



Mighty Gecko Module MGM210P Errata



This document contains information on the MGM210P errata. The latest available revision of this device is revision V2.

Errata that have been resolved remain documented and can be referenced for previous revisions of this device.

The device data sheet explains how to identify the chip revision, either from package marking or electronically.

Errata effective date: September, 2019.

1. Errata Summary

These tables list all known errata for the MGM210P and all unresolved errata in revision V2 of the MGM210P.

Table 1.1. Errata Overview

Designator	Title/Problem	Workaround Exists	Exists on Revision:
			V2
GPIO_E302	Increased Leakage Current When EM4WU Pins Are Enabled and the Pin State Is High	Yes	X
HFXO_E301	HFXO DISONDEMAND and FORCEEN Can Cause Device to Hang	Yes	X
IADC_E304	Possible Data Loss in EM2/EM3	Yes	X
RADIO_E301	Improper TX and RX Operation at High Temperature	Yes	X
TIMER_E301	Continuous Overflow and Underflow Interrupts in Quadrature Counting Mode	Yes	X

2. Current Errata Descriptions

2.1 GPIO_E302 – Increased Leakage Current When EM4WU Pins Are Enabled and the Pin State Is High

Description of Errata
When any of the EM4WU pins are used with the input path enabled and the pin state is high, an extra leakage current of approximately 15 μ A per pin will be observed in EM0, EM1, EM2, and EM3.
Affected Conditions / Impacts
EM0, EM1, EM2, and EM3 current will be higher by approximately 15 μ A per pin when any of the EM4WU pins are used with the input path enabled and the pin state is high.
Workaround
There are two workarounds for this issue: <ol style="list-style-type: none"> 1. If the input path on the pad is not required, disable the input path on that pad by setting the DINDIS or DINDISALT bits in the GPIO_PORTx_CTRL register. Thus, an EM4WU pin can still be used to drive an output without incurring the extra current leakage when the pin is configured as an output and DINDIS or DINDISALT is set. 2. If an input path is required (i.e. MODEn is any value other than DISABLED and DINDIS = 0 or DINDISALT = 0), assign it to a pin which does not have EM4 wakeup capability. <p>Refer to the device data sheet to determine which pins have or do not have EM4 wake-up functionality.</p>
Resolution
There is currently no resolution for this issue.

2.2 HFXO_E301 — HFXO DISONDEMAND and FORCEEN Can Cause Device to Hang

Description of Errata
When DISONDEMAND and FORCEEN in the HFXO_CTRL register are both 1, the HFXO causes a handshake between the EMU and the CMU to hang, which may prevent a system reset from being asserted.
Affected Conditions / Impacts
The device will hang waiting for the EMU/CMU handshake to complete, requiring a pin reset to recover.
Workaround
Do not set DISONDEMAND = 1 in HFXO_CTRL while the HFXO is enabled.
Resolution
There is currently no resolution for this issue.

2.3 IADC_E304 – Possible Data Loss in EM2/EM3

Description of Errata
When the IADC wakes from EM2 or EM3 and generates conversion results that the LDMA transfers to RAM, it is possible under very rare circumstances to lose data when the ratio of the bus clock (HCLK) is slow compared to the prescaled IADC clock (ADC_CLK).
Affected Conditions / Impacts
Data from IADC conversions in these cases can potentially be lost due to FIFO overflow.
Workaround
To prevent data loss when the IADC awakens from EM2 or EM3 and performs conversions that are serviced by the LDMA before re-entering the low-energy state, make sure that: <ul style="list-style-type: none">• the rate at which the IADC takes samples in EM2 or EM3 is less than or equal to 125 kHz (samples are taken no faster than every 8 μs), and• the frequency of the HCLK (bus clock) is at least four times the frequency of the IADCCLK.
Resolution
There is currently no resolution for this issue.

2.4 RADIO_E301 – Improper TX and RX Operation at High Temperature

Description of Errata
Some radio transceivers may fail to lock to the correct RF frequency at high operating temperatures when using Gecko SDK prior to Gecko SDK v2.5.4.
Affected Conditions / Impacts
Devices using Gecko SDK prior to v2.5.4 at high operating temperatures may be unable to lock to the desired RF frequency. This may cause errors in the TX/RX frequency or an inability to transmit or receive data.
Workaround
Customers should use firmware provided in Gecko SDK v2.5.4 or later for proper TX/RX operation.
Resolution
There is currently no resolution for this issue.

2.5 TIMER_E301 — Continuous Overflow and Underflow Interrupts in Quadrature Counting Mode

Description of Errata
When the TIMER is configured to operate in quadrature decoder mode with the overflow interrupt enabled and the counter value (TIMER_CNT) reaches the top value (TIMER_TOP), the overflow interrupt is requested continuously even if the interrupt flag (TIMER_IF_OF) is cleared. Similarly, if the underflow interrupt is enabled and the counter value reaches zero, the underflow interrupt is requested continuously even if the interrupt flag (TIMER_IF_UF) is cleared. Only after the counter value has incremented or decremented so that the overflow or underflow condition no longer applies can the interrupt be cleared.
Affected Conditions / Impacts
Because the counter is clocked by its CC0 and CC1 inputs in quadrature decoder mode and not the prescaled HPPERCLK, overflow and underflow events remain latched as long as TIMER_CNT remains at the value that triggered the overflow or underflow condition. Until the counter is no longer in the overflow or underflow condition, it is not possible to clear the associated interrupt flag.
Workaround
Short of disabling the relevant interrupts, the simplest workaround is to manually increment or decrement TIMER_CNT so that the overflow or underflow condition no longer exists. Insert the following or similar code in the interrupt handler for the timer in question (TIMER0 in this case) to do this:
<pre>uint32 intFlags = TIMER_IntGet(TIMER0); if (intFlags & TIMER_IEN_OF) TIMER0->CNT += 1; if (intFlags & TIMER_IEN_UF) TIMER0->CNT -= 1;</pre>
It may be necessary for firmware to account for this adjustment in calculations that include the counter value.
Resolution
There is currently no resolution for this issue.

3. Revision History

Revision 0.1

September, 2019

- Initial release.

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