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Initialization Considerations When Moving from the BUFFALO Monitor to a Standalone MC68HC11

By Janet M. Snyder
Austin, Texas

General Information

Analog-to-digital (A/D) convertor code written under the BUFFALO monitor oftentimes does not run on a standalone MC68HC11 because of a simple error.

You must initialize the A/D convertor by writing a 1 to the A/D converter power-up bit (ADPU) in the option register. The A/D code executes properly under the BUFFALO monitor because BUFFALO initializes the A/D converter as part of its reset initialization sequence. The initialization of the A/D is found in the BUFFALO source code as the first two lines of the BUFISIT routine (lines 164 and 165) in the *M68HC11EVBU User's Manual*, Motorola document order number MC68HC11EVBU/AD2.

BUFFALO initializes other things that may have been overlooked in your code. The BUFFALO monitor programs the OPTION register like this:

- Oscillator startup delay is enabled (DLY = 1).
- The COP timer rate to a divide by 64 (CR1:CR = %11).
- IRQ is set for low-level sensitivity (IRQE = 0).
- The clock monitor is disabled (CME = 0).



- The A/D is set to use the system E clock (CSEL =0).

The BUFFALO monitor also provides these initial settings:

- The BPROT register is cleared, enabling writes to EEPROM and the CONFIG register.
- The stack pointer is initialized.

The bottom line is that whenever code runs successfully under the BUFFALO monitor and fails on a standalone MC68HC11, the problem is generally something that is not being initialized in the standalone code that was initialized automatically under BUFFALO.

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JAPAN: Nippon Motorola Ltd.: SPD, Strategic Planning Office, 141, 4-32-1 Nishi-Gotanda, Shinigawa-Ku, Tokyo, Japan. 03-5487-8488

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