Welcome!
Texas Instruments New Product Update

- This webinar will be recorded and available at www.ti.com/npu
- Phone lines are muted
- Please post questions in the chat or contact your TI sales contact or field applications engineer

Texas Instruments

INTRODUCING THE NEW ARM® CORTEX®- M0+ MCU PORTFOLIO

New Product Update

Shreya Mandal
- Product Marketing Engineer

Agenda

- Portfolio introduction and features
- L-series and G-series M0+ MCUs
- Getting started with development

Please feel free to use the “chat” function for any questions you have throughout this presentation.

MSPM0 MCUs | More options. Unlimited possibilities.

The most comprehensive portfolio of Arm® Cortex® M0+ microcontrollers that delivers the sensing and processing features you need

Cost optimized

- Leveraging TI's recent capacity and cost investments
- Industry's smallest packages enable the smallest PCB designs
- High performance integrated analog to reduce BOM cost

Scalable

- 32/80 MHz, 8-128 kB flash, 16-64 pins, and scalable analog
- Pin to pin compatible across wide range of memory & analog options
- 105° C, 125° C, and AEC-Q100 automotive options

Simple to use

- Fast, fully graphical device configuration with code generation
- Code size optimized drivers (1/3rd the size of competitors)
- Plug-and-play subsystems, code examples, and reference designs

MSPM0 MCUs | Portfolio features

MSPM0 Mixed-Signal MCUs

Arm Cortex-M0+ CPU
32 or 80 MHz at less than 96 µA/MHz
Up to **174** CoreMark / **76** MIPS
Optional hardware **DIV/SQRT/TRIG/MAC**

Compute

Sense

Up to 4-Msps, 12-bit SAR ADCs
Zero-drift **chopper** op-amps with **PGA**
High-speed / ultra-low power comparators

8- to **128-**kB flash memory (optional **ECC)**
2- to **32-**kB SRAM (optional **ECC)**

Memory

Control

Advanced **control** timers
General purpose & **low power** timers
12-bit 1-Msps buffered DAC, 8-bit ref DAC

SOT, **VSSOP**, **QFN**, **QFP**
16 to **64** pins with **pin-to-pin** compatibility

Package

Connect

UART (LIN), **I2C** (FM+), **SPI**, and **CAN-FD**, **AES** (128/256), TRNG, secure boot

