SPEC® CINT2006 Result

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Hewlett-Packard Company

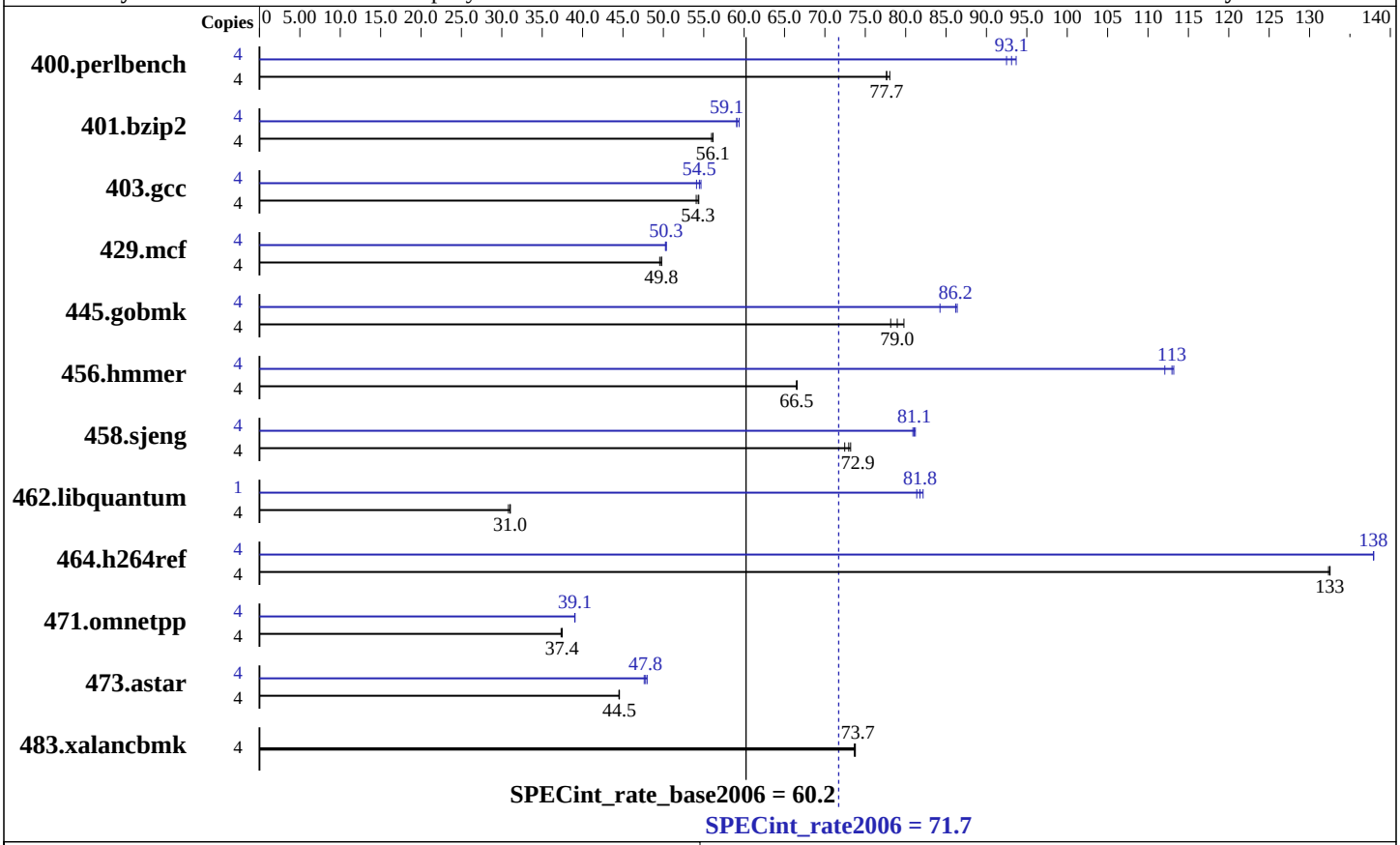
ProLiant ML350 G5
(3.16 GHz, Intel Xeon X5460)

