



# SPEC<sup>®</sup> CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECint<sup>®</sup>\_rate2006 = 184

Lenovo NeXtScale nx360 M4  
(Intel Xeon E5-2603 v2, 1.80 GHz)

SPECint\_rate\_base2006 = 178

CPU2006 license: 9017

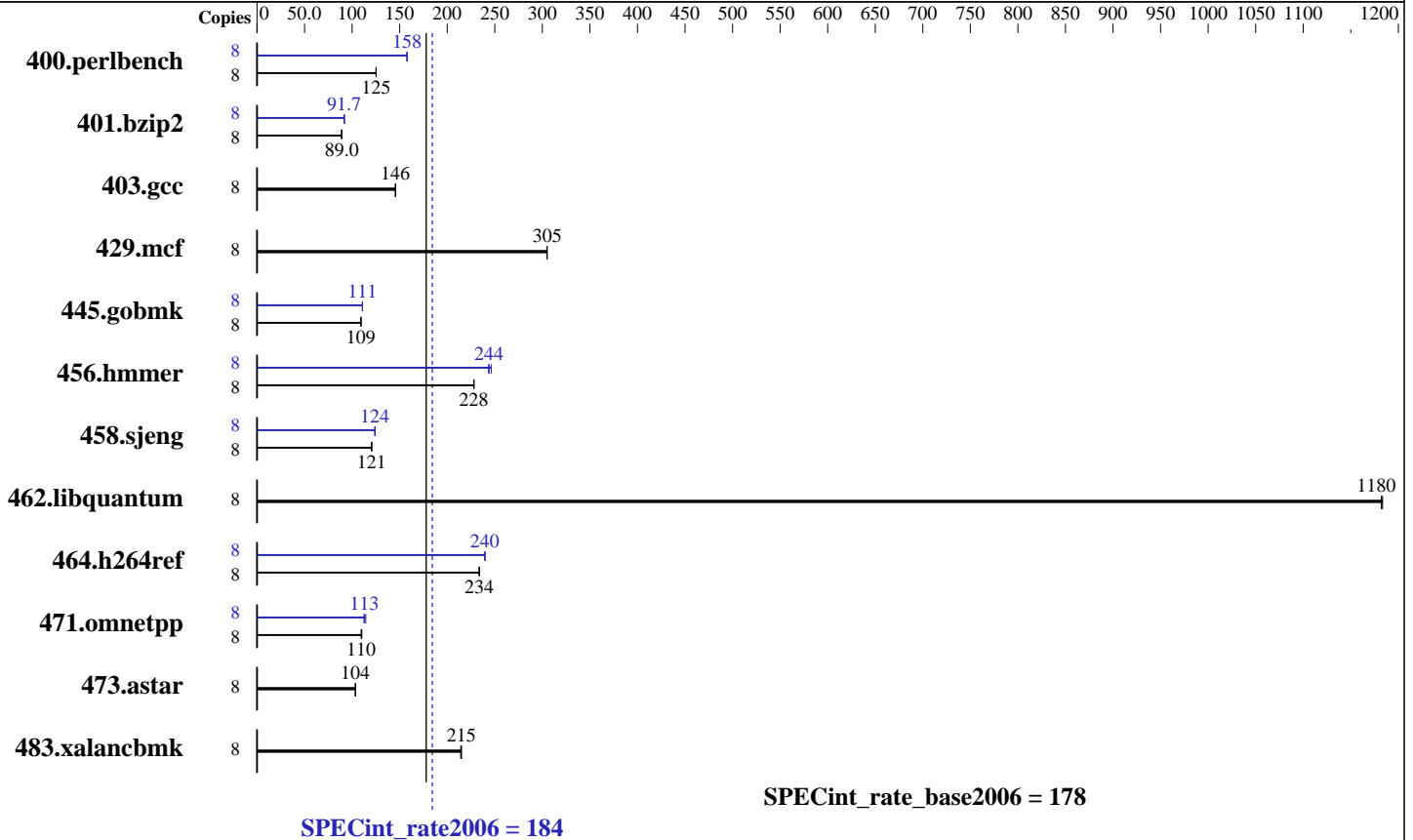
Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2013

Tested by: IBM Corporation

Software Availability: Sep-2013



**Hardware**

CPU Name: Intel Xeon E5-2603 v2  
 CPU Characteristics:  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1333 MHz)  
 Disk Subsystem: 2 x 250 GB SATA, 7200 RPM, 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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECint\_rate2006 = 184

Lenovo NeXtScale nx360 M4  
(Intel Xeon E5-2603 v2, 1.80 GHz)

