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ADS124S06: General Wiring Help with this device



[Spencer Zanardi](#)

[Prodigy_110](#) points

Community Member

Part Number: [ADS124S06](#)

Other Parts Discussed in Thread: [ADS124S08EVM](#), [ADS124S08](#), [MSP430F5529](#)

Hi,

I am looking to use the ADS124S06 with an MSP432P401R Launchpad to measure voltages and send that data to a computer. I was wondering if I could get some general help in setting up the device; I am confused on what pins I need to set up in order for this device to function properly. I plan on using all 6 analog input pins and sending the data to an MSP432 with SPI. Also, I want to set AVDD to 5 V. Most of my trouble is with the REF and Digital pins. Please let me know if you need any more information from me to help set this up.

[over 5 years ago](#)



[Bob Benjamin](#) *over 5 years ago*

[TI_Guru**](#) 113705 points

Hi Spencer,

I would suggest taking a look at the ADS124S08EVM user's guide and the schematic at the end of the user's guide to see how the device is connected.

<http://www.ti.com/lit/ug/sbau272a/sbau272a.pdf>

The ADS124S08 is a superset version of the ADS124S06, and the connections would be very similar. Basically you should not let any of the digital pins float. The CLK pin can be tied low, which enables the internal oscillator. RESET can be tied high or controlled by the micro GPIO. START/SYNC can be tied high to force the device into continuous conversion mode, or tied low to operate by command, or be tied to GPIO for control of the pin. DRDY is an output pin which can be monitored by a GPIO input pin. This pin can be polled for checking to see if a conversion is completed, or even better should be connected to a GPIO interrupt (high to low transition) so that the data are read as soon as possible after the conversion completes. DOUT/DRDY would connect to the desired peripheral MISO (P1.7) on the LaunchPad. DIN connects to MOSI (P1.6) and SCLK connects to the LaunchPad SCLK pin (P1.5). CS requires the use of a GPIO pin for control as transaction length can vary from a single byte to many bytes. CS must stay low throughout the entire communication transaction. CS can also be tied low, but if possible it is better to use CS.

There is also example code which can be adapted to the MSP432 by adjusting the low-level communication to the hardware pins along with the appropriate calls to the ARM processor as opposed to the MSP430F5529 LP.

<http://www.ti.com/lit/zip/sbac159>

Regarding the reference, the ADS124S06 has a built in 2.5V reference that can be used. To use this reference you need to have a capacitor from REFOUT to REFCOM of 1uF or larger. REFCOM also needs to be connected to AVSS.

You can also connect an external reference to the REFP and REFN pins. There are two sets of reference inputs REF0 and REF1 that can be used. An external reference can be applied from 0.5V up to the AVDD supply voltage.

Best regards,

Bob B



[Spencer Zanardi](#) *over 5 years ago in reply to [Bob Benjamin](#)*

[Prodigy_110](#) 110 points

Thank you Bob!

One last question: Since I do not plan on using the GPIO pins on the ADS124, should I tie them HIGH or leave them floating?

Thanks,

Spencer



Bob Benjamin *over 5 years ago in reply to [Spencer Zanardi](#)*

[TI_Guru**](#) 113705 points

Hi Spencer,

There is a discussion in the ADS124S06 datasheet in section 10.1.5 Unused Inputs and Outputs. You could leave the GPIO float or you could tie high if desired.

Best regards,

Bob B

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