



The most recent version of this page is a draft. This version (01 Apr 2022 04:05) was **approved** by Marymae Hermoso. The Previously approved version (29 Mar 2022 11:00) is available.

This is an old revision of the document!

# Evaluation Board for the AD590 2-Terminal IC Temperature Transducer

## Description

This user guide describes the [EVAL-AD590-ARDZ](#) evaluation board hardware and software and includes detailed schematics and PCB layout artwork. This evaluation board is simple, easy-to-use platform which allows direct evaluation of the [AD590](#) analog temperature sensor.

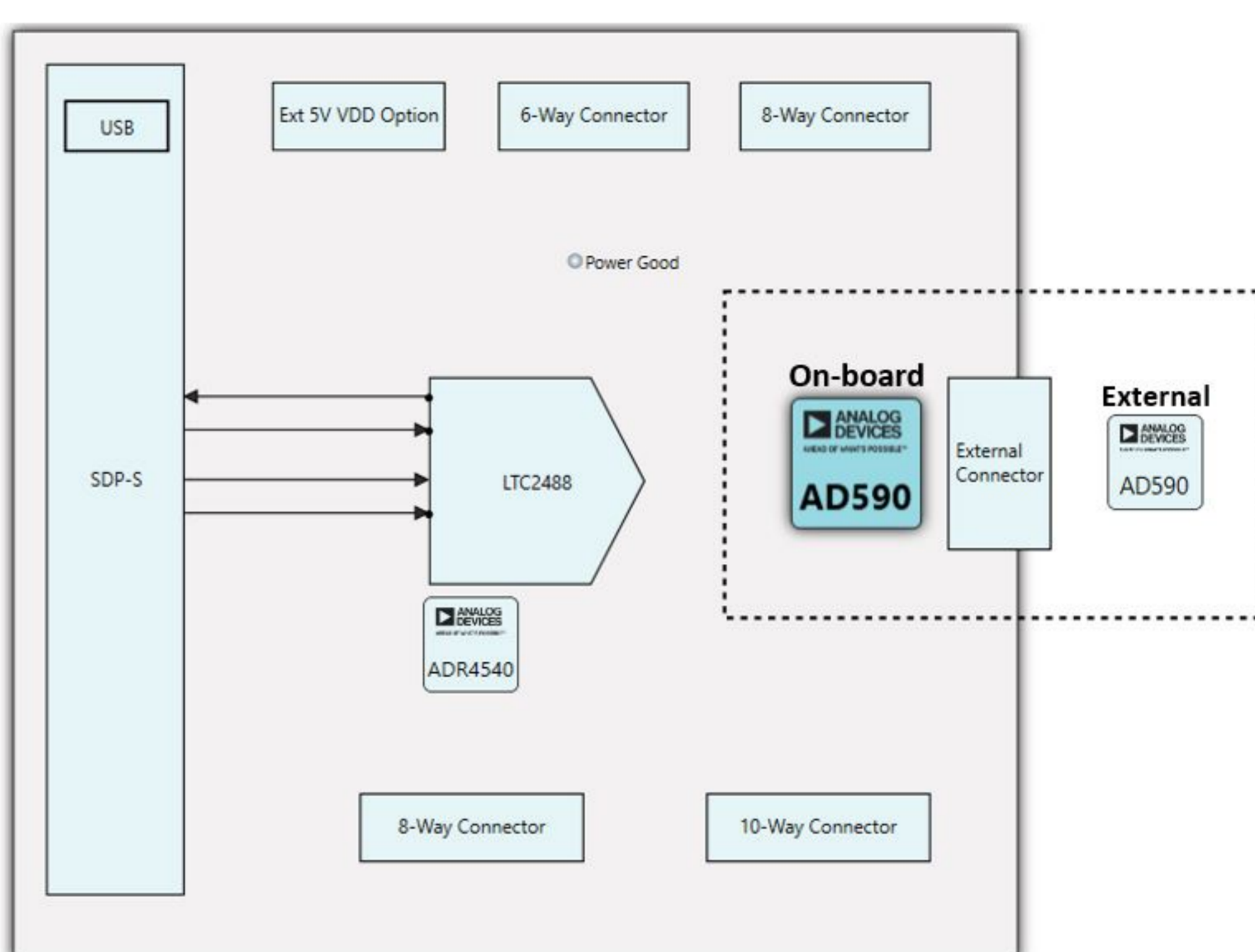
The [AD590](#) is a 2-terminal integrated circuit temperature transducer that produces an output current proportional to absolute temperature. Requiring supply voltages between 4V and 30V, the device acts as a high impedance, constant current regulator passing 1μA/K. Laser trimming of the chip's thin-film resistors is used to calibrate the device to 298.2μA output at 298.2K (25°C).

When using the [AD590](#) evaluation board, in addition to this user guide, the user should also consult the [AD590](#) datasheet (available at the [Analog Devices, Inc.](#), website, [www.analog.com](#)).

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Figure 1. EVAL-AD590-ARDZ FUNCTIONAL BLOCK DIAGRAM



## Hardware Setup

### Evaluation Requirement

- [EVAL-AD590-ARDZ](#) Evaluation Board
- SDP/Linduino Controller Board and User Guide
- PC with a USB port and Windows 7 (32-bit) or higher
- Serial Terminal Software (Putty/TeraTerm or similar)
- USB Standard-A to Mini-B cable

### Quick Start Procedure

- Connect the SDP board ( [SDP-S](#) , [SDP-B](#) , or [SDP-K1](#) ) to the [EVAL-AD590-ARDZ](#) (see [Figure 2](#)) development board via Connector P10. See [Figure 3](#) for a diagram showing the connected [EVAL-AD590-ARDZ](#) board and SDP board.

### Location of Evaluation Board Schematics

- The evaluation board schematic diagrams and bill of materials are included with all the supporting documentation on the [EVAL-AD590-ARDZ](#) product page.

### Power Supplies

- The [EVAL-AD590-ARDZ](#) evaluation board is powered by 5V from either an [SDP board](#) or [Linduino board](#) via **JP1**. Alternatively, the [EVAL-AD590-ARDZ](#) board can be powered externally via **P9**, which is selected by changing the **JP1** jumper to **position B**.

Figure 2. EVAL-AD590-ARDZ EVALUATION BOARD



Figure 3. EVAL-AD590-ARDZ BOARD AND SDP BOARD CONNECTED DIAGRAM



## Software Setup

The software is designed to be simple and straight forward to use. Select which sensor you would like to use, whether you want to use the internal sensor or a remote one and then simply enter a number corresponding to the required command and follow the on-screen prompts. Refer to software manual [EVAL-AD590-ARDZ Mbed Example \[Analog Devices Wiki\]](#) for more detailed information.

FIGURE 4. EVAL-AD590-ARDZ DEMONSTRATION PROGRAM

```

COM9 - Tera Term VT
File Edit Setup Control Window Help

*****
EVAL-AD590-ARDZ Demonstration Program
*****
This program demonstrates High-accuracy temperature sensing
capabilities of the AD590 using the on-board ADC
LTC2488 communicating with SDP-K1 over SPI.
*****

Please select a device:

[0] AD590 < On-board Sensor >
[1] AD590 < External Remote Sensor >

Please make a selection.
  
```