THE DATASHEET OF

MKL26Z128VLL4

www.win-source.net 0086-755-83957316

Ultra-low-power MCUs with USB OTG

Kinetis® KL2x MCU Family

The Kinetis KL2x family of MCUs based on ARM® Cortex®-M0+ cores combines ultra-low-power performance with a rich suite of analog, communication, timing and control peripherals, including a USB 2.0 On-The-Go controller.

TARGET APPLICATIONS

- Battery-operated applications
- Consumer applications
- Low-power applications
- USB peripherals

Family members start from 32 KB of flash in a small 3.5 x 3.5 mm^2 XFBGA package, extending up to 512 KB in a 121 MAPBGA package. The KL2x MCU family is compatible with the Cortex-M4-core-based Kinetis K20 MCU family, offering a migration path to higher performance and feature integration.

FEATURES

Ultra-Low-Power

- Next-generation 32-bit Cortex-M0+ core with two times more CoreMarks®/mA than the closest 8-/16-bit architecture
- Single-cycle fast I/O access port facilitates bit banging and software protocol emulation, maintaining an 8-bit 'look and feel'
- Multiple flexible low-power modes, including new compute mode which reduces dynamic power by placing peripherals in an asynchronous stop mode
- LPUART, SPI, I^2C, Flex™ I/O, ADC, DAC, LP timer and DMA support low-power mode operation without waking up the core

Memory

- Up to 512 KB flash with 64-byte flash cache, up to 128 KB RAM
- 16 to 32 KB ROM with integrated bootloader
- Security circuitry to prevent unauthorized access to RAM and flash contents

Performance

- Cortex-M0+ core running at up to 72 MHz (up to 96 MHz for high-speed run) over full voltage and temperature range (–40 °C +105 °C)
- Bit manipulation engine for improved bit handling of peripheral modules
- Thumb® instruction set combines high code density with 32-bit performance
- 4–8 channel DMA for peripheral and memory servicing with reduced CPU loading and faster system throughput
- Independent-clocked COP guards against clock skew or code runaway for fail-safe applications

Mixed signal

- Up to 16-bit ADC with configurable resolution, sample time and conversion speed/power. Integrated temperature sensor. Single or differential input mode operation in order to achieve improved noise rejection
- High-speed comparator with internal 6-bit DAC
- 12-bit DAC with DMA support
- 1.2 V high-accuracy internal voltage reference

Timing and control

- One six-channel and two 2-channel,16-bit low-power timer PWM modules with DMA support
- Two-channel 32-bit periodic interrupt timer provides time base for RTOS task schedule or trigger source for ADC conversion
- Low-power timer allows operation in all power modes except for VLLS0
- Real-time clock

HMI

- Capacitive touch sense interface supports up to 16 external electrodes and DMA data transfer
- GPIO with pin interrupt support, DMA request capability and other pin control options

