



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®_rate2006 = 1120

ProLiant DL585 G7
(2.50 GHz AMD Opteron 6380)

SPECint_rate_base2006 = 970

CPU2006 license: 3

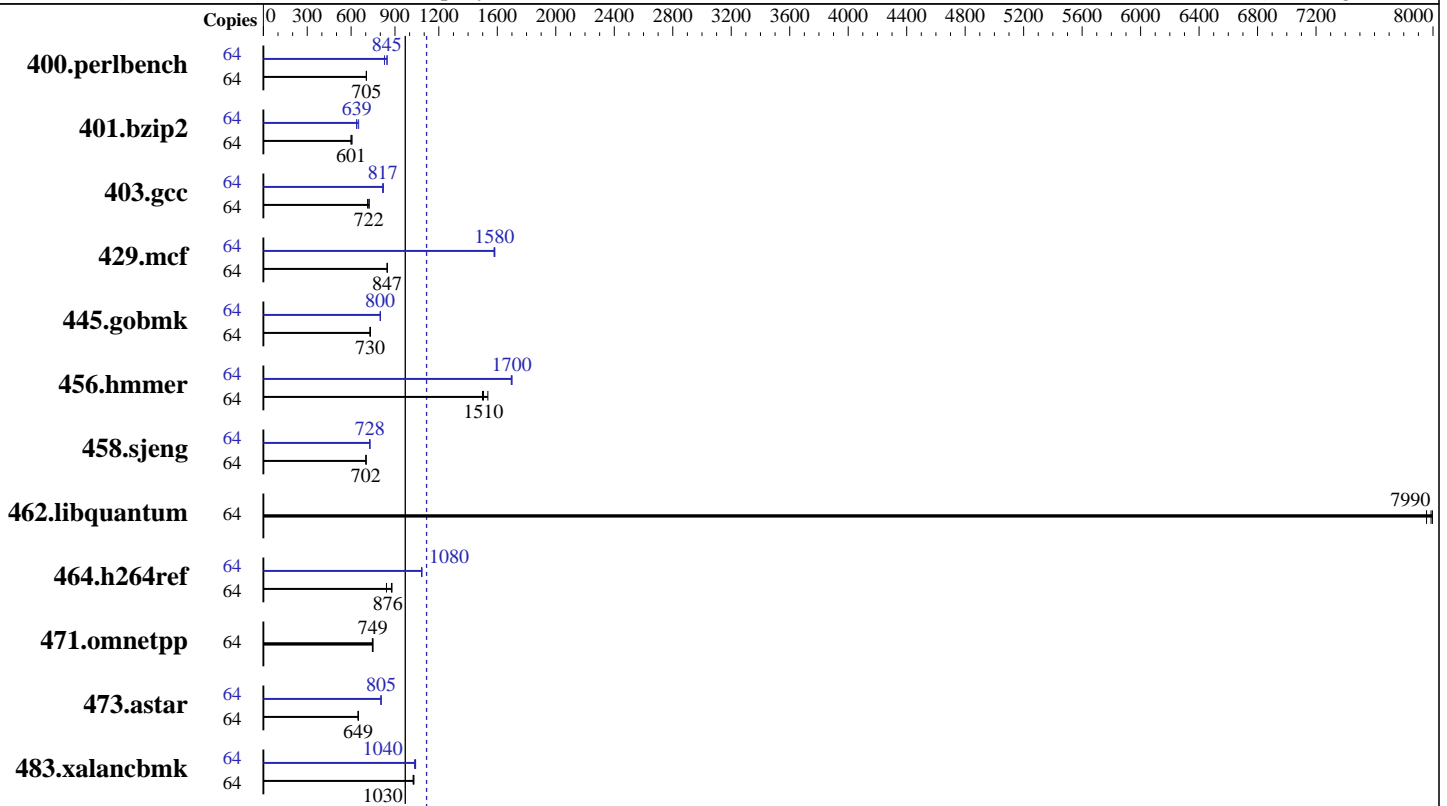
Test date: Feb-2013

Test sponsor: Hewlett-Packard Company

Hardware Availability: Nov-2012

Tested by: Hewlett-Packard Company

Software Availability: Aug-2012



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Hardware

CPU Name: AMD Opteron 6380
 CPU Characteristics: AMD Turbo CORE technology up to 3.40 GHz
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 64 cores, 4 chips, 16 cores/chip
 CPU(s) orderable: 2,4 chips
 Primary Cache: 512 KB I on chip per chip,
 64 KB I shared / 2 cores;
 16 KB D on chip per core
 Secondary Cache: 16 MB I+D on chip per chip, 2 MB shared / 2 cores
 L3 Cache: 16 MB I+D on chip per chip, 8 MB shared / 8 cores
 Other Cache: None
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)
 Disk Subsystem: 1 x 146 GB SAS, 7.2 K
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.3,
 Kernel 2.6.32-279.el6.x86_64
 Compiler: C/C++: Version 4.5.2 of x86 Open64 Compiler Suite
 (from AMD)
 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: SmartHeap 10.0 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	64	887	705	887	705	888	704	64	739	846	755	828	740	845
401.bzip2	64	1028	601	1029	600	1018	607	64	948	652	968	638	966	639
403.gcc	64	723	713	712	723	714	722	64	630	817	631	817	628	821
429.mcf	64	690	846	688	848	689	847	64	369	1580	370	1580	369	1580
445.gobmk	64	917	732	920	730	920	730	64	840	800	839	800	839	800
456.hammer	64	397	1510	389	1540	398	1500	64	351	1700	351	1700	352	1700
458.sjeng	64	1104	702	1102	703	1104	702	64	1063	729	1064	728	1065	727
462.libquantum	64	166	7990	167	7960	166	8000	64	166	7990	167	7960	166	8000
464.h264ref	64	1682	842	1610	880	1617	876	64	1305	1090	1310	1080	1310	1080
471.omnetpp	64	534	749	537	745	534	749	64	534	749	537	745	534	749
