Samsung SSD 840 EVO

Your computing life upgraded with 840 EVO

YOUR LIFE **EVO**LVED

SAMSUNG

It's time for your PC to evolve

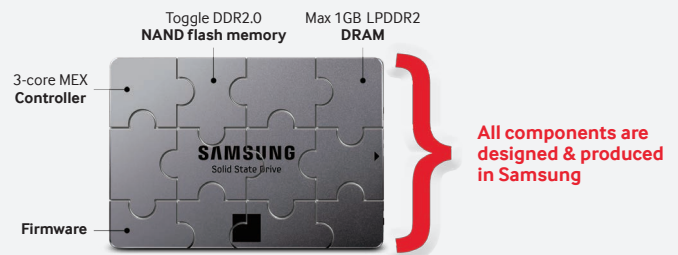## Evolve your PC to a whole new level with Samsung SSD 840 EVO

When selecting the right solid state drive (SSD) for your PC, look to the experts. As a world leader in technology, Samsung offers SSDs with superior performance, quality hardware components and innovative, all-in-one solutions. A Samsung SSD ensures that your PC carries out commands quickly and reliably so that you'll have more time for business or personal tasks. With Samsung SSD 840 EVO, 2.5-inch 840 EVO and 840 EVO mSATA , the evolution of SSDs has arrived. Featuring innovative SSD technologies from Samsung in a sleek design, 2.5-inch 840 EVO delivers superior, reliable performance for everyday PC usage. And, 840 EVO mSATA combines the best 840 EVO technologies in a thin, exceptionally light SSD designed for ultra-thin laptop PCs. Both drives feature the next generation of SSD evolution with Samsung's new 3-bit MLC technology that provides fast performance and superb self-monitoring features to ensure reliability. Your PC will stay connected longer, consume less energy and power up from the sleep mode instantly.

Integrated solution combining top-quality components

Just as delectable dishes are made from the best ingredients, Samsung combines the finest components to create superior-quality SSDs. Samsung uses the best quality NAND flash memory chips from its own fabrication lines for SSDs. Only the chips with the highest quality, top performance and greatest longevity potential are selected for SSDs, the most demanding of memory applications.

With all the components, including controllers and DRAM, produced by Samsung, the quality of your SSD is assured. Advanced new firmware that optimizes how the components go together enables Samsung to serve up the right combination for your PC's best performance and reliability. Let the 840 EVO the new addition to our lineup of superior SSDs, evolve your PC.

Toggle DDR2.0 **NAND flash memory**   Max 1GB LPDDR2 **DRAM**

3-core MEX **Controller**

Firmware

All components are designed & produced in Samsung
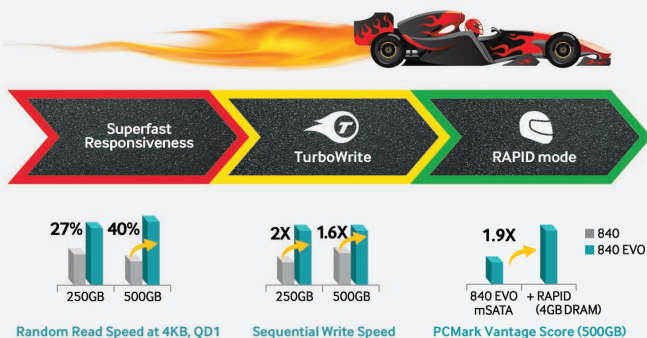
SAMSUNG

Faster performance for everyday use

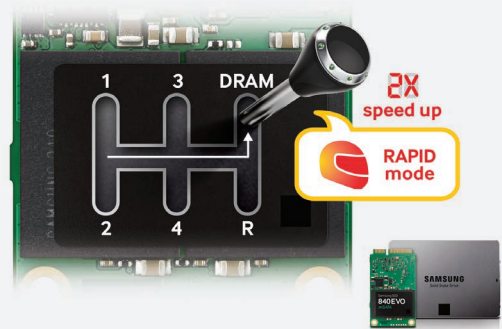## Boost productivity with all-new, faster performance

