General Description
The MAX5725 evaluation system demonstrates the MAX5725 ultra small, 8-channel, low-power, 12-bit buffered output DAC with internal reference. The MAX5725 peripheral module (PMod) and the USBPMBP2 module form a system (MAX5725SYS1#). Windows 7/8/10-compatible software provides a user-friendly interface that demonstrates features of the MAX5725.

The MAX5725 peripheral module comes installed with the 20-bump WLP package, MAX5725AWP+.

Features
- 2x6-Pin PMod™-Compatible Connector (SPI)
- On-Board Voltage Reference (MAX6173)
- Proven PCB Layout
- Fully Assembled and Tested
- Windows 7/8/10-Compatible Software

Ordering Information appears at end of data sheet.

Windows are registered trademarks and registered service marks of Microsoft Corporation.

Pmod is a trademark of Digilent Inc.
Quick Start

Required Equipment
- MAX5725 EV System (includes MAX5725PMB and USBPMBP2 module with micro USB cable)
- Voltmeter
- Oscilloscope

Note: In the following sections, software-related items are identified by bolding. Text in bold refers to items directly from the EV system software. Text in bold and underlined refers to items from the Windows operating system.

Procedure
The EV system is fully assembled and tested. Follow the steps below to verify board operation:

1) Visit http://www.maximintegrated.com/ and search for MAX5725 product page. Click the DESIGN RESOURCES tab. The software associated with this part appears under the MAX5725 product.

2) Align the X2 connector of the USBPMBP2 with the J2 connector of the MAX5725 Pmod.
3) Verify that a shunt is placed on the JU1 and JU2 headers and no shunt on the JU3 header.
4) Connect the voltmeter at the REF test point.
5) Connect the oscilloscope probe to pin 1 of header J3.
6) Connect the USB cable from the PC to the USB-PMBP2 board.
7) Open the GUI, MAX5725EVKIT.exe (Figure 1).
8) Click Scan Adapters. Then select the option PMODxxxxxx (where xxxxx is numeric) and click Connect.
9) To evaluate the MAX5725, click Sample Continuously.

Figure 1. MAX5725 EV System Main Window
General Description of Software
The main window of the MAX5725 peripheral module controls the evaluation of the MAX5725 IC. Waveform generator is included that allows the user to quickly evaluate the device.

USB2PMB Adapter
The controls within the USB2PMB group box allows the user to select the appropriate USB2PMB devices. When Scan Adapters is enabled, it updates the dropdown list with all USB2PMB devices. PMODxxxxxx (where xxxxxx is numeric) appears within the dropdown list with the EV system connected to the PC. Make the appropriate selection respective of the IC and click Connect.

DAC Command
The DAC Commands drop down list allows the users to select the internal registers to code or load specific DAC channel(s).

Output Channel
To select an individual channel or all channels, click Output Channel drop down list.

Signal Setup
The Signal Setup controls are used to quickly evaluate the EV system, which is similar to a functional generator. It provides waveforms in sine, left and right sawtooth, triangle, square, and white noise. A user can adjust Amplitude, Offset, and Frequency for each waveform.

Sampling
The Sample group box allows for a single or continuous sampling. It also adjusts the SPI SCLK and sampling rate. The Scope captures data DAC Counts, Voltage(V), and FFT graphing options.

Calibration
The Calibration button provides access to all other registers within the MAX5725 IC. The Calibration window allows the user to set internal or external references, power down modes, reset options, default scale options, watchdog timer, and LDAC and CLR control. For a detailed description of each register function, refer to the MAX5725 IC datasheet.

Figure 2. MAX5725 EV System Calibration Window
General Description of Hardware
The MAX5725 EV system demonstrates the 8-channel 12-bit ADC. The USBPMBP2 module and the MAX5725 Pmod completes the system. The USBPMB2 acts as the master and generates all the SPI communications.

User-Supplied SPI
To evaluate the EV system with a user-supplied SPI bus, the connector J2 is a compatible 2x6 pin PMod connector.

User-Supplied VDD
The MAX5725 supply (VDD) is powered by USB and regulated to 3.3V by default when a PMod compatible master module is connected to the J2 connector of the Pmod. For a user-supplied VDD, a PMod master module is not allowed on the J2 connector. The user needs to apply a voltage between +2.7V to +5.5V at the VDD test point.

User-Supplied VDDIO
The MAX5725 I/O supply (VDDIO) is powered by USB and regulated to 3.3V by default when a PMod compatible master module is connected to the J2 connector of the Pmod. For a user supplied VDDIO, remove the shunt from the JU2 header and apply a voltage between +1.8 and +5.5V at the VDDIO test point.

User-Supplied Reference (REF)
The MAX5725PMB comes with an on-board MAX6173, 2.5V voltage reference. To use this feature, a 5V DC supply must be applied at the TP1 test point and a shunt must be installed on the JU3 header. To use a user-supplied external reference, do not place a shunt on the JU3 header and apply +1.24V to VDD at the REF test point.

Ordering Information

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<tr>
<td>MAX5725PMB#</td>
<td>Peripheral Module</td>
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<td>USBPMB2#</td>
<td>Adapter Board</td>
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#Denotes RoHS compliant.
# MAX5725 Evaluation System

Evaluates: MAX5725

## MAX5725 EV Kit Bill of Materials

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**TOTAL**: 23 items
MAX5725 Evaluation System

Evaluates: MAX5725

MAX5725PMB Layout

Silk Top

Bottom

Top

Silk Bottom
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