



SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint®_rate2006 = 398

ProLiant DL385 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECint_rate_base2006 = 309

CPU2006 license: 3

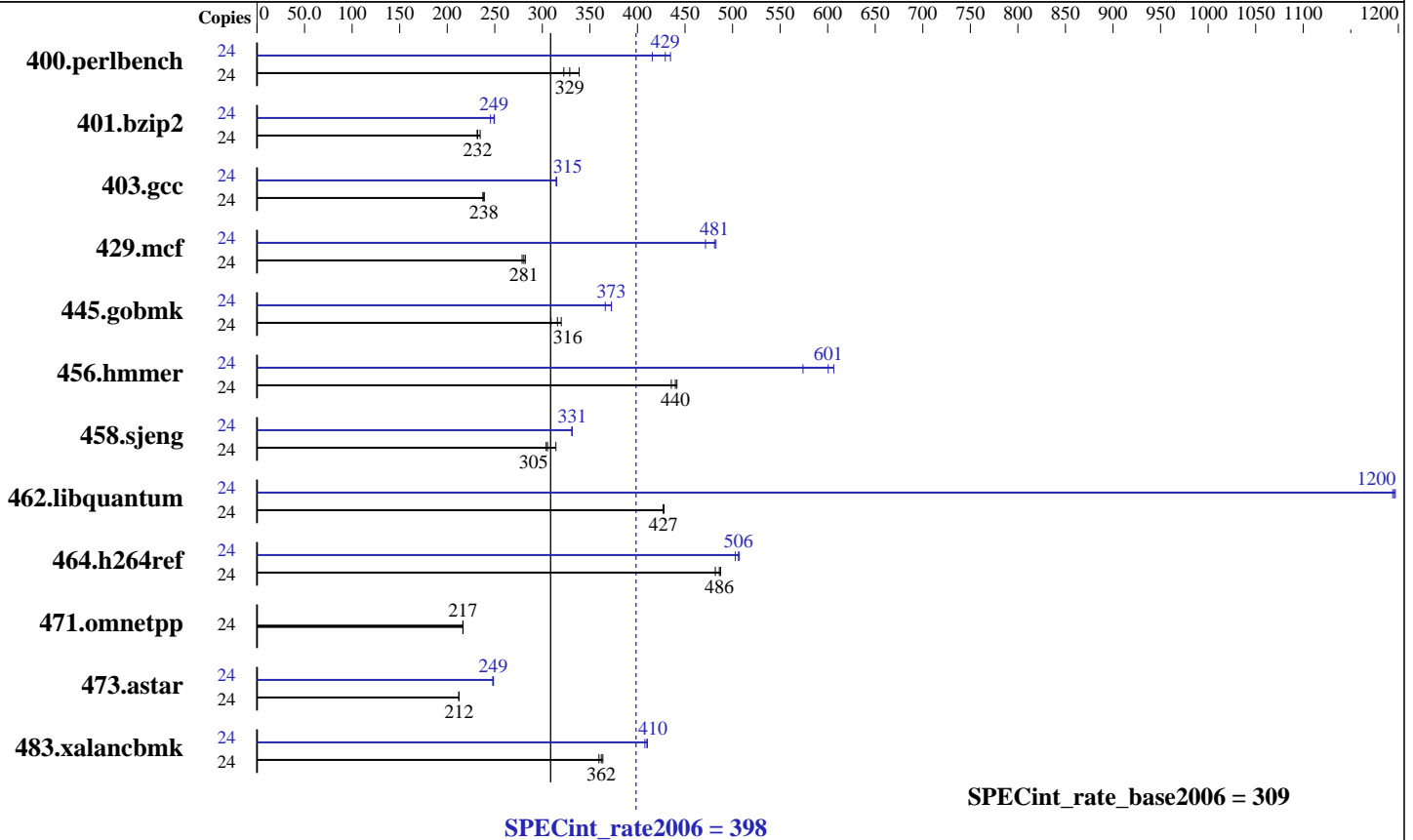
Test date: Mar-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2010

