Introduction to the Vector Series
OCZ's Groundbreaking New SSD
### Q4. 2012.

Meet OCZ (if you know us already, skip to the good stuff)

- Founded in 2002, OCZ is a **worldwide, leading pure-play SSD company** headquartered in the Silicon Valley with over 500 employees across offices in North America, Europe, and Asia as well as a manufacturing/logistics facility in Taiwan

- Many remember our start in DRAM, but today we are the **largest independent SSD manufacturer** according to industry analysts

- 10 year history of developing a **best-in-class** product portfolio:

  - ✓ Renowned, award-winning high-performance SSDs
  - ✓ Over 8 years spent on developing SSD IP with oldest SSD patents filed in 2004 (approximately 100 granted/pending patents)
  - ✓ Substantial technological advantage based on rich R&D history in memory modules

- OCZ has taken steps through a series of acquisitions to be **vertically integrated** and **continues to set the bar and pace** for the market

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VECTOR
2.5" solid state drive
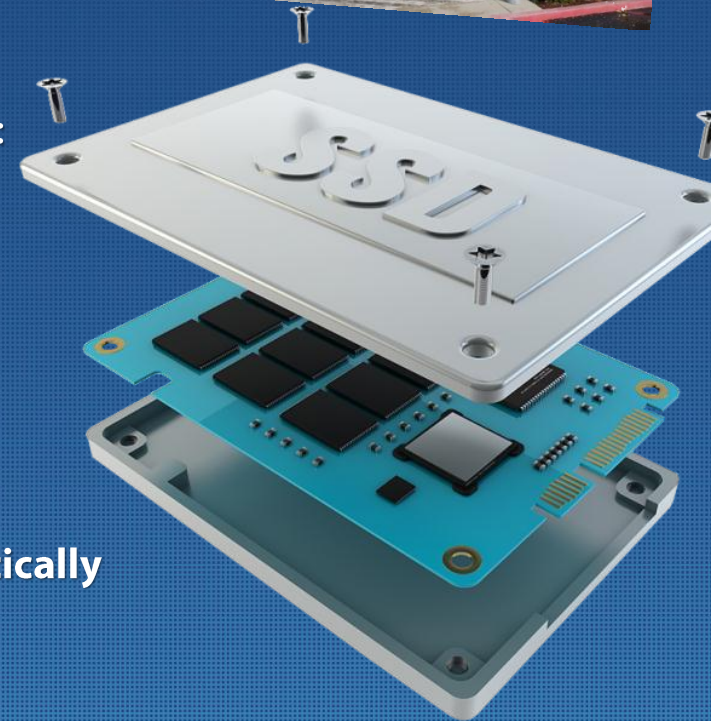
# OCZ has always had different ideas about SSDs

Milestones

Mar 2008 — Joined the solid-state storage market ahead of most mainstream brands

Jul 2008 — Unveiled industry's first *viable* MLC drive, making SSDs accessible to the mainstream

Dec 2008 — First to market with Indilinx-based solution

Feb 2009 — Entered the OEM storage market with launch of the Intrepid Series

Apr 2009 — Announced world's first bootable PCI Express SSD, the Z-Drive

Aug 2009 — Began offering industry's most affordable SLC solution

Nov 2009 — Launched the first 1TB SSD

Dec 2009 — First to debut SandForce-based solution to the industry

Jan 2010 — Discontinued all DRAM products to focus on SSD solutions

Jun 2010 — Delivered the world's first PCIe SSD for *consumers*

Jun 2010 — Introduced the Deneva Series, and became first to deliver enterprise reliability using a range of *lower* cost flash

Nov 2010 — Acquired IP and assets from Solid Data Inc. to expand OCZ's controller and interface technology portfolio

Jan 2011 — Provided world's first look at next generation SandForce technology (SF-2000 Series)

Mar 2011 — Acquired Indilinx, the maker of the renowned Barefoot SSD controller, and holder of 20 SSD patents

Mar 2011 — Shipped one millionth solid state drive

May 2011 — Unveiled the highest capacity SAS SSD (close to 1TB)

Oct 2011 — Acquired PLX Technology engineering team and assets, developer of innovative system-on-chip (SOC) solutions

Jan 2012 — Acquired SANRAD Inc., a provider of flash caching and virtualization software, allowing enterprises to finally realize the benefit of running a single unified virtualized environment

July 2012 — OCZ announces new state-of-the-art manufacturing facility with ISO 9001: 2008 certification

*SSD Acquisitions

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In-House Technology

- OCZ-acquired Indilinx and PLX teams developed the Barefoot 3 silicon and firmware

- Vector marks the first major OCZ release with 100% captive, in-house technology (aside from NAND flash)

- OCZ also purchases and packages NAND flash wafers and passes the cost savings to the customer

