# ERRATA MCF5441x DAC

NetBurner Part Numbers: MOD5441x-100IR, MOD5441X-200IR, NANO54415-200IR
Date:  April 26, 2017
Revision Number:  All revisions

**Subject:**
ADC interaction issues when enabling power to the DAC of the NXP/Freescale MCF5441x family of microprocessors. This errata applies to the NXP/Freescale microprocessor silicon itself.

**Description:**
The 5441x microprocessor provides up to 8 ADC inputs, and up to 2 DAC outputs in two banks:
ADC0 – ADC3, and ADC4-ADC7. ADC3 and ADC7 have an alternate function as a DAC0 and DAC1 outputs. Per the NXP/Freescale data sheet, the input impedance to ADC channels is specified as 2k ohms.

However, when power is enabled to DAC0 or DAC1, it will affect the ADC inputs of their respective banks as if there is a 2k ohm pull-up or pull-down to analog power and ground. This will cause an offset in ADC readings for designs in which the ADC channels are connected as high impedance inputs.

In our testing we found the following behaviors if DAC0 and DAC1 are enabled:
ADC0/ADC4:     Not affected
ADC1/ADC5:     Tied to AVDD_ADC by 2k ohms
ADC2/ADC6:     Tied to AVSS_ADC by 2k ohms

**Work Arounds:**
1. If you require 4 ADC channels or less, enable the DAC in the opposite bank.
2. If you must use a single ADC input in a bank with the DAC enabled, use ADC0 or ADC4
3. If you require all the ADC inputs in a bank with the DAC enabled, you will need to add a low impedance buffer to the ADC inputs.