Sugon
Sugon I620-G20 (Intel Xeon E5-2699 v3)

| SPECint®2006 = | 64.8 |
| SPECint_base2006 = | 61.5 |

CPU2006 license: 9046
Test sponsor: Sugon
Tested by: Sugon

Test date: Oct-2014
Hardware Availability: Sep-2014
Software Availability: Aug-2014

CPU Name: Intel Xeon E5-2699 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz: 2300
FPU: Integrated
CPU(s) enabled: 36 cores, 2 chips, 18 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: 45 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem: 1 x 2.0 TB SATA Disk
Other Hardware: None

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)
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
Sugon I620-G20 (Intel Xeon E5-2699 v3) SPECint2006 = 64.8
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Test date: Oct-2014
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Results Table

<table>
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<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>401.bzip2</td>
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<td>403.gcc</td>
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<td>445.gobmk</td>
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<td>456.hmmer</td>
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<tr>
<td>462.libquantum</td>
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<tr>
<td>464.h264ref</td>
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<td>471.omnetpp</td>
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<tr>
<td>473.astar</td>
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<td>32.8</td>
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<td>33.0</td>
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<td>33.3</td>
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<tr>
<td>483.xalancbmk</td>
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<td>65.0</td>
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<td>64.8</td>
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<td>64.8</td>
<td>101</td>
<td>68.2</td>
<td>102</td>
<td>67.7</td>
</tr>
</tbody>
</table>

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 disabled
Memory Frequency set to 2133
Early Snoop set to disabled
COD set to disabled
Power Technology set to performance
Sysinfo program /home/cpu2006/config/sysinfo.rev6874
$Rev: 6874 $ $Date:: 2013-11-20 #$ 654bd3fcf53b06faef0efe54ed011998
running on localhost Thu Oct 23 11:05:12 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 E5-2699 v3 @ 2.30GHz
2 "physical id"s (chips)
72 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page
SPEC CINT2006 Result

SPECint2006 = 64.8
SPECint_base2006 = 61.5

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Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

- CPU: 18
- Physical Cores: 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
- Cache Size: 46080 KB

From /proc/meminfo

MemTotal: 264474500 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
- Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
- Red Hat Enterprise Linux Server release 6.5 (Santiago)
- Red Hat Enterprise Linux Server release 6.5 (Santiago)
- Red Hat Enterprise Linux Server release 6.5 (Santiago)

uname -a:
- Linux localhost 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
- x86_64 x86_64 x86_64 GNU/Linux
- run-level 3 Oct 23 11:03

SPEC is set to: /home/cpu2006

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS American Megatrends Inc. 068 08/15/2014
Memory:
- 16x Hynix Semiconductor HMA42GR7MF4N-TFTD 16 GB 2 rank 2133 MHz
- 8x NO DIMM NO DIMM

(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 = "36"

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SPEC CINT2006 Result

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General Notes (Continued)

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/mem/redhat_transparent_hugepage/enabled
runcspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Submitted by: Tian Yuwan <tianyw@sugon.com>
Submission: cpu2006-20141023-32571.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

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
  -W1,-z,muldefs -L/sh -lsmartheap64
SPEC CINT2006 Result

Sugon
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CPU2006 license: 9046
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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 -m32
473.astar: icpc -m64

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_LINUX

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

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## SPEC CINT2006 Result

### Sugon

**Sugon I620-G20 (Intel Xeon E5-2699 v3)**

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**SPECint2006 =** 64.8

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### Peak Optimization Flags (Continued)

- **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**: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32 -ansi-alias`
- **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**: `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64`
- **483.xalancbmk**: `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap`

### 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


You can also download the XML flags sources by saving the following links:

## SPEC CINT2006 Result

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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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