


PCN Overview			
			
PCN Number		DHCOM-STM32MP15-004	
PCN Date		19.04.2024	
Type of Change		Reset SPI Flash write-protect	
History			
Revision	Date	Description	Name
R01	19.04.2024	First draft	AG
R01	03.05.2024	Approval and release	SD

Change Information	
Reason of Change	SPI flash (Winbond W25Q16JV) memory may be write-protected, resulting in non-functional bootloader and environment update. The Winbond SPI NORs have special SR3 register which is used among other things to control whether non-standard "Individual Block/Sector Write Protection" (WPS bit) locking scheme is activated. This non-standard locking scheme is not supported by either U-Boot or Linux SPI NOR stack. Make sure it is disabled, otherwise the SPI NOR may appear locked.
Description of Changes	The write-protect status (WPS bit) of SR3 register is verified during testing.
Customer Impact	If the memory is write-protected, then it is not possible to update the bootloader or bootloader environment in the SPI flash without resetting the write-protect status.
Suggested Measures	<p>The write-protection must be removed with a U-Boot script. The script clears the WPS bit in the Winbond Flash W25Q16JV SR3 register.</p> <p>A binary executable for U-Boot can be downloaded from the following link:  <a href="https://github.com/dh-electronics/u-boot_scripts/releases/download/stm32mp15-sf-unset-wps-bit-v1.0/sf_unset_wps_bit.scr.uimg">https://github.com/dh-electronics/u-boot_scripts/releases/download/stm32mp15-sf-unset-wps-bit-v1.0/sf_unset_wps_bit.scr.uimg</a></p> <p>The script sources can be downloaded from the following link:  <a href="https://github.com/dh-electronics/u-boot_scripts/blob/stm32mp15/sf-unset-wps-bit/stm32mp15/sf_status_register_update.scr">https://github.com/dh-electronics/u-boot_scripts/blob/stm32mp15/sf-unset-wps-bit/stm32mp15/sf_status_register_update.scr</a></p> <p><b>Important:</b> after running the script, a power cycle must be performed.</p> <p>Outlook: besides the script mentioned above, a patch for U-Boot is already upstreamed and should be part of the next U-Boot release. With this following patch U-Boot clears the WPS bit during the SPI flash probe:  <a href="https://patchwork.ozlabs.org/project/uboot/patch/20240304161607.82759-1-marex@denx.de/">https://patchwork.ozlabs.org/project/uboot/patch/20240304161607.82759-1-marex@denx.de/</a></p>

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Logistics	Please ask your sales contact, if you have questions regarding this change scenario.
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Affected Products	
HS00029	DHCM-STM32MP157C-C065-R051-F0409-SPI-E2-SD-RTC-WBT-I-01D2
FS00013	DHCM-STM32MP153C-C065-R102-F0819-SPI-E2-CAN2-RTC-I-01D2

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