SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Lenovo Group Limited

$SPECint^®\_rate2006 = 262$

Lenovo ThinkServer RS160
(3.50 GHz, Intel Xeon E3-1240 v5)

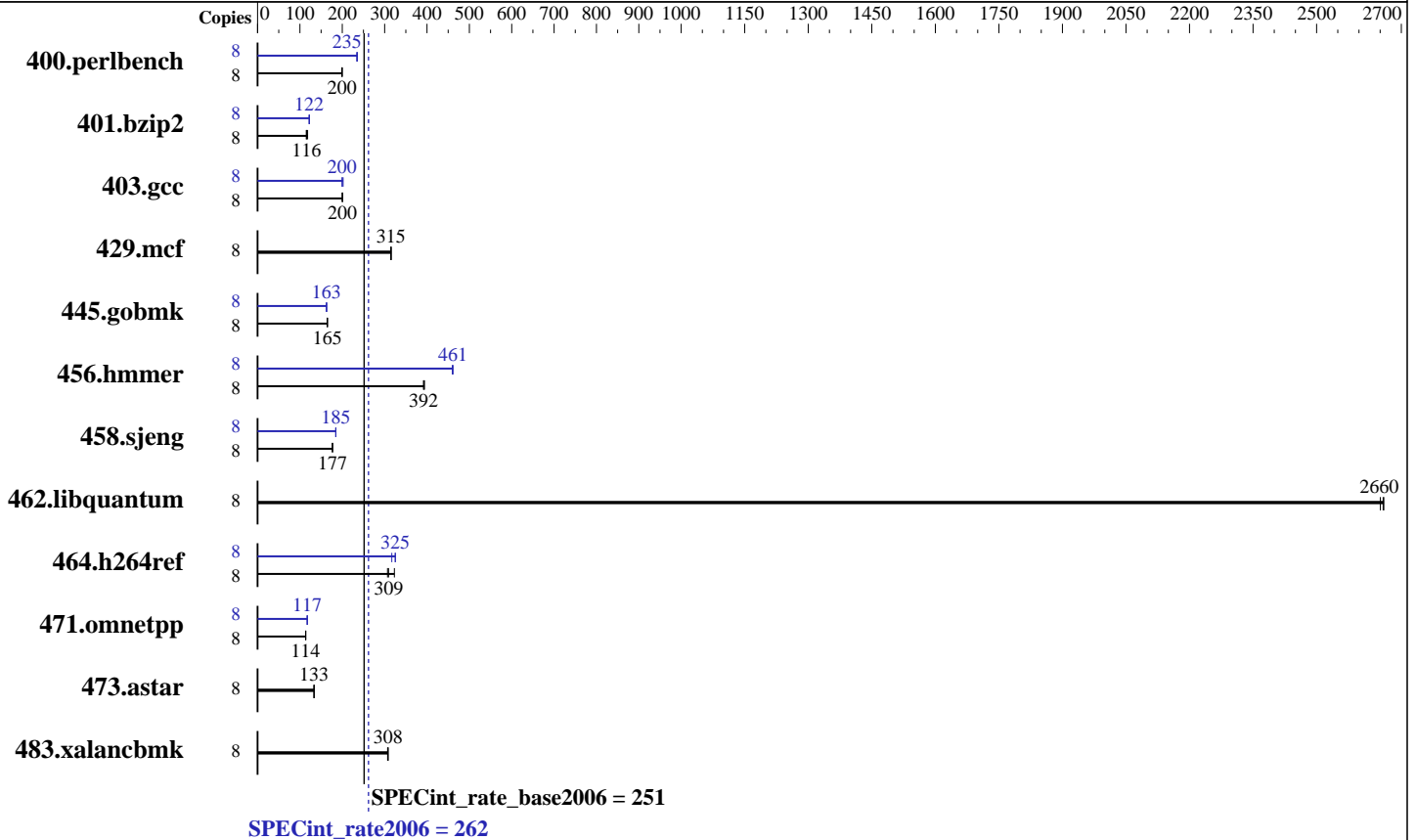$SPECint\_rate\_base2006 = 251$

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

Test date: Nov-2016
Hardware Availability: Sep-2016
Software Availability: Mar-2016

Copies 0 100 200 300 400 500 600 700 800 900 1000 1150 1300 1450 1600 1750 1900 2050 2200 2350 2500 2700

Benchmark	Copies	Peak	Base
400.perlbench	8 / 8	235	200
401.bzip2	8 / 8	122	116
403.gcc	8 / 8	200	200
429.mcf	8		315
445.gobmk	8 / 8	163	165
456.hmmer	8 / 8	461	392
458.sjeng	8 / 8	185	177
462.libquantum	8		2660
464.h264ref	8 / 8	325	309
471.omnetpp	8 / 8	117	114
473.astar	8		133
483.xalancbmk	8		308

SPECint_rate_base2006 = 251

SPECint_rate2006 = 262

Hardware

CPU Name:	Intel Xeon E3-1240 v5
CPU Characteristics:	Intel Turbo Boost Technology up to 3.90 GHz
CPU MHz:	3500
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1 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:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	16 GB (2 x 8 GB 2Rx8 PC4-2133P-E)
Disk Subsystem:	1 x 800 GB SATA SSD
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.2 Kernel 3.10.0-327.el7.x86_64
Compiler:	C/C++: Version 16.0.2.181 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

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RS160
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECint_rate2006 =   262

SPECint_rate_base2006 = 251

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

Test date: Nov-2016
Hardware Availability: Sep-2016
Software Availability: Mar-2016