1.62-3.6 V
<200-µs cold boot time

l-µA standby
vith retention

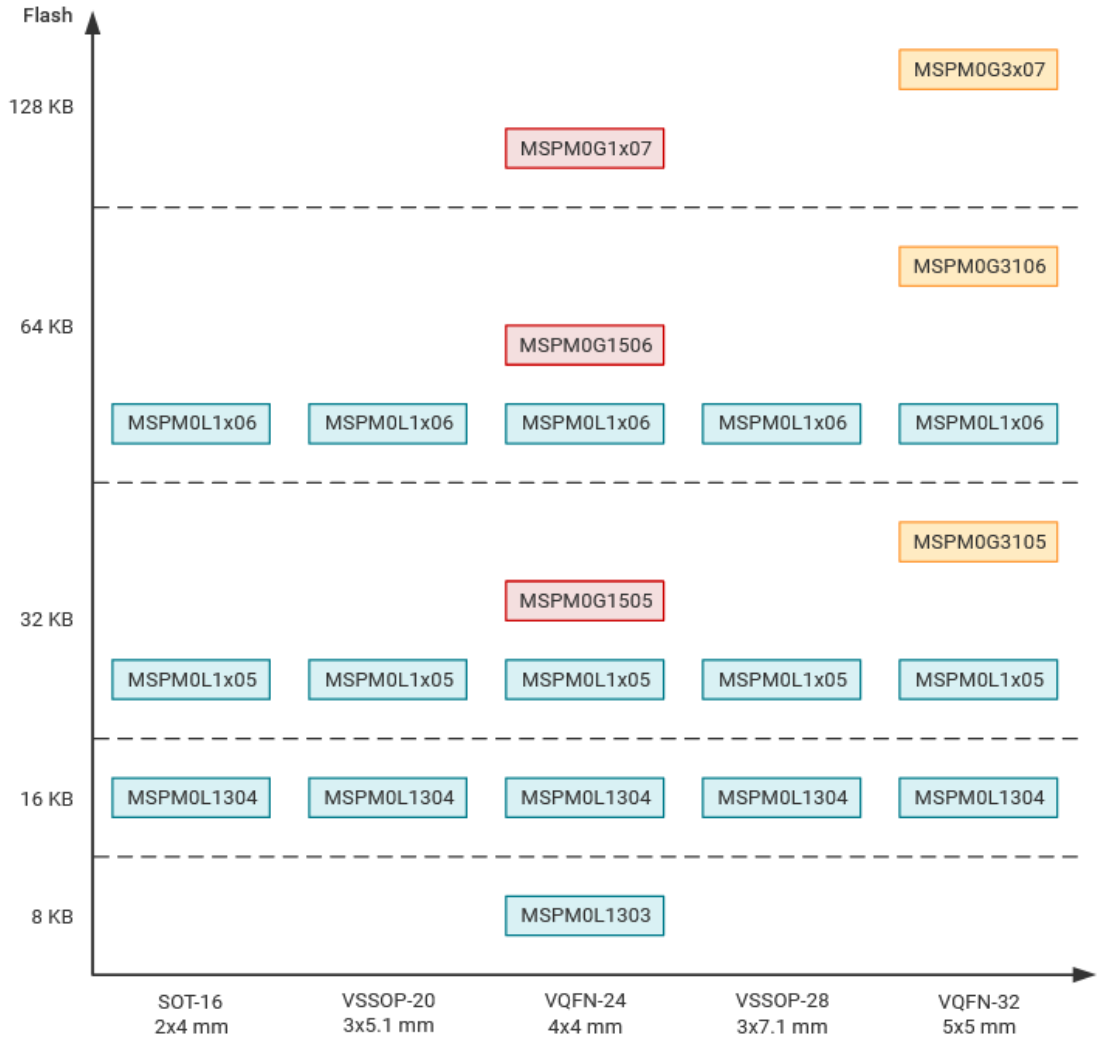
±1% on-chip HF
oscillator

-40 to 125C
temperature range

AEC-Q100 grade 1
automotive

Easy-to-use platform with a common software development kit and pin-to-pin compatibility in common packages

MSPM0 MCUs | Broad scalability

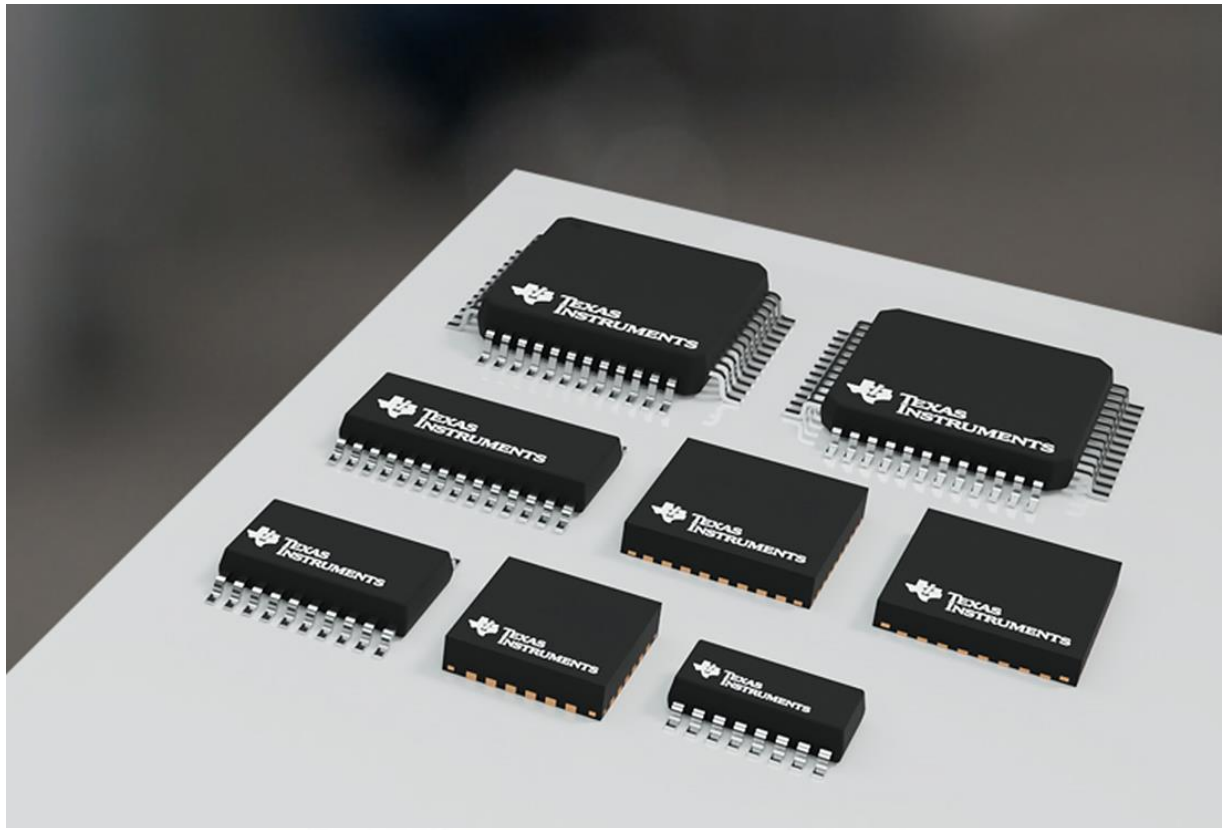


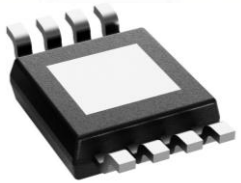
32 MHz
L-series MCUs

80 MHz
G-series MCUs

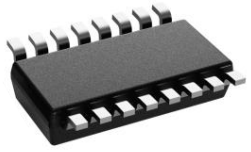
Pin-to-pin
Hardware and software compatible