473.astar	64	693	648	691	650	693	649	64	558	805	558	805	558	805
483.xalancbmk	64	430	1030	431	1020	429	1030	64	427	1030	424	1040	425	1040

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.
See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit

Set transparent_hugepage=never as a boot parameter in /boot/grub/menu.lst

Set vm/nr_hugepages=57344 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

Platform Notes

BIOS Configuration:
HP Power Profile set to Maximum Performance
HP Power Regulator set to HP Static High Performance
Processor Power and Utilization Monitoring set to Disabled
Thermal Configuration set to Maximum Cooling
Memory Refresh Rate set to 1x Refresh



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General Notes

Environment variables set by runspec before the start of the run:

HUGETLB_LIMIT = "896"

LD_LIBRARY_PATH = "/root/work/cpu2006/amd1206-rate-libs-revA/32:/root/work/cpu2006/amd1206-rate-libs-revA/64"

The x86 Open64 Compiler Suite is only available from (and supported by) AMD at <http://developer.amd.com/cpu/open64>

Binaries were compiled on a system with 2x AMD Opteron 6386SE chips + 128GB Memory using RHEL 6.3

Base Compiler Invocation

C benchmarks:

opencc

C++ benchmarks:

openCC

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.hmmmer: -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:

-Ofast -CG:local_sched_alg=1 -INLINE:aggressive=ON -IPA:plimit=8000
-IPA:small_pu=100 -HP:bd=2m:heap=2m -mso -LNO:prefetch=2
-march=bdver1

C++ benchmarks:

-Ofast -m32 -INLINE:aggressive=on -CG:cmp_peep=on -D__OPEN64_FAST_SET
-march=bdver1 -L/root/work/libraries/SmartHeap-10/lib -lsmartheap



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Peak Compiler Invocation

C benchmarks:
opencc

C++ benchmarks:
openCC

Peak Portability Flags

```

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -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
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

