

TI C2000 Toolbox ADC

This document describes *ADC* component from TI C2000 Toolbox library.

Short description

ADC component enables the user to configure a single analog-to-digital conversion process. Conversion result is available as component output.

Detailed overview

Component icon and component dialog are shown in Figure 1, and Figure 2, respectively.

NOTE: It is recommended to select *target platform* on [TI C2000 Setup](#) component before configuring the component.

Target-oriented component

Component properties:

- Tab **General:**
 - Module (*module*) – Select ADC module to be used,
 - ADC Signaling Mode – type of the input signal (single-ended or differential),
 - ADC Conversion Resolution – resolution of the conversion in *bits* (12 or 16),
 - Execution rate – sampling rate of the selected ADC channel.
- Tab **SOC Control:**
 - SOC Number – number of *start-of-conversion* configuration set,
 - SOC Trigger Source – source of the conversion trigger (force/software, timer, ePWM or GPIO)
 - SOC Channel Select – channel of the ADC module,
 - SOC Acquisition Prescale – acquisition window duration in *clocks*,
- Tab **Interrupt Selection:**
 - End of Conversion ADCINT enabled – enable interrupt upon the end of conversion of the selected SOC configuration set.

Component outputs:

- XY – ADCRESULT_y (register raw value), x being the ADC module (A, B, C...) and y being the channel number (0, 2...15).

(1): [Doc: How to scale simulated signals for a C-HIL interface](#)

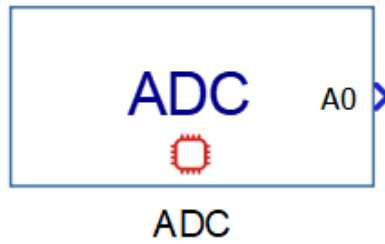


Figure 1. ADC component icon.

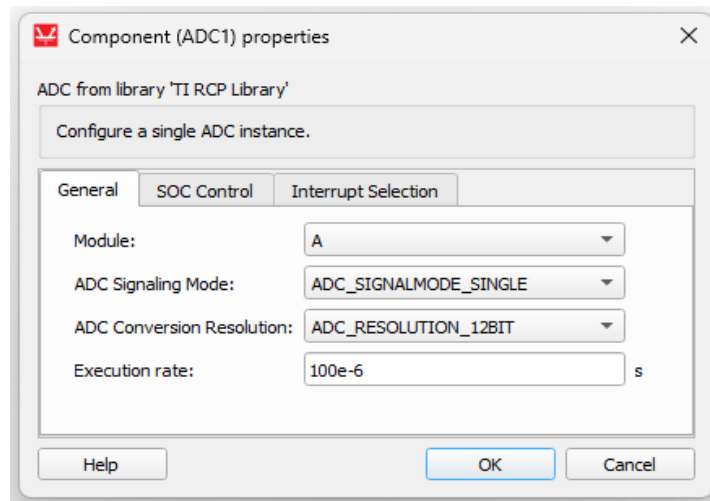


Figure 2. ADC component dialog (General tab).

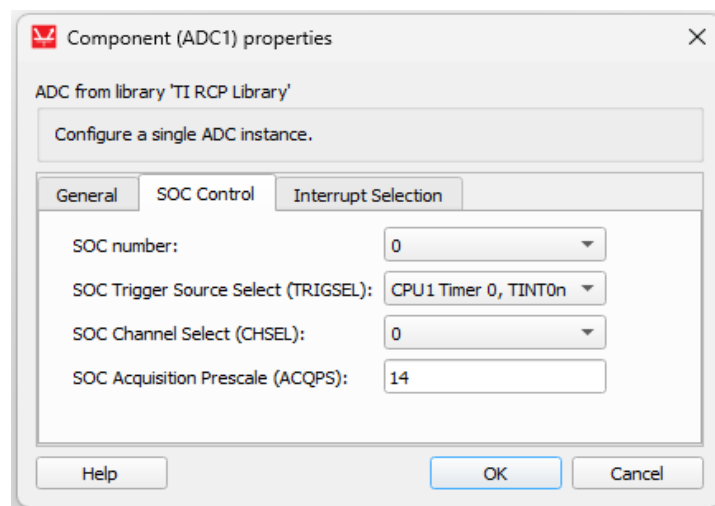


Figure 3. ADC component dialog (SOC Control tab).

