# SPEC® CINT2006 Result
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## IBM Corporation

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

SPECint®_rate2006 =     795
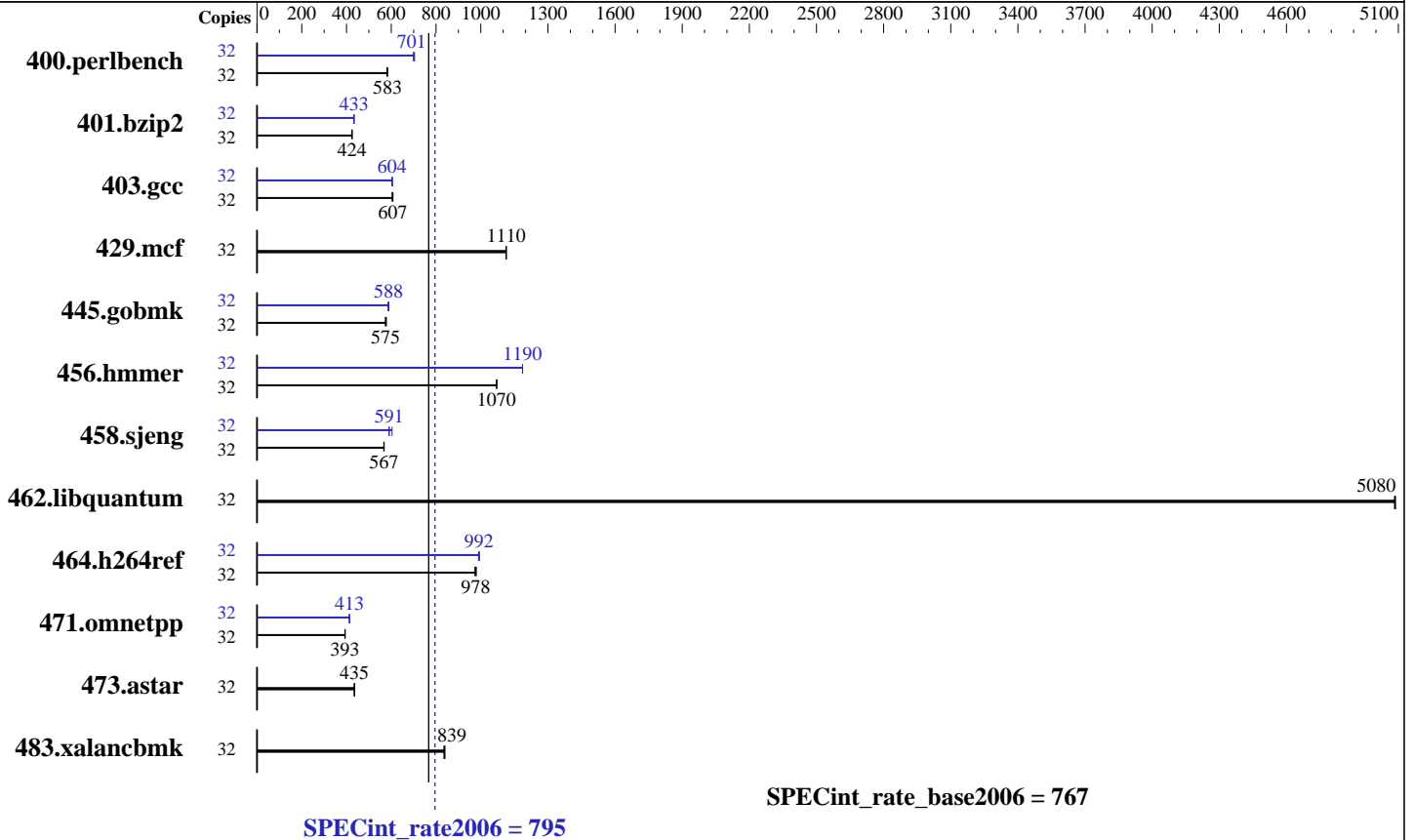
SPECint_rate_base2006 =  767

**CPU2006 license:** 11

**Test sponsor:** IBM Corporation

**Tested by:** IBM Corporation

**Test date:** Mar-2014

**Hardware Availability:** Nov-2013

**Software Availability:** Sep-2013



SPECint_rate_base2006 = 767

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## 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, 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: | 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: | No |
| File System: | ext4 |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V10.0 |

