# SPEC® ACCEL_ACC Result



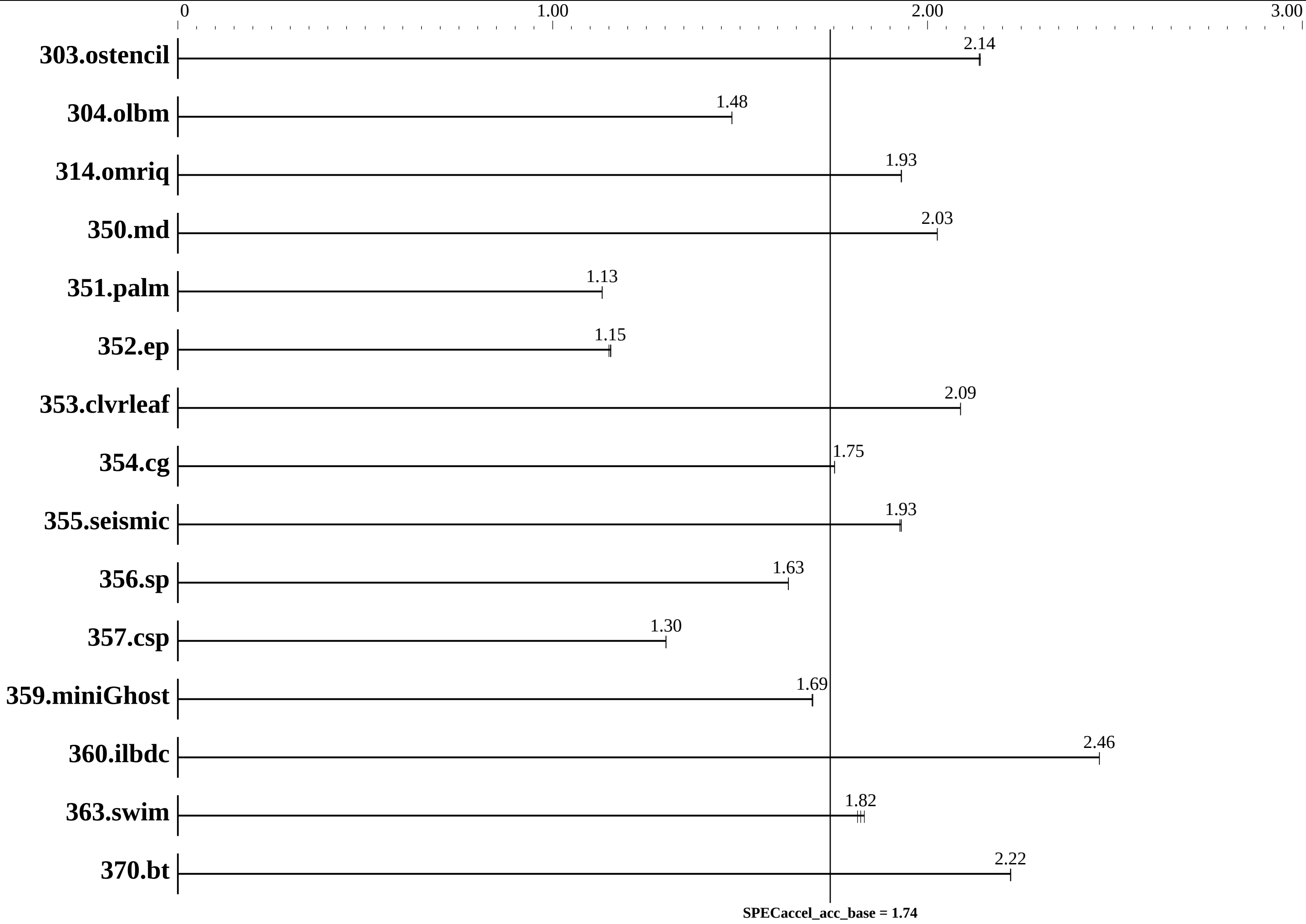
Cray
(Test Sponsor: Indiana University)

# NVIDIA Tesla K20
# Cray XK7

SPECaccel_acc_peak = Not Run

SPECaccel_acc_base = 1.74

| | | | |
|---|---|---|---|
| **ACCEL license:** | 3440A | **Test date:** | Mar-2014 |
| **Test sponsor:** | Indiana University | **Hardware Availability:** | Apr-2013 |
| **Tested by:** | Indiana University | **Software Availability:** | Feb-2014 |




