



SPEC® OMPG2012 Result

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Cisco Systems

SPECompG_peak2012 = 64.2

Cisco UCS C245 M8 (AMD EPYC 9754, 2.25GHz)

SPECompG_base2012 = 61.7

OMP2012 license:9019

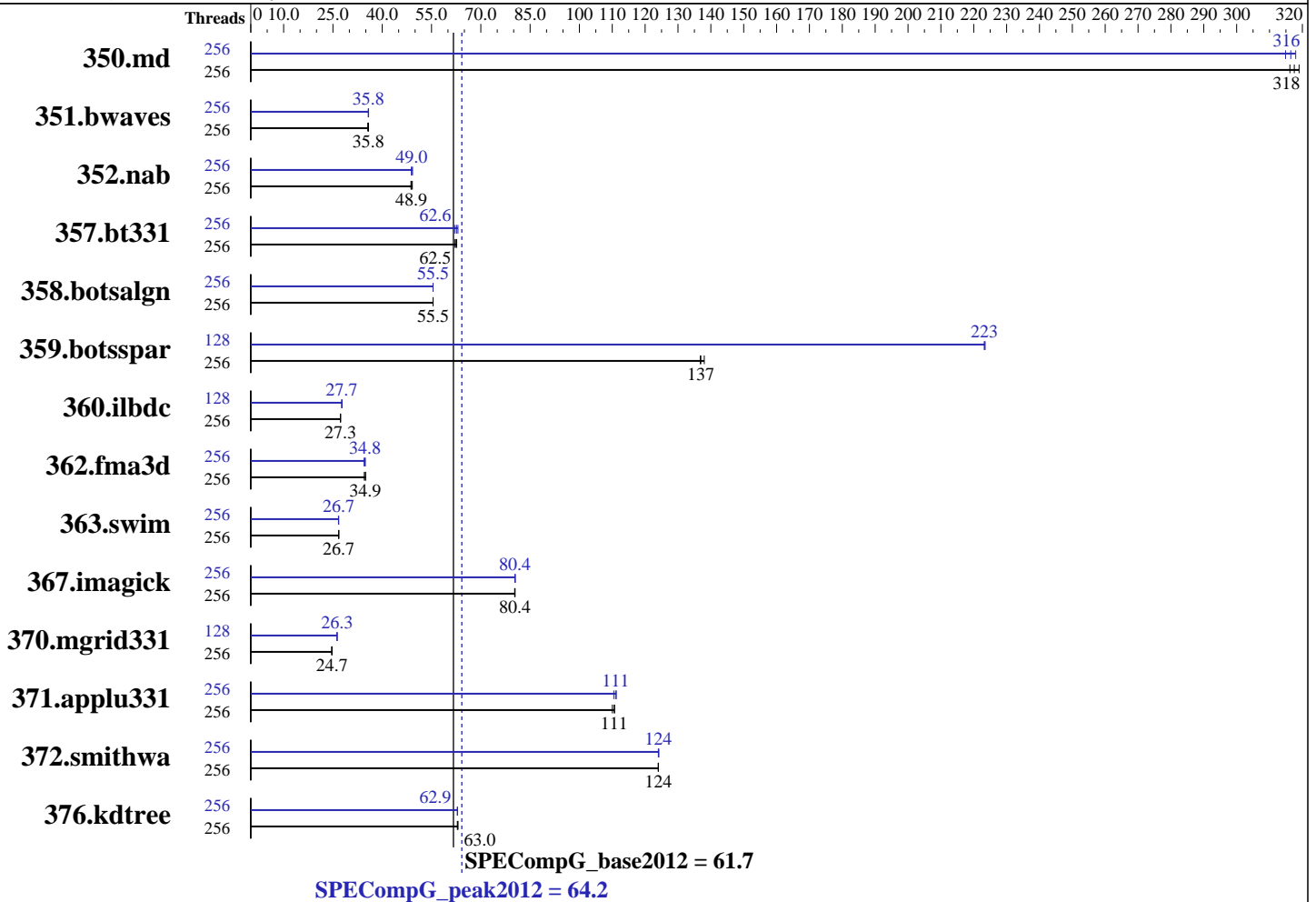
Test date: May-2024

Test sponsor: Cisco Systems

Hardware Availability: Jun-2024

Tested by: Cisco Systems

Software Availability: Feb-2024



Hardware

CPU Name: AMD EPYC 9754
 CPU Characteristics: Max Boost Clock up to 3.1 GHz
 CPU MHz: 2250
 CPU MHz Maximum: 3100
 FPU: Integrated
 CPU(s) enabled: 128 cores, 1 chip, 128 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: 256 MB I+D on chip per chip, 32 MB shared 8 cores
 Other Cache: None
 Memory: 768 GB (12 x 64 GB 2Rx4 PC5-5600B-R, running at 4800 MHz)
 Disk Subsystem: 1 x 240 GB M.2 SSD
 Other Hardware: None
 Base Threads Run: 256

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Software

Operating System: SUSE Linux Enterprise Server 15 SP5, Kernel 5.14.21-150500.53-default
 Compiler: C/C++/Fortran: Version 2024.0.2.0 of Intel oneAPI DPC/C++
 Auto Parallel: Yes
 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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Minimum Peak Threads: 128
Maximum Peak Threads: 256

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	256	14.5	319	14.6	316	14.6	318	256	14.6	316	14.7	315	14.6	318
351.bwaves	256	126	35.8	127	35.8	127	35.6	256	127	35.8	127	35.8	126	35.8
352.nab	256	79.1	49.2	79.6	48.9	79.8	48.7	256	79.0	49.2	79.6	48.9	79.4	49.0
357.bt331	256	75.9	62.5	75.6	62.7	76.3	62.1	256	75.7	62.6	76.3	62.1	75.2	63.1
358.botsalgn	256	78.4	55.5	78.4	55.5	78.4	55.5	256	78.4	55.5	78.4	55.5	78.4	55.5
359.botsspar	256	38.0	138	38.4	137	38.3	137	128	23.5	223	23.5	223	23.5	223
360.ilbdc	256	130	27.3	130	27.3	130	27.3	128	128	27.7	128	27.7	128	27.7
362.fma3d	256	109	34.9	110	34.5	109	34.9	256	110	34.5	109	34.8	109	34.8
