



# SPEC® OMPG2012 Result

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## Lenovo Global Technology

SPECompG\_peak2012 = 24.3

ThinkSystem SR655(AMD EYPC 7763 CPU, 2.45GHz)

SPECompG\_base2012 = 24.3

OMP2012 license:28

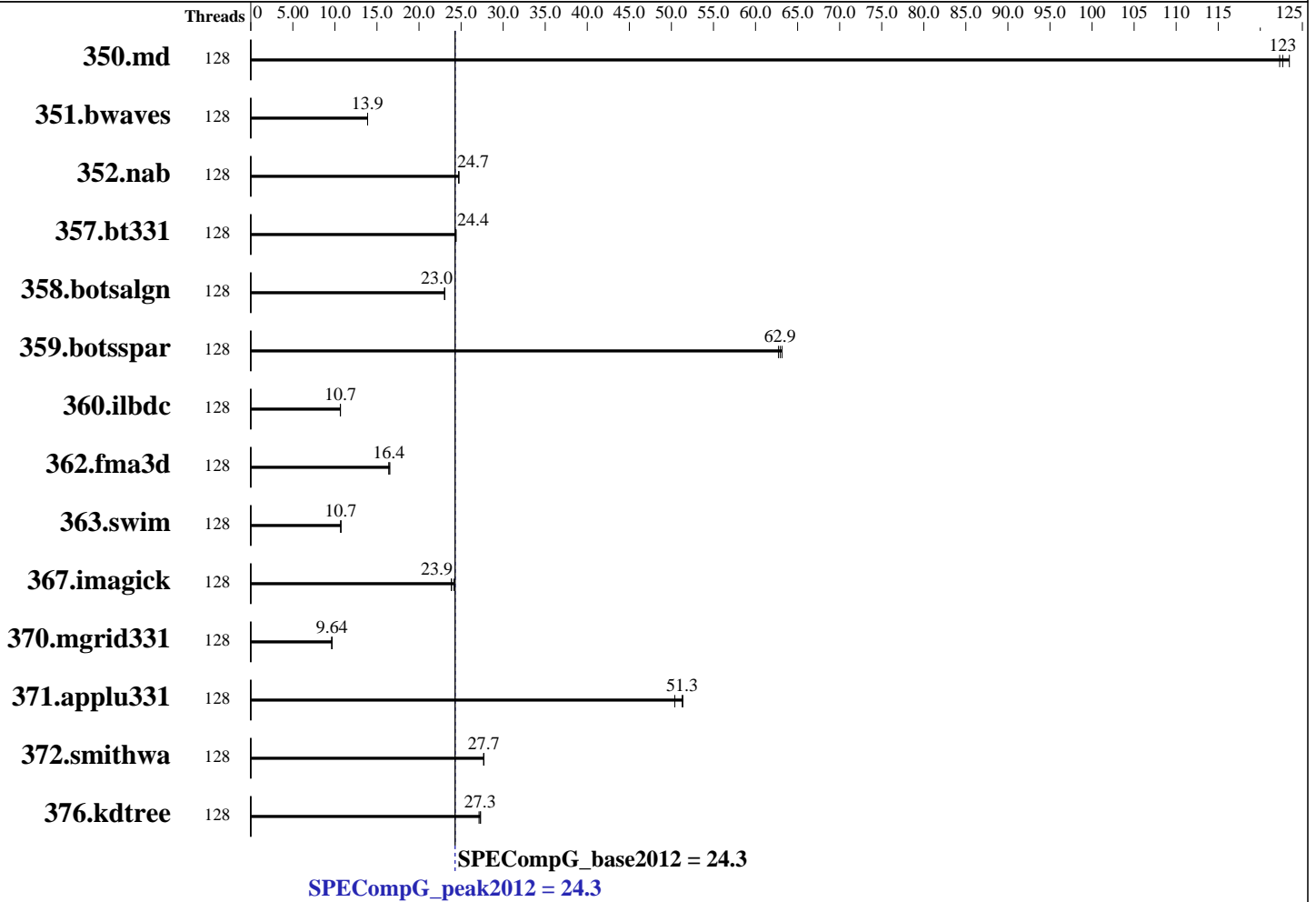
Test sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test date: May-2021

