

Texas Instruments C2000™ TMS320F28388D real-time controller series



High-performance C2000 real-time controller enhanced with rich connectivity

- **Real-time connectivity**
 - Arm® Cortex®-M4: 125 MHz/512 KB/96 KB
 - Dedicated, fully programmable communications sub-system
 - EtherCAT Industrial Fieldbus or 10/100 Ethernet MAC
 - CAN-FD, CAN, USB, 200 Mbps FSI, multiple serial ports
- **Real-time control**
 - 800/400 MIPS performance with extended 64-bit FPU and HW divide
 - Most flexible and advanced timers and PWMs
- **System flexibility**
 - Premium A/D converters, comparators and Sigma Delta filters
 - CLB for FPGA-like customization and absolute encoder support

Real-time control meets real-time connectivity with the C2000 F2838x series of MCUs. Ideal for high-performance, connected servo drives, motion controllers, variable frequency AC drives, remote I/O, solar inverters and industrial power applications.

TMS320F2838x		Temperatures		125C	125C Q100
Connectivity		Processing		Actuation	
Connectivity Manager (CM) Access	C28x Access	C28x™ DSP core	C28x™ DSP core	16x ePWM Modules (Type 4)	
10/100 Ethernet	FSI: 2x Tx, 8x Rx	200 MHz	200 MHz	32x Outputs (16x High-Res)	
CAN-FD	2x McBSP	FPU64	FPU64	Fault Trip Zones	
UART	4x UART	TMU	TMU	3x 12-bit DAC	
SSI	4x SPI	VCRC	VCRC	Sensing	
I2C	2x I2C, 1x PMBus	CLA core 200 MHz	CLA core 200 MHz	4x Analog to Digital Converters	
EtherCAT™ USB MAC & PHY		Floating-Point Math	Floating-Point Math	16-bit Mode, 1.1 MSPS, 12 differential or 24 single-ended channels	
2x CAN 2.0B		Memory		12-bit Mode, 3.5 MSPS	
System Modules		512 KB Flash	512 KB Flash	24 single-ended channels	
3x 32-bit CPU Timers per C28x CPU		44 KB RAM	44 KB RAM	8x Windowed Comparators w/ Integrated 12-bit DAC	
192 Interrupt PIE per C28x CPU		128 KB RAM Shared		8x Sigma Delta Filter Modules	
Watchdog Timer		26 KB RAM Shared for IPC		Temperature Sensor	
Missing Clock Detection		2x Security Zones		3x eQEP	
Power & Clocking		Boot ROM		7x eCAP (2x HRCAP)	
2x 10 MHz OSC		ROM Tables		Configurable Logic Block	
Ext OSC Input		6-ch DMA	6-ch DMA	8 Tiles	
		2x EMIF		Position Manager: Flexible Absolute Encoder Interface	
		Debug			
		Real-time JTAG			
		Real-time Analysis and Diagnostic unit (ERAD)			

