



# SPEC ACCEL™ OMP Result

Copyright 2015-2022 Standard Performance Evaluation Corporation

Lenovo Global Technology  
AMD EPYC 9654 CPU  
ThinkSystem SR665 V3

SPECaccel\_omp\_peak = 21.0

SPECaccel\_omp\_base = 19.0

ACCEL license: 28

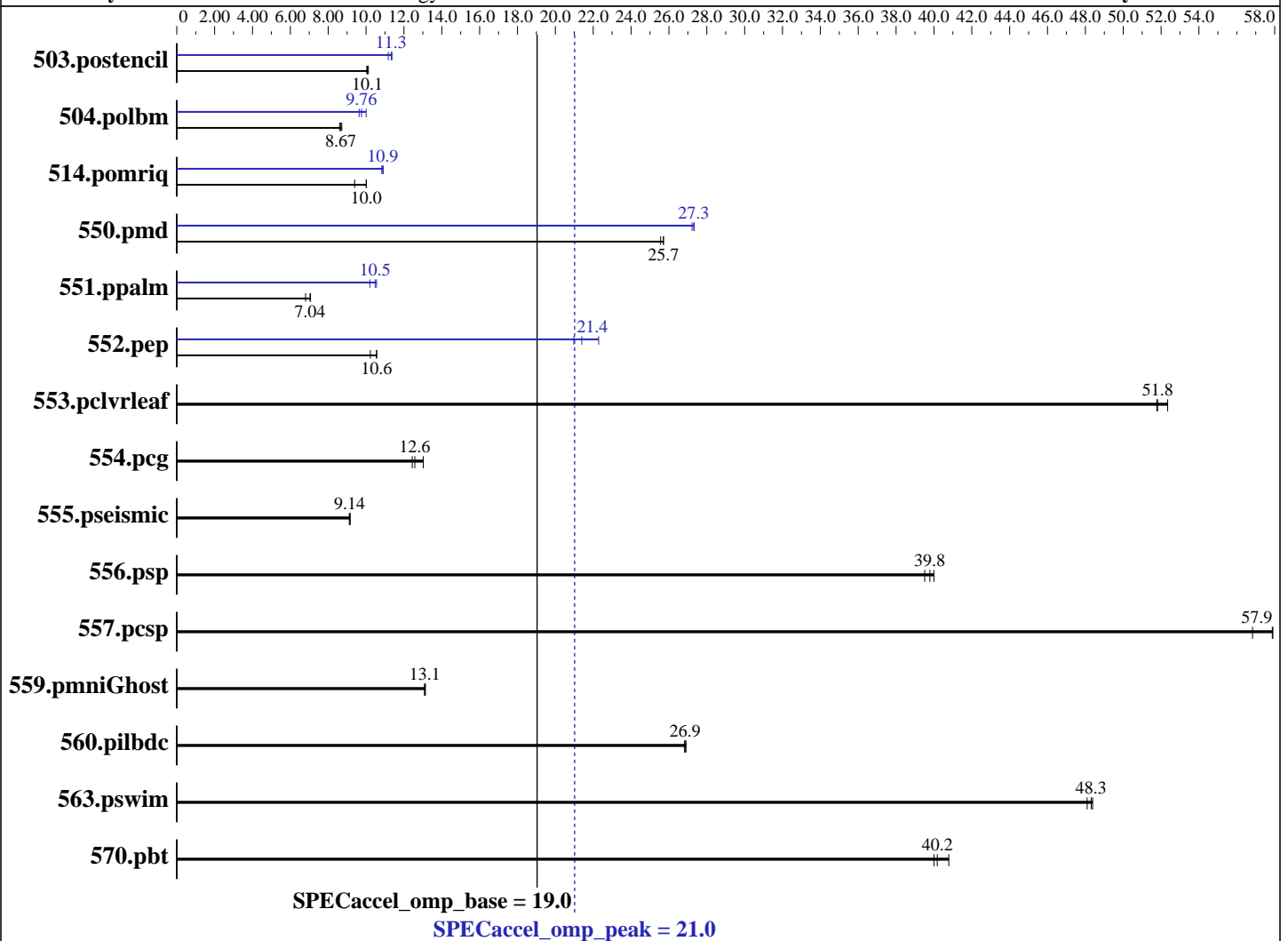
Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: Oct-2022

