Supermicro
(Test Sponsor: NVIDIA Corporation)
Xeon E5-2698 v4
SuperServer 1028GR-TR

SPECaccel_omp_peak = 3.30
SPECaccel_omp_base = 3.30

ACCEL license: 019
Test sponsor: NVIDIA Corporation
Tested by: NVIDIA Corporation
Test date: Jul-2018
Hardware Availability: Jul-2017
Software Availability: Aug-2018

503.postencil | 1.71
504.polbm | 1.85
514.pomriq | 1.73
550.pmd | 2.08
551.ppalm | 2.09
552.pep | 2.31
553.pclvrlf | 4.29
554.pcg | 5.65
555.pseismic | 2.08
556.psp | 9.70
557.pcs | 9.88
559.pmniGhost | 3.12
560.pilbc | 2.27
563.pswim | 1.98
570.pbt | 16.3

SPECaccel_omp_base = 3.30
SPECaccel_omp_peak = 3.30

Hardware
CPU Name: Intel Xeon E5-2698 v4
CPU Characteristics:
CPU MHz: 2200
CPU MHz Maximum: 3600
FPU: Integrated
CPU(s) enabled: 40 cores, 2 chips, 20 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 chips
Primary Cache: 32 KB L1 + 32 KB D on chip per core
Secondary Cache: 256 KB L1+D on chip per core
L3 Cache: 50 MB L1+D on chip per chip
Other Cache: None

Accelerator
Accel Model Name: Intel Xeon CPU E5-2698 v4
Accel Vendor: Intel Corporation
Accel Name: Xeon E5-2698 v4
Type of Accel: CPU
Accel Connection: Not Applicable
Does Accel Use ECC: Yes
Accel Description: Intel Xeon CPU E5-2698 v4
Accel Driver: Not applicable

Continued on next page
SPEC ACCEL OMP Result

Supermicro
(Test Sponsor: NVIDIA Corporation)
Xeon E5-2698 v4
SuperServer 1028GR-TR

SPECaccel_omp_peak = 3.30
SPECaccel_omp_base = 3.30

ACCEL license:  019
Test sponsor:  NVIDIA Corporation
Tested by:  NVIDIA Corporation

Hardware (Continued)
Memory:  256 GB (8 x 32 GB 2Rx4 PC4-2400T-R)
Disk Subsystem:  480GB Intel SSD DC S3520
Other Hardware:  None

Software
Operating System:  CentOS Linux release 7.4.1708 (Core)
3.10.0-693.11.6.el7.x86_64
Compiler:  PGI Professional Edition, Release 18.7 LLVM
File System:  xfs
System State:  Run level 3 (multi-user)
Other Software:  None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<td><strong>2.27</strong></td>
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<td>16.4</td>
<td><strong>47.7</strong></td>
<td><strong>16.3</strong></td>
</tr>
</tbody>
</table>

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

Platforms Notes

Sysinfo program /local/home/aglobus/spec-accel2017/Docs/sysinfo
$Rev: 6965 $ $Date:: 2015-04-21 #$ c05a7f14b1b1765e3fe1df68447e8a35
running on perf-bdw3 Thu Jul 26 20:20:03 2018

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/accel/Docs/config.html#sysinfo

Continued on next page
Supermicro  
(Test Sponsor: NVIDIA Corporation)

Xeon E5-2698 v4  
SuperServer 1028GR-TR

---

**SPECaccel_omp_peak** = 3.30  
**SPECaccel_omp_base** = 3.30

---

**Platform Notes (Continued)**

From `/proc/cpuinfo`
model name : Intel(R) Xeon(R) CPU E5-2698 v4 @ 2.20GHz
2 "physical id"s (chips)
80 "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 : 20
siblings : 40
physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
cache size : 51200 KB

From `/proc/meminfo`
MemTotal:       264034224 kB
HugePages_Total:      20
Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
CentOS Linux release 7.4.1708 (Core)

From `/etc/*release* /etc/*version*`
centos-release: CentOS Linux release 7.4.1708 (Core)
centos-release-upstream: Derived from Red Hat Enterprise Linux 7.4 (Source)
os-release:
NAME="CentOS Linux"
VERSION="7" (Core)"
ID="centos"
ID_LIKE="rhel fedora"
VERSION_ID="7"
PRETTY_NAME="CentOS Linux 7 (Core)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:centos:centos:7"
redhat-release: CentOS Linux release 7.4.1708 (Core)
system-release: CentOS Linux release 7.4.1708 (Core)
system-release-cpe: cpe:/o:centos:centos:7

uname -a:
Linux perf-bdw3 3.10.0-693.11.6.el7.x86_64 #1 SMP Thu Jan 4 01:06:37 UTC 2018
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 21 06:36

