# Huawei 2488 V5 (Intel Xeon Gold 6130)

## SPECint®_rate2006 = 3080

<table>
<thead>
<tr>
<th>SPECint_rate_base2006</th>
<th>2920</th>
</tr>
</thead>
</table>

### System Information

- **CPU2006 license:** 3175
- **Test sponsor:** Huawei
- **Tested by:** Huawei
- **Test date:** Aug-2017
- **Hardware Availability:** Aug-2017
- **Software Availability:** Apr-2017

### Hardware

- **CPU Name:** Intel Xeon Gold 6130
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz
- **CPU MHz:** 2100
- **FPU:** Integrated
- **CPU(s) enabled:** 64 cores, 4 chips, 16 cores/chip, 2 threads/core
- **CPU(s) orderable:** 2,4 chip
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 1 MB I+D on chip per core
- **L3 Cache:** 22 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 384 GB (24 x 16 GB 2Rx4 PC4-2666V-R)
- **Disk Subsystem:** 2 x 300 GB SAS, 10K RPM

### Software

- **Operating System:** SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
- **Compiler:** C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux;
  Fortran: Version 17.0.3.191 of Intel Fortran Compiler for Linux
- **Auto Parallel:** Yes
- **File System:** xfs
- **System State:** Run level 5 (multi user)
- **Base Pointers:** 32/64-bit
- **Peak Pointers:** 32/64-bit
- **Other Software:** None

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<table>
<thead>
<tr>
<th>Test</th>
<th>SPECint_rate2006</th>
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<tbody>
<tr>
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<tr>
<td>401.bzip2</td>
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<td>403.gcc</td>
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<tr>
<td>429.mcf</td>
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<td>445.gobmk</td>
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<td>456.hmmer</td>
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<td>473.astar</td>
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<td>483.xalancbmk</td>
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Huawei 2488 V5 (Intel Xeon Gold 6130)

SPEC CINT2006 Result

Huawei

SPECint_rate2006 = 3080
SPECint_rate_base2006 = 2920

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Seconds</th>
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<td>3430</td>
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</tbody>
</table>

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"
Turbo mode set with:
cpupower -c all frequency-set -g performance

Platform Notes

BIOS configuration:
Set SNC to enabled
Set IMC interleaving to 1 way interleave
Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-k6p5 Fri Aug 25 18:43:44 2017

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) Gold 6130 CPU @ 2.10GHz
4 "physical id"s (chips)
128 "processors"

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## SPEC CINT2006 Result

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**CPU2006 license**: 3175  
**Test date**: Aug-2017  
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**Hardware Availability**: Aug-2017  
**Software Availability**: Apr-2017

### Platform Notes (Continued)

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**: 16  
- **siblings**: 32  
- **physical 0**: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15  
- **physical 1**: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15  
- **physical 2**: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15  
- **physical 3**: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15  

- **cache size**: 22528 KB

From /proc/meminfo

- MemTotal: 394383208 KB  
- HugePages_Total: 0  
- Hugepagesize: 2048 KB

/usr/bin/lsb_release -d

- SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*

- **SuSE-release**:
  - SUSE Linux Enterprise Server 12 (x86_64)  
  - VERSION = 12  
  - PATCHLEVEL = 2  
  - # This file is deprecated and will be removed in a future service pack or release.  
  - # Please check /etc/os-release for details about this release.

- **os-release**:
  - NAME="SLES"  
  - VERSION="12-SP2"  
  - VERSION_ID="12.2"  
  - PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"  
  - ID="sles"  
  - ANSI_COLOR="0;32"  
  - CPE_NAME="cpe:/o:suse:sles:12:sp2"

```bash
uname -a:
Linux linux-k6p5 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
(9464f67) x86_64 x86_64 x86_64 GNU/Linux
run-level 5 Aug 25 18:40
```

**SPEC is set to**: /home/cpu2006  
**Filesystem** | Type | Size | Used | Avail | Use% | Mounted on
---|---|---|---|---|---|---
/dev/sda4 | xfs | 516G | 193G | 323G | 38% | /home

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.

