Samsung SSD 840 PRO Series

Data Sheet, Rev. 1.2 (August, 2013)

Highlights

- 2.5" SATA 6Gb/s SSD for Client and Enterprise computing
- Samsung 3-core MDX controller
- Samsung Toggle DDR 2.0 NAND Flash memory (2xnm/1xnm)
- Up to 512MB Samsung Low Power DDR2 SDRAM cache memory
- AES 256-bit Encryption
- Worldwide Name (WWN) and LED Indicator support
- Magician software for SSD management
- Samsung Data Migration software
- 7mm profile

Unrivaled Performance

The Samsung SSD 840 PRO is a high-performance SSD designed for power users. Capable of delivering up to 100,000 IOPS Random Read Speed and 540MB/s Sequential Read Speed, it is an SSD of unrivaled high performance. Even better, the advanced MDX controller delivers these speeds regardless of data type, unlike some competing controllers that greatly favor compressible data.

Superior Reliability

As the world's #1 DRAM, NAND Flash, and SSD supplier, Samsung has unique, industry-leading engineering resources, technologies, and manufacturing processes as well as more stringent quality and testing standards. All Samsung SSDs are designed and built completely in-house, rather than sourcing generic parts from the market. The Samsung SSD 840 PRO Series is optimized for exceptional, sustained performance and unrivaled reliability through its specially-engineered wear-leveling and garbage collection algorithms and is backed by a generous 5-year limited warranty.

Performance Sustainability

The Samsung SSD 840 PRO provides the same excellent performance throughout its entire lifetime and under extremely heavy workloads. In fact, the sophisticated MDX controller is capable of maintaining peak performance under punishing conditions for more than twice as long as the nearest competitor.

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Business Friendly Features

The 840 PRO Series SSD introduces three important hardware features for businesses: Worldwide Name (WWN), LED Indicator support, and hardware-based AES 256-bit Full Disk Encryption (FDE). The first two of these features make it easier to integrate the 840 PRO SSD into server and storage systems. The third, 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. Because the encryption key is stored on the drive itself, it is not at risk of interception or outside attack, even if the drive is placed into a new PC. Also, destroying data is as easy as performing a Secure Erase using the Magician software.

In additional to the hardware features mentioned above, Samsung's Magician software is being completely redesigned and will include several business-friendly new features when version 4.0 becomes available later this year. With the addition of Drive Health Status, Total Bytes Written (TBW), and Disk Scan & Error Reporting functionality, it will be much easier for IT managers to monitor drive health and plan hardware replacement cycles.

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Technical Specifications

Samsung SSD 840 PRO Series		
Usage Application(s)	Client PCs, Enterprise Computing[†]	
Capacity	128GB, 256GB, 512GB	
Dimensions (L x W x 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	
NAND Flash Memory	Samsung Toggle DDR 2.0 NAND Flash Memory (400Mbps, 2xnm/1xnm)	
DRAM Cache Memory	256MB (128GB model) or 512MB(256GB & 512GB models) LPDDR2	
Performance*	4KB Random Read (QD32):	Max. 100,000 IOPS (256GB/512GB) Max. 97,000 IOPS (128GB)
	4KB Random Write (QD32):	Max. 90,000 IOPS (128GB/256GB/512GB)
	4KB Random Read (QD1):	Max. 9,900 IOPS (256GB/512GB) Max. 9,800 IOPS (128GB)
	4KB Random Write (QD1):	Max. 31,000 IOPS (128GB/256GB/512GB)
	Sequential Read:	Max. 540 MB/s (256GB/512GB) Max. 530MB/s (128GB)
	Sequential Write:	Max. 520 MB/s (256GB/512GB) Max. 390 MB/s (128GB)
TRIM Support	Yes (Requires OS Support)	
Garbage Collection	Yes	
S.M.A.R.T	Yes	
Encryption	AES 256-bit Full Disk Encryption (FDE)	
Weight	Max. 54g (128GB/256GB/512GB)	
Reliability	MTBF: 1.5 million hours	
Power Consumption	Average : 0.069W ** (Typical) Idle : 0.054W (Typical, DIPM ON), 0.349W (Typical, DIPM OFF)	
Temperature	Operating: 0°C to 70°C Non-Operating: -55°C to 95°C	
Humidity	5% to 95%, non-condensing	
Vibration	Non-Operating: 20 ~ 2000Hz, 20G	
Shock	1500G & 0.5ms (Half sine)	
Warranty	5 years limited (client PC use only)***	

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.

[†]   For enterprise usage (e.g. servers), a minimum of 6.7% over-provisioning (OP) is recommended.

*   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

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

*** For enterprise applications, 5 years limited warranty assumes a maximum average workload of 40GB/day (calculated based on host writes and on the industry standard of 3-month data retention). Workloads in excess of 40GB/day are not covered under warranty.

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Product Lineup

Density	Model Name	Box Contents	Model Code
128 GB	MZ-7PD128	Drive only	MZ-7PD128BW
		Bulk	MZ-7PD128Z
256 GB	MZ-7PD256	Drive only	MZ-7PD256BW
		Bulk	MZ-7PD256Z
512 GB	MZ-7PD512	Drive only	MZ-7PD512BW
		Bulk	MZ-7PD512Z

Contents

Contents	Drive Only	Bulk
Samsung software & manual CD	✓	N/A
SSD Installation Guide (Printed)	✓	N/A

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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