



SPEC® CINT2006 Result

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Sugon

SPECint®2006 = 53.8

Sugon I620-G20 (Intel Xeon E5-2640 v3)

SPECint_base2006 = 51.2

CPU2006 license: 9046

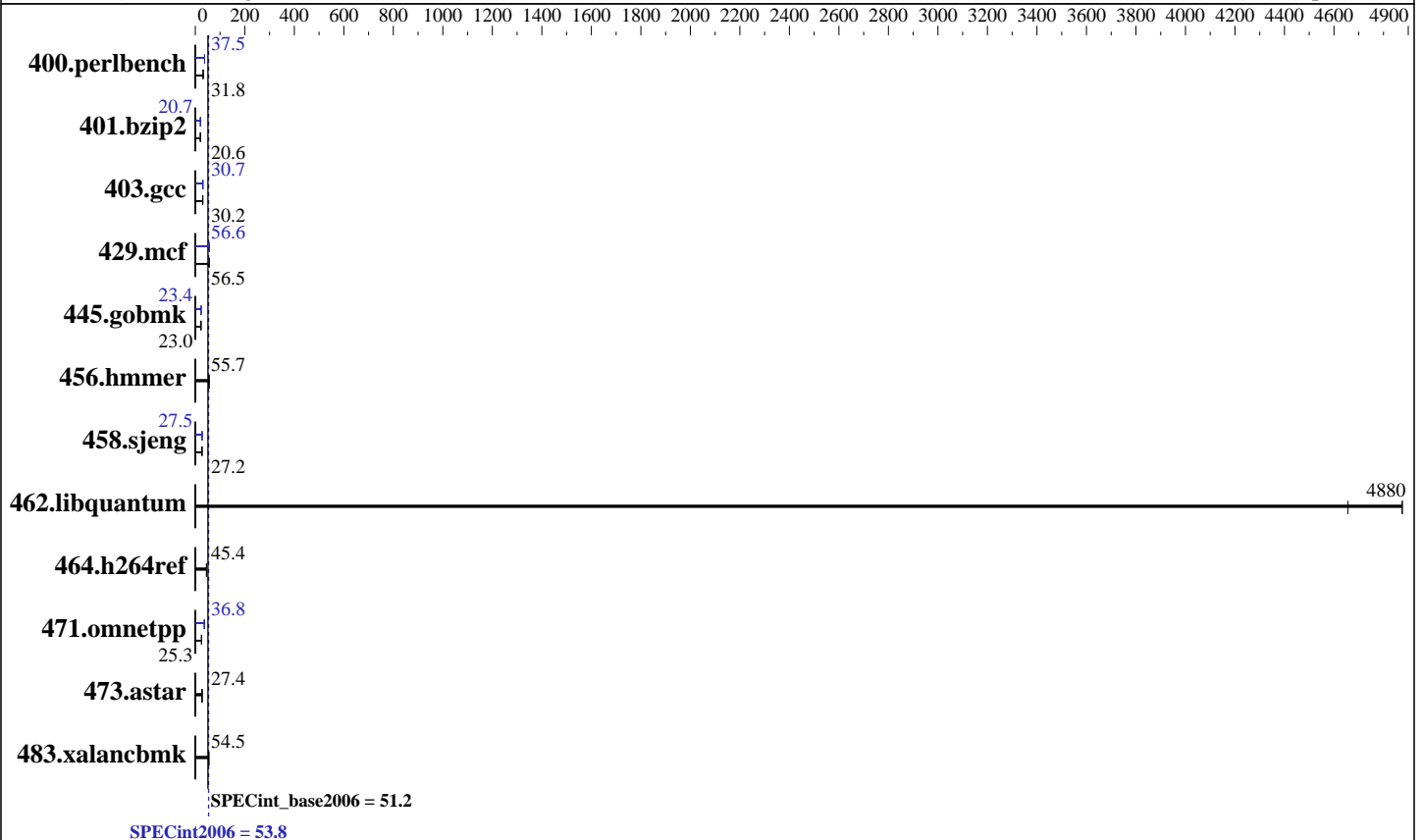
Test date: Sep-2014

Test sponsor: Sugon

Hardware Availability: Sep-2014

Tested by: Sugon

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2640 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
 CPU MHz: 2600
 FPU: Integrated
 CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
 Disk Subsystem: 1 x 2.0 TB SATA 7200 RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
 2.6.32-358.el6.x86_64
 Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V10.0



