



SPEC® CINT2006 Result

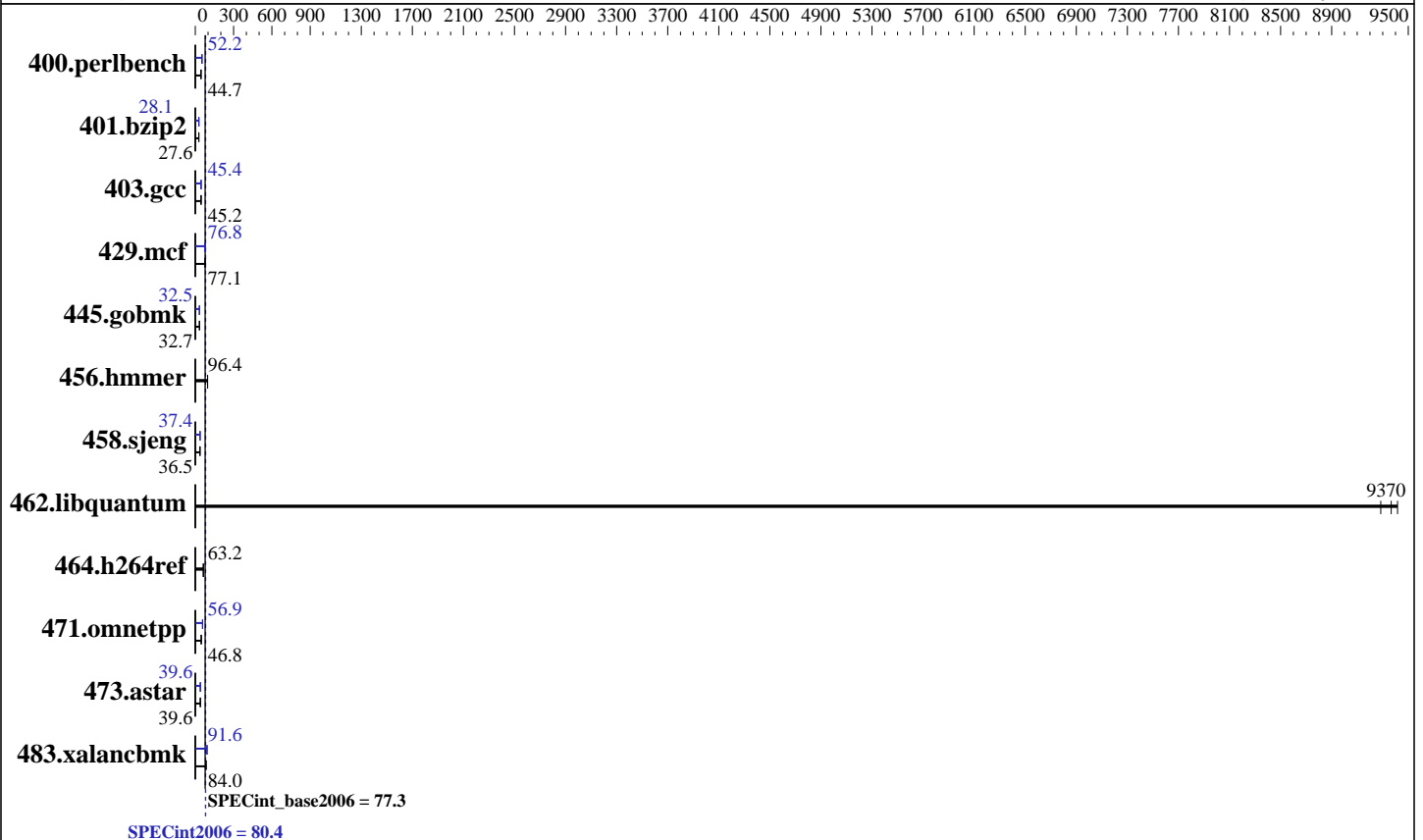
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Nokia AirFrame AR-D521U-A

SPECint®2006 = 80.4
SPECint_base2006 = 77.3

CPU2006 license: 4569
Test sponsor: Nokia
Tested by: Nokia

Test date: Jun-2017
Hardware Availability: Sep-2017
Software Availability: May-2017



