

## LPC552x/S2x: Mainstream Arm® Cortex®-M33-based Microcontroller Family

LPC552x-S2x

Last Updated: Jul 30, 2025

The LPC552x/S2x MCU family is part of the EdgeVerse™ edge computing platform and further expands the world's first general purpose Cortex-M33-based MCU series, offering significant advantages for developers, including pin-, software- and peripheral-compatibility for ease of use and accelerating time to market, while leveraging the cost-effective 40-nm NVM process technology.

The LPC552x/S2x is a mainstream family within the LPC5500 MCU series inclusive of LPC55S28, LPC55S26, LPC5528, LPC5526 MCUs, providing a perfect balance between security, performance efficiency and system integration for general embedded and industrial IoT markets. The LPC552x/S2x MCU family combines the high-performance efficiency of the Cortex-M33 core with multiple high-speed interfaces, an integrated power management IC, and rich analog integration.

## LPC552x/S2x MCU Block Diagram

S x 32b Timers   SCTimer/PWM	Core Platform		Timers	
System Control Power Control Single V <sub>ss</sub> power supply, POR, BOD, reduced power modes – DC converter  Clock Generation Unit OSCs, SystemPLL, USB PLL, Clock Out  DMA0 Up to 22-ch.  Memory Flash Up to 512 KB  ROM Up to 256 KB  ROM (128 KB) Boot code + USB driver  Programmable Features  Multi-Rate Timer Windowed WDT  RTC Micro Timer  8 x FlexComm Supports UART, SPI, PC, PS  HS LSPI SDIO  HS USB + PHY FS USB + PHY  AES-256 SHA-2  SRAM PUF PRINCE  ROM (128 KB) Boot code + USB driver  Analog  ADC 16b 1MSPS ACMP  Temp Sensor			5 x 32b Timers	SCTimer/PWM
System Control  Power Control Single Vost power supply, POR, BOD, reduced power modes – DC converter  Clock Generation Unit OSCs, SystemPLL, USB PLL, Clock Out  DMA0 Up to 22-ch.  Memory Flash Up to 512 KB  RAM Up to 256 KB  ROM (128 KB) Boot code + USB driver  Programmable Features  Programmable Logic Unit 6 input, 8 output  RTC  Interfaces  8 x FlexComm Supports UART, SPI, PC, PS  HS LSPI SDIO  HS USB + PHY FS USB + PHY FS USB + PHY  FS USB + PHY  Security  AES-256 SHA-2  SRAM PUF PRINCE  Analog  ADC 16b 1MSPS ACMP  Temp Sensor			Multi-Rate Timer	Windowed WDT
Power Control Single V <sub>od</sub> power supply, POR, BOD, reduced power modes – DC converter  Clock Generation Unit OSCs, SystemPLL, USB PLL, Clock Out  DMA0 Up to 22-ch.  Memory Flash Up to 512 KB SRAM PUF Programmable Features  Programmable Features  Programmable Logic Unit 6 input, 8 output  Programmable Logic Unit 6 input, 8 output  Supports UART, SPI, PC, PS  HS LSPI SDIO  Security  HS USB + PHY FS USB + PHY  FS USB + PHY  FS USB + PHY  Secure Debug RNG  PFR UID  Analog  ADC 16b 1MSPS ACMP			RTC	Micro Timer
Single V <sub>ad</sub> power supply, POR, BOD, reduced power modes – DC converter  Clock Generation Unit OSCs, SystemPLL, USB PLL, Clock Out  DMA0 Up to 22-ch.  Memory Flash Up to 512 KB  ROM Up to 256 KB  ROM (128 KB) Boot code + USB driver  Programmable Features  Programmable Logic Unit 6 input, 8 output  Supports UART, SPI, PC, IPS  HS LSPI SDIO  HS USB + PHY FS USB + PHY  FS USB + PHY  FS USB + PHY  Security  AES-256 SRAM PUF PRINCE  Secure Debug RNG  PFR UID  Analog  ADC 16b 1MSPS ACMP			Interfaces	
OSCs, SystemPLL, USB PLL, Clock Out  DMA0 Up to 22-ch.  Memory  Flash Up to 512 KB  RAM Up to 256 KB  ROM (128 KB) Boot code + USB driver  Programmable Features Programmable Logic Unit 6 input, 8 output  HS USB + PHY FS USB + PHY  Security  AES-256 SHA-2  SRAM PUF PRINCE  Secure Debug RNG  PFR UID  Analog  ADC 16b 1MSPS ACMP  Temp Sensor	Single V <sub>ee</sub> power supply, POR, BOD,			
DMA0 Up to 22-ch.  Memory  Flash Up to 512 KB  RAM Up to 256 KB  ROM (128 KB) Boot code + USB driver  Programmable Features  Programmable Logic Unit 6 input, 8 output  HS USB + PHY  FS USB + PHY  Security  AES-256 SHA-2  SRAM PUF PRINCE  Secure Debug RNG  PFR UID  Analog  ADC 16b 1MSPS ACMP  Temp Sensor			HS LSPI	SDIO
Memory Flash Up to 512 KB  RAM Up to 256 KB  ROM (128 KB) Boot code + USB driver  Programmable Features Programmable Logic Unit 6 input, 8 output  Security  AES-256 SHA-2  SRAM PUF PRINCE  RNG PFR UID  Analog  ADC 16b 1MSPS ACMP Temp Sensor	DMA0	DMA1	HS USB + PHY	FS USB + PHY
Flash Up to 512 KB  RAM Up to 256 KB  ROM (128 KB) Boot code + USB driver  Programmable Features Programmable Logic Unit 6 input, 8 output  SRAM PUF PRINCE  RNG PFR UID  Analog  ADC 16b 1MSPS ACMP  Temp Sensor	Up to 22-cn. Up to 10-cn.		Secu	ırity
RAM Up to 256 KB  ROM PFR UID  (128 KB) Boot code + USB driver  Programmable Features  Programmable Logic Unit 6 input, 8 output  RAM Secure Debug RNG  PFR UID  Analog  ADC 16b 1MSPS ACMP  Temp Sensor	Flash		AES-256	SHA-2
ROM (128 KB) Boot code + USB driver  Programmable Features Programmable Logic Unit 6 input, 8 output  RNS  PFR UID  Analog  ADC 16b 1MSPS ACMP  Temp Sensor			SRAM PUF	PRINCE
(128 KB) Boot code + USB driver  Analog  Programmable Features  Programmable Logic Unit 6 input, 8 output  ADC 16b 1MSPS  ACMP  Temp Sensor				RNG
Programmable Features ADC 16b 1MSPS ACMP Programmable Logic Unit 6 input, 8 output  ADC 16b 1MSPS Temp Sensor			PFR	UID
Programmable Logic Unit 6 input, 8 output  Temp Sensor			Analog	
6 input, 8 output Temp Sensor			ADC 16b 1MSPS	ACMP
Coffeed				Temp Sensor
	Optional			

View additional information for LPC552x/S2x: Mainstream Arm® Cortex®-M33-based Microcontroller Family.

Note: The information on this document is subject to change without notice.

## www.nxp.com

NXP and the NXP logo are trademarks of NXP B.V. All other product or service names are the property of their respective owners. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. © 2025 NXP B.V.