MSPM0 MCUs | Scalable small packages





Competing MCUs
SOIC (8-pin)
29.4mm^2



TI MSPM0 MCUs
SOT (16-pin)
13.4mm^2

8

Pin to pin compatible packages

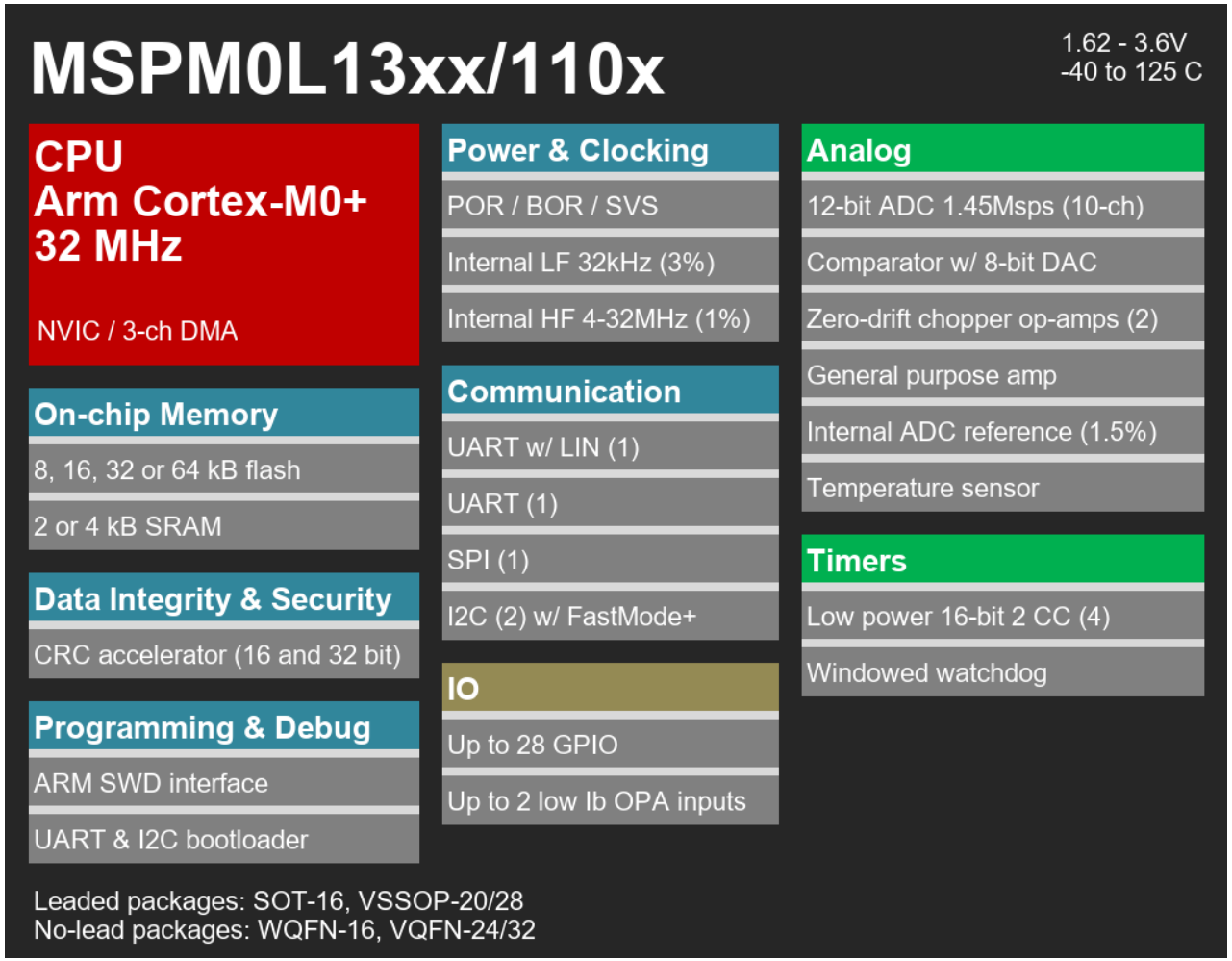
2x pins, 1/2 space

16-pins SOT vs. 8-pins SOIC

Low cost

SOT, VSSOP packaging technologies

MSPM0 L-Series microcontrollers



< $0.39

starting at 1 kU

< 0.5 µV/°C

Op-amp input offset drift

46

