

# R2086E SATA 3 to SATA 2-port & M.2 2-port RAID

# RAID 0 Mode Performance & Burn In Test Rev. 1.0

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## 1. Overview

R2086E RAID card offers SATA 3 interface, built-in 2-port Mini PCI-e 52-pin connector & 2-port SATA 7-pin connector, can be combined mSATA SSD into a RAID 0, RAID 1, JBOD mode. **This test report is based mSATA SSD x2, RAID 0 set as a benchmark.** 

### 2. Tools and Results of Performance Measurement

2.1 Test Platform

M/B :	ASRock <b>Z97 Extreme 6</b>
CPU :	Intel <b>i5-4426,</b> 3.2GHz/ 6M Cache/ LGA1150
Memory :	Kingston KVR16N11S8/4, DDR3-1600MHz, 8G(4GB DIMM*2)
ATX Power :	FSP RAIDER 550, <b>550W ATX</b> , 12V V2.2 Power Supply
Graphic :	Z97 Chipsets built-in HD Graphics 4600
OS :	Microsoft Windows 8.1 64bit OS

2.2 Test target: R2086F RAID Card and mSATA SSD(Crucial CT-128M550SSD3/128GBx2)



R2086F Adapter

Crucial CT-128M550SSD3 / 128GB x2

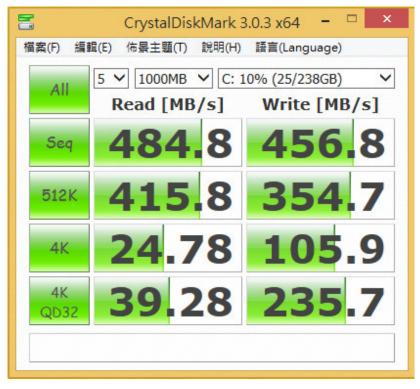
### 2.3 Install Hardware

2.3.1 Insert mSATA SSDx2 into R2086E converter's Mini PCI-e connector, and then with coppers, and screws to fix SSDs. (Please refer to the Installation Notes).
 Connect R2086E converter to SATA III Port of ASRock Z97 Extreme6.

### 2.4 BIOS & Windows 8 OS environment setup

2.4.1 Install Windows 8.1 x64 OS.

- 2.5 CrystalDiskMark 3.0.3 x64 performance test
  ※Benchmark (Sequential Read & Write / default = 1MB)
  - 2.5.1 Used <u>Crucial CT-128M550SSD3/128GBx2</u> in **RAID 0** performance as below:



2.6 AS SSD Benchmark 1.7 performance test

Benchmark (Read & Write by MB/s, default block size = 16MB)

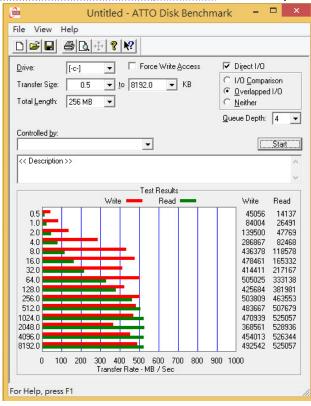
2.6.1 Used Crucial CT-128M550SSD3/128GBx2 in RAID 0 performance as below:

🚢 AS SSD Benchmark 1.7.4739.38088 – 🗆 💌							
File Edit View Tools Language Help							
C: ASMT109x- Fast	✓						
ASMT109x-Fast 2143 5 storahci - OK 359424 K - OK 238.48 GB	Read:	Write:					
<mark> </mark>	474.05 MB/s	484.09 MB/s					
<b>⊻</b> 4K	20.55 MB/s	97.30 MB/s					
☑ 4K-64Thrd	37.32 MB/s	143.73 MB/s					
✓ Acc.time	0.175 ms	0.048 ms					
Score:	105	289					
	458						
Start Abort							

2.7 ATTO Disk Benchmark performance test

Weight Benchmark (Sequential Read / default block size = 8MB)

