Huawei 5288 V3 (Intel Xeon E5-2620 v3)  

| SPECfp®2006 | 97.9 |
| SPECfp_base2006 | 93.0 |

**CPU2006 license:** 3175  
**Test date:** Aug-2015  
**Test sponsor:** Huawei  
**Hardware Availability:** Sep-2014

**Tested by:** Huawei  
**Software Availability:** Sep-2014

| SPECfp®2006 | 97.9 |
| SPECfp_base2006 | 93.0 |

### Hardware

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon E5-2620 v3</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.20 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2400</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>12 cores, 2 chips, 6 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1,2 chip</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Red Hat Enterprise Linux Server release 7.0 (Maipo)</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>ext4</td>
</tr>
</tbody>
</table>

---

Continued on next page
SPEC CFP2006 Result

Huawei

Huawei 5288 V3 (Intel Xeon E5-2620 v3)

SPECfp2006 = 97.9
SPECfp_base2006 = 93.0

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

L3 Cache: 15 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 500 GB SATA, 7200 RPM
Other Hardware: None
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>34.3</td>
<td>396</td>
<td>34.3</td>
<td>396</td>
<td>33.7</td>
<td>403</td>
<td>34.3</td>
<td>396</td>
</tr>
<tr>
<td>416.gamess</td>
<td>574</td>
<td>34.1</td>
<td>568</td>
<td>34.4</td>
<td>571</td>
<td>34.3</td>
<td>479</td>
<td>40.9</td>
</tr>
<tr>
<td>433.milc</td>
<td>130</td>
<td>70.4</td>
<td>129</td>
<td>71.1</td>
<td>130</td>
<td>70.8</td>
<td>129</td>
<td>71.1</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>51.2</td>
<td>178</td>
<td>51.0</td>
<td>179</td>
<td>51.0</td>
<td>178</td>
<td>51.2</td>
<td>178</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>184</td>
<td>38.8</td>
<td>184</td>
<td>38.8</td>
<td>183</td>
<td>38.9</td>
<td>184</td>
<td>38.8</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>20.9</td>
<td>572</td>
<td>20.8</td>
<td>574</td>
<td>20.8</td>
<td>573</td>
<td>20.9</td>
<td>572</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>43.6</td>
<td>215</td>
<td>44.4</td>
<td>212</td>
<td>44.8</td>
<td>210</td>
<td>43.6</td>
<td>215</td>
</tr>
<tr>
<td>444.namd</td>
<td>297</td>
<td>27.0</td>
<td>297</td>
<td>27.0</td>
<td>297</td>
<td>27.0</td>
<td>289</td>
<td>27.8</td>
</tr>
<tr>
<td>447.dealII</td>
<td>213</td>
<td>53.7</td>
<td>213</td>
<td>53.7</td>
<td>213</td>
<td>53.7</td>
<td>213</td>
<td>53.7</td>
</tr>
<tr>
<td>450.soplex</td>
<td>209</td>
<td>39.9</td>
<td>204</td>
<td>40.8</td>
<td>206</td>
<td>40.5</td>
<td>209</td>
<td>39.9</td>
</tr>
<tr>
<td>453.povray</td>
<td>98.0</td>
<td>54.3</td>
<td>97.9</td>
<td>54.3</td>
<td>99.0</td>
<td>53.7</td>
<td>87.3</td>
<td>60.9</td>
</tr>
<tr>
<td>454.calculix</td>
<td>159</td>
<td>51.8</td>
<td>159</td>
<td>51.8</td>
<td>160</td>
<td>51.7</td>
<td>145</td>
<td>57.1</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>56.6</td>
<td>187</td>
<td>54.9</td>
<td>193</td>
<td>57.1</td>
<td>186</td>
<td>49.7</td>
<td>214</td>
</tr>
<tr>
<td>465.tonto</td>
<td>264</td>
<td>37.3</td>
<td>263</td>
<td>37.4</td>
<td>263</td>
<td>37.3</td>
<td>192</td>
<td>51.2</td>
</tr>
<tr>
<td>470.lbm</td>
<td>26.4</td>
<td>521</td>
<td>26.8</td>
<td>512</td>
<td>26.3</td>
<td>523</td>
<td>26.4</td>
<td>521</td>
</tr>
<tr>
<td>481.wrf</td>
<td>131</td>
<td>85.2</td>
<td>130</td>
<td>85.8</td>
<td>131</td>
<td>85.4</td>
<td>131</td>
<td>85.2</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>280</td>
<td>69.7</td>
<td>281</td>
<td>69.5</td>
<td>281</td>
<td>69.4</td>
<td>280</td>
<td>69.7</td>
</tr>
</tbody>
</table>

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

Operating System Notes

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

Platform Notes

BIOS configuration:
Set Power Efficiency Mode to Custom
Set Snoop Mode to HS mode
Set Patrol Scrub to Disable
Set Intel Hyper-Threading to Disable

Sysinfo program /spec/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Mon Aug  3 11:47:00 2015
Huawei
Huawei 5288 V3 (Intel Xeon E5-2620 v3)

| SPECfp2006 | 97.9 |
| SPECfp_base2006 | 93.0 |

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

Test date: Aug-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

### 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 E5-2620 v3 @ 2.40GHz
2 "physical id"s (chips)
12 "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 : 6
siblings : 6
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB

From `/proc/meminfo`

MemTotal: 263579840 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
Linux localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 3 11:43

SPEC is set to: /spec
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 ext4 385G 95G 271G 26% /

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.

