Cray
(Test Sponsor: Indiana University)

NVIDIA Tesla K20
Cray XK7

SPECCaccel_acc_peak = Not Run
SPECCaccel_acc_base = 2.00

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<th>3440A</th>
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<th>May-2018</th>
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<td>Hardware Availability:</td>
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<table>
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<tr>
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<td>370.bt</td>
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</table>

SPECCaccel_acc_base = 2.00

### Hardware
- **CPU Name:** AMD Opteron 6276
- **CPU Characteristics:** AMD Turbo CORE Technology up to 3.2GHz, Turbo CORE off
- **CPU MHz:** 2300
- **CPU MHz Maximum:** 3200
- **FPU:** Integrated
- **CPU(s) enabled:** 16 cores, 1 chip, 16 cores/chip
- **CPU(s) orderable:** 1 chip
- **Primary Cache:** 32 KB I + 16 KB D on chip per core
- **Secondary Cache:** 16 MB I+D on chip per core, 2 MB shared / 2 cores
- **L3 Cache:** 16 MB I+D on chip per core, 8 MB shared / 8 cores

### Accelerator
- **Accel Model Name:** Tesla K20
- **Accel Vendor:** NVIDIA
- **Accel Name:** NVIDIA Tesla K20
- **Type of Accel:** GPU
- **Accel Connection:** PCIe 2.0 16x
- **Does Accel Use ECC:** yes
- **Accel Description:** NVIDIA Tesla K20m GPU, 2496 CUDA cores, 706 MHz, 5 GB GDDR5 RAM
- **Accel Driver:** NVIDIA UNIX x86_64 Kernel Module 352.68

Continued on next page
SPEC ACCEL ACC Result

(Crystal) (Test Sponsor: Indiana University)

**NVIDIA Tesla K20**

**Cray XK7**

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**ACCEL license:** 3440A  
**Test sponsor:** Indiana University  
**Tested by:** Indiana University  
**Test date:** May-2018  
**Hardware Availability:** Apr-2013  
**Software Availability:** Feb-2018

**Hardware (Continued)**  
Other Cache: None  
Memory: 32 GB (4 x 8 GB 2Rx4 PC3L-12800R-11, ECC)  
Disk Subsystem: None  
Other Hardware: None

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**Software**  
Operating System: SUSE Linux Enterprise Server 11 (x86_64), Cray 3.0.101-0.46.1_1.0502.8871-cray_gem_c  
Compiler: PGI Accelerator Fortran/C/C++ Server, Release 16.4  
File System: lustre  
System State: NFSv3 (DDN SFA12KE) over 10GB Ethernet  
System State: Run level 3 (multi-user)  
Other Software: NVIDIA CUDA 7.5.18

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### Results Table

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

### Platform Notes

Sysinfo program  
/N/dc2/projects/hpc/lijunj/SPEC/accel-1.2-run/br2/cuda75/Docs/sysinfo  
$Rev: 6965 $ $Date:: 2015-04-21 $$ c05a7f14b1b1765e3fe1df68447e8a35  
running on nid00206 Fri May  4 18:29:01 2018

Continued on next page
### Platform Notes (Continued)

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: AMD Opteron(TM) Processor 6276
- 1 "physical id"s (chips)
- 16 "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: 8
  - siblings: 16
  - physical 0: cores 0 1 2 3 4 5 6 7
- cache size: 2048 KB

From /proc/meminfo
- MemTotal: 33083668 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
- SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release*/etc/*version*
- SuSE-release:
  - SUSE Linux Enterprise Server 11 (x86_64)
  - VERSION = 11
  - PATCHLEVEL = 3

uname -a:
- Linux nid00206 3.0.101-0.46.1_1.0502.8871-cray_gem_c #1 SMP Mon Feb 12 13:56:55 UTC 2018 x86_64 x86_64 x86_64 GNU/Linux

SPEC is set to: /N/dc2/projects/hpc/lijunj/SPEC/accel-1.2-run/br2/cuda75

Filesystem Type Size Used Avail Use% Mounted on
- 10.10.0.1710o2ib:10.10.0.172@o2ib:/dc2 lustre 5.3P 4.5P 759T 86% /N/dc2

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

(End of data from sysinfo program)
(End of data from sysinfo program)
**General Notes**

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

No: 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.

No: 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.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC HPG Policy document, http://www.spec.org/hpg/policy.html

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

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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:cc35` `-ta=tesla:cuda7.5`

Fortran benchmarks:
- `-fast` `-Mfprelaxed` `-acc` `-ta=tesla:cc35` `-ta=tesla:cuda7.5`
# SPEC ACCEL ACC Result

**Cray**
*(Test Sponsor: Indiana University)*

**NVIDIA Tesla K20**

**Cray XK7**

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

- `359.miniGhost`: `-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda7.5 -Mnomain`

The flags file that was used to format this result can be browsed at [https://www.spec.org/accel/flags/pgi_flags.html](https://www.spec.org/accel/flags/pgi_flags.html)

You can also download the XML flags source by saving the following link: [https://www.spec.org/accel/flags/pgi_flags.xml](https://www.spec.org/accel/flags/pgi_flags.xml)