8-kB – 64-kB memory, package, peripheral options

MSPM0 MCUs | Get more accuracy out of your sensors

7x

Reduction in input offset voltage error

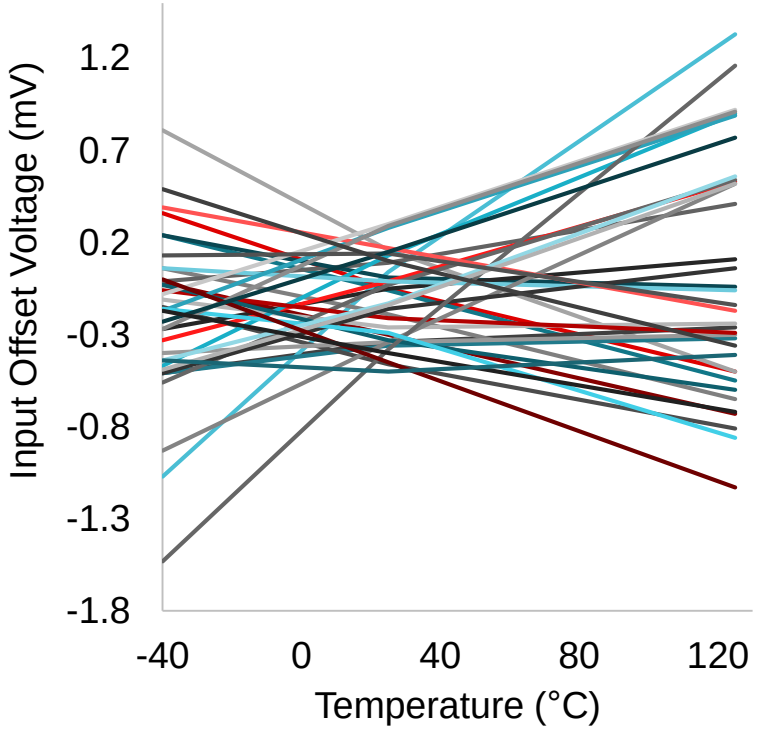
Zero

Crossover distortion

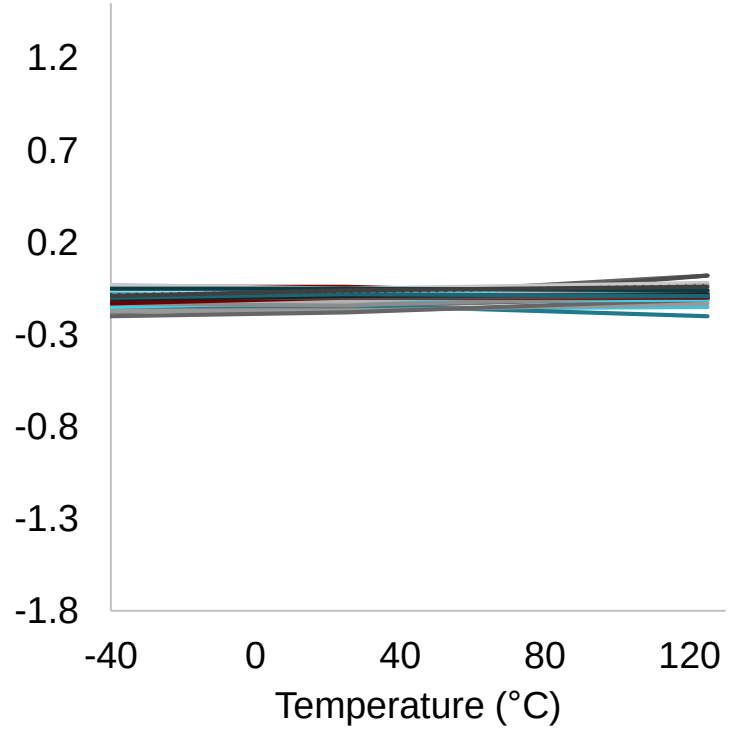
<150 pA

Available ultra-low input bias current

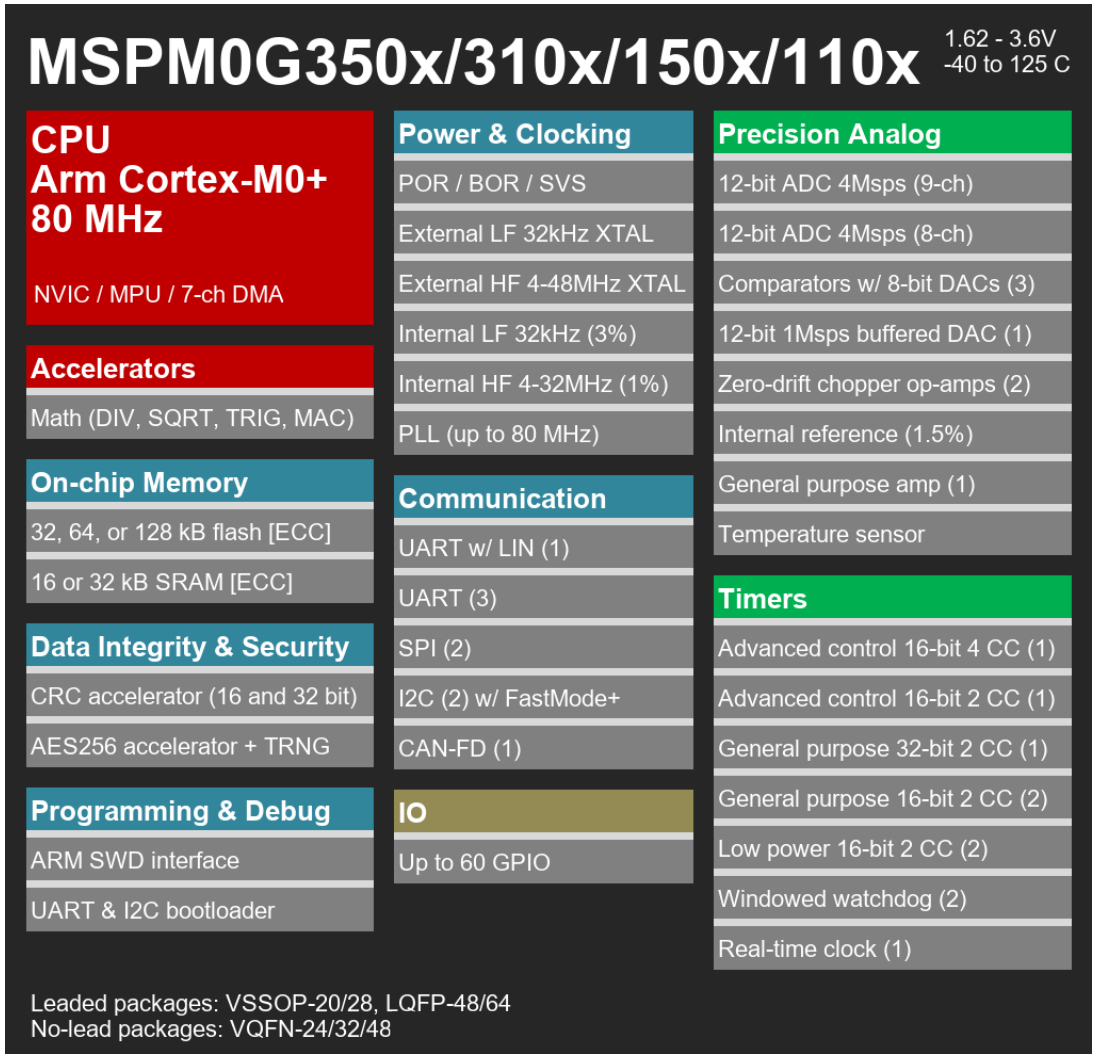
Input Offset vs. Temperature
No Chopping
(±2mV max)



