## SPEC® CFP2006 Result

**Inspur Corporation**

**Inspur NF5180M4 (Intel Xeon E5-2698 v4)**

**SPECfp®2006 = 122**

**SPECfp_base2006 = 116**

<table>
<thead>
<tr>
<th>CPU2006 license: 3358</th>
<th>Test date: Jun-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor: Inspur Corporation</td>
<td>Hardware Availability: Mar-2016</td>
</tr>
<tr>
<td>Tested by: Inspur Corporation</td>
<td>Software Availability: Apr-2017</td>
</tr>
</tbody>
</table>

### Software

- **Operating System:** Inspur K-UX release 3.0.5 (Inspur)
- **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 3 (multi-user)

### Hardware

<table>
<thead>
<tr>
<th>Tested by: Inspur Corporation</th>
<th>Test sponsor: Inspur Corporation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong> Intel Xeon E5-2698 v4</td>
<td><strong>CPU Characteristics:</strong> Intel Turbo Boost Technology up to 3.60 GHz</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong> 2200</td>
<td><strong>FPU:</strong> Integrated</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong> 40 cores, 2 chips, 20 cores/chip</td>
<td><strong>CPU(s) orderable:</strong> 1.2 chips</td>
</tr>
<tr>
<td><strong>Primary Cache:</strong> 32 KB I + 32 KB D on chip per core</td>
<td><strong>Secondary Cache:</strong> 256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

### Benchmark Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>528</td>
</tr>
<tr>
<td>416.gamess</td>
<td>528</td>
</tr>
<tr>
<td>433.milc</td>
<td>528</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>528</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>528</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>528</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>528</td>
</tr>
<tr>
<td>444.namd</td>
<td>528</td>
</tr>
<tr>
<td>447.dealII</td>
<td>528</td>
</tr>
<tr>
<td>450.soplex</td>
<td>528</td>
</tr>
<tr>
<td>453.povray</td>
<td>528</td>
</tr>
<tr>
<td>454.calculix</td>
<td>528</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>528</td>
</tr>
<tr>
<td>465.tonto</td>
<td>528</td>
</tr>
<tr>
<td>470.lbm</td>
<td>528</td>
</tr>
<tr>
<td>481.wrf</td>
<td>528</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>528</td>
</tr>
</tbody>
</table>

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**SPECfp®2006 = 122**

**SPECfp_base2006 = 116**
SPEC CFP2006 Result

Inspur Corporation

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SPECfp2006 = 122
SPECfp_base2006 = 116

CPU2006 license: 3358
Test sponsor: Inspur Corporation
Tested by: Inspur Corporation

L3 Cache: 50 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem: 1 x 450 GB SATA SSD
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Test date: Jun-2017
Hardware Availability: Mar-2016
Software Availability: Apr-2017