363.swim	256	169	26.8	169	26.7	169	26.7	256	170	26.7	169	26.7	169	26.7
367.imagick	256	87.4	80.4	87.4	80.4	87.6	80.3	256	87.4	80.5	87.4	80.4	87.4	80.4
370.mgrid331	256	179	24.7	179	24.7	179	24.7	128	168	26.3	168	26.3	168	26.3
371.applu331	256	55.1	110	54.7	111	54.8	111	256	54.9	110	54.5	111	54.6	111
372.smithwa	256	43.2	124	43.2	124	43.2	124	256	43.2	124	43.2	124	43.2	124
376.kdtree	256	71.5	63.0	71.6	62.9	71.3	63.1	256	71.6	62.8	71.5	62.9	71.5	62.9

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 localhost Wed May 8 11:26:40 2024

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 9754 128-Core Processor
1 "physical id"s (chips)
256 "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 : 128
siblings : 256
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 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 96 97 98 99 100 101 102 103 104 105
106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123
```

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Platform Notes (Continued)

124 125 126 127
cache size : 1024 KB

From /proc/meminfo
MemTotal: 792193480 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP5"
VERSION_ID="15.5"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP5"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp5"

uname -a:
Linux localhost 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 5 13:56

SPEC is set to: /home/omp2012
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 223G 184G 39G 83% /

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 Cisco Systems, Inc. C245M8.4.3.4.255.0410240854 04/10/2024

Memory:
12x 0xCE00 M321R8GA0PB0-CWMCH 64 GB 2 rank 5600 MT/s

(End of data from sysinfo program)

General Notes

=====

General OMP Library Settings

OMP_DYNAMIC = FALSE
KMP_SCHEDULE = static
KMP_LIBRARY = turnaround
KMP_STACKSIZE = 256M
KMP_BLOCKTIME = infinite

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General Notes (Continued)

