SPEC® CINT2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

IBM Flex System x240 M5
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECint®_rate2006 = 1060

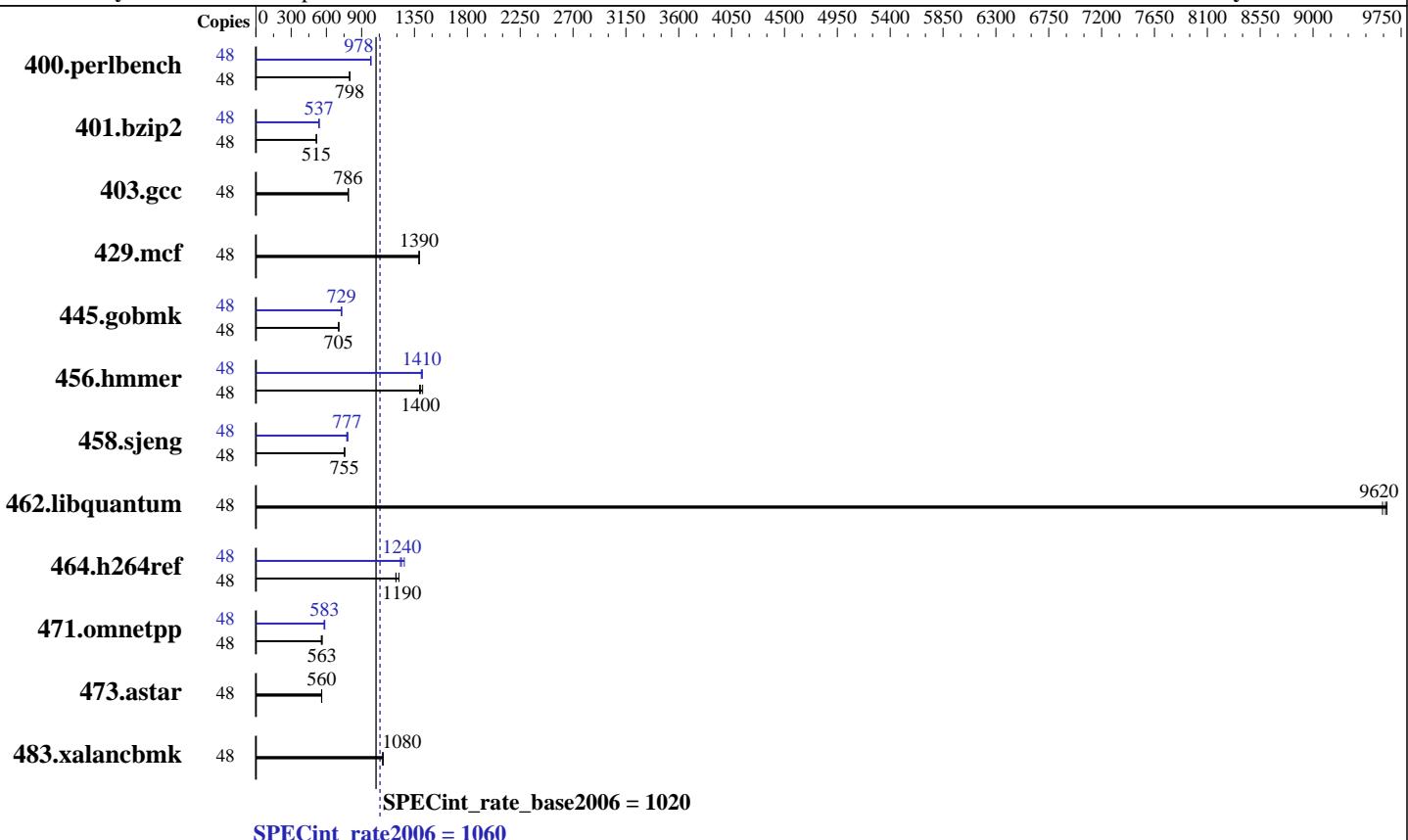SPECint_rate_base2006 = 1020

CPU2006 license: 11
Test sponsor: Lenovo Group Limited
Tested by: IBM Corporation

Test date: Jan-2015
Hardware Availability: Dec-2014
Software Availability: Nov-2013

Benchmark	Copies	Base	Peak
400.perlbench	48	798	978
401.bzip2	48	515	537
403.gcc	48	786	
429.mcf	48	1390	
445.gobmk	48	705	729
456.hmmer	48	1400	1410
458.sjeng	48	755	777
462.libquantum	48	9620	
464.h264ref	48	1190	1240
471.omnetpp	48	563	583
473.astar	48	560	
483.xalancbmk	48	1080	

SPECint_rate_base2006 = 1020

SPECint_rate2006 = 1060

Hardware

CPU Name: Intel Xeon E5-2680 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2500
FPU: Integrated
CPU(s) enabled: 24 cores, 2 chips, 12 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: 30 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 1 TB SAS, 7200 RPM
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)
2.6.32-424.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 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

