Introduction

The ATSAME54 100-Pin Motor Control Plug-in Module (PIM), MA320207, is designed to demonstrate the capabilities of the ATSAME54 128-pin Motor Control device (ATSAME54P20A) using external op amps with the following hardware:

- The dsPICDEM™ MCLV-2 development board (DM330021-2)
- The dsPICDEM™ MCHV-3 development board (DM330023-3)

Both development boards support 100-pin PIM interfaces. The ATSAME54 Motor Control PIM is designed to use on board external op amps for signal conditioning of analog feedback inputs.

For the dsPICDEM™ MCLV-2 development board, insert the external op amp configuration board (included with the development board) at header J14.

For the dsPICDEM™ MCHV-3 development board, insert the PFC–EXT-OPAMP configuration board (included with the development board) at header J4.

Figure 1. Op amp Configuration Board for dsPICDEM™ MCLV-2
Programming and Debugging

Use the following options to program and debug software on the ATSAME54 Motor Control PIM:

- **In-Circuit Debugger**: The ATSAME54 Motor Control PIM can be programmed and debugged using the following debugging tools, which are connected to the board using a CoreSight 10 connector:
  - MPLAB® ICD4 In-Circuit Debugger
  - ATMEL-ICE
  - SAM-ICE™

- **Isolated EDBG Interface (AC320202)**: This daughter board provides an isolated programming and debugging interface for the ATSAME54 Motor Control PIM. This daughter board is compatible with the dsPICDEM™ MCHV-2/ MCHV-3 boards. Refer to the information sheet of this daughter board for additional information.

**WARNING**

Do not connect non-isolated oscilloscope probes to probe any traces while using the PIM with the dsPICDEM MCHV-3 development boards. Instead, use a high-voltage differential probe, rated in excess of 600 VRMS (Common mode). Failure to heed this warning could result in hardware damage.
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Figure 1-1. ATSAME54 Motor Control PIM Schematic
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