Hardware Availability: Jun-2021

Software Availability: Jun-2021



### Hardware

CPU Name: AMD EPYC 7763  
 CPU Characteristics: None  
 CPU MHz: 2450  
 CPU MHz Maximum: 3500  
 FPU: Integrated  
 CPU(s) enabled: 64 cores, 1 chip, 64 cores/chip, 2 threads/core  
 CPU(s) orderable: 1 Chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 512 KB I+D on chip per core  
 L3 Cache: 256 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB ( 8 x 32 GB 2Rx8 PC4-3200AA-R)  
 Disk Subsystem: 1 x 1 TB SATA Hard Drive  
 Other Hardware: None  
 Base Threads Run: 128  
 Minimum Peak Threads: 128

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### Software

Operating System: Red Hat Enterprise Linux Server release 8.3 , Kernel 4.18.0-240.el8.x86\_64  
 Compiler: C/C++/Fortran: Version 19.10 of PGI Community Edition  
 Auto Parallel: No  
 File System: xfs  
 System State: Multi-user, run level 3  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other Software: None



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Maximum Peak Threads: 128

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	128	37.5	123	37.9	122	<b><u>37.7</u></b>	<b><u>123</u></b>	128	37.5	123	37.9	122	<b><u>37.7</u></b>	<b><u>123</u></b>
351.bwaves	128	<b><u>326</u></b>	<b><u>13.9</u></b>	326	13.9	326	13.9	128	<b><u>326</u></b>	<b><u>13.9</u></b>	326	13.9	326	13.9
352.nab	128	157	24.7	<b><u>157</u></b>	<b><u>24.7</u></b>	157	24.7	128	157	24.7	<b><u>157</u></b>	<b><u>24.7</u></b>	157	24.7
357.bt331	128	195	24.4	<b><u>194</u></b>	<b><u>24.4</u></b>	194	24.4	128	195	24.4	<b><u>194</u></b>	<b><u>24.4</u></b>	194	24.4
358.botsalgn	128	189	23.0	<b><u>189</u></b>	<b><u>23.0</u></b>	189	23.1	128	189	23.0	<b><u>189</u></b>	<b><u>23.0</u></b>	189	23.1
359.botsspar	128	83.1	63.1	<b><u>83.4</u></b>	<b><u>62.9</u></b>	83.7	62.7	128	83.1	63.1	<b><u>83.4</u></b>	<b><u>62.9</u></b>	83.7	62.7
360.ilbdc	128	334	10.7	<b><u>334</u></b>	<b><u>10.7</u></b>	334	10.6	128	334	10.7	<b><u>334</u></b>	<b><u>10.7</u></b>	334	10.6
362.fma3d	128	230	16.5	231	16.4	<b><u>231</u></b>	<b><u>16.4</u></b>	128	230	16.5	231	16.4	<b><u>231</u></b>	<b><u>16.4</u></b>
363.swim	128	424	10.7	423	10.7	<b><u>423</u></b>	<b><u>10.7</u></b>	128	424	10.7	423	10.7	<b><u>423</u></b>	<b><u>10.7</u></b>
367.imagick	128	291	24.1	<b><u>295</u></b>	<b><u>23.9</u></b>	295	23.8	128	291	24.1	<b><u>295</u></b>	<b><u>23.9</u></b>	295	23.8
370.mgrid331	128	458	9.65	459	9.62	<b><u>458</u></b>	<b><u>9.64</u></b>	128	458	9.65	459	9.62	<b><u>458</u></b>	<b><u>9.64</u></b>
371.applu331	128	<b><u>118</u></b>	<b><u>51.3</u></b>	118	51.4	120	50.4	128	<b><u>118</u></b>	<b><u>51.3</u></b>	118	51.4	120	50.4
372.smithwa	128	193	27.7	<b><u>194</u></b>	<b><u>27.7</u></b>	194	27.7	128	193	27.7	<b><u>194</u></b>	<b><u>27.7</u></b>	194	27.7
376.kdtree	128	165	27.3	166	27.1	<b><u>165</u></b>	<b><u>27.3</u></b>	128	165	27.3	166	27.1	<b><u>165</u></b>	<b><u>27.3</u></b>

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

## Platform Notes

```

Sysinfo program /home/omp2012/Docs/sysinfo
Revision 563 of 2016-06-10 (097295389cf6073d8c3b03fa376740a5)
running on amd2srh833 Mon May 31 17:50:44 2021

```

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/omp2012/Docs/config.html#sysinfo>