INDILINX
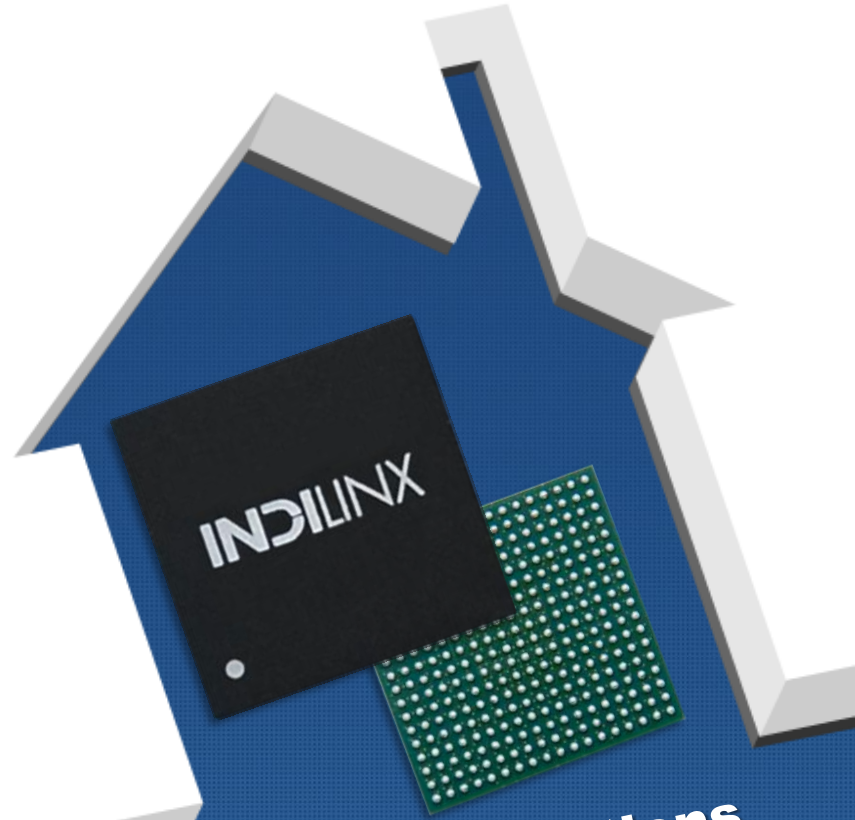
OCZ's ability to have full control over their SSD solutions enables us to provide ultimate reliability, validation, and support to the customer

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Back to Barefoot

OCZ has returned to its roots and the controller family that made us so successful.
Indilinx Barefoot is now SATA 6Gb/s and all grown up.