Input Offset vs. Temperature
With Chopping
(±300µV max)



MSPM0 G-Series microcontrollers



Dual 4 Msps

12- bit ADCs with 14 bit oversampling

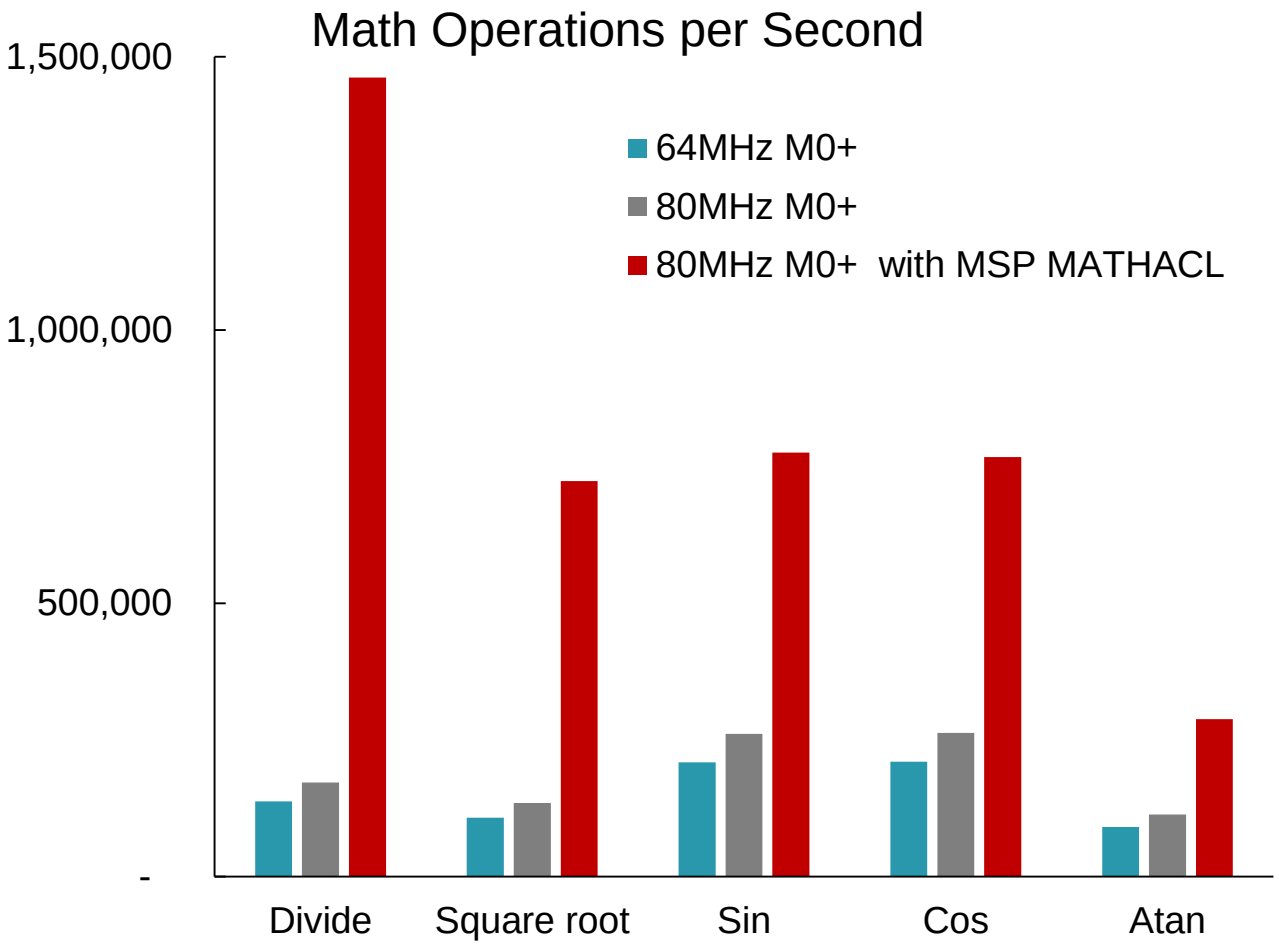
3X lower latency

In field oriented motor control loops

87

32 kB- 128 kB memory, package, peripheral options