Tested by: Hewlett-Packard Company

Software Availability: Mar-2010



Hardware

CPU Name: AMD Opteron 6176 SE
 CPU Characteristics:
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 24 cores, 2 chips, 12 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: 12 MB I+D on chip per chip, 6 MB shared / 6 cores
 Other Cache: None
 Memory: 64 GB (16x4 GB PC3-10600R, CL9)
 Disk Subsystem: 1 x 146 GB 10 K SATA
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 5.4, Advanced Platform with patch RHSA-2009:1670, Kernel 2.6.18-164.9.1.el5
 Compiler: x86 Open64 4.2.3 Compiler Suite
 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, SmartHeap 8.1 32-bit Library for Linux



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint_rate2006 = 398

ProLiant DL385 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECint_rate_base2006 = 309

CPU2006 license: 3

Test date: Mar-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2010

Tested by: Hewlett-Packard Company

Software Availability: Mar-2010

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	24	692	339	727	323	713	329	24	564	416	546	429	539	435
401.bzip2	24	987	235	998	232	1001	231	24	943	245	928	250	930	249
403.gcc	24	809	239	814	237	810	238	24	614	315	614	315	613	315
429.mcf	24	780	281	785	279	776	282	24	454	483	464	472	455	481
445.gobmk	24	787	320	814	309	797	316	24	688	366	676	373	676	373
456.hammer	24	514	436	509	440	507	442	24	373	601	369	606	390	574
458.sjeng	24	951	305	924	314	955	304	24	876	331	878	331	876	331
462.libquantum	24	1162	428	1164	427	1165	427	24	416	1190	416	1200	416	1200
464.h264ref	24	1102	482	1090	487	1093	486	24	1056	503	1049	506	1047	507
471.omnetpp	24	693	217	692	217	693	216	24	693	217	692	217	693	216
473.astar	24	794	212	793	212	793	212	24	678	249	680	248	678	249
483.xalancbmk	24	457	362	461	359	455	364	24	406	408	403	411	404	410

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 vm/nr_hugepages=10800 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages

Platform Notes

BIOS configuration:
HP Power Profile set to Maximum Performance
Thermal Configuration set to Increased Cooling

General Notes

Environment variables set by runspec before the start of the run:
HUGETLB_LIMIT = "450"
LD_LIBRARY_PATH = "/cpu2006/amd1002mc-rate-revA-libs/64:/cpu2006/amd1002mc-rate-revA-libs/32"

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



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint_rate2006 = 398

ProLiant DL385 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECint_rate_base2006 = 309

CPU2006 license: 3

Test date: Mar-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2010

Tested by: Hewlett-Packard Company

Software Availability: Mar-2010

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.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:
-march=barcelona -mso -Ofast -CG:local_sched_alg=1 -HP:bdt=2m:heap=2m

C++ benchmarks:
-march=barcelona -mso -Ofast -m32 -INLINE:aggressive=on
-CG:cmp_peep=on -L/root/work/libraries/SmartHeap-8.1/lib -lsmarheap

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

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint_rate2006 = 398

ProLiant DL385 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECint_rate_base2006 = 309

CPU2006 license: 3

Test date: Mar-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2010

Tested by: Hewlett-Packard Company

Software Availability: Mar-2010

Peak Portability Flags (Continued)

456.hmmr: -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 -mso -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -IPA:plimit=20000 -LNO:opt=0
-OPT:unroll_times_max=8 -OPT:unroll_size=256
-OPT:unroll_level=2 -OPT:keep_ext=on -WOPT:if_conv=0
-CG:local_sched_alg=1 -CG:unroll_fb_req=on
-HP:bdt=2m:heap=2m