840 EVO 2.5-inch SSD and ultra-slim 840 EVO mSATA feature fast sequential and random read and write speeds to complete tasks quickly. Samsung's new 3-bit MLC NAND flash memory stores data more efficiently, increasing both speed and reliability. Whether it's a heavy business task like video file editing or a simple operation like a virus scan, 840 EVO run every job smoothly and quickly. Multitasking is a simple job for these SSDs, which can operate several tasks simultaneously to increase your productivity. Samsung's innovative TurboWrite technology dramatically boosts the 840 EVO's sequential write rate. The drives' random read rate for light workloads (QD1) is 10,000 Input / Output Operations Per Second (IOPS), the best in the industry. To improve system-level performance, turn on the RAPID mode on Samsung Magician software to use the PC's free DRAM as a cache. Working with the high-performing 840 EVO makes everyday computer use more efficient and productive. Now, your computer can keep the pace as you whiz through daily business tasks.

Enjoy Higher Performance

Superfast Responsiveness → TurboWrite → RAPID mode

27% 40%
250GB 500GB
Random Read Speed at 4KB, QD1

2X 1.6X
250GB 500GB
Sequential Write Speed

1.9X
840 EVO mSATA + RAPID (4GB DRAM)
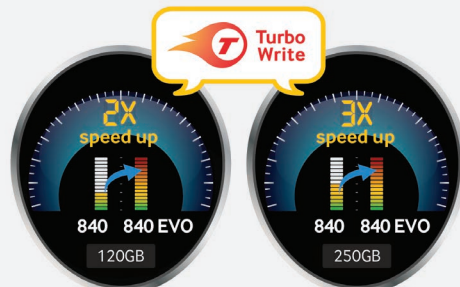840
840 EVO
PCMark Vantage Score (500GB)

RAPID mode : Enjoy rapid performance by switching to a higher gear

Like changing gears in a car, with Magician software you have the option of RAPID mode, enhancing performance by processing data on a system level through the use of free PC memory (DRAM) as a cache. Depending on your PC memory (DRAM), you can expect higher performance and more efficient command processing, which improves with repeated tasking. Boost into a higher gear to vastly improve QD1 random write performance to almost the same level as QD32.

1 3 DRAM
2X speed up
RAPID mode
2 4 R

TurboWrite : Always be in high acceleration

If you are a speed demon, you will certainly enjoy the new level of excitement 840 EVO offers you. Thanks to Samsung's TurboWrite technology, 840 EVO can deliver much faster sequential write speeds compared to the previous 840 model, quadrupling the speed from 130 to 520MB/s in 120GB drives, and doubling it from 250 to 520MB/s in 250GB drives. The drive's random read rate for light workloads (QD1) is 10,000 Input / Output Operations Per Second (IOPS), the best in the industry. Utilizing an innovative write acceleration algorithm and high performance write buffer, you can expect accelerated speeds and higher satisfaction from your PC.

Turbo Write
2X speed up
840 840 EVO
120GB

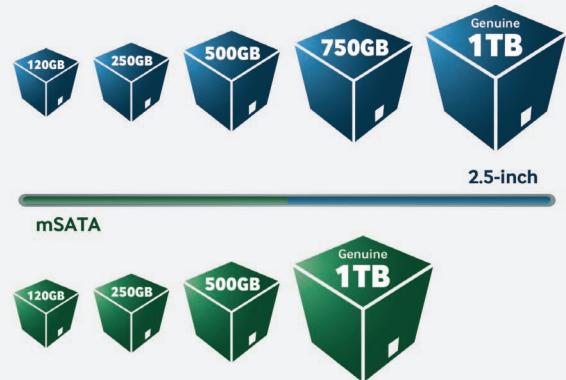3X speed up
840 840 EVO
250GB

SAMSUNG

Choose the capacity that's right for you

Gain flexibility with more choices of capacity and a thinner form factor

With a wide range of capacities including basic 120GB, a rare 750GB offering and the spacious 1TB capacity, 840 EVO have the perfect SSD for any PC upgrade. Because they're offered in the same capacities as conventional HDDs, 840 EVO eliminate the need to scale up or scale down the PC drive size to satisfy storage needs. Plus, both models deliver real 1TB drives rather than the 960GB drives that were previously labeled on some SSDs as "1TB drives." When considering an upgrade, there's no need to sacrifice capacity for a conveniently thin form factor. Though small in size, the 840 EVO mSATA is big on capacity. Boasting the same capacity options as the larger 2.5-inch 840 EVO but much

thinner (2.75 mm / 0.11 in.) and lighter (8.5 g / 0.3 oz.), it's the smart choice for ultra-thin laptop PCs.