## 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 chip, 2 MB shared / 2 cores |
| L3 Cache: | 16 MB I+D on chip per chip, 8 MB shared / 8 cores |

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## 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, 706MHz, 5 GB GDDR5 RAM |
| Accel Driver: | NVIDIA UNIX x86_64 Kernel Module 319.60 |

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

### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11 (x86_64), Cray Linux Environment 4.1<br>SUSE Linux Enterprise Server 11 (x86_64)<br>2.6.32.59-0.7.1_1.0401.6845-cray_gem_c |
| Compiler: | PGI Accelerator Server Complete, Release 14.1 |
| File System: | NFSv3 (IBM N5500 NAS) over Gb ethernet |
| System State: | Multi-user, run level 3 |
| Other Software: | NVIDIA CUDA 5.0.35 |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 303.ostencil | 67.7 | 2.14 | **67.8** | **2.14** | 67.8 | 2.14 | | | | | | |
| 304.olbm | 308 | 1.48 | 308 | 1.48 | **308** | **1.48** | | | | | | |
| 314.omriq | **495** | **1.93** | 495 | 1.93 | 495 | 1.93 | | | | | | |
| 350.md | 124 | 2.03 | **124** | **2.03** | 124 | 2.03 | | | | | | |
| 351.palm | **327** | **1.13** | 327 | 1.13 | 327 | 1.13 | | | | | | |
| 352.ep | 461 | 1.15 | 459 | 1.16 | **459** | **1.15** | | | | | | |
| 353.clvrleaf | 213 | 2.09 | 213 | 2.09 | **213** | **2.09** | | | | | | |
| 354.cg | 233 | 1.75 | 233 | 1.75 | **233** | **1.75** | | | | | | |
| 355.seismic | 192 | 1.93 | 192 | 1.93 | **192** | **1.93** | | | | | | |
| 356.sp | 169 | 1.63 | 169 | 1.63 | **169** | **1.63** | | | | | | |
| 357.csp | 207 | 1.30 | **207** | **1.30** | 207 | 1.30 | | | | | | |
| 359.miniGhost | **218** | **1.69** | 218 | 1.69 | 218 | 1.69 | | | | | | |
| 360.ilbdc | 149 | 2.46 | **149** | **2.46** | 149 | 2.46 | | | | | | |
| 363.swim | 127 | 1.81 | **126** | **1.82** | 126 | 1.83 | | | | | | |
| 370.bt | 100 | 2.22 | **100** | **2.22** | 100 | 2.22 | | | | | | |

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

## Platform Notes

```
Sysinfo program /N/soft/mason/specaccelv1-039/Docs/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bbb534c6de3f831
running on nid00359 Sun Mar  2 11:01:12 2014

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 : 16
      siblings  : 16
      physical 0: cores 0 1 2 3 4 5 6 7
   cache size : 2048 KB

From /proc/meminfo
```

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## Platform Notes (Continued)

```
   MemTotal:       33084660 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 = 1
   mazama-release:
      Mazama Wed Aug 28 02:06:30 CDT 2013 on hssbld0 by bwdev
      lsb-cray-mazama-7.1.0

uname -a:
   Linux nid00359 2.6.32.59-0.7.1_1.0401.6845-cray_gem_c #1 SMP Thu Nov 15
   00:24:59 UTC 2012 x86_64 x86_64 x86_64 GNU/Linux


SPEC is set to: /N/soft/mason/specaccelv1-039
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /N/soft        dvs   1.7T  1.6T  103G  94% /N/soft

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

(End of data from sysinfo program)
```

## 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:cuda5.5


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# Base Optimization Flags (Continued)

Fortran benchmarks:
`-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda5.5`

Benchmarks using both Fortran and C:

353.clvrleaf: `-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda5.5`

359.miniGhost: `-fast -Mfprelaxed -acc -ta=tesla:cc35 -ta=tesla:cuda5.5 -Mnomain`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/accel/flags/pgi2014_flags.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/accel/flags/pgi2014_flags.xml`



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

Tested with SPEC ACCEL v39.
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