

Evaluation Board for the ADBMS6822 Dual isoSPI® Adapter

FEATURES

- ▶ Full featured evaluation board for ADBMS6822
- ▶ Demonstrates SPI to isoSPI two-wire datalinks
- ▶ Includes 2 isoSPI ports for reversible isoSPI support
- ▶ Configurable powering options for LPCM support isoSPI connections via simple DuraClik® connectors
- ▶ Compatible Boards EVAL-ADBMS68xx, Battery Monitor boards EVAL-SDP-CK1Z, controller board
- ▶ PC software for control and data analysis when used with the Analog Devices, Inc., SDP-K1 microcontroller

EVALUATION KIT CONTENTS

EVAL-ADBMS6822 Dual isoSPI adapter board isoSPI DuraClik™ cable

EQUIPMENT NEEDED

- ▶ EVAL-SDP-CK1Z controller board
- ▶ EVAL-ADBMS68xx isoSPI boards

SOFTWARE NEEDED

Evaluation software for the ADBMS6822:

- ▶ BMS Browser PC-based Graphical User Interface Program.
- ▶ Request through https://form.analog.com/form_pages/software-modules/SRF.aspx

GENERAL DESCRIPTION

Evaluation board EVAL-ADBMS6822 is a dual SPI to 2-wire isolated serial interface (isoSPI) adapter featuring the ADBMS6822. Multiple ADBMS68xx battery monitors can be linked through daisy-chain interconnections. The evaluation board also features reversible isoSPI enabling a redundant communication path to the peripheral units. The PCB, components, and DuraClik™ connectors are optimized for Low EMI Susceptibility and Emissions.

EVAL-ADBMS6822 can communicate to a PC by connecting together with EVAL-SDP-CK1Z. The EVAL-ADBMS6822 provides a standard SPI interface which can be translated to isoSPI and then onward to a peripheral device or daisy chain as applicable.

Design files for this circuit board are available.

PERFORMANCE SUMMARY

Table 1. Specifications are at $T_A = 25^\circ\text{C}$ (Continued)

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PARAMETER	MIN	TYP	MAX	UNITS
V+ Supply Voltage	3		30	V
V+ Supply Voltage (LPCM)	6		30	V
V_{IH} Input Range	0.7* V_{DDS}			V
V_{IL} Input Range			0.3* V_{DDS}	V

