

Samsung SSD 840 EVO

Data Sheet, Rev. 1.0 (July 2013)



Summary

- 2.5" SATA 6Gb/s SSD for Desktop & Laptop PC
- Samsung 3-core MEX controller
- Samsung 1x nm Toggle DDR 2.0 NAND Flash memory
- Up to 1GB Samsung Low Power DDR2 SDRAM cache memory
- Samsung Magician 4.2 Software for SSD management
- Samsung Data Migration 2.0 Software
- 7mm profile

The must-have solution for your PC upgrade

The evolution of the SSD has arrived as the Samsung SSD 840 EVO with more speed, more reliability and much easier upgrade tools. Combining the best SSD technology from Samsung, 840 EVO delivers a superior computing experience.

Faster performance for everyday use

The market-leading 840 Series SSD was significantly improved upon in the 840 EVO. Samsung's new TurboWrite technology delivers dramatically faster sequential write performance. And, with upgrades to NAND, a new controller and firmware, the 840 EVO has superfast responsiveness under everyday workloads.

Proven quality and trusted reliability

Samsung's unparalleled end-to-end integration allows us to deliver a reliable, high-performance 2nd generation 3-bit MLC SSD. The upgraded firmware and advanced signal processing guarantees the same level of endurance and reliability as our previous generation, while improving performance. The 840EVO's ultra-low power consumption helps extend laptop battery life longer than before.

In addition, Samsung's "Dynamic Thermal Guard" algorithm in 840 EVO maintains optimal operating temperature for the drive. Samsung 840 EVO is backed by the same 3-year limited warranty as the previous generation.

Easier-than-ever upgrade tools

As SSDs become more main stream, it is important to make the installation process as smooth and simple as possible. Samsung's One-stop Installation Navigator is a comprehensive guide for software setup, data migration process and hardware installation. The Samsung Data Migration software is simple to use - yet provides a very powerful "Custom Cloning" feature that makes migration work even when source data is greater than the SSD's capacity. In addition, SATA to USB 3.0 connector makes data migration up to three times faster than USB 2.0 for laptop upgrades*. Together, it is now easier than ever to get setup and running with Samsung SSDs.

(*SATA to USB 3.0 connector is bundled only with Laptop Upgrade package)

Samsung Magician Software

Magician eliminates the confusion and uncertainties of SSD management, making it simple for users to maximize the performance and lifetime of their Samsung SSD. In addition to its performance optimization features, Magician (from the version 4.2) also provides 840 EVO users the option to enable RAPID mode (Real-time Accelerated Processing of Input-output Data) – an innovative performance enhancement that processes data on a system level by using free DRAM memory as a cache. Once enabled in Magician, RAPID mode provides an overall PC performance boost.

More Powerful Data Security Solutions

The Samsung SSD 840 EVO introduces two important features for data security: hardware-based AES 256bit Full Disk Encryption (FDE) and PSID. Hardware-based AES Encryption helps safeguard data against attack by encrypting all information on the disk at the hardware level, which means there is no detrimental effect on performance.

When you forget your SSD security password, PSID protects your data on the drive by executing a cryptographic erase which returns the drive to its factory status, preventing any unauthorized access to your data.

A complete, user-friendly solution

With a wide range of capacities from 120GB to the spacious 1TB, the 840 EVO will help you find the perfect SSD for your PC upgrade. And, Samsung's 1TB drive is a real 1,000GB of user-addressable capacity.

The Samsung SSD 840 EVO is available in three packaging configurations: Basic (Drive only), Laptop Upgrade and Desktop Upgrade kit. The Laptop Upgrade kit comes with a SATA to USB 3.0 connector and a mounting spacer. The Desktop Upgrade kit includes a SATA to USB 2.0 connector, a SATA data cable, screws, a 2.5" to 3.5" adapter bracket.

