678	166	678	166	16	608	185	608	185	608	185
483.xalancbmk	16	533	207	534	207	533	207	16	436	253	436	253	436	253

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 14336.
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: -Mphi(pass 1) -Mphi(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 -lsmarheap

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/pgi80_linux_flags.20090710.00.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/pgi80_linux_flags.20090710.00.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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For other inquiries, please contact webmaster@spec.org.

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