Product Notification Form

PCN #: PCN20-0004	Rev: 1.0	Issue Date: February 4th, 2020

Type of Change: Improved Firmware with extended Lifetime Monitor data, recommended for new design ins

☒ minor / ☐ major

Detailed Description of Change:

This product change notification is to inform you about a laser marking change and firmware update for **EM-20 (MLC) and EM-26 (pSLC) eMMC series** with capacities from 2GB to 64GB, which use firmware **FW1.**

The new firmware **FW2** has been improved as follows:
- Included detailed Lifetime Monitor data in EXT_CSD register (see details below)

In addition for EM-20 (MLC) 8-64GB, following register entries have been adjusted in **FW2**:
- Revised S_C_VCC and S_C_VCCQ register entries
- Adjusted group size registers and corresponding multiplicators to a common standard (WP_GRP_SIZE, SEC_ERASE_MULT, SEC_TRIM_MULT, HC_ERASE_GRP_SIZE, HC_WP_GRP_SIZE, MAX_ENH_SIZE_MULT)

Swissbit has completed its internal testing and has qualified the new firmware to ensure full compatibility.
We recommend to switch to the new firmware revision. Updated Datasheets are already available. The current firmware (FW1) will still be available for approved customer applications.

Lastly, the laser marking scheme and the partnumbering has been adapted, according to other Swissbit products (see details below). The laser marking was extended to contain more information from the partnumbers.

Quality impact:
☐ minor / ☐ major / ☒ no

Reliability impact:
☐ minor / ☐ major / ☒ no

Products affected:

Series	Current Part Numbers	New Part Numbers
EM-20	SFEMddddB1EA1T0-I-cc-111-STD	SFEMddddB1EA1T0-I-cc-121-STD
EM-26	SFEMddddB1EA1T0-I-cc-111-Exx	SFEMddddB1EA1T0-I-cc-12P-STD

d = drive capacity; cc = chip configuration; xx = pSLC (Enhanced mode) user capacity in GB (for FW1 only)

Implementation date: February 4th, 2020
Products with new firmware can be ordered immediately.

Recommended action: Qualify new items with improved firmware to benefit from detailed Lifetime Monitor data.

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.

Product Notification Form

Products affected:

Series	Current ERP#	Current Part Number	New ERP#	New Part Number
EM-20	500528	SFEM4096B1EA1T0-I-GE-111-STD	500540	SFEM4096B1EA1T0-I-GE-121-STD
	500529	SFEM008GB1EA1T0-I-GE-111-STD	500541	SFEM008GB1EA1T0-I-GE-121-STD
	500530	SFEM016GB1EA1T0-I-GE-111-STD	500542	SFEM016GB1EA1T0-I-GE-121-STD
	500531	SFEM032GB1EA1T0-I-LF-111-STD	500543	SFEM032GB1EA1T0-I-LF-121-STD
	500532	SFEM064GB1EA1T0-I-HG-111-STD	500544	SFEM064GB1EA1T0-I-HG-121-STD
EM-26	500533	SFEM4096B1EA1T0-I-GE-111-E02	500545	SFEM2048B1EA1T0-I-GE-12P-STD
	500534	SFEM008GB1EA1T0-I-GE-111-E04	500546	SFEM4096B1EA1T0-I-GE-12P-STD
	500535	SFEM016GB1EA1T0-I-GE-111-E08	500547	SFEM008GB1EA1T0-I-GE-12P-STD
	500536	SFEM032GB1EA1T0-I-LF-111-E16	500548	SFEM016GB1EA1T0-I-LF-12P-STD
	500537	SFEM064GB1EA1T0-I-HG-111-E32	500549	SFEM032GB1EA1T0-I-HG-12P-STD

Please note the changes marked red.

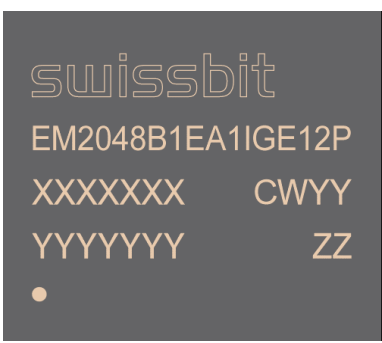**FW2 new detailed Lifetime Monitor data (excerpt from datasheet):**

Table 1: Extended CSD Register

Register Name	Bytes	Byte Width	Description	typ. Value FW1	typ. Value FW2
VENDOR_PROPRIETARY_HEALTH_REPORT	301	1	Swissbit specific data revision index	0x00	0x01
	300:299	2	MLC Target erase count	0x0000	0x0BB8 (3000)
	298:297	2	MLC current average erase count	0x0000	variable
	296:295	2	MLC current maximum erase count	0x0000	variable
	294:293	2	pSLC Target erase count	0x0000	0x4E20 (20000)
	292:291	2	pSLC current average erase count	0x0000	variable
	290:289	2	pSLC current maximum erase count	0x0000	variable
	288:287	2	Spare blocks on CE0	0x0000	variable
	286:285	2	Spare blocks on CE1	0x0000	variable
	284:283	2	Spare blocks on CE2	0x0000	variable
	282:281	2	Spare blocks on CE3	0x0000	variable
	280:279	2	Runtime bad blocks on CE0	0x0000	variable
	278:277	2	Runtime bad blocks on CE1	0x0000	variable
	276:275	2	Runtime bad blocks on CE2	0x0000	variable
	274:273	2	Runtime bad blocks on CE3	0x0000	variable
	272:270	3	Vendor proprietary health report (not used)	0x000000	0x000000

Please note the changes marked red. For details please refer to the new datasheets.

Product Notification Form

New Laser Marking Scheme for FW2 products:

EM-20 FW1: laser marking (example)	EM-20 FW2: new laser marking (example)
swissbit EM4096B1EAIG1 XXXXXXX CWYY YYYYYYY ZZ ●	swissbit EM4096B1EA1IGE121 XXXXXXX CWYY YYYYYYY ZZ ●

EM-26 FW1: laser marking (example)	EM-26 FW2: new laser marking (example)
swissbit EM4096B1EAIG1 XXXXXXX CWYY YYYYYYY ZZ ● E02	swissbit EM2048B1EA1IGE12P XXXXXXX CWYY YYYYYYY ZZ ●

XXXXXXX, YYYYYYY = Lot Codes, CWYY = Date Code, ZZ = Country Code