2009

Indilinx Barefoot
- Vertex Series
- Agility Series

2010

SandForce 1000
- Vertex 2 Series
- Agility 2 Series

2011

SandForce 2000
- Vertex 3 Series
- Agility 3 Series

2012

Marvell Indilinx FW
- Vertex 4 Series
- Agility 4 Series

2008

Samsung
- OCZ's first SSD

Today

Indilinx Barefoot 3
- Vector Series

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Our Idea of the Perfect SSD

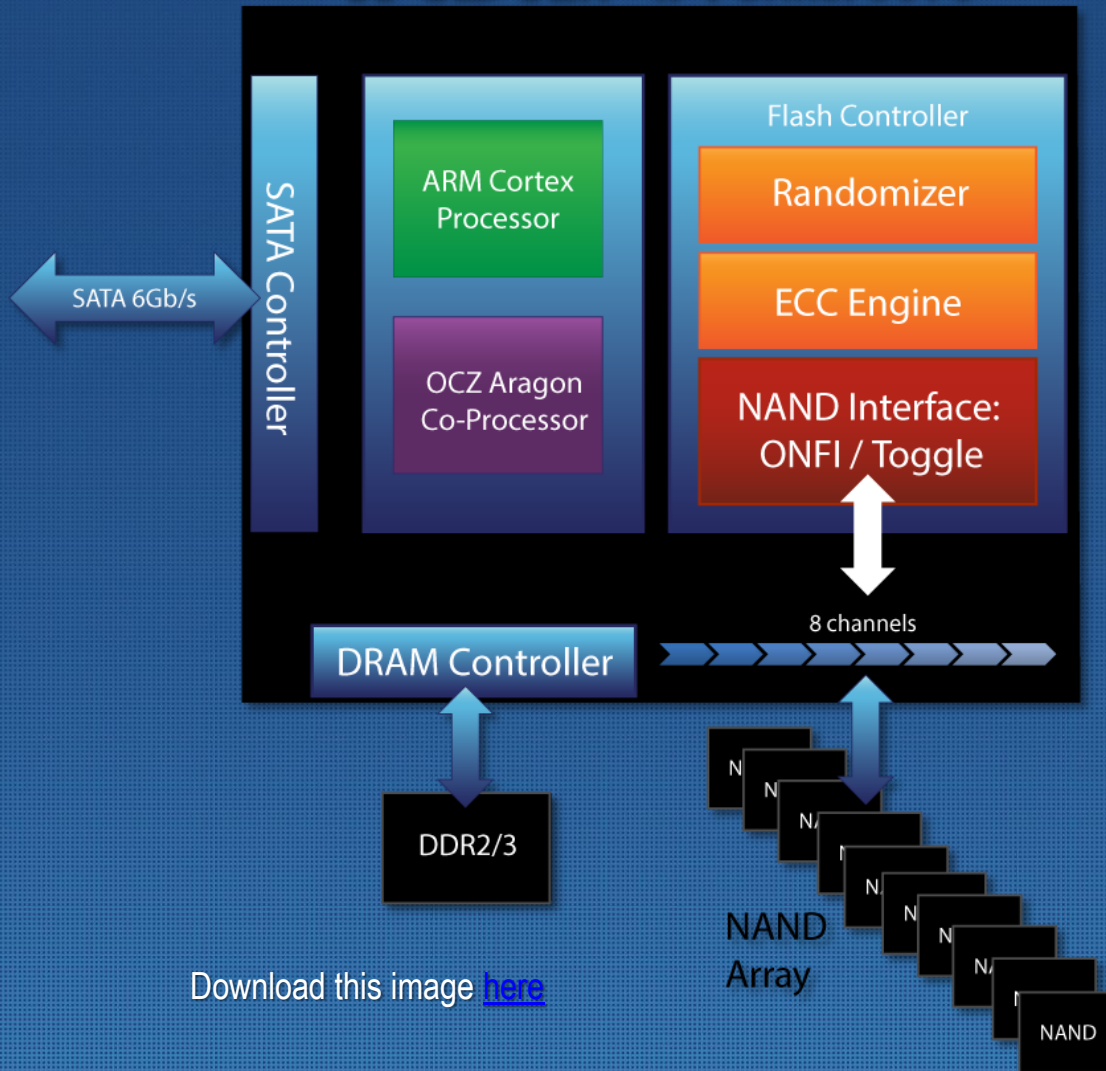With captive controller IP and firmware technology in-house, we set out to design

…the world's best SSD on *our* terms

High Reliability

High performance

Sustained performance

New Name!

The best SSD!

User Friendly

"Cool" Housing

High Quality

High Endurance

I ♥ my SSD.

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Meet Barefoot 3

OCZ is pleased to introduce the Barefoot 3 SSD controller, a milestone for the company

Download this image here

Meet Vector

- The Barefoot 3-based Vector Series delivers a new industry-leading solid-state storage solution for the high-end consumer and workstation user

SATA 3.0 6Gb/s interface

25nm IMFT NAND flash

7mm form factor

128GB, 256GB, and 512GB models

Bundled with cloning software

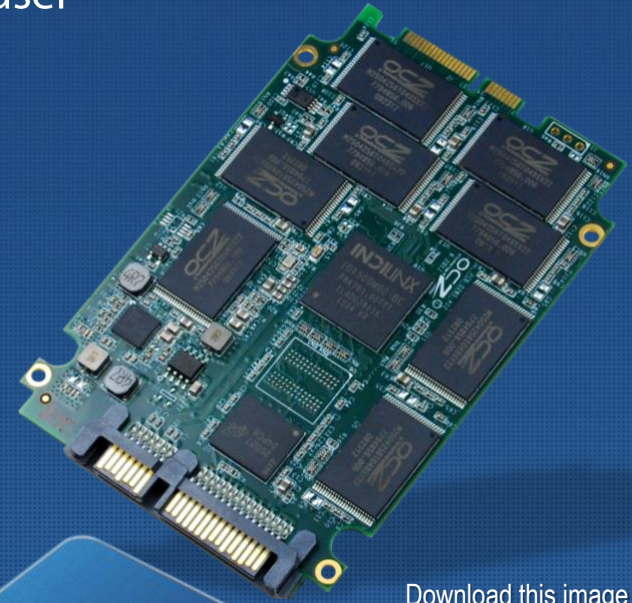**High performance and endurance without compression/loss of usable capacity**

Advanced suite of flash management to increase durability and reliability

Lower power consumption
Idle: 0.9W | Active: 2.25W

TRIM support

5 year warranty

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Performance Specs/Comparison

128GB

	Vector	Vertex 4	Samsung 830	Samsung 840 Pro	Plextor M5P	Intel 520
Sequential Read (MB/s)	**550**	560	520	530	540	550
Sequential Write (MB/s)	**400**	430	320	390	340	500
4KB Random Read (IOPS)	**90,000**	90,000	80,000	97,000	91,000	25,000
4KB Random Write (IOPS)	**95,000**	85,000	30,000	90,000	82,000	80,000