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REVISION HISTORY

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FUNCTIONAL BLOCK DIAGRAM

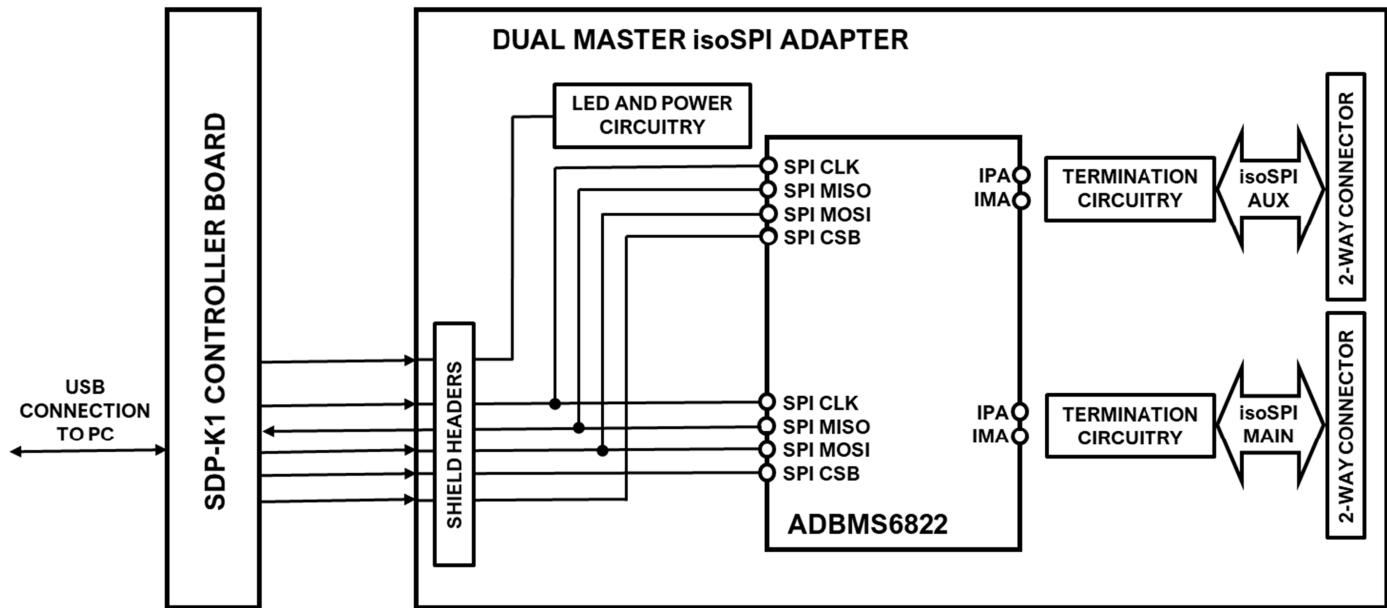


Figure 1. Overview of EVAL-ADBMS6822 Dual isoSPI Master Adapter and EVAL-SDP-CK1Z Interface Board (Both sold separately)

