KARO electronics

Product Change Notification

TX53 Samsung NAND flash memory version D to E migration update

Description

The process of the Samsung NAND flash changed from D-die (5th Gen.) to E-die(6th Gen.).

	NAND flash memory part number
Current Generation Device	K9F1G08U0D
Next Generation Device	K9F1G08U0E

The main change points and the characteristics are as follows. The new information is that the E-die doesn't support multiple writes without erase:

Item	D-die	E-die
Design Rule	42nm	21nm
Program/Erase Endurance	100K cycles	50K cycles
Page Program Time (max.)	$750\mu s$	$900\mu s$
Block Erase Time (max.)	10ms	16ms
Max. Number of Page Program Cycles	4	1

Software requirements

1. No changes are needed for: RedBoot, U-Boot
Windows, Android
Linux if filesystems are not stored in NAND

2. Linux / JFFS2

If a filesystem image is padded with 0xFF to the erase block size it most probably happens that unnecessarily empty pages are also written during initial programming. Linux doesn't know about this and writes data to such a page a second time which results in corrupted data on E-die Samsung NAND devices. Use "-p1" with mkfs.jffs2 for padding to page size instead of erase block size.

```
    Creating a JFFS2 image file
    ===========================
        mkfs.jffs2 -n -p1 -e 0x20000 -d /tftpboot/rootfs -o rootfs.image
```

3. Linux / UBIFS

More recent Linux kernel versions using UBIFS use partial page programming which has to be prohibited. In this case it is recommended to use Micron NAND flashes instead. Refer to TX53-PCN-2015-03

Milestones

Date of migration: ongoing

Should you have any issues with the timeline or content of this change, please contact the Ka-Ro electronics. No response from customers will be deemed as acceptance of the change and the change will be implemented pursuant to the key milestone set forth in this PCN.

Ordering information

No change.

AFFECTED MPNS
TX53-8030
TX53-8130
TX53-1030
TX53-1331
TX53-1232