SPEC® CINT2006 Result

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Hewlett-Packard Company

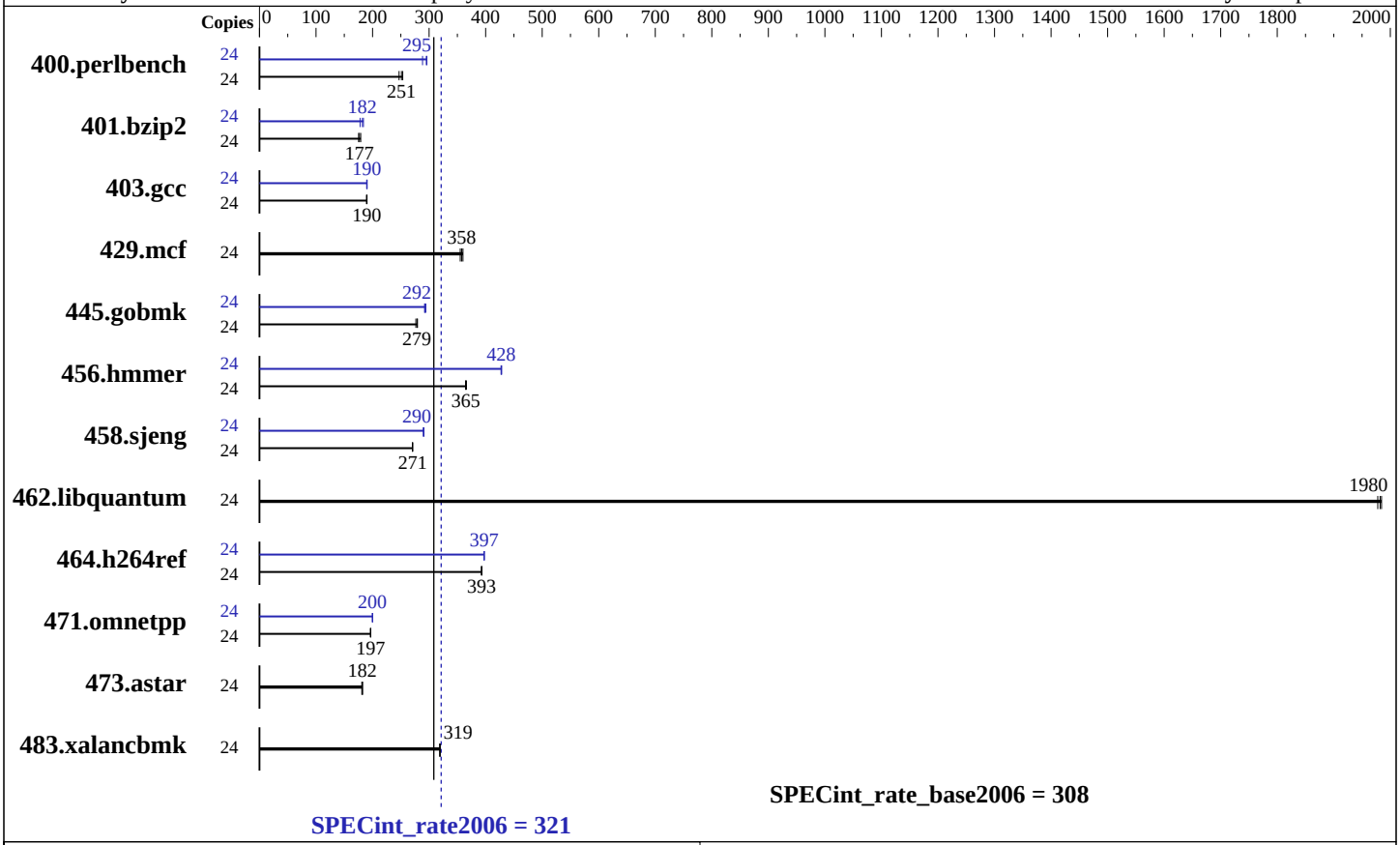
ProLiant BL460c G7
(2.40 GHz, Intel Xeon E5645)

SPECint®_rate2006 = 321

SPECint_rate_base2006 = 308

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

Test date: Oct-2011
Hardware Availability: Feb-2011
Software Availability: Sep-2011



Hardware

CPU Name:	Intel Xeon E5645
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem:	1 x 146 GB 15K SAS
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 6.1, Kernel 2.6.32-131.0.15.el.x86_64
Compiler:	C/C++: Version 12.1.0.225 of Intel Compiler XE Build 20110803
Auto Parallel:	No
File System:	ext4
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V9.01

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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	24	925	253	950	247	**934**	**251**	24	**795**	**295**	792	296	813	288
401.bzip2	24	**1309**	**177**	1322	175	1294	179	24	1259	184	1302	178	**1272**	**182**
403.gcc	24	**1018**	**190**	1020	189	1016	190	24	1015	190	**1016**	**190**	1019	190
429.mcf	24	616	355	608	360	**612**	**358**	24	616	355	608	360	**612**	**358**
445.gobmk	24	**903**	**279**	901	279	910	277	24	856	294	862	292	**861**	**292**
456.hmmer	24	614	364	**613**	**365**	612	366	24	524	427	**524**	**428**	523	428
458.sjeng	24	1074	270	1072	271	**1072**	**271**	24	1002	290	998	291	**1000**	**290**
462.libquantum	24	251	1980	251	1980	**251**	**1980**	24	251	1980	251	1980	**251**	**1980**
464.h264ref	24	1350	393	1353	393	**1352**	**393**	24	**1336**	**397**	1336	398	1338	397
471.omnetpp	24	764	196	**763**	**197**	762	197	24	**750**	**200**	750	200	751	200
473.astar	24	931	181	**926**	**182**	924	182	24	931	181	**926**	**182**	924	182
483.xalancbmk	24	**519**	**319**	518	320	520	319	24	**519**	**319**	518	320	520	319

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
```

Platform Notes

```
 BIOS configuration:
  HP Power Profile set to Maximum Performance
  Thermal Configuration set to Increased Cooling
  Data Reuse set to Disabled
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/root/s2k6/smartheap:/root/s2k6/ic12.1-libs/ia32/:/root/s2k6/ic12.1-libs/intel64"

 Stack size set to unlimited using "ulimit -s unlimited"
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1>       /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:
```
icc  -m32
```

C++ benchmarks:
```
icpc -m32
```

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/smartheap -lsmartheap
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc  -m32
```

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:
```
icpc -m32
```

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32 -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/smartheap -lsmartheap

473.astar: basepeak = yes

Continued on next page

Peak Optimization Flags (Continued)

483.xalancbmk: `basepeak = yes`

Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.html`
`http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.xml`
`http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110316.xml`

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Tested with SPEC CPU2006 v1.1.
Report generated on Thu Jul 24 00:51:11 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 November 2011.