


PCN Overview			
			
PCN Number	DHCOR-STM32MP15-002		
PCN Date	19.04.2024		
Type of Change	SPI Flash write-protect status information		
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>

Logistics	Please ask your sales contact, if you have questions regarding this change scenario.
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Affected Products	
HS00010	DHCR-STM32MP151A-C065-R025-V33-SPI-I-01LG
HS00012	DHCR-STM32MP157C-C065-R051-V33-SPI-I-01LG
HS00022	DHCR-STM32MP157F-C080-R102-V33-SPI-I-01LG
HS00027	DHCR-STM32MP153C-C065-R102-V33-SPI-I-01LG

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