Kinetis KE1xZ MCU Family

The Kinetis KE1xZ MCU family provides a highly scalable portfolio of robust 5V MCUs based on the Arm® Cortex®-M0+, extending the Kinetis E series by offering higher performance and broader scalability with robust NXP Touch software, 1 Msps ADC and FlexTimers.

The 5V Kinetis KE1xZ MCU family features a 48/72/96 MHz Arm Cortex-M0+ core with up to 512 KB flash, 96 KB SRAM, and a complete set of analog/digital features. The new TSI provides a high level of stability and accuracy for your HMI system, while the 1 Msps ADC and FlexTimer modules offer an ideal solution for BLDC motor-control systems. CAN IP is ideal for the industrial control nodes.

Target Applications

- Home appliances
- Industry
- CAN bus control node
- Motor control
- Smart lighting
- Circuit breaker

Features

Performance

- Configurable nested vectored interrupt controller
- Memory-mapped divide and square root module
- Up to 8-channel DMA controller extended to 63 channels with DMAMUX

Human machine interface

- Up to 8 high-drive pins providing maximum 20mA current
- Robust new TSI supports both the mutual-cap mode and the self-cap mode, providing flexibility for up to 50 touch sensing channels

Timers

- Up to 3x FlexTimers (FTM) (2/4/6/8 channels)
- Low-power timer (LPTMR) with flexible wake-up control
- Programmable delay block (PDB) with flexible trigger system
- Low-power periodic interrupt timer (LPIT) with 4 channels
- Real timer clock (RTC)

Memory

- Up to 512 KB program flash, 96 KB SRAM
- Up to 32 KB FlexNVM with ECC for data flash and with EEPROM emulation
- Up to 2 KB FlexRAM for EEPROM emulation
- Up to 256 Bytes flash cache
- Up to 8 KB boot ROM with built-in bootloader

Clock interfaces

- System oscillator (OSC) input ranges from 32 KHz, 4-40 MHz
- 32 KHz oscillator (OSC32) input
- High-accuracy fast internal reference clock (FIRC)
- High-accuracy slow internal reference clock (SIRC)

Analog modules

- 12-bit ADC with up to 24-channel analog inputs per module, up to 1 Msps
- High-speed analog comparators (CMP) with internal 8-bit digital-to-analog converter (DAC)

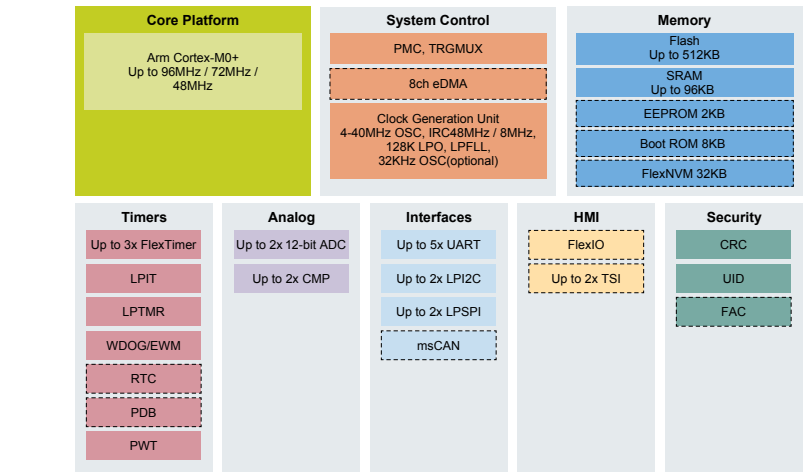
Connectivity and communications

- LPUART, LPSPI, LPI2C with DMA support and low power availability
- 8-ch. programmable module (FlexIO) to emulate various serial, parallel or custom interfaces

