

## LPC553x/S3x: Advanced Analog Arm®Cortex®-M33-Based MCU Family

## LPC553x

Last Updated: Apr 11, 2024

The LPC553x/S3x MCU family further expands the general purpose Cortex-M33-based MCU series, offering significant performance enhancement, all on-chip RAM with Parity or ECC, renewed security features and precision analog additions, leveraging the cost-effective 40-nm NVM process technology.

The LPC553x/S3x family includes a proprietary DSP accelerator offering 10x clock cycle reduction, bringing significant signal processing efficiency gains.

## LPC553x/55S3x MCU Block Diagram

Core Platform				Timers				
Arm <sup>®</sup> Cortex <sup>®</sup> -M33 Up to 150 MHz				5 x 32b Timers  Multi-Rate Timer		SCTimer/PWM Windowed WDT		
TrustZone, MPU, FPU, SIMD, DSP								
DSP Accelerator (PowerQuad)				RTC		Micro Timer		
System Control							OS Event Timer	
Power Control				Interfaces				
Single $\rm V_{ad}$ power supply, POR, BOD, reduced power modes – DC converter + LDO					8 x FlexComm Supports UART, SPI, I <sup>2</sup> C, I <sup>2</sup> S		FlexSPI 8 kB CACHE + PRINCE	
Clock Generation Unit FROs, 2x PLLs, XTAL32k/32m, Clock Out				HS LSPI	HS LSPI		FS USB + PHY	
Secure	Secu		Secure	I3C		DMIC		
DMA0	DMA		AHB Bus	CAN-FD		Flex-PWM		
Memory				Security				
Flash and Flash Cache 256 KB w Cache 8 KB		ROM Boot + Secure Boot (LPC55S3x)		AES-256	Code WDG		DICE + UUID	
RAM 112 KB Parity + 16 KB ECC				SRAM PUF	SHA-512		Tamper Detect and Response	
Analog				Debug Auth.	PRINCE		PKC	
4x ADC 16b 2MSPS			4x CMP	PFR + OTP	RNG		ECC	
3x DAC 12b 1MSPS		2x Temp Sensors		<u> </u>	Motor Contro	l Subsystem		
3x OpAMP + 1x VREF				2x FlexPWM Time		-	2x QEIs, 2x AOI	

View additional information for LPC553x/S3x: Advanced Analog Arm®Cortex®-M33-Based MCU 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. © 2024 NXP B.V.