



# SPEC ACCEL™ ACC Result

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**Supermicro**  
(Test Sponsor: NVIDIA Corporation)

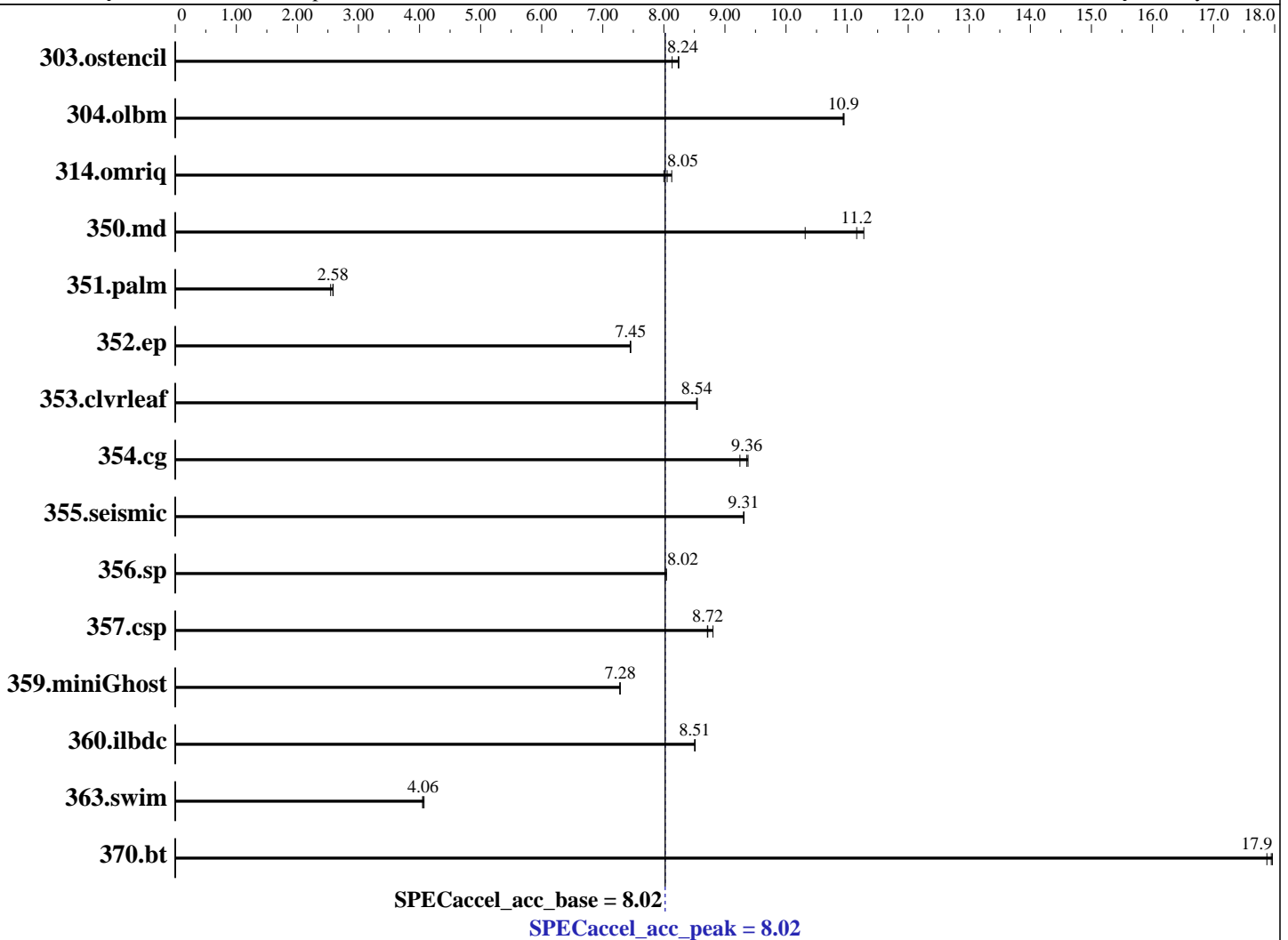
**Tesla P100-PCIE-16GB**  
**SuperServer 1028GR-TR**

**SPECaccel\_acc\_peak = 8.02**

**SPECaccel\_acc\_base = 8.02**

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

**Test date:** May-2017  
**Hardware Availability:** Oct-2015  
**Software Availability:** May-2017



### Hardware

CPU Name: Intel Xeon E5-2698 v3  
 CPU Characteristics:  
 CPU MHz: 2300  
 CPU MHz Maximum: 3600  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 2 chips, 16 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: 256 KB I+D on chip per core  
 L3 Cache: 40 MB I+D on chip per chip  
 Other Cache: None

