# SPEC® CINT2006 Result
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## IBM Corporation

IBM NeXtScale nx360 M4
(Intel Xeon E5-2667 v2, 3.30 GHz)

SPECint®2006 = 67.5

SPECint_base2006 = 62.9

| | |
|---|---|
| 400.perlbench | 44.9 / 37.6 |
| 401.bzip2 | 27.8 / 27.4 |
| 403.gcc | 40.1 / 39.0 |
| 429.mcf | 77.0 |
| 445.gobmk | 31.5 / 28.5 |
| 456.hmmer | 68.6 / 70.6 |
| 458.sjeng | 34.2 / 33.3 |
| 462.libquantum | 3780 |
| 464.h264ref | 65.6 / 54.7 |
| 471.omnetpp | 53.4 / 36.8 |
| 473.astar | 37.0 / 37.1 |
| 483.xalancbmk | 64.5 / 65.4 |

SPECint_base2006 = 62.9

SPECint2006 = 67.5

## Hardware

CPU Name: Intel Xeon E5-2667 v2
CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz: 3300
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 cores/chip
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: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)
Disk Subsystem: 2 x 250 GB SATA, 7200RPM, RAID 0
Other Hardware: None

## Software

Operating System: Red Hat Enterprise Linux Server release 6.4 (Santiago)
2.6.32-358.el6.x86_64
Compiler: C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0

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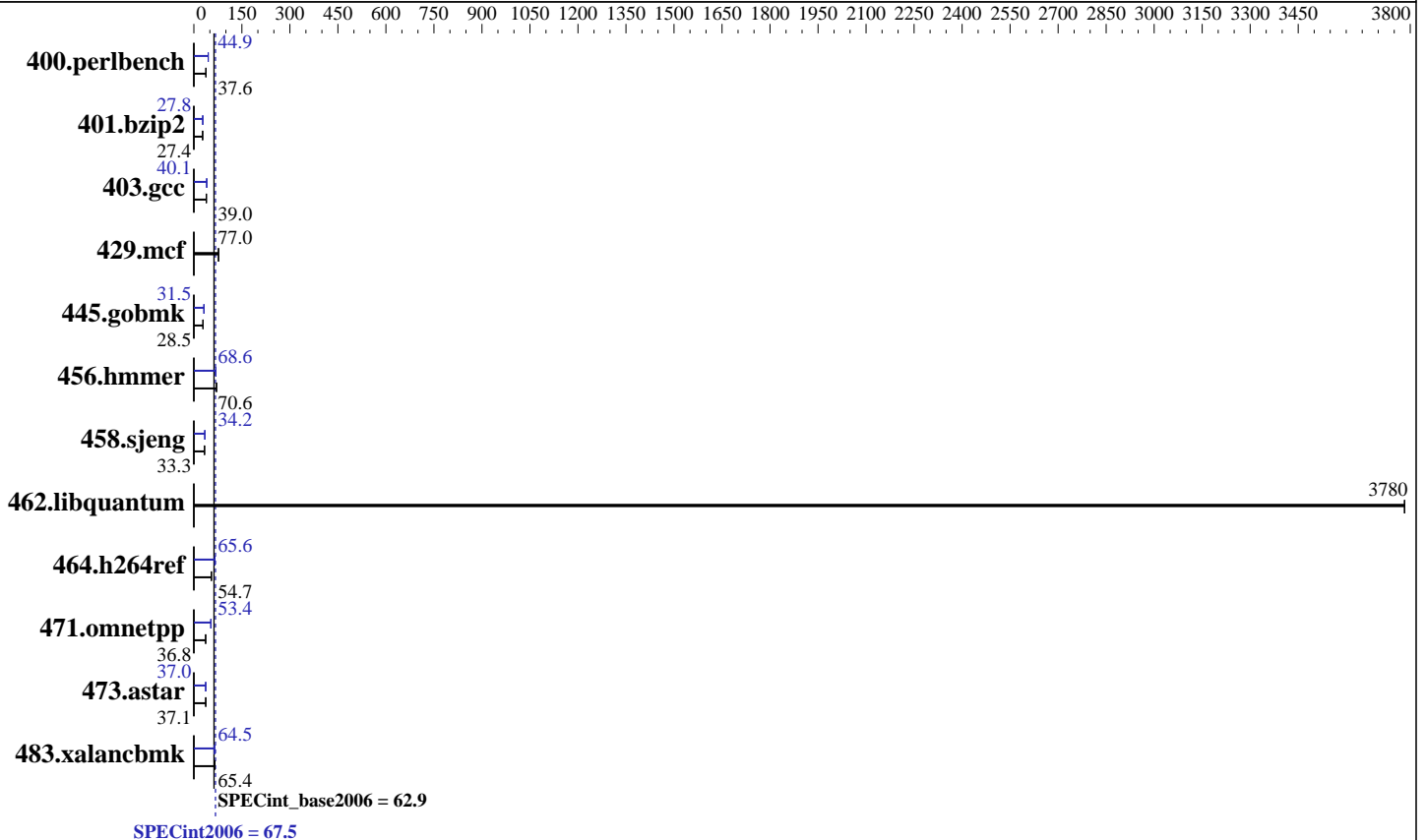
SPECint_base2006 =  62.9

