KE1xZ: Arm® Cortex®-M0+ 5V Main Stream MCU with NXP Touch and CAN Control

KE1xZ   Receive alerts ⓘ

KE1xZ MCUs are based on the Arm®Cortex®-M0+ core, running up to 96 MHz. These MCUs support up to 512 KB flash, 96 KB RAM, and a complete set of analog/digital features. The robust TSI module with up to 50 channels provides a high level of stability and accuracy to any HMI system. The 1-Msps ADC and FlexTimer modules provide an ideal solution for BLDC motor-control systems.

The MSCAN IP is ideal for the CAN node control and auto after car market applications.
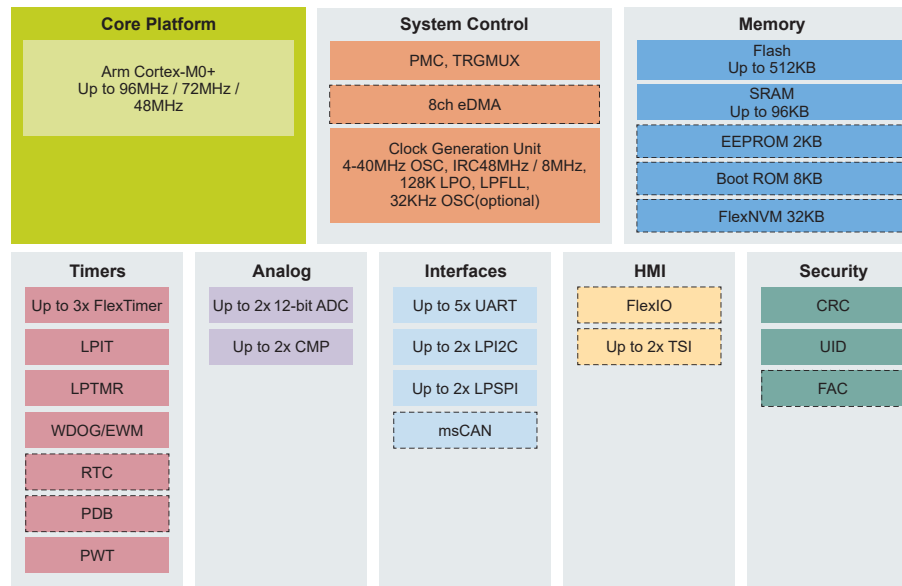
This device is fully supported by NXP's MCUXpresso Software and Tools (/design/design-center/software/development-software/mcuxpresso-software-and-tools-:MCUXPRESSO), a comprehensive and cohesive set of free software development tools for Kinetis, LPC and i.MX RT microcontrollers. MCUXpresso SDK also includes project files for Keil MDK and IAR Embedded Workbench for Arm.

DATA SHEET   **REFERENCE MANUAL**

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Block Diagram

Kinetis KE1xZ MCU Family

Core Platform	System Control	Memory
Arm Cortex-M0+ Up to 96MHz / 72MHz / 48MHz	PMC, TRGMUX	Flash Up to 512KB
	8ch eDMA	SRAM Up to 96KB
	Clock Generation Unit 4-40MHz OSC, IRC48MHz / 8MHz, 128K LPO, LPFLL, 32KHz OSC(optional)	EEPROM 2KB
		Boot ROM 8KB
		FlexNVM 32KB

Timers	Analog	Interfaces	HMI	Security
Up to 3x FlexTimer	Up to 2x 12-bit ADC	Up to 5x UART	FlexIO	CRC
LPIT	Up to 2x CMP	Up to 2x LPI2C	Up to 2x TSI	UID
LPTMR		Up to 2x LPSPI		FAC
WDOG/EWM		msCAN		
RTC				
PDB				
PWT				

☐ Available on certain products within the family

Features

- Up to 96 MHz Cortex-M0+ core supporting a broad range of processing bandwidth requirements while maintaining excellent cost-effectiveness, easy to use packages and a wide range of memory densities

- Enhanced robust IOs make sure the high performance under noisy environment

- Robust TSI supports both self-cap mode and self-cap mode, providing flexibility for MCU to Touch Control

- Implementation of CAN protocol - Version 2.0A/B, support both standards and extended data frames, up to 1Mbps data rate

- Flextime featured up to 8ch PWM supports 3-phase motor control with dead time insertion and fault detect

- 1MSPS 12b ADC with up to 24ch input per module provides fast sampling rate for prompt data conversion and storage

- Analog comparator for fast response to external analog change

- Programmable delay block with flexible trigger system providing various interconnections for on-chip modules, ADC, DAC, Flextimers, CMP, etc

- FlexIO provides flexibility for serial communication interface implementation

- Boot ROM provides on-chip boot code and serial port drivers that could save flash space and provide flexible boot options and in system programming support