256GB

	Vector	Vertex 4	Samsung 830	Samsung 840 Pro	Plextor M5P	Intel 520
Sequential Read (MB/s)	**550**	560	520	540	540	550
Sequential Write (MB/s)	**530**	510	400	520	450	520
4KB Random Read (IOPS)	**100,000**	90,000	80,000	100,000	94,000	50,000
4KB Random Write (IOPS)	**95,000**	85,000	36,000	90,000	86,000	80,000

512GB

	Vector	Vertex 4	Samsung 830	Samsung 840 Pro	Plextor M5P	Intel 520
Sequential Read (MB/s)	**550**	560	520	540	540	550
Sequential Write (MB/s)	**530**	510	400	520	450	520
4KB Random Read (IOPS)	**100,000**	95,000	80,000	100,000	94,000	50,000
4KB Random Write (IOPS)	**95,000**	85,000	36,000	90,000	86,000	50,000

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Superior Sustained Performance

Performance Over Time
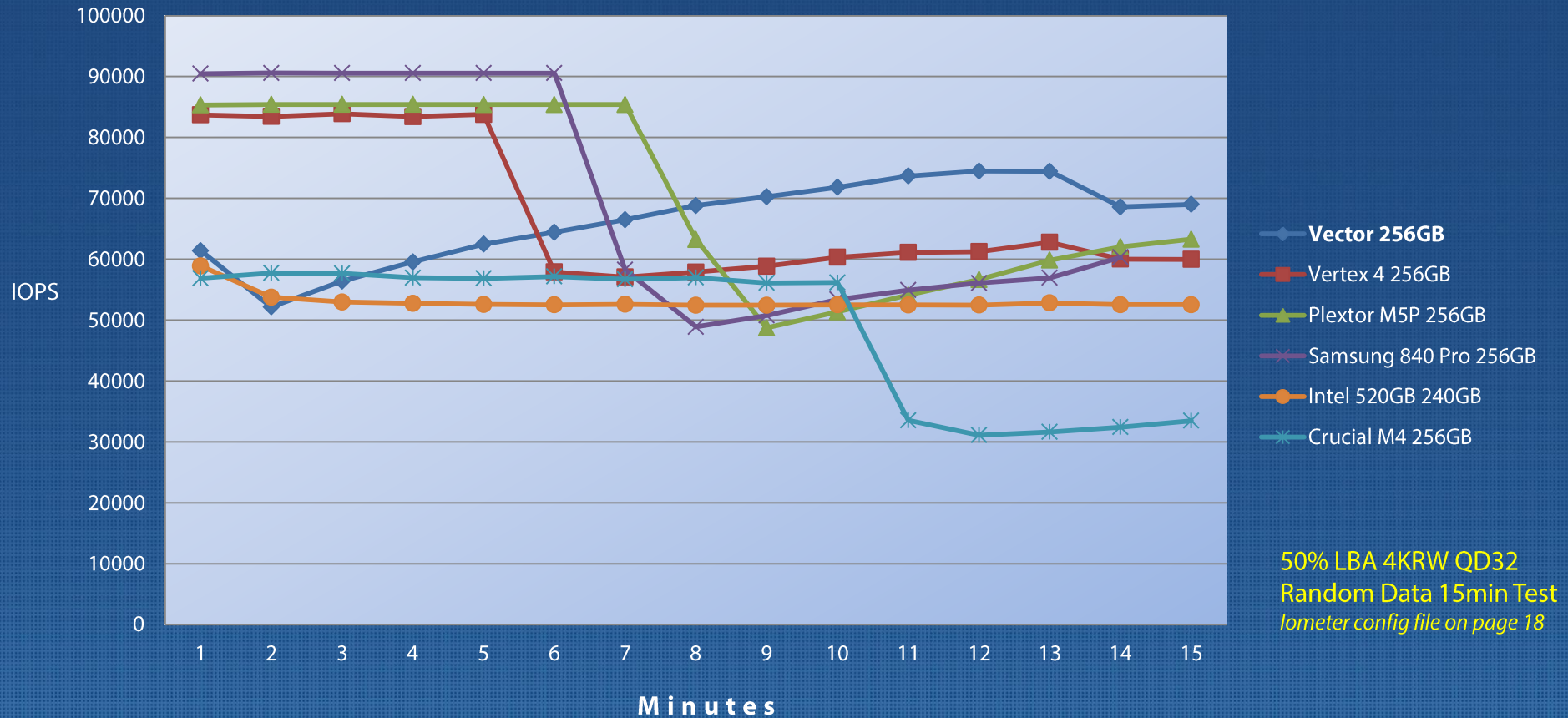
Proprietary garbage collection engine promotes a higher level of *sustained* performance unique to the Vector Series