IBM Flex System x240 M5
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECint_rate2006 =   1060

SPECint_rate_base2006 = 1020

CPU2006 license: 11
Test sponsor: Lenovo Group Limited
Tested by: IBM Corporation

Test date: Jan-2015
Hardware Availability: Dec-2014
Software Availability: Nov-2013

Results Table

| Benchmark | Base | | | | | | Peak | | | | | | |
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	48	587	799	588	797	**588**	**798**	48	480	977	**480**	**978**	479	980
401.bzip2	48	898	516	**899**	**515**	901	514	48	**862**	**537**	862	537	862	537
403.gcc	48	**492**	**786**	492	786	491	787	48	**492**	**786**	492	786	491	787
429.mcf	48	315	1390	315	1390	**315**	**1390**	48	315	1390	315	1390	**315**	**1390**
445.gobmk	48	714	705	715	704	**714**	**705**	48	691	729	**691**	**729**	691	728
456.hmmer	48	321	1390	**319**	**1400**	316	1420	48	318	1410	316	1420	**317**	**1410**
458.sjeng	48	**770**	**755**	770	754	769	755	48	751	774	**747**	**777**	742	783
462.libquantum	48	103	9630	104	9590	**103**	**9620**	48	103	9630	104	9590	**103**	**9620**
464.h264ref	48	873	1220	**891**	**1190**	891	1190	48	**857**	**1240**	863	1230	841	1260
471.omnetpp	48	533	563	**533**	**563**	539	557	48	**514**	**583**	517	581	512	586
473.astar	48	602	560	603	559	**602**	**560**	48	602	560	603	559	**602**	**560**
483.xalancbmk	48	306	1080	**306**	**1080**	307	1080	48	306	1080	**306**	**1080**	307	1080

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

   Operating Mode set to Maximum Performance in BIOS
   Fan speed set to 100%
   Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
   $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
   running on Bonneville-SPECcpu Sun Jan 4 19:22:48 2015

   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 E5-2680 v3 @ 2.50GHz
         2 "physical id"s (chips)
         48 "processors"
      cores, siblings (Caution: counting these is hw and system dependent. The
      following excerpts from /proc/cpuinfo might not be reliable. Use with
      caution.)

Lenovo Group Limited

IBM Flex System x240 M5
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECint_rate2006 = 1060

SPECint_rate_base2006 = 1020

CPU2006 license: 11
Test sponsor: Lenovo Group Limited
Tested by: IBM Corporation

Test date: Jan-2015
Hardware Availability: Dec-2014
Software Availability: Nov-2013

Platform Notes (Continued)

```
      cpu cores : 12
      siblings  : 24
      physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
      physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
   cache size : 15360 KB

From /proc/meminfo
   MemTotal:       264119260 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux Bonneville-SPECcpu 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST
   2013 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jan 4 19:19 last=5

SPEC is set to: /cpu2006.1.2
   Filesystem                         Type  Size  Used Avail Use% Mounted on
   /dev/mapper/vg_bonnevillespe-lv_root ext4  356G   14G  324G   4% /

Additional information from dmidecode:
  BIOS IBM -[C4E103EUS-1.00]- 11/25/2014
  Memory:
   8x NO DIMM Unknown
   16x Samsung M393A2G40DB0-CPB 16 GB 2133 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 = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64:/cpu2006.1.2/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.:
numactl --interleave=all runspec <etc>
```

SPEC CINT2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

IBM Flex System x240 M5
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECint_rate2006 = 1060

SPECint_rate_base2006 = 1020

CPU2006 license: 11
Test sponsor: Lenovo Group Limited
Tested by: IBM Corporation

Test date: Jan-2015
Hardware Availability: Dec-2014
Software Availability: Nov-2013

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:
```
-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
```

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`

458.sjeng: `icc -m64`

SPEC CINT2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

IBM Flex System x240 M5
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECint_rate2006 =   1060

SPECint_rate_base2006 = 1020

CPU2006 license: 11
Test sponsor: Lenovo Group Limited
Tested by: IBM Corporation

Test date: Jan-2015
Hardware Availability: Dec-2014
Software Availability: Nov-2013

Peak Compiler Invocation (Continued)

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: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xCORE-AVX2(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: -xCORE-AVX2(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:

Lenovo Group Limited

IBM Flex System x240 M5
(Intel Xeon E5-2680 v3, 2.50 GHz)

SPECint_rate2006 =   1060

SPECint_rate_base2006 = 1020

CPU2006 license: 11
Test sponsor: Lenovo Group Limited
Tested by: IBM Corporation

Test date: Jan-2015
Hardware Availability: Dec-2014
Software Availability: Nov-2013

Peak Optimization Flags (Continued)

471.omnetpp: `-xCORE-AVX2(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-HSW-B.20141021.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-HSW-B.20141021.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 Tue Jan 27 13:35:07 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 27 January 2015.