SPEC is set to: /local/home/aglobus/spec-accel2017

Filesystem  Type  Size  Used Avail Use% Mounted on
/dev/mapper/centos_bdw3-root xfs  443G  58G  386G  13% /

Additional information from dmidecode:

---

Continued on next page
### SPEC ACCEL OMP Result

**Supermicro**  
(Test Sponsor: NVIDIA Corporation)  
**Xeon E5-2698 v4**  
**SuperServer 1028GR-TR**  

<table>
<thead>
<tr>
<th>SPECaccel_omp_peak</th>
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<tr>
<td>3.30</td>
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</table>

ACCEL license: 019  
Test sponsor: NVIDIA Corporation  
Tested by: NVIDIA Corporation  
Test date: Jul-2018  
Hardware Availability: Jul-2017  
Software Availability: Aug-2018

---

### Platform Notes (Continued)

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.

(End of data from sysinfo program)

---

### General Notes

Environment variables set by runspec before the start of the run:

**ACC_NUM_CORES** = "80"

**HUGETLB_PATH** = "/mnt/hugetlb"

**KMP_AFFINITY** = "granularity=fine,compact,1,0"

**OMP_PLACES** = 

```
{0}, {1}, {2}, {3}, {4}, {5}, {6}, {7}, {8}, {9}, {10}, {11}, {12}, {13}, {14}, {15}, {16}, {17},
{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}"
```

**OMP_PROC_BIND** = "true"

551.ppalm (base): "advac_ws_private" src.alt was used.

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:

- pgcc

Fortran benchmarks:

- pgfortran

Benchmarks using both Fortran and C:

- pgcc pgfortran
**SPEC ACCEL OMP Result**

**Supermicro**  
(Test Sponsor: NVIDIA Corporation)  
**Xeon E5-2698 v4**  
**SuperServer 1028GR-TR**

**SPECaccel_omp_peak = 3.30**  
**SPECaccel_omp_base = 3.30**

<table>
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<tr>
<th>ACCEL license:</th>
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</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
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<td>NVIDIA Corporation</td>
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<td>Aug-2018</td>
</tr>
</tbody>
</table>

**Base Portability Flags**

503.postencil: -DSPEC_USE_INNER_SIMD  
504.polbm: -DSPEC_USE_INNER_SIMD  
514.pomriq: -DSPEC_USE_INNER_SIMD  
550.pmd: -DSPEC_USE_INNER_SIMD  
551.ppalm: -DSPEC_USE_INNER_SIMD  
552.pep: -DSPEC_USE_INNER_SIMD  
553.pclvrleaf: -DSPEC_USE_INNER_SIMD  
554.pcg: -DSPEC_USE_INNER_SIMD  
555.pseismic: -DSPEC_USE_INNER_SIMD  
556.psp: -DSPEC_USE_INNER_SIMD  
557.pcspp: -DSPEC_USE_INNER_SIMD  
559.pmniGhost: -DSPEC_USE_INNER_SIMD  
560.pilbdc: -DSPEC_USE_INNER_SIMD  
563.pswim: -DSPEC_USE_INNER_SIMD  
570.pbt: -DSPEC_USE_INNER_SIMD

**Base Optimization Flags**

C benchmarks:  
-V18.7 -Mllvm -fast -mp -Mnouniform -Mhugetlb

Fortran benchmarks:  
-V18.7 -Mllvm -fast -mp -Mnouniform -Mhugetlb

Benchmarks using both Fortran and C:  
553.pclvrleaf: -V18.7 -Mllvm -fast -mp -Mnouniform -Mhugetlb  
559.pmniGhost: -V18.7 -Mllvm -fast -mp -Mnouniform -Mhugetlb -Mnomain

**Peak Optimization Flags**

C benchmarks:  
503.postencil: basepeak = yes  
504.polbm: basepeak = yes  
514.pomriq: basepeak = yes  
552.pep: basepeak = yes  
554.pcg: basepeak = yes

Continued on next page
### Peak Optimization Flags (Continued)

- 557.pcsp: basepeak = yes
- 570.pbt: basepeak = yes

**Fortran benchmarks:**

- 550.pmd: basepeak = yes
- 551.ppalm: basepeak = yes
- 555.pseismic: basepeak = yes
- 556.psp: basepeak = yes
- 560.pilbdc: basepeak = yes
- 563.pswim: basepeak = yes

**Benchmarks using both Fortran and C:**

- 553 pclvrleaf: basepeak = yes
- 559.pmniGhost: basepeak = yes

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

https://www.spec.org/accel/flags/PGI-Platform-Multicore-OMP.html
https://www.spec.org/accel/flags/pgi2018_flags.html

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

https://www.spec.org/accel/flags/PGI-Platform-Multicore-OMP.xml
https://www.spec.org/accel/flags/pgi2018_flags.xml