



# E3430 High-Reliable MCU

## Product Brief

Preliminary

Subject to change without notice

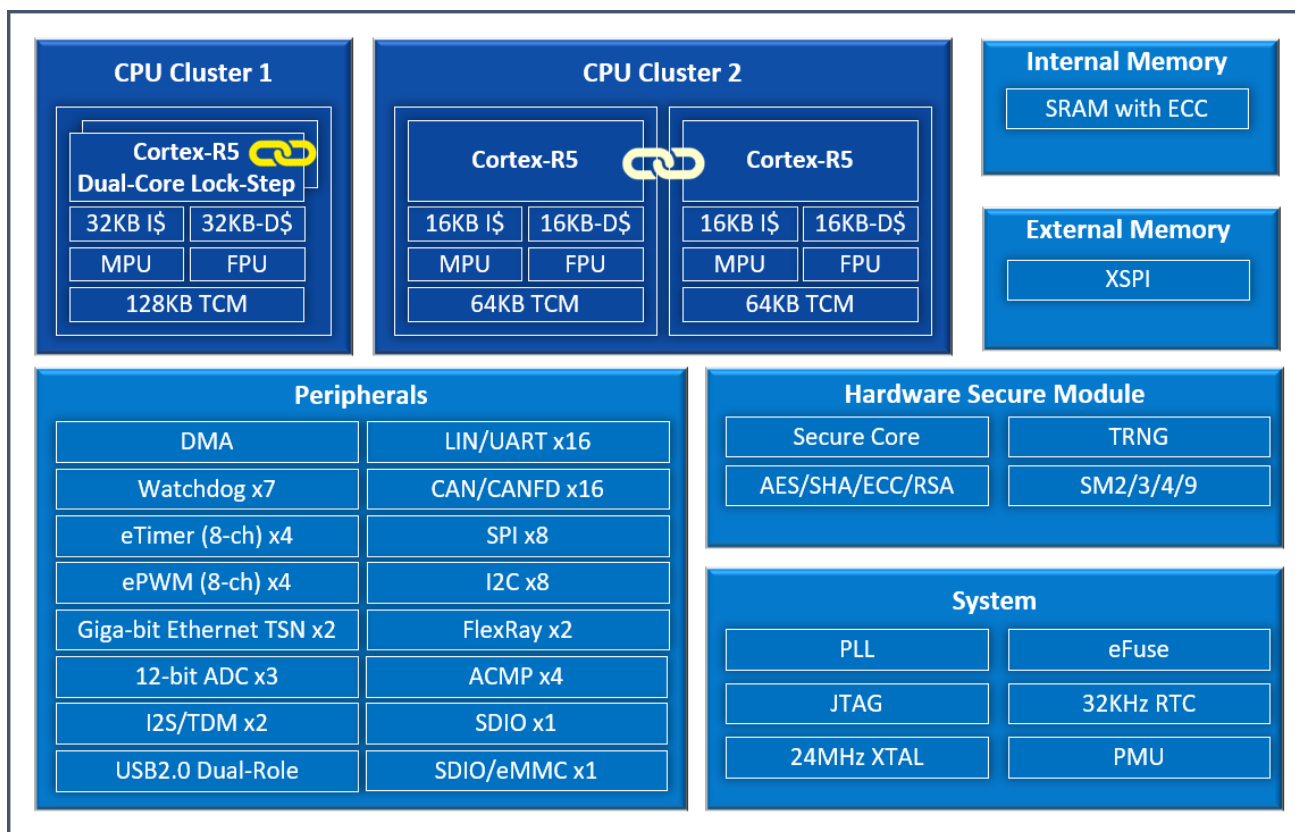
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# E3430

## High-Reliable Automotive MCU

E3430 High-Reliable MCU is the next-generation high-performance MCU designed for safety-critical automotive applications. It integrates 2-pairs of ARM Cortex-R5 lock-step CPU cores and 3MB SRAM to support the increasing demands on computing and program/data storage. It is also equipped with rich communication interfaces such as CANFD, LIN, FlexRay, USB, Giga-bit Ethernet for seamless integration into automotive system at minimal BOM cost. Its internal HSM supports true random number generator and high-performance crypto engines for AES, RSA, ECC, SHA as well as SM2/3/4/9 standards. It is designed to meet the security requirement on secure boot, secure communication, OTA etc.



