SPEC® CINT2006 Result

Inspur Corporation

SPECint®_rate2006 = 902

Inspur NF5180M4 (Intel Xeon E5-2640 v4)

SPECint_rate_base2006 = 862

CPU2006 license: 3358
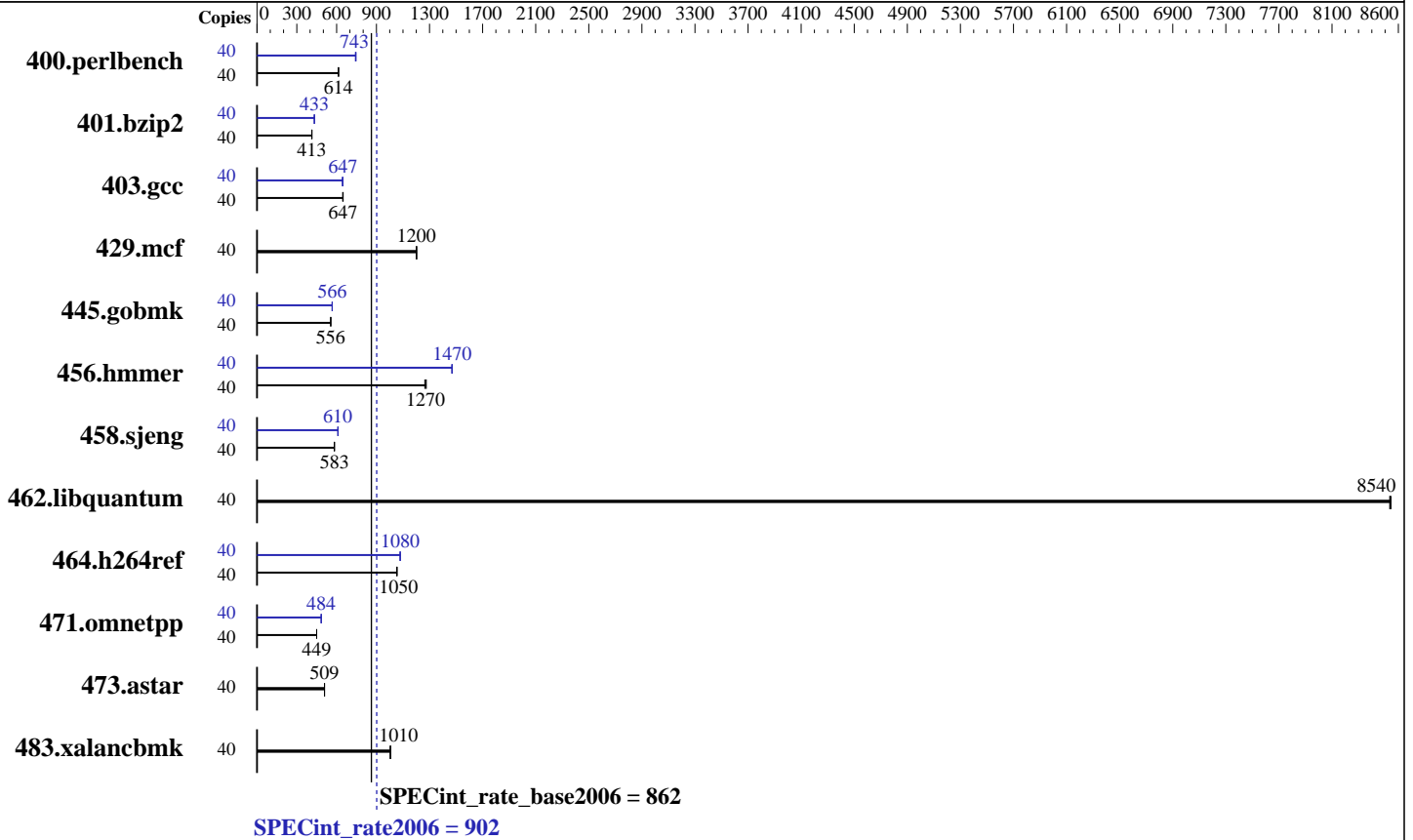
Test sponsor: Inspur Corporation