401.bzip2: -march=barcelona -mso -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -OPT:alias=disjoint
-OPT:goto=off -CG:local_sched_alg=1 -HP:bdt=2m:heap=2m

403.gcc: -march=barcelona -mso -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -LNO:trip_count=256
-LNO:prefetch_ahead=10 -CG:cmp_peep=on -m32
-HP:bdt=2m:heap=2m -GRA:unspill=on -IPA:small_pu=200

429.mcf: -march=barcelona -mso -O3 -ipa -INLINE:aggressive=on
-CG:gcm=off -GRA:prioritize_by_density=on -m32
-HP:bdt=2m:heap=2m

445.gobmk: -march=barcelona -mso -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -OPT:alias=restrict
-OPT:unroll_times_max=8 -OPT:unroll_size=256
-OPT:unroll_level=2 -OPT:keep_ext=on -ipa -IPA:plimit=750
-IPA:min_hotness=300 -IPA:pu_reorder=1 -LNO:prefetch=1
-LNO:ignore_feedback=off -CG:p2align=on
-CG:unroll_fb_req=on -HP:bdt=2m:heap=2m

456.hmmr: -march=barcelona -mso -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -LNO:prefetch=0
-OPT:alias=disjoint -OPT:unroll_times_max=8
-OPT:unroll_size=256 -OPT:unroll_level=2 -OPT:keep_ext=on
-CG:local_sched_alg=1 -CG:cflow=0
-CG:push_pop_int_saved_regs=off -CG:cmp_peep=on
-HP:bdt=2m:heap=2m

458.sjeng: -march=barcelona -mso -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -ipa -LNO:ignore_feedback=off
-LNO:full_unroll=10 -LNO:fusion=0 -LNO:fission=2

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint_rate2006 = 398

ProLiant DL385 G7
(2.3 GHz AMD Opteron 6176 SE)

SPECint_rate_base2006 = 309

CPU2006 license: 3

Test date: Mar-2010

Test sponsor: Hewlett-Packard Company

Hardware Availability: Apr-2010

Tested by: Hewlett-Packard Company

Software Availability: Mar-2010

Peak Optimization Flags (Continued)

458.sjeng (continued):

```
-IPA:pu_reorder=2 -CG:ptr_load_use=0
-OPT:unroll_times_max=8 -INLINE:aggressive=on
```

462.libquantum: -march=barcelona -mso -Ofast -LNO:pf2=0 -CG:gcm=off
-CG:use_prefetchnta=on -CG:cmp_peep=on -WOPT:aggstr=0
-HP:bdt=2m:heap=2m -OPT:alias=disjoint
-INLINE:aggressive=on -IPA:space=1000 -IPA:plimit=20000

464.h264ref: -march=barcelona -mso -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -IPA:plimit=20000
-OPT:alias=disjoint -LNO:prefetch=0 -CG:ptr_load_use=0
-CG:push_pop_int_saved_regs=off

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=barcelona -mso -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -TENV:frame_pointer=off
-WOPT:if_conv=0 -GRA:optimize_boundary=on
-OPT:alias=disjoint -INLINE:aggressive=on
-IPA:small_pu=3000 -IPA:plimit=3000 -m32
-HP:bdt=2m:heap=2m

483.xalancbmk: -march=barcelona -mso -Ofast -INLINE:aggressive=on -m32
-CG:cmp_peep=on -GRA:unspill=on -TENV:frame_pointer=off
-fno-emit-exceptions
-L/root/work/libraries/SmartHeap-8.1/lib -lsmartheap

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

<http://www.spec.org/cpu2006/flags/hp-amd-linux-flags.20100330.html>
<http://www.spec.org/cpu2006/flags/x86-open64-4.2.3-flags-revA.html>

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

<http://www.spec.org/cpu2006/flags/hp-amd-linux-flags.20100330.xml>
<http://www.spec.org/cpu2006/flags/x86-open64-4.2.3-flags-revA.xml>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 05:35:04 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 30 March 2010.