120GB	250GB	500GB	750GB	Genuine 1TB

2.5-inch

mSATA

120GB	250GB	500GB	Genuine 1TB

Transforming the computing experience for all users

For users at home : The boost to your day-to-day tasks
Your daily workload usually includes a little bit of everything-listening to music, watching videos, and doing homework or office work. 840 EVO make sure you can keep on doing these tasks smoothly with a lightning fast read rate for light workloads (QD1) at 10,000 IOPS, the best in the industry. Load programs and applications over 4x faster than standard HDDs to take care of all your daily tasks with less wait time, so you can accomplish the day's errands in less time to have more time for yourself.

For Users at office : Finish your work faster
Boost your performance at work with an SSD that allows you to work on multiple operations at a rate that's more than 3x faster than an HDD. Work on your presentation and business reports while checking e-mail, downloading and copying files and documents. For faster performance, take your PC into a higher gear with RAPID mode with Samsung Magic software. In RAPID mode you can use free PC memory (DRAM) as a cache, vastly improving QD1 random write performance to almost the same level as QD32. Working more efficiently with 840 EVO will help you finish your work faster so that you can go home earlier.

For gamers : Let your game's story continue on
When you're in the middle of destroying the big boss or about to finish a mission the last thing you need is your computer to lag or become choppy. 2.5-inch 840 EVO smoothly loads your game data so that your exciting gaming experience continues on. With superior read and write speeds, 840 EVO will take your gaming to a new level with improved graphics as well as seamless game play. Stay immersed in your favorite game whether it's a first person shooter or a massive-multiplayer online game and enjoy without interruption.

For photographers and graphic designers : The performance to support your creativity
Unleash your creativity on the digital canvas with 840 EVO, which will enable your PC to keep up with your intricate strokes and sophisticated editing. With a speed 8x faster than an HDD in copying files and twice faster in multi-web loading, access and use large photo files with ease. Using TurboWrite technology, you can triple sequential write speeds so that you can retouch and save your works faster. 840 EVO will help you keep your art work safe even when you work outdoors, with more resistance to shocks and vibration, and thermal guard to keep your PC from heating up.

SAMSUNG

Unmatched reliability for consistently superior performance

Reduce power consumption for energy savings and longer usage

Now, you can experience always-on, always-connected business use of your laptop PC. Instead of running out of power and searching for an outlet when you're on the go, you can focus on work tasks for a longer time. Samsung 840 EVO mSATA Device Sleep (DEVSLP) lets you stay connected longer and power up faster. Your PC no longer needs to go into standby mode to conserve battery life, nor you have to wait for it to power back on. 840 EVO features lower idle power consumption compared to HDDs. This is important because PCs spend 80 to 90 percent of their time sitting idle. 840 EVO promotes energy savings and longer battery life, which gives you more time to complete business tasks.

+ 30 min

Longer battery life

＊Power consumption measured with MobileMark 2007 in Windows7

Keep your PC performance safe from heat

One thing to watch for when you're using your PC for a long time is the heat making your PC sluggish. With 840 EVO, your PC stays cool, even when you sometimes overwork it. Samsung's Dynamic Thermal Guard Algorithm in 840 EVO' firmware monitors the temperature of the SSD, preventing it at optimal operating temperature. When the SSD is exposed to hot weather or extreme temperatures, the algorithm controls the SSD's power supply to keep it cool. The throttling feature can drop the SSD's temperature when necessary to protect your data and ensure the responsiveness you expect.

Dynamic Thermal Guard protection

0℃ Maintain Optimal operating temperatures 70℃

Unmatched reliability for consistently high performance

High performance is great, but you want to keep it up at all times, not just for brief moments. Here's a solution: 2.5-inch 840 EVO helps toughen up your PC so that it can cope with almost any daily life situation. Shocks, vibrations, high temperatures—bring it on! With its robust strength, 2.5-inch 840 EVO boasts an incredibly long life expectancy and a very low failure rate. What's more, Samsung offers a 3-year warranty to back it up. The reliability of 840 EVO do not apply only to its physique. Equipped with Advanced Signal Processing, 840 EVO automatically corrects errors so you'll worry less about your data's stability. Plus, using Samsung Self-Monitoring Analysis & Reporting Technology (SMART), you can track your SSD's health status. SMART warns you of any unforeseen errors before they occur, so you'll be prepared.

