

ADuCM350 Software Development Kit Quick Start Guide

HARDWARE EQUIPMENT NEEDED

- 1 EVAL-ADuCM350EBZ board
- 1 USB-SW/UART-EMUZ
- 1 ADuCM350 switch mux configuration board (daughter board)
- 1 USB cable

SOFTWARE EQUIPMENT NEEDED

- IAR Embedded Workbench for ARM (from Version 7.10+)
- [ADuCM350 software development kit \(SDK\)](#)

GENERAL DESCRIPTION

The [ADuCM350](#) is a 16 MHz ARM® Cortex™-M3 core with a high precision AFE specifically designed for high precision data acquisition.

The [ADuCM350](#) has a 16-bit precision analog core with four dedicated voltage measurement channels and up to eight current measurement channels. It has an integrated complex impedance measurement system and uses an integrated parameter is able waveform generator to generate complex

waveforms. It uses an excitation amplifier control loop to do accurate potentiostat type measurements and has a highly configurable switch matrix that allows application specific amplifier configuration.

The device has a large array of peripherals including USB, CapTouch®, Display, Audio, an array of serial interfaces and GPIOs.

The [ADuCM350](#) includes 384 kB of Flash, 32 kB of SRAM, and 16 kB of Flash configured as EEPROM.

The [ADuCM350](#) support package comes with an extensive software development kit with examples and drivers to interrogate and evaluate the [ADuCM350](#).

This user guide describes the setup of the software development kit. For more information, see the [ADuCM350 Hardware Reference Manual](#) and [EVAL-ADuCM350EBZ](#) user guide.

TYPICAL SETUP

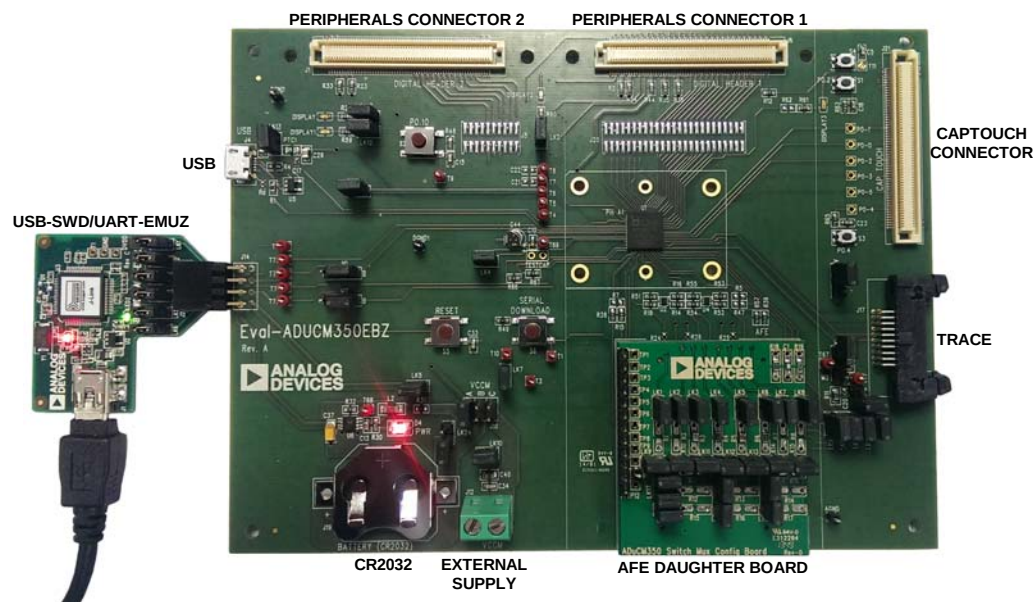


Figure 1. [EVAL-ADuCM350EBZ](#) Board

12167-001

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REVISION HISTORY

5/14—Revision 0: Initial Version

QUICK IMPEDANCE MEASUREMENT USING THE SOFTWARE DEVELOPMENT KIT

1. After downloading the IAR software, go to the newly installed **ADuCM350** SDK directory: C:\Analog Devices\ADuCM350BBCZ\Eval-ADUCM350EBZ\examples\ImpedanceMeasurement_2Wire.
2. Open the **ImpedanceMeasurement_2Wire.eww** workspace in the IAR Embedded Workbench.
3. Click the **Download and Debug** button to download firmware to device.

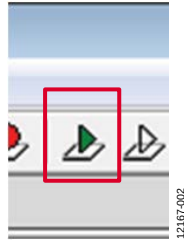


Figure 2. Download and Debug Button

For extra information, click **View > Terminal I/O** and/or **View > Register** (see Figure 3).

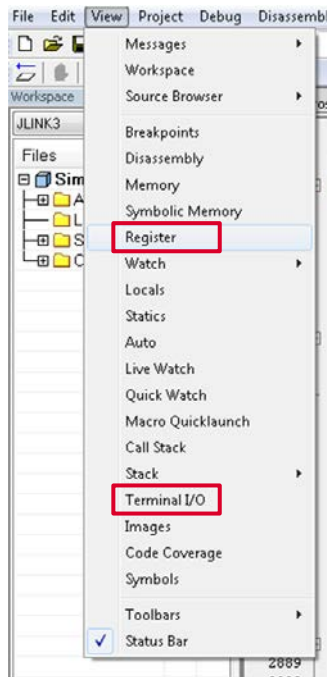


Figure 3. View Menu

4. Click the **Go** button (see Figure 4).

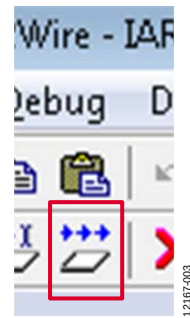


Figure 4. Go Button

5. The DFT results from the AFE sequencer are displayed in the **Terminal I/O** window. The magnitude and phase calculated on the core are also displayed (see Figure 5).

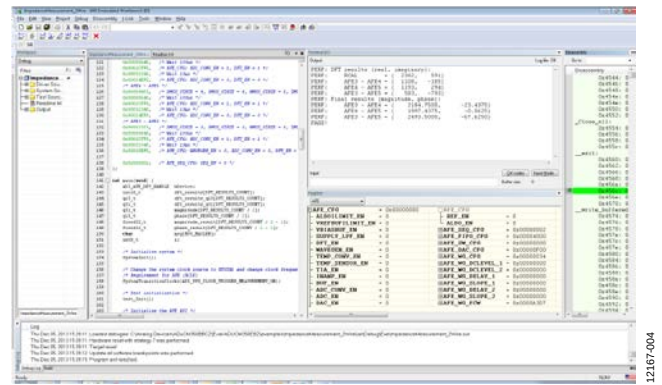


Figure 5. ImpedanceMeasurement_2Wire Example Project

6. Click the **Stop Debugging** to exit debug mode (see Figure 6).

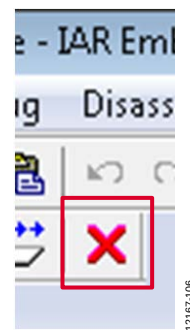


Figure 6. Stop Debugging Button

NOTES

**ESD Caution**

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

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