**CPU2006 license:** 11
**Test sponsor:** IBM Corporation
**Tested by:** IBM Corporation

**Test date:** Apr-2014
**Hardware Availability:** Nov-2013
**Software Availability:** Sep-2013

## Results Table

| Benchmark | Base Seconds | Base Ratio | Base Seconds | Base Ratio | Base Seconds | Base Ratio | Peak Seconds | Peak Ratio | Peak Seconds | Peak Ratio | Peak Seconds | Peak Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 400.perlbench | 259 | 37.7 | **260** | **37.6** | 260 | 37.6 | 218 | 44.9 | **218** | **44.9** | 218 | 44.8 |
| 401.bzip2 | 353 | 27.3 | **353** | **27.4** | 353 | 27.4 | 348 | 27.7 | 348 | 27.8 | **348** | **27.8** |
| 403.gcc | 206 | 39.0 | **206** | **39.0** | 206 | 39.1 | 201 | 40.1 | **201** | **40.1** | 201 | 40.1 |
| 429.mcf | **118** | **77.0** | 119 | 76.5 | 118 | 77.2 | **118** | **77.0** | 119 | 76.5 | 118 | 77.2 |
| 445.gobmk | 368 | 28.5 | 369 | 28.4 | **368** | **28.5** | 333 | 31.5 | **333** | **31.5** | 333 | 31.5 |
| 456.hmmer | 132 | 70.6 | **132** | **70.6** | 132 | 70.7 | **136** | **68.6** | 136 | 68.4 | 136 | 68.7 |
| 458.sjeng | **364** | **33.3** | 364 | 33.3 | 364 | 33.3 | 354 | 34.2 | 354 | 34.2 | **354** | **34.2** |
| 462.libquantum | 5.48 | 3780 | **5.48** | **3780** | 5.48 | 3780 | 5.48 | 3780 | **5.48** | **3780** | 5.48 | 3780 |
| 464.h264ref | 404 | 54.8 | 405 | 54.7 | **405** | **54.7** | 337 | 65.6 | **337** | **65.6** | 338 | 65.6 |
| 471.omnetpp | 171 | 36.6 | **170** | **36.8** | 170 | 36.9 | 117 | 53.6 | 119 | 52.5 | **117** | **53.4** |
| 473.astar | 189 | 37.1 | **189** | **37.1** | 189 | 37.1 | 191 | 36.8 | 190 | 37.0 | **190** | **37.0** |
| 483.xalancbmk | 105 | 65.6 | **105** | **65.4** | 106 | 65.3 | **107** | **64.5** | 107 | 64.4 | 107 | 64.7 |

