



SPEC® CINT2006 Result

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M Computers s.r.o.

SPECint®2006 = 60.1

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

SPECint_base2006 = 57.4

CPU2006 license: 4204

Test date: Jan-2017

Test sponsor: M Computers s.r.o.

Hardware Availability: Mar-2016

Tested by: M Computers s.r.o.

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
 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: Yes
 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	274	35.7	273	35.8	<u>273</u>	<u>35.8</u>	255	38.3	254	38.4	<u>255</u>	<u>38.3</u>
401.bzip2	<u>440</u>	<u>21.9</u>	440	21.9	442	21.8	<u>432</u>	<u>22.3</u>	432	22.3	432	22.4
403.gcc	245	32.9	243	33.1	<u>244</u>	<u>33.0</u>	<u>243</u>	<u>33.1</u>	242	33.2	243	33.1
429.mcf	165	55.2	168	54.2	<u>166</u>	<u>55.1</u>	165	55.2	<u>165</u>	<u>55.1</u>	166	55.1
445.gobmk	395	26.5	<u>395</u>	<u>26.5</u>	395	26.5	405	25.9	<u>405</u>	<u>25.9</u>	405	25.9
456.hmmer	152	61.3	<u>152</u>	<u>61.3</u>	152	61.3	152	61.3	<u>152</u>	<u>61.3</u>	152	61.3
458.sjeng	404	29.9	<u>404</u>	<u>30.0</u>	404	30.0	399	30.3	<u>399</u>	<u>30.3</u>	399	30.3
462.libquantum	3.70	5610	<u>3.67</u>	<u>5650</u>	3.65	5680	3.70	5610	<u>3.67</u>	<u>5650</u>	3.65	5680
464.h264ref	448	49.4	<u>450</u>	<u>49.2</u>	451	49.0	448	49.4	<u>450</u>	<u>49.2</u>	451	49.0
471.omnetpp	<u>182</u>	<u>34.3</u>	184	34.1	182	34.4	131	47.7	130	48.0	<u>131</u>	<u>47.8</u>
473.astar	234	29.9	<u>234</u>	<u>30.0</u>	234	30.0	234	30.0	235	29.9	<u>234</u>	<u>30.0</u>
483.xalancbmk	<u>108</u>	<u>64.0</u>	108	63.9	108	64.0	93.6	73.7	<u>93.7</u>	<u>73.6</u>	93.8	73.5

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
Intel(R) Hyper-Threading Tech = Disabled

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:\$/opt/intel/compilers_and_libraries_2016.2.181/linux/compiler/lib/intel64_lin"
OMP_NUM_THREADS = "24"

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General Notes (Continued)

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

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

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32

-Wl,-z,muldefs -L/sh -lsmarthear64

Base Other Flags

C benchmarks:

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Base Other Flags (Continued)

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin

C++ benchmarks (except as noted below):

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

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_IA32

401.bzip2: -DSPEC_CPU_LP64

403.gcc: -DSPEC_CPU_LP64

429.mcf: -DSPEC_CPU_LP64

445.gobmk: -D_FILE_OFFSET_BITS=64

456.hmmer: -DSPEC_CPU_LP64

458.sjeng: -DSPEC_CPU_LP64

462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

464.h264ref: -DSPEC_CPU_LP64

471.omnetpp: -D_FILE_OFFSET_BITS=64

473.astar: -DSPEC_CPU_LP64

483.xalancbmk: -D_FILE_OFFSET_BITS=64 -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) -opt-prefetch
-ansi-alias

401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipo(pass 2) -O3(pass 2) -no-prec-div
-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32
-opt-prefetch -ansi-alias

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Peak Optimization Flags (Continued)

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-opt-prefetch -auto-p32

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

456.hmmcr: basepeak = yes

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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

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

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

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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