SPEC® CINT2006 Result
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Inspur Corporation

$SPECint^®2006 =$ 62.5

Inspur NF5280M4 (Intel Xeon E5-2620 v4)
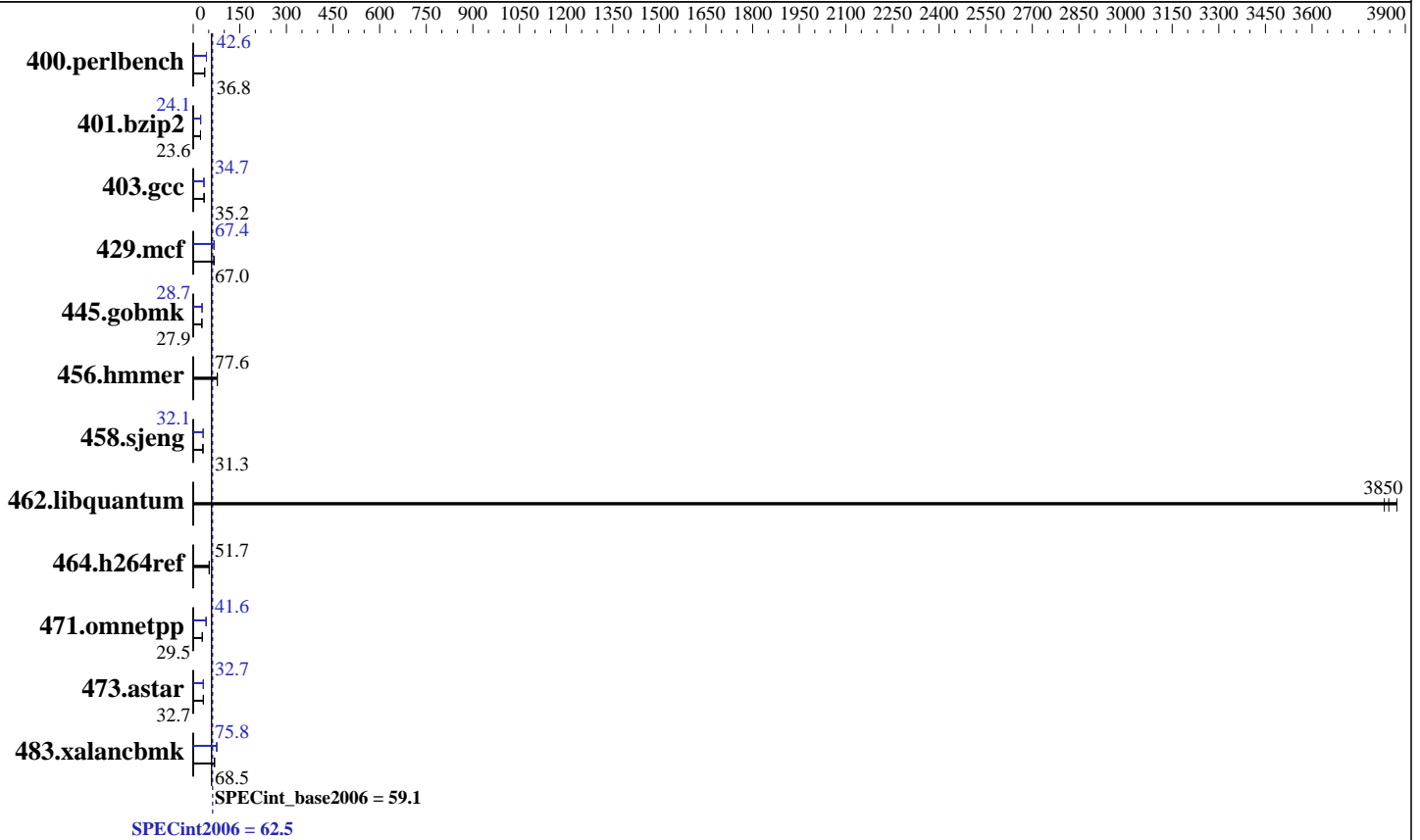
$SPECint\_base2006 =$ 59.1

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

Test date: Jul-2017
Hardware Availability: Apr-2016
Software Availability: Apr-2017

