Information note

INF223403

With this Infineon Technologies AG Information Note we would like to inform you about the following

Observation of random data corruption in HYPERRAM Generation 1 parts

On 16 April 2020, Infineon acquired Cypress.
We are now in the process of merging and consolidating our tools and processes for PCN, Information Notes, Errata and Product Discontinuance.
For further details, please visit our website:

https://www.infineon.com/cms/en/about-infineon/company/cypress-acquisition/

▶ **Products affected**   Please refer to attached affected product list [36]

▶ **Detailed change information**

Subject   Random data corruption in HYPERRAM Generation 1 (Gen 1.0) parts under specific high-stress use-case conditions.

Reason   HYPERRAM Gen 1.0 products may experience data corruption during a rare, but possible signal timing event.

Asserting the CS# LOW signal for a normal read/write access just after the self-refresh flag is internally asserted, accompanied by an unexpected event such as on-chip noise, results in a delayed refresh word line (WL). This may cause the refresh WL to collide with the normal WL transition, corrupting the stored data at both word lines. This failure mode is likely to occur only when the device is subjected to intense data accesses or stress testing while asserting back-to-back CS# signals continuously over several hours or days.

Systems currently using HYPERRAM Gen1.0 products that haven't experienced data corruption events are at low risk for experiencing them in the future. Their designs and/or use-cases might not be invoking the combination of events required to induce a failure.

Infineon does not plan to modify the existing Gen 1.0 design. There are two possible solutions:

(1) For future requirements, Infineon recommends migrating to the higher performance HYPERRAM Gen 2.0 product which is form-fit-function compatible with HYPERRAM Gen1.0. Refer to Application note "Migrating from S27KL0641/S27KS0641 to S27KL0642/S27KS0642" for more details on the migration.

(2) If migration to HYPERRAM Gen 2.0 is not an option in that case Infineon offers a workaround which is enabled via special test mode entry and it would require system software/firmware update. Please contact Infineon technical support team at Technical Assistance Centre (TAC) for more details on the workaround and its implementation.

Description

OLD	NEW
HYPERRAM Gen 1.0:	**HYPERRAM Gen 2.0:**
Marketing Part Number/Series:	Marketing Part Number/Series:
S27KL0641, S27KS0641, S70KL1281, S70KS1281	S27KL0642, S27KS0642, S70KL1282, S70KS1282
Specifications:	Specifications:
100MHz/166MHz DDR @ 3V/1.8V	166MHz/200MHz DDR @ 3V/1.8V, improved timing
Status:	Status:
Not Recommended for New Design (NRND)	In Production

▶ **Product identification**	HYPERRAM Gen 1.0:
	Part numbers beginning with S27KL0641, S27KS0641, S70KL1281, S70KS1281
	HYPERRAM Gen 2.0:
	Part numbers beginning with S27KL0642, S27KS0642, S70KL1282, S70KS1282

| ▶ **Impact of change** | HYPERRAM Gen 1.0 devices are not recommended for new designs. |

| ▶ **Attachments** | Affected product list [36] |

| ▶ **Intended start of delivery** | Immediate |

If you have any questions, please do not hesitate to contact your local sales office.

Item	Marketing Part Number	Family
1	P7700180F2C000	SPCM
2	P7700180-F2C000	SPCM
3	P770018D-F2C000	SPCM
4	P770018DF2C000	SPCM
5	S27KL0641DABHA020	SPCM
6	S27KL0641DABHA023	SPCM
7	S27KL0641DABHA030	SPCM
8	S27KL0641DABHA033	SPCM
9	S27KL0641DABHB020	SPCM
10	S27KL0641DABHB023	SPCM
11	S27KL0641DABHB030	SPCM
12	S27KL0641DABHB033	SPCM
13	S27KL0641DABHI020	SPCM
14	S27KL0641DABHI023	SPCM
15	S27KL0641DABHI030	SPCM
16	S27KL0641DABHI033	SPCM
17	S27KL0641DABHV020	SPCM
18	S27KL0641DABHV023	SPCM
19	S27KL0641DABHV030	SPCM
20	S27KL0641DABHV033	SPCM
21	S27KS0641DPBHA020	SPCM
22	S27KS0641DPBHA023	SPCM
23	S27KS0641DPBHB020	SPCM
24	S27KS0641DPBHB023	SPCM
25	S27KS0641DPBHI020	SPCM
26	S27KS0641DPBHI023	SPCM
27	S27KS0641DPBHV020	SPCM
28	S27KS0641DPBHV023	SPCM
29	S70KL1281DABHI020	SPCM
30	S70KL1281DABHI023	SPCM
31	S70KL1281DABHV020	SPCM
32	S70KL1281DABHV023	SPCM
33	S70KS1281DPBHI020	SPCM
34	S70KS1281DPBHI023	SPCM
35	S70KS1281DPBHV020	SPCM
36	S70KS1281DPBHV023	SPCM