SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

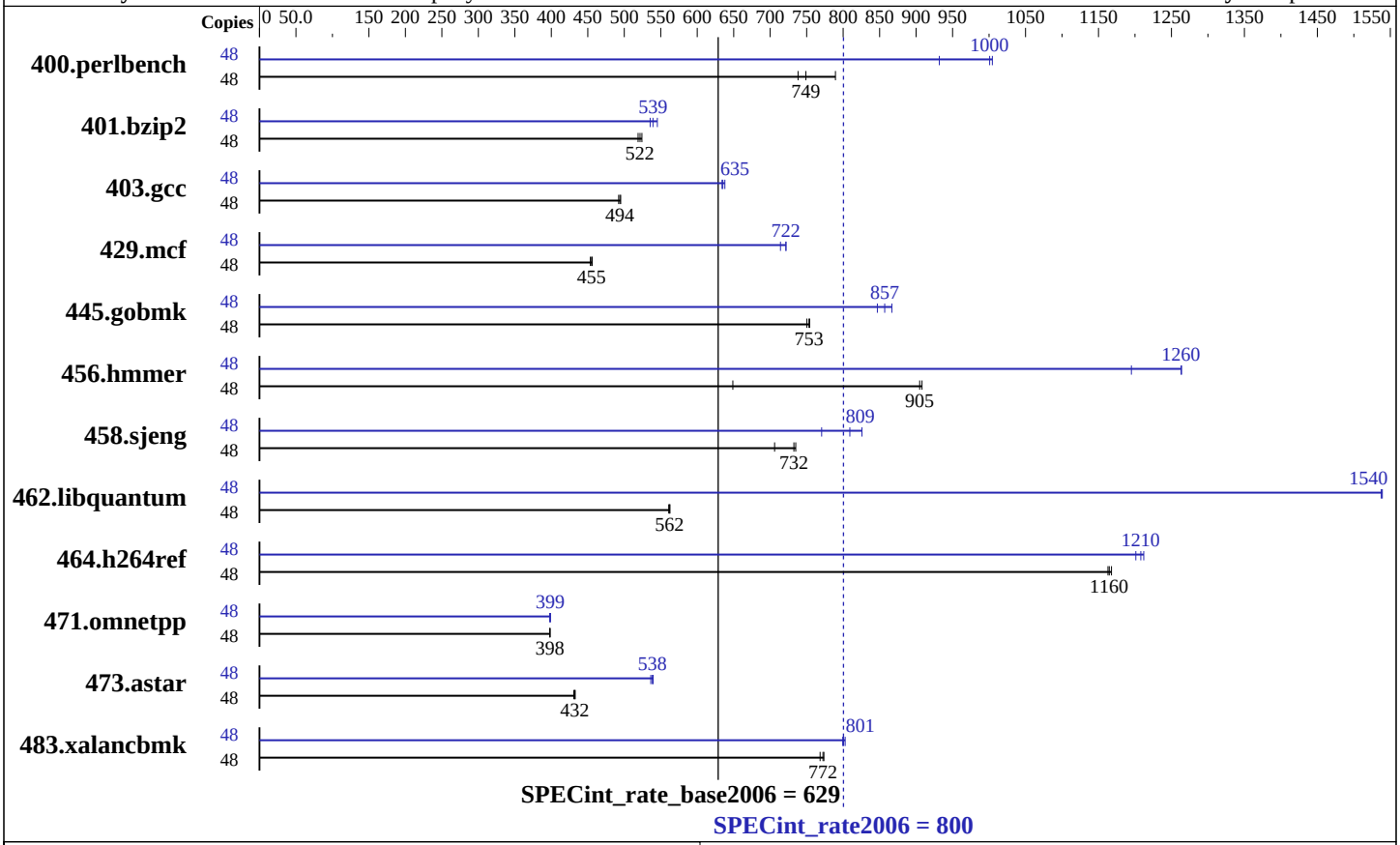
ProLiant DL785 G6
(2.8 GHz AMD Opteron 8439 SE)

SPECint®_rate2006 = 800

SPECint_rate_base2006 = 629

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

Test date: Aug-2009
Hardware Availability: Oct-2009
Software Availability: Apr-2009



Hardware

CPU Name:	AMD Opteron 8439 SE
CPU Characteristics:	
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	48 cores, 8 chips, 6 cores/chip
CPU(s) orderable:	4,8 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:	128 GB (32x4 GB, PC2-6400 CL5)
Disk Subsystem:	4x72 GB 10K 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 x86 Open64 4.2.2 Compiler Suite
Auto Parallel:	No
File System:	ext3
System State:	Run level 5 (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

