



SPEC[®] CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RD450 (Intel Xeon E5-2620 v3, 2.40 GHz)

SPECint[®]2006 = 56.4

SPECint_base2006 = 54.4

CPU2006 license: 9017

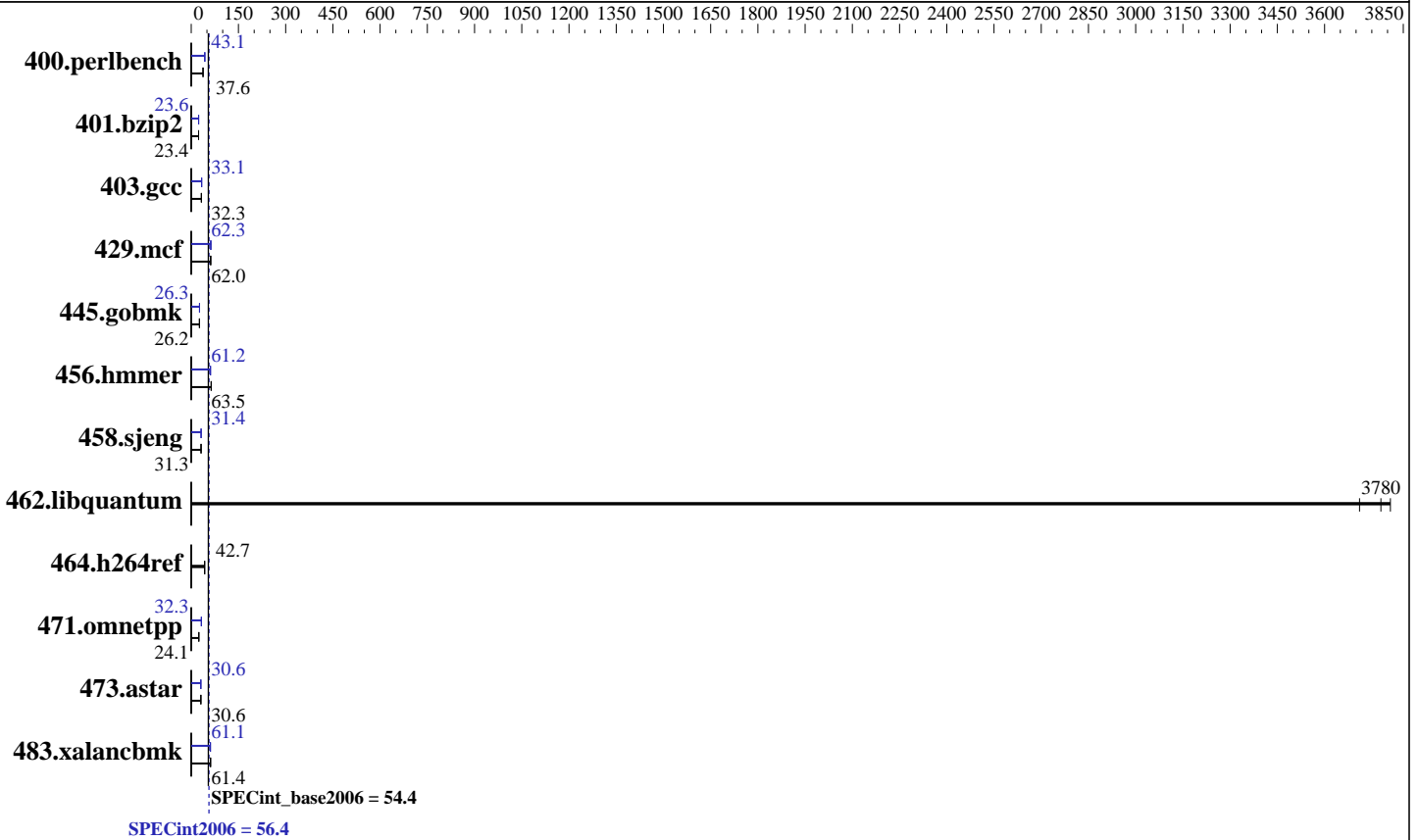
Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Nov-2014

Hardware Availability: Dec-2014

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E5-2620 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip
 CPU(s) orderable: 1,2 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: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1866 MHz)
 Disk Subsystem: 1 x 800 GB SATA SSD
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)
 3.10.0-123.el7.x86_64
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
 Auto Parallel: Yes
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-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

Lenovo ThinkServer RD450 (Intel Xeon E5-2620 v3, 2.40 GHz)

