SPEC® CINT2006 Result

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M Computers s.r.o.

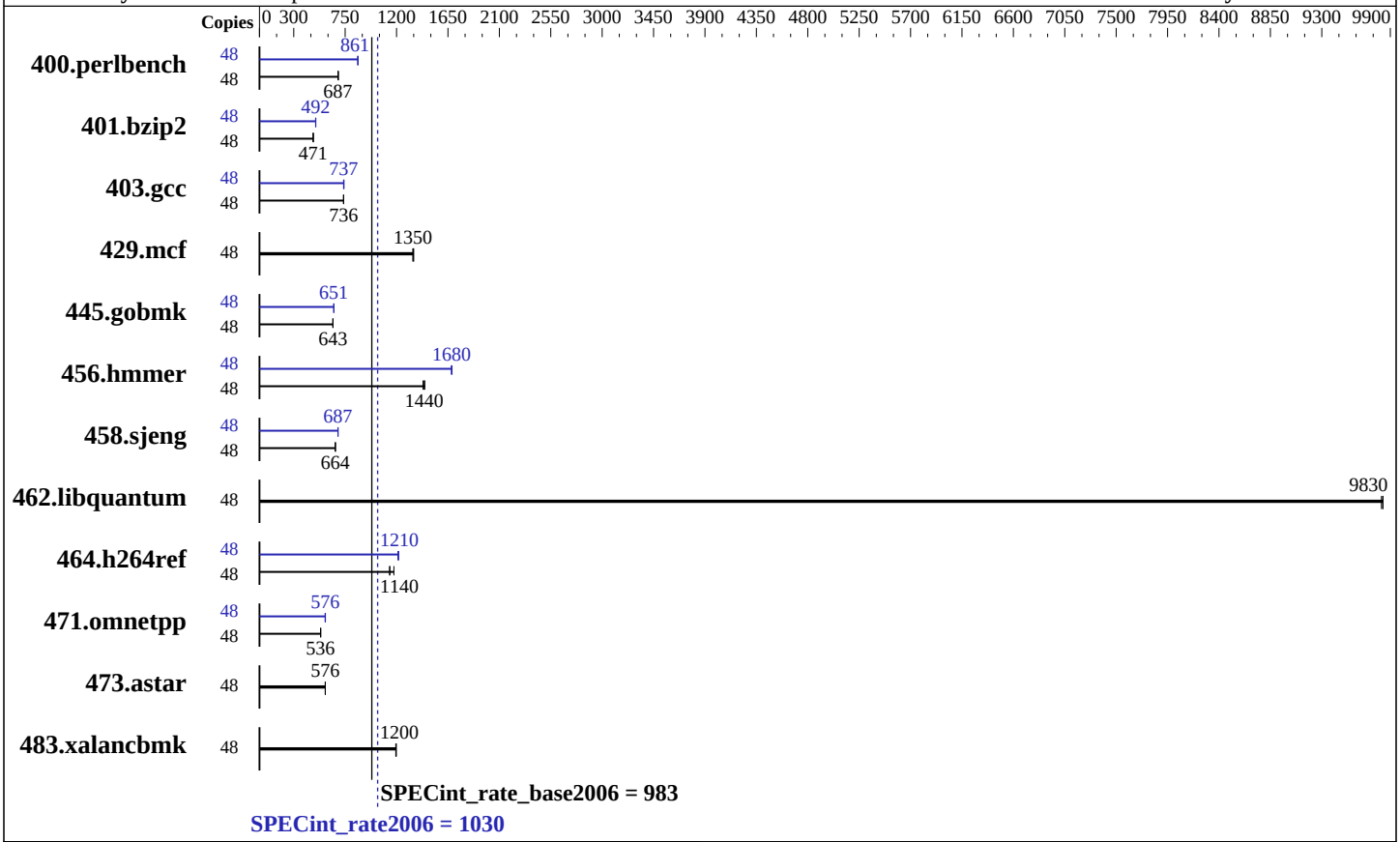
HPC S2600WT2R (Intel Xeon E5-2650 v4, 2.2 GHz)

SPECint®_rate2006 = 1030

SPECint_rate_base2006 = 983

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

Test date: Jan-2017
Hardware Availability: Mar-2016
Software Availability: Feb-2016



Hardware

CPU Name:	Intel Xeon E5-2650 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 2.90 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	24 cores, 2 chips, 12 cores/chip, 2 threads/core
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
L3 Cache:	30 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2400 MHz)
Disk Subsystem:	1 x 300 GB SAS 15k
Other Hardware:	None

Software

Operating System:	CentOS 7.2 3.10.0-327.18.2.el7.x86_64
Compiler:	C/C++: Version 16.0.2.181 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.2

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	48	678	691	**682**	**687**	682	687	48	**544**	**861**	544	862	545	861
401.bzip2	48	**984**	**471**	985	470	984	471	48	943	491	940	493	**941**	**492**
403.gcc	48	524	737	**525**	**736**	525	736	48	522	740	**524**	**737**	525	736
429.mcf	48	324	1350	**325**	**1350**	326	1340	48	324	1350	**325**	**1350**	326	1340
445.gobmk	48	783	643	**783**	**643**	782	643	48	**774**	**651**	773	652	774	651
456.hmmer	48	309	1450	**311**	**1440**	313	1430	48	267	1680	266	1690	**266**	**1680**
458.sjeng	48	874	664	**875**	**664**	875	664	48	844	688	**845**	**687**	845	687
462.libquantum	48	101	9820	101	9840	**101**	**9830**	48	101	9820	101	9840	**101**	**9830**
464.h264ref	48	**930**	**1140**	903	1180	933	1140	48	876	1210	**875**	**1210**	871	1220
471.omnetpp	48	561	535	**560**	**536**	560	536	48	**521**	**576**	520	577	522	575
473.astar	48	586	575	584	577	**585**	**576**	48	586	575	584	577	**585**	**576**
483.xalancbmk	48	278	1190	**277**	**1200**	277	1200	48	278	1190	**277**	**1200**	277	1200

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"
Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
 echo 1 > /proc/sys/vm/drop_caches
```

Platform Notes

```
BIOS Configuration:
CPU and Power Performance Policy = Performance
Set Fan Profile = Performance
Fan PWM Offset = 100
```

General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/spec/libs/32:/spec/libs/64:/spec/sh:$/opt/intel/compilers_and_libraries_2016.2.181/linux/compiler/lib/intel64_lin"

 Binaries compiled on a system with 2x Intel Xeon E5-2650 v4 CPU + 256GB
 memory using CentOS 7.2
```

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General Notes (Continued)

```
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1>       /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

Base Compiler Invocation

C benchmarks:

```
icc -m32 -L/opt/intel/compilers_and_libraries_2016.2.181/linux/compiler/lib/ia32_lin
```

C++ benchmarks:

```
icpc -m32 -L/opt/intel/compilers_and_libraries_2016.2.181/linux/compiler/lib/ia32_lin
```

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3
```

C++ benchmarks:

```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -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_2016.2.181/linux/compiler/lib/ia32_lin
```

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Peak Compiler Invocation (Continued)

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_2016.2.181/linux/compiler/lib/ia32_lin

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -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) -auto-ilp32

401.bzip2: -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) -opt-prefetch
-auto-ilp32 -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias
-opt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -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
-auto-ilp32

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -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 -ansi-alias

C++ benchmarks:

471.omnetpp: -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) -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/sh -lsmartheap

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
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/MComputers-Platform-Settings-V1.2-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/MComputers-Platform-Settings-V1.2-revB.xml

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

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