M Computers s.r.o.
HPC HD S2600KPR (Intel Xeon E5-2630 v4, 2.2 GHz)

**SPECfp®2006 = 111**

**SPECfp_base2006 = 105**

| Test date: | June-2016 |
| Hardware Availability: | Mar-2016 |

**CPU2006 license:** 4204

**Test sponsor:** M Computers s.r.o.

**Tested by:** M Computers s.r.o.

**Test date:** June-2016

**Software Availability:** Feb-2016

| SPECfp2006 = 111 |
| SPECfp_base2006 = 105 |

### Hardware

- **CPU Name:** Intel Xeon E5-2630 v4
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.10 GHz
- **CPU MHz:** 2200
- **FPU:** Integrated
- **CPU(s) enabled:** 20 cores, 2 chips, 10 cores/chip
- **CPU(s) orderable:** 1.2 chips
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 256 KB I+D on chip per core

### Software

- **Operating System:** CentOS Linux release 7.2.1511 (Core) 3.10.0-327.18.2.el7.x86_64
- **Compiler:** C/C++: Version 16.0.2.181 of Intel C++ Studio XE for Linux; Fortran: Version 16.0.2.181 of Intel Fortran Studio XE for Linux
- **Auto Parallel:** Yes
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
### Results Table

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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td>285</td>
<td>68.5</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"
Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/transparent_hugepage/enabled

### Platform Notes

#### BIOS Configuration:
- CPU and Power Performance Policy = Performance
- Set Fan Profile = Performance
- Fan PWM Offset = 100
- Intel(R) Hyper-Threading Tech = Disabled
- Sysinfo program /spec/config/sysinfo.rev6993
- Revision 6993 of 2015-11-06 (29e49c5ec6f7040ebc9f9f10d0f38210)
- running on beth Sat Jun 18 08:14:41 2016

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) CPU E5-2630 v4 @ 2.20GHz
2 "physical id"s (chips)
20 "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 : 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 : 25600 KB
```

From /proc/meminfo

```
MemTotal:       131746768 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
```

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

```
centos-release: CentOS Linux release 7.2.1511 (Core)
centos-release-upstream: Derived from Red Hat Enterprise Linux 7.2 (Source)
os-release:
  NAME="CentOS Linux"
  VERSION="7 (Core)"
  ID="centos"
  ID_LIKE="rhel fedora"
  VERSION_ID="7"
  PRETTY_NAME="CentOS Linux 7 (Core)"
  ANSI_COLOR="0;31"
  CPE_NAME="cpe:/o:centos:centos:7"
redhat-release: CentOS Linux release 7.2.1511 (Core)
system-release: CentOS Linux release 7.2.1511 (Core)
system-release-cpe: cpe:/o:centos:centos:7
```

```
uname -a:
    Linux beth 3.10.0-327.18.2.el7.x86_64 #1 SMP Thu May 12 11:03:55 UTC 2016
    x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Jun 17 12:29

SPEC is set to: /spec

```
Filesystem     Type Size  Used Avail Use% Mounted on
/dev/sda1      xfs   420G  87G  333G  21% /
```

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
Continued on next page
Platform Notes (Continued)

determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS SE5C610.86B.01.01.0016.033120161139 03/31/2016
Memory:
  4x Hynix HMA42GR7MFR4N-TF 16 GB 2 rank 2133 MHz, configured at 2134 MHz
  4x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 2134 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 = "/spec/libs/32:/spec/libs/64:/opt/intel/compilers_and_libraries_2016.2.181/linux/compiler/lib/intel64_lin"
OMP_NUM_THREADS = "20"

Binaries compiled on a system with 2x Intel Xeon E5-2630 v4 CPU + 128GB memory using CentOS 7.2
Transparent Huge Pages Disabled with:
echo never > /sys/kernel/mm/transparent_hugepage/enabled

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.reusmp: -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

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HPC HD S2600KPR (Intel Xeon E5-2630 v4, 2.2 GHz)  

**SPECfp2006** = 111  
**SPECfp_base2006** = 105

### CPU2006 License: 4204  
Test Sponsor: M Computers s.r.o.  
Test Date: Jun-2016  
Tested by: M Computers s.r.o.  
Hardware Availability: Mar-2016  
Software Availability: Feb-2016

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**Base Portability Flags (Continued)**

- 447.dealII: -DSPEC_CPU_LP64
- 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
Peak Optimization Flags

C benchmarks:

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

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias -auto-ilp32

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

Fortran benchmarks:

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

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

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

Benchmarks using both Fortran and C:

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Test date: Jun-2016
Hardware Availability: Mar-2016
Software Availability: Feb-2016

Peak Optimization Flags (Continued)

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

The flags file that was used to format this result can be browsed at http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html
You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml

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