Hardware Availability: Nov-2022

Software Availability: Nov-2022



### Hardware

CPU Name: AMD EPYC 9654  
 CPU Characteristics: Turbo up to 3.7 GHz  
 CPU MHz: 2400  
 CPU MHz Maximum: 3700  
 FPU: Integrated  
 CPU(s) enabled: 96 cores, 2 chips, 96 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: 1 MB I+D on chip per core  
 L3 Cache: 384 MB I+D on chip per chip  
 32 MB shared / 8 cores

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### Accelerator

Accel Model Name: AMD EPYC 9654 CPU  
 Accel Vendor: AMD  
 Accel Name: AMD EPYC 9654 CPU  
 Type of Accel: CPU  
 Accel Connection: Not applicable  
 Does Accel Use ECC: yes  
 Accel Description: 1 x AMD EPYC 9654 CPU  
 Accel Driver: Not applicable



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## Hardware (Continued)

Other Cache: None  
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)  
Disk Subsystem: 1 x 480 GB 2.5" SSD  
Other Hardware: None

## Software

Operating System: Red Hat Enterprise Linux Server release 8.6  
kernel 4.18.0-372.9.1.el8.x86\_64  
Compiler: Intel C/C++/Fortran 21.7 for Linux  
Build 20220726  
File System: xfs  
System State: Run-level 3  
Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.postencil	10.8	10.1	10.9	10.0	<b><u>10.8</u></b>	<b><u>10.1</u></b>	9.76	11.2	9.59	11.4	<b><u>9.62</u></b>	<b><u>11.3</u></b>
504.polbm	14.0	8.72	<b><u>14.1</u></b>	<b><u>8.67</u></b>	14.2	8.60	<b><u>12.5</u></b>	<b><u>9.76</u></b>	12.7	9.64	12.2	10.0
514.pomriq	62.0	10.0	66.1	9.40	<b><u>62.1</u></b>	<b><u>10.0</u></b>	56.9	10.9	<b><u>57.1</u></b>	<b><u>10.9</u></b>	57.4	10.8
550.pmd	<b><u>9.37</u></b>	<b><u>25.7</u></b>	9.43	25.6	9.37	25.7	8.82	27.3	<b><u>8.82</u></b>	<b><u>27.3</u></b>	8.85	27.2
551.ppalm	<b><u>77.3</u></b>	<b><u>7.04</u></b>	79.9	6.81	77.0	7.07	53.3	10.2	<b><u>51.9</u></b>	<b><u>10.5</u></b>	51.5	10.6
552.pep	21.9	10.6	<b><u>21.9</u></b>	<b><u>10.6</u></b>	22.6	10.2	<b><u>10.8</u></b>	<b><u>21.4</u></b>	10.4	22.3	11.0	21.0
553.pclvrleaf	21.9	52.3	<b><u>22.1</u></b>	<b><u>51.8</u></b>	22.1	51.8	21.9	52.3	<b><u>22.1</u></b>	<b><u>51.8</u></b>	22.1	51.8
554.pcg	25.6	13.0	<b><u>26.5</u></b>	<b><u>12.6</u></b>	26.8	12.4	25.6	13.0	<b><u>26.5</u></b>	<b><u>12.6</u></b>	26.8	12.4
555.pseismic	<b><u>30.9</u></b>	<b><u>9.14</u></b>	30.8	9.16	30.9	9.11	<b><u>30.9</u></b>	<b><u>9.14</u></b>	30.8	9.16	30.9	9.11
556.psp	20.5	40.0	20.7	39.5	<b><u>20.6</u></b>	<b><u>39.8</u></b>	20.5	40.0	20.7	39.5	<b><u>20.6</u></b>	<b><u>39.8</u></b>
557.pcsp	15.1	56.8	14.8	57.9	<b><u>14.8</u></b>	<b><u>57.9</u></b>	15.1	56.8	14.8	57.9	<b><u>14.8</u></b>	<b><u>57.9</u></b>
559.pmniGhost	<b><u>30.3</u></b>	<b><u>13.1</u></b>	30.2	13.1	30.3	13.1	<b><u>30.3</u></b>	<b><u>13.1</u></b>	30.2	13.1	30.3	13.1
560.pilbdc	24.3	26.8	24.3	26.9	<b><u>24.3</u></b>	<b><u>26.9</u></b>	24.3	26.8	24.3	26.9	<b><u>24.3</u></b>	<b><u>26.9</u></b>
563.pswim	3.31	48.1	<b><u>3.29</u></b>	<b><u>48.3</u></b>	3.29	48.4	3.31	48.1	<b><u>3.29</u></b>	<b><u>48.3</u></b>	3.29	48.4
570.pbt	<b><u>19.4</u></b>	<b><u>40.2</u></b>	19.1	40.8	19.5	40.0	<b><u>19.4</u></b>	<b><u>40.2</u></b>	19.1	40.8	19.5	40.0