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**Huawei**

Huawei 2488 V5 (Intel Xeon Gold 6130)

**SPECint_rate2006 = 3080**

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CPU2006 license: 3175  
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**Platform Notes (Continued)**

BIOS INSYDE Corp. 0.38 07/28/2017  
Memory:  
8x NO DIMM NO DIMM  
24x Samsung M393A2K43BB1-CTD 16 GB 2 rank 2666 MHz

(End of data from sysinfo program)

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**General Notes**

Environment variables set by runspec before the start of the run:  
LD_LIBRARY_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM  
memory using Redhat Enterprise Linux 7.2  
Transparent Huge Pages enabled by default  
Filesystem page cache cleared with:  
shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run  
runcspec command invoked through numactl i.e.:  
numactl --interleave=all runspec <etc>

---

**Base Compiler Invocation**

C benchmarks:  
`icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

C++ benchmarks:  
`icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

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**Base Portability Flags**

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32  
401.bzip2: -D_FILE_OFFSET_BITS=64  
403.gcc: -D_FILE_OFFSET_BITS=64  
429.mcf: -D_FILE_OFFSET_BITS=64  
445.gobmk: -D_FILE_OFFSET_BITS=64  
456.hmmer: -D_FILE_OFFSET_BITS=64  
458.sjeng: -D_FILE_OFFSET_BITS=64  
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX  
464.h264ref: -D_FILE_OFFSET_BITS=64  
471.omnetpp: -D_FILE_OFFSET_BITS=64  
473.astar: -D_FILE_OFFSET_BITS=64  
483.xalanbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
Huawei 2488 V5 (Intel Xeon Gold 6130)

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### Base Optimization Flags

**C benchmarks:**  
-xCORE-AVX512 -ipo -03 -no-prec-div -qopt-prefetch  
-qopt-mem-layout-trans=3  

**C++ benchmarks:**  
-xCORE-AVX512 -ipo -03 -no-prec-div -qopt-prefetch  
-qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap

### Base Other Flags

**C benchmarks:**  
403.gcc: -Dalloca=_alloca

### Peak Compiler Invocation

**C benchmarks (except as noted below):**  
`icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

**C++ benchmarks:**  
`icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

### Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LP64` `-DSPEC_CPU_LINUX_X64`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-D_FILE_OFFSET_BITS=64`

429.mcf: `-D_FILE_OFFSET_BITS=64`

445.gobmk: `-D_FILE_OFFSET_BITS=64`

456.hmmer: `-DSPEC_CPU_LP64`

458.sjeng: `-DSPEC_CPU_LP64`

462.libquantum: `-D_FILE_OFFSET_BITS=64` `-DSPEC_CPU_LINUX`

464.h264ref: `-D_FILE_OFFSET_BITS=64`

471.omnetpp: `-D_FILE_OFFSET_BITS=64`

473.astar: `-D_FILE_OFFSET_BITS=64`

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Huawei

Huawei 2488 V5 (Intel Xeon Gold 6130)

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Peak Portability Flags (Continued)

483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -auto-ilp32 -qopt-mem-layout-trans=3

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -qopt-prefetch -auto-ilp32
-qopt-mem-layout-trans=3

403.gcc: -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3

404.mcf: basepeak = yes

429.mcf: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -qopt-mem-layout-trans=3

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll14 -auto-ilp32
-qopt-mem-layout-trans=3

462.libquantum: basepeak = yes

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll12 -qopt-mem-layout-trans=3

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2)
-qopt-ra-region-strategy=block
-qopt-mem-layout-trans=3 -Wl,-z,muldefs
-L/sh10.2 -lsmartheap

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# SPEC CINT2006 Result

## Huawei

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### Peak Optimization Flags (Continued)

- 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


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

- [http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-SKL-V1.6.xml](http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-SKL-V1.6.xml)

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