SPEC® CINT2006 Result

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Inspur Corporation

Inspur NF8460M4 (Intel Xeon E7-8890 v4)

$SPECint^®_rate2006 = $ 3640

$SPECint_rate_base2006 = $ 3510

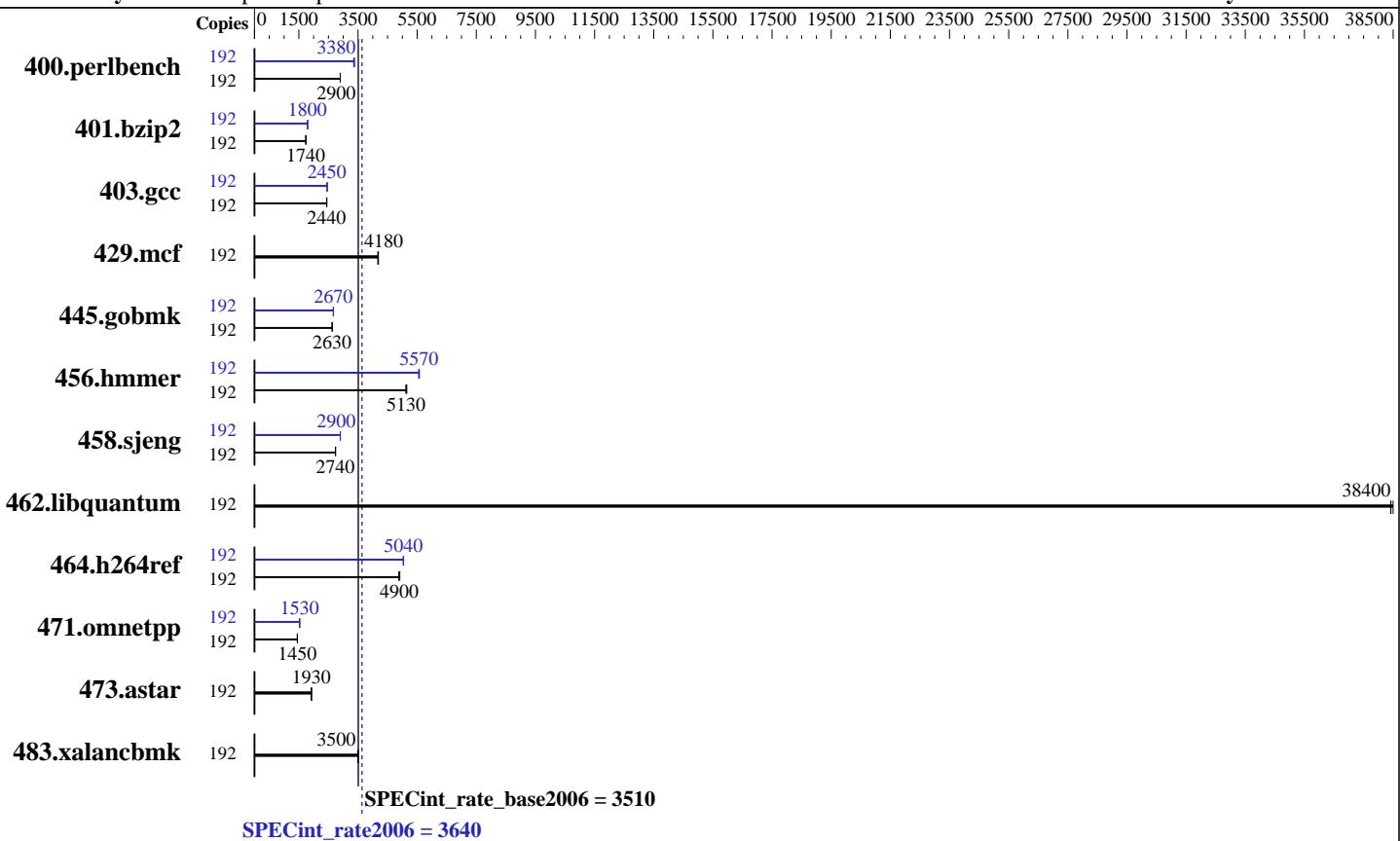|	
CPU2006 license: 3358	**Test date:** Jan-2017
Test sponsor: Inspur Corporation	**Hardware Availability:** Jun-2016
Tested by: Inspur Corporation	**Software Availability:** Mar-2016

Copies

Benchmark	Copies	Base	Peak
400.perlbench	192 / 192	2900	3380
401.bzip2	192 / 192	1740	1800
403.gcc	192 / 192	2440	2450
429.mcf	192	4180	
445.gobmk	192 / 192	2630	2670
456.hmmer	192 / 192	5130	5570
458.sjeng	192 / 192	2740	2900
462.libquantum	192	38400	
464.h264ref	192 / 192	4900	5040
471.omnetpp	192 / 192	1450	1530
473.astar	192	1930	
483.xalancbmk	192	3500	

SPECint_rate_base2006 = 3510

SPECint_rate2006 = 3640

Hardware

CPU Name:	Intel Xeon E7-8890 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.40 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	96 cores, 4 chips, 24 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 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:	60 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC4-2400T-R, running at 1600 MHz)
Disk Subsystem:	1 x 600 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 5 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.2

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Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	192	647	2900	647	2900	**647**	**2900**	192	559	3350	**556**	**3380**	555	3380
401.bzip2	192	**1065**	**1740**	1065	1740	1069	1730	192	1033	1790	**1032**	**1800**	1030	1800
403.gcc	192	632	2450	**633**	**2440**	633	2440	192	630	2450	628	2460	**630**	**2450**
429.mcf	192	**419**	**4180**	418	4190	420	4170	192	**419**	**4180**	418	4190	420	4170
445.gobmk	192	**766**	**2630**	766	2630	767	2630	192	755	2670	755	2670	**755**	**2670**
456.hmmer	192	348	5150	350	5120	**349**	**5130**	192	323	5550	**322**	**5570**	321	5580
458.sjeng	192	848	2740	**848**	**2740**	848	2740	192	800	2900	801	2900	**800**	**2900**
462.libquantum	192	**104**	**38400**	103	38500	104	38400	192	**104**	**38400**	103	38500	104	38400
464.h264ref	192	870	4880	865	4910	**868**	**4900**	192	843	5040	845	5030	**844**	**5040**
471.omnetpp	192	828	1450	**828**	**1450**	828	1450	192	**786**	**1530**	786	1530	786	1530
473.astar	192	699	1930	**700**	**1930**	700	1920	192	699	1930	**700**	**1930**	700	1920
483.xalancbmk	192	377	3510	379	3500	**379**	**3500**	192	377	3510	379	3500	**379**	**3500**

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 Wed Jan 4 05:44:48 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 E7-8890 v4 @ 2.20GHz
          4 "physical id"s (chips)
          192 "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 : 24
      siblings  : 48
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
      physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
      27 28 29
   cache size : 61440 KB

From /proc/meminfo
   MemTotal:       528262276 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   225G  8.5G  216G   4% /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 Inspur 4.0.4 11/04/2016
   Memory:
   32x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400 MHz, configured at 1600 MHz
```

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Platform Notes (Continued)

```
  (End of data from sysinfo program)
```

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 i7-4790K 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
```

Continued on next page

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Base Optimization Flags (Continued)

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

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`

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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

> 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

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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.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.

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