Protect your PC strongly

S.M.A.R.T HIGH TEMPERATURE SHOCKS VIBRATION 3YEAR WARRANTY

SAMSUNG

Unbreakable encryption to safeguard your data

Simple and easy tools for a convenient upgrade

Now, with the performance and reliability proven, you would be wondering: how do I use this great solution? Installing and managing an SSD may look daunting, but with 840 EVO, your upgrade becomes simple and quick. Using a SATA-to-USB 3.0 connector included in the laptop upgrade package, for a data size of 100GB, you can migrate all the data from your HDD to 840 EVO in only 24 minutes-just a third of the time needed for a SATA-to-USB 2.0 connector offered in some previous models. Using the One-stop Install Navigator software toolkit, your SSD installation will be a snap. One-stop Install Navigator will guide you smoothly through the whole installation process. The Samsung Data Migration software features straightforward three-step process with options to help migrate your data in the optimal way. Conveniently monitor and manage your SSD with the Samsung Magician software also included in the toolkit. Samsung Magician will help you maximize performance with benchmarking, advanced OS optimization, disk health status tracking and over-provisioning settings. 840 EVO make your upgrade a simple job, and your PC's awesome performance will leave you feeling glad that you did.

One-Stop Install Navigator
Auto install guide + Data migration + Magician S/W

① Start Program

② Start Data Migration

③ Confirm & Execute

3 step Migration
(100GB in 24 min (SATA-to-USB 3.0))

Protect important data with secure encryption technology

Using your laptop PC outside of the office exposes your information to new vulnerabilities. Now, you can trust 840 EVO's Self-Encrypting Drive (SED) security technology to safeguard your data. With AES 256-bit hardware-based encryption, you can enjoy enforced data security without performance degradation that users may experience with a software-based encryption by simply setting HDD password on BIOS, or using TCG Opal and IEEE 1667 compliant solutions for more advanced security management.

Keep your data safe

AES 256-bit Full Disk Encryption

---

840 EVO 2.5-inch Media Review

"840 was good,
840 EVO is better"
"the end result is...
different"
- Tom's Hardware -

SMART BUY
2013
tom's HARDWARE
THE AUTHORITY ON TECH

"To say that I really like the EVO
is an understatement"
".....it'll be a real winner and
probably my pick for
best Z mainstream SSD"
- AnandTech -

RECOMMENDED BY
ANANDTECH

"The 840 EVO has set
a new benchmark for
mainstream
consumer SSDs"
- HEXUS -

HEXUS
RECOMMENDED

840 EVO mSATA Media Review

"Wow, large capacity
for a mSATA~!"
- AnandTech -

RECOMMENDED BY
ANANDTECH

"Looks great as long as they don't try
sticking them in smaller drives to save
money (and kill performance by not
populating all channels)"
- The SSD Review -

THE SSD REVIEW

"It's great that these are on the market.
I just wish there were a lot more low
cost laptops with an mSATA slot
available as an easy path to upgrade"
- Hardware
  Heaven -