SPECint®_rate2006 = 71.7

SPECint_rate_base2006 = 60.2

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

Test date: Apr-2008
Hardware Availability: Jul-2008
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon X5460
CPU Characteristics:	3.16 GHz, 2x6 MB L2 shared, 1333 MHz system bus
CPU MHz:	3166
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 6 MB shared / 2 cores
L3 Cache:	None
Other Cache:	None
Memory:	32 GB (8x4 GB PC2-5300F CL5)
Disk Subsystem:	1x72 GB 10 K SAS
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
Compiler:	Intel C++ Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008
Auto Parallel:	Yes
File System:	ext2
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	MicroQuill SmartHeap Library 8.1 binutils-2.17.50

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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	4	503	77.6	**503**	**77.7**	501	78.0	4	**420**	**93.1**	423	92.5	417	93.7
401.bzip2	4	**688**	**56.1**	690	56.0	687	56.1	4	650	59.4	**653**	**59.1**	653	59.1
403.gcc	4	592	54.4	596	54.1	**593**	**54.3**	4	589	54.7	**591**	**54.5**	595	54.1
429.mcf	4	**733**	**49.8**	736	49.5	733	49.8	4	**725**	**50.3**	726	50.3	724	50.4
445.gobmk	4	537	78.1	526	79.8	**531**	**79.0**	4	**487**	**86.2**	498	84.2	486	86.4
456.hmmer	4	561	66.6	**561**	**66.5**	561	66.5	4	333	112	**330**	**113**	330	113
458.sjeng	4	**663**	**72.9**	661	73.2	668	72.5	4	**597**	**81.1**	598	80.9	596	81.2
462.libquantum	4	2689	30.8	**2671**	**31.0**	2669	31.1	1	252	82.2	**253**	**81.8**	255	81.4
464.h264ref	4	**668**	**133**	668	133	669	132	4	**642**	**138**	642	138	642	138
471.omnetpp	4	670	37.3	667	37.5	**668**	**37.4**	4	641	39.0	**640**	**39.1**	640	39.1
473.astar	4	631	44.5	**630**	**44.5**	630	44.6	4	**587**	**47.8**	590	47.6	585	48.0
483.xalancbmk	4	375	73.6	374	73.8	**374**	**73.7**	4	375	73.6	374	73.8	**374**	**73.7**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
 OMP_NUM_THREADS set to number of cores
 KMP_AFFINITY set to physical,0
 KMP_STACKSIZE set to 64M
```

Platform Notes

```
BIOS configuration:
  Power Regulator set to Static High Performance Mode
  Adjacent Sector Prefetch Disabled
```

Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`

Continued on next page

Base Portability Flags (Continued)

462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-fast -inline-calloc -opt-malloc-options=3

C++ benchmarks:
-xT -ipo -O3 -no-prec-div -Wl,-z,muldefs
-L/cpu2006/SmartHeap_8.1/lib -lsmartheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc

401.bzip2: /opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include

456.hmmer: /opt/intel/cce/10.1.008/bin/icc
-L/opt/intel/cce/10.1.008/lib
-I/opt/intel/cce/10.1.008/include

C++ benchmarks:
icpc

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -ansi-alias -prefetch`

401.bzip2: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -prefetch`

403.gcc: `-fast -inline-calloc -opt-malloc-options=3`

429.mcf: `-fast -prefetch`

445.gobmk: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O2 -ipo -no-prec-div -ansi-alias`

456.hmmer: `-fast -unroll2 -ansi-alias -opt-multi-version-aggressive`

458.sjeng: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll4`

462.libquantum: `-fast -unroll4 -Ob0 -prefetch -opt-streaming-stores always -vec-guard-write -opt-malloc-options=3 -parallel -par-runtime-control`

464.h264ref: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-fast -unroll2 -ansi-alias`

C++ benchmarks:

471.omnetpp: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/cpu2006/SmartHeap_8.1/lib -lsmartheap`

473.astar: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xT -O3 -ipo -no-prec-div -ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs -L/cpu2006/SmartHeap_8.1/lib -lsmartheap`

483.xalancbmk: `basepeak = yes`

Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-int-flags.20090714.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/HP-Intel-ic10.1-linux-int-flags.20090714.xml`

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