



# SPEC CPU®2017 Integer Rate Result

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## H3C

SPECrate®2017\_int\_base = 53.5

H3C R4900 G2 (Intel Xeon E5-2620 v4, 2.10 GHz)

SPECrate®2017\_int\_peak = 59.4

CPU2017 License: 9066

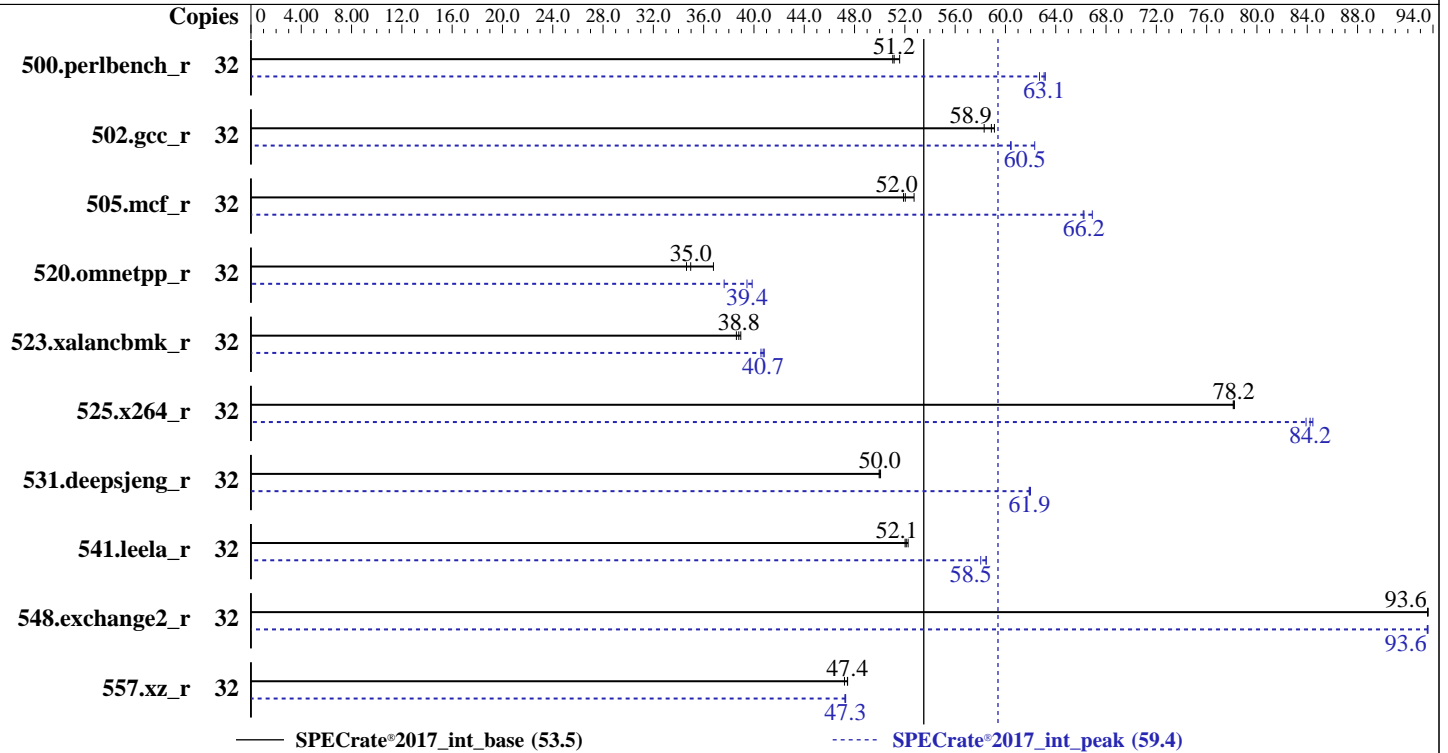
Test Sponsor: H3C

Tested by: H3C

Test Date: Dec-2016

Hardware Availability: Oct-2016

Software Availability: Oct-2016



### Hardware

CPU Name: Intel Xeon E5-2620 v4  
 Max MHz: 3000  
 Nominal: 2100  
 Enabled: 16 cores, 2 chips, 2 threads/core  
 Orderable: 1,2 chip  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 256 KB I+D on chip per core  
 L3: 20 MB I+D on chip per chip  
 Other: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133)  
 Storage: 500GB SATA 7200 RPM  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 12 SP1 3.12.49-11-default  
 Compiler: C/C++: Version 17.0.0.098 of Intel C++ Compiler Professional Build 20160721;  
 Fortran: Version 17.0.0.098 of Intel Fortran Compiler Professional Build 20160721;  
 Parallel: No  
 Firmware: BIOS American Megatrends Inc. 1.00.15 10/17/2016  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: None  
 Power Management: --



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	32	988	51.6	<b>996</b>	<b>51.2</b>	998	51.0	32	806	63.2	<b>808</b>	<b>63.1</b>	812	62.7
502.gcc_r	32	777	58.3	766	59.1	<b>770</b>	<b>58.9</b>	32	<b>750</b>	<b>60.5</b>	750	60.4	727	62.3
505.mcf_r	32	997	51.9	<b>994</b>	<b>52.0</b>	981	52.7	32	781	66.2	773	66.9	<b>781</b>	<b>66.2</b>
520.omnetpp_r	32	<b>1201</b>	<b>35.0</b>	1212	34.6	1142	36.8	32	<b>1064</b>	<b>39.4</b>	1116	37.6	1053	39.9
523.xalancbmk_r	32	<b>871</b>	<b>38.8</b>	867	39.0	875	38.6	32	<b>830</b>	<b>40.7</b>	833	40.6	828	40.8
525.x264_r	32	716	78.2	<b>717</b>	<b>78.2</b>	717	78.1	32	<b>665</b>	<b>84.2</b>	668	83.9	664	84.4
531.deepsjeng_r	32	734	50.0	<b>733</b>	<b>50.0</b>	732	50.1	32	592	62.0	<b>592</b>	<b>61.9</b>	592	61.9
