

# 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.

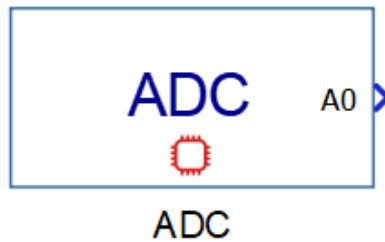


Figure 1. ADC - component icon.

## Detailed overview

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

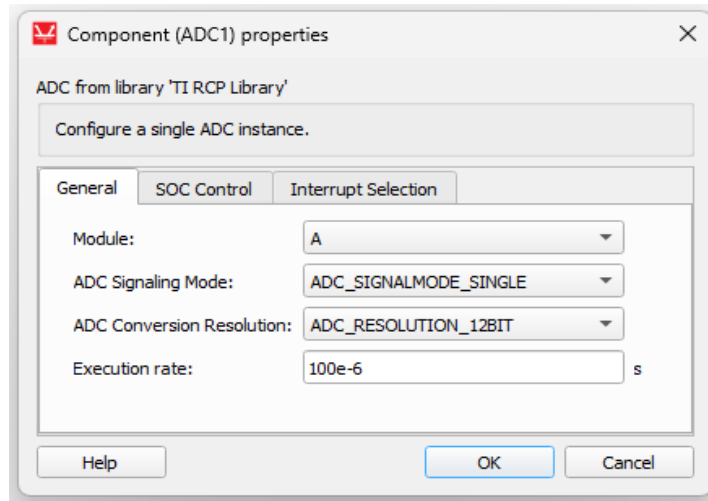
**NOTE:** It is recommended to select *target platform* on [TI C2000 Setup](#) component before configuring the component.

**NOTE:** Visibility of many properties depend on selected *Target platform* on [TI C2000 Setup](#) component.

Component properties:

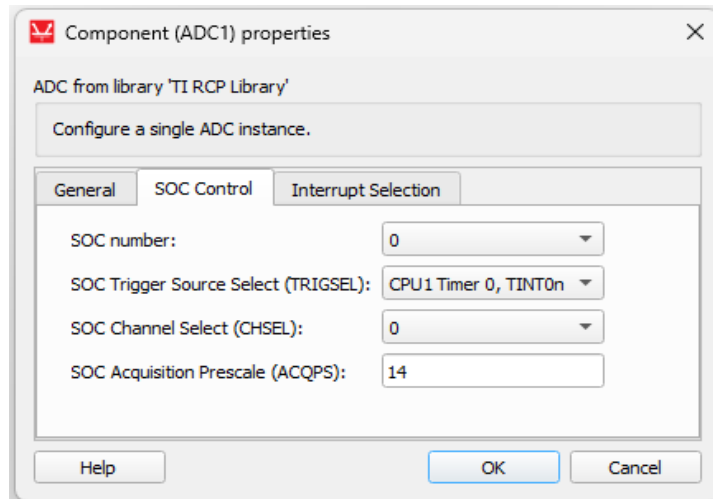
- Tab **General:**
  - Module (*module*) – Select ADC module to be used,
  - ADC Signaling Mode – type of the input signal (single-ended or differential),
  - ADC Conversion Resolution – resolution of the conversion in *bits* (12 or 16),
  - Execution rate – sampling rate of the selected ADC channel. This value must be compatible with other components of the same subsystem: the value must be a multiple of the fastest execution rate in the circuit. To specify the execution rate, you can use either decimal (e.g. 0.001) or exponential values (e.g. 1e-3) in seconds.

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



**Figure 2. ADC - component dialog (General tab).**

- **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*,



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

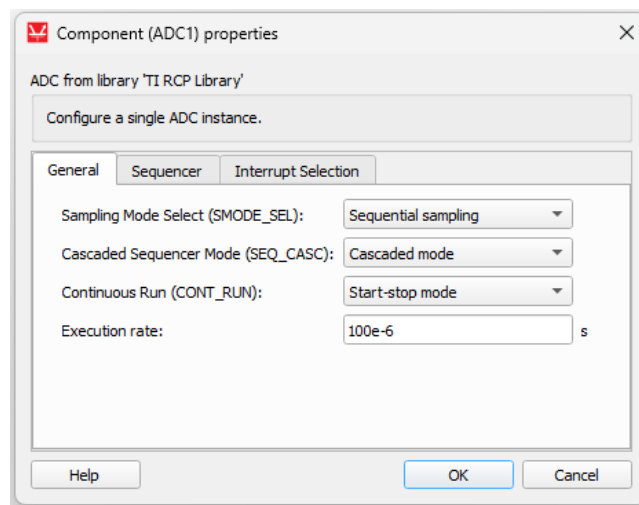
- **Tab Interrupt Selection:**
  - End of Conversion ADCINT enabled (INT1E) – enable interrupt upon the end of conversion of the selected SOC configuration set.

**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* on [TI C2000 Setup](#) is set to *TMDSCNCD28335*:

- **Tab General:**

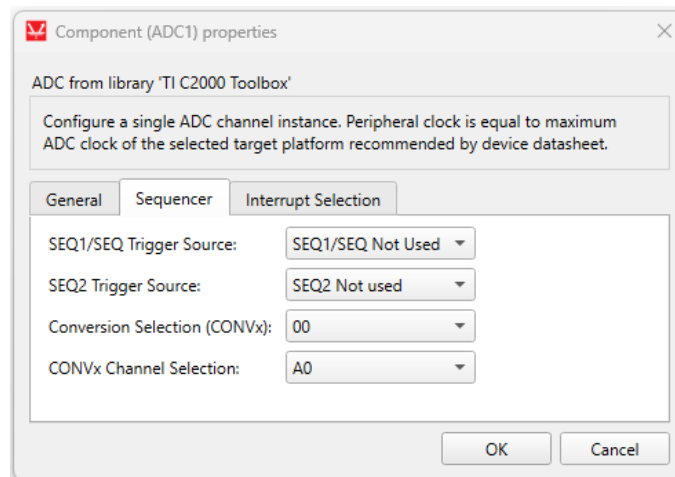
(1): [Doc: How to scale simulated signals for a C-HIL interface](#)

- 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. This value must be compatible with other components of the same subsystem: the value must be a multiple of the fastest execution rate in the circuit. To specify the execution rate, you can use either decimal (e.g. 0.001) or exponential values (e.g. 1e-3) in seconds.



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

- Tab **Sequencer** (visible when *Target platform* on [TI C2000 Setup](#) is set to *TMDSCNCD28335*):
  - 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).
  - Conversion Selection – select single sequencer slot,
  - CONVx Channel Selection – assign channel to selected sequencer slot.



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

- **Tab Interrupt Selection:**
  - ADCINT Source (visible when *Target platform* on [TI C2000 Setup](#) is set to *TMDSCNCD28335*) – disable or specify event which triggers an ADC interrupt on device with F28335.

#### **Component outputs:**

- XY – ADCRESULTy (register raw value), x being the ADC module (A, B, C...) defined by property *Module* and y being the channel number (0, 1...15) defined by property *CHSEL* (or *CONVx Channel Selection* for F28335).
  - Supported types: real
  - Vector support: no

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