SPEC® OMPG2012 Result

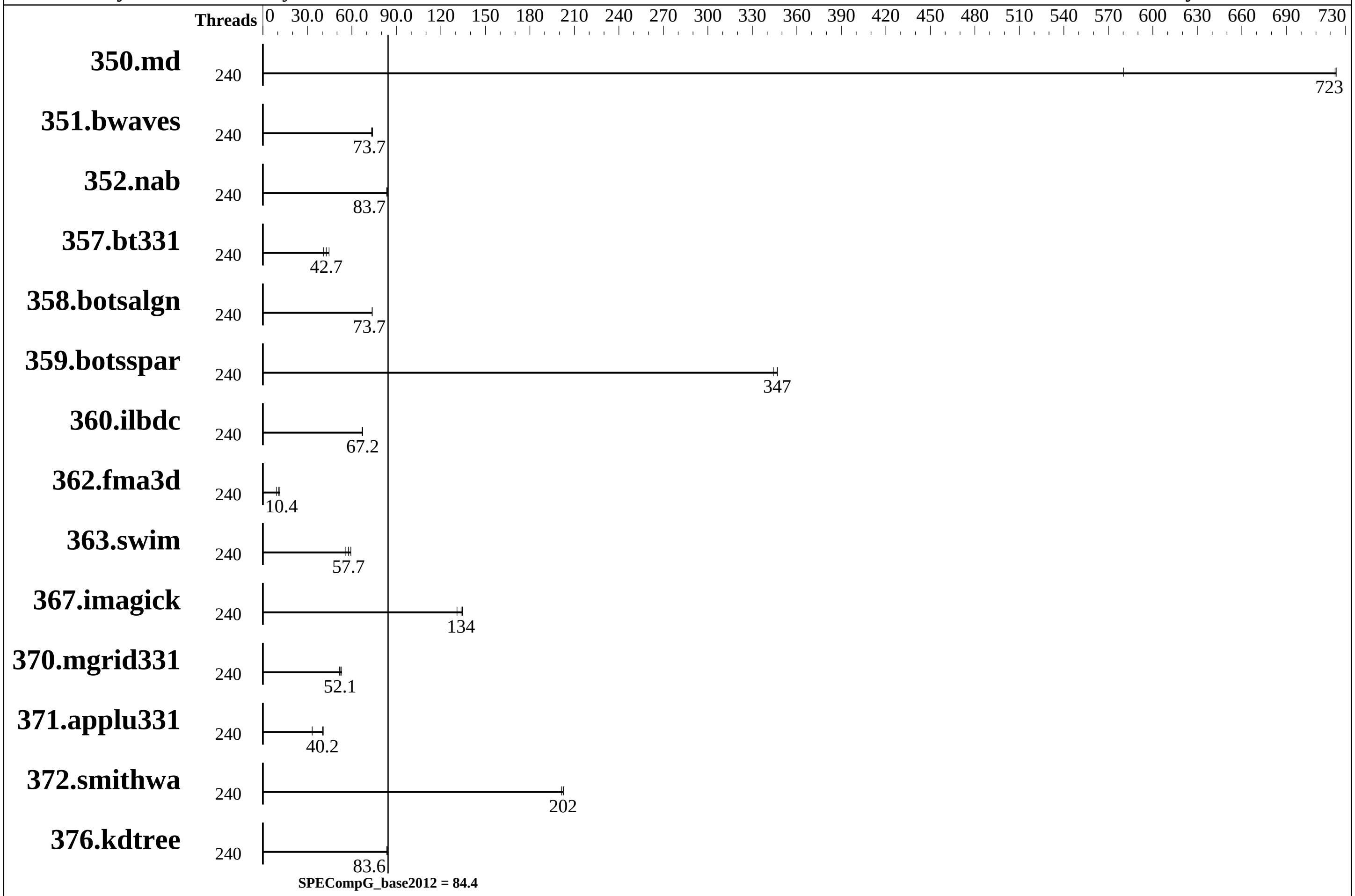
Cisco Systems

Cisco UCS X410c M7 (Intel Xeon Platinum 8490H)

SPECompG_peak2012 = Not Run

SPECompG_base2012 = 84.4

OMP2012 license:	023	**Test date:**	May-2023
Test sponsor:	Cisco Systems	**Hardware Availability:**	May-2023
Tested by:	Cisco Systems	**Software Availability:**	Mar-2023



Hardware

CPU Name:	Intel Xeon Platinum 8490H
CPU Characteristics:	Intel Turbo Boost Technology up to 3.5 GHz
CPU MHz:	1900
CPU MHz Maximum:	3500
FPU:	Integrated
CPU(s) enabled:	240 cores, 4 chips, 60 cores/chip
CPU(s) orderable:	1,2,3,4 Chips
Primary Cache:	32 KB I + 48 KB D on chip per core
Secondary Cache:	2 MB I+D on chip per core
L3 Cache:	112.5 MB I+D on chip per chip
Other Cache:	None
Memory:	2 TB (32 x 64 GB 2Rx4 PC5-4800B-R)
Disk Subsystem:	1 x 960 GB M.2 SSD
Other Hardware:	None
Base Threads Run:	240
Minimum Peak Threads:	--

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Software

Operating System:	SUSE Linux Enterprise Server 15 SP4 5.14.21-150400.22-default
Compiler:	C/C++/Fortran: Version 2023.1.0.20230320 of Intel oneAPI DPC++/C++
Auto Parallel:	Yes
File System:	xfs
System State:	Multi-user, run level 3
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other Software:	None