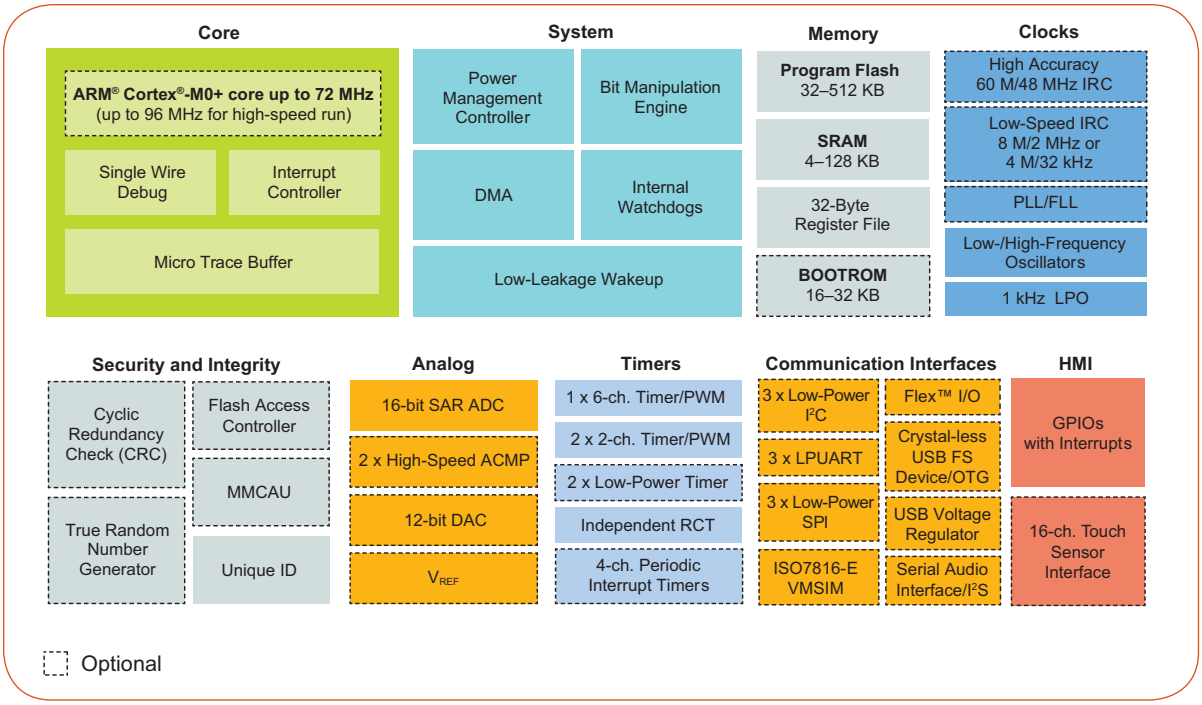
Connectivity and communications

- USB 2.0 On-The-Go (full-speed) integrated USB low-voltage regulator supplies up to 120 mA off chip at 3.3 volts to power external components from five-volt input
- Three I^2C with DMA support, up to 1 Mbit/s and compatible with SMBus V2 features
- Three UART with up to three LPUART, and DMA support
- Three SPI with DMA support
- I^2S module for audio applications
- Flex-IO with capability of emulating multiple serial interface, such as IrDA, UART, SPI, I^2C, etc.

Software and Tools

- Freedom Development Platforms and Tower® System board
- Kinetis software development kit (SDK)
- Integrated development environment (IDE)
  - Kinetis design studio IDE
  - CodeWarrior® for microcontrollers V10.x (Eclipse) IDE with Processor Expert® software modeling tool
  - IAR® Embedded Workbench, ARM® Keil® MDK, Atollic
- Runtime software and RTOS
  - FreeRTOS™
- Full ARM ecosystem support
- Online enablement with ARM mbed™ development platform