### Automotive Qualification

- AEC-Q100 Grade 1
- ISO 26262 compliance to support safety requirements up to ASIL D

## Key Features

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### CPU Cluster 0

- 600MHz Dual-Core ARM Cortex-R5F
- Fixed Lock-Step Operation
- 32KB I-Cache, 32KB D-Cache
- 128KB TCM
- With FPU & MPU

### CPU Cluster 1

- 600MHz Dual-Core ARM Cortex-R5F
- Configurable Lock-Step / Split Operation
- 16KB I-Cache, 16KB D-Cache
- 64KB TCM
- With FPU & MPU

### Internal Memory

- 3MB SRAM
- ECC protection enabled

### ADC

- 3x 12-bit SAR ADC
- 48 shared analog input channels
- Support single-end / differential mode
- Support 0~5V input range

### ACMP

- 4x Analog comparator
- 48 shared analog input channels
- Support single-end / differential mode
- Support 0~5V input range

### Storage

- 1x SD3.0
- 1x eMMC5.1

### XSPI Memory Interface

- Support 16-bit/8-bit/4-bit mode
- Support Octal-SPI / Qual-SPI FLASH
- Support HyperFLASH / HyperRAM

### Peripherals

- 16x CAN/CANFD
- 16x LIN/UART
- 2x FlexRay
- 2x Gigabit Ethernet TSN
- 1x USB2.0 Host/Device
- 2x I2S/TDM
- 8x I2C
- 8x SPI
- 4x ePWM, 8-ch per ePWM
- 4x eTimer, 8-ch per eTimer

### Hardware Secure Module (HSM)

- High-performance Secure Core
- TRNG
- AES/SHA/RSA/ECC
- SM2/3/4/9

### Power Management

- Full PMU integration
- Temperature Sensor
- Voltage detector

## Enablement

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### Software

- AUTOSAR MCAL
- Power-On Self Test Program

### Tools

- IAR Workbench

## Parameter Table

<b>Family</b>		E3
<b>Series</b>		E3400
<b>Part Number</b>		E3430-AGKAA
<b>Automotive Safety Integrity Level</b>		ASIL D
<b>CPU Cluster 0</b>		600MHz Cortex-R5 Dual-Core Lock-Step
<b>CPU Cluster 1</b>		600MHz Cortex-R5 Dual-Core Split/Lock
<b>Internal Memory</b>		3MB with ECC
<b>HSM/Crypto</b>		AES/SHA/ECC/RSA, SM2/3/4/9
<b>XSPI Memory Interface</b>		2x Octal-SPI/Quad-SPI FLASH/HyperFLASH/HyperRAM
<b>Interfaces</b>	<b>USB2.0</b>	1
	<b>CANFD</b>	16
	<b>FlexRay</b>	2
	<b>SD/SDIO</b>	1
	<b>eMMC</b>	1
	<b>I2S</b>	2
	<b>1G Ethernet TSN</b>	2
	<b>LIN/UART</b>	16
	<b>SPI</b>	8
	<b>I2C</b>	8
<b>Timer</b>	<b>ePWM</b>	4
	<b>eTimer</b>	4
	<b>Watchdog Timer</b>	7
<b>Analog</b>	<b>ADC</b>	3
	<b>ACMP</b>	4
	<b>Analog Input Channel</b>	48
<b>Power Management</b>	<b>External Power Supply</b>	3.3V
	<b>PMU</b>	Integrated DCDC & LDO
	<b>Temperature Sensor</b>	Integrated Temperature Sensor
	<b>Voltage Detector</b>	Integrated HV/LV Detector
<b>RTC</b>		32KHz RTC
<b>Package</b>		BGA324, 15mm x 15mm, 0.8mm pitch
<b>AEC-Q100</b>		Grade-1
<b>Temperature Range (T<sub>j</sub>)</b>		-40 ~ 150