



# SPEC® CINT2006 Result

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## Inspur Corporation

**SPECint®\_rate2006 = 1670**

### Inspur NF5280M4 (Intel Xeon E5-2698 v4)

**SPECint\_rate\_base2006 = 1610**

**CPU2006 license:** 3358

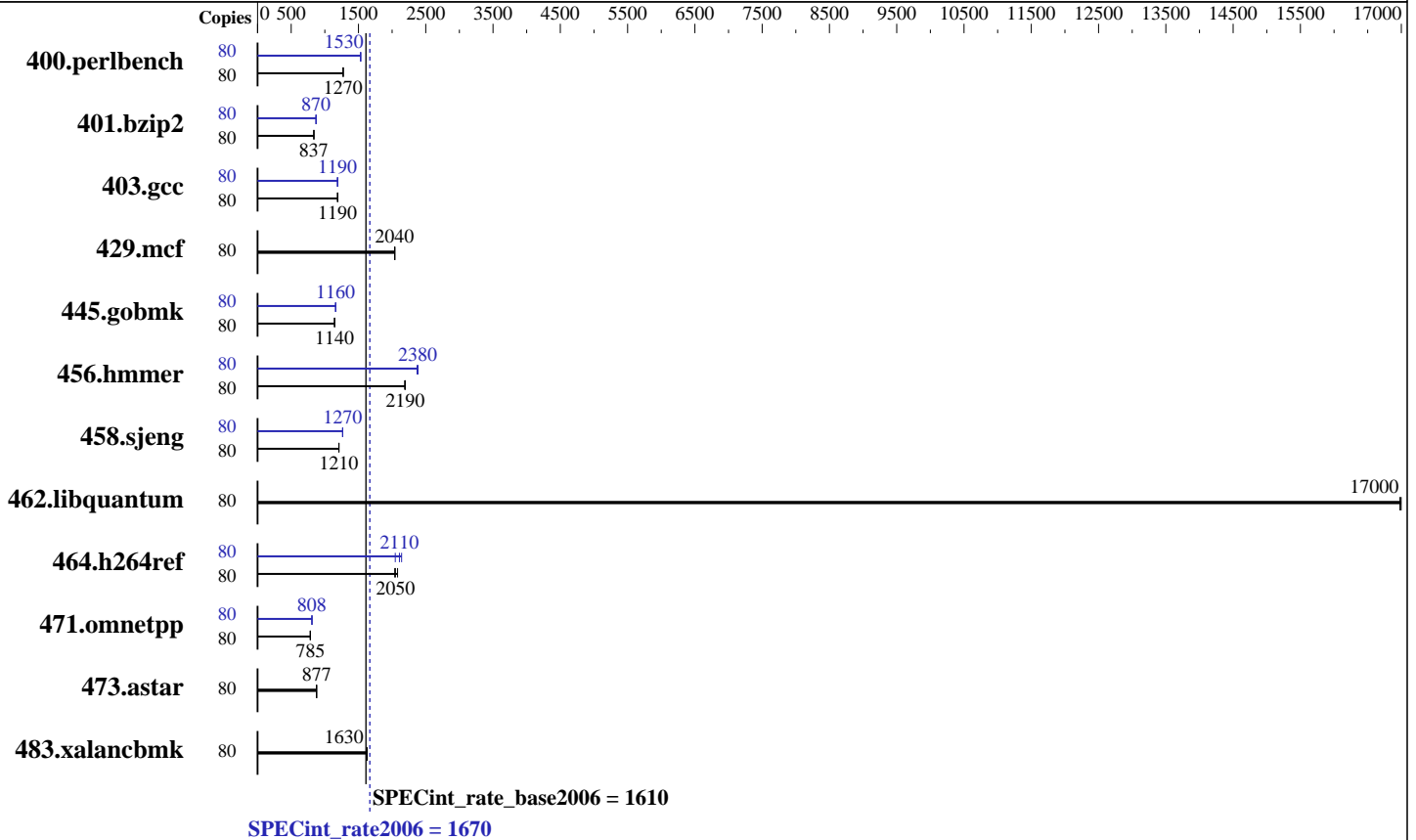
**Test date:** Jun-2017

**Test sponsor:** Inspur Corporation

**Hardware Availability:** Mar-2016

**Tested by:** Inspur Corporation

**Software Availability:** Apr-2017



### Hardware

CPU Name: Intel Xeon E5-2698 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 40 cores, 2 chips, 20 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: 50 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R)  
 Disk Subsystem: 1 x 450 GB SATA SSD  
 Other Hardware: None

### Software

Operating System: Inspur K-UX release 3.0.5 (Inspur) 3.10.4-K\_UX.x86\_64  
 Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler 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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	80	615	1270	614	1270	<b>614</b>	<b>1270</b>	80	511	1530	510	1530	<b>510</b>	<b>1530</b>
401.bzip2	80	<b>922</b>	<b>837</b>	921	838	923	836	80	887	870	889	869	<b>887</b>	<b>870</b>
403.gcc	80	<b>542</b>	<b>1190</b>	539	1190	542	1190	80	541	1190	<b>541</b>	<b>1190</b>	543	1190
429.mcf	80	<b>358</b>	<b>2040</b>	358	2040	357	2040	80	<b>358</b>	<b>2040</b>	358	2040	357	2040
445.gobmk	80	<b>733</b>	<b>1140</b>	733	1150	733	1140	80	<b>723</b>	<b>1160</b>	723	1160	724	1160
456.hammer	80	340	2200	<b>340</b>	<b>2190</b>	341	2190	80	<b>313</b>	<b>2380</b>	313	2380	315	2370
458.sjeng	80	801	1210	<b>800</b>	<b>1210</b>	800	1210	80	765	1270	766	1260	<b>765</b>	<b>1270</b>
462.libquantum	80	97.5	17000	97.6	17000	<b>97.6</b>	<b>17000</b>	80	97.5	17000	97.6	17000	<b>97.6</b>	<b>17000</b>
464.h264ref	80	<b>864</b>	<b>2050</b>	851	2080	868	2040	80	865	2050	827	2140	<b>840</b>	<b>2110</b>
471.omnetpp	80	<b>637</b>	<b>785</b>	638	783	637	785	80	618	809	619	808	<b>619</b>	<b>808</b>
473.astar	80	641	877	<b>640</b>	<b>877</b>	640	878	80	641	877	<b>640</b>	<b>877</b>	640	878
483.xalancbmk	80	340	1630	<b>339</b>	<b>1630</b>	339	1630	80	340	1630	<b>339</b>	<b>1630</b>	339	1630