2.7.1 Used Crucial CT-128M550SSD3/128GBx2 in RAID 0 performance as below:



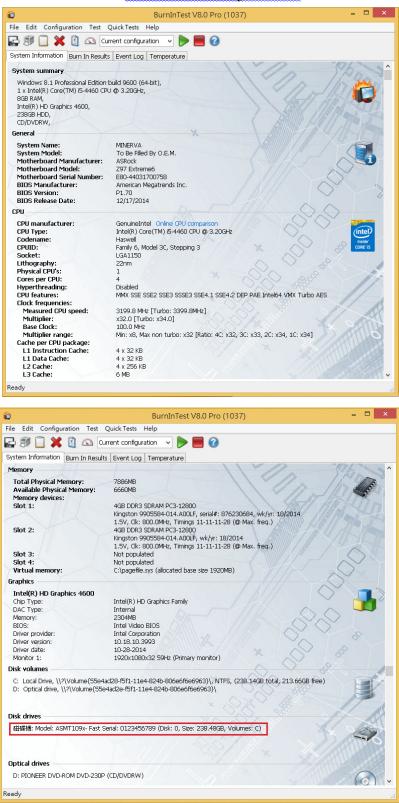
#### 2.8 AnvilBenchmark\_V110\_B337

#### 2.8.1 Used Crucial CT-128M550SSD3/128GBx2 in RAID 0 performance as below:

🙃 Anvil's Storage Utilities 1.1.0 (2014-January-1) – 🗆 🗙									
File Benchmarks	IOmeter System	n Info   Settings	Test size 1GB	Drive 🔳 c: []		✓ Screenshot Help			
SSD Bench	mark					ASMT109x- Fast 256GB/2143 5			
			IODOL	145/					
Read	Resp. time	MB read	IOPS	MB/s					
Seq 4MB	8.5762ms	2,048.0	116.60	466.41					
4K	0.1582ms	308.6	6,319.60	24.69					
4K QD4	0.4173ms	468.1	9,586.08	37.45		1,242.36			
4K QD16	1.6687ms	468.2	9,588.33	37.45	Run read	1,242.36			
32K	0.2570ms	1,825.7	3,890.98	121.59					
128K	0.5003ms	3,751.3	1,998.67	249.83		3,706.13			
Write	Resp. time	MB written	IOPS	MB/s	Run	3,706.13			
Seq 4MB	8.4805ms	1.024.0	117.92	471.67					
4K	0.0418ms	640.0	23,926.12	93.46		<sup>2,463.77</sup> 2,463.77			
4K QD4	0.0573ms	640.0	69,849.36	272.85	Run write	2,463.77			
4K QD16	0.2345ms	640.0	68,241.44	266.57					
Microsoft Windows 8	3.1 専業版 64 位元 Build	(9600)				ASMT109x- Fast 256GB/2143 5			
	Z97 Extreme6/P1.70, CPUSocket		Drives : Notes :			Drive C: 238.1/213.4GB free (89.6%) NTFS - Cluster size 4096B			
Memory : 7,886 MB	Intel(R) Core(TM) i5-4460 CPU @ 3.20GHz Memory : 7,886 MB					Storage driver <b>storahci</b>			
	Professional Edition					Alignment 359424KB OK			
						Compression 100% (Incompressible)			

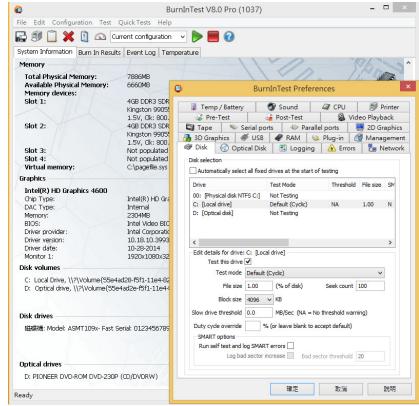
### 3. Burn In Tests and Results

- 3.1 BurnInTest v8.0 Pro
  - 3.1.1 system information for CT-128M550SSD3/128GBx2 in RAID 0 as below:



## R2086E SATA 3 to SATA 2-port & mSATA 2-port RAID Card

3.1.2 show RAID 0 SSD test mode(default cyclic -- 10 ways cycle test)



3.1.3 show CT-128M550SSD3/128GBx2 in RAID 0 24-hour Burn-in test PASSED

	BurnInTest V8.0 Pro (1037) -	
le Edit Configuratio	ion Test QuickTests Help	
3 🗊 🗋 🗶 🛙	👔 💿 Current configuration 🗸 խ 🧱 🔕	
ustern Information Bu	Im In Results Event Log Temperature	
Results for MINERVA		
Fest configuration file: Start time: Sat Ma		and a
start unie. – Sat Ma	lay 09 10:58:18 2015 Stop time: Sun May 10 10:58:26 2015 Duration: 024h 00m 08s	
Test Name	Cycle Operations Errors Last Error Description	
♥Disk (C:)	3964 21,580 Trillion O No errors	
📳 Temperature	O No errors	
	BurnInTest test result	
	PASSED	
	OK	
View errors by categories	15	
View errors by categories	25	

#### 4. Summary

- 4.1 R2086E is SATA III Interface, I/O speed, max. to 600MB/s.
- 4.2 R2086E adapter I/O performance is based on mSATA SSD.