



SPEC ACCEL™ ACC Result

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GIGABYTE

(Test Sponsor: Cirrascale Corporation)

FirePro s9150

GIGABYTE MD70-HB0 Motherboard

SPECaccel_acc_peak = 3.21

SPECaccel_acc_base = 3.10

ACCEL license: 3842

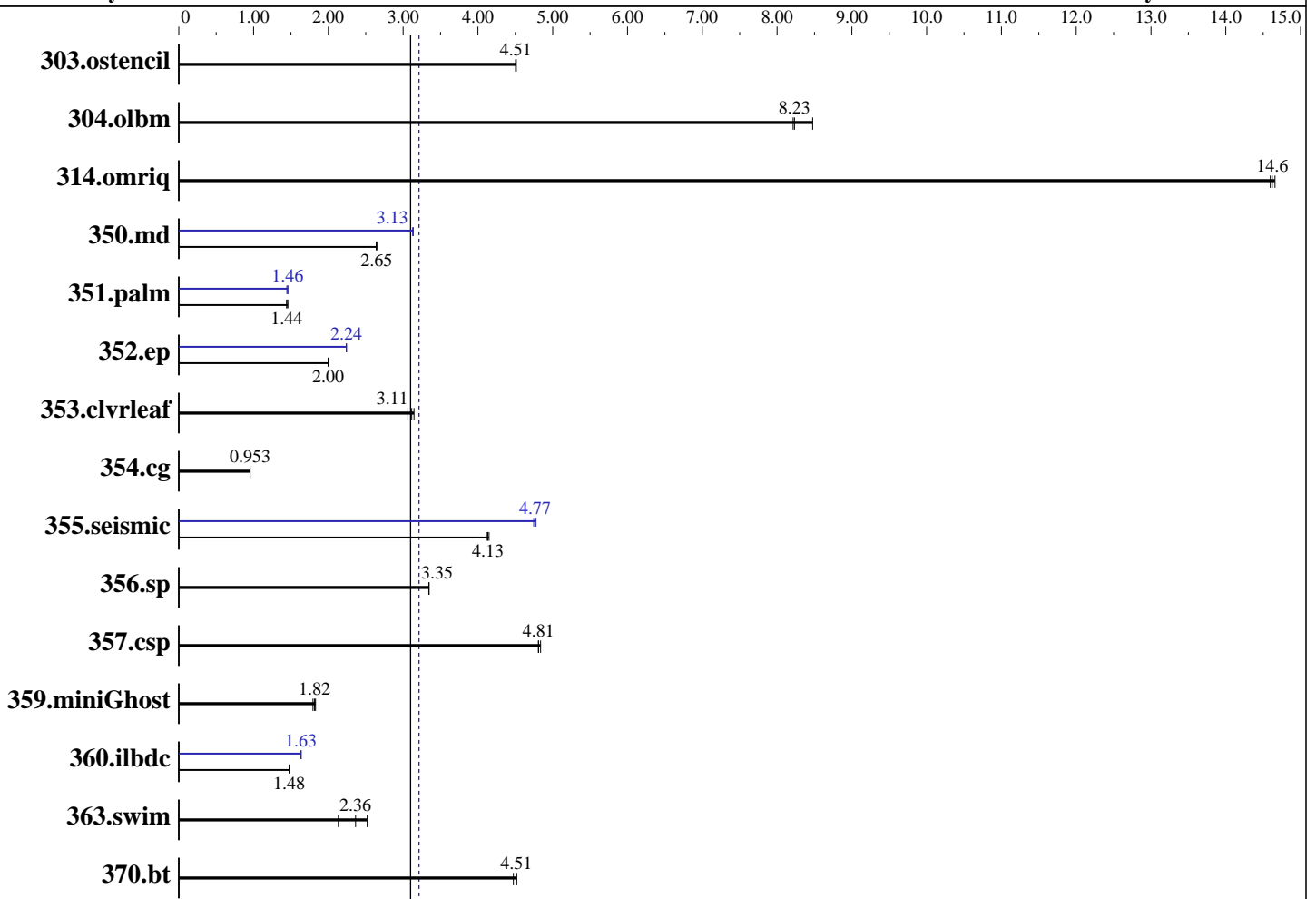
Test sponsor: Cirrascale Corporation

Tested by: PathScale Inc.