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OMP2012 license: 023 **Test date:** May-2023

Test sponsor: Cisco Systems **Hardware Availability:** May-2023

Tested by: Cisco Systems **Software Availability:** Mar-2023

Maximum Peak Threads: --

Results Table

Benchmark	Base Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
350.md	240	6.40	724	**6.40**	**723**	7.98	580							
351.bwaves	240	61.8	73.3	**61.5**	**73.7**	61.3	73.9							
352.nab	240	**46.5**	**83.7**	46.6	83.5	46.5	83.7							
357.bt331	240	**111**	**42.7**	116	41.0	106	44.6							
358.botsalgn	240	59.0	73.7	59.0	73.7	**59.0**	**73.7**							
359.botsspar	240	**15.1**	**347**	15.1	347	15.3	344							
360.ilbdc	240	52.9	67.3	**52.9**	**67.2**	53.2	66.9							
362.fma3d	240	**365**	**10.4**	411	9.24	333	11.4							
363.swim	240	76.4	59.3	81.0	55.9	**78.6**	**57.7**							
367.imagick	240	52.3	135	**52.6**	**134**	53.7	131							
370.mgrid331	240	83.2	53.1	85.5	51.7	**84.9**	**52.1**							
371.applu331	240	149	40.7	182	33.2	**151**	**40.2**							
372.smithwa	240	26.6	201	26.5	203	**26.5**	**202**							
376.kdtree	240	**53.8**	**83.6**	53.9	83.5	53.8	83.6							

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 Fri May 12 11:30:37 2023

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 : Intel(R) Xeon(R) Platinum 8490H
      4 "physical id"s (chips)
      240 "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 : 60
      siblings  : 60
      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
      physical 1: 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
```

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Platform Notes (Continued)

```
        physical 2: 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
        physical 3: 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
     cache size : 115200 KB

  From /proc/meminfo
     MemTotal:       2113421080 kB
     HugePages_Total:        0
     Hugepagesize:        2048 kB

  From /etc/*release* /etc/*version*
     os-release:
        NAME="SLES"
        VERSION="15-SP4"
        VERSION_ID="15.4"
        PRETTY_NAME="SUSE Linux Enterprise Server 15 SP4"
        ID="sles"
        ID_LIKE="suse"
        ANSI_COLOR="0;32"
        CPE_NAME="cpe:/o:suse:sles:15:sp4"

  uname -a:
     Linux localhost 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11
     06:57:18 UTC 2022 (49db222) x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 May 12 02:08

  SPEC is set to: /home/omp2012
     Filesystem     Type   Size  Used Avail Use% Mounted on
     /dev/sda2      btrfs  222G  102G  119G  47% /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 Cisco Systems, Inc. X410M7.5.1.1b.10.0424230829 04/24/2023
    Memory:
     14x 0xAD00 HMCG94MEBRA109N 64 GB 2 rank 4800 MT/s
     2x 0xAD00 HMCG94MEBRA121N 64 GB 2 rank 4800 MT/s
     16x 0xAD00 HMCG94MEBRA123N 64 GB 2 rank 4800 MT/s

  (End of data from sysinfo program)
```

General Notes

```
========================================================================
BIOS Setting:
    Intel Hyper-Threading Technology set to Disabled
    Sub NUMA Clustering set to Disabled
    Processor C6 Report set to Enabled
    ADDDC Sparing set to Disabled
    UPI Link Power Management Enabled
    UPI Link Speed 16.0GT/S

========================================================================
General OMP Library Settings:
ENV_KMP_LIBRARY  = turnaround
ENV_KMP_BLOCKTIME = infinite
ENV_OMP_STACKSIZE = 292M
ENV_KMP_SCHEDULE = static
ENV_OMP_THREADS  = 240
ENV_OMP_DYNAMIC  = FALSE
========================================================================s
    NA: 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 tunning:
    Stack size set to unlimited using "ulimit -s unlimited"
    Transparent Huge Pages enabled by default
```

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifort`

Base Portability Flags

350.md: `-FR`
357.bt331: `-mcmodel=medium`

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Base Portability Flags (Continued)

363.swim: `-mcmodel=medium`
367.imagick: `-std=c99`

Base Optimization Flags

C benchmarks:
```
-O3 -qopenmp -xsapphirerapids -qopt-zmm-usage=high -fp-model fast=2
-fno-alias -ipo -Wno-implicit-function-declaration
-L/home/omp2012/je5.0.1-64 -Wl, --rpath=/home/omp2012/je5.0.1-64
-ljemalloc
```

C++ benchmarks:
```
-O3 -qopenmp -xsapphirerapids -qopt-zmm-usage=high -fp-model fast=2
-fno-alias -ipo -Wno-implicit-function-declaration
-L/home/omp2012/je5.0.1-64 -Wl, --rpath=/home/omp2012/je5.0.1-64
-ljemalloc
```

Fortran benchmarks:
```
-O3 -qopenmp -xsapphirerapids -qopt-zmm-usage=high -fp-model fast=2
-fno-alias -ipo -Wno-implicit-function-declaration -align all
-L/home/omp2012/je5.0.1-64 -Wl, --rpath=/home/omp2012/je5.0.1-64
-ljemalloc
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/omp2012/flags/Intel-ic2023-official-linux64.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/omp2012/flags/Intel-ic2023-official-linux64.xml

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

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