MSPM0 MCUs | Reduce your real-time loop latency



3x

Lower loop latency in field-oriented motor control

6x

More square root operations per second

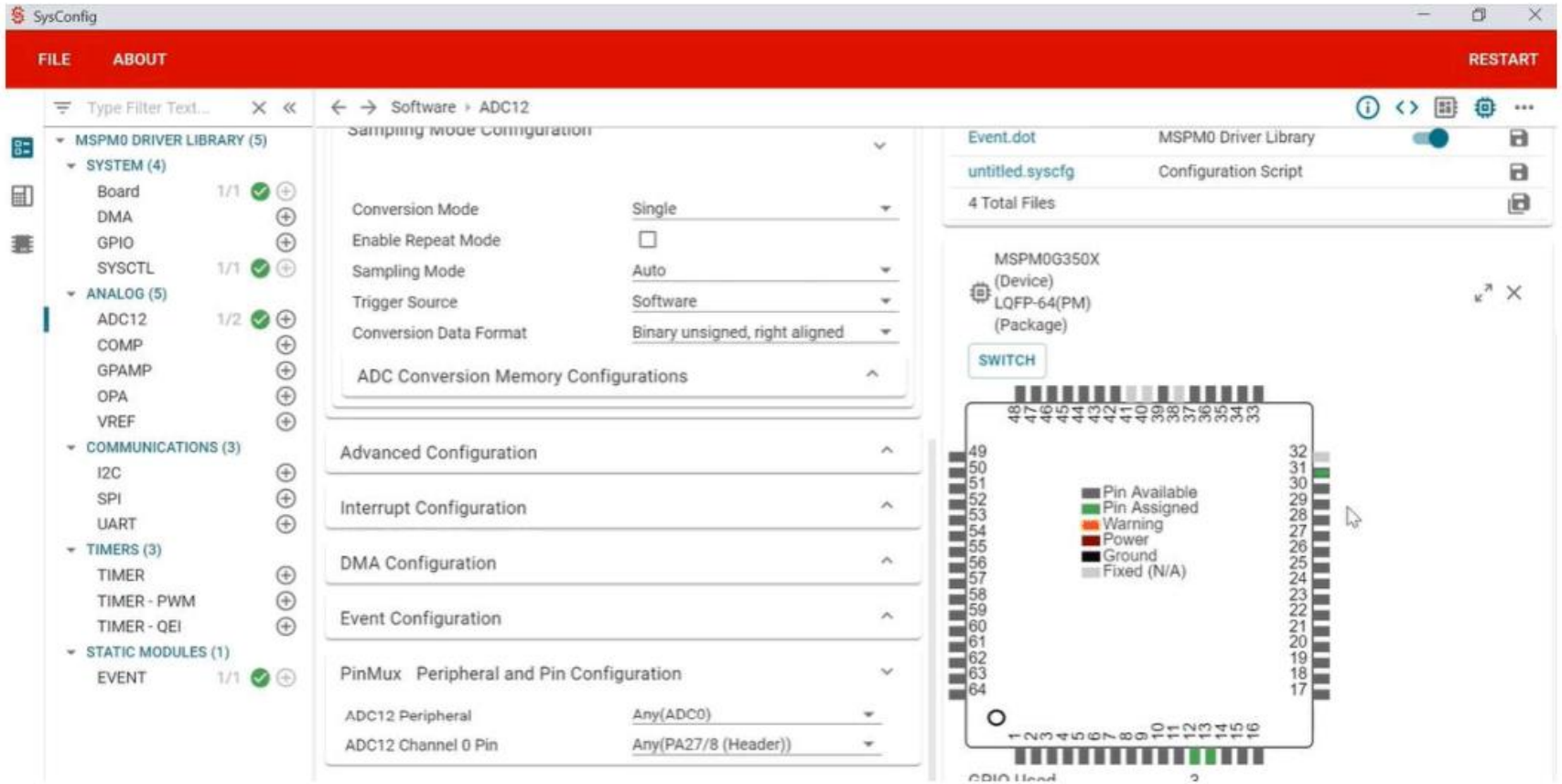
10x

More divide operations per second

MSPM0 MCUs | Simple, fast development

Rapidly prototype with a live demo today!