541.leela_r	32	<b>1017</b>	<b>52.1</b>	1019	52.0	1014	52.3	32	<b>906</b>	<b>58.5</b>	913	58.0	906	58.5
548.exchange2_r	32	<b>896</b>	<b>93.6</b>	896	93.6	896	93.6	32	896	93.5	896	93.6	<b>896</b>	<b>93.6</b>
557.xz_r	32	728	47.4	732	47.2	<b>729</b>	<b>47.4</b>	32	732	47.2	<b>731</b>	<b>47.3</b>	731	47.3

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

## Compiler Notes

SPEC has learned that this result, which used an evaluation compiler, was submitted contrary to the compiler license terms.

Intel has granted a one-time waiver for this result.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

BIOS Configuration:

Operation Mode set to Maximum Performance

COD set to Enable

Enable CPU HWPM set to HWPM OOB

Energy Performance BIAS Setting set to Performance

Sysinfo program /home/speccpu/Docs/sysinfo

Rev: r5007 of 2016-11-15 fc8dc82f217779bedfed4d694d580ba9

running on linux-9ue6 Sat Dec 10 20:53:08 2016

This section contains SUT (System Under Test) info as seen by some common utilities.

For more information on this section, see

<http://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz

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### Platform Notes (Continued)

```

2 "physical id"s (chips)
32 "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 : 8
siblings  : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB

```

The view from numactl --hardware follows. WARNING: a numactl 'node' might or might not correspond to a physical chip.

```

available: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7 16 17 18 19 20 21 22 23
node 0 size: 129009 MB
node 0 free: 128267 MB
node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
node 1 size: 129154 MB
node 1 free: 128466 MB
node distances:
node  0  1
  0:  10  21
  1:  21  10

```

```

From /proc/meminfo
MemTotal:      264360092 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP1

