

Mask Set Errata for Mask 0N96V

This report applies to mask 0N96V for these products:

Table 1. Errata and Information Summary

Erratum ID	Erratum Title
e11543	FlexCAN: Nominal Phase SJW incorrectly applied at CRC Delimiter
e11097	LPSPi: Command word not loaded correctly when TXMSK=1
e11089	LPSPi: In Continuous transfer mode with CPHA =1, WCF bit is not set for every word.
e10777	SCG: Corrupted status when the system clock is switching.
e11114	SMC: invalid data might be fetched while accessing Flash in VLP modes

Table 2. Revision History

Revision	Changes
07/Jan/2019	Initial revision

e11543: FlexCAN: Nominal Phase SJW incorrectly applied at CRC Delimiter

Description: During the reception of a CAN-FD frame when the Bit Rate Switch (BRS) is enabled, the Synchronization Jump Width (SJW) at the CRC Delimiter bit is incorrectly defined by the Nominal Phase SJW. The CAN specification stipulates that the CRC Delimiter bit should have a SJW set by the Data Phase SJW.

When a resynchronization event is triggered at the CRC delimiter bit (recessive in correct operation), the sample point will be adjusted by an amount as defined by the Nominal Phase SJW rather than the specified Data Phase SJW. This may result in the incorrect detection of a dominant bit leading to a CAN error frame. However, as the CRC delimiter bit position will only



apply the SJW upon the detection of an unexpected dominant bit on the CAN bus, an error frame is already likely. For the case the SJW is applied at the CRC delimiter and a recessive bit is not detected, the receiving node will issue an error frame.

The CAN protocol is designed to handle resynchronization errors and hence the CAN bus will recover from the insertion of the incorrect SJW at the CRC delimiter. Upon detecting the error frame the transmitting node will re-transmit the frame.

The following FlexCAN configurations are not affected:

- Classical CAN frames (CAN 2.0B)
- CAN FD frames with bit rate switch disabled (BRS = 0)
- CAN FD frames with Nominal Phase SJW equal to Data Phase SJW
- CAN FD transmissions

For FlexCAN:

- Nominal Phase SJW is configured at CAN_CTRL1[RJW] or CAN_CBT[ERJW]
- Data Phase SJW is configured at CAN_FDCBT[FRJW]

Workaround: The robustness of the CAN protocol ensures that the receiver automatically recovers from the application of the incorrect SJW. The CAN protocol is designed to recover from resynchronization errors and hence any frame that is not correctly received will be re-sent by the transmitting node.

e11097: LPSPi: Command word not loaded correctly when TXMSK=1

Description: When the Transmit Command Register is written with TCR[TXMSK]=1 and the next write to the TX FIFO is another command, then the first command may not load correctly.

Workaround: When writing the Transmit Command Register with TCR[TXMSK]=1, wait for the TX FIFO to go empty (FSR[TXCOUNT] = 0) before writing another command to the Transmit Command Register.

e11089: LPSPi: In Continuous transfer mode with CPHA =1, WCF bit is not set for every word.

Description: When Transmit Command Register is written with TCR[CONT]=1 and TCR[CPHA]=1, SR[WCF] bit flag is not set after data is transferred. Therefore polling for SR[WCF] flag to identify if data has been sent can cause MCU to be stuck.

Workaround: When using continuous transfer mode TCR[CONT]=1 and TCR[CPHA]=1, do not use SR[WCF] flag to determine if data has been sent, fill up instead transmit FIFO with the following data without waiting for SR[WCF] flag to be set.

e10777: SCG: Corrupted status when the system clock is switching.

Description: The SCG_RCCR[SCS] and SCG_HCCR[SCS] may have a corrupted status during the interval when the system clock is switching

Workaround: The SCS field should be read twice by the software to ensure the system clock switch has completed.

e11114: SMC: invalid data might be fetched while accessing Flash in VLP modes

Description: VLPR and VLPS Low power modes are documented to work at System Clock and Core Clock at 4 Mhz and the Bus Clock at 4 MHz and DMA enabled from or to Flash memory. However any simultaneous access from any master (Core or DMA) to Dflash and Pflash may get invalid data while being in VLP modes and System clock, Core Clock and Bus Clock are above 1 Mhz

Workaround: There are two workarounds:

1. Restrict software to use either only Pflash or only Dflash only at a time in VLP modes for all masters (CPU,DMA) . When switching from Pflash only access to Dflash only access let current DMA transactions accessing flash to complete and jump to SRAM location , wait for 40 cycles for the ongoing accesses to complete on the current flash before accessing dflash.

When switching from dflash only accesses to pflash only accesses let the current DMA transactions accessing dflash to complete

and wait for 40 cycles for accesses to complete on the dflash before accessing the pflash.

2. If both Pflash and Dflash needs to be accessed simultaneously, the VLP modes must be run with System Clock, Core Clock and Bus Clock of 1 MHz.

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