

Application note: A/D-D/A-Converter with DB54

Introduction

This application note describes how to connect an A/D-Converter and a D/A-Converter to the SC23 Controller board DB54 using the I²C Bus.

Test routines

For the A/D-D/A-Converter a small test program (analog.exe) is made available. This test program has to be started with an 12bit value (0..4095). The value 0..4095 is equivalent to 0..5 Volt and is being applied to the analog output channel. As a next step the analog input value is read on analog input 7 several times and the results (range 0..4095) are shown on the console.

If you connect the analog output channel to the input channel 7 you can directly measure the applied output voltage.

The test program as well as the software source code is included in the ZIP-File AD-DA-Converter with DB54/C Program.

General notes

The schematic below illustrates how to connect the converters to the SC23 I²C Bus accessible through the pin header S30 of the DB54.

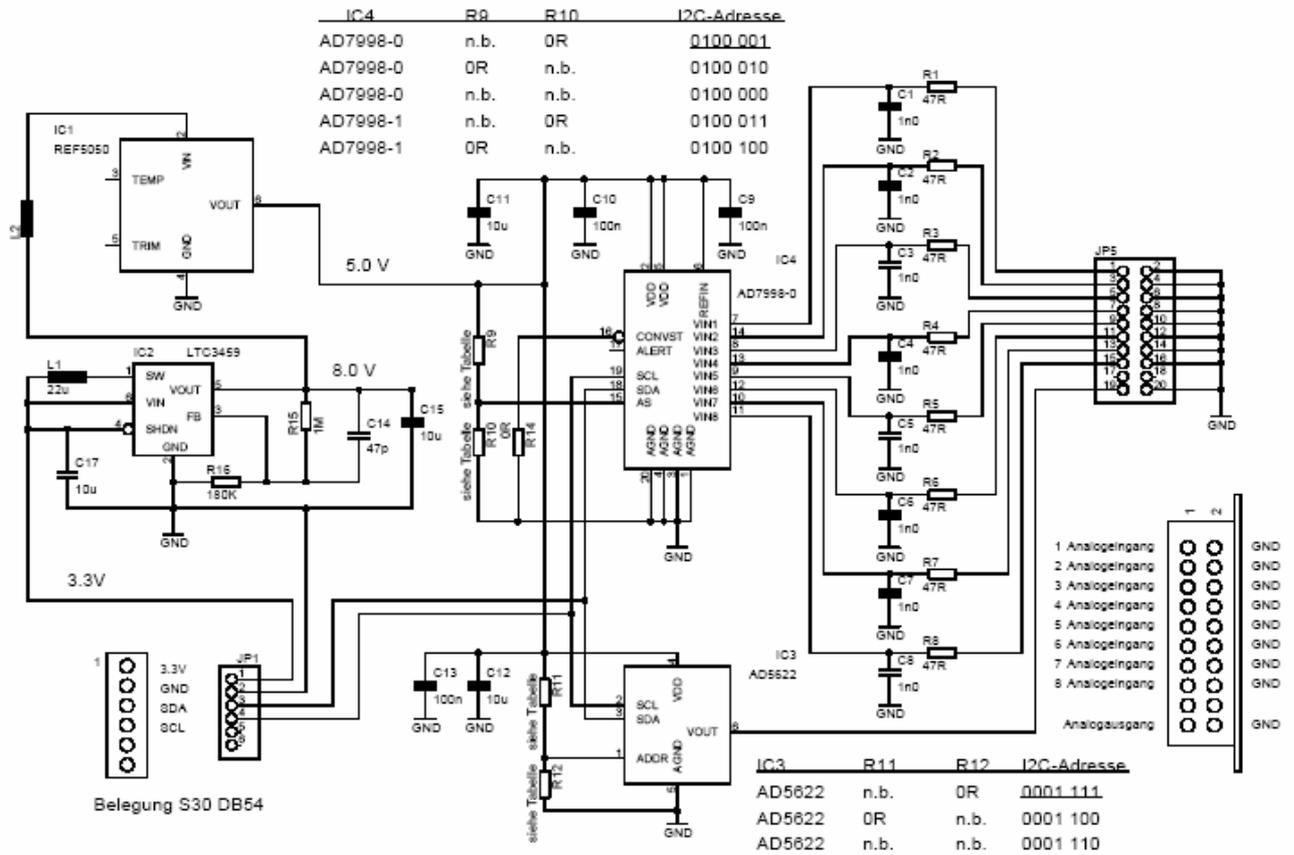
The I²C address of the A/D -Converter AD7998-0 is 0x42 and the I²C address of the D/A -Converter AD5622 is 0x1E. Both converters allow different I²C address settings.

The LTC3459 is a boost converter using the 3.3 V input of the DB54 towards a 8 V output.

The REF5050 generate a very accurate voltage of 5.0 V out of this 8 V for the A/D- and D/A-Converters.

The high speed operation of the DC/DC-Converter demands careful attention for the board layout. The datasheet of the LTC3459 includes the recommended component placement.

The documentation about the A/D-D/A-Converter are included in the ZIP-File in the documentation folder.



Circuit diagram AD/DA converter