Benchmark	Peak	Base
400.perlbench	42.6	36.8
401.bzip2	24.1	23.6
403.gcc	34.7	35.2
429.mcf	67.4	67.0
445.gobmk	28.7	27.9
456.hmmer		77.6
458.sjeng	32.1	31.3
462.libquantum		3850
464.h264ref		51.7
471.omnetpp	41.6	29.5
473.astar	32.7	32.7
483.xalancbmk	75.8	68.5

SPECint_base2006 = 59.1

SPECint2006 = 62.5

Hardware

CPU Name:	Intel Xeon E5-2620 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz:	2100
FPU:	Integrated
CPU(s) enabled:	16 cores, 2 chips, 8 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:	20 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem:	1 x 900 GB SATA SSD
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.3 (Maipo) 3.10.0-514.el7.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 5 (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	265	36.9	265	36.8	**265**	**36.8**	230	42.5	229	42.7	**229**	**42.6**
401.bzip2	410	23.5	**409**	**23.6**	409	23.6	402	24.0	**401**	**24.1**	401	24.1
403.gcc	228	35.3	231	34.9	**229**	**35.2**	**232**	**34.7**	232	34.7	234	34.4
429.mcf	137	66.7	136	67.1	**136**	**67.0**	137	66.6	**135**	**67.4**	134	67.8
445.gobmk	376	27.9	376	27.9	**376**	**27.9**	**366**	**28.7**	366	28.7	366	28.7
456.hmmer	**120**	**77.6**	120	77.7	120	77.5	**120**	**77.6**	120	77.7	120	77.5
458.sjeng	**386**	**31.3**	386	31.3	386	31.4	376	32.2	**376**	**32.1**	376	32.1
462.libquantum	5.35	3870	**5.39**	**3850**	5.41	3830	5.35	3870	**5.39**	**3850**	5.41	3830
464.h264ref	**428**	**51.7**	429	51.6	427	51.8	**428**	**51.7**	429	51.6	427	51.8
471.omnetpp	**212**	**29.5**	214	29.2	211	29.6	150	41.7	150	41.6	**150**	**41.6**
473.astar	**214**	**32.7**	214	32.7	215	32.6	218	32.2	214	32.8	**214**	**32.7**
483.xalancbmk	101	68.6	101	68.5	**101**	**68.5**	**91.1**	**75.8**	91.1	75.7	90.9	75.9

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

```
    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 Jul 19 23:18:30 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 E5-2620 v4 @ 2.10GHz
          2 "physical id"s (chips)
          32 "processors"
       cores, siblings (Caution: counting these is hw and system dependent.  The
       following excerpts from /proc/cpuinfo might not be reliable.  Use with
```

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Platform Notes (Continued)

```
      caution.)
         cpu cores : 8
         siblings  : 16
         physical 0: cores 0 1 2 3 4 5 6 7
         physical 1: cores 0 1 2 3 4 5 6 7
      cache size : 20480 KB

   From /proc/meminfo
      MemTotal:        263850884 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 localhost.localdomain 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13
      EDT 2016 x86_64 x86_64 x86_64 GNU/Linux

   run-level 5 Jul 19 23:18

   SPEC is set to: /home/CPU2006
      Filesystem            Type  Size  Used Avail Use% Mounted on
      /dev/mapper/rhel-home xfs   877G   97G  780G  12% /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, configured at 2133 MHz

   (End of data from sysinfo program)
```

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General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/CPU2006/lib/ia32:/home/CPU2006/lib/intel64:/home/CPU2006/sh10.2"
OMP_NUM_THREADS = "32"

 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
```

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.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
```

Base Optimization Flags

C benchmarks:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
    -auto-p32
```

C++ benchmarks:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
    -Wl,-z,muldefs -L/sh10.2 -lsmartheap64
```

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Base Other Flags

C benchmarks:

> 403.gcc: -Dalloca=_alloca

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-AVX2(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-AVX2(pass 2)
               -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
               -no-prec-div -auto-ilp32 -qopt-prefetch

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Peak Optimization Flags (Continued)

403.gcc: `-xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc`
`-qopt-malloc-options=3 -auto-ilp32`

429.mcf: `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel`
`-qopt-prefetch -auto-p32`

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)

456.hmmer: basepeak = yes

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`

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

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`
`-Wl,-z,muldefs -L/sh10.2 -lsmartheap`

473.astar: `-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch`
`-auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmartheap64`

483.xalancbmk: `-xCORE-AVX2 -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-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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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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