

# MSPM0 MCAN module introduction

— MSPM0 peripheral training series

Presented by Luke Ledbetter

# MCU level overview

## —MSPM0Lxx series

### MSPM0L13x3/4/5/6

1.62 - 3.6V  
-40 to 125 C

<b>CPU</b> <b>ARM Cortex-M0+</b> <b>32 MHz</b>  NVIC / 3-ch DMA	<b>Power &amp; Clocking</b> POR / BOR / SVS Internal LF 32kHz (5%) Internal HF 4-32MHz (1%)	<b>Precision Analog</b> 12-bit SAR ADC 1Msps (1) ULP/HS Comparator (1) 8-bit reference DAC (1) Zero-drift chopper op-amps (2) General purpose amp (1) Internal ADC reference (2.5%) Temperature sensor
<b>On-chip Memory</b> 8, 16, 32 or 64 kB flash 2 or 4 kB SRAM	<b>Communication</b> UART w/ LIN (1) UART (1) SPI (1) I2C (2) w/ FastMode+	<b>Timers</b> General purpose 16-bit 2 CC (4) Windowed watchdog
<b>Data Integrity &amp; Security</b> CRC accelerator (16 and 32 bit)	<b>IO</b> Up to 28 GPIO Up to 2 low Ib OPA inputs	
<b>Programming &amp; Debug</b> ARM SWD interface ROM UART & I2C BSL		

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

1.62 - 3.6V  
-40 to 125 C

<b>CPU</b> <b>Arm Cortex-M0+</b> <b>80 MHz</b>  NVIC / MPU / 7-ch DMA	<b>Power &amp; Clocking</b> POR / BOR / SVS External LF 32kHz XTAL External HF 4-48MHz XTAL Internal LF 32kHz (3%) Internal HF 4-32MHz (1%) PLL (up to 80 MHz)	<b>Precision Analog</b> 12-bit ADC 4Msps (9-ch) 12-bit ADC 4Msps (8-ch) Comparators w/ 8-bit DACs (3) 12-bit 1Msps buffered DAC (1) Zero-drift chopper op-amps (2) Internal reference (1.5%) General purpose amp (1) Temperature sensor
<b>Accelerators</b> Math (DIV, SQRT, TRIG, MAC)	<b>Communication</b> UART w/ LIN (1) UART (3) SPI (2) I2C (2) w/ FastMode+ <b>CAN-FD (1)</b>	<b>Timers</b> Advanced control 16-bit 4 CC (1) Advanced control 16-bit 2 CC (1) General purpose 32-bit 2 CC (1) General purpose 16-bit 2 CC (2) Low power 16-bit 2 CC (2) Windowed watchdog (2) Real-time clock (1)
<b>On-chip Memory</b> 32, 64, or 128 kB flash [ECC] 16 or 32 kB SRAM [ECC]	<b>IO</b> Up to 60 GPIO	
<b>Data Integrity &amp; Security</b> CRC accelerator (16 and 32 bit) AES256 accelerator + TRNG		
<b>Programming &amp; Debug</b> ARM SWD interface UART & I2C bootloader		