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.



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Test date: Oct-2022  
Hardware Availability: Nov-2022  
Software Availability: Nov-2022

## Platform Notes

Sysinfo program /home/ACCEL1.4/Docs/sysinfo  
\$Rev: 6965 \$ \$Date:: 2015-04-21 #\$ c05a7f14b1b1765e3feldf68447e8a35  
running on RH86-5 Sat Oct 15 17:30:29 2022

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/accel/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : AMD EPYC 9654 96-Core Processor  
2 "physical id"s (chips)  
384 "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 : 96
siblings  : 192
physical 0: cores 0 1 2 3 4 5 6 7 10 11 12 13 14 15 16 17 18 19 20 21 22
23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72
73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
physical 1: cores 0 1 2 3 4 5 6 7 10 11 12 13 14 15 16 17 18 19 20 21 22
23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72
73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
```

cache size : 1024 KB

From /proc/meminfo

MemTotal: 1584834632 kB  
HugePages\_Total: 0  
Hugepagesize: 2048 kB

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

```
os-release:
NAME="Red Hat Enterprise Linux"
VERSION="8.6 (Ootpa)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="8.6"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.6 (Ootpa)"
ANSI_COLOR="0;31"
```

```
redhat-release: Red Hat Enterprise Linux release 8.6 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.6 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8::baseos
```

uname -a:

```
Linux RH86-5 4.18.0-372.9.1.el8.x86_64 #1 SMP Fri Apr 15 22:12:19 EDT 2022
x86_64 x86_64 x86_64 GNU/Linux
```

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## Platform Notes (Continued)

run-level 3 Jun 22 19:12

SPEC is set to: /home/ACCEL1.4

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda3	xfs	419G	35G	385G	9%	/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 KAE103B-1.10 09/30/2022

Memory:

24x SK Hynix HMC94AEBRA103N 64 GB 2 rank 4800 MT/s

(End of data from sysinfo program)

## Base Compiler Invocation

C benchmarks:  
icc

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
icc ifort

## Base Portability Flags

