SPEC® CINT2006 Result

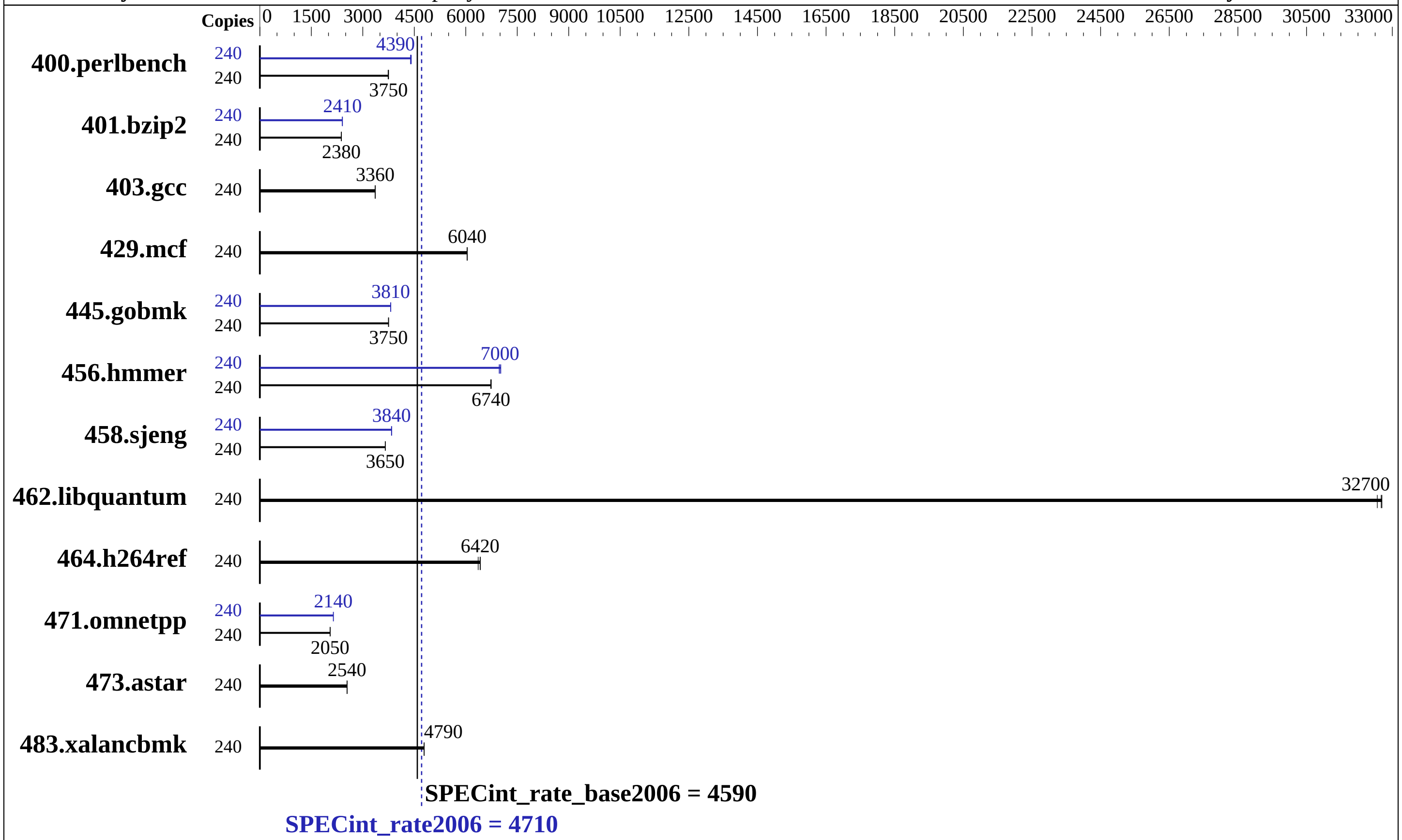
Hewlett-Packard Company

HP Integrity Superdome X
(120 core, 2.80 GHz, Intel Xeon E7-2890 v2)

SPECint®_rate2006 = 4710

SPECint_rate_base2006 = 4590

CPU2006 license: 3		**Test date:**	Sep-2014
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Dec-2014
Tested by:	Hewlett-Packard Company	**Software Availability:**	Jul-2014