Continued on next page
Huawei

Huawei 5288 V3 (Intel Xeon E5-2620 v3)

SPECfp2006 = 97.9
SPECfp_base2006 = 93.0

CPU2006 license: 3175
Test date: Aug-2015
Test sponsor: Huawei
Hardware Availability: Sep-2014
Tested by: Huawei
Software Availability: Sep-2014

Platform Notes (Continued)

BIOS Insyde Corp. 1.36 04/09/2015
Memory:
8x Micron 36ASF2G72PZ-2G1A2 16 GB 1 rank 2133 MHz, configured at 1867 MHz
8x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank 2133 MHz, configured at 1867 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh"
OMP_NUM_THREADS = "12"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>

Base Compiler Invocation

C benchmarks:
icc  -m64

C++ benchmarks:
icpc  -m64

Fortran benchmarks:
ifort  -m64

Benchmarks using both Fortran and C:
icc  -m64 ifort  -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64 -nofor_main
444.namd: -DSPEC_CPU_LP64 -nofor_main
447.dealII: -DSPEC_CPU_LP64
Huawei

Huawei 5288 V3 (Intel Xeon E5-2620 v3)

SPECfp2006 = 97.9
SPECfp_base2006 = 93.0

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Aug-2015
Hardware Availability: Sep-2014
Tested by: Huawei
Software Availability: Sep-2014

Base Portability Flags (Continued)

450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias

Peak Compiler Invocation

C benchmarks:
icc  -m64

C++ benchmarks:
icpc  -m64

Fortran benchmarks:
ifort  -m64

Benchmarks using both Fortran and C:
icc  -m64 ifort  -m64

Peak Portability Flags

Same as Base Portability Flags
Huawei

Huawei 5288 V3 (Intel Xeon E5-2620 v3)

SPECfp2006 = \textbf{97.9}
SPECfp\_base2006 = \textbf{93.0}

CPU2006 license: 3175
Test sponsor: Huawei
Test date: Aug-2015

Tested by: Huawei
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Peak Optimization Flags

C benchmarks:

\begin{itemize}
\item 433.milc: -xCORE-AVX2 (pass 2) -prof-gen(pass 1) -ipo(pass 2)
\item -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
\item -auto-ilp32 \texttt{--ansi-alias}
\item 470.lbm: basepeak = yes
\item 482.sphinx3: basepeak = yes
\end{itemize}

C++ benchmarks:

\begin{itemize}
\item 444.namd: -xCORE-AVX2 (pass 2) -prof-gen(pass 1) -ipo(pass 2)
\item -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
\item -fno-alias \texttt{--auto-ilp32}
\item 447.dealII: basepeak = yes
\item 450.soplex: basepeak = yes
\item 453.povray: -xCORE-AVX2 (pass 2) -prof-gen(pass 1) -ipo(pass 2)
\item -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) \texttt{--unroll4}
\item -ansi-alias
\end{itemize}

Fortran benchmarks:

\begin{itemize}
\item 410.bwaves: basepeak = yes
\item 416.gamess: -xCORE-AVX2 (pass 2) -prof-gen(pass 1) -ipo(pass 2)
\item -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) \texttt{--unroll2}
\item -inline-level=0 \texttt{--scalar-rep--}
\item 434.zeusmp: basepeak = yes
\item 437.leslie3d: basepeak = yes
\item 459.GemsFDTD: -xCORE-AVX2 (pass 2) -prof-gen(pass 1) -ipo(pass 2)
\item -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) \texttt{--unroll2}
\item -inline-level=0 \texttt{--opt-prefetch \--parallel}
\item 465.tonto: -xCORE-AVX2 (pass 2) -prof-gen(pass 1) -ipo(pass 2)
\item -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
\item -inline-callloc -opt-malloc-options=3 \texttt{--auto \--unroll4}
\end{itemize}

Benchmarks using both Fortran and C:

\begin{itemize}
\item 435.gromacs: basepeak = yes
\item 436.cactusADM: basepeak = yes
\end{itemize}
## Huawei

**Huawei 5288 V3 (Intel Xeon E5-2620 v3)**

<table>
<thead>
<tr>
<th>SPECf2006</th>
<th>97.9</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECf_base2006</td>
<td>93.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>3175</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
<td>Huawei</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Huawei</td>
</tr>
<tr>
<td>Test date:</td>
<td>Aug-2015</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Sep-2014</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Sep-2014</td>
</tr>
</tbody>
</table>

**Peak Optimization Flags (Continued)**

- 454.calculix: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
- 481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at:

- [Intel-ic15.0-official-linux64.html](http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html)
- [Huawei-Platform-Settings-HASWELL-V1.4.html](http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.html)

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

- [Intel-ic15.0-official-linux64.xml](http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml)
- [Huawei-Platform-Settings-HASWELL-V1.4.xml](http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-HASWELL-V1.4.xml)

---

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.
Originally published on 25 August 2015.