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*

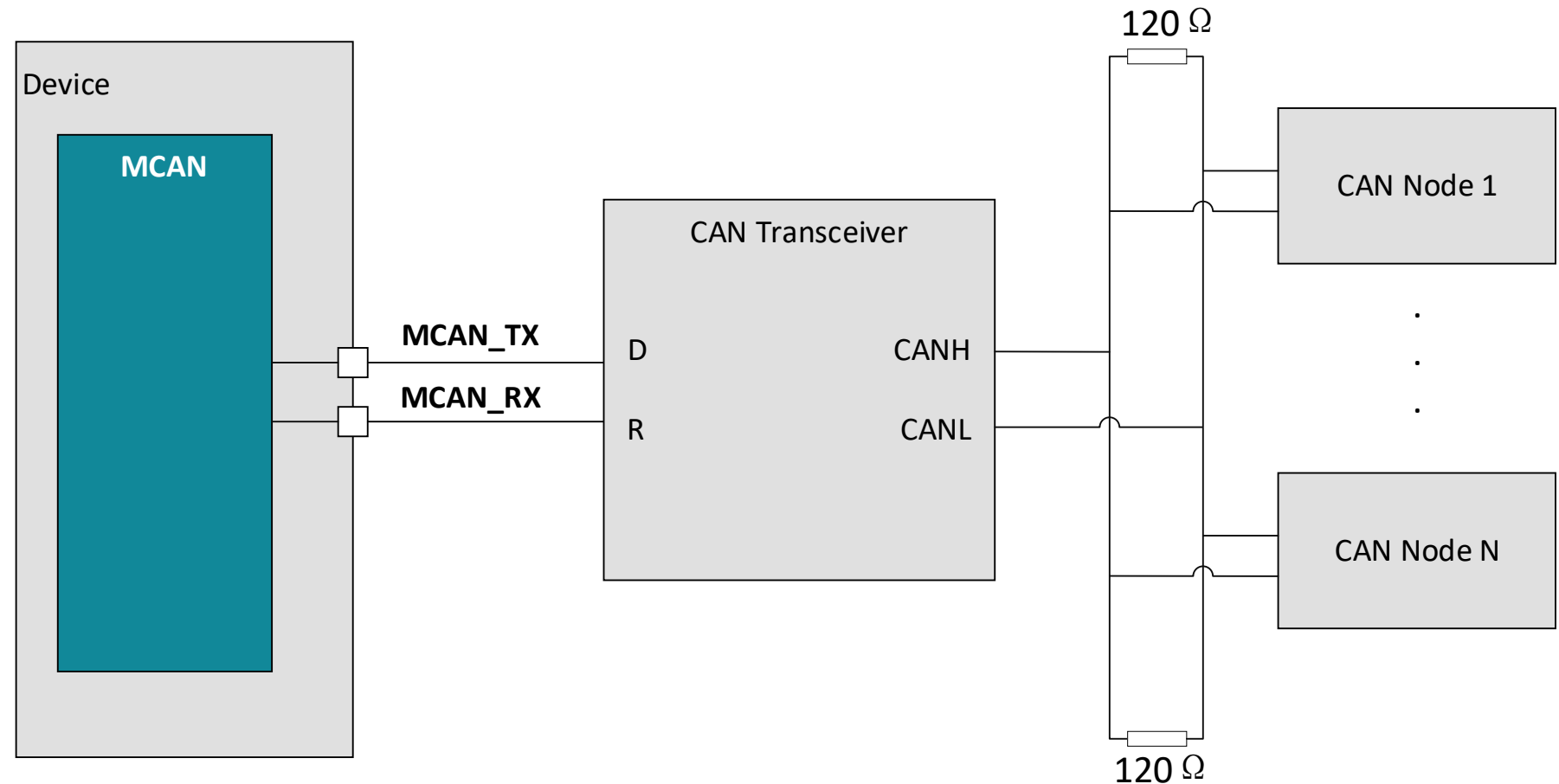
# MSPM0 MCAN module introduction

## Key Features

- Conforms with CAN Protocol 2.0 A, B and ISO 11898-1:2015
- Full **CAN FD** support (up to 64 data bytes and up to **5Mbit/s** rate)
- AUTOSAR and SAE J1939 support
- Clock stop and wakeup support
- Up to 128 filter elements
- ECC check for Message RAM
- Up to 32 dedicated transmit buffers
- Up to 64 dedicated receive buffers

