

C2000 SysConfig Overview

GUI-Based Configuration Tool for C2000 MCUs

Introduction to Developing Software with SysConfig

SysConfig Enhances Software Development



- SysConfig is a GUI-based development tool that assists users in developing applications with C2000 devices

The screenshot displays the SysConfig GUI for configuring an ADC. The left sidebar shows a tree view of system components, including SYSTEM (17) and ANALOG (4). The main area is titled 'Software > ADC' and shows 'Global Parameters' for 'ADC (1 of 2 Added)'. A specific instance, 'myADC0', is selected and its parameters are listed:

Parameter	Value
Name	myADC0
ADC Instance	ADCA
ADC Clock Prescaler	ADCCLK = (input clock) / 1.0
High Priority Mode SOCs	Round robin mode is used fo...

Below the parameters, there are sections for 'SOC Configurations', 'ADC INT Configurations', and 'PPB Configurations'. The 'Analog PinMux' is set to 'myANALOGPinMux0'. On the right, the 'Problems' section shows 'There are no problems in the current design.' and the 'Generated Files' section lists 9 files, including board.c, board.h, pinmux.csv, adc.dot, and various library files.

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- 1 Intuitive and Facilitated Code Generation**
- 2 Automated Resource Management with PinMux
- 3 Simplified Device Transition with Portable Code**

Intuitive and Facilitated Code Generation

- SysConfig shows all available peripherals and configuration options for device
- Configuration code is automatically generated by SysConfig and used in project
- Continuous peripheral-level and device-level error detection helps validate design

GPIO (1 of 43 Added) + ADD REMOVE ALL

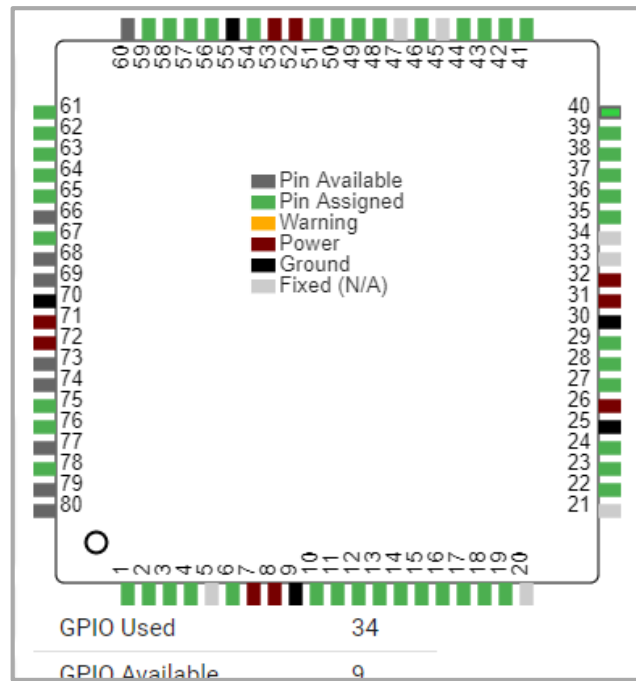
✓ myGPIO0 ✕

Name	myGPIO0
Use Hardware	None
Analog Mode	Pin is in digital mode
GPIO Direction	Pin is a GPIO output
Pin Type	Push-pull output/floating input
Qualification Mode	Synchronization to SYSCLKOUT
Write Initial Value	<input type="checkbox"/>
PinMux	Peripheral and Pin Configuration
GPIO	Any(GPIO030/55 (Header))

```
board.c
62 62 EPWM_setCounterCompareValue(myEPWM0_BASE, EPWM_COUNT
63 63 EPWM_setCounterCompareValue(myEPWM0_BASE, EPWM_COUNT
64 64 EPWM_setActionQualifierSWAction(myEPWM0_BASE, EPWM_A
65 65 EPWM_setActionQualifierSWAction(myEPWM0_BASE, EPWM_A
66 66 }
67 67
68 68 void GPIO_init(){
69 69
70 70 //myGPIO0 initialization
71 71 GPIO_setDirectionMode(myGPIO0, GPIO_DIR_MODE_IN);
72 72 GPIO_setDirectionMode(myGPIO0, GPIO_DIR_MODE_OUT);
73 73 GPIO_setPadConfig(myGPIO0, GPIO_PIN_TYPE_STD);
74 74 GPIO_setQualificationMode(myGPIO0, GPIO_QUAL_SYNC);
75 75 }
76 76 void SYS_ClockInit() {
```

Automated Resource Management with PinMux

- Pins are automatically assigned when peripherals are chosen from the SysConfig tool
 - Can manually override these pin definitions if desired
- Auto-solves PinMux and rearranges pin selections when resources are constrained
- Useful PinMux documentation
 - Chip visualization
 - PinMux summary spreadsheet



Simplified Device Transition with Portable Code

- SysConfig configurations are easily portable between different device families
- Showcases compatibility when transitioning and outlines any errors that need to be resolved
- Changes in pin assignment automatically propagate to application code

Switch Board or Device

This will migrate the current configuration to the board or device selected below. Any incompatibilities will be flagged as errors.

The migration can be undone by using ctrl + z or the history view. Any underlying project or makefile is not modified, and likely contains device-specific settings. These settings will need to be migrated manually.

Setting	Current Value	New Value
Board		None
Device	F28002x	F28002x
Part	F28002x_80QFP	F28002x_64QFP
Package	80QFP	64QFP
Lock PinMux		<input checked="" type="checkbox"/>

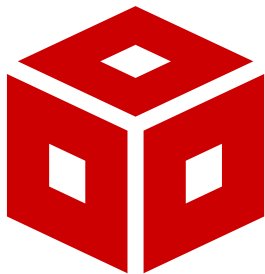
Problems

ERRORS 13 WARNINGS 0 SUPPRESSED 0 INFOS 0

Location	Details
myEPWM3	Resource conflict
myEPWM3	An attempt to set this to the invalid value 'GPIO30' was blocked. This is most likely due to a difference in the board or device. You can dismiss this error by either <u>accepting</u> the current value, or changing it to another one.

SysConfig Platforms

- SysConfig is integrated into many platforms for flexible development environments



Code Composer
Studio (CCS)



Standalone System
Configuration Tool



Cloud-Based
DevTool

- SysConfig is bundled within the [C2000Ware Software Development Kit](#) (SDK)
 - New versions of SysConfig are released in each C2000Ware update

Helpful SysConfig Resources

- Test out [SysConfig in the Cloud](#)
- Download [Standalone SysConfig Tool](#)
- Learning Material
 - Application Report: [C2000 SysConfig](#)
 - SysConfig Training Module and Hands-On Lab in [C2000 Academy](#)
 - [Speed Up Development With C2000™ Real-Time MCUs Using SysConfig](#)
 - [C2000 SysConfig Software Guide](#)

Check Video Description for Additional Resources