## SPECmpiM2007 Result

Supermicro

A+ Server 1115CS-TNR (AMD EPYC 9654)

SPECmpiM\textsubscript{peak}2007 = 36.0

SPECmpiM\textsubscript{base}2007 = 36.0

MPI2007 license: 6569

Test sponsor: Supermicro

Tested by: Supermicro

Hardware Availability: Nov-2022

Software Availability: Nov-2022

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### Results Table

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<thead>
<tr>
<th>Benchmark</th>
<th>Ranks</th>
<th>Peaks</th>
<th>Seconds</th>
<th>Ratio</th>
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</tbody>
</table>

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.
**SPEC MPIM2007 Result**

Supermicro
A+ Server 1115CS-TNR (AMD EPYC 9654)

**SPECmpiM_peak2007 = 36.0**

**SPECmpiM_base2007 = 36.0**

MP2007 license: 6569
Test sponsor: Supermicro
Tested by: Supermicro
Test date: Oct-2022
Hardware Availability: Nov-2022
Software Availability: Nov-2022

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### Results Table (Continued)

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<tr>
<th>Benchmark</th>
<th>Ranks</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>96</td>
<td><strong>48.9</strong></td>
</tr>
</tbody>
</table>

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

---

### Hardware Summary

- **Type of System:** Homogeneous
- **Compute Node:** A+ Server 1115CS-TNR
- **Total Compute Nodes:** 1
- **Total Chips:** 1
- **Total Cores:** 96
- **Total Threads:** 192
- **Total Memory:** 768 GB
- **Base Ranks Run:** 96
- **Minimum Peak Ranks:** 96
- **Maximum Peak Ranks:** 96

### Node Description: A+ Server 1115CS-TNR

#### Hardware

- **Number of nodes:** 1
- **Uses of the node:** compute
- **Vendor:** Supermicro
- **Model:** A+ Server 1115CS-TNR
- **CPU Name:** AMD EPYC 9654
- **CPU(s) orderable:** 1 chip
- **Chips enabled:** 1
- **Cores enabled:** 96
- **Cores per chip:** 96
- **Threads per core:** 2
- **CPU Characteristics:** Max. Boost Clock upto 3.7GHz
- **CPU MHz:** 2400
- **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
- **Other Cache:** None
- **Memory:** 768 GB (12 x 64 GB 2Rx4 PC5-4800B-R)
- **Disk Subsystem:** 1 x 960 GB NVMe PCIe Gen4.0
- **Other Hardware:** None
- **Adapter:** MCX556A-EDAT
- **Number of Adapters:** 1
- **Slot Type:** PCIeGen4 x16
- **Data Rate:** 100GbE

#### Software

- **Adapter:** MCX556A-EDAT
- **Adapter Driver:** Mellanox
- **Adapter Firmware:** 5.7-1.0.2.0
- **Operating System:** SUSE Linux Enterprise Server 15 SP4
- **Kernel:** 5.14.21-150400.24.21-default
- **Local File System:** ext4
- **Shared File System:** None
- **System State:** Multi-user, run level 3
- **Other Software:** None

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Continued on next page
## SPEC mpiM2007 Result

**Supermicro**

**A+ Server 1115CS-TNR (AMD EPYC 9654)**

<table>
<thead>
<tr>
<th>SPECmpiM_peak2007</th>
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<tbody>
<tr>
<td>SPECmpiM_base2007</td>
<td>36.0</td>
</tr>
</tbody>
</table>

### Node Description: A+ Server 1115CS-TNR

| Ports Used: | 1 |
| Interconnect Type: | Mellanox Technologies MT28800 Family [ConnectX-5 Ex] |

### Submit Notes

The config file option 'submit' was used.

### General Notes

Environment variables set by runspec before the start of the run:
- GOMP_CPU_AFFINITY = "0-128"
- KMP_BLOCKTIME = "200"
- KMP_LIBRARY = "turnaround"
- OMP_DYNAMIC = "false"
- OMP_NESTED = "FALSE"
- OMP_PLACES = "threads"
- OMP_SCHEDULE = "static"
- OMP_STACKSIZE = "128M"
- OMP_THREAD_LIMIT = "128"

**MPI startup command:**

- mpiexec command was used to start MPI jobs.

**RAM configuration:**

- Compute nodes have 1 x 64 GB RDIMM on each memory channel.

**BIOS settings:**
- NUMA nodes per socket = NPS4
- L3 Cache as NUMA Domain = Enabled
- Determinism Control = Manual
- Determinism Slider = Power
- xGMI Link Configuration = 4 xGMI Links
- 4 Link xGMI max speed = 32Gbps
- TDP Control = Manual
- TDP = 400
- PPT Control = Manual
- PPT = 400

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

Yes: The test sponsor attests, as of date of publication, that 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-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

### Base Compiler Invocation

**C benchmarks:**

- mpicc

Continued on next page
Supermicro
A+ Server 1115CS-TNR (AMD EPYC 9654)

SPECmpiM_peak2007 = 36.0
SPECmpiM_base2007 = 36.0

MPI2007 license: 6569
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Tested by: Supermicro

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

Base Compiler Invocation (Continued)

C++ benchmarks:

126.lammps: mpic++

Fortran benchmarks:

mpi9f90

Benchmarks using both Fortran and C:

mpicc mpi9f90

Base Portability Flags

104.milc: -DSPEC_MPI_LP64
115.fds4: -DSPEC_MPI_LP64
121.pop2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LP64
122.tachyon: -DSPEC_MPI_LP64
127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LINUX -DSPEC_MPI_LP64
128.GAPgeofem: -DSPEC_MPI_LP64
130.socorro: -DSPEC_MPI_LP64
132.zeusmp2: -DSPEC_MPI_LP64

Base Optimization Flags

C benchmarks:

-Ofast -flto -ffast-math -march=znver4 -lamdlibm -ljemalloc -lflang

C++ benchmarks:

126.lammps: -Ofast -flto -ffast-math -march=znver4
-DMPI_ICHE_IGNORE_CXXSEEK(*) -lamdlibm -ljemalloc -lflang

Fortran benchmarks:

-Ofast -flto -ffast-math -march=znver4 -funroll-loops -lamdlibm
-ljemalloc -lflang

Benchmarks using both Fortran and C:

-Ofast -flto -ffast-math -march=znver4 -funroll-loops -lamdlibm
-ljemalloc -lflang

(*) Indicates an optimization flag that was found in a portability variable.
Supermicro
A+ Server 1115CS-TNR (AMD EPYC 9654)

SPECmpim\_peak2007 = 36.0
SPECmpim\_base2007 = 36.0

MP12007 license: 6569
Test sponsor: Supermicro
Tested by: Supermicro

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

Base Other Flags

Benchmarks using both Fortran and C:

- 127.wrf2: -Wno-return-type

Peak Optimization Flags

C benchmarks:

- 104.milc: basepeak = yes
- 122.tachyon: basepeak = yes

C++ benchmarks:

- 126.lammps: basepeak = yes

Fortran benchmarks:

- 107.leslie3d: basepeak = yes
- 113.GemsFDTD: basepeak = yes
- 129.tera\_tf: basepeak = yes
- 137.lu: basepeak = yes

Benchmarks using both Fortran and C:

- 115.fds4: basepeak = yes
- 121.pop2: basepeak = yes
- 127.wrf2: basepeak = yes
- 128.GAPgeofem: basepeak = yes
- 130.socorro: basepeak = yes
- 132.zeusmp2: basepeak = yes

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:
<table>
<thead>
<tr>
<th>Supermicro A+ Server 1115CS-TNR (AMD EPYC 9654)</th>
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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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