SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

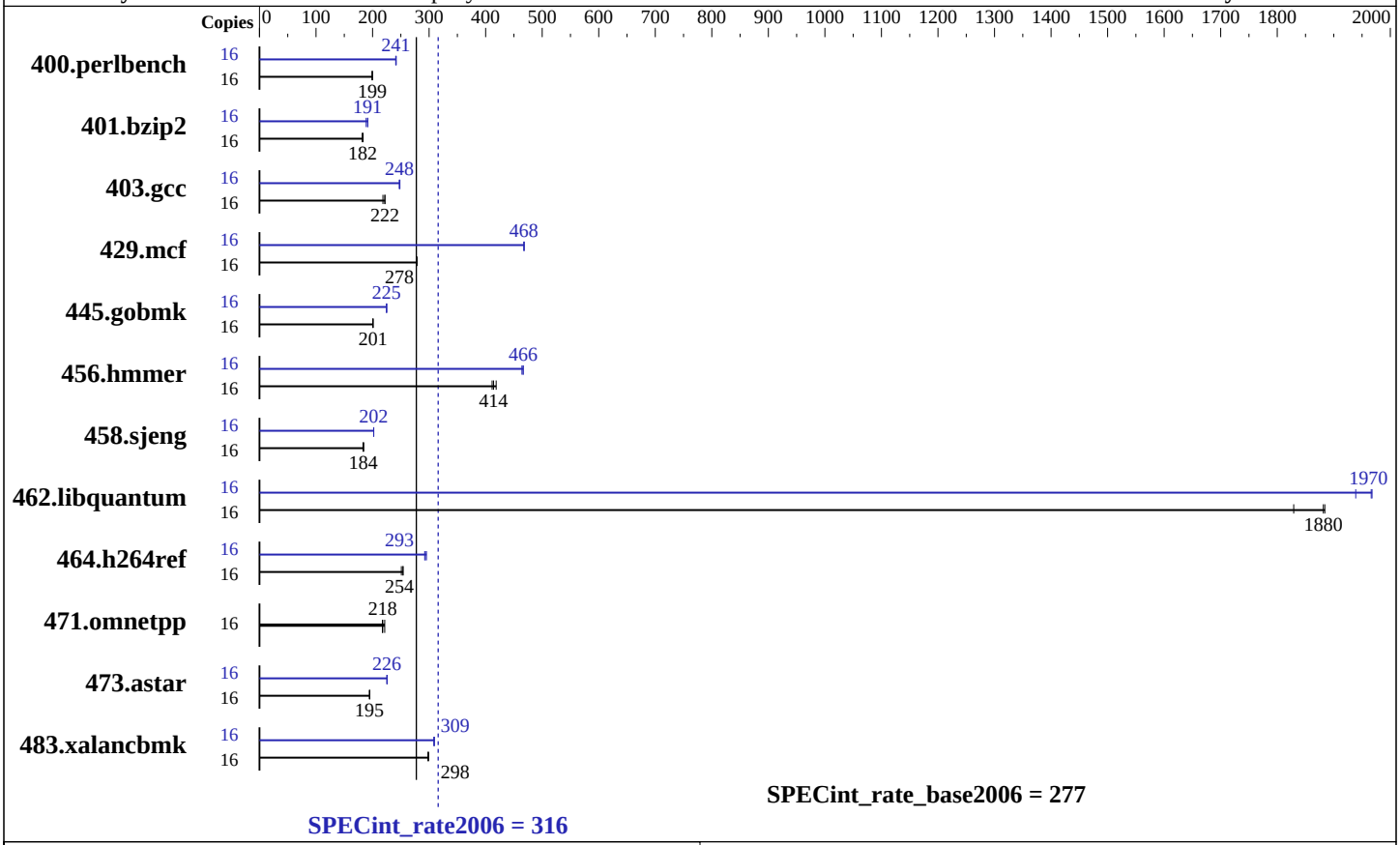
ProLiant BL465c G7
(3.0 GHz AMD Opteron 6220)

SPECint®_rate2006 = 316

SPECint_rate_base2006 = 277

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Oct-2011
Hardware Availability: Nov-2011
Software Availability: Jul-2011