```

```

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 1
# This file is deprecated and will be removed in a future service pack or
release.
# Please check /etc/os-release for details about this release.
os-release:
NAME="SLES"
VERSION="12-SP1"
VERSION_ID="12.1"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
ID="sles"

```

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### Platform Notes (Continued)

```
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp1"
```

```
uname -a:
Linux linux-9ue6 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Dec 10 20:46
```

```
SPEC is set to: /home/speccpu
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4        xfs   416G  2.4G  414G   1% /home
```

Additional information from dmidecode follows. 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 American Megatrends Inc. 1.00.15 10/20/2016

Memory:

16x Hynix Semiconductor HMA42GR7AFR4N-UH 16 GB 2 rank 2400 MHz, configured at 2133 MHz  
8x NO DIMM NO DIMM

(End of data from sysinfo program)

### Compiler Version Notes

```
=====  
C      | 500.perlbench_r(base, peak) 502.gcc_r(base, peak) 505.mcf_r(base,  
      | peak) 525.x264_r(base, peak) 557.xz_r(base, peak)  
-----
```

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 17.0.0.098 Build 20160721  
Copyright (C) 1985-2016 Intel Corporation. All rights reserved.  
icc: NOTE: The evaluation period for this product ends on 9-jan-2017 UTC.

```
=====  
C++    | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak)  
      | 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)  
-----
```

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 17.0.0.098 Build 20160721  
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icpc: NOTE: The evaluation period for this product ends on 9-jan-2017 UTC.

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Hardware Availability: Oct-2016  
Software Availability: Oct-2016

### Compiler Version Notes (Continued)

-----  
=====  
Fortran | 548.exchange2\_r(base, peak)  
-----

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)  
64, Version 17.0.0.098 Build 20160721  
Copyright (C) 1985-2016 Intel Corporation. All rights reserved.  
ifort: NOTE: The evaluation period for this product ends on 9-jan-2017 UTC.  
-----

### Base Compiler Invocation

C benchmarks:

icc -std=gnu99 -m64

C++ benchmarks:

icpc -std=gnu++0x -m64

Fortran benchmarks:

ifort -m64

### Base Portability Flags

500.perlbench\_r: -DSPEC\_LP64 -DSPEC\_LINUX\_X64  
502.gcc\_r: -DSPEC\_LP64  
505.mcf\_r: -DSPEC\_LP64  
520.omnetpp\_r: -DSPEC\_LP64  
523.xalancbmk\_r: -DSPEC\_LP64 -DSPEC\_LINUX  
525.x264\_r: -DSPEC\_LP64  
531.deepsjeng\_r: -DSPEC\_LP64  
541.leela\_r: -DSPEC\_LP64  
548.exchange2\_r: -DSPEC\_LP64  
557.xz\_r: -DSPEC\_LP64

### Peak Compiler Invocation

C benchmarks:

icc -std=gnu99 -m64

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CPU2017 License: 9066

Test Sponsor: H3C

Tested by: H3C

Test Date: Dec-2016

Hardware Availability: Oct-2016

Software Availability: Oct-2016

## Peak Compiler Invocation (Continued)

C++ benchmarks:

```
icpc -std=gnu++0x -m64
```

Fortran benchmarks:

```
ifort -m64
```

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
-xCORE-AVX2(pass 2) -prof-genthreadsafe(pass 1) -ipo(pass 2)  
-O3(pass 2) -par-num-threads=1(pass 1) -no-prec-div(pass 2)  
-prof-use(pass 2) -auto-ilp32 -ansi-alias
```

C++ benchmarks:

```
-xCORE-AVX2(pass 2) -prof-genthreadsafe(pass 1) -ipo(pass 2)  
-O3(pass 2) -par-num-threads=1(pass 1) -no-prec-div(pass 2)  
-prof-use(pass 2) -ansi-alias
```

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/IC17.0-official-linux64.2017-06-20.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2017/flags/IC17.0-official-linux64.2017-06-20.xml>

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

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