M Computers s.r.o.

HPC S2600WF (Intel Xeon Silver 4114, 2.20 GHz)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>109</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>105</td>
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</tbody>
</table>

CPU2006 license: 4204  
Test sponsor: M Computers s.r.o.  
Tested by: M Computers s.r.o.  
Test date: Sep-2017  
Hardware Availability: Jul-2017  
Software Availability: Apr-2017

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Score</th>
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<tr>
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<tr>
<td>433.milc</td>
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<tr>
<td>434.zeusmp</td>
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<td>435.gromacs</td>
<td>42.8</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>345</td>
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<td>437.leslie3d</td>
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<td>459.GemsFDTD</td>
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<tr>
<td>470.lbm</td>
<td>75.2</td>
</tr>
<tr>
<td>481.wrf</td>
<td>61.4</td>
</tr>
</tbody>
</table>

**Hardware**
- CPU Name: Intel Xeon Silver 4114
- CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
- CPU MHz: 2200
- FPU: Integrated
- CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip
- CPU(s) orderable: 1,2 chip
- Primary Cache: 32 KB I + 32 KB D on chip per core
- Secondary Cache: 1 MB I+D on chip per core

**Software**
- Operating System: SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
- Compiler: C/C++: Version 17.0.4.196 of Intel C/C++ Compiler for Linux; Fortran: Version 17.0.4.196 of Intel Fortran Compiler for Linux
- Auto Parallel: Yes
- File System: xf
- System State: Run level 3

**SPECfp®2006 = 109**

**SPECfp_base2006 = 105**

Continued on next page
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
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<th>Seconds</th>
<th>Ratio</th>
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<td>61.9</td>
<td>317</td>
<td>61.4</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 settings:
- Intel(R) Hyper-Threading Tech=Disabled
- Patrol Scrub=Disabled
- CPU and Power Performance Policy=Performance
- Set Fan Profile=Performance
- Sysinfo program /spec/config/sysinfo.rev6993
- Revision 6993 of 2015-11-06 (300de342723409e6453f54e8c50448c3)
- running on kvasir Sat Sep 2 20:48:31 2017

Continued on next page
**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) Silver 4114 CPU @ 2.20GHz
- 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: 10
  - siblings: 10
  - physical 0: cores 0 1 2 3 4 8 9 10 11 12
  - physical 1: cores 0 1 2 3 4 8 9 10 11 12
- cache size: 14080 KB

From `/proc/meminfo`

- MemTotal: 791028784 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:
  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"
```

```
uname -a:
Linux kvasir 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 3 Sep 2 09:18
```

```
SPEC is set to: /spec
```

<table>
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<tr>
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<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
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</thead>
<tbody>
<tr>
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<td>xfs</td>
<td>650G</td>
<td>82G</td>
<td>569G</td>
<td>13%</td>
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</table>

Additional information from dmidecode:

Continued on next page
M Computers s.r.o.

HPC S2600WF (Intel Xeon Silver 4114, 2.20 GHz)

SPECfp2006 = 109
SPECfp_base2006 = 105

CPU2006 license: 4204
Test sponsor: M Computers s.r.o.
Tested by: M Computers s.r.o.
Test date: Sep-2017
Hardware Availability: Jul-2017
Software Availability: Apr-2017

Platform Notes (Continued)

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 Intel Corporation SE5C620.86B.0X.01.0007.060920171037 06/09/2017
Memory:
24x Kinston 9965640-006.A01G 32 GB 2 rank 2400 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/lib/ia32:/spec/lib/intel64:/spec/sh11.2"
OMP_NUM_THREADS = "20"

Binaries compiled on a system with 2x Intel Xeon-SP 4112 CPU + 192GB RAM memory using Redhat Enterprise Linux 7.3
Transparent Huge Pages enabled by default.
Filesystem page cache cleared with: echo 1 > /proc/sys/vm/drop_caches

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

Continued on next page
Base Portability Flags (Continued)

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
453.povray: -DSPEC_CPU_LP64
459.GemsFDTD: -DSPEC_CPU_LP64 -nofor_main
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 -qopt-prefetch

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

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

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -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
M Computers s.r.o.

HPC S2600WF (Intel Xeon Silver 4114, 2.20 GHz)

SPECfp2006 = 109
SPECfp_base2006 = 105

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Hardware Availability: Jul-2017
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Peak Portability Flags
Same as Base Portability Flags

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
453.povray: -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

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) -unroll2 -inline-level=0 -scalar-rep-

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
-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-calloc -qopt-malloc-options=3
-auto -unroll4

Continued on next page
## M Computers s.r.o.

### HPC S2600WF (Intel Xeon Silver 4114, 2.20 GHz)

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**CPU2006 license:** 4204  
**Test sponsor:** M Computers s.r.o.  
**Tested by:** M Computers s.r.o.

**Test date:** Sep-2017  
**Hardware Availability:** Jul-2017  
**Software Availability:** Apr-2017

### Peak Optimization Flags (Continued)

- Benchmarks using both Fortran and C:
  - 435.gromacs: basepeak = yes
  - 436.cactusADM: basepeak = yes
  - 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:


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


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For other inquiries, please contact webmaster@spec.org.

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