**SPEC ACCEL™ ACC Result**

GIGABYTE
(Test Sponsor: Cirrascale Corporation)

**FirePro s9150**

**GIGABYTE MD70-HB0 Motherboard**

<table>
<thead>
<tr>
<th>SPECaccel_acc_peak = 2.99</th>
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<td>SPECaccel_acc_base = 2.89</td>
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<table>
<thead>
<tr>
<th>ACCEL License:</th>
<th>3842</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Cirrascale Corporation</td>
</tr>
<tr>
<td>Tested by:</td>
<td>PathScale Inc.</td>
</tr>
<tr>
<td>Test Date:</td>
<td>Feb-2015</td>
</tr>
<tr>
<td>Hardware Avail.:</td>
<td>Jul-2014</td>
</tr>
<tr>
<td>Software Avail.:</td>
<td>Mar-2015</td>
</tr>
</tbody>
</table>

**303.ostencil**

**304.olbm**

**314.omriq**

**350.md**

**351.palm**

**352.ep**

**353.clrleaf**

**354.cg**

**355.seismic**

**356.sp**

**357.ep**

**359.miniGhost**

**360.ilbdc**

**363.swim**

**370.bt**

---

**Hardware**

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon E5-2637 v3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.70 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>3500</td>
</tr>
<tr>
<td>CPU MHz Maximum:</td>
<td>3700</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>16 cores, 2 chips, 4 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1,2 chip</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>256 KB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td>15 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
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</table>

**Accelerator**

<table>
<thead>
<tr>
<th>Accel Model Name:</th>
<th>AMD FirePro s9150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accel Vendor:</td>
<td>AMD</td>
</tr>
<tr>
<td>Accel Name:</td>
<td>FirePro s9150</td>
</tr>
<tr>
<td>Type of Accel:</td>
<td>GPU</td>
</tr>
<tr>
<td>Accel Connection:</td>
<td>PCIe 3.0 16x</td>
</tr>
<tr>
<td>Does Accel Use ECC:</td>
<td>No</td>
</tr>
<tr>
<td>Accel Description:</td>
<td>GPU set to high performance of sclk: 86100 mclk: 125000. See notes below.</td>
</tr>
<tr>
<td>Accel Driver:</td>
<td>AMD ATI Radeon Linux x86_64 Kernel Module 3.19.0+</td>
</tr>
</tbody>
</table>

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GIGABYTE MD70-HB0 Motherboard

**FirePro s9150**

**SPECaccel acc_peak = 2.99**

**SPECaccel acc_base = 2.89**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td>303.ostencil</td>
<td>41.8</td>
<td>3.47</td>
<td>40.1</td>
<td>3.62</td>
<td>41.6</td>
<td>3.48</td>
<td>41.8</td>
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<td>304.olbm</td>
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<td>8.18</td>
<td>54.5</td>
<td>8.34</td>
<td>54.0</td>
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<td>314.omriq</td>
<td>68.6</td>
<td>13.9</td>
<td>78.6</td>
<td>12.2</td>
<td>79.8</td>
<td>12.0</td>
<td>68.6</td>
<td>13.9</td>
<td>78.6</td>
<td>12.2</td>
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<tr>
<td>350.md</td>
<td>100</td>
<td>2.51</td>
<td>101</td>
<td>2.49</td>
<td>101</td>
<td>2.49</td>
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<td>351.palm</td>
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<td>255</td>
<td>1.45</td>
<td>256</td>
<td>1.44</td>
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<td>1.46</td>
<td>257</td>
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<tr>
<td>352.ep</td>
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<td>353.clvleaf</td>
<td>146</td>
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<td>3.16</td>
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<td>354.cg</td>
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<td>0.903</td>
<td>450</td>
<td>0.906</td>
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<td>0.907</td>
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<td>0.903</td>
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<td>3.28</td>
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<td>356.sp</td>
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<td>3.12</td>
<td>88.6</td>
<td>3.12</td>
<td>88.7</td>
<td>3.11</td>
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<td>357.csp</td>
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<td>4.63</td>
<td>57.3</td>
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<tr>
<td>359.miniGhost</td>
<td>207</td>
<td>1.78</td>
<td>221</td>
<td>1.67</td>
<td>229</td>
<td>1.61</td>
<td>207</td>
<td>1.78</td>
<td>221</td>
<td>1.67</td>
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<td>360.ilbdc</td>
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<td>249</td>
<td>1.48</td>
<td>248</td>
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<td>1.63</td>
<td>225</td>
<td>1.63</td>
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<tr>
<td>363.swim</td>
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<td>2.12</td>
<td>98.7</td>
<td>2.33</td>
<td>109</td>
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<td>98.7</td>
<td>2.33</td>
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<tr>
<td>370.bt</td>
<td>50.7</td>
<td>4.40</td>
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<td>4.42</td>
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<td>4.45</td>
<td>50.7</td>
<td>4.40</td>
<td>50.4</td>
<td>4.42</td>
</tr>
</tbody>
</table>

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

**Platform Notes**

Sysinfo program /home/pathscale/ACCEL/Docs/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 0953404ef7e75a5f9bb6534c6de3f831
running on Cirrascale Wed Feb 18 01:00:54 2015

This section contains SUT (System Under Test) info as seen by

Continued on next page
## Platform Notes (Continued)

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 E5-2637 v3 @ 3.50GHz
- 2 "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: 4
  - siblings: 8
- physical 0: cores 0 1 4 5
- physical 1: cores 0 1 4 5
- cache size: 15360 KB

From /proc/meminfo
- MemTotal: 32946036 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
- CentOS release 6.6 (Final)

From /etc/*release*/etc/*version*
- centos-release: CentOS release 6.6 (Final)
- redhat-release: CentOS release 6.6 (Final)
- system-release: CentOS release 6.6 (Final)

uname -a:
- Linux Cirrascale 3.19.0PathScale+ #6 SMP Tue Feb 17 03:20:41 PST 2015 x86_64
- x86_64 x86_64 GNU/Linux

run-level 3 Feb 18 00:45

SPEC is set to: /home/pathscale/ACCEL

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda1</td>
<td>ext4</td>
<td>96G</td>
<td>26G</td>
<td>67G</td>
<td>28%</td>
<td>/</td>
</tr>
</tbody>
</table>

Additional information from dmidecode:

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.