HARDWAREHEAVEN.com
FORMERLY DRIVEHEAVEN.NET

SAMSUNG

Technical specifications

	Samsung SSD 840 EVO			
Form Factor	2.5-inch		mSATA	
Usage Application	Client PCs*		Client PCs* (Ultra-thin PCs compatible)	
Capacity	120GB, 250GB, 500GB, 750GB,1TB		120GB, 250GB, 500GB,1TB	
Dimensions (LxWxH)	100 x 69.85 x 6.8 (mm)		(29.85±0.15) x (50.80±0.15) x Max 3.85 (mm)	
Interface	SATA 6Gb/s (compatible with SATA 3Gb/s and SATA 1.5Gb/s)		SATA 6Gb/s (compatible with SATA 3Gb/s and SATA 1.5Gb/s)	
Controller	Samsung 3-core MEX Controller		Samsung 3-core MEX Controller	
NAND Flash Memory	1x nm Samsung Toggle DDR 2.0 NAND Flash Memory (400Mbps)		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		256MB (120GB) or 512MB (250GB & 500GB) or 1GB (750 & 1TB) LPDDR2	
Performance**	Sequential Read :	Max. 540MB/s	Sequential Read :	Max. 540MB/s
	Sequential Write*** :	Max. 520MB/s	Sequential Write*** :	Max. 520MB/s
	4KB Random Read (QD1) :	Max. 10,000 IOPS	4KB Random Read (QD1) :	Max. 10,000 IOPS
	4KB Random Write (QD1) :	Max. 36,000 IOPS	4KB Random Write (QD1) :	Max. 40,000 IOPS (250GB / 500GB / 1TB)
				Max. 37,000 IOPS (120GB)
	4KB Random Read (QD32) :	Max. 98,000 IOPS (500GB / 750GB / 1TB)	4KB Random Read (QD32) :	Max. 97,000 IOPS (250GB / 500GB / 1TB)
		Max. 97,000 IOPS (250GB)		
		Max. 94,000 IOPS (120GB)		Max. 95,000 IOPS (120GB)
	4KB Random Write (QD32) :	Max. 90,000 IOPS (500GB / 750GB / 1TB)	4KB Random Write (QD32) :	Max. 88,000 (500GB / 1TB)
		Max. 70,000 IOPS (250GB)		Max. 71,000 IOPS (250GB)
		Max. 36,000 IOPS (120GB)		Max. 37,000 IOPS (120GB)
TRIM Support	Yes (Requires OS Support)		Yes (Requires OS Support)	
Garbage Collection	Yes		Yes	
S.M.A.R.T	Yes		Yes	
Security	AES 256-bit Encryption TCG Opal 2.0 / IEEE1667 compliant		AES 256-bit Encryption TCG Opal 2.0 / IEEE1667 compliant	
Weight	Max. 53g (1TB)		Max. 10g (1TB)	
Reliability	MTBF : 1.5 million hours		MTBF : 1.5 million hours	
Power Consumption	Average : 0.1W **** (Typical) Idle : 0.045W (Typical, DIPM ON)		Average : 0.103W**** (Typical), Idle : 0.033W (Typical, DIPM ON) Device Sleep : 2mW	
Temperature	Operating : 0°C to 70°C / Non-Operating : -40°C to 85°C		Operating : 0°C to 70°C / Non-Operating : -40°C to 85°C	
Humidity	5% to 95%, non-condensing		5% to 95%, non-condensing	
Vibration	Non-Operating : 20~2000Hz, 20G		Non-Operating : 20~2000Hz, 20G	
Shock	Non-Operating : 1500G , duration 0.5m sec, 3 axis		Non-Operating : 1500G , duration 0.5m sec, 3 axis	
Warranty	3 years limited		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.

2.5-inch Package-Set

Basic (SSD Only)

Desktop Upgrade kit

Laptop Upgrade kit

mSATA Package-Set

SAMSUNG

Technical specifications

Samsung 840 EVO 2.5-inch

Product Lineup

	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

Package Set 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	Yes
SSD Installation Guide (Printed)	Yes	Yes	Yes
SSD Warranty Summary (Printed)	Yes	Yes	Yes
Samsung sofrware & manual CD	Yes	Yes	Yes
SSD Activation Sticker	Yes	Yes	Yes

Samsung 840 EVO mSATA

Product Lineup

	Model Name	Box Contents	Model Code
120GB	MZ-MTE120	Basic (SSD only)	MZ-MTE120BW
250GB	MZ-MTE250	Basic (SSD only)	MZ-MTE250BW
500GB	MZ-MTE500	Basic (SSD only)	MZ-MTE500BW
1TB	MZ-MTE1T0	Basic (SSD only)	MZ-MTE1T0BW

Package Set Contents

	Basic
SSD Warranty Summary (Printed)	Yes
SSD Activation Sticker	Yes

About Samsung Electronics Co., Ltd.

Samsung Electronics Co., Ltd. is a global leader in technology, opening new possibilities for people everywhere. Through relentless innovation and discovery, we are transforming the worlds of televisions, smartphones, personal computers, printers, cameras, home appliances, LTE systems, medical devices, semiconductors and LED solutions. We employ 236,000 people across 79 countries with annual sales of US$187.8 billion. To discover more, please visit www.samsung.com.

Samsung SSD activated

Samsung Electronics Co., Ltd.

416, Maetan 3-dong,

Yeongtong-gu

Suwon-si, Gyeonggi-do 443-772,

Korea

www.samsung.com

2014-01