Reliability Redefined

- The Vector SSD Series is OCZ's most extensively and comprehensively tested consumer SSD line to date

- Quality, reliability, and stability were **the** number one priority

- Barefoot 3 endured a robust and lengthy validation cycle

- Vector was distributed to a large network of beta testers

- Each Vector drive will undergo an advanced and strenuous factory burn-in procedure before shipping to consumers

- Future firmware updates will undergo a longer validation cycle

- Backed by industry-leading 5 year warranty

Cost ☐

Quality ☑

Time to Market ☐

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Endurance

- The Vector SSD Series is rated to deliver **20GB host writes per day for 5 years***

  - Low Write Amplification
  - Efficient garbage collection
  - Advanced Multi-Level ECC
  - Adaptive NAND Flash Management

Advanced Flash Management Suite

* Warranty = 5 years or 36.5TB writes, whichever comes first

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Configuration & Testing

Recommended System Configuration	
CPU	Intel® Hyperthreading Technology i7 2600K CPU or better
Motherboard	Intel® P67/Z68/Z77 Motherboard
Memory	DDR3 4GB 1600 MHz or more
Operating System	Windows 7 32/64 Bit
Graphics Card	Any PCI or PCIe Graphics Card

For optimal performance results, it is critical to select a high-performance platform and ensure you are using a SATA 6Gb/s cable. Also make sure to turn on AHCI in the system BIOS, install performance-oriented drivers, disable all background applications, and align the partition. OCZ recommends running the Intel RST 11.6.0.1030 AHCI drivers for performance tests. For updating firmware, please use Microsoft AHCI drivers.

In order to remove anomalies from test data, we recommend **disabling** the following settings in Windows 7 Professional: sidebar, automatic updates, remote access, automatic defragmentation, system restore & screen saver. Set the power options to Sleep: *Never*; Turn off HDD: *Never*.

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Benchmarking
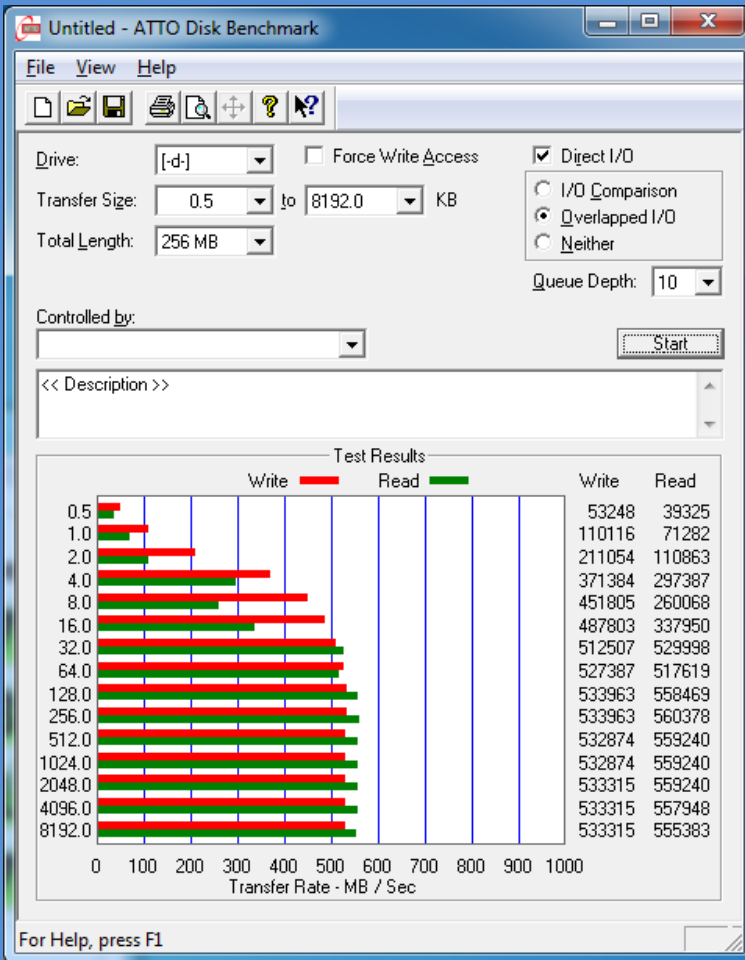
Typical Results
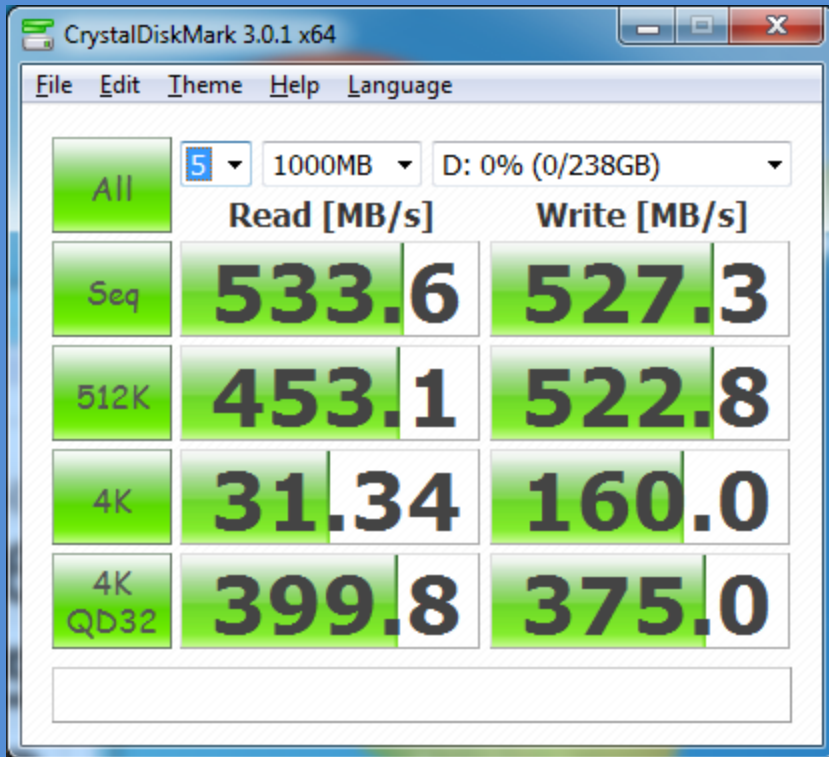