```
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,
128-135,136-143,144-151,152-159,160-167,168-175,176-183,184-191,192-199,
200-207,208-215,216-223,224-231,232-239,240-247,248-255,256-263,264-271,
272-279,280-287,288-295,296-303,304-311,312-319,320-327,328-335,336-343,
344-351,352-359,360-367,368-375,376-383,384-391,392-399,400-407,408-415,
416-423,424-431,432-439,440-447,448-455,456-463,464-471,472-479,480-487,
488-495,496-503,504-511],explicit
```

uEFI Setting notes:

Choose "Maximum Performance" operating mode and changed to "Custom" operating mode. Below items also configured:

-
- NUMA Nodes per Socket = NPS2
- DRAM Scrub Time = Disabled
- CPPC = Disabled
- Global C-state control = Disabled
-
-

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:

```
icx
```

C++ benchmarks:

```
icpx
```

Fortran benchmarks:

```
ifx
```

Base Portability Flags

```
350.md: -FR
```

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Base Portability Flags (Continued)

357.bt331: -mmodel=medium
363.swim: -mmodel=medium

Base Optimization Flags

C benchmarks:

352.nab: -w -m64 -std=c11 -Wno-implicit-function-declaration -Ofast
-mprefer-vector-width=512 -march=common-avx512 -ipo
-fopenmp -qopt-zmm-usage=high -ffast-math -fstrict-enums
-fstrict-vtable-pointers -fvirtual-function-elimination

358.botsalgn: Same as 352.nab

359.botsspar: Same as 352.nab

367.imagick: -w -m64 -std=c11 -Wno-implicit-function-declaration -Ofast
-mprefer-vector-width=512 -march=common-avx512 -ipo
-fopenmp -qopt-zmm-usage=high -ffast-math -fstrict-enums
-fstrict-vtable-pointers -fvirtual-function-elimination
-std=c99(*)

372.smithwa: Same as 352.nab

C++ benchmarks:

-w -m64 -std=c++14 -Ofast -mprefer-vector-width=512
-march=common-avx512 -ipo -fopenmp -qopt-zmm-usage=high -ffast-math
-fstrict-enums -fstrict-vtable-pointers

Fortran benchmarks:

-w -m64 -Ofast -mprefer-vector-width=512 -march=common-avx512 -ipo
-fopenmp -qopt-zmm-usage=high -nostandard-realloc-lhs
-align array32byte -auto -fimf-accuracy-bits-sqrt=14
-fimf-precision=low

(*) Indicates an optimization flag that was found in a portability variable.

Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

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Peak Compiler Invocation (Continued)

Fortran benchmarks:
ifx

Peak Portability Flags

350.md: -FR
357.bt331: -mcmmodel=medium
363.swim: -mcmmodel=medium

Peak Optimization Flags

C benchmarks:

352.nab: -w -m64 -std=c11 -Wno-implicit-function-declaration -Ofast
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-fopenmp -qopt-zmm-usage=high -ffast-math -fstrict-enums
-fstrict-vtable-pointers -fvirtual-function-elimination

358.botsalgn: Same as 352.nab

359.botsspar: Same as 352.nab

367.imagick: -w -m64 -std=c11 -Wno-implicit-function-declaration -Ofast
-mprefer-vector-width=512 -march=common-avx512 -ipo
-fopenmp -qopt-zmm-usage=high -ffast-math -fstrict-enums
-fstrict-vtable-pointers -fvirtual-function-elimination
-std=c99(*)

372.smithwa: Same as 352.nab

C++ benchmarks:

-w -m64 -std=c++14 -Ofast -mprefer-vector-width=512
-march=common-avx512 -ipo -fopenmp -qopt-zmm-usage=high -ffast-math
-fstrict-enums -fstrict-vtable-pointers

Fortran benchmarks:

-w -m64 -Ofast -mprefer-vector-width=512 -march=common-avx512 -ipo
-fopenmp -qopt-zmm-usage=high -nostandard-realloc-lhs
-align array32byte -auto -fimf-accuracy-bits-sqrt=14
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The flags files that were used to format this result can be browsed at

<http://www.spec.org/omp2012/flags/Intel-ic2024.2.0-OMP2012-linux64.html>

<http://www.spec.org/omp2012/flags/Cisco-Platform-Settings-AMD-v3-revA.html>

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

<http://www.spec.org/omp2012/flags/Intel-ic2024.2.0-OMP2012-linux64.xml>

<http://www.spec.org/omp2012/flags/Cisco-Platform-Settings-AMD-v3-revA.xml>

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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