NOTE: Component appearance may depend on selected platform. In case of the ADC component, it is the most significant change. Component properties when target platform is 'TMDSCNCDF28335':

- **Tab General:**
 - Sampling Mode Select – sequential of simultaneous sampling mode,
 - Cascaded Sequencer Mode – determines whether two sequencers operate as two 8-state sequencers or as a single 16-state sequencer,
 - Continuous Run – determines whether the sequencer operates in continuous conversion mode or start-stop mode,
 - Execution rate - sampling rate of the selected ADC channel.
- **Tab Sequencer:**
 - SEQ1/SEQ Trigger Source – sequencer start-of-conversion trigger source (software trigger or ePWM),
 - SEQ2 Trigger Source (in dual-sequencer mode) – sequencer 2 start-of-conversion trigger source (software trigger or ePWM).
 - SEQ1/SQE2 Max Number of Conversions – maximum number of conversions for each sequencer before ending single conversion cycle,
 - Conversion Selection – select single sequencer slot,
 - CONVx Channel Selection – assign channel to selected sequencer slot
- **Tab Interrupt Selection:**
 - ADCINT Source – select event for interrupt generation.

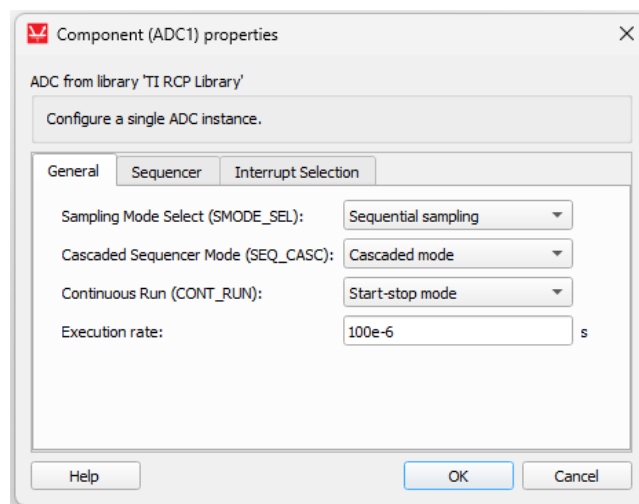


Figure 4. ADC component dialog (General tab) – F28335 platform.

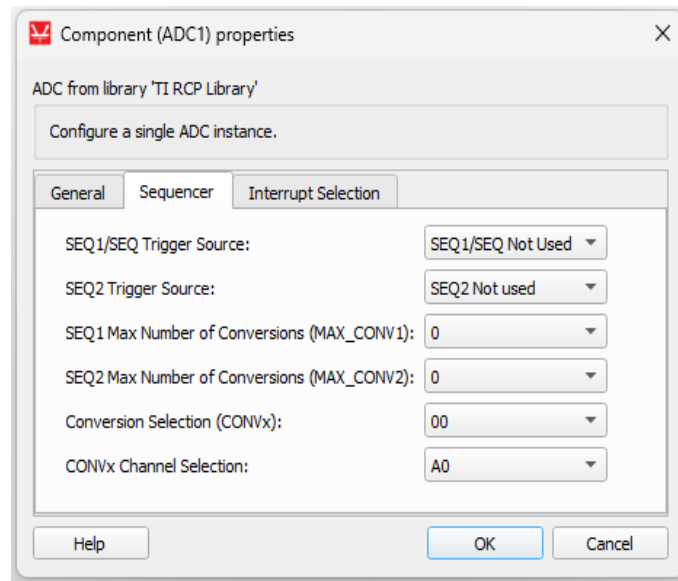


Figure 5. ADC component dialog (Sequencer tab) – F28335 platform.

