ERRATA LIST

Artasie AMX8X5 RTC

CLKOUT Pin Behavior in VBAT Mode

A-RTCA85-ELGA01EN v2.0

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Revision History

Revision	Date	Description
1.0	June 2017	Initial release
2.0	January 13, 2023	Updated document template

Reference Documents

Document ID	Description

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Introduction

This document describes silicon errata related to the CLKOUT pin behavior on AMX8X5 Real Time Clock (RTC) with power management devices. On some AMX8X5 devices, the CLKOUT pin may remain active after the RTC switches over to the power source attached to the VBAT pin, even if the O4BM bit is cleared.

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Errata Summary List

AMX8X5 RTC devices support disabling of their input and output pins after a switchover to the VBAT pin supply occurs. The O4BM bit (at register address 0x3F) allows the user to select whether the CLKOUT pin is enabled or disabled after a switchover event. However, some AMX-8X5 devices may fail to disable the CLKOUT pin output, even if the O4BM bit is cleared.

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Detailed Silicon Errata

AMX8X5 RTC devices support disabling of their input and output pins after a switchover to the VBAT pin supply occurs. The O4BM bit (at register address 0x3F) allows the user to select whether the CLKOUT pin is enabled or disabled after a switchover event. However, some AMX-8X5 devices may fail to disable the CLKOUT pin output, even if the O4BM bit is cleared.

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Application Impact

On AMX8X5 devices, the input and output pins become powered from the VBAT supply when a switchover to VBAT occurs. Because the CLKOUT pin is a push pull driver, it may continue to drive other devices it is attached to (after the switchover event) if it is outputting a square wave clock or static output high. This can occur even if the O4BM bit is cleared. This can also result in increased power consumption from the VBAT supply.

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Workarounds

The following are the workarounds:

1. Prior to switching over to the VBAT supply, disable the square wave output and drive the CLKOUT pin low by clearing both the SQWE bit (at address 0x13) and the OUT bit (at address 0x10).
2. Use one of the open drain output pins with a pull-up resistor to VCC to perform the square wave output function, such as FOUT/nIRQ, which cannot drive an output high after switchover to VBAT.

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Resolution

This behavior will be fixed in a future silicon revision. One of the workarounds above should be implemented on revision A silicon if it is required that the CLKOUT pin be disabled after a switchover to the VBAT supply occurs.

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A-RTCA85-ELGA01EN v2.0
January 2023