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds Base</th>
<th>Ratio Base</th>
<th>Seconds Peak</th>
<th>Ratio Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>25.7</td>
<td>528</td>
<td>26.3</td>
<td>516</td>
</tr>
<tr>
<td>416.gamess</td>
<td>453</td>
<td>43.2</td>
<td>453</td>
<td>43.3</td>
</tr>
<tr>
<td>433.milc</td>
<td>117</td>
<td>78.4</td>
<td>117</td>
<td>77.7</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>44.9</td>
<td>203</td>
<td>44.6</td>
<td>204</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>152</td>
<td>46.9</td>
<td>152</td>
<td>46.8</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>14.1</td>
<td>850</td>
<td>14.1</td>
<td>897</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>24.5</td>
<td>383</td>
<td>24.5</td>
<td>383</td>
</tr>
<tr>
<td>444.namd</td>
<td>253</td>
<td>31.7</td>
<td>253</td>
<td>31.7</td>
</tr>
<tr>
<td>447.dealII</td>
<td>167</td>
<td>68.5</td>
<td>167</td>
<td>67.2</td>
</tr>
<tr>
<td>450.soplex</td>
<td>159</td>
<td>52.6</td>
<td>167</td>
<td>49.9</td>
</tr>
<tr>
<td>453.povray</td>
<td>96.3</td>
<td>55.2</td>
<td>99.6</td>
<td>53.4</td>
</tr>
<tr>
<td>454.calculix</td>
<td>137</td>
<td>60.0</td>
<td>138</td>
<td>59.7</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>50.2</td>
<td>212</td>
<td>49.3</td>
<td>215</td>
</tr>
<tr>
<td>465.tonto</td>
<td>229</td>
<td>43.0</td>
<td>230</td>
<td>42.7</td>
</tr>
<tr>
<td>470.lbm</td>
<td>18.5</td>
<td>742</td>
<td>18.1</td>
<td>757</td>
</tr>
<tr>
<td>481.wrf</td>
<td>87.2</td>
<td>128</td>
<td>90.5</td>
<td>123</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>275</td>
<td>70.9</td>
<td>275</td>
<td>70.9</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 and OS configuration:
SCALING_GOVERNOR set to Performance
Hardware Prefetch set to Disable
VT Support set to Disable
C1E Support set to Disable
Hyper-Threading set to Disable
Sysinfo program /home/CPU2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on localhost.localdomain Sat Jun 10 16:05:00 2017

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Inspur Corporation
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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 E5-2698 v4 @ 2.20GHz
  2 "physical id"s (chips)
  40 "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 : 20
siblings : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
cache size : 51200 KB

From /proc/meminfo
MemTotal: 264029356 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
ingpur-release: Inspur K-UX release 3.0.5 (Inspur)
os-release:
  NAME="Inspur K-UX"
  VERSION="3 (Inspur)"
  ID="k-ux"
  VERSION_ID="3"
  PRETTY_NAME="Inspur K-UX 3 (Inspur)"
  ANSI_COLOR="0;31"
  CPE_NAME="cpe:/o:k-ux:k-ux:3"
  HOME_URL="http://www.inspur.com/"
system-release: Inspur K-UX release 3.0.5 (Inspur)
system-release-cpe: cpe:/o:k-ux:k-ux:3

uname -a:
Linux localhost.localdomain 3.10.4-K_UX.x86_64 #1 SMP Fri Sep 30 11:06:29 GMT 2016 x86_64 x86_64 x86_64 GNU/Linux

SPEC is set to: /home/CPU2006

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/ik-home xfs 393G 9.0G 384G 3% /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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Platform Notes (Continued)

BIOS American Megatrends Inc. 4.1.11 09/07/2016
Memory:
8x NO DIMM NO DIMM
16x Samsung M393A2K43BB1-CNC 16 GB 2 rank 2400 MHz, configured at 2133 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"
LD_LIBRARY_PATH = "/home/CPU2006/lib/ia32:/home/CPU2006/lib/intel64:/home/CPU2006/sh10.2"
OMP_NUM_THREADS = "40"

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

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
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64

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Base Portatility Flags (Continued)

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 -03 -no-prec-div -parallel -qopt-prefetch

C++ benchmarks:
-xCORE-AVX2 -ipo -03 -no-prec-div -qopt-prefetch

Fortran benchmarks:
-xCORE-AVX2 -ipo -03 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -03 -no-prec-div -parallel -qopt-prefetch

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
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Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes
470.lbm: basepeak = yes
482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -fno-alias -auto-Ilp32

447.dealII: basepeak = yes
450.soplex: basepeak = yes

Fortran benchmarks:

410.bwaves: basepeak = yes
416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll4 -ansi-alias

434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll2 -inline-level=0 -scalar-rep-
-qopt-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -inline-callloc -qopt-malloc-options=3
-auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes
436.cactusADM: basepeak = yes

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Peak Optimization Flags (Continued)

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

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/Inspur-Platform-Settings-V1.0-HSW.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/Inspur-Platform-Settings-V1.0-HSW.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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