PCN

Due to supply chain constraints, the Spansion S25FL128SAGMFI00 is being replaced by the Winbond W25Q128JVSxM or W25Q128JVPxM on several Digilent products starting the PCA revisions listed in the table below.

The W25Q128JV is not functionally equivalent to the S25FL128S and might require changes to customer applications (embedded software) depending on the board support package in use (OS, drivers, and libraries).

A non-exhaustive list of the differences between the W25Q128JV and the S25FL128S:

- Manufacturer & Device ID: “EFh 70h 18h” vs. “01h 20h 18h”
- 3x256-B Security Registers vs. 32x32-B OTP Array
- Security Register Read command 48h vs. OTP Read command 4Bh
- Memory organization: 256 64KB or 4096 4KB uniform erase sectors vs. 32 4-KB bottom and 256 64-KB hybrid erase sectors
- Security Registers do not have manufacturer-programmed random number vs. OTP Array that does
- Maximum clock frequency for QPP, 4QPP commands: 133 MHz vs. 80MHz. Practically however, the system board limit is usually lower. Generally, 100 MHz for read and 50 MHz for write should work an all Digilent boards, unless a lower limit is specified in the reference manual.

Embedded software work-arounds depending on the board support package:

- Stand-alone environments should be modified if special non-standard commands are in use. For example, OTP read/write features should account for opcode and address changes. Standard flash array read and write commands, single or quad are compatible between the two.
- The MAC address for the Gigabit Ethernet port needs to be read out using the Read Security Registers (48h) command and the address range [001000h;001005h]. The byte order is the same as before, ie. the first byte in transmission byte order is at the lowest address.
- Xilinx tools such as Vitis and Vivado support the W25Q128JV once the correct part number is chosen when targeting the Flash memory. Choose the “w25q128fv-qspi-x4-single” option which is an alias for the “w25q128**jv**-qspi-x4-single”. Support for w25q128jv is available in version 2018.3 and above.
- U-boot and Linux kernel built using the “jedec,spi-nor” compatibility string for the flash node needs no changes, as the part is identified during probe. If the old way of specifying a fixed part is used, it is recommended that the compatibility string is replaced with “jedec,spi-nor”.

Affected products:

| Product Name | SKU | First PCA revision with W25Q128JV |
|---|---|---|
| Zybo Z7-10 | 410-351-10 | D.0 |
| Zybo Z7-20 | 410-351-20 | D.0 |
| Arty Z7-10 | 410-346-10 | D.0 |
| Arty Z7-20 | 410-346-20 | TBD |
| PYNQ-Z1 | 6003-410-017 | F.0 |