SPECint2006 = 56.4

SPECint_base2006 = 54.4

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Nov-2014

Hardware Availability: Dec-2014

Software Availability: Sep-2014

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	260	37.6	<u>260</u>	<u>37.6</u>	260	37.5	226	43.2	227	43.1	<u>227</u>	<u>43.1</u>
401.bzip2	413	23.4	<u>412</u>	<u>23.4</u>	412	23.4	<u>410</u>	<u>23.6</u>	410	23.6	410	23.6
403.gcc	<u>249</u>	<u>32.3</u>	249	32.3	249	32.3	243	33.2	243	33.1	<u>243</u>	<u>33.1</u>
429.mcf	148	61.5	<u>147</u>	<u>62.0</u>	147	62.1	145	62.7	148	61.5	<u>146</u>	<u>62.3</u>
445.gobmk	400	26.2	<u>401</u>	<u>26.2</u>	403	26.0	399	26.3	398	26.4	<u>398</u>	<u>26.3</u>
456.hammer	147	63.4	<u>147</u>	<u>63.5</u>	147	63.5	153	61.2	<u>152</u>	<u>61.2</u>	152	61.2
458.sjeng	387	31.3	387	31.3	<u>387</u>	<u>31.3</u>	385	31.5	385	31.4	<u>385</u>	<u>31.4</u>
462.libquantum	5.58	3710	5.44	3810	<u>5.48</u>	<u>3780</u>	5.58	3710	5.44	3810	<u>5.48</u>	<u>3780</u>
464.h264ref	518	42.7	<u>519</u>	<u>42.7</u>	520	42.5	518	42.7	<u>519</u>	<u>42.7</u>	520	42.5
471.omnetpp	260	24.1	<u>259</u>	<u>24.1</u>	259	24.1	<u>194</u>	<u>32.3</u>	193	32.3	194	32.2
473.astar	<u>229</u>	<u>30.6</u>	230	30.5	229	30.6	232	30.3	<u>230</u>	<u>30.6</u>	229	30.7
483.xalancbmk	<u>112</u>	<u>61.4</u>	112	61.6	113	61.2	<u>113</u>	<u>61.1</u>	113	61.1	113	60.9

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"

Platform Notes

BIOS configuration:

Hyper-Threading set to Disabled

Performance Profile set to Custom

C1E Support set to Disabled

Core C3 set to Disabled

Core C6 set to Disabled

Thermal Profile set to High Fan Speed

Memory Power Savings set to Disabled

Sysinfo program /usr/cpu2006/config/sysinfo.rev6914

\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1

running on RD450 Fri Nov 14 00:34:58 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 E5-2620 v3 @ 2.40GHz

2 "physical id"s (chips)

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

<http://www.spec.org/>

Page 2



SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECint2006 = 56.4

Lenovo ThinkServer RD450 (Intel Xeon E5-2620 v3, 2.40 GHz)

SPECint_base2006 = 54.4

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Dec-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

Platform Notes (Continued)

12 "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 : 6
siblings  : 6
physical 0: cores 0 1 2 3 4 5
physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB
```

```
From /proc/meminfo
MemTotal:      263860596 kB
HugePages_Total: 0
Hugepagesize:  2048 kB
```

From /etc/*release* /etc/*version*

```
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server
```

```
uname -a:
Linux RD450 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014 x86_64
x86_64 x86_64 GNU/Linux
```

run-level 3 Nov 14 00:30

```
SPEC is set to: /usr/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   741G   84G  658G  12% /
```

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 VB3TS110 10/05/2014

Memory:
16x Samsung M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz, configured at 1866 MHz

(End of data from sysinfo program)
RD450 support 4 channels and 8 DIMMs per processor, total 8 channels and 16 DIMMs. All 16 DIMM slots installed with 16 GB DIMM for this run.



SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

SPECint2006 = 56.4

Lenovo ThinkServer RD450 (Intel Xeon E5-2620 v3, 2.40 GHz)

SPECint_base2006 = 54.4

CPU2006 license: 9017

Test date: Nov-2014

Test sponsor: Lenovo Group Limited

Hardware Availability: Dec-2014

Tested by: Lenovo Group Limited

Software Availability: Sep-2014

General Notes

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

KMP_AFFINITY = "granularity=fine,scatter"

LD_LIBRARY_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"

OMP_NUM_THREADS = "12"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/transparent_hugepage/enabled

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:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32

-Wl,-z,muldefs -L/sh -lsmarthheap64



SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RD450 (Intel Xeon E5-2620 v3, 2.40 GHz)

SPECint2006 = 56.4

SPECint_base2006 = 54.4

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Nov-2014

Hardware Availability: Dec-2014

Software Availability: Sep-2014

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

445.gobmk: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks (except as noted below):

icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

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

464.h264ref: -DSPEC_CPU_LP64

473.astar: -DSPEC_CPU_LP64

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)

-opt-prefetch -ansi-alias

401.bzip2: -xCORE-AVX2(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

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/



SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RD450 (Intel Xeon E5-2620 v3, 2.40 GHz)

SPECint2006 = 56.4

SPECint_base2006 = 54.4

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Nov-2014

Hardware Availability: Dec-2014

Software Availability: Sep-2014

Peak Optimization Flags (Continued)

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

456.hmmr: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias

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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

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)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -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-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-HSW-revA.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/Lenovo-Platform-Settings-V1.2-HSW-revA.xml>



SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Lenovo Group Limited

Lenovo ThinkServer RD450 (Intel Xeon E5-2620 v3, 2.40 GHz)

SPECint2006 = 56.4

SPECint_base2006 = 54.4

CPU2006 license: 9017

Test sponsor: Lenovo Group Limited

Tested by: Lenovo Group Limited

Test date: Nov-2014

Hardware Availability: Dec-2014

Software Availability: Sep-2014

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 Feb 10 18:33:05 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 February 2015.