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"
Zone reclaim mode enabled with:
echo 1 > /proc/sys/vm/zone_reclaim_mode
```

## Platform Notes

```
BIOS setting:
Operating Mode set to Maximum Performance
Hyper-Threading set to Disabled
Sysinfo program /home/SPECcpu-new/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on nx360M4 Tue Apr  1 03:20:24 2014

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 E5-2667 v2 @ 3.30GHz
      2 "physical id"s (chips)
      16 "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  : 8
      physical 0: cores 1 2 3 4 8 9 10 11
      physical 1: cores 1 2 3 4 8 9 10 11
   cache size : 25600 KB

 From /proc/meminfo
    MemTotal:       132090172 kB
    HugePages_Total:        0
    Hugepagesize:        2048 kB

 /usr/bin/lsb_release -d
    Red Hat Enterprise Linux Server release 6.4 (Santiago)

 From /etc/*release* /etc/*version*
    redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
    system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

 uname -a:
    Linux nx360M4 2.6.32-358.el6.x86_64 #1 SMP Tue Jan 29 11:47:41 EST 2013
    x86_64 x86_64 x86_64 GNU/Linux

 run-level 3 Mar 31 11:53

 SPEC is set to: /home/SPECcpu-new
    Filesystem     Type     Size  Used Avail Use% Mounted on
    /dev/mapper/vg_nx360m4-lv_home
                   ext4     403G   66G  318G  18% /home

 Additional information from dmidecode:
   BIOS IBM -[FHE105GUS-1.00]- 08/23/2013
   Memory:
    8x Samsung M393B2G70QH0-CMA 16 GB 1867 MHz 2 rank

 (End of data from sysinfo program)
```

## General Notes

```
 Environment variables set by runspec before the start of the run:
 KMP_AFFINITY = "granularity=fine,scatter"
 LD_LIBRARY_PATH = "/home/SPECcpu-new/libs/32:/home/SPECcpu-new/libs/64:/home/SPECcpu-new/sh"
 OMP_NUM_THREADS = "16"

  Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
  memory using RedHat EL 6.4
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
  runspec command invoked through numactl i.e.:
  numactl --interleave=all runspec <etc>
```

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## 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:
    -xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:
    -xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
    -L/sh -lsmartheap64

## Base Other Flags

C benchmarks:

        403.gcc: -Dalloca=_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):
    icc  -m64

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## Peak Compiler Invocation (Continued)

400.perlbench: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m32`

473.astar: `icpc -m64`

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

400.perlbench: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch`
`-ansi-alias`

401.bzip2: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)`
`-no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch`
`-ansi-alias`

403.gcc: `-xAVX -ipo -O3 -no-prec-div -inline-calloc`
`-opt-malloc-options=3 -auto-ilp32`

429.mcf: `basepeak = yes`

445.gobmk: `-xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
`-ansi-alias`

456.hmmer: `-xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`
`-ansi-alias`

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# Peak Optimization Flags (Continued)

458.sjeng: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll4`

462.libquantum: basepeak = yes

464.h264ref: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll2`
`-ansi-alias`

C++ benchmarks:

471.omnetpp: `-xAVX`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2)
`-no-prec-div`(pass 2) `-prof-use`(pass 2)
`-opt-ra-region-strategy=block`          `-ansi-alias`
`-Wl,-z,muldefs -L/sh -lsmartheap`

473.astar: `-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32`
`-Wl,-z,muldefs -L/sh -lsmartheap64`

483.xalancbmk: `-xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`
`-Wl,-z,muldefs -L/sh -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-ic14.0-official-linux64.20140128.html
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-A.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml
http://www.spec.org/cpu2006/flags/IBM-Platform-Flags-V1.2-IVB-A.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 23:12:21 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 April 2014.