SPECint\_rate\_base2006 = 178

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2013

Tested by: IBM Corporation

Software Availability: Sep-2013

## Results Table

| Benchmark      | Base   |                   |                   |                   |                   |                   | Peak               |        |         |       |                   |                    |                   |                    |
|----------------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------|---------|-------|-------------------|--------------------|-------------------|--------------------|
|                | Copies | Seconds           | Ratio             | Seconds           | Ratio             | Seconds           | Ratio              | Copies | Seconds | Ratio | Seconds           | Ratio              | Seconds           | Ratio              |
| 400.perlbench  | 8      | 625               | 125               | 624               | 125               | <b><u>624</u></b> | <b><u>125</u></b>  | 8      | 495     | 158   | <b><u>496</u></b> | <b><u>158</u></b>  | 496               | 158                |
| 401.bzip2      | 8      | 869               | 88.8              | 865               | 89.3              | <b><u>867</u></b> | <b><u>89.0</u></b> | 8      | 840     | 92.0  | <b><u>842</u></b> | <b><u>91.7</u></b> | 842               | 91.7               |
| 403.gcc        | 8      | 443               | 145               | 442               | 146               | <b><u>442</u></b> | <b><u>146</u></b>  | 8      | 443     | 145   | 442               | 146                | <b><u>442</u></b> | <b><u>146</u></b>  |
| 429.mcf        | 8      | 239               | 305               | <b><u>239</u></b> | <b><u>305</u></b> | 239               | 305                | 8      | 239     | 305   | <b><u>239</u></b> | <b><u>305</u></b>  | 239               | 305                |
| 445.gobmk      | 8      | <b><u>768</u></b> | <b><u>109</u></b> | 768               | 109               | 768               | 109                | 8      | 757     | 111   | <b><u>757</u></b> | <b><u>111</u></b>  | 757               | 111                |
| 456.hammer     | 8      | 327               | 228               | 327               | 228               | <b><u>327</u></b> | <b><u>228</u></b>  | 8      | 307     | 243   | 303               | 246                | <b><u>306</u></b> | <b><u>244</u></b>  |
| 458.sjeng      | 8      | <b><u>803</u></b> | <b><u>121</u></b> | 803               | 121               | 803               | 121                | 8      | 781     | 124   | <b><u>781</u></b> | <b><u>124</u></b>  | 780               | 124                |
| 462.libquantum | 8      | 140               | 1180              | 140               | 1180              | <b><u>140</u></b> | <b><u>1180</u></b> | 8      | 140     | 1180  | 140               | 1180               | <b><u>140</u></b> | <b><u>1180</u></b> |
| 464.h264ref    | 8      | <b><u>757</u></b> | <b><u>234</u></b> | 758               | 233               | 757               | 234                | 8      | 739     | 240   | 739               | 240                | <b><u>739</u></b> | <b><u>240</u></b>  |
| 471.omnetpp    | 8      | <b><u>456</u></b> | <b><u>110</u></b> | 456               | 110               | 454               | 110                | 8      | 437     | 114   | 445               | 112                | <b><u>442</u></b> | <b><u>113</u></b>  |
| 473.aster      | 8      | 544               | 103               | 542               | 104               | <b><u>542</u></b> | <b><u>104</u></b>  | 8      | 544     | 103   | 542               | 104                | <b><u>542</u></b> | <b><u>104</u></b>  |
| 483.xalancbmk  | 8      | 257               | 215               | 258               | 214               | <b><u>257</u></b> | <b><u>215</u></b>  | 8      | 257     | 215   | 258               | 214                | <b><u>257</u></b> | <b><u>215</u></b>  |

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  
Intel Idle Driver disabled with the following Linux kernel parameter in /etc/grub.conf:  
intel\_idle.max\_cstate=0

## Platform Notes

BIOS setting:  
Operating Mode set to Maximum Performance  
Sysinfo program /home/SPECcpu-20140116-ic14.0/config/sysinfo.rev6874  
\$Rev: 6874 \$ \$Date:: 2013-11-20 #\$ 654bd3fcf53b06faef0efe54ed011998  
running on nx360M4 Wed Nov 19 06:06:01 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 E5-2603 v2 @ 1.80GHz  
2 "physical id"s (chips)

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECint\_rate2006 = 184

Lenovo NeXtScale nx360 M4  
(Intel Xeon E5-2603 v2, 1.80 GHz)

SPECint\_rate\_base2006 = 178

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2013

Tested by: IBM Corporation

Software Availability: Sep-2013

### Platform Notes (Continued)

```

8 "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 : 4
  siblings  : 4
  physical 0: cores 0 1 2 3
  physical 1: cores 0 1 2 3
cache size : 10240 KB

From /proc/meminfo
MemTotal:      132091124 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 Nov 17 15:44

SPEC is set to: /home/SPECcpu-20140116-ic14.0
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/vg_nx360m4-lv_home
                ext4      403G   14G  370G   4% /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 IBM -[FHE107NUS-1.20]- 06/03/2014
Memory:
8x Samsung M393B2G70QH0-CMA 16 GB 2 rank 1866 MHz, configured at 1333 MHz

(End of data from sysinfo program)

```

### General Notes

Environment variables set by runspec before the start of the run:

LD\_LIBRARY\_PATH = "/home/SPECcpu-20140116-ic14.0/libs/32:/home/SPECcpu-20140116-ic14.0/libs/64:/home/SPECcpu-20140116-ic14.0/sh"

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Lenovo Group Limited**

**SPECint\_rate2006 = 184**

Lenovo NeXtScale nx360 M4  
(Intel Xeon E5-2603 v2, 1.80 GHz)

**SPECint\_rate\_base2006 = 178**

**CPU2006 license:** 9017

**Test date:** Nov-2014

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Nov-2013

**Tested by:** IBM Corporation

**Software Availability:** Sep-2013

## General Notes (Continued)

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.:  
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

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

**Lenovo Group Limited**

**SPECint\_rate2006 = 184**

Lenovo NeXtScale nx360 M4  
(Intel Xeon E5-2603 v2, 1.80 GHz)

**SPECint\_rate\_base2006 = 178**

**CPU2006 license:** 9017

**Test date:** Nov-2014

**Test sponsor:** Lenovo Group Limited

**Hardware Availability:** Nov-2013

**Tested by:** IBM Corporation

**Software Availability:** Sep-2013

## Peak Compiler Invocation (Continued)

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

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: `basepeak = yes`

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`

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Lenovo Group Limited

SPECint\_rate2006 = 184

Lenovo NeXtScale nx360 M4  
(Intel Xeon E5-2603 v2, 1.80 GHz)

SPECint\_rate\_base2006 = 178

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Nov-2013

Tested by: IBM Corporation

Software Availability: Sep-2013

## Peak Optimization Flags (Continued)

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

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-C.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-C.xml>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.

Report generated on Tue Dec 30 16:10:44 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 30 December 2014.