Technical Specifications

Samsung SSD 840 EVO	
Usage Application	Client PCs*
Capacity	120GB, 250GB, 500GB, 750GB, 1TB
Dimensions (L* W* H)	100 x 69.85 x 6.8 (mm)
Interface	SATA 6Gb/s (compatible with SATA 3Gb/s and SATA 1.5Gb/s)
Form Factor	2.5-inch
Controller	Samsung 3-core MEX Controller
NAND Flash Memory	1x nm Samsung Toggle DDR 2.0 NAND Flash Memory (400Mbps)
DRAM Cache Memory	256MB (120GB) or 512MB(250GB&500GB) or 1GB (750&1TB) LPDDR2
Performance**	Sequential Read: Max. 540 MB/s
	Sequential Write***: Max. 520 MB/s (250GB/500GB/750GB/1TB) Max. 410 MB/s (120GB)
	4KB Random Read (QD1): Max. 10,000 IOPS
	4KB Random Write(QD1): Max. 33,000 IOPS
	4KB Random Read(QD32): Max. 98,000 IOPS (500GB/750GB/1TB) Max. 97,000 IOPS (250GB) Max. 94,000 IOPS (120GB)
	4KB Random Write(QD32): Max. 90,000 IOPS (500GB/750GB/1TB) Max. 66,000 IOPS (250GB) Max. 35,000 IOPS (120GB)
TRIM Support	Yes (Requires OS Support)
Garbage Collection	Yes
S.M.A.R.T	Yes
Security	AES 256-bit Full Disk Encryption (FDE) TCG-OPAL/eDrive compliant (from Oct. '13 ~)
Weight	Max. 53g (1TB)
Reliability	MTBF: 1.5 million hours
Power Consumption	Average : 0.1W **** (Typical) Idle : 0.045W (Typical, DIPM ON)
Temperature	Operating: 0°C to 70°C Non-Operating: -55°C to 95°C
Humidity	5% to 95%, non-condensing
Vibration	Operating: Random: 2.17Grms (7~800Hz) Non-Operating: Random: 3.08Grms (7~800Hz)
Shock	1500G & 0.5ms (Half sine)
Etc.	Worldwide Name (WWN), LED Indicator support
Warranty	3 years limited

System Configuration : Intel Core i7-3770 @ 3.4GHz, 4GB DDR3 SDRAM (2GBx2) 1333Mbps; Asus motherboard with Intel 7 Series Z77 Chipset; Windows 7 Ultimate x64 SP1; IRST 11.2, MS performance guide pre-condition.

* 840 EVO is not validated for data center usage.

** Sequential performance measurements based on CrystalDiskMark v.3.0.1. Random performance measurements based on Iometer 2010. Performance may vary based on SSD's firmware version, system hardware & configuration

*** Sequential Write performance measurements reflect TurboWrite operation.

**** Power consumption measured with MobileMark 2007 in Windows 7. Values calculated using laptop computer and represent system-level power consumption.

Product Lineup

Density	Model Name	Box Contents	Model Code
120 GB	MZ-7TE120	Basic (SSD Only)	MZ-7TE120BW
		Desktop Upgrade Kit	MZ-7TE120KW
250 GB	MZ-7TE250	Basic (SSD Only)	MZ-7TE250BW
		Desktop Upgrade Kit	MZ-7TE250KW
		Laptop Upgrade Kit	MZ-7TE250LW
500 GB	MZ-7TE500	Basic (SSD Only)	MZ-7TE500BW
		Laptop Upgrade Kit	MZ-7TE500LW
750 GB	MZ-7TE750	Basic (SSD Only)	MZ-7TE750BW
1TB	MZ-7TE1T0	Basic (SSD Only)	MZ-7TE1T0BW

Contents

Contents	Basic	Laptop upgrade	Desktop Upgrade
3.5" bracket with screws	X	X	Yes
SATA data cable	X	X	Yes
Mounting spacer	X	Yes	X
SATA to USB connector	X	Yes (USB 3.0)	Yes (USB 2.0)
SSD Installation Guide(Printed)	Yes	Yes	Yes
SSD Warranty Summary(Printed)	Yes	Yes	Yes
Samsung software & manual CD	Yes	Yes	Yes
Samsung Activation Sticker	Yes	Yes	Yes

For more information, please visit www.samsung.com/ssd.

To download the latest software & manuals, please visit www.samsung.com/samsungssd

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