KINETIS KL2x MCU FAMILY BLOCK DIAGRAM



KINETIS KL2x MCU FAMILY OPTIONS

Sub-Family	Part Number	CPU (MHz)	Memory		Features															√ Package								
																				FM	FT	DA	AL	LH	LK	LL	MP	MC
			Flash (KB)	SRAM (KB)	DMA	Low-Power UART	UART	ISO7816-3	SPI	I2C	TSI	I2S	Flex IO	RTC	12-bit DAC	16-bit ADC w/DP Ch.	12-bit ADC	Total I/Os	Other	32 QFN (5 x 5, 0.5 mm)	48 QFN (7 x 7, 0.5 mm)	36X FBGA (3.5 x 3.5, 0.5 mm)	36WLCSP (2.4 x 2.5, 0.35 mm)	64 LQFP (10 x 10, 0.5 mm)	80 LQFP (12 x 12, 0.5 mm)	100 LQFP (14 x 14, 0.5 mm)	64 MAPBGA (5 x 5, 0.5 mm)	121 MAPBGA (8 x 8, 0.65 mm)
KL24	MKL24Z32xxx4	48 MHz	32	4	√	1	2	-	2	2	-	-	-	√	-	-	√	23~66	USB 2.0 FS OTG/ Host/Device	√	√	-	-	√	√	-	-	-
	MKL24Z64xxx4	48 MHz	64	8	√	1	2	-	2	2	-	-	-	√	-	-	√	23~66	USB 2.0 FS OTG/ Host/Device	√	√	-	-	√	√	-	-	-
KL25	MKL25Z32xxx4	48 MHz	32	4	√	1	2	-	2	2	√	-	-	√	√	√	-	23~66	USB 2.0 FS OTG/ Host/Device	√	√	-	-	√	√	-	-	-
	MKL25Z64xxx4	48 MHz	64	8	√	1	2	-	2	2	√	-	-	√	√	√	-	23~66	USB 2.0 FS OTG/ Host/Device	√	√	-	-	√	√	-	-	-
	MKL25Z128xxx4	48 MHz	128	16	√	1	2	-	2	2	√	-	-	√	√	√	-	23~66	USB 2.0 FS OTG/ Host/Device	√	√	-	-	√	√	-	-	-
KL26	MKL26Z32xxx4	48 MHz	32	4	√	1	2	-	2	2	√	√	-	√	√	√	-	23~50	USB 2.0 FS OTG/ Host/Device	√	√	-	-	√	-	-	-	-
	MKL26Z64xxx4	48 MHz	64	8	√	1	2	-	2	2	√	√	-	√	√	√	-	23~50	USB 2.0 FS OTG/ Host/Device	√	√	-	-	√	-	-	-	-
	MKL26Z128xxx4	48 MHz	128	16	√	1	2	-	2	2	√	√	-	√	√	√	-	23~80	USB 2.0 FS OTG/ Host/Device	√	√	-	√	√	-	√	-	√
	MKL26Z256xxx4	48 MHz	256	32	√	1	2	-	2	2	√	√	-	√	√	√	-	50~80	USB 2.0 FS OTG/ Host/Device	-	-	-	-	√	-	√	√	√
KL27	MKL27Z32xxx4	48 MHz	32	8	√	2	1	1	2 x 16 bit	2	-	-	√	√		√	-	23~50	USB 2.0 FS Device, with crystal-less USB	*	*	√	-	√	-	-	*	-
	MKL27Z64xxx4	48 MHz	64	16	√	2	1	1	2 x 16 bit	2	-	-	√	√		√	-	23~50	USB 2.0 FS Device, with crystal-less USB	√	*	√	-	√	-	-	*	-
	MKL27Z128xxx4	48 MHz	128	32	√	2	1	1	2 x 16 bit	2	-	√	√	√	√	√	-	23~50	USB 2.0 FS Device, with crystal-less USB	√	√	-	-	√	-	-	√	-
	MKL27Z256xxx4	48 MHz	256	32	√	2	1	1	2 x 16 bit	2	-	√	√	√	√	√	-	23~50	USB 2.0 FS Device, with crystal-less USB	√	√	-	-	√	-	-	√	-
KL28	MKL28Z512xxx7	72 MHz (up to 96 MHz)	512	128	8	3	3	1	3	3	√	1	√	√	√	√	√	82	Crystal-less USB, Device Only	-	-	-	-	-	-	√	-	-

* This package is included in a Package Your Way program for Kinetis MCUs. Please visit **www.nxp.com/KPYW** for more detail.

www.nxp.com/Kinetis/Lseries

NXP, the NXP logo, the Energy Efficient Solutions logo, Freescale, CodeWarrior, Kinetis, Processor Expert and Tower are trademarks of NXP B.V. All other product or service names are the property of their respective owners. ARM, Cortex and Keil are registered trademarks of ARM Limited (or its subsidiaries) in the EU and/or elsewhere. All rights reserved. © 2014–2016 NXP B.V.

DocumentNumber: LSERIESKL2xFS Rev 10

BUILT ON Energy Efficient Solutions by Freescale

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- View MKL26Z128VLL4 on WIN SOURCE
- NXP / Nexperia Information

Optimize Your Supply Chain with WIN SOURCE Solutions

- Global Sourcing Solution
- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management