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<u>307</u>	<u>31.8</u>	308	31.8	307	31.9	260	37.5	<u>261</u>	<u>37.5</u>	261	37.5
401.bzip2	469	20.6	<u>469</u>	<u>20.6</u>	470	20.5	466	20.7	<u>466</u>	<u>20.7</u>	465	20.8
403.gcc	267	30.2	<u>267</u>	<u>30.2</u>	267	30.1	262	30.7	<u>262</u>	<u>30.7</u>	262	30.7
429.mcf	<u>161</u>	<u>56.5</u>	163	56.1	161	56.5	<u>161</u>	<u>56.6</u>	162	56.2	160	57.1
445.gobmk	456	23.0	<u>457</u>	<u>23.0</u>	457	22.9	447	23.4	<u>448</u>	<u>23.4</u>	448	23.4
456.hammer	167	55.8	<u>167</u>	<u>55.7</u>	170	55.0	167	55.8	<u>167</u>	<u>55.7</u>	170	55.0
458.sjeng	<u>445</u>	<u>27.2</u>	446	27.1	445	27.2	441	27.5	440	27.5	<u>440</u>	<u>27.5</u>
462.libquantum	4.25	4880	<u>4.25</u>	<u>4880</u>	4.45	4660	4.25	4880	<u>4.25</u>	<u>4880</u>	4.45	4660
464.h264ref	490	45.2	<u>488</u>	<u>45.4</u>	488	45.4	490	45.2	<u>488</u>	<u>45.4</u>	488	45.4
471.omnetpp	247	25.3	<u>247</u>	<u>25.3</u>	249	25.1	173	36.1	<u>170</u>	<u>36.8</u>	170	36.8
473.astar	<u>256</u>	<u>27.4</u>	256	27.4	256	27.5	<u>256</u>	<u>27.4</u>	256	27.4	256	27.5
483.xalancbmk	127	54.3	127	54.5	<u>127</u>	<u>54.5</u>	127	54.3	127	54.5	<u>127</u>	<u>54.5</u>

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.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

BIOS Configuration:

Enforce POR set to Enable
Early Snoop set to disabled
COD set to disable

Power Technology set to performance

Sysinfo program /home/cpu2006/config/sysinfo.rev6818

\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on localhost Mon Sep 29 10:30:32 2014

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 E5-2640 v3 @ 2.60GHz
2 "physical id"s (chips)
32 "processors"
```

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with

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Platform Notes (Continued)

```
caution.)
cpu cores : 8
siblings  : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB
```

```
From /proc/meminfo
MemTotal:      264479556 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
Red Hat Enterprise Linux Server release 6.4 (Santiago)
```

```
From /etc/*release* /etc/*version*
redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

```
uname -a:
Linux localhost 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Sep 29 10:06
```

```
SPEC is set to: /home/cpu2006
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/sda3        ext4      1.8T      411G  1.3T  24% /
```

```
Additional information from dmidecode:
BIOS American Megatrends Inc. 067 08/13/2014
Memory:
16x 16 GB
8x NO DIMM NO DIMM
16x Samsung M393A2G40DB0-CPB 16 GB 1866 MHz 2 rank
```

(End of data from sysinfo program)

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
OMP_NUM_THREADS = "16"
```

```
Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
memory using RedHat EL 6.4
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
```

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General Notes (Continued)

```
echo 1> /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

Submitted_by: Tian Yuwan <tianyw@sugon.com>
Submitted: Wed Nov 5 04:16:18 EST 2014
Submission: cpu2006-20141105-32762.sub

Submitted_by: Tian Yuwan <tianyw@sugon.com>
Submitted: Sun Nov 23 21:26:15 EST 2014
Submission: cpu2006-20141105-32762.sub

Submitted_by: Tian Yuwan <tianyw@sugon.com>
Submitted: Wed Nov 26 05:11:52 EST 2014
Submission: cpu2006-20141105-32762.sub

Submitted_by: Tian Yuwan <tianyw@sugon.com>
Submitted: Thu Nov 27 00:57:34 EST 2014
Submission: cpu2006-20141105-32762.sub

Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

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
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX



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Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -lsmartheap64

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32

445.gobmk: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

471.omnetpp: icpc -m32

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -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
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX



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Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-prefetch -ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32
-opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

456.hmmer: basepeak = yes

458.sjeng: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca



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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/Sugon-Platform-Settings-V1.2-HSW-revA.20141203.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/Sugon-Platform-Settings-V1.2-HSW-revA.20141203.xml>

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

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