- Faster time to market with comprehensive enablement solutions, including SDK (drivers, libraries, stacks), IDE, bootloader, RTOS, online community and more

- Supported by MCUXpresso SDK, IDE and Config Tools

Part numbers include: MKE12Z128VLF7, MKE12Z128VLH7, MKE12Z128VLL7, MKE12Z256VLF7, MKE12Z256VLH7, MKE12Z256VLL7, MKE12Z512VLH9, MKE12Z512VLL9, MKE13Z128VLF7, MKE13Z128VLH7, MKE13Z128VLL7, MKE13Z256VLF7, MKE13Z256VLH7, MKE13Z256VLL7, MKE13Z512VLH9, MKE13Z512VLL9, MKE14Z128VLH7, MKE14Z128VLL7, MKE14Z256VLH7, MKE14Z256VLL7, MKE14Z32VFP4, MKE14Z32VLD4, MKE14Z32VLF4, MKE14Z64VFP4, MKE14Z64VLD4, MKE14Z64VLF4, MKE15Z128VLH7, MKE15Z128VLL7, MKE15Z256VLH7, MKE15Z256VLL7, MKE15Z32VFP4, MKE15Z32VLD4, MKE15Z32VLF4, MKE15Z64VFP4, MKE15Z64VLD4, MKE15Z64VLF4, MKE16Z32VLD4, MKE16Z32VLF4, MKE16Z64VLD4, MKE16Z64VLF4, MKE17Z128VLF7, MKE17Z128VLH7, MKE17Z128VLL7, MKE17Z256VLF7, MKE17Z256VLH7, MKE17Z256VLL7, MKE17Z512VLH9, MKE17Z512VLL9.

Less ∧

Applications

Automotive

Heating Ventilation and Air Conditioning (HVAC) (/applications/automotive/body-and-vehicle-control/hvac:HEATING-VENTILATION-AIR-CONDITIONING)

Motorcycle Engine Control Unit (ECU) and Small Engine Control (/applications/industrial/aerospace-and-mobile-robotics/motorcycle-engine-control-unit-ecu-and-small-engine-control:MOTORCYCLE-ECU-SMALL-ENGINE-CONTROL)

Industrial

3-Phase AC Induction Motor (/applications/industrial/aerospace-and-mobile-robotics/3-phase-ac-induction-motor:AC-MOTORS)

Air Conditioning (AC) (/applications/smart-home/smart-appliance/air-conditioning-ac:AIR-CONDITIONING)

Automotive Gas Meter (/applications/industrial/power-and-energy/automotive-gas-meter:GAS-METER)

Brushless DC Motor (BLDC) Control (/applications/industrial/aerospace-and-mobile-robotics/brushless-dc-motor-bldc-control:BRUSHLESS-DC-MOTORS)

Building Safety (/applications/industrial/building-control/building-safety:BUILDING-SAFETY)

Circuit breaker

Electricity Grid and Distribution (/applications/industrial/power-and-energy/electricity-grid-and-distribution:ELECTRICITY-GRID-DISTRIBUTION)

Electricity Meter (/applications/industrial/power-and-energy/electricity-meter:ELECTRICITY-METER)

General 5V applications

Heat Metering (/applications/industrial/power-and-energy/heat-metering:HEAT-METERING)

Motion Control and Robotics (/applications/industrial/aerospace-and-mobile-robotics/motion-control-and-robotics:MOTION-CONTROL-ROBOTICS)

Motor Drives (/applications/industrial/factory-automation/motor-drives:MOTOR-DRIVES)

Motor/inverter control

Permanent Magnet Synchronous Motor (PMSM) (/applications/industrial/aerospace-and-mobile-robotics/pmsm:PMSM-MOTORS)

Smart Lighting (/applications/smart-city/infrastructure/smart-lighting:SMART-LIGHTING-ASP)

Smart Power Socket and Light Switch (/applications/smart-home/home-control-and-security/smart-power-socket-and-light-switch:SMART-POWER-SOCKET-LIGHT)

Surround View (/pages/surround-view-:SURROUND-VIEW-PARK-ASSIST-SYSTEM)

Water Meter (/applications/industrial/power-and-energy/water-meter:WATER-METER)

Mobile

Hearables (/applications/mobile/wearables/hearables:HEARABLES)

Smart Watch (/applications/mobile/wearables/smart-watch:SMARTWATCH)

Wristband (/applications/mobile/wearables/wristband:WRISTBAND)

Smart City

Automatic Vehicle Identification (/applications/smart-city/transportation/automatic-vehicle-identification:AUTOMATIC-VEHICLE-ID)

Transport Ticketing (/applications/smart-city/transportation/transport-ticketing:TRANSPORT-TICKETING)