

*Engineering Bulletin**EB385/D
11/2001**M68EM08MR32 ADC
Accuracy Improvement*

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Introduction

The M68EM08MR32 emulator module provides emulation capabilities for the MC68HC908MR32 microcontroller (MCU). Since the emulator requires certain pins of the resident MCU for interfacing an analog-to-digital converter (ADC) replacement, MC68HC08AS10PRU, is incorporated on the emulator module. This emulation environment makes the analog-to-digital conversion process more susceptible to noise than when the MCU is operating stand-alone.

The information here is designed to aid users with project development when they are using the emulator module.

ADC Accuracy

On emulator modules not labeled REV G or higher, the ADC accuracy may be improved by clipping pin 15, CLKB signal, on the M68EM08MR32 target header B, if it is not going to be used.

Modules labeled REV G and higher will have this pin already clipped.

Without CLKB, pin 15, clipped, users may find that the ADC accuracy improves on the emulator if the ADC internal clock is increased above the maximum specification of 1.048 MHz. Clocking the ADC above 1.048 MHz on the production chip is not recommended. Users should ensure that their final software implementation does not clock the ADC above the specification maximum.

Minimizing Noise

Noise in the M68EM08MR32 emulation module may be minimized by ensuring that the module is populated with filtering capacitors in accordance with the schematics found in *M68EM08MR32 Emulation Module User's Manual*, Motorola document order number EM08MR32UM/D.

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