Application-oriented component

Component properties:

- **Tab General:**
 - HIL AO number – select number of the selected HIL analog output,
 - AO scaling⁽¹⁾ – scaling coefficient to apply on sampled signal,
 - AO offset⁽¹⁾ – offset to apply on sampled signal,
 - Execution rate – sampling rate of the selected HIL analog output;
- **Tab HIL Interface:**
 - Interface type - select interface board that is used, currently supported boards are '*HIL TI Launchpad Interface*' and '*HIL TI uGrid Launchpad Interface*', '*HIL DSP 180 Interface*' and '*HIL DSP Interface*'.
 - Controller index - visible when '*HIL TI uGrid Launchpad Interface*' is selected, specifies which MCU slot on the interface board is used.

NOTE: It is recommended to select *interface type* and *controller index* before configuring other properties.

Component outputs:

- AOx – value of the sampled signal on selected HIL analog output, with *scaling* and *offset* factors included.

(1): [Doc: How to scale simulated signals for a C-HIL interface](#)

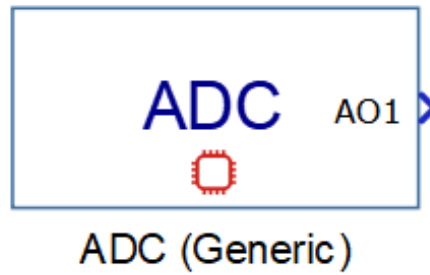


Figure 6. ADC (Generic) - component icon.

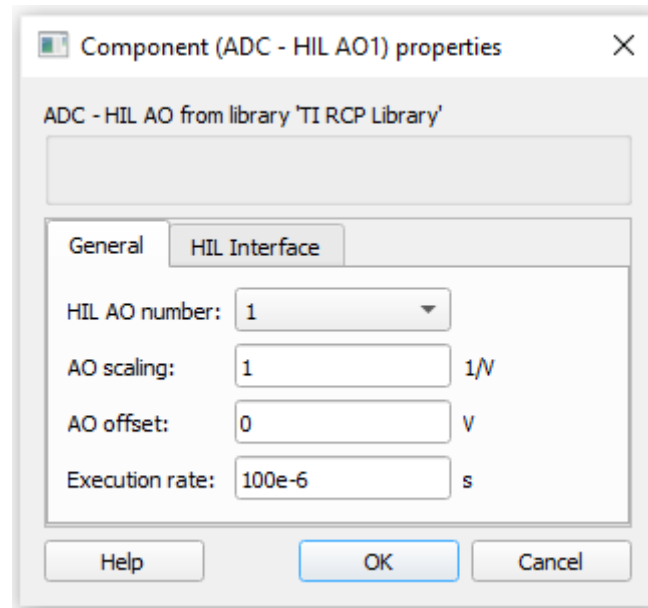


Figure 7. ADC (Generic) component dialog - General tab.

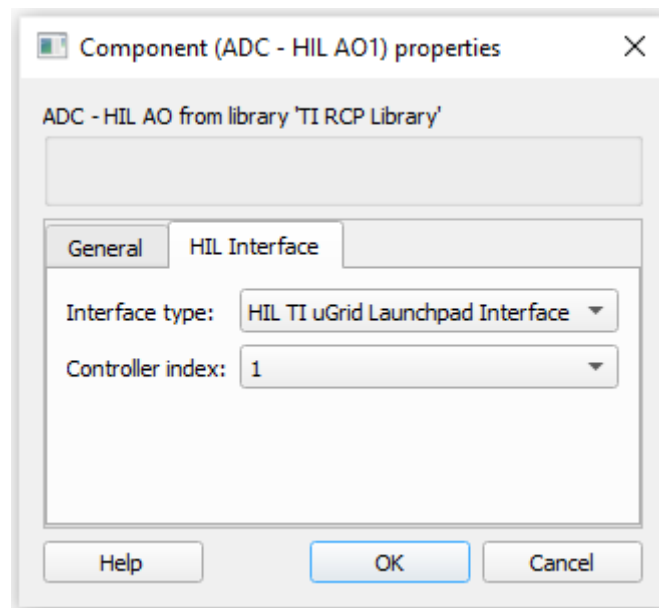


Figure 8. ADC (Generic) component dialog - HIL Interface tab.

(1): [Doc: How to scale simulated signals for a C-HIL interface](#)