ATTO Disk – v2.47

Setup:

- Recommended Queue Depth is 10

- File transfer size from 0.5KB to 8192KB

- Total Length is 256MB

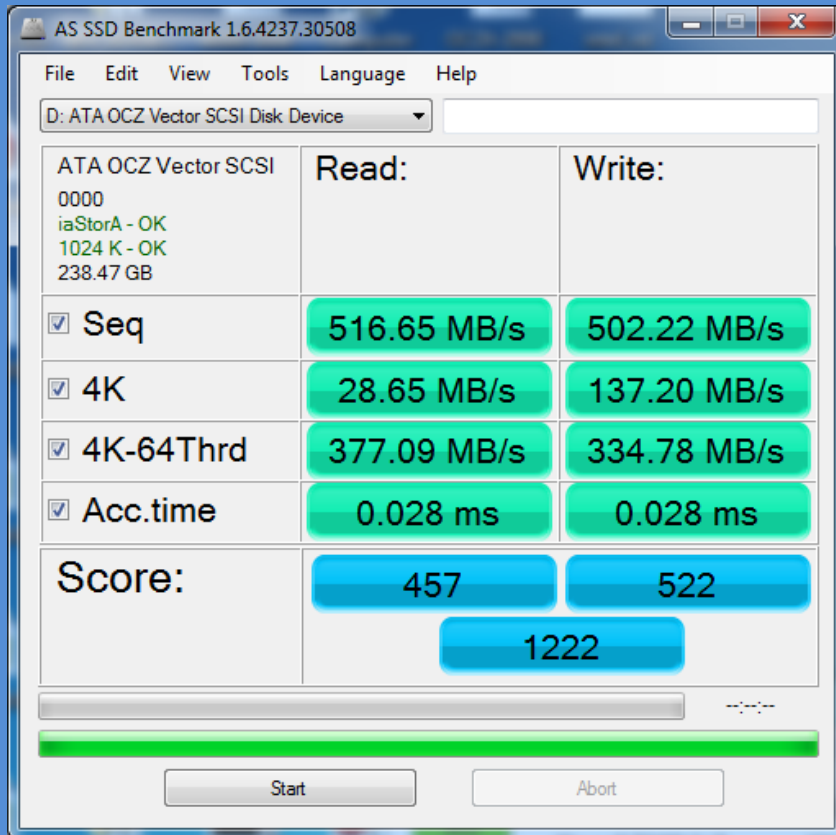# Benchmarking

Typical Results

CRYSTALDISKMARK – V3.0.1 X64

Setup:

- Set iterations to 5 and LBA to 1000MB for optimal performance
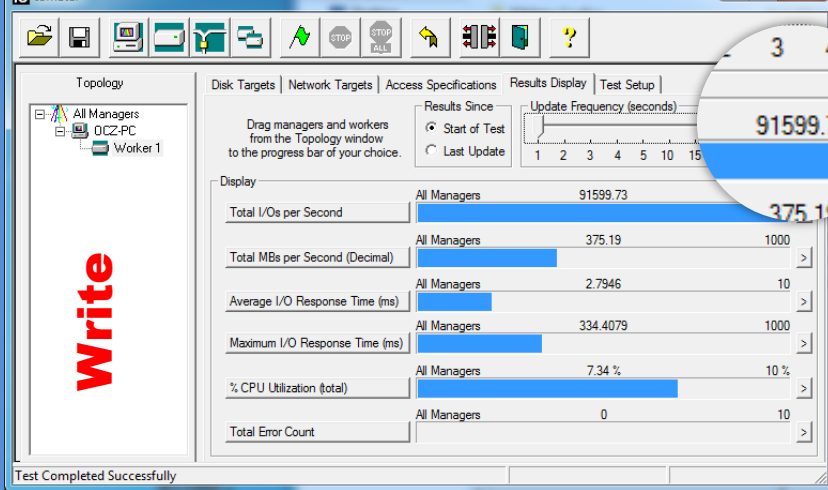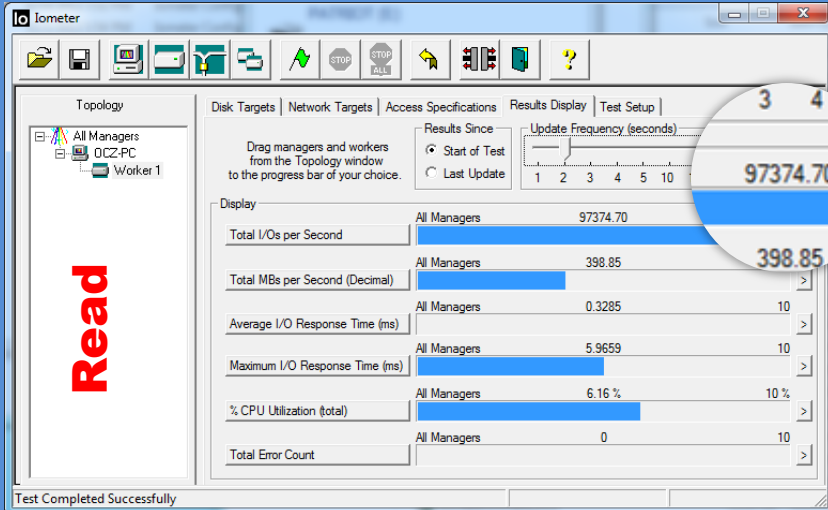
Benchmarking

Typical Results

AS-SSD – V1.6.4237

HIGH QUEUE DEPTH INCOMPRESSIBLE
SEQUENTIAL PERFORMANCE

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Benchmarking

Typical Results

Iometer 2010

Setup:

- 8GB LBA, 4KB transfer size & 4KB Aligned with a Queue Depth of 32

Benchmarking

SUSTAINED PERFORMANCE - IOMETER 2010

Setup:

50% LBA 4KRW QD32 Random Data 15min Test

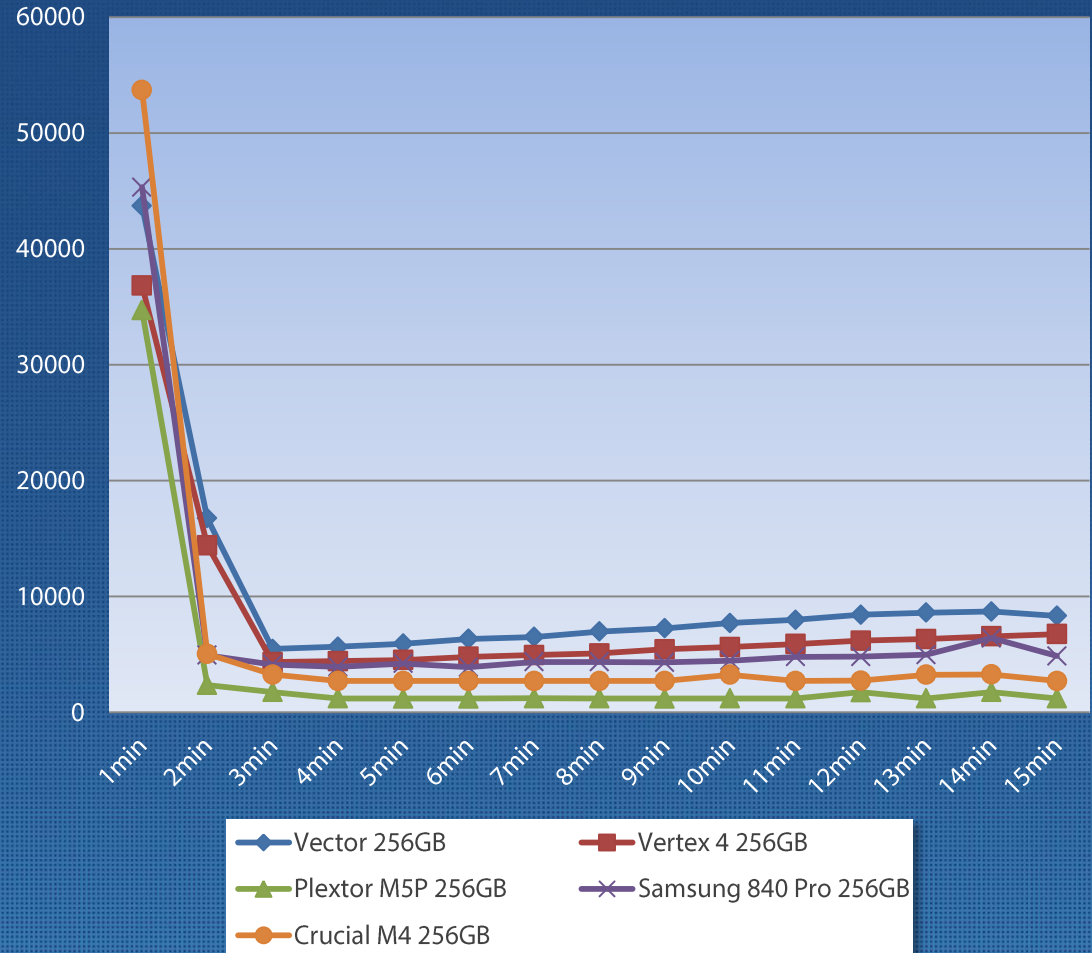- Load the 4KRW-15m.icf file

- Set the sector size to 250053918

100% LBA 4KRW QD32 Random Data 15min Test

- Load the 4KRW-15m.icf file

- Set the sector size to 0 (default value)

Note: SandForce-based drives excel in the 100% LBA test due to 13% overprovisioning (loss of usable capacity)

Full Fill 4KRW QD32 Random Data 15min Test

Legend:
- Vector 256GB
- Vertex 4 256GB
- Plextor M5P 256GB
- Samsung 840 Pro 256GB
- Crucial M4 256GB

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What End Users Care About

What comes in the box:

- A faster, more responsive computing experience

- 3.5-inch desktop adaptor

- Cloning software (Acronis® True Image™)

- A way to declare your love for it (I ♥ ocz my SSD.)

What to look forward to:

- The fastest _sustained_ computing experience there is

- Industry-leading technical support from a passionate customer service team

Pricing:

128GB Model

- $149.99 MSRP

256GB Model

- $269.99 MSRP

512GB Model

- $559.99 MSRP

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Resources

Iometer:

Additional:

Download
v4.3.0.3740

Iometer 1.1.0 RC1

Sustained Performance
Config File

OCZ Logo

Vector Logo

Vector Groundbreaker Campaign

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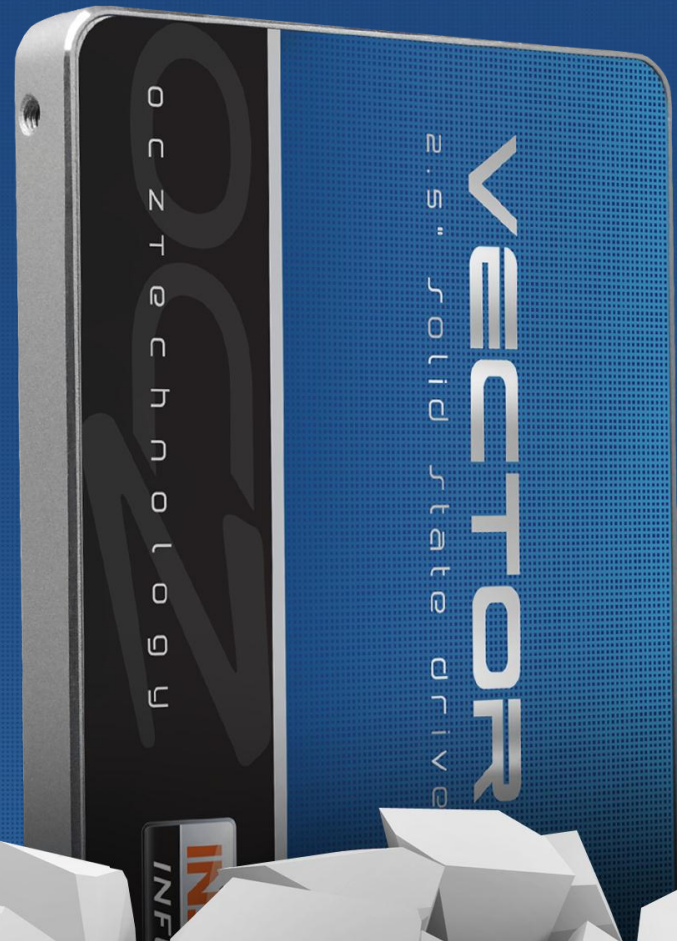
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