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### Accelerator

Accel Model Name: Tesla P100  
 Accel Vendor: NVIDIA Corporation  
 Accel Name: Tesla P100-PCIE-16GB  
 Type of Accel: GPU  
 Accel Connection: PCIe  
 Does Accel Use ECC: Yes  
 Accel Description: See Notes  
 Accel Driver: NVIDIA UNIX x86\_64 Kernel Module 375.20



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## Tesla P100-PCIE-16GB SuperServer 1028GR-TR

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### Hardware (Continued)

Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)  
Disk Subsystem: 500 GB Seagate ST9500620NS 7200 RPM SATA  
Other Hardware: None

### Software

Operating System: CentOS Linux release 7.2.1511 (Core)  
3.10.0-327.22.2.el7.x86\_64  
Compiler: PGI Professional Edition, Release 17.5  
File System: xfs  
System State: Run level 3 (multi-user)  
Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	17.8	8.14	<b><u>17.6</u></b>	<b><u>8.24</u></b>	17.6	8.25	17.8	8.14	<b><u>17.6</u></b>	<b><u>8.24</u></b>	17.6	8.25
304.olbm	41.5	11.0	<b><u>41.6</u></b>	<b><u>10.9</u></b>	41.6	10.9	41.5	11.0	<b><u>41.6</u></b>	<b><u>10.9</u></b>	41.6	10.9
314.omriq	118	8.13	<b><u>119</u></b>	<b><u>8.05</u></b>	120	8.00	118	8.13	<b><u>119</u></b>	<b><u>8.05</u></b>	120	8.00
350.md	22.4	11.3	<b><u>22.6</u></b>	<b><u>11.2</u></b>	24.4	10.3	22.4	11.3	<b><u>22.6</u></b>	<b><u>11.2</u></b>	24.4	10.3
351.palm	145	2.54	<b><u>143</u></b>	<b><u>2.58</u></b>	143	2.59	145	2.54	<b><u>143</u></b>	<b><u>2.58</u></b>	143	2.59
352.ep	71.1	7.46	<b><u>71.1</u></b>	<b><u>7.45</u></b>	71.1	7.45	71.1	7.46	<b><u>71.1</u></b>	<b><u>7.45</u></b>	71.1	7.45
353.clvrleaf	52.1	8.55	52.1	8.54	<b><u>52.1</u></b>	<b><u>8.54</u></b>	52.1	8.55	52.1	8.54	<b><u>52.1</u></b>	<b><u>8.54</u></b>
354.cg	<b><u>43.6</u></b>	<b><u>9.36</u></b>	43.5	9.38	44.1	9.25	<b><u>43.6</u></b>	<b><u>9.36</u></b>	43.5	9.38	44.1	9.25
355.seismic	39.8	9.31	<b><u>39.8</u></b>	<b><u>9.31</u></b>	39.7	9.31	39.8	9.31	<b><u>39.8</u></b>	<b><u>9.31</u></b>	39.7	9.31
356.sp	<b><u>34.4</u></b>	<b><u>8.02</u></b>	34.3	8.04	34.4	8.02	<b><u>34.4</u></b>	<b><u>8.02</u></b>	34.3	8.04	34.4	8.02
357.csp	30.7	8.80	<b><u>31.0</u></b>	<b><u>8.72</u></b>	31.0	8.71	30.7	8.80	<b><u>31.0</u></b>	<b><u>8.72</u></b>	31.0	8.71
359.miniGhost	50.7	7.28	50.7	7.28	<b><u>50.7</u></b>	<b><u>7.28</u></b>	50.7	7.28	50.7	7.28	<b><u>50.7</u></b>	<b><u>7.28</u></b>
360.ilbdc	43.2	8.50	<b><u>43.1</u></b>	<b><u>8.51</u></b>	43.1	8.51	43.2	8.50	<b><u>43.1</u></b>	<b><u>8.51</u></b>	43.1	8.51
363.swim	56.8	4.05	<b><u>56.7</u></b>	<b><u>4.06</u></b>	56.5	4.07	56.8	4.05	<b><u>56.7</u></b>	<b><u>4.06</u></b>	56.5	4.07
370.bt	12.4	18.0	12.5	17.9	<b><u>12.4</u></b>	<b><u>17.9</u></b>	12.4	18.0	12.5	17.9	<b><u>12.4</u></b>	<b><u>17.9</u></b>

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

## Operating System Notes

Stacksize set to 'unlimited'