ProLiant DL785 G6
(2.8 GHz AMD Opteron 8439 SE)

SPECint_rate2006 = 800

SPECint_rate_base2006 = 629

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

Test date: Aug-2009
Hardware Availability: Oct-2009
Software Availability: Apr-2009

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	48	594	789	635	738	**626**	**749**	48	503	932	467	1000	**469**	**1000**
401.bzip2	48	884	524	**888**	**522**	893	519	48	**859**	**539**	865	535	849	545
403.gcc	48	780	495	785	492	**782**	**494**	48	**608**	**635**	609	634	606	638
429.mcf	48	965	453	960	456	**962**	**455**	48	**607**	**722**	613	714	607	722
445.gobmk	48	671	750	668	754	**669**	**753**	48	595	847	**588**	**857**	581	867
456.hmmer	48	**495**	**905**	493	908	690	649	48	375	1200	354	1260	**355**	**1260**
458.sjeng	48	823	706	790	735	**793**	**732**	48	754	771	703	826	**718**	**809**
462.libquantum	48	**1769**	**562**	1768	563	1773	561	48	647	1540	646	1540	**647**	**1540**
464.h264ref	48	**912**	**1160**	913	1160	910	1170	48	876	1210	884	1200	**879**	**1210**
471.omnetpp	48	753	398	754	398	**754**	**398**	48	**753**	**399**	752	399	754	398
473.astar	48	779	433	782	431	**780**	**432**	48	628	536	**626**	**538**	625	540
483.xalancbmk	48	428	774	431	768	**429**	**772**	48	**414**	**801**	414	799	413	803

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 and local memory
 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=21600 in /etc/sysctl.conf
 mount -t hugetlbfs nodev /mnt/hugepages
```

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_LIMIT = "450"
LD_LIBRARY_PATH = "/SPECcpu2006_Open64/amd0905is-libs/64:/SPECcpu2006_Open64/amd0905is-libs/32"
PGI_HUGE_PAGES = "450"

The x86 Open64 Compiler Suite is only available from (and supported by) AMD at
```

Continued on next page

General Notes (Continued)

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

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

Peak Compiler Invocation

C benchmarks (except as noted below):
opencc

456.hmmer: pgcc

C++ benchmarks (except as noted below):
openCC

473.astar: pgcpp

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=barcelona -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 -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -OPT:alias=disjoint
-OPT:unroll_size=0 -OPT:Ofast -OPT:goto=off
-INLINE:aggressive=on -CG:local_sched_alg=1 -m3dnow
-HP:bdt=2m:heap=2m

403.gcc: -march=barcelona -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

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

445.gobmk: -march=barcelona -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.hmmer: -fastsse -Mvect=partial -Munroll=n:8 -Msmartalloc=huge
-Msafeptr -Mprefetch=t0 -Mfprelaxed -Mipa=const -Mipa=ptr
-Mipa=arg -Mipa=inline -tp shanghai-64 -Bstatic_pgi

Continued on next page

Peak Optimization Flags (Continued)

458.sjeng: -march=barcelona -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
-IPA:pu_reorder=2 -CG:ptr_load_use=0
-OPT:unroll_times_max=8 -INLINE:aggressive=on
-HP:bdt=2m:heap=2m

462.libquantum: -march=barcelona -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 -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 -HP:bdt=2m:heap=2m

C++ benchmarks:

471.omnetpp: -march=barcelona -Ofast -CG:gcm=off -INLINE:aggressive=on
-OPT:alias=disjoint -WOPT:if_conv=0 -m32
-L/root/work/libraries/SmartHeap-8.1/lib -lsmartheap

473.astar: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
-Mipa=inline:6(pass 2) -fastsse -O4 -Msmartalloc=huge
-Msafeptr=global -Mfprelaxed --zc_eh -tp shanghai-32
-Bstatic_pgi

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

Peak Other Flags

C benchmarks:

456.hmmer: -Mipa=jobs:4

C++ benchmarks:

473.astar: -Mipa=jobs:4(pass 2)

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/pgi80_linux_flags.20090901.html
http://www.spec.org/cpu2006/flags/hp-amd-linux-flags.html
http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags-revE.html

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

http://www.spec.org/cpu2006/flags/pgi80_linux_flags.20090901.xml
http://www.spec.org/cpu2006/flags/hp-amd-linux-flags.xml
http://www.spec.org/cpu2006/flags/x86-open64-4.2.2-flags-revE.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 02:09:12 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 1 September 2009.