

MSPM0C1105 and MSPM0C1106: Cost-Optimized 32MHz Arm® Cortex®-M0+ MCU



Product Summary

The MSPM0C1105/6 expands Texas Instruments MSPM0™ low-cost MCU family, delivering a high-value, energy-efficient design built around the Arm Cortex-M0+ core. With up to 64KB flash, 8KB RAM, and advanced analog integration, this device targets cost-sensitive industrial, consumer, and IoT applications requiring robust performance and simplified design.

Positioning in the MSPM0 Portfolio and Family Comparison

The MSPM0C1105/6 occupies a strategic position in the TI MSPM0 road map as the *flagship entry-level device* in the low-cost segment. Below is a detailed comparison showing how this differentiates from other MSPM0 family members while maintaining software and hardware scalability:

Table 1. MSPM0 Family Comparison

	MSPM0C1105/6	MSPM0H3215/6	MSPM0C1103/4	MSPM0L130x	MSPM0L111x	MSPM0G110x
Family Focus	Low-cost	5V Robustness	Low-cost	Low-power	Low-power	High-performance
CPU	Arm M0+ 32bit at 32MHz	Arm M0+ 32bit at 32MHz	Arm M0+ 32bit at 24MHz	Arm M0+ 32bit at 32MHz	Arm M0+ 32bit at 32MHz	Arm M23 32bit at 80MHz
Flash/RAM	32 - 64KB/ 8KB	32 - 64KB/ 8KB	8 - 16KB/ 1KB	16 - 64KB/ 4KB	32 - 128KB/ 16KB	32 - 128KB/ 16/32KB
Analog	12-bit ADC; COMP with 8bit DAC	12-bit ADC;	12-bit ADC	12-bit ADC; OPA; COMP with 8bit DAC	12-bit ADC;	12-bit ADC; OPA
Serial Comms	UART (1) with LIN UART (2) I2C (2) SPI (1)	UART (1) with LIN UART (2) I2C (2) SPI (1)	UART (1) with LIN I2C (1) SPI (1)	UART (1) with LIN UART (1) I2C (2) SPI (1)	UART (1) with LIN UART (1) I2C (1) SPI (1)	UART (1) with LIN UART (3) I2C (2) SPI (2)
Timer	1 advanced timer, 4 general timer WDT and RTC	6 general timer WDT and RTC	1 advanced timer 2 general timer WWDT and IWDWT	4 general timer, 2 WDT	1 advanced timer, 3 general timer 2 WDT and RTC	1 advanced timer, 5 general timer WDT and RTC
Pin options	20 - 48 pins	20 - 48 pins	8 - 20 pins	16 - 32 pins	24 - 48 pins	24 - 64 pins

Strategic Differentiation

1. Cost versus Capability Leader:
 - 4× more RAM than MSPM0C1103/4 with enhanced analog
 - Best analog integration in low-cost segment versus MSPM0H3215/6 (adds COMP+DAC)
2. Power-Performance Sweet Spot:
 - Higher frequency (32MHz) versus MSPM0C1103/4 (24MHz)
 - More timers and comm interfaces versus MSPM0L130x at lower cost
3. Migration Pathways:
 - Downscale: To MSPM0C1103/4 for apps with basic needs
 - Upscale: To MSPM0G110x for 80MHz performance or MSPM0L111x for >64KB flash

Design Recommendations

Choose MSPM0C1105/6 when:

- You need 32MHz+ performance
- Designs require analog signal conditioning (COMP+DAC)
- Migrating from STM32G0/C0 with pin compatibility

Consider alternatives when:

- 5V operation is mandatory (MSPM0H3215/6)
- Ultra-low-power is critical (MSPM0L130x)
- Need > 64KB flash (MSPM0L111x/G110x)

Target Applications

- Consumer Electronics: Drones, wearables, smart home controllers.
- Industrial: Sensor hubs, PLC I/O modules, HVAC controls
- IoT: Edge nodes, gateways, battery-powered monitors.

Why Choose MSPM0C1105/6?

- Lowest Total Cost: Industry-leading price and performance ratio.
- Seamless Migration: Hardware and software compatibility across MSPM0 family.
- TI Ecosystem Support: Free tools [SysConfig](#), [TI Resource Explorer](#), and [MSPM0 SDK](#).

Ordering and Resources

- Product folder: [MSPM0C1105](#), [MSPM0C1106](#)
- Launchpad: [LP-MSPM0C1106](#)
- Explore MSPM0 family: [MSPM0 Arm Cortex-M0+ MCUs](#)

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