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## Platform Notes

Sysinfo program /local/home/colgrove/SPECACCEL/Docs/sysinfo  
\$Rev: 6965 \$ \$Date:: 2015-04-21 # \$ c05a7f14b1b1765e3feldf68447e8a35  
running on hsw8 Mon May 8 15:08:54 2017

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>

```
From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2698 v3 @ 2.30GHz
 2 "physical id"s (chips)
 64 "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 : 16
  siblings  : 32
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cache size : 40960 KB
```

```
From /proc/meminfo
MemTotal:      264038532 kB
HugePages_Total:    32768
Hugepagesize:    2048 kB
```

```
/usr/bin/lsb_release -d
CentOS Linux release 7.2.1511 (Core)
```

```
From /etc/*release* /etc/*version*
centos-release: CentOS Linux release 7.2.1511 (Core)
centos-release-upstream: Derived from Red Hat Enterprise Linux 7.2 (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 7.2.1511 (Core)
system-release: CentOS Linux release 7.2.1511 (Core)
system-release-cpe: cpe:/o:centos:centos:7
```

```
uname -a:
Linux hsw8 3.10.0-327.22.2.el7.x86_64 #1 SMP Thu Jun 23 17:05:11 UTC 2016
x86_64 x86_64 x86_64 GNU/Linux
```

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## Platform Notes (Continued)

run-level 3 May 8 13:53

```
SPEC is set to: /local/home/colgrove/SPECACCEL
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/centos-root xfs   443G   28G  415G   7% /
```

Cannot run dmidecode; consider saying 'chmod +s /usr/sbin/dmidecode'

(End of data from sysinfo program)  
Information from pgacceleinfo

```
CUDA Driver Version:      8000
NVRM version:             NVIDIA UNIX x86_64 Kernel Module  375.20

Device Number:           0
Device Name:              Tesla P100-PCIE-16GB
Device Revision Number:   6.0
Global Memory Size:      17100439552
Number of Multiprocessors: 56
Concurrent Copy and Execution: Yes
Total Constant Memory:   65536
Total Shared Memory per Block: 49152
Registers per Block:     65536
Warp Size:                32
Maximum Threads per Block: 1024
Maximum Block Dimensions: 1024, 1024, 64
Maximum Grid Dimensions: 2147483647 x 65535 x 65535
Maximum Memory Pitch:    2147483647B
Texture Alignment:       512B
Clock Rate:               1328 MHz
Execution Timeout:       No
Integrated Device:       No
Can Map Host Memory:     Yes
Compute Mode:            default
Concurrent Kernels:      Yes
ECC Enabled:             Yes
Memory Clock Rate:       715 MHz
Memory Bus Width:        4096 bits
L2 Cache Size:           4194304 bytes
Max Threads Per SMP:     2048
Async Engines:           2
Unified Addressing:      Yes
Managed Memory:         Yes
PGI Compiler Option:     -ta=tesla:cc60
```



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## Base Compiler Invocation

C benchmarks:  
pgcc

Fortran benchmarks:  
pgfortran

Benchmarks using both Fortran and C:  
pgcc pgfortran

## Base Optimization Flags

C benchmarks:  
-fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0

Fortran benchmarks:  
-fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0

Benchmarks using both Fortran and C:  
  
353.clvrfleaf: -fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0  
359.miniGhost: -fast -Mfprelaxed -acc -ta=tesla:cc60 -ta=tesla:cuda8.0  
-Mnomain

## Peak Optimization Flags

C benchmarks:  
  
303.ostencil: basepeak = yes  
304.olbm: basepeak = yes  
314.omriq: basepeak = yes  
352.ep: basepeak = yes  
354.cg: basepeak = yes  
357.csp: basepeak = yes  
370.bt: basepeak = yes

Fortran benchmarks:

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## Peak Optimization Flags (Continued)

350.md: basepeak = yes

351.palm: basepeak = yes

355.seismic: basepeak = yes

356.sp: basepeak = yes

360.ilbdc: basepeak = yes

363.swim: basepeak = yes

Benchmarks using both Fortran and C:

353.cvrleaf: basepeak = yes

359.miniGhost: basepeak = yes

The flags file that was used to format this result can be browsed at

[https://www.spec.org/accel/flags/pgi2017\\_flags.20170621.00.html](https://www.spec.org/accel/flags/pgi2017_flags.20170621.00.html)

You can also download the XML flags source by saving the following link:

[https://www.spec.org/accel/flags/pgi2017\\_flags.20170621.00.xml](https://www.spec.org/accel/flags/pgi2017_flags.20170621.00.xml)

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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