BIOS GIGABYTE F15 11/28/2014
Memory:
- 4x Kinston 9995589-001.A00G 8 GB 1 rank 2133 MHz

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GIGABYTE
(Test Sponsor: Cirrascale Corporation)

FirePro s9150

ACCEL license: 3842
Test sponsor: Cirrascale Corporation
Tested by: PathScale Inc.

Platform Notes (Continued)

12x NO DIMM NO DIMM

(End of data from sysinfo program)

3.19.0PathScale+ is built from exactly this commit with one additionally patch below
https://github.com/torvalds/linux/commit/8cc748aa76c921d8834ef00f762f31acd2c93aa8

Author: Alex Deucher <alexander.deucher@amd.com>
Date: Thu Feb 12 00:40:58 2015 -0500
drm/radeon: fix voltage setup on hawaii

Missing parameter when fetching the real voltage values from atom. Fixes problems with dynamic clocking on certain boards.

bug: https://bugs.freedesktop.org/show_bug.cgi?id=87457
Signed-off-by: Alex Deucher <alexander.deucher@amd.com>
Cc: stable@vger.kernel.org

diff --git a/drivers/gpu/drm/radeon/radeon_atombios.c b/drivers/gpu/drm/radeon/radeon_atombios.c
index dbc94f3..fc1b3f3 100644
--- a/drivers/gpu/drm/radeon/radeon_atombios.c
+++ b/drivers/gpu/drm/radeon/radeon_atombios.c
@@ -3289,6 +3289,7 @@ int radeon_atom_get_voltage_evv(struct radeon_device *rdev,
       args.in.usVoltageLevel = cpu_to_le16(virtual_voltage_id);
       args.in.ulSCLKFreq =

General Notes

ECC disabled by default
GPU Boost mode enabled by setting the device to the following below
high performance mode: "echo high > /sys/class/drm/card0/device/power_dpm_force_performance_level"
The details for high performance mode: cat /sys/kernel/debug/dri/64/radeon_pm_info
uvd disabled
vce disabled
power level avg sclk: 86100 mclk: 125000
The Intel documentation says the CPU can boost to 3700 Mhz, but dmidecode reports Max Speed: 3600 MHz
Kit built system using no case and just mounted on a test bench
## SPEC ACCEL ACC Result

**GIGABYTE**  
(Test Sponsor: Cirrascale Corporation)  
FirePro s9150  
GIGABYTE MD70-HB0 Motherboard  

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**ACCEL license:** 3842  
**Test sponsor:** Cirrascale Corporation  
**Tested by:** PathScale Inc.  
**Test date:** Feb-2015  
**Hardware Availability:** Jul-2014  
**Software Availability:** Mar-2015

### Base Compiler Invocation

- **C benchmarks:**
  ```
  pathcc
  ```
- **Fortran benchmarks:**
  ```
  pathf90
  ```
- **Benchmarks using both Fortran and C:**
  ```
  pathcc pathf90
  ```

### Base Portability Flags

```
314.omriq: -std=gnu89
```

### Base Optimization Flags

- **C benchmarks:**
  ```
  -O3 -acc -device=hawaii
  ```
- **Fortran benchmarks:**
  ```
  -O3 -acc -device=hawaii
  ```
- **Benchmarks using both Fortran and C:**
  ```
  -O3 -acc -device=hawaii
  ```

### Peak Compiler Invocation

- **C benchmarks:**
  ```
  pathcc
  ```
- **Fortran benchmarks:**
  ```
  pathf90
  ```
- **Benchmarks using both Fortran and C:**
  ```
  pathcc pathf90
  ```

### Peak Portability Flags

```
314.omriq: -std=gnu89
```
GIGABYTE
(Test Sponsor: Cirrascale Corporation)
FirePro s9150
GIGABYTE MD70-HB0 Motherboard

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ACCEL license: 3842
Test sponsor: Cirrascale Corporation
Tested by: PathScale Inc.

Test date: Feb-2015
Hardware Availability: Jul-2014
Software Availability: Mar-2015

Peak Optimization Flags

C benchmarks:

303.ostencil: basepeak = yes
304.olbm: basepeak = yes
314.omriq: basepeak = yes
352.ep: -O3 -acc -device=hawaii -fprelaxed-offload
354.cg: basepeak = yes
357.csp: basepeak = yes
370.bt: basepeak = yes

Fortran benchmarks:

350.md: -O3 -acc -device=hawaii -fprelaxed-offload
351.palm: -O3 -acc -device=hawaii -CG2:gpu-no-sched-regpressure
355.seismic: Same as 350.md
356.sp: basepeak = yes
360.ilbdc: -O3 -acc -device=hawaii -CG2:gpu-no-misched
363.swim: basepeak = yes

Benchmarks using both Fortran and C:

353.clvrleaf: basepeak = yes
359.miniGhost: 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:
http://www.spec.org/accel/flags/pathscale2015_flags.xml
<p>| | |</p>
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<tr>
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| **Test sponsor:** | Cirrascale Corporation | **Hardware Availability:** | Jul-2014 |
| **Tested by:**    | PathScale Inc. | **Software Availability:** | Mar-2015 |

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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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