Inspur Corporation

Inspur NF5270M4 (Intel Xeon E5-2698 v3)

SPECint\_rate2006 = 1340
SPECint\_rate_base2006 = 1280

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

Test date: Oct-2015
Hardware Availability: Sep-2014
Software Availability: Aug-2015

Hardware

- **CPU Name:** Intel Xeon E5-2698 v3
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.60 GHz
- **CPU MHz:** 2300
- **FPU:** Integrated
- **CPU(s) enabled:** 32 cores, 2 chips, 16 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:** 40 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
- **Disk Subsystem:** 1 x SATA, 450 GB, SSD
- **Other Hardware:** None

Software

- **Operating System:** Red Hat Enterprise Linux Server release 7.1 (Maipo) 3.10.0-229.el7.x86_64
- **Compiler:** C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
- **Auto Parallel:** No
- **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

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
SPEC CINT2006 Result

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Results Table

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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
Memory Frequency set to 2133 MHz
VT Support set to Disable
C1E Support set to Disable
Sysinfo program /home/CPU2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1

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 E5-2698 v3 @ 2.30GHz
2 "physical id"s (chips)

Continued on next page
Inspur Corporation

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**SPECint_rate2006 = 1340**

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CPU2006 license: 3358
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**Platform Notes (Continued)**

64 "processors" 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 : 16
siblings : 32
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
```
cache size : 20480 KB

From /proc/meminfo

```
MemTotal:       263854996 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
```

From /etc/*release* /etc/*version*

```
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.1 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.1"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
```

uname -a:

```
Linux localhost.localdomain 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38 EST 2015 x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Oct 16 00:51

SPEC is set to: /home/CPU2006

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 393G 69G 325G 18% /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. 4.0.1 10/30/2014
Memory:

```
8x NO DIMM NO DIMM
16x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
```

(End of data from sysinfo program)
### SPEC CINT2006 Result

**Inspur Corporation**  
**Inspur NF5270M4 (Intel Xeon E5-2698 v3)**

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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/sh"
```

Binsaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB memory using RedHat EL 7.1  
Transparent Huge Pages enabled with:
```
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```
Filesystem page cache cleared with:
```
echo 1>       /proc/sys/vm/drop_caches
```
runcspec command invoked through numactl i.e.:
runcspec --interleave=all runspec <etc>

#### Base Compiler Invocation

- **C benchmarks:**
  - `icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

- **C++ benchmarks:**
  - `icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

#### Base Portability Flags

- **C benchmarks:**
  - `-D_FILE_OFFSET_BITS=64`  
  - `-DSPEC_CPU_LINUX_IA32`

- **C++ benchmarks:**
  - `-D_FILE_OFFSET_BITS=64`  
  - `-DSPEC_CPU_LINUX`

#### Base Optimization Flags

- **C benchmarks:**
  - `-xCORE-AVX2`  
  - `-ipo`  
  - `-O3`  
  - `-no-prec-div`  
  - `-opt-prefetch`  
  - `-opt-mem-layout-trans=3`

- **C++ benchmarks:**
  - `-xCORE-AVX2`  
  - `-ipo`  
  - `-O3`  
  - `-no-prec-div`  
  - `-opt-prefetch`  
  - `-opt-mem-layout-trans=3`  
  - `-Wl,-z,muldefs -L/sh -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_2016/linux/compiler/lib/ia32_lin

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_2016/linux/compiler/lib/ia32_lin

Peak Portability Flags

400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -D_FILE_OFFSET_BITS=64 -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: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
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_LP64

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-ipopass 2 -O3(pass 2) -no-prec-div(pass 2)
-par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32

Continued on next page
Peak Optimization Flags (Continued)

401.bzip2: \(-x\text{CORE-AVX2}(\text{pass 2})\) \(-\text{prof-gen:threadsafe}(\text{pass 1})\)
  \(-\text{ipo}(\text{pass 2})\) \(-\text{O3}(\text{pass 2})\) \(-\text{no-prec-div}(\text{pass 2})\)
  \(-\text{par-num-threads}=1(\text{pass 1})\) \(-\text{prof-use}(\text{pass 2})\) \(-\text{opt-prefetch}\)
  \(-\text{auto-ilp32}\) \(-\text{ansi-alias}\)

403.gcc: \(-x\text{CORE-AVX2}\) \(-\text{ipo}\) \(-\text{O3}\) \(-\text{no-prec-div}\)

429.mcf: basepeak = yes

445.gobmk: \(-x\text{CORE-AVX2}(\text{pass 2})\) \(-\text{prof-gen:threadsafe}(\text{pass 1})\)
  \(-\text{prof-use}(\text{pass 2})\) \(-\text{par-num-threads}=1(\text{pass 1})\) \(-\text{ansi-alias}\)
  \(-\text{opt-mem-layout-trans}=3\)

456.hmmer: \(-x\text{CORE-AVX2}\) \(-\text{ipo}\) \(-\text{O3}\) \(-\text{no-prec-div}\) \(-\text{unroll2}\) \(-\text{auto-ilp32}\)

458.sjeng: \(-x\text{CORE-AVX2}(\text{pass 2})\) \(-\text{prof-gen:threadsafe}(\text{pass 1})\)
  \(-\text{ipo}(\text{pass 2})\) \(-\text{O3}(\text{pass 2})\) \(-\text{no-prec-div}(\text{pass 2})\)
  \(-\text{par-num-threads}=1(\text{pass 1})\) \(-\text{prof-use}(\text{pass 2})\) \(-\text{unroll4}\)
  \(-\text{auto-ilp32}\)

462.libquantum: basepeak = yes

464.h264ref: \(-x\text{CORE-AVX2}(\text{pass 2})\) \(-\text{prof-gen:threadsafe}(\text{pass 1})\)
  \(-\text{ipo}(\text{pass 2})\) \(-\text{O3}(\text{pass 2})\) \(-\text{no-prec-div}(\text{pass 2})\)
  \(-\text{par-num-threads}=1(\text{pass 1})\) \(-\text{prof-use}(\text{pass 2})\) \(-\text{unroll2}\)
  \(-\text{ansi-alias}\)

C++ benchmarks:

471.omnetpp: \(-x\text{CORE-AVX2}(\text{pass 2})\) \(-\text{prof-gen:threadsafe}(\text{pass 1})\)
  \(-\text{ipo}(\text{pass 2})\) \(-\text{O3}(\text{pass 2})\) \(-\text{no-prec-div}(\text{pass 2})\)
  \(-\text{par-num-threads}=1(\text{pass 1})\) \(-\text{prof-use}(\text{pass 2})\) \(-\text{ansi-alias}\)
  \(-\text{opt-ra-region-strategy}=\text{block}\) \(-\text{Wl,-z,muldefs}\)
  \(-\text{L/sh}\) \(-\text{lsmartheap}\)

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: \(-\text{Dalloca}=_\text{alloca}\)
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The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:

- [http://www.spec.org/cpu2006/flags/Inspur-Platform-Settings-V1.0-HSW.xml](http://www.spec.org/cpu2006/flags/Inspur-Platform-Settings-V1.0-HSW.xml)

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For other inquiries, please contact webmaster@spec.org.

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