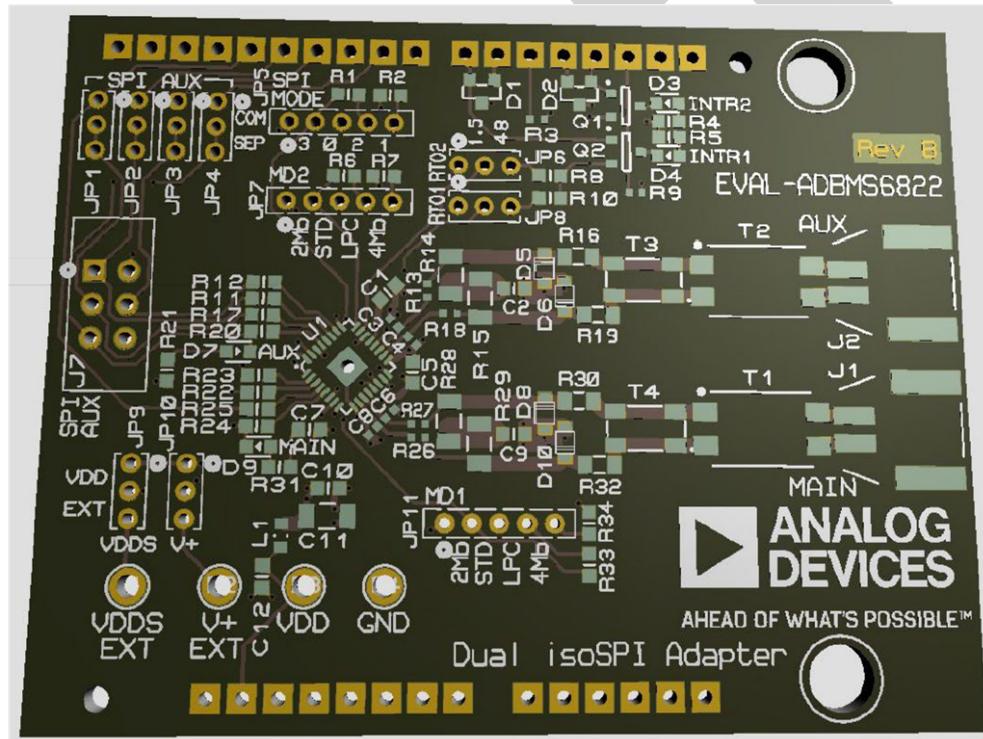


Figure 2. Overview of EVAL-ADBMS6822 board layout

EVALUATION BOARD FEATURES

HARDWARE SETUP

Shield-Mount Board Connection

Primary EVAL-ADBMS6822 board connection is accomplished by plugging the board directly onto an EVAL- SDP-CK1Z Controller Board (SDP-K1) as shown in [Figure 3](#). Pins on the backside of the EVAL-ADBMS6822 board connect directly with sockets on the SDP-K1 board. The shield connections provide all the default data and power connections. Note that the SDP-K1 interface voltage must be set at P14 to 3.3V.

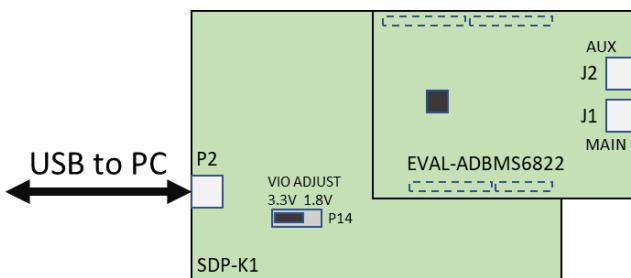


Figure 3. Direct Installation of EVAL-ADBMS6822

EVAL-ADBMS6822 IsoSPI Connections

J1 is the MAIN isoSPI port. Applications that only use one port will use this connection to make daisy-chain connections to peripheral isoSPI devices. **J2** is an auxiliary port that is used as a redundant controller in a reversible isoSPI daisy-chain network, and as another independent isoSPI interface.

JUMPERS

Several features or optional connections are configured with jumpers on the latest version of EVAL-ADBMS6822.

EVAL-ADBMS6822 OPTIONAL CONNECTIONS

SPI AUX Optional Header J7

This double row of through-holes (hole field) can be used to connect a fully independent AUX SPI channel. A connector or discrete wires can be soldered to this array.

JP1-JP4: These are set as a group to either configure the AUX port SPI traffic as being common(COM) with the MAIN SPI, or completely separate(SEP). The common connection(COM) shares the MISO, MOSI, SCK from the SDP-K1 controller, along with dedicated CSB lines to provide multiplexing. The separate setting(SEP) connects the AUX SPI signals to J7 exclusively.

JP5: Sets the SPI mode for both channels of the ADBMS6822. Mode 0 is used in most applications.

JP6: Two settings are provided for setting the LPCM response interval of the AUX channel: either 1.5 seconds or 48 seconds. Other intervals can be achieved with resistor value changes to the board.

JP7, JP11: Configures the operating modes of the AUX and MAIN channels, respectively. Positions of the jumper correspond to the following options:

- **2Mb:** 2Mb Peripheral with 1-bit Latency
- **STD:** Standard Bidirectional isoSPI
- **LPC:** Standard Bidirectional isoSPI with LPCM Timeout Monitor Support
- **4Mb:** 4Mbps Unidirectional

JP8: Two options are provided for setting the LPCM response interval of the MAIN channel: either 1.5 seconds or 48 seconds. Other intervals can be achieved with resistor value changes to the board.

JP9: Configures the VDDS supply pins to either the VDD potential or an externally furnished voltage at turret VDDS EXT.

JP10: Configures the V+ supply pins to either the VDD potential or an externally furnished voltage at turret V+EXT.

Table 2. Pin Designations for the J7 SPI AUX Connector

No.	Pin
1	MISO2
2	VDDS
3	SCLK2
4	MOSI2
5	CSB2
6	GND

EVALUATION BOARD SOFTWARE

WHERE TO GET ADBMS68XX_GUI SOFTWARE?

Request the GUI software with the **ADI Software Request Form** from the following link:

- ▶ https://form.analog.com/form_pages/softwaremodules/SRF.aspx.
- ▶ Or search for “Software Request Form” at www.analog.com.

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