SPEC® CINT2006 Result
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Inspur Corporation

Inspur NF5280M4 (Intel Xeon E5-2699A v4)

$SPECint^®\_rate2006 =$ 1900

$SPECint\_rate\_base2006 =$ 1830

CPU2006 license: 3358	**Test date:** Jun-2017
Test sponsor: Inspur Corporation	**Hardware Availability:** Oct-2016
Tested by: Inspur Corporation	**Software Availability:** Apr-2017

Copies

- **400.perlbench** — 88 / 88 — 1850 / 1540
- **401.bzip2** — 88 / 88 — 1010 / 973
- **403.gcc** — 88 / 88 — 1320 / 1320
- **429.mcf** — 88 — 2120
- **445.gobmk** — 88 / 88 — 1390 / 1360
- **456.hmmer** — 88 / 88 — 2750 / 2550
- **458.sjeng** — 88 / 88 — 1540 / 1470
- **462.libquantum** — 88 — 20200
- **464.h264ref** — 88 / 88 — 2460 / 2390
- **471.omnetpp** — 88 / 88 — 856 / 837
- **473.astar** — 88 — 974
- **483.xalancbmk** — 88 — 1720

SPECint_rate_base2006 = 1830

SPECint_rate2006 = 1900
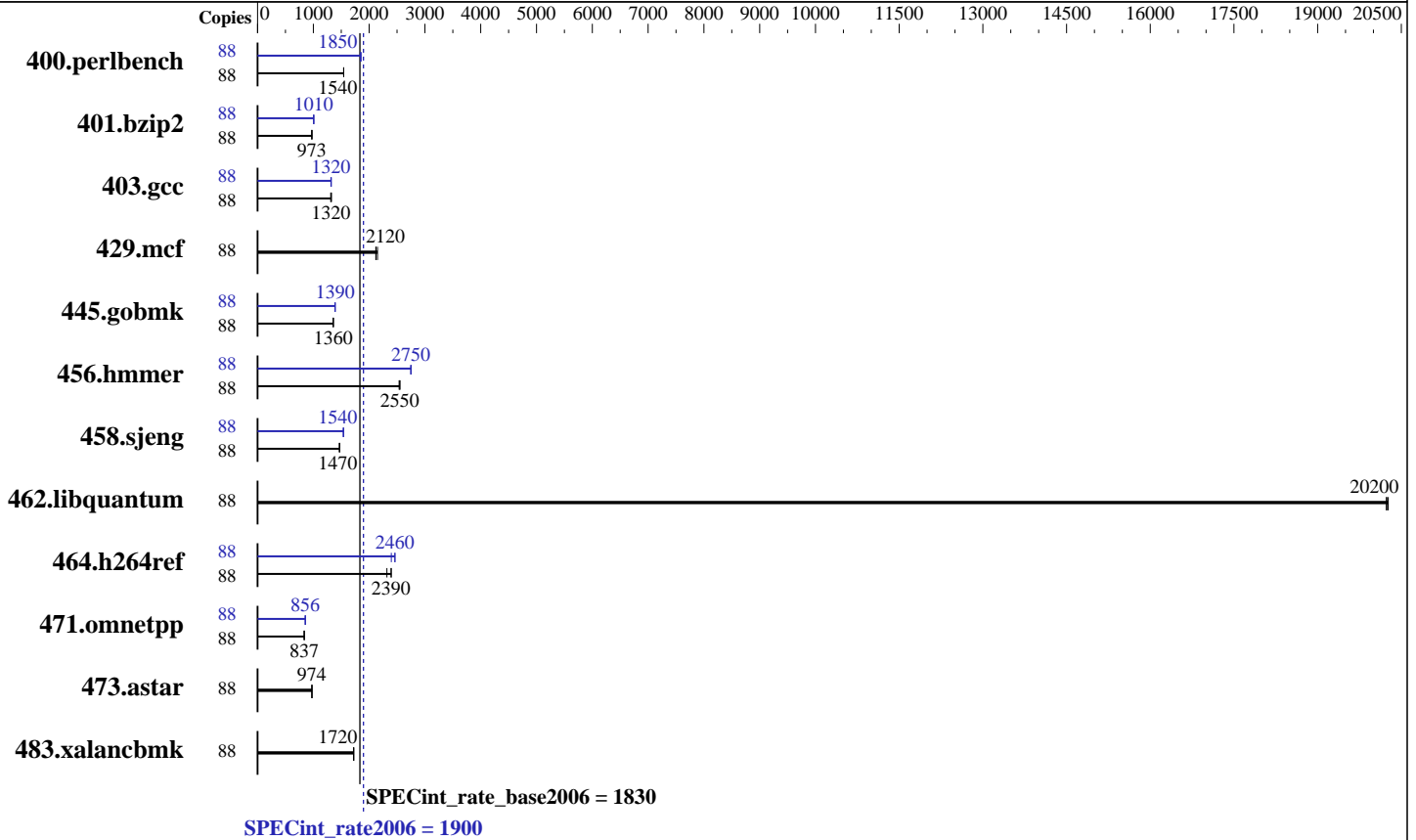
Hardware

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 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:	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 17.0.3.191 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 Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	88	557	1540	557	1540	**557**	**1540**	88	466	1850	464	1850	**465**	**1850**
401.bzip2	88	**873**	**973**	874	971	870	976	88	844	1010	**844**	**1010**	843	1010
403.gcc	88	535	1320	**537**	**1320**	540	1310	88	**538**	**1320**	539	1310	536	1320
429.mcf	88	**378**	**2120**	378	2120	373	2150	88	**378**	**2120**	378	2120	373	2150
445.gobmk	88	**680**	**1360**	681	1360	680	1360	88	664	1390	664	1390	**664**	**1390**
456.hmmer	88	**322**	**2550**	322	2550	324	2540	88	298	2750	**299**	**2750**	299	2750
458.sjeng	88	725	1470	725	1470	**725**	**1470**	88	692	1540	**692**	**1540**	691	1540
462.libquantum	88	90.1	20200	**90.1**	**20200**	90.0	20300	88	90.1	20200	**90.1**	**20200**	90.0	20300
464.h264ref	88	813	2400	**814**	**2390**	840	2320	88	**791**	**2460**	812	2400	790	2460
471.omnetpp	88	657	837	658	836	**657**	**837**	88	**643**	**856**	643	855	642	857
473.astar	88	633	976	**634**	**974**	634	974	88	633	976	**634**	**974**	634	974
483.xalancbmk	88	353	1720	**353**	**1720**	352	1730	88	353	1720	**353**	**1720**	352	1730

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 Fri Jun 9 02:36:54 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


 SPEC is set to: /home/CPU2006
    Filesystem          Type  Size  Used Avail Use% Mounted on
    /dev/mapper/ik-home xfs   877G  7.3G  870G   1% /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. 4.1.15 01/06/2017
  Memory:
  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.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-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

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

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