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"

## Platform Notes

BIOS and OS configuration:  
SCALING\_GOVERNOR set to Performance  
Hardware Prefetch set to Disable  
VT Support set to Disable  
C1E Support set to Disable  
Sysinfo program /home/CPU2006/config/sysinfo.rev6993  
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)  
running on localhost.localdomain Thu Jun 22 10:56:29 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) CPU E5-2698 v4 @ 2.20GHz  
2 "physical id"s (chips)  
80 "processors"

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## Platform Notes (Continued)

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 : 20
siblings  : 40
physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
cache size : 25600 KB
```

From /proc/meminfo

```
MemTotal:      264023292 kB
HugePages_Total:    0
Hugepagesize:    2048 kB
```

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

```
inspur-release: Inspur K-UX release 3.0.5 (Inspur)
os-release:
NAME="Inspur K-UX"
VERSION="3 (Inspur)"
ID="k-ux"
VERSION_ID="3"
PRETTY_NAME="Inspur K-UX 3 (Inspur)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:k-ux:k-ux:3"
HOME_URL="http://www.inspur.com/"
system-release: Inspur K-UX release 3.0.5 (Inspur)
system-release-cpe: cpe:/o:k-ux:k-ux:3
```

uname -a:

```
Linux localhost.localdomain 3.10.4-K_UX.x86_64 #1 SMP Fri Sep 30 11:06:29 GMT
2016 x86_64 x86_64 x86_64 GNU/Linux
```

SPEC is set to: /home/CPU2006

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/ik-home xfs  393G   76G  318G  20% /home
```

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. 4.1.11 09/07/2016

Memory:

```
8x NO DIMM NO DIMM
16x Samsung M393A2K43BB1-CNC 16 GB 2 rank 2400 MHz
```

(End of data from sysinfo program)



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## General Notes

Environment variables set by runspec before the start of the run:

LD\_LIBRARY\_PATH = "/home/CPU2006/lib/ia32:/home/CPU2006/lib/intel64:/home/CPU2006/sh10.2"

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

Filesystem page cache cleared with:

shell invocation of 'sync; echo 3 > /proc/sys/vm/drop\_caches' prior to run

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\_2017/linux/lib/ia32

C++ benchmarks:

icpc -m32 -L/opt/intel/compilers\_and\_libraries\_2017/linux/lib/ia32

## Base Portability Flags

400.perlbench: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -D\_FILE\_OFFSET\_BITS=64  
403.gcc: -D\_FILE\_OFFSET\_BITS=64  
429.mcf: -D\_FILE\_OFFSET\_BITS=64  
445.gobmk: -D\_FILE\_OFFSET\_BITS=64  
456.hmmer: -D\_FILE\_OFFSET\_BITS=64  
458.sjeng: -D\_FILE\_OFFSET\_BITS=64  
462.libquantum: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX  
464.h264ref: -D\_FILE\_OFFSET\_BITS=64  
471.omnetpp: -D\_FILE\_OFFSET\_BITS=64  
473.astar: -D\_FILE\_OFFSET\_BITS=64  
483.xalancbmk: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap



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## 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\_2017/linux/lib/ia32

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\_2017/linux/lib/ia32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

401.bzip2: -DSPEC\_CPU\_LP64

403.gcc: -D\_FILE\_OFFSET\_BITS=64

429.mcf: -D\_FILE\_OFFSET\_BITS=64

445.gobmk: -D\_FILE\_OFFSET\_BITS=64

456.hmmer: -DSPEC\_CPU\_LP64

458.sjeng: -DSPEC\_CPU\_LP64

462.libquantum: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX

464.h264ref: -D\_FILE\_OFFSET\_BITS=64

471.omnetpp: -D\_FILE\_OFFSET\_BITS=64

473.astar: -D\_FILE\_OFFSET\_BITS=64

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-AVX2(pass 2)

-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)

-no-prec-div(pass 2) -auto-ilp32 -qopt-mem-layout-trans=3

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## Peak Optimization Flags (Continued)

401.bzip2: -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) -qopt-prefetch -auto-ilp32  
-qopt-mem-layout-trans=3

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3

429.mcf: basepeak = yes

445.gobmk: -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) -qopt-mem-layout-trans=3

456.hmmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-qopt-mem-layout-trans=3

458.sjeng: -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 -auto-ilp32  
-qopt-mem-layout-trans=3

462.libquantum: basepeak = yes

464.h264ref: -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 -qopt-mem-layout-trans=3

C++ benchmarks:

471.omnetpp: -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)  
-qopt-ra-region-strategy=block  
-qopt-mem-layout-trans=3 -Wl,-z,muldefs  
-L/sh10.2 -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca



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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-revF.html>  
<http://www.spec.org/cpu2006/flags/Inspur-Platform-Settings-V1.0-HSW.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-revF.xml>  
<http://www.spec.org/cpu2006/flags/Inspur-Platform-Settings-V1.0-HSW.xml>

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