Graphical Configuration Tool – SysConfig

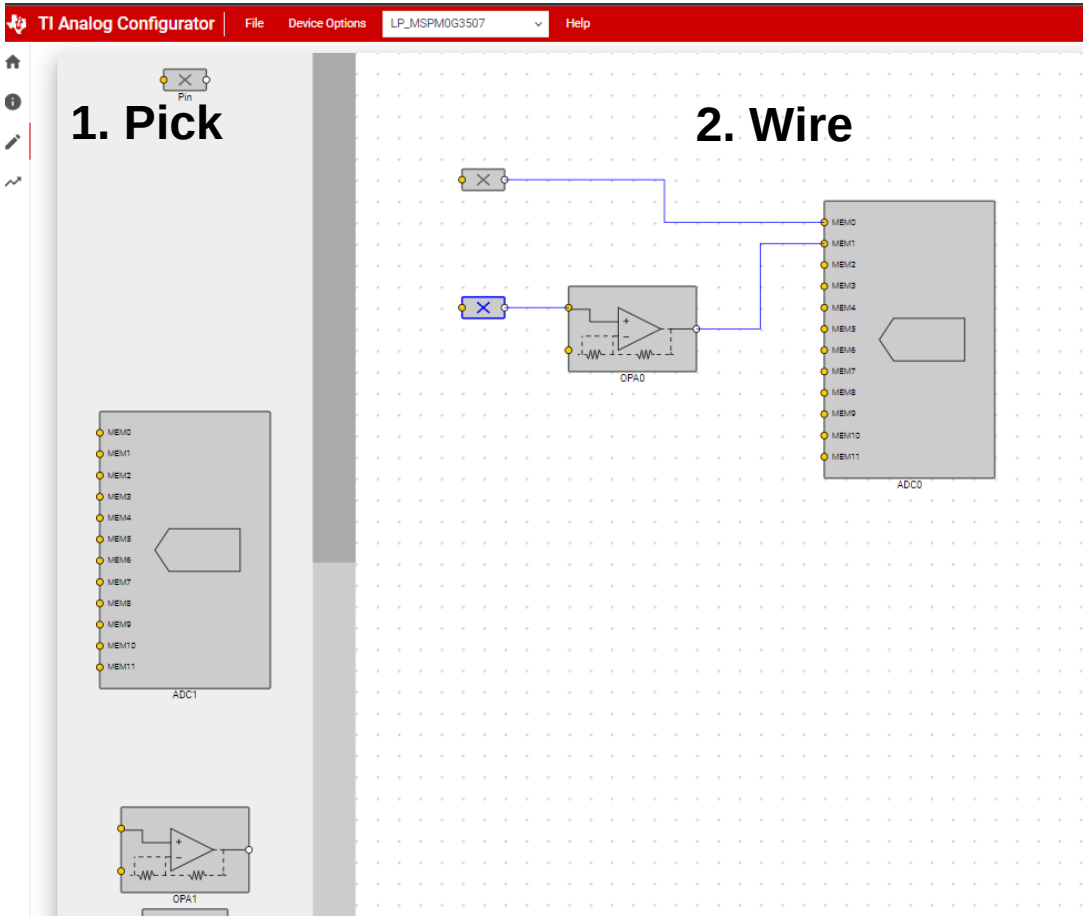


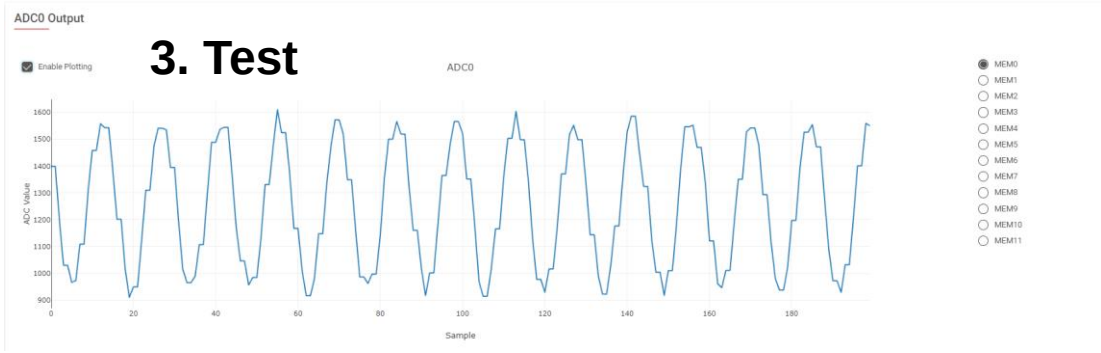
Peripheral initialization
Automatic pin mux resolution
Clock tree configuration
Power estimation

MSPM0 MCUs | Simple, fast development

Rapidly prototype with a live demo today!