Hardware

CPU Name:	AMD Opteron 6220
CPU Characteristics:	AMD Turbo CORE technology up to 3.60 GHz
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	256 KB I on chip per chip, 64 KB I shared / 2 cores; 16 KB D on chip per core
Secondary Cache:	8 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 / 4 cores
Other Cache:	None
Memory:	128 GB (16 x 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem:	1 x 146 GB 10 K SAS
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.1, Kernel 2.6.32-131.0.15.el6.x86_64
Compiler:	C/C++: Version 4.2.5.2 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

SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant BL465c G7
(3.0 GHz AMD Opteron 6220)

SPECint_rate2006 = 316

SPECint_rate_base2006 = 277

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Oct-2011
Hardware Availability: Nov-2011
Software Availability: Jul-2011

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	16	784	199	**784**	**199**	783	200	16	649	241	647	242	**647**	**241**
401.bzip2	16	843	183	**846**	**182**	850	182	16	**807**	**191**	819	189	807	191
403.gcc	16	580	222	**581**	**222**	590	218	16	519	248	521	247	**520**	**248**
429.mcf	16	526	277	524	279	**524**	**278**	16	312	468	312	468	**312**	**468**
445.gobmk	16	836	201	837	201	**836**	**201**	16	746	225	**747**	**225**	748	225
456.hmmer	16	357	419	**361**	**414**	363	411	16	320	466	**320**	**466**	322	464
458.sjeng	16	1058	183	1051	184	**1052**	**184**	16	959	202	958	202	**958**	**202**
462.libquantum	16	181	1830	**176**	**1880**	176	1880	16	168	1970	171	1940	**169**	**1970**
464.h264ref	16	1395	254	1411	251	**1395**	**254**	16	1199	295	1212	292	**1207**	**293**
471.omnetpp	16	451	222	460	217	**459**	**218**	16	451	222	460	217	**459**	**218**
473.astar	16	577	195	576	195	**577**	**195**	16	498	226	498	225	**498**	**226**
483.xalancbmk	16	369	299	**370**	**298**	370	298	16	357	309	358	308	**357**	**309**

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 "echo never > /sys/kernel/mm/redhat_transparent_hugepage/enabled"

Set vm/nr_hugepages=14336 in /etc/sysctl.conf
Set "nodev       /mnt/hugepages    hugetlbfs   defaults  0 0" in /etc/fstab
```

Platform Notes

```
BIOS settings:
 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 = "896"
LD_LIBRARY_PATH = "/cpu2006/amd1104-rate-libs-revA/32:/cpu2006/amd1104-rate-libs-revA/64"
```

Continued on next page

General Notes (Continued)

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

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=bdver1 -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

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

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
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -march=bdver1 -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

401.bzip2: -march=bdver1 -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:bdt=2m:heap=2m

403.gcc: -march=bdver1 -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:bdt=2m:heap=2m -GRA:unspill=on -IPA:small_pu=200
-WOPT:sib=on

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

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

456.hmmer: -march=bdver1 -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:bdt=2m:heap=2m

Continued on next page

Peak Optimization Flags (Continued)

458.sjeng: -march=bdver1 -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:bd=2m:heap=2m
-WOPT:sib=on

462.libquantum: -march=bdver1 -Ofast -mso -OPT:unroll_size=512
-OPT:unroll_times_max=16 -LNO:prefetch=2
-LNO:prefetch_ahead=4 -LNO:pf2=0 -CG:local_sched_alg=1
-INLINE:aggressive=on -IPA:plimit=15000 -IPA:small_pu=100
-HP:bdt=2m:heap=2m,limit=300

464.h264ref: -march=bdver1 -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:bdt=2m:heap=2m

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=bdver1 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -TENV:frame_pointer=off
-WOPT:if_conv=0 -WOPT:sib=on -CG:divrem_opt=on
-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=bdver1 -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 -GRA:unspill=on -TENV:frame_pointer=off
-fno-emit-exceptions
-L/root/work/libraries/SmartHeap-10/lib -lsmartheap

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/x86-open64-425-flags-rate-revA.html
http://www.spec.org/cpu2006/flags/hp-amd-linux-flags.20100330.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/x86-open64-425-flags-rate-revA.xml
http://www.spec.org/cpu2006/flags/hp-amd-linux-flags.20100330.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 Thu Jul 24 01:31:56 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 November 2011.