## Key Differences between G and L MCUs

- MSPM0G350x series have 1x MCAN



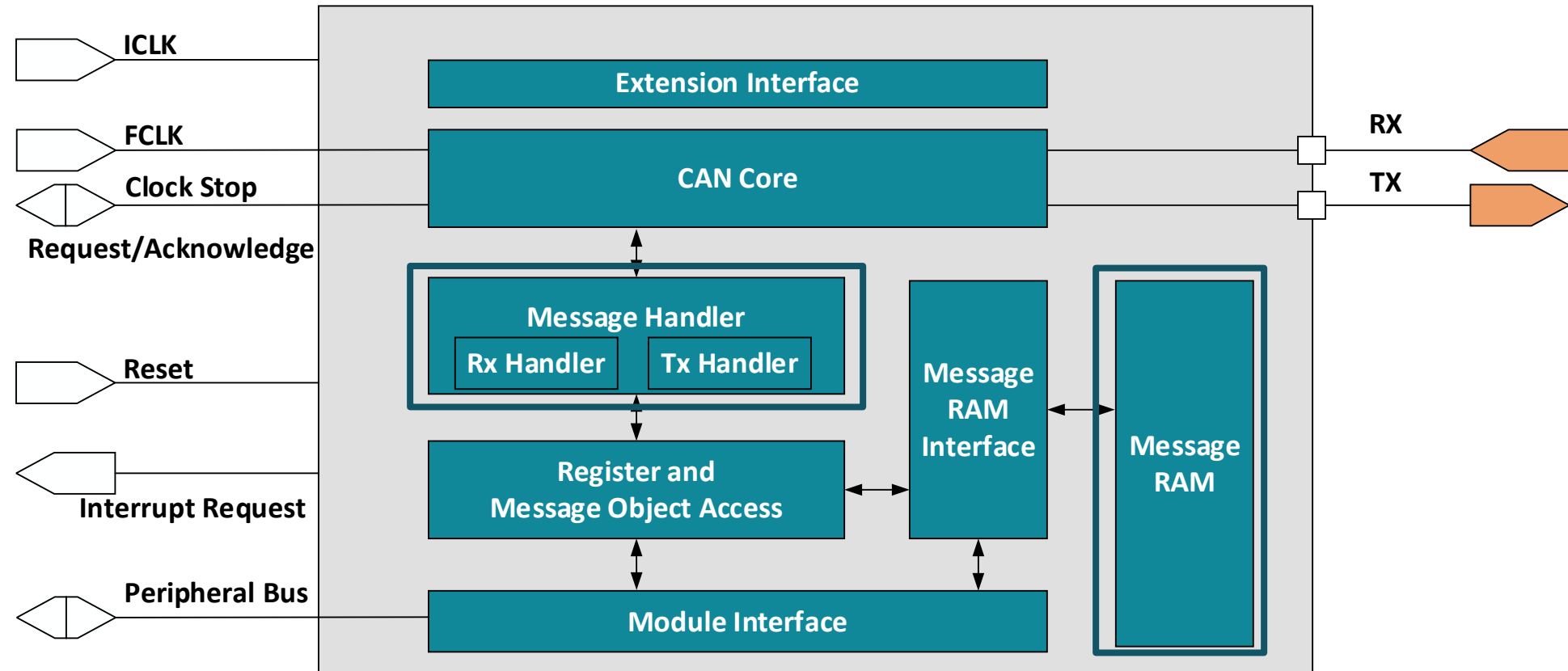
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# MCAN module quick start

## Academy

[CANFD introduction lab](#)

## Driverlib Examples

### MSPM0G350x:

- 📁 mcan\_loopback
- 📁 mcan\_message\_rx
- 📁 mcan\_message\_rx\_tcan114x
- 📁 mcan\_multi\_message\_tx
- 📁 mcan\_multi\_message\_tx\_tcan114x
- 📁 mcan\_single\_message\_tx

### MSPM0L13xx:

NA

## Related Links

[MSPM0 online resource](#)

[MSPM0 quick start guide](#)

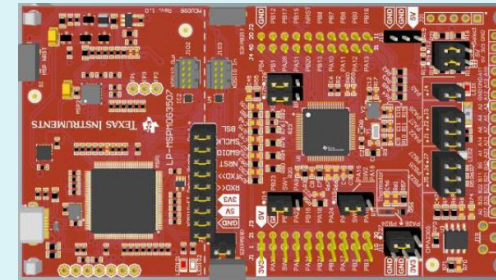
[MSPM0 Sysconfig user's guide](#)

