

Deepsleep mode power consumption higher than expected

Questions:

When there is no read operation (for example, all code run at zero-wait area) after Flash erase or program, entering low-power modes such as Deepsleep mode in this case would lead to a higher power consumption than expected.

Answer:

After internal Flash erase and program operation is done, there is a period of dummy read operation. At this point, without actual read operation, CS signal (chip select) would remain low so that internal Flash is kept in running state, and the current it requires would be 8mA greater than it is in non-running mode, which causes a higher power consumption in low-power mode.

Solution:

Perform Flash read operation before entering Deepsleep mode, and this would make CS signal become high and send Flash into a standby state. By doing so, power consumption will be reduced.

Taking AT32F403A MCU as an example, before low-power mode entry, add code to read certain addresses located at boot memory so that Flash is able to execute read operation.

Type: MCU application

Applicable products: AT32F413, AT32F403, AT32F403A, AT32F407

Main function: None

Other function: None

Document revision history

Date	Revision	Changes
2022.3.31	2.0.0	Initial release

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