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## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 32 | 539 | 580 | 536 | 583 | **536** | **583** | 32 | 444 | 704 | **446** | **701** | 447 | 699 |
| 401.bzip2 | 32 | 728 | 424 | **728** | **424** | 727 | 425 | 32 | 711 | 434 | **713** | **433** | 714 | 433 |
| 403.gcc | 32 | 424 | 608 | **425** | **607** | 427 | 603 | 32 | 426 | 605 | 427 | 603 | **427** | **604** |
| 429.mcf | 32 | 262 | 1110 | **262** | **1110** | 262 | 1110 | 32 | 262 | 1110 | **262** | **1110** | 262 | 1110 |
| 445.gobmk | 32 | **584** | **575** | 585 | 574 | 581 | 578 | 32 | **571** | **588** | 570 | 589 | 574 | 585 |
| 456.hmmer | 32 | 279 | 1070 | **279** | **1070** | 279 | 1070 | 32 | **252** | **1190** | 252 | 1190 | 252 | 1190 |
| 458.sjeng | 32 | 681 | 568 | 683 | 567 | **683** | **567** | 32 | 656 | 590 | **656** | **591** | 642 | 604 |
| 462.libquantum | 32 | 130 | 5090 | 130 | 5080 | **130** | **5080** | 32 | 130 | 5090 | 130 | 5080 | **130** | **5080** |
| 464.h264ref | 32 | **724** | **978** | 727 | 974 | 723 | 980 | 32 | 713 | 994 | 716 | 990 | **714** | **992** |
| 471.omnetpp | 32 | 507 | 394 | 509 | 393 | **509** | **393** | 32 | 485 | 412 | 483 | 414 | **484** | **413** |
| 473.astar | 32 | **517** | **435** | 517 | 435 | 515 | 436 | 32 | **517** | **435** | 517 | 435 | 515 | 436 |
| 483.xalancbmk | 32 | 263 | 839 | 264 | 835 | **263** | **839** | 32 | 263 | 839 | 264 | 835 | **263** | **839** |

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

## Platform Notes

    BIOS setting:
    Operating Mode set to Maximum Performance
    Sysinfo program /home/SPECcpu-new/config/sysinfo.rev6818
    $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
    running on nx360M4 Fri Mar 28 14:25:28 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)
          32 "processors"
       cores, siblings (Caution: counting these is hw and system dependent.  The

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## Platform Notes (Continued)

```
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 8
      siblings  : 16
      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:       132088160 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 28 14:22

SPEC is set to: /home/SPECcpu-new
   Filesystem     Type    Size  Used Avail Use% Mounted on
   /dev/mapper/vg_nx360m4-lv_home
                  ext4    403G  5.3G  378G   2% /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:
LD_LIBRARY_PATH = "/home/SPECcpu-new/libs/32:/home/SPECcpu-new/libs/64:/home/SPECcpu-new/sh"

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
Filesystem page cache cleared with:
echo 1>       /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
```

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## General Notes (Continued)

```
numactl --interleave=all runspec <etc>
```

## Base Compiler Invocation

C benchmarks:
```
icc  -m32
```

C++ benchmarks:
```
icpc -m32
```

## Base Portability Flags

```
    400.perlbench: -DSPEC_CPU_LINUX_IA32
    462.libquantum: -DSPEC_CPU_LINUX
    483.xalancbmk: -DSPEC_CPU_LINUX
```

## Base Optimization Flags

C benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:
```
    -xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
    -Wl,-z,muldefs -L/sh -lsmartheap
```

## Base Other Flags

C benchmarks:

```
        403.gcc: -Dalloca=_alloca
```

## Peak Compiler Invocation

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

```
    400.perlbench: icc -m64
```

```
      401.bzip2: icc -m64
```

```
      456.hmmer: icc -m64
```

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## Peak Compiler Invocation (Continued)

        458.sjeng: `icc -m64`

C++ benchmarks:
        `icpc -m32`

## Peak Portability Flags

        400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
        401.bzip2: `-DSPEC_CPU_LP64`
        456.hmmer: `-DSPEC_CPU_LP64`
        458.sjeng: `-DSPEC_CPU_LP64`
        462.libquantum: `-DSPEC_CPU_LINUX`
        483.xalancbmk: `-DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

        400.perlbench: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
                `-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`
                `-auto-ilp32`

        401.bzip2: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
                `-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`
                `-opt-prefetch -auto-ilp32 -ansi-alias`

        403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div`

        429.mcf: `basepeak = yes`

        445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`
                `-ansi-alias -opt-mem-layout-trans=3`

        456.hmmer: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

        458.sjeng: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
                `-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`
                `-unroll4 -auto-ilp32`

        462.libquantum: `basepeak = yes`

        464.h264ref: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`
                `-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`
                `-unroll2 -ansi-alias`

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# Peak Optimization Flags (Continued)

C++ benchmarks:

471.omnetpp: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2)
`-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2)
`-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs`
`-L/sh -lsmartheap`

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

# 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.

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