From /proc/cpuinfo

```

model name : AMD EPYC 7763 64-Core Processor
1 "physical id"s (chips)
128 "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 : 64
siblings  : 128
physical 0: cores 0 1 2 3 4 5 6 7 8 9 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

```

cache size : 512 KB

From /proc/meminfo

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### Platform Notes (Continued)

MemTotal: 263697932 kB  
HugePages\_Total: 0  
Hugepagesize: 2048 kB

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

os-release:

```
NAME="Red Hat Enterprise Linux"
VERSION="8.3 (Ootpa)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="8.3"
PLATFORM_ID="platform:el8"
PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
ANSI_COLOR="0;31"
```

redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)

system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)

system-release-cpe: cpe:/o:redhat:enterprise\_linux:8.3:ga

uname -a:

```
Linux amd2srh833 4.18.0-240.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 May 31 17:37

SPEC is set to: /home/omp2012

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       xfs   419G  123G  297G  30% /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 CFE125L 03/26/2021

Memory:

8x Samsung M393A4G43AB3-CWE 32 GB 2 rank 3200 MT/s

8x Unknown Unknown

(End of data from sysinfo program)

### General Notes

=====

General OMP Library Settings

KMP\_AFFINITY = granularity=fine,proclist=[0-7,8-15,  
16-23,24-31,32-39,40-47,48-55,56-63,64-71,72-79,80-87,  
88-95,96-103,104-111,112-119,120-127],explicit

KMP\_STACKSIZE = 256M

KMP\_BLOCKTIME = infinite

KMP\_LIBRARY = turnaround

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## General Notes (Continued)

OMP\_NESTED = FALSE  
OMP\_DYNAMIC = FALSE  
OMP\_SCHEDULE = static  
OMP\_THREADS = 128

=====

uEFI Setting notes:

- Choose Operating Mode set to Maximum Performance and changed to Customer Mode
- LLC as NUMA Node set as Disabled
- SMT Mode as Auto
- NUMA nodes per sockets set as NPS1

=====

Yes: The test sponsor attests, as of date of publication, the CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, the CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Spectre variant 2) is mitigated in the system as tested and documented.

=====

OS tuning:  
ulimit -s unlimited

## Base Compiler Invocation

C benchmarks:  
pgcc

C++ benchmarks:  
pgc++

Fortran benchmarks:  
pgfortran

## Base Portability Flags

350.md: -Mfree  
357.bt331: -mmodel=medium  
362.fma3d: -Mfree  
363.swim: -mmodel=medium

## Base Optimization Flags

C benchmarks:  
-O3 -tp=zen -mp -m64 -fast -Mpre -Mlre -Mfprelaxed -Mstack\_arrays  
-Masmkeyword -Mnosingle -Mschar

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## Base Optimization Flags (Continued)

C++ benchmarks:

-O3 -tp=zen -mp -m64 -fast -Mpre -Mlre -Mfprelaxed -Mstack\_arrays  
-Mnoasmkeyword

Fortran benchmarks:

-O3 -tp=zen -mp -m64 -fast -Mpre -Mlre -Mfprelaxed -Mstack\_arrays  
-Mallocatable=95 -Mnoupcase -Mdefaultunit -Mnostride0 -Mnoiomutex  
-Mcray=pointer

## Peak Optimization Flags

C benchmarks:

352.nab: basepeak = yes  
358.botsalgn: basepeak = yes  
359.botsspar: basepeak = yes  
367.imagick: basepeak = yes  
372.smithwa: basepeak = yes

C++ benchmarks:

376.kdtree: basepeak = yes

Fortran benchmarks:

350.md: basepeak = yes  
351.bwaves: basepeak = yes  
357.bt331: basepeak = yes  
360.ilbdc: basepeak = yes  
362.fma3d: basepeak = yes  
363.swim: basepeak = yes  
370.mgrid331: basepeak = yes  
371.applu331: basepeak = yes



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The flags files that were used to format this result can be browsed at

<http://www.spec.org/omp2012/flags/Lenovo-OMP2012-AMD-PGI.html>

<http://www.spec.org/omp2012/flags/Lenovo-Platform-SPEComp2012-Flags-V1.0-AMD.html>

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

<http://www.spec.org/omp2012/flags/Lenovo-OMP2012-AMD-PGI.xml>

<http://www.spec.org/omp2012/flags/Lenovo-Platform-SPEComp2012-Flags-V1.0-AMD.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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