SPEC® CINT2006 Result
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Inspur Corporation

SPECint®_rate2006 = 1890

Inspur NF5280M4 (Intel Xeon E5-2699A v4)
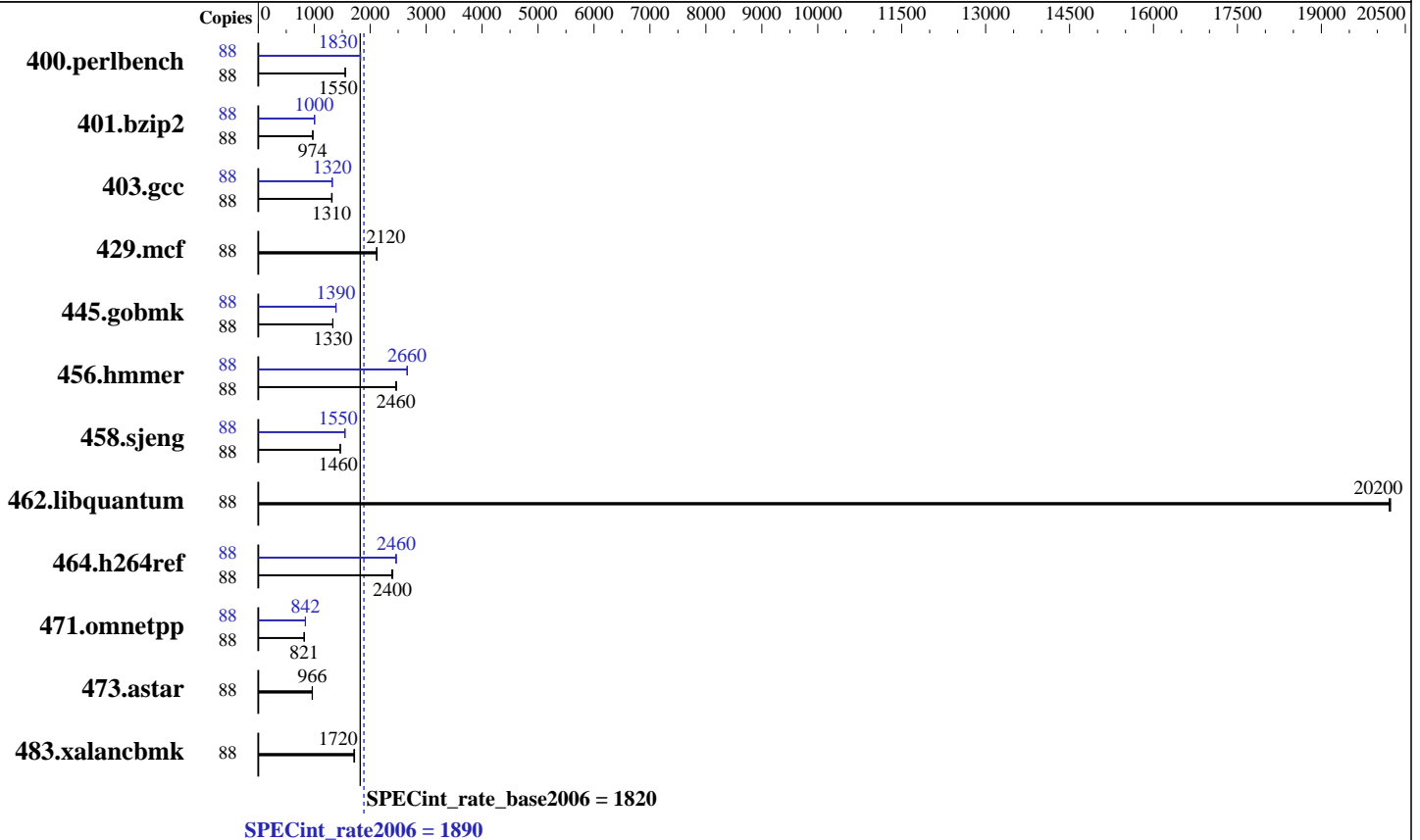
SPECint_rate_base2006 = 1820

CPU2006 license: 3358
Test sponsor: Inspur Corporation
Tested by: Inspur Corporation

Test date: Mar-2017
Hardware Availability: Oct-2016
Software Availability: Sep-2016

Benchmark	Copies	Result
400.perlbench	88	1830
	88	1550
401.bzip2	88	1000
	88	974
403.gcc	88	1320
	88	1310
429.mcf	88	2120
445.gobmk	88	1390
	88	1330
456.hmmer	88	2660
	88	2460
458.sjeng	88	1550
	88	1460
462.libquantum	88	20200
464.h264ref	88	2460
	88	2400
471.omnetpp	88	842
	88	821
473.astar	88	966
483.xalancbmk	88	1720

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Hardware

CPU Name:	Intel Xeon E5-2699A v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	2400
FPU:	Integrated
CPU(s) enabled:	44 cores, 2 chips, 22 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:	256 KB I+D on chip per core
L3 Cache:	55 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 17.0.0.098 of Intel C/C++ Compiler 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 Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	88	554	1550	552	1560	**553**	**1550**	88	**471**	**1830**	470	1830	471	1830
401.bzip2	88	872	974	**872**	**974**	871	974	88	**846**	**1000**	842	1010	847	1000
403.gcc	88	540	1310	**539**	**1310**	537	1320	88	**536**	**1320**	535	1320	538	1320
429.mcf	88	**379**	**2120**	378	2120	380	2110	88	**379**	**2120**	378	2120	380	2110
445.gobmk	88	693	1330	**693**	**1330**	693	1330	88	664	1390	**665**	**1390**	665	1390
456.hmmer	88	332	2470	**333**	**2460**	334	2460	88	309	2660	308	2670	**309**	**2660**
458.sjeng	88	**727**	**1460**	727	1470	727	1460	88	688	1550	687	1550	**688**	**1550**
462.libquantum	88	90.2	20200	**90.2**	**20200**	90.1	20200	88	90.2	20200	**90.2**	**20200**	90.1	20200
464.h264ref	88	810	2400	816	2390	**813**	**2400**	88	793	2460	**790**	**2460**	790	2470
471.omnetpp	88	**670**	**821**	670	821	670	820	88	652	843	654	841	**653**	**842**
473.astar	88	639	967	**639**	**966**	642	963	88	639	967	**639**	**966**	642	963
483.xalancbmk	88	355	1710	353	1720	**354**	**1720**	88	355	1710	353	1720	**354**	**1720**

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 Mar 16 17:41:04 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 E5-2699A v4 @ 2.40GHz
            2 "physical id"s (chips)
            88 "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 : 22
       siblings  : 44
       physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
       28
       physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
       28
    cache size : 28160 KB

From /proc/meminfo
    MemTotal:       264022224 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

run-level 3 Mar 16 17:37

SPEC is set to: /home/CPU2006
    Filesystem          Type  Size  Used Avail Use% Mounted on
    /dev/mapper/ik-home xfs   393G  6.6G  386G   2% /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/libs/32:/home/CPU2006/libs/64:/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:
 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_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.hmmer: `-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.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.xml
http://www.spec.org/cpu2006/flags/Inspur-Platform-Settings-V1.0-HSW.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Apr 4 16:57:15 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 4 April 2017.