

# MSPM0 CRC module introduction

— MSPM0 peripheral training series

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# MCU level overview

## —MSPM0Lxx series

### MSPM0L13x3/4/5/6

<b>CPU</b> <b>ARM Cortex-M0+</b> <b>32 MHz</b>	<b>Power &amp; Clocking</b>	<b>Precision Analog</b>
<b>On-chip Memory</b>	<b>Communication</b>	<b>Timers</b>
<b>Data Integrity &amp; Security</b>	<b>IO</b>	
<b>Programming &amp; Debug</b>		

1.62 - 3.6V  
-40 to 125 C

Leaded packages: SOT-16, VSSOP-20/28  
No-lead packages: WQFN-16, VQFN-24/32

*32 MHz MCU with up to 64kB flash, 32 pins, 12-bit ADC, dual zero-drift OPA/PGA, COMP*

## —MSPM0Gxx series

### MSPM0G350x/310x/150x/110x

<b>CPU</b> <b>Arm Cortex-M0+</b> <b>80 MHz</b>	<b>Power &amp; Clocking</b>	<b>Precision Analog</b>
<b>Accelerators</b>	<b>Communication</b>	<b>Timers</b>
<b>On-chip Memory</b>	<b>IO</b>	
<b>Data Integrity &amp; Security</b>		
<b>Programming &amp; Debug</b>		

1.62 - 3.6V  
-40 to 125 C

Leaded packages: VSSOP-20/28, LQFP-48/64  
No-lead packages: VQFN-24/32/48, nFBGA-64, WCSP-28

*80 MHz MCU with up to 128kB flash, 64 pins, advanced analog, AES/TRNG, CAN-FD*

# MSPM0L/G CRC module introduction

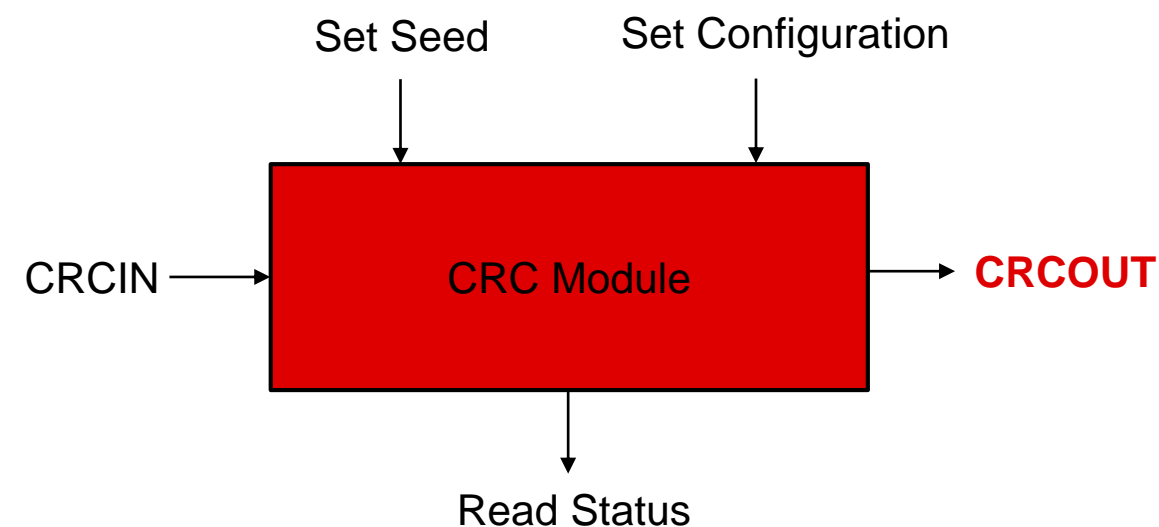
## Key Features

- Support for CRC16-CCITT and CRC32-ISO3309
- Support for input/output bit reversal
- Support for little or big endian operation
- Byte, half-word, or word input to CRCIN

## CRC Equations

CRC16-CCITT:  
 $F(x)=x^{16}+x^{12}+x^5+1$   
16-bit CRC result

CRC32-ISO3309:  
 $F(x)=x^{32}+x^{26}+x^{23}+x^{22}+x^{16}+x^{12}+x^{11}+x^{10}+x^8+x^7+x^5+x^4+x^2+x+1$   
32-bit CRC result



# CRC module quick start

## Academy

[CRC introduction lab](#)

## Driverlib Examples

### MSPM0L/G:

- 📁 `crc_calculate_checksum`
- 📁 `crc_calculate_checksum_dma`
- 📁 `crc_calculate_checksum_standby_restore`

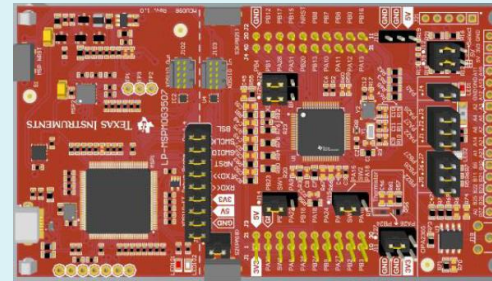
## Related Links

- [MSPM0 online resource](#)
- [MSPM0 Quick start guide](#)
- [MSPM0 Sysconfig user's guide](#)

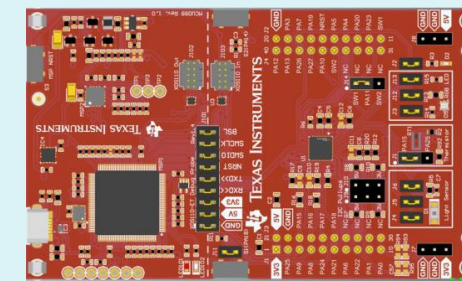
- [MSPM0G350x datasheet](#)
- [MSPM0L13xx datasheet](#)
- [MSPM0Gxx technical reference manual](#)
- [MSPM0Lxx technical reference manual](#)

## Launchpad

LP-MSPM0G3507



LP-MSPM0L1306



## Sysconfig Entrance for CRC Setting

The screenshot shows the Sysconfig tool interface. On the left, a tree view lists various modules. Under 'DATA INTEGRITY (1)', the 'CRC' module is selected and highlighted with a red box, labeled 'Step1:'. The main panel shows the 'CRC' configuration page. At the top, there are 'Quick Profiles' and 'CRC Profiles' dropdowns. The 'CRC Profiles' dropdown is set to 'Step2: Custom'. Below this, the 'Configuration' section is expanded and highlighted with a red box, showing the following settings:

Parameter	Value
CRC polynomial	CRC-32 ISO-3309
Input/Output bit order	Reversed
Input byte order (Endianness)	Little
CRC seed	0xFFFFFFFF

Below the configuration section, there is a 'DMA Configuration' section which is currently collapsed.

# To find more MSPM0 training series, please visit:

- [Ti.com.cn](http://ti.com.cn)
- [WeChat \(德州仪器公众号\)](#)
- [Bilibili](#)
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