SPEC® CINT2006 Result
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Inspur Corporation

Inspur NX5480M4 (Intel Xeon E5-2680 v4)

SPECint®_rate2006 = 1270

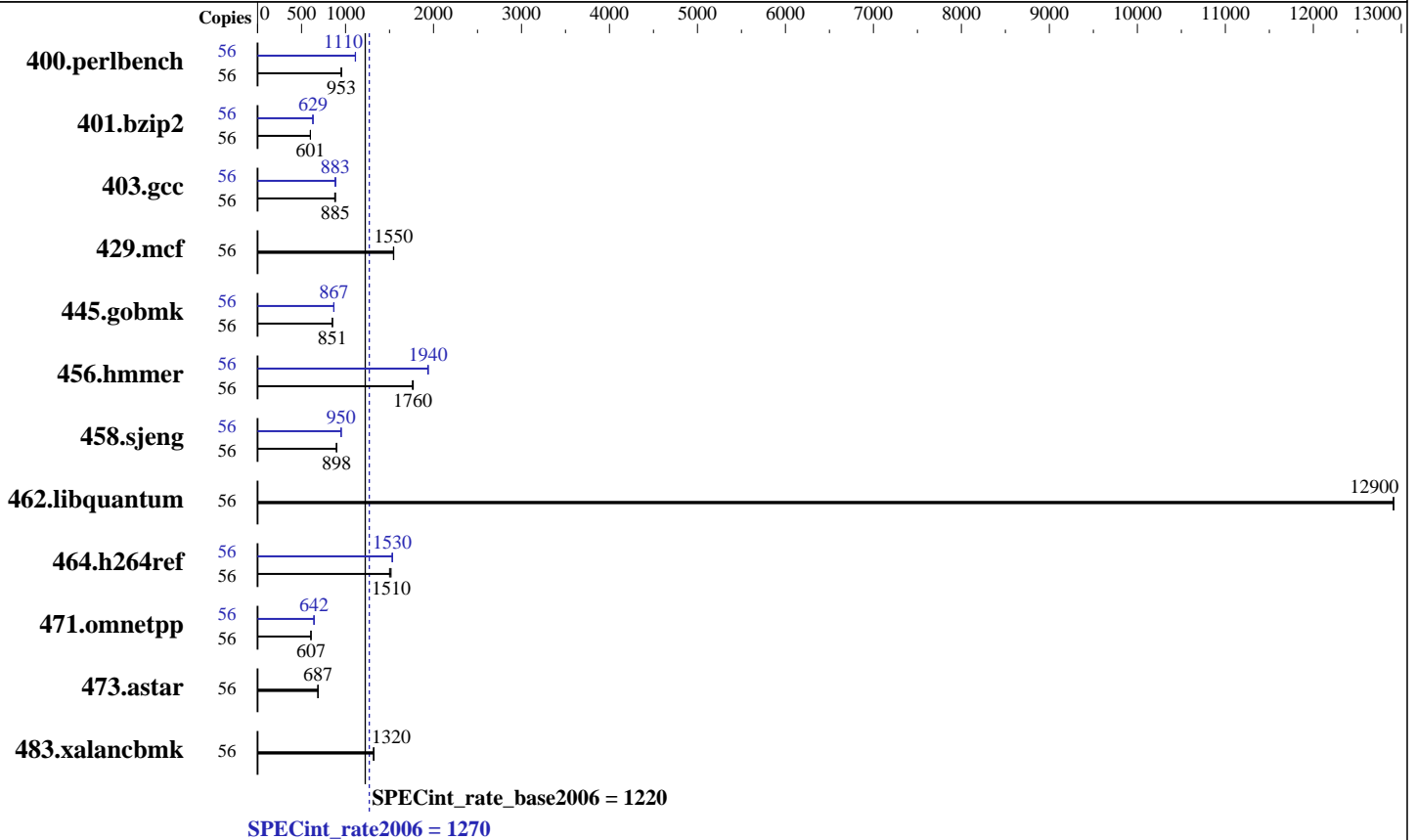SPECint_rate_base2006 = 1220

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

Test date: Feb-2017
Hardware Availability: Apr-2016
Software Availability: Sep-2016

Benchmark	Copies	Result
400.perlbench	56 / 56	1110 / 953
401.bzip2	56 / 56	629 / 601
403.gcc	56 / 56	883 / 885
429.mcf	56	1550
445.gobmk	56 / 56	867 / 851
456.hmmer	56 / 56	1940 / 1760
458.sjeng	56 / 56	950 / 898
462.libquantum	56	12900
464.h264ref	56 / 56	1530 / 1510
471.omnetpp	56 / 56	642 / 607
473.astar	56	687
483.xalancbmk	56	1320

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Hardware

CPU Name: Intel Xeon E5-2680 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2400
FPU: Integrated
CPU(s) enabled: 28 cores, 2 chips, 14 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: 35 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 450 GB SATA SSD
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.2 (Maipo)
3.10.0-327.el7.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	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	56	**574**	**953**	576	950	574	954	56	493	1110	**492**	**1110**	491	1110
401.bzip2	56	899	601	901	600	**899**	**601**	56	857	630	859	629	**859**	**629**
403.gcc	56	**510**	**885**	510	885	514	877	56	**510**	**883**	507	888	511	882
429.mcf	56	331	1540	330	1550	**330**	**1550**	56	331	1540	330	1550	**330**	**1550**
445.gobmk	56	690	851	691	851	**691**	**851**	56	**677**	**867**	678	867	677	867
456.hmmer	56	297	1760	**296**	**1760**	295	1770	56	270	1930	**270**	**1940**	269	1940
458.sjeng	56	755	897	**755**	**898**	754	898	56	713	951	**714**	**950**	714	949
462.libquantum	56	89.9	12900	89.9	12900	**89.9**	**12900**	56	89.9	12900	89.9	12900	**89.9**	**12900**
464.h264ref	56	817	1520	826	1500	**821**	**1510**	56	807	1530	**808**	**1530**	811	1530
471.omnetpp	56	576	608	577	607	**577**	**607**	56	**545**	**642**	546	642	545	643
473.astar	56	572	687	573	686	**572**	**687**	56	572	687	573	686	**572**	**687**
483.xalancbmk	56	292	1320	293	1320	**293**	**1320**	56	292	1320	293	1320	**293**	**1320**

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 Mon Feb 27 05:50:22 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 E5-2680 v4@ 2.40GHz
         2 "physical id"s (chips)
         56 "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 : 14
       siblings  : 28
       physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
       physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
    cache size : 35840 KB

 From /proc/meminfo
    MemTotal:       263848932 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 From /etc/*release* /etc/*version*
    os-release:
       NAME="Red Hat Enterprise Linux Server"
       VERSION="7.2 (Maipo)"
       ID="rhel"
       ID_LIKE="fedora"
       VERSION_ID="7.2"
       PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
       ANSI_COLOR="0;31"
       CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
    redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
    system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

 uname -a:
    Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
    EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

 run-level 5 Feb 24 12:26

 SPEC is set to: /home/CPU2006
    Filesystem              Type  Size  Used Avail Use% Mounted on
    /dev/mapper/rhel-home xfs   393G   62G  332G  16% /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:
  4x NO DIMM NO DIMM
  16x Samsung M393A2G40EB1-CRC 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:
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
```

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.

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