

Product Notification Form

PCN #: PCN19-0010	Rev: 1.0	Issue Date: June 14, 2019
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Type of Change: Recommended firmware update for S-45 and S-46 SD Memory Cards

minor / major

Detailed description of change:

- Improved general read and write performance
- Improved host compatibility and power consumption by limiting maximum interface frequency
- Improved SD erase performance
- Improved power-on sequence for frequent power cycles (> 200k over lifetime), as seen on specific Android devices
- Further host compatibility improvements:
 - Improved handling of aborted write commands (without data transfer)
 - Increased driving strengths for SD driver Type A and B to allow for greater range of customization

Overview Performance and Power consumption:

Firmware S-45	B (160125)	D (180312)
Random Read 4k (IOPS)	Up to 826	Up to 1189
Random Write 4k (IOPS)	Up to 838	Up to 944
Sequential Read (MB/s)	Up to 34	Up to 43
Sequential Write (MB/s)	Up to 14	Up to 21
Operating Current Read (mA) [measured]	71	68
Operating Current Write (mA) [measured]	67	64

Firmware S-46	C (160307)	D (180312) ¹⁾
Random Read 4k (IOPS)	Up to 1062	Up to 1439
Random Write 4k (IOPS)	Up to 1243	Up to 1259
Sequential Read (MB/s)	Up to 46	Up to 44
Sequential Write (MB/s)	Up to 52	Up to 39
Operating Current Read (mA) [measured]	74	63
Operating Current Write (mA) [measured]	88	67

¹⁾ For the S-46 series with new firmware, there will be a change of the UHS speed class on the front label.
New UHS speed class: U3

Overview UHS mode:

UHS-I mode (host support)	Card mode (select by host)	Card mode (select by host)
SDR12	SDR12	SDR12
SDR25	SDR12, SDR25	SDR12, SDR25
SDR50	SDR12, SDR25, SDR50	SDR12, SDR25, SDR50
DDR50	SDR12, SDR25, SDR50, DDR50	SDR12, SDR25, SDR50, DDR50
SDR104	SDR12, SDR25, SDR50, DDR50, SDR104	SDR12, SDR25, SDR50, DDR50

Swissbit has completed its internal testing and has qualified the new firmware to ensure full compatibility.

Firmware revision D is the new recommended version for new qualifications of the S-45 and S-46 SD Memory Cards series.

FW revision B for S-45 and revision C for S-46 will still be available for approved customer applications and can be used without any risk.

Updated data sheets can be downloaded from our website www.swissbit.com or are available on request.

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Quality impact:
 minor / major / no Performance and compatibility improvements

Reliability impact:
 minor / major / no

Reason for change: Continuous improvement process

Products affected:

Series	Current Part Number	New Part Number
S-45	SFSDxxxxL3BMxT0-t-xx-2B1-xxx	SFSDxxxxL3BMxT0-t-xx-2D1-xxx
S-46	SFSDxxxxL3BMxT0-t-xx-2CP-xxx	SFSDxxxxL3BMxT0-t-xx-2DP-xxx
SD Memory Cards		

t = temperature grade E or I; x = card capacity and options

Implementation date: June 14, 2019
 Products with new firmware can be ordered immediately. Products with old firmware remain orderable for approved customer applications.

Recommended action: Qualify new item with improved firmware to ensure highest reliability and lifetime in host system

Should you have any questions or concerns with the content of this change, please contact the Swissbit PCN team at customer.pcn@swissbit.com within 30 days. No response will be deemed as customer's acceptance of the change and the change will be implemented pursuant to the implementation date set forth in this PCN.

IMPORTANT NOTE:
Swissbit – as a provider of industrial products – announces and informs about every change in the product hardware and firmware. We always test backwards compatibility and assure best quality, reliability and transparency for our customers. We apologize for any inconvenience caused.