```

Peak Optimization Flags

C benchmarks:

```

400.perlbench: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:prefetch=2 -LNO:opt=0 -IPA:plimit=20000
-OPT:unroll_times_max=8 -OPT:unroll_size=256
-OPT:unroll_level=2 -OPT:keep_ext=on -WOPT:if_conv=0
-WOPT:sib=on -CG:local_sched_alg=1 -CG:unroll_fb_req=on
-CG:movext_icmp=off -HP:bd=2m:heap=2m -march=bdver1
-GRA:aggr_loop_splitting=off -GRA:loop_splitting=off

401.bzip2: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-LNO:prefetch=2 -LNO:pf2=0 -OPT:alias=disjoint
-OPT:goto=off -CG:local_sched_alg=1 -HP:bd=2m:heap=2m
-march=bdver2

403.gcc: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:trip_count=256 -CG:cmp_peep=on -CG:pre_minreg_level=2
-m32 -HP:bd=2m:heap=2m -GRA:unspill=on -IPA:small_pu=200
-WOPT:sib=on -march=bdver2 -mno-fma4

429.mcf: -O3 -OPT:unroll_times_max=5 -ipa -INLINE:aggressive=on
-CG:gcm=off -CG:dsched=on -GRA:prioritize_by_density=on
-m32 -HP:bd=2m:heap=2m -mso -march=bdver1

445.gobmk: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-OPT:unroll_size=256 -OPT:unroll_times_max=8
-OPT:keep_ext=on -IPA:plimit=750 -IPA:min_hotness=300

```

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Peak Optimization Flags (Continued)

445.gobmk (continued):

-IPA:pu_reorder=1 -LNO:ignore_feedback=off -WOPT:if_conv=2
-HP:bd=2m:heap=2m -march=bdver1

456.hmmer: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast

-LNO:prefetch=2 -OPT:alias=disjoint
-OPT:unroll_times_max=16 -OPT:unroll_size=512
-OPT:unroll_level=2 -OPT:keep_ext=on -CG:cflow=0
-CG:cmp_peep=on -CG:pre_local_sched=off -HP:bd=2m:heap=2m
-CG:p2align=0 -CG:load_exe=3 -CG:dsched=on -march=bdver1

458.sjeng: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast

-CG:ptr_load_use=0 -CG:divrem_opt=on -CG:movext_icmp=off
-CG:locs_best=on -LNO:full_unroll=10 -IPA:pu_reorder=2
-HP:heap=2m:bd=2m -WOPT:sib=on -march=bdver1

462.libquantum: basepeak = yes

464.h264ref: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3

-OPT:unroll_size=256 -OPT:unroll_times_max=2
-IPA:plimit=20000 -OPT:alias=disjoint -CG:ptr_load_use=0
-CG:local_sched_alg=1 -HP:bd=2m:heap=2m -march=bdver1

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast

-WOPT:if_conv=0 -WOPT:sib=on -CG:divrem_opt=on
-CG:p2align=1 -CG:dsched=on -GRA:optimize_boundary=on
-OPT:alias=disjoint -INLINE:aggressive=on
-IPA:small_pu=3000 -IPA:plimit=3000 -HP:bd=2m:heap=2m
-march=bdver1

483.xalancbmk: -Ofast -LNO:prefetch=2 -OPT:unroll_size=512

-OPT:unroll_times_max=8 -D_OPEN64_FAST_SET
-INLINE:aggressive=on -m32 -CG:cmp_peep=on
-CG:local_sched=off -CG:p2align=1 -GRA:unspill=on
-TENV:frame_pointer=off -fno-emit-exceptions -march=bdver2
-mno-fma4
-L/root/work/libraries/SmartHeap-10/lib -lsmarheap

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

<http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-II.html>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-AMD-V1.2-A.20130327.html>

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

<http://www.spec.org/cpu2006/flags/x86-open64-452-flags-rate-revA-II.xml>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-AMD-V1.2-A.20130327.xml>



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

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