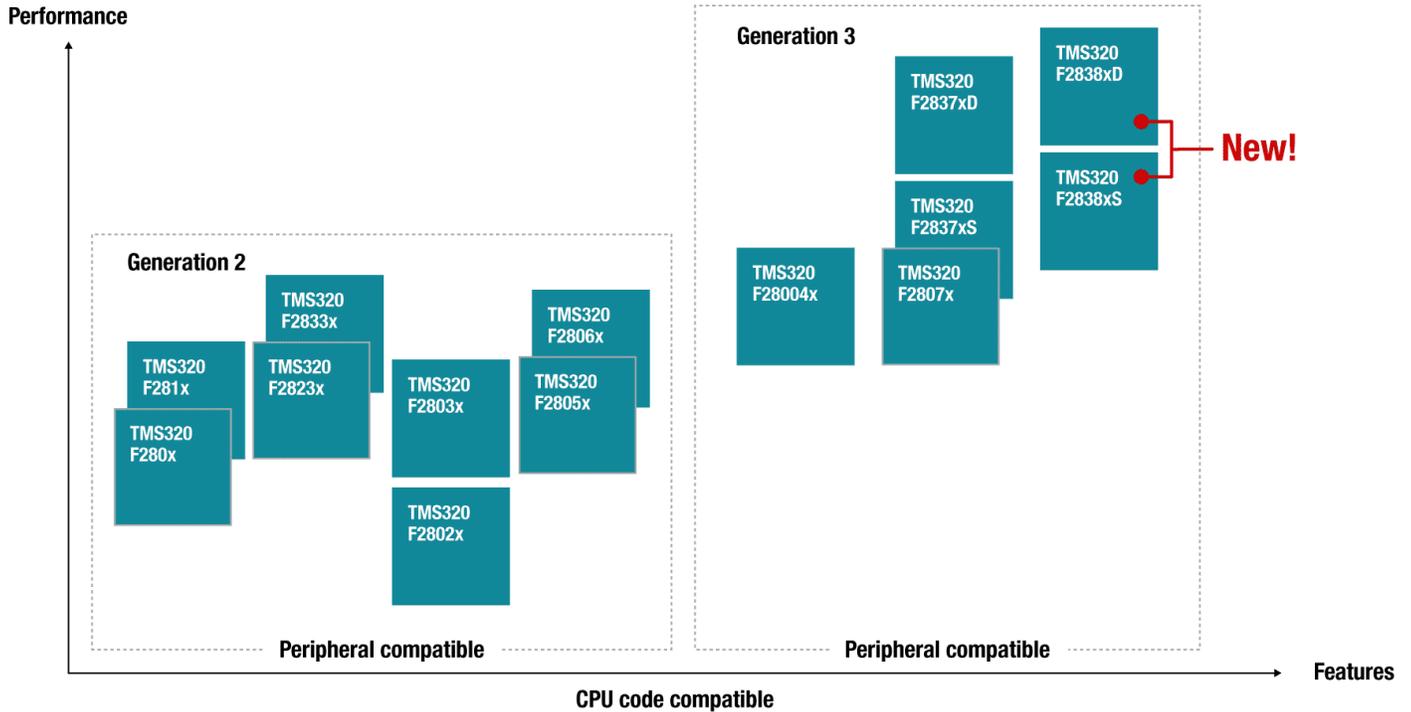
www.ti.com/product/tms320f28388d

F2838x MCU	Connectivity manager	C28x CPUs/ MIPS	CLA Co-processors /MIPS	Flash memory	Ethernet	EtherCAT	Configurable logic block
TMS320F28388D	YES	2/400 MIPS	2/400 MIPS	1.5 MB	YES	YES	YES
TMS320F28388S	YES	1/200 MIPS	1/200 MIPS	1.0 MB	YES	YES	YES
TMS320F28386D	YES	2/400 MIPS	2/400 MIPS	1.5 MB	YES	--	YES
TMS320F28386S	YES	1/200 MIPS	1/200 MIPS	1.0 MB	YES	--	YES
TMS320F28384D	YES	2/400 MIPS	2/400 MIPS	1.5 MB	YES	--	--
TMS320F28384S	YES	1/200 MIPS	1/200 MIPS	1.0 MB	YES	--	--

Getting Started	Part number	Description
	SPRSP14	Datasheet
	SPRUJ10	Technical reference manual
	TMDSCNCD28388D	F28388D controlCARD and experimenter's kit bundle
	C2000WARE	C2000 foundational software
	C2000WARE-DIGITALPOWER-SDK	Digital power software development kit
	C2000WARE-MOTORCONTROL-SDK	Motor control software development kit

C2000 Portfolio

The C2000 F2838x MCU series builds on the third generation improvements introduced in the F2837x and F28004x series. These new real-time control solutions offer code compatibility with existing C2000 MCUs, allowing customers to take advantage of the family's unique combination of premium performance in a variety of offerings.



Comparison of F28388D to F28379D series

	F28388D	F28379D
Connectivity manager 125 MHz Arm M4 512 KB flash / 96 KB RAM	Yes	No
Total flash	1.5 MB	1.0 MB
Total RAM	338 KB	204 KB
Ethernet	Yes	No
EtherCAT	Yes	No
CAN FD	Yes	No
Fast serial interface	Yes	No
16-bit ADC	single or double ended	double ended
PWM channels	32	24
Configurable logic block	8 Tiles	4 Tiles
FPU	FPU64	FPU32
Hardware divide	Yes	No
Background CRC	Yes	No
VCU	VCU-CRC	VCU-II

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