Products affected:

Series	Current ERP#	Current Part number	New ERP#	New Part number
S-45	605808	SFSD4096L3BM1T0-E-GE-2B1-STD	606532	SFSD4096L3BM1T0-E-GE-2D1-STD
	605809	SFSD4096L3BM1T0-I-GE-2B1-STD	606533	SFSD4096L3BM1T0-I-GE-2D1-STD
	605493	SFSD8192L3BM1T0-E-GE-2B1-STD	606534	SFSD8192L3BM1T0-E-GE-2D1-STD
	605499	SFSD8192L3BM1T0-I-GE-2B1-STD	606535	SFSD8192L3BM1T0-I-GE-2D1-STD
	605495	SFSD016GL3BM1T0-E-GE-2B1-STD	606536	SFSD016GL3BM1T0-E-GE-2D1-STD
	605494	SFSD016GL3BM1T0-E-LF-2B1-STD		
	605501	SFSD016GL3BM1T0-I-GE-2B1-STD	606537	SFSD016GL3BM1T0-I-GE-2D1-STD
	605500	SFSD016GL3BM1T0-I-LF-2B1-STD		
	605496	SFSD032GL3BM1T0-E-LF-2B1-STD	606538	SFSD032GL3BM1T0-E-LF-2D1-STD
	605502	SFSD032GL3BM1T0-I-LF-2B1-STD	606539	SFSD032GL3BM1T0-I-LF-2D1-STD
	605497	SFSD064GL3BM1T0-E-HG-2B1-STD	606540	SFSD064GL3BM1T0-E-HG-2D1-STD
	605503	SFSD064GL3BM1T0-I-HG-2B1-STD	606541	SFSD064GL3BM1T0-I-HG-2D1-STD
	605742	SFSD128GL3BM1T0-E-OG-2B1-STD	606542	SFSD128GL3BM1T0-E-OG-2D1-STD
	605744	SFSD128GL3BM1T0-I-OG-2B1-STD	606543	SFSD128GL3BM1T0-I-OG-2D1-STD
	606259	SFSD032GL3BM1T0-I-LF-1B2-TA1	TBD	SFSD032GL3BM1T0-I-LF-1D2-TA1
	606260	SFSD064GL3BM1T0-I-HG-1B2-TA1	TBD	SFSD064GL3BM1T0-I-HG-1D2-TA1
	606261	SFSD128GL3BM1T0-I-OG-1B2-TA1	TBD	SFSD128GL3BM1T0-I-OG-1D2-TA1

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S-46	606042	SFSD2048L3BM1T0-E-GE-2CP-STD	606671	SFSD2048L3BM1T0-E-GE-2DP-STD
	606058	SFSD2048L3BM1T0-I-GE-2CP-STD	606672	SFSD2048L3BM1T0-I-GE-2DP-STD
	606043	SFSD4096L3BM1T0-E-GE-2CP-STD	606673	SFSD4096L3BM1T0-E-GE-2DP-STD
	605875	SFSD4096L3BM1T0-I-GE-2CP-STD	606674	SFSD4096L3BM1T0-I-GE-2DP-STD
	606044	SFSD8192L3BM1T0-E-GE-2CP-STD	606675	SFSD8192L3BM1T0-E-GE-2DP-STD
	605876	SFSD8192L3BM1T0-I-GE-2CP-STD	606676	SFSD8192L3BM1T0-I-GE-2DP-STD
	606045	SFSD016GL3BM1T0-E-LF-2CP-STD	606677	SFSD016GL3BM1T0-E-LF-2DP-STD
	605873	SFSD016GL3BM1T0-I-LF-2CP-STD	606678	SFSD016GL3BM1T0-I-LF-2DP-STD
	606046	SFSD032GL3BM1T0-E-HG-2CP-STD	606679	SFSD032GL3BM1T0-E-HG-2DP-STD
	605874	SFSD032GL3BM1T0-I-HG-2CP-STD	606680	SFSD032GL3BM1T0-I-HG-2DP-STD
	606047	SFSD064GL3BM1T0-E-OG-2CP-STD	606681	SFSD064GL3BM1T0-E-OG-2DP-STD
	606048	SFSD064GL3BM1T0-I-OG-2CP-STD	606682	SFSD064GL3BM1T0-I-OG-2DP-STD
	606409	SFSD4096L3BM1T0-E-GE-2CP-KG1	TBD	SFSD4096L3BM1T0-E-GE-2DP-KG1