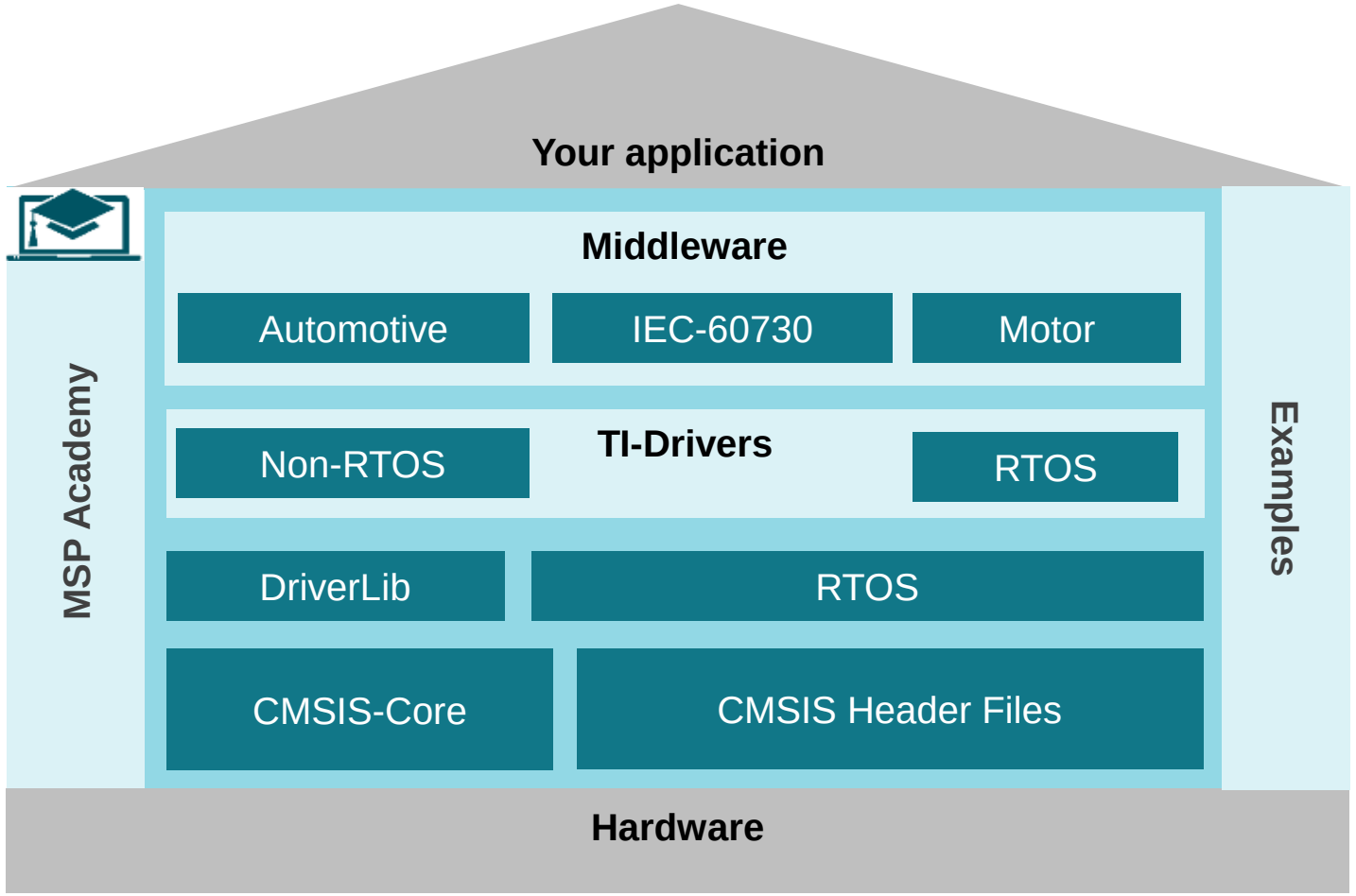
Analog Configurator



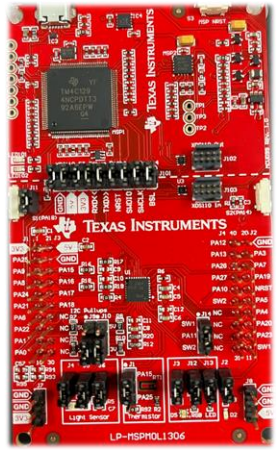


With just a few clicks, users can visualize their signal chain, make modifications to it, and view real-time data for evaluation.

MSPM0 MCUs | Optimized software



Rapid prototyping tools



Launchpads
Available Today!

TI CCS
IAR SYSTEMS
KEIL™ Tools by ARM
freeRTOS
SEGGER

3P Tools

Getting started

You can start evaluating this device leveraging the following:

Content type	Content title	Link to content or more details
Portfolio overview	Overview page for MSPM0 MCUs	MSPM0 overview page
Software	MSPM0 software development kit (SDK)	MSPM0-SDK
Customer training series or webinar session	MSPM0 Academy Training	MSPM0 Academy
Technical blog content or white paper	How Arm Cortex-M0+ MCUs optimize general-purpose processing, sensing and control	Technical article
Selection and design tools and models	MSPM0 MCU product selection tool	Product selection tool
Development tool or evaluation kit	MSPM0L1306 LaunchPad™ development kit	LaunchPad development kit

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For more information on the New Product Update series, calendar and archived recordings

Texas Instruments

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