```

503.postencil: -DSPEC_USE_INNER_SIMD
504.polbm: -DSPEC_USE_INNER_SIMD
514.pomriq: -DSPEC_USE_INNER_SIMD
550.pmd: -DSPEC_USE_INNER_SIMD -80
551.ppalms: -DSPEC_USE_INNER_SIMD
552.pep: -DSPEC_USE_INNER_SIMD
553.pclvrleaf: -DSPEC_USE_INNER_SIMD
554.pcg: -DSPEC_USE_INNER_SIMD
555.pseismic: -DSPEC_USE_INNER_SIMD
556.psp: -DSPEC_USE_INNER_SIMD
557.pcsp: -DSPEC_USE_INNER_SIMD
559.pmniGhost: -DSPEC_USE_INNER_SIMD -nofor-main

```

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## Base Portability Flags (Continued)

560.pilbdc: -DSPEC\_USE\_INNER\_SIMD  
563.pswim: -DSPEC\_USE\_INNER\_SIMD  
570.pbt: -DSPEC\_USE\_INNER\_SIMD

## Base Optimization Flags

C benchmarks:

-O3 -march=core-avx2 -qopenmp -qopenmp-offload=host -no-prec-div  
-no-prec-sqrt -ansi-alias -ipo -fp-model fast=2

Fortran benchmarks:

-O3 -march=core-avx2 -qopenmp -qopenmp-offload=host -no-prec-div  
-no-prec-sqrt -ansi-alias -ipo -fp-model fast=2

Benchmarks using both Fortran and C:

-O3 -march=core-avx2 -qopenmp -qopenmp-offload=host -no-prec-div  
-no-prec-sqrt -ansi-alias -ipo -fp-model fast=2

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

503.postencil: icx

552.pep: icx

Fortran benchmarks (except as noted below):

ifort

551.ppalm: ifx

Benchmarks using both Fortran and C:

icc ifort

## Peak Portability Flags

503.postencil: -DSPEC\_USE\_INNER\_SIMD  
504.polbm: -DSPEC\_USE\_INNER\_SIMD  
514.pomriq: -DSPEC\_USE\_INNER\_SIMD  
550.pmd: -DSPEC\_USE\_INNER\_SIMD -80

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## Peak Portability Flags (Continued)

551.ppalm: -DSPEC\_USE\_INNER\_SIMD -DSPEC\_HOST\_FFTW3  
552.pep: -DSPEC\_USE\_INNER\_SIMD  
553.pclvrleaf: -DSPEC\_USE\_INNER\_SIMD  
554.pcg: -DSPEC\_USE\_INNER\_SIMD  
555.pseismic: -DSPEC\_USE\_INNER\_SIMD  
556.psp: -DSPEC\_USE\_INNER\_SIMD  
557.pcsp: -DSPEC\_USE\_INNER\_SIMD  
559.pmniGhost: -DSPEC\_USE\_INNER\_SIMD -nofor-main  
560.pilbdc: -DSPEC\_USE\_INNER\_SIMD  
563.pswim: -DSPEC\_USE\_INNER\_SIMD  
570.pbt: -DSPEC\_USE\_INNER\_SIMD

## Peak Optimization Flags

C benchmarks:

503.postencil: -O3 -march=core-avx2 -qopenmp -qopenmp-offload=host  
-no-prec-div -no-prec-sqrt -ansi-alias -ipo  
-fp-model fast=2

504.polbm: Same as 503.postencil

514.pomriq: Same as 503.postencil

552.pep: Same as 503.postencil

554.pcg: basepeak = yes

557.pcsp: basepeak = yes

570.pbt: basepeak = yes

Fortran benchmarks:

550.pmd: -O3 -march=core-avx2 -qopenmp -qopenmp-offload=host  
-no-prec-div -no-prec-sqrt -ansi-alias -ipo  
-fp-model fast=2 -qopt-prefetch=2

551.ppalm: -O3 -march=core-avx2 -qopenmp -qopenmp-offload=host  
-no-prec-div -no-prec-sqrt -ansi-alias -ipo  
-fp-model fast=2 -L/usr/local/lib

555.pseismic: basepeak = yes

556.psp: basepeak = yes

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## Peak Optimization Flags (Continued)

560.pilbdc: basepeak = yes

563.pswim: basepeak = yes

Benchmarks using both Fortran and C:

553.pclvrleaf: basepeak = yes

559.pmniGhost: basepeak = yes

## Peak Other Flags

Fortran benchmarks:

551.ppalm: -lfftw3

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

<https://www.spec.org/accel/flags/Intel-compiler.20221110.html>

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

<https://www.spec.org/accel/flags/Intel-compiler.20221110.xml>

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

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