Test date: Feb-2015

Hardware Availability: Jul-2014

Software Availability: Mar-2015



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Hardware

CPU Name: Intel Xeon E5-2637 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
 CPU MHz: 3500
 CPU MHz Maximum: 3700
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 15 MB I+D on chip per chip
 Other Cache: None

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Accelerator

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



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Hardware (Continued)

Memory: 32 GB (4 x 8 GB 1Rx4 PC4-2133R-15, running at 2133 MHz)
Disk Subsystem: Western Digital Model: WD7500BPKT-00PK4T0 750Gb SATA 7200 rpm
Other Hardware: None

Software

Operating System: CentOS release 6.6 (Final) 3.19.0PathScale+
Compiler: PathScale ENZO 2015 v6.0
File System: ext4
System State: Run level 3 (add definition here)
Other Software: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
303.ostencil	32.2	4.50	<u>32.2</u>	<u>4.51</u>	32.1	4.51	32.2	4.50	<u>32.2</u>	<u>4.51</u>	32.1	4.51
304.olbm	<u>55.3</u>	<u>8.23</u>	53.7	8.48	55.4	8.21	<u>55.3</u>	<u>8.23</u>	53.7	8.48	55.4	8.21
314.omriq	65.5	14.6	65.2	14.7	<u>65.4</u>	<u>14.6</u>	65.5	14.6	65.2	14.7	<u>65.4</u>	<u>14.6</u>
350.md	95.2	2.65	<u>95.3</u>	<u>2.65</u>	95.4	2.64	80.5	3.13	<u>80.5</u>	<u>3.13</u>	80.4	3.14
351.palm	<u>256</u>	<u>1.44</u>	256	1.44	254	1.46	256	1.45	<u>254</u>	<u>1.46</u>	254	1.46
352.ep	265	2.00	<u>265</u>	<u>2.00</u>	265	2.00	236	2.24	<u>236</u>	<u>2.24</u>	237	2.24
353.cvrleaf	145	3.06	141	3.15	<u>143</u>	<u>3.11</u>	145	3.06	141	3.15	<u>143</u>	<u>3.11</u>
354.cg	428	0.953	428	0.953	<u>428</u>	<u>0.953</u>	428	0.953	428	0.953	<u>428</u>	<u>0.953</u>
355.seismic	<u>89.5</u>	<u>4.13</u>	89.2	4.15	89.9	4.12	78.0	4.75	77.5	4.78	<u>77.6</u>	<u>4.77</u>
356.sp	<u>82.5</u>	<u>3.35</u>	82.6	3.34	82.5	3.35	<u>82.5</u>	<u>3.35</u>	82.6	3.34	82.5	3.35
357.csp	56.1	4.81	55.8	4.84	<u>56.1</u>	<u>4.81</u>	56.1	4.81	55.8	4.84	<u>56.1</u>	<u>4.81</u>
359.miniGhost	206	1.79	<u>203</u>	<u>1.82</u>	202	1.83	206	1.79	<u>203</u>	<u>1.82</u>	202	1.83
360.ilbdc	249	1.48	<u>248</u>	<u>1.48</u>	248	1.48	<u>225</u>	<u>1.63</u>	225	1.63	224	1.64
363.swim	108	2.13	91.3	2.52	<u>97.3</u>	<u>2.36</u>	108	2.13	91.3	2.52	<u>97.3</u>	<u>2.36</u>
370.bt	49.8	4.47	<u>49.4</u>	<u>4.51</u>	49.4	4.52	49.8	4.47	<u>49.4</u>	<u>4.51</u>	49.4	4.52

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 # \$ 0953404ef7e75a5f9bbb534c6de3f831
running on Cirrascale Thu Feb 19 14:14:13 2015

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

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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)
system-release-cpe: cpe:/o:centos:linux:6:GA
```

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 19 14:06

SPEC is set to: /home/pathscale/ACCEL

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda1       ext4  96G   26G   66G  28% /
```

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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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..fclb3f3 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.ucVoltageType = VOLTAGE_TYPE_VDDC;
    args.in.ucVoltageMode = ATOM_GET_VOLTAGE_EVV_VOLTAGE;
+   args.in.usVoltageLevel = cpu_to_le16(virtual_voltage_id);
    args.in.ulSCLKFreq =
```

This run fixes a cooling issue which wasn't caught in previous runs.

A 40w fan was adjusted in order to provide airflow for the passively cooled s9150

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 dmidcode reports Max Speed: 3600 MHz

Kit built system using no case and just mounted on a test bench



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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



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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.clvrlf: basepeak = yes

359.miniGhost: basepeak = yes

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

http://www.spec.org/accel/flags/pathscale2015_flags.20150318.html

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

http://www.spec.org/accel/flags/pathscale2015_flags.20150318.xml



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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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