Hardware

CPU Name: Intel Xeon Platinum 8180
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 56 cores, 2 chips, 28 cores/chip, 2 threads/core
 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
 L3 Cache: 38.5 MB I+D on chip per chip
 Other Cache: None
 Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)
 Disk Subsystem: 1.5 TB (Intel NVME)
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)
 3.10.0-514.21.1.el7.x86_64
 Compiler: C/C++: Version 17.0.1.132 of Intel C/C++ Compiler for Linux
 Auto Parallel: Yes
 File System: ext4
 System State: Run level 3(multi user)
 Base Pointers: 32/64-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	<u>218</u>	<u>44.7</u>	219	44.6	218	44.8	188	52.0	186	52.5	<u>187</u>	<u>52.2</u>
401.bzip2	<u>349</u>	<u>27.6</u>	349	27.6	349	27.6	343	28.1	<u>343</u>	<u>28.1</u>	343	28.1
403.gcc	<u>178</u>	<u>45.2</u>	178	45.1	178	45.2	177	45.4	176	45.7	<u>177</u>	<u>45.4</u>
429.mcf	117	77.7	<u>118</u>	<u>77.1</u>	120	76.1	117	77.9	121	75.5	<u>119</u>	<u>76.8</u>
445.gobmk	<u>320</u>	<u>32.7</u>	321	32.7	320	32.8	323	32.5	323	32.5	<u>323</u>	<u>32.5</u>
456.hammer	97.0	96.2	96.7	96.5	<u>96.8</u>	<u>96.4</u>	97.0	96.2	96.7	96.5	<u>96.8</u>	<u>96.4</u>
458.sjeng	331	36.5	331	36.5	<u>331</u>	<u>36.5</u>	324	37.4	<u>324</u>	<u>37.4</u>	324	37.3
462.libquantum	2.23	9280	2.20	9420	<u>2.21</u>	<u>9370</u>	2.23	9280	2.20	9420	<u>2.21</u>	<u>9370</u>
464.h264ref	350	63.2	<u>350</u>	<u>63.2</u>	349	63.3	350	63.2	<u>350</u>	<u>63.2</u>	349	63.3
471.omnetpp	<u>133</u>	<u>46.8</u>	135	46.3	132	47.2	110	57.0	110	56.7	<u>110</u>	<u>56.9</u>
473.astar	176	39.8	<u>177</u>	<u>39.6</u>	177	39.6	<u>177</u>	<u>39.6</u>	178	39.4	177	39.6
483.xalancbmk	<u>82.2</u>	<u>84.0</u>	82.2	84.0	82.2	84.0	75.6	91.2	<u>75.3</u>	<u>91.6</u>	74.8	92.3

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The config file option 'submit' was used.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

Sysinfo program /run/media/root/SPEC/SPEC_AVX3/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on skylake-dual-8180 Thu Jun 15 10:23:25 2017

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) Platinum 8180 CPU @ 2.50GHz
 2 "physical id"s (chips)
 112 "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 : 28
siblings : 56
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
25 26 27 28 29 30
```

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Platform Notes (Continued)

```

physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
                25 26 27 28 29 30
cache size : 39424 KB

```

```

From /proc/meminfo
MemTotal:          394833816 kB
HugePages_Total:    0
Hugepagesize:      2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.3 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.3"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server

```

```

uname -a:
Linux skylake-dual-8180 3.10.0-514.21.1.el7.x86_64 #1 SMP Sat Apr 22 02:41:35
EDT 2017 x86_64 x86_64 x86_64 GNU/Linux

```

```
run-level 3 Jun 15 10:21 last=5
```

```

SPEC is set to: /run/media/root/SPEC/SPEC_AVX3
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/nvme2n1    ext4  1.5T  241G  1.2T  18% /run/media/root/SPEC
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.

```

BIOS American Megatrends Inc. 2A11 02/22/2017
Memory:
24x Micron 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666 MHz

```

(End of data from sysinfo program)

General Notes

```

Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/run/media/root/SPEC/SPEC_AVX3/lib/ia32:/run/media/root/SPEC/SPEC_AVX3/lib/intel64:/run/media/root/SPEC/SPEC_AVX3/sh10.2"
OMP_NUM_THREADS = "56"

```

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General Notes (Continued)

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.

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.xalanbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
-auto-p32

C++ benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh10.2 -lsmartheap64

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca



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Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

C++ benchmarks (except as noted below):

icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -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: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -qopt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div -auto-ilp32 -qopt-prefetch

403.gcc: -xCORE-AVX512 -ipo -O3 -no-prec-div -inline-calloc
-qopt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX512 -ipo -O3 -no-prec-div -parallel
-qopt-prefetch -auto-p32

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Peak Optimization Flags (Continued)

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2)

456.hmmcr: basepeak = yes

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -qopt-ra-region-strategy=block
-Wl,-z,muldefs -L/sh10.2 -lsmartheap

473.astar: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmartheap64

483.xalancbmk: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-Wl,-z,muldefs -L/sh10.2 -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-ic17.0-official-linux64-revD.html>
<http://www.spec.org/cpu2006/flags/Default-Platform-Flags.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-revD.xml>
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Tested with SPEC CPU2006 v1.2.
 Report generated on Thu Jul 13 14:50:26 2017 by SPEC CPU2006 PS/PDF formatter v6932.
 Originally published on 13 July 2017.