Tested by: Inspur Corporation

Test date: Jun-2017

Hardware Availability: Apr-2016

Software Availability: Apr-2017

Copies scale: 0 300 600 900 1300 1700 2100 2500 2900 3300 3700 4100 4500 4900 5300 5700 6100 6500 6900 7300 7700 8100 8600

- 400.perlbench: 40 — 743; 40 — 614
- 401.bzip2: 40 — 433; 40 — 413
- 403.gcc: 40 — 647; 40 — 647
- 429.mcf: 40 — 1200
- 445.gobmk: 40 — 566; 40 — 556
- 456.hmmer: 40 — 1470; 40 — 1270
- 458.sjeng: 40 — 610; 40 — 583
- 462.libquantum: 40 — 8540
- 464.h264ref: 40 — 1080; 40 — 1050
- 471.omnetpp: 40 — 484; 40 — 449
- 473.astar: 40 — 509
- 483.xalancbmk: 40 — 1010

SPECint_rate_base2006 = 862

SPECint_rate2006 = 902

Hardware

CPU Name: Intel Xeon E5-2640 v4

CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz

CPU MHz: 2400

FPU: Integrated

CPU(s) enabled: 20 cores, 2 chips, 10 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: 25 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: 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

SPEC CINT2006 Result
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Inspur Corporation

Inspur NF5180M4 (Intel Xeon E5-2640 v4)

SPECint_rate2006 =   902

SPECint_rate_base2006 =   862

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

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	40	636	615	637	613	**637**	**614**	40	527	741	524	746	**526**	**743**
401.bzip2	40	933	414	934	413	**934**	**413**	40	**892**	**433**	896	431	891	433
403.gcc	40	**498**	**647**	498	646	496	649	40	501	642	**498**	**647**	498	647
429.mcf	40	**304**	**1200**	304	1200	303	1200	40	**304**	**1200**	304	1200	303	1200
445.gobmk	40	755	556	**755**	**556**	755	555	40	**741**	**566**	740	567	741	566
456.hmmer	40	**294**	**1270**	295	1260	293	1280	40	**254**	**1470**	254	1470	254	1470
458.sjeng	40	831	583	830	583	**830**	**583**	40	793	610	**794**	**610**	794	610
462.libquantum	40	97.0	8540	**97.1**	**8540**	97.1	8540	40	97.0	8540	**97.1**	**8540**	97.1	8540
464.h264ref	40	838	1060	841	1050	**840**	**1050**	40	**821**	**1080**	819	1080	821	1080
471.omnetpp	40	556	450	556	449	**556**	**449**	40	**517**	**484**	517	484	517	484
473.astar	40	**552**	**509**	552	509	553	508	40	**552**	**509**	552	509	553	508
483.xalancbmk	40	275	1000	**274**	**1010**	274	1010	40	275	1000	**274**	**1010**	274	1010

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 Jun 22 20:48:19 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 E5-2640 v4 @ 2.40GHz
         2 "physical id"s (chips)
         40 "processors"

Continued on next page

Inspur Corporation

Inspur NF5180M4 (Intel Xeon E5-2640 v4)

SPECint_rate2006 =   902

SPECint_rate_base2006 = 862

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

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

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 : 10
         siblings  : 20
         physical 0: cores 0 1 2 3 4 8 9 10 11 12
         physical 1: cores 0 1 2 3 4 8 9 10 11 12
      cache size : 25600 KB

   From /proc/meminfo
      MemTotal:       264030244 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   43G  834G   5% /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)
```

SPEC CINT2006 Result

Inspur Corporation

Inspur NF5180M4 (Intel Xeon E5-2640 v4)

SPECint_rate2006 =   902

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

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

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
```

SPEC CINT2006 Result
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Inspur Corporation

Inspur NF5180M4 (Intel Xeon E5-2640 v4)

SPECint_rate2006 = 902

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

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

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`

Inspur Corporation

Inspur NF5180M4 (Intel Xeon E5-2640 v4)

SPECint_rate2006 =   902

SPECint_rate_base2006 = 862

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

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

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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SPECint_rate2006 = 902

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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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