Lenovo Global Technology

ThinkSystem SR655 (AMD EPYC 7H12 CPU, 2.60GHz)

SPECompG_peak2012 = Not Run
SPECompG_base2012 = 23.3

OMP2012 license: 9017
Test sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Thread Results

<table>
<thead>
<tr>
<th>Test Case</th>
<th>Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>350.md</td>
<td>128</td>
</tr>
<tr>
<td>351.bwaves</td>
<td>128</td>
</tr>
<tr>
<td>352.nab</td>
<td>128</td>
</tr>
<tr>
<td>357.bt331</td>
<td>128</td>
</tr>
<tr>
<td>358.botsalg</td>
<td>128</td>
</tr>
<tr>
<td>359.botsspar</td>
<td>128</td>
</tr>
<tr>
<td>360.iiibdc</td>
<td>128</td>
</tr>
<tr>
<td>362.fma3d</td>
<td>128</td>
</tr>
<tr>
<td>363.swim</td>
<td>128</td>
</tr>
<tr>
<td>367.imagick</td>
<td>128</td>
</tr>
<tr>
<td>370.mgrid331</td>
<td>128</td>
</tr>
<tr>
<td>371.applu331</td>
<td>128</td>
</tr>
<tr>
<td>372.smithwa</td>
<td>128</td>
</tr>
<tr>
<td>376.kdtree</td>
<td>128</td>
</tr>
</tbody>
</table>

Hardware

- CPU Name: AMD EPYC 7H12 CPU
- CPU Characteristics: None
- CPU MHz: 2600
- CPU MHz Maximum: 3400
- FPU: Integrated
- CPU(s) enabled: 64 cores, 1 chip, 64 cores/chip, 2 threads/core
- 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, 16 MB shared / 4 cores
- Other Cache: None
- Memory: 256 GB (8 x 32 GB 2Rx4 PC4-3200AA-R)
- Disk Subsystem: 1 x 1 TB SATA Hard Drive
- Other Hardware: None
- Base Threads Run: 128

Software

- Operating System: Red Hat Enterprise Linux Server release 7.7
- Compiler: C/C++/Fortran: Version 19.4 of PGI Community Edition
- Auto Parallel: No
- File System: xfs
- System State: Multi-user, run level 3
- Base Pointers: 64-bit
- Peak Pointers: Not Applicable
- Other Software: FFTW library for AMD version 2.1, AMD LibM version 3.5.0

Test date: Feb-2020
Hardware Availability: Jun-2020
Software Availability: Jan-2020

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### Lenovo Global Technology

**ThinkSystem SR655(AMD EYPC 7H12 CPU, 2.60GHz)**

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**OMP2012 license:** 9017

**Test sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Minimum Peak Threads:** --

**Maximum Peak Threads:** --

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td>350.md</td>
<td>128</td>
<td>43.5</td>
<td>106</td>
<td>43.4</td>
<td>107</td>
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<tr>
<td>351.bwaves</td>
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<td>128</td>
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<td><strong>25.7</strong></td>
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<tr>
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<td>372.smithwa</td>
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<tr>
<td>376.kdree</td>
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<td>164</td>
<td>27.4</td>
<td><strong>164</strong></td>
<td><strong>27.4</strong></td>
<td>165</td>
<td>27.4</td>
</tr>
</tbody>
</table>

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

$Rev: 395 $ $Date:: 2012-07-25 #S 0f8c0fe9e19c6589f63a1e67685e50647$

running on AMD1S2U_7H12 Wed Feb 19 15:58:32 2020

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

```plaintext
model name : AMD EPYC 7H12 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

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**Platform Notes (Continued)**

From /proc/meminfo
- MemTotal: 263803936 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
- NAME="Red Hat Enterprise Linux Server"
- VERSION="7.7 (Maipo)"
- ID="rhel"
- ID_LIKE="fedora"
- VARIANT="Server"
- VARIANT_ID="server"
- VERSION_ID="7.7"
- PRETTY_NAME="Red Hat Enterprise Linux Server 7.7 (Maipo)"
- redhat-release: Red Hat Enterprise Linux Server release 7.7 (Maipo)
- system-release: Red Hat Enterprise Linux Server release 7.7 (Maipo)

uname -a:
- Linux AMD1S2U_7H12 3.10.0-1062.el7.x86_64 #1 SMP Thu Jul 18 20:25:13 UTC 2019
- x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Feb 18 22:29

SPEC is set to: /home/omp2012

Additional information from dmidecode:
- BIOS Lenovo CFE111A 12/31/2019
- Memory:
  - 8x 32 GB
  - 8x Samsung M393A4K40DB2-CWE 32 kB 3200 MT/s 2 rank
  - 8x Unknown Unknown

(End of data from sysinfo program)

**General Notes**

```
== General OMP Library Settings ==
ENV_KMP_AFFINITY = granularity=fine,proclist=[0-3,4-7,8-11,
  40-43,44-47,48-51,52-55,56-59,60-63,64-67,
  68-71,72-75,76-79,80-83,84-87,88-91,92-95,
  96-99,100-103,104-107,108-111,112-115,
  116-119,120-123,124-127],explicit

ENV_KMP_STACKSIZE = 292M
ENV_KMP_BLOCKTIME = infinite
ENV_KMP_LIBRARY = turnaround
```
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General Notes (Continued)

□ ENV_OMP_DYNAMIC = FALSE
□ ENV_OMP_NESTED = FALSE
□ ENV_OMP_SCHEDULE = static

BIOS Setting notes:
- Choose Operating Mode set to Maximum Performance
- NUMA nodes per socket set as NPS4
- LLC as NUMA node set as Enabled
- EfficiencyModeEn set as Auto
- SVM Mode set as Disabled
- IOMMU set as 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.

Base Compiler Invocation

C benchmarks:
  - pgcc

C++ benchmarks:
  - pgc++

Fortran benchmarks:
  - pgfortran

Base Portability Flags

350.md: -Mfree
351.bwaves: -Mcray=pointer
357.bt331: -mcmode=medium
362.fma3d: -Mfree
363.swim: -mcmode=medium

Base Optimization Flags

C benchmarks:
  -O3 -tp=zen -mp -Bstatic_pgi -m64 -fast -lfftw3_omp -Mpre -Mlre
  -Masmkeyword
  -Mnosingle
  -Mschar

C++ benchmarks:
  -O3 -tp=zen -mp -Bstatic_pgi -m64 -fast -lfftw3_omp -Mpre -Mlre
  -Mnoasmkeyword
  -Continued on next page
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Base Optimization Flags (Continued)

Fortran benchmarks:
-03 -tp=zen -mp -Bstatic_pgi -m64 -fast -lfftw3_omp -Mpre -Mlre
-Mallocatable=95 -Mnoupcase -Mnostride0 -Mdefaultunit -Mnoiomutex
-llamdlibm

The flags file that was used to format this result can be browsed at
You can also download the XML flags source by saving the following link:
http://www.spec.org/omp2012/flags/Lenovo-OMP2012-Rome7H12.xml

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

Tested with SPEC OMP2012 v1.0.