Hardware

CPU Name:	Intel Xeon E7-2890 v2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	120 cores, 8 chips, 15 cores/chip, 2 threads/core
CPU(s) orderable:	8,16 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:	37.5 MB I+D on chip per chip
Other Cache:	None
Memory:	2 TB (64 x 32 GB 4Rx4 PC3-14900L-13, ECC, running at 1333 MHz)
Disk Subsystem:	8 x C8S59A, 900 GB 10K RPM SAS
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64) SP3 Kernel 3.0.101-0.30-bigsmp
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	tmpfs
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.0

Results Table

Benchmark	Base Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	240	625	3750	**626**	**3750**	627	3740	240	534	4390	531	4410	**534**	**4390**
401.bzip2	240	974	2380	976	2370	**975**	**2380**	240	**962**	**2410**	965	2400	962	2410
403.gcc	240	574	3360	**575**	**3360**	575	3360	240	574	3360	**575**	**3360**	575	3360
429.mcf	240	362	6040	362	6040	**362**	**6040**	240	362	6040	362	6040	**362**	**6040**
445.gobmk	240	671	3750	672	3750	**672**	**3750**	240	660	3820	**660**	**3810**	660	3810
456.hmmer	240	**332**	**6740**	333	6730	332	6740	240	319	7020	**320**	**7000**	321	6970
458.sjeng	240	**795**	**3650**	795	3650	795	3650	240	756	3840	758	3830	**756**	**3840**
462.libquantum	240	**152**	**32700**	153	32600	152	32700	240	**152**	**32700**	153	32600	152	32700
464.h264ref	240	835	6360	827	6420	**828**	**6420**	240	835	6360	827	6420	**828**	**6420**
471.omnetpp	240	733	2050	**733**	**2050**	732	2050	240	700	2140	701	2140	**700**	**2140**
473.astar	240	664	2540	**663**	**2540**	663	2540	240	664	2540	**663**	**2540**	663	2540
483.xalancbmk	240	**346**	**4790**	346	4790	346	4790	240	**346**	**4790**	346	4790	346	4790

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

Submit Notes

```
The numactl mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate numactl commands to bind each copy to a specific processor.
For details, please see the config file.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
intel_idle.max_cstate=1 appended in kernel command line
Power profile set with:
 cpupower -c all frequency-set -g performance
Benchmark installed under /dev/shm/cpu2006 and mount with:
 mount -o bind /dev/shm/cpu2006 /cpu2006
Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/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>
```

Platform Notes

```
Firmware settings:
 Memory RAS Configuration set to Maximum Performance
Sysinfo program /cpu2006/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on hawk036os1 Sun Sep 21 08:13:03 2014
```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Platform Notes (Continued)

```
This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E7-2890 v2 @ 2.80GHz
      8 "physical id"s (chips)
      240 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 15
      siblings  : 30
      physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 4: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 5: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 6: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
      physical 7: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
   cache size : 38400 KB

From /proc/meminfo
   MemTotal:       2117767180 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 3

uname -a:
   Linux hawk036os1 3.0.101-0.30-bigsmp #1 SMP Fri May 23 16:16:00 UTC 2014
   (bd1c1f5) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Sep 18 19:20 last=S

SPEC is set to: /cpu2006
   Filesystem     Type   Size  Used Avail Use% Mounted on
   tmpfs          tmpfs 1010G  4.6G 1006G   1% /dev/shm

Additional information from dmidecode:
  BIOS HP Bundle: 005.050.012 SFW: 014.010.000 05/07/2014
  Memory:
   64x HP HMT84GL7AMR4C-RD 32 GB 1867 MHz
   128x not defined not defined
```

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Platform Notes (Continued)

```
 (End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of
memory is 2 TB. Also, sysinfo gathered the wrong information from dmidecode about
speed of the DIMMs. The reported 1867 MHz value is the maximum DIMM speed, but
the configured speed is really 1333 MHz. The dmidecode description should have
one line reading as:
 64x HP HMT84GL7AMR4C-RD 32 GB 1333 MHz
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RedHat EL 6.4
```

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/sh -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: `basepeak = yes`

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Peak Optimization Flags (Continued)

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: basepeak = yes

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/sh -lsmartheap

473.astar: basepeak = yes

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-ic14.0-official-linux64-revC.html
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-Integrity-revA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-Integrity-revA.xml

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

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