



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®_rate2006 = 4710

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

SPECint_rate_base2006 = 4590

CPU2006 license: 3

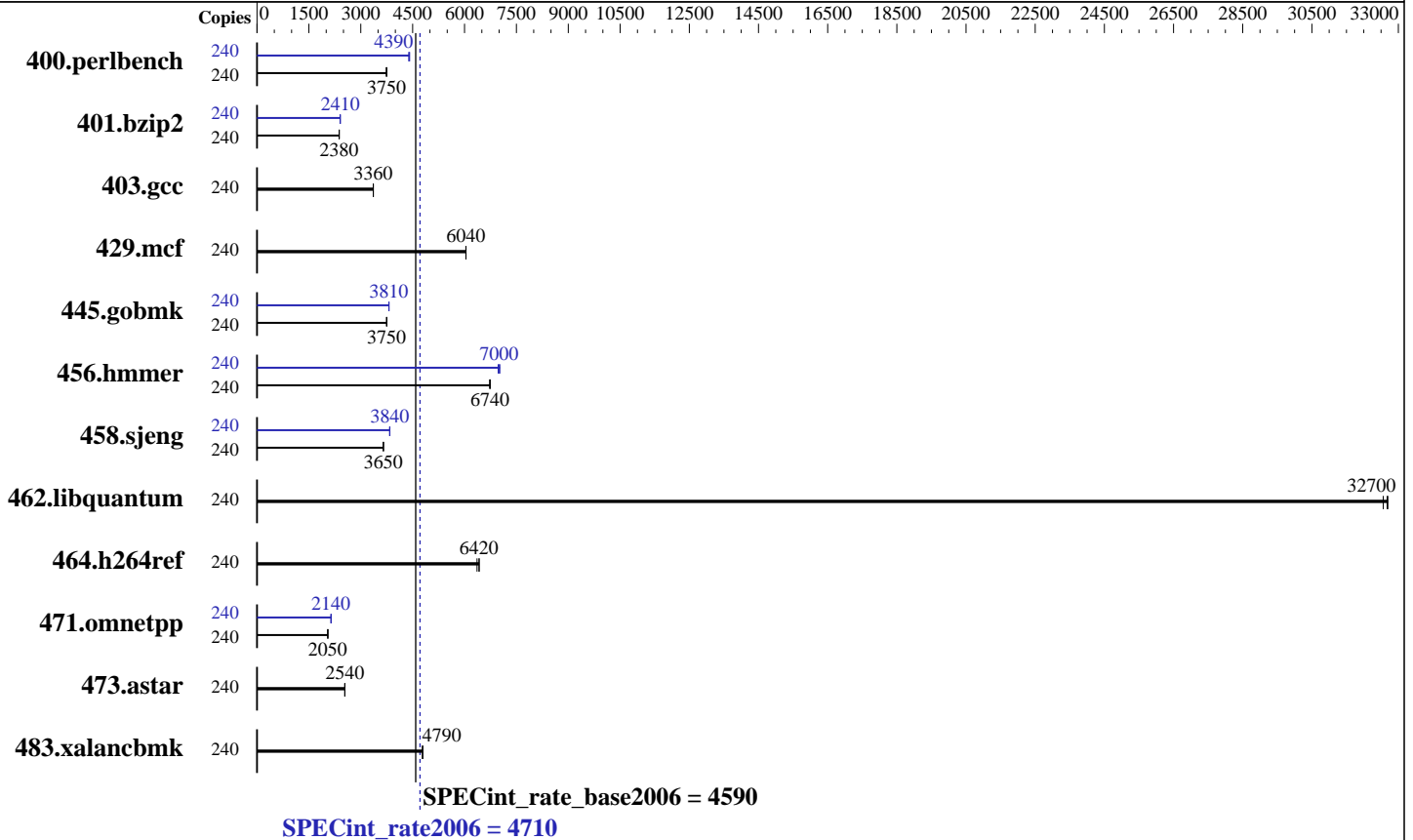
Test date: Sep-2014

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-bigsmpt
 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



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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	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.hammer	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-bigsmpt #1 SMP Fri May 23 16:16:00 UTC 2014
(bdlc1f5) 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
```



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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>



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For other inquiries, please contact webmaster@spec.org.

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