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	393	199	391	200	**391**	**200**	8	332	236	**333**	**235**	333	234
401.bzip2	8	653	118	**666**	**116**	672	115	8	634	122	**632**	**122**	630	122
403.gcc	8	323	200	320	201	**322**	**200**	8	319	202	**322**	**200**	323	200
429.mcf	8	231	316	**232**	**315**	232	315	8	231	316	**232**	**315**	232	315
445.gobmk	8	509	165	**509**	**165**	510	165	8	515	163	**515**	**163**	516	163
456.hmmer	8	190	392	189	394	**190**	**392**	8	**162**	**461**	162	460	162	461
458.sjeng	8	**547**	**177**	547	177	547	177	8	524	185	524	185	**524**	**185**
462.libquantum	8	62.3	2660	**62.4**	**2660**	62.5	2650	8	62.3	2660	**62.4**	**2660**	62.5	2650
464.h264ref	8	577	307	548	323	**572**	**309**	8	544	325	**545**	**325**	559	317
471.omnetpp	8	440	114	**440**	**114**	440	114	8	426	117	426	117	**426**	**117**
473.astar	8	422	133	420	134	**421**	**133**	8	422	133	420	134	**421**	**133**
483.xalancbmk	8	**179**	**308**	180	307	179	308	8	**179**	**308**	180	307	179	308

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

   The taskset mechanism was used to bind copies to processors. The config file option 'submit'
was used to generate taskset 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"
   Transparent Huge Pages enabled with:
    echo always > /sys/kernel/mm/transparent_hugepage/enabled

Platform Notes

    BIOS configuration:
   Boot performance mode set to Turbo Performance
    Sysinfo program /home/cpu2006-1.2-ic16.0/config/sysinfo.rev6914
    $Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
    running on RS160 Mon Dec 5 02:35:26 2016

    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 E3-1240 v5 @ 3.50GHz
          1 "physical id"s (chips)
          8 "processors"
       cores, siblings (Caution: counting these is hw and system dependent. The

Lenovo Group Limited

Lenovo ThinkServer RS160
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECint_rate2006 =   262

SPECint_rate_base2006 = 251

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

Test date: Nov-2016
Hardware Availability: Sep-2016
Software Availability: Mar-2016

Platform Notes (Continued)

```
    following excerpts from /proc/cpuinfo might not be reliable.  Use with
    caution.)
       cpu cores : 4
       siblings  : 8
       physical 0: cores 0 1 2 3
    cache size : 8192 KB

 From /proc/meminfo
    MemTotal:       16375376 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

 From /etc/*release* /etc/*version*
    os-release:
       NAME="Red Hat Enterprise Linux Server"
       VERSION="7.2 (Maipo)"
       ID="rhel"
       ID_LIKE="fedora"
       VERSION_ID="7.2"
       PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
       ANSI_COLOR="0;31"
       CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
    redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
    system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

 uname -a:
    Linux RS160 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29 EDT 2015 x86_64
    x86_64 x86_64 GNU/Linux

 run-level 3 Dec 5 02:34

 SPEC is set to: /home/cpu2006-1.2-ic16.0
    Filesystem      Type  Size  Used Avail Use% Mounted on
    /dev/sda5       xfs   687G  4.0G  683G   1% /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 LENOVO VB1TS152 09/29/2016
  Memory:
  2x Not Specified Not Specified
  2x Samsung M391A1G43EB1-CPB 8 GB 2 rank 2133 MHz

 (End of data from sysinfo program)
```

Lenovo Group Limited

Lenovo ThinkServer RS160
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECint_rate2006 =   262

SPECint_rate_base2006 = 251

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Nov-2016

Hardware Availability: Sep-2016

Software Availability: Mar-2016

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006-1.2-ic16.0/libs/32:/home/cpu2006-1.2-ic16.0/libs/64:/home/cpu2006-1.2-ic16.0/sh"

Binaries compiled on a system with 1x Intel Core i7-4790K CPU + 32GB
memory using RedHat EL 7.2 glibc 2.17

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

       400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
           401.bzip2: -D_FILE_OFFSET_BITS=64
             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
           458.sjeng: -D_FILE_OFFSET_BITS=64
       462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
         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_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:

Continued on next page

Lenovo Group Limited

Lenovo ThinkServer RS160
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECint_rate2006 = 262

SPECint_rate_base2006 = 251

CPU2006 license: 9017		**Test date:**	Nov-2016
Test sponsor: Lenovo Group Limited		**Hardware Availability:**	Sep-2016
Tested by: Lenovo Group Limited		**Software Availability:**	Mar-2016

Base Other Flags (Continued)

```
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_LINUX
 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_LINUX
```

Peak Optimization Flags

C benchmarks:

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

```
   401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -prof-use(pass 2) -opt-prefetch
              -auto-ilp32 -ansi-alias
```

Lenovo Group Limited

Lenovo ThinkServer RS160
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECint_rate2006 =   262

SPECint_rate_base2006 =   251

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

Test date: Nov-2016
Hardware Availability: Sep-2016
Software Availability: Mar-2016

Peak Optimization Flags (Continued)

```
     403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

     429.mcf: basepeak = yes

   445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
              -prof-use(pass 2) -par-num-threads=1(pass 1) -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:threadsafe(pass 1)
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
              -auto-ilp32

462.libquantum: basepeak = yes

  464.h264ref: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2
              -ansi-alias
```

C++ benchmarks:

```
   471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -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-ic16.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-BDW-revC.html

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RS160
(3.50 GHz, Intel Xeon E3-1240 v5)

SPECint_rate2006 =   262

SPECint_rate_base2006 = 251

CPU2006 license: 9017
Test sponsor: Lenovo Group Limited
Tested by: Lenovo Group Limited

Test date: Nov-2016
Hardware Availability: Sep-2016
Software Availability: Mar-2016

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-BDW-revC.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.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Nov 29 19:08:20 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 29 November 2016.