[MSPM0G350x datasheet](#)

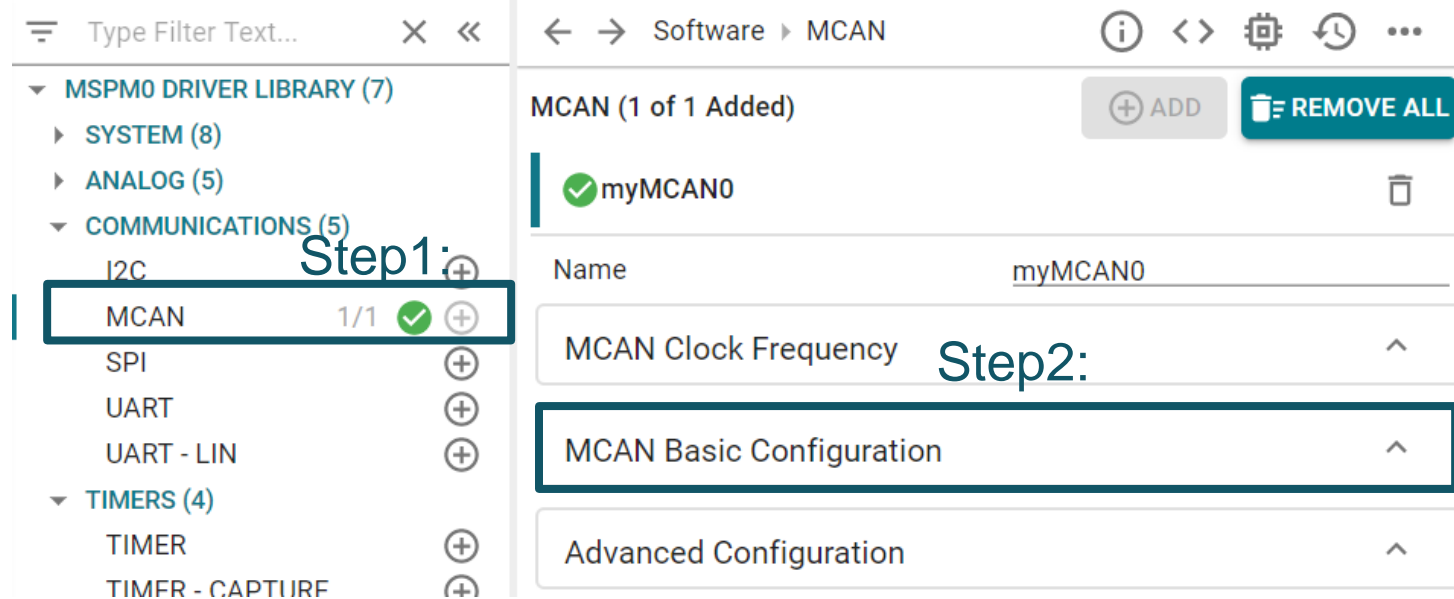
[MSPM0Gxx technical reference manual](#)

## Launchpad

[LP-MSPM0G3507](#)



## Sysconfig Entrance for CAN Setting



The screenshot shows the Sysconfig tool interface for configuring the MCAN module. The left pane displays a tree view of the driver library with 'MCAN' selected under 'COMMUNICATIONS (5)'. A red box highlights the 'MCAN' entry, and a blue box highlights the 'MCAN Basic Configuration' entry in the right pane. The right pane shows the 'myMCAN0' configuration with fields for 'Name', 'MCAN Clock Frequency', and 'MCAN Basic Configuration'. The 'MCAN Basic Configuration' field is highlighted with a red box. The text 'Step 1:' is written in blue above the 'MCAN' entry, and 'Step 2:' is written in blue above the 'MCAN Basic Configuration' field.

# To find more MSPM0 training series, please visit:

- [Ti.com.cn](http://ti.com.cn)
- [WeChat \(德州仪器公众号\)](#)
- [Bilibili](#)
- [21IC](#)