MCUXpresso Developer Experience

- NXP Touch Software
- NXP FRDM development platform
  - low cost, standard form factor and headers, easy access to MCU I/Os, and an on-board MCU-Link debugger
- MCUXpresso software development kit (SDK)
- Integrated development environments (IDE)
  - MCUXpresso for VS Code
  - MCUXpresso IDE
  - IAR Embedded Workbench®
  - Arm Keil® MDK

Kinetis KE1xZ MCU family block diagram



Available on certain products within the family

Kinetis KE1xZ MCU family options

Sub-Family	Part Number	CPU (MHz)	Memory (KB)			Features												Package				
			Flash	SRAM	EEPROM	LPUART + UART	LPSPI	LPI2C	TSI	CAN	RTC	FlexIO	16-bit PWM	12-bit ADC	CMP	FlexTimer	Total GPIOs	QFN40	LQFP44	LQFP48	LQFP64	L QFP100
KE12Z	MKE12Z128V**7	72	128	32		3	1	1				✓	16-ch.	1	1	3	58/89			✓	✓	✓
KE12Z	MKE12Z256V**7	72	256	48		3	1	1				✓	16-ch.	1	1	3	58/89			✓	✓	✓
KE12Z	MKE12Z512V**9	96	512	96		3+2	2	2			✓	✓	16-ch	1	1	3	58/89				✓	✓
KE13Z	MKE13Z128V**7	72	128	32		3	1	1	1x 25-ch.			✓	16-ch.	1	1	3	58/89			✓	✓	✓
KE13Z	MKE13Z256V**7	72	256	48		3	1	1	1x 25-ch.			✓	16-ch.	1	1	3	58/89			✓	✓	✓
KE13Z	MKE13Z512V**9	96	512	96		3+2	2	2	1x 25-ch		✓	✓	16-ch	1	1	3	58/89				✓	✓
KE14Z	MKE14Z32V**4	48	32	4		3	1	1			✓		8-ch.	1	1	2	38/42	✓	✓	✓		
KE14Z	MKE14Z64V**4	48	64	8		3	1	1			✓		8-ch.	1	1	2	38/42	✓	✓	✓		
KE14Z	MKE14Z128V**7	72	128	16	2 [1]	3	2	2			✓	✓	16-ch.	2	2	3	58/89				✓	✓
KE14Z	MKE14Z256V**7	72	256	32	2 [1]	3	2	2			✓	✓	16-ch.	2	2	3	58/89				✓	✓
KE15Z	MKE15Z32V**4	48	32	4		3	1	1	1x 25-ch.		✓		8-ch.	1	1	2	38/42	✓	✓	✓		
KE15Z	MKE15Z64V**4	48	64	8		3	1	1	1x 25-ch.		✓		8-ch.	1	1	2	38/42	✓	✓	✓		
KE15Z	MKE15Z128V**7	72	128	16	2 [1]	3	2	2	1x 25-ch.		✓	✓	16-ch.	2	2	3	58/89				✓	✓
KE15Z	MKE15Z256V**7	72	256	32	2 [1]	3	2	2	1x 25-ch.		✓	✓	16-ch.	2	2	3	58/89				✓	✓
KE16Z	MKE16Z32V**4	48	32	4		3	1	1	1x 25-ch.	✓	✓		8-ch.	1	1	2	38/42		✓	✓		
KE16Z	MKE16Z64V**4	48	64	8		3	1	1	1x 25-ch.	✓	✓		8-ch.	1	1	2	38/42		✓	✓		
KE17Z	MKE17Z128V**7	72	128	32		3	1	1	2x 25-ch.			✓	16-ch.	1	1	3	58/89			✓	✓	✓
KE17Z	MKE17Z256V**7	72	256	48		3	1	1	2x 25-ch.			✓	16-ch.	1	1	3	58/89			✓	✓	✓
KE17Z	MKE17Z512V**9	96	512	96		3+2	2	2	2x 25-ch		✓	✓	16-ch	1	1	3	58/89				✓	✓

[1] 32 KB FlexNVM for data flash that can emulate as 2 KB EEPROM

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Document Number: KE1xZMCUFAMFS REV 6