



SECURE CONNECTIONS
FOR A SMARTER WORLD

MC56F80xxx DIGITAL SIGNAL CONTROLLER FAMILY



MC56F80xxx is a Digital Signal Controller (DSC) family based on the 100 MHz 56800EF DSP core that integrates FPU and CORDIC/Trigonometric Math engine. This family provides high-performance, low cost solutions for digital power conversion and motor control applications.

This MC56F80xxx combines the processing power of a DSP and the functionality of an MCU with a flexible set of peripherals to support different applications. It includes advanced high-speed and high-accuracy peripherals such as 8 channel eFlexPWM with 312 ps resolution, dual high-speed 12-bit ADCs, two operational amplifiers, three analog comparators and a quadrature decoder.

TARGET APPLICATIONS

- Switched mode power supply
- Uninterruptable power supply
- Power distribution systems
- Photovoltaic systems
- Advanced motor control
- Appliances motor
- Micro inverter
- Solar power optimizer
- Wireless charging
- Advanced lighting

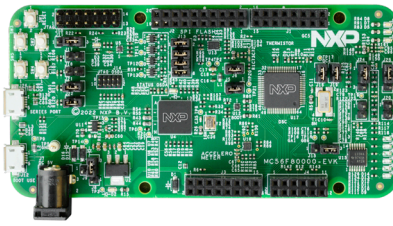
FEATURES AND BENEFITS

- 100 MHz 32-bit 56800EF DSP core provides math capabilities needed for advanced power conversion and motor control applications
- Single-Precision Floating-Point Unit (eFPU), CORDIC (Coordinate Rotation Digital Computer Engine) and 32-bit Hardware Divider (DIV) accelerate signal processing and other algorithms

- Up to 8 channels of high-resolution PWM with 312 picosecond resolution enables higher switching frequencies, helping to reduce cost and increase efficiency.
- Two 12-bit high-speed ADCs each with 640ns conversion rates with up to 1.56 MSPS resolution improve system accuracy
- Up to two operational amplifiers with programmable gain up to x16 to increase the accuracy of ADC conversions on small voltages and currents
- Three analog comparators with integrated 8-bit DACs that can enable emergency shutdown of the PWMs
- 32 KB to 64 KB flash memory provides the scalability needed for common digital power conversion and motor control applications.
- Inter-module crossbar and EVTG build an interconnection network between external pins and module I/Os with hardware logic/trigger operation capability to achieve extremely flexible system configuration
- Enhanced direct memory access (eDMA) controller provides flexible two-level loop control, further reducing core interruption and helping to increase overall performance.

DEVELOPMENT TOOLS

The MC56F8000-EVK is an ultra-low-cost development platform for the MC56F80xxx family for rapid prototyping and development.



MC56F8000-EVK

CodeWarrior® Development Studio IDE

Complimentary special edition Eclipse based CodeWarrior Development Studio for microcontrollers is a complete integrated development environment that provides a highly

visual and automated framework to accelerate the development of the most complex embedded applications.

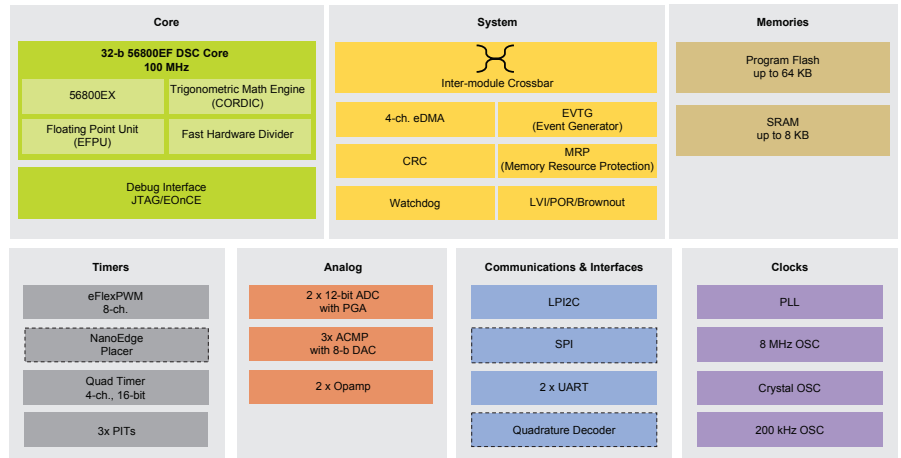
Software Development Kit (SDK) and Config Tools

Comprehensive software enablement package designed to simplify and accelerate application development. Config tools allow developers to quickly build a custom SDK and leverage pins, clocks and peripheral tools to generate initialization C code for custom board support.

FreeMASTER

FreeMASTER is a complimentary, user-friendly, real-time debug monitor and data visualization tool for application development and information management.

MC56F80XXX BLOCK DIAGRAM



Optional

PACKAGE OPTIONS

Sub-Family	Part Number	CPU (MHz)	Memory		Features						Package & Temperature					
			Flash (KB)	SRAM (KB)	Cyclic ADC	PWM	HSCMP	OPAMP	QDC	UART/SPI/I ² C	64 LQFP	48 LQFP	32 LQFP	32 QFN	Ta 105C	Ta 125C
807xx	MC56F8074	100	64	8	2	312ps	3	2	√	2/1/1	√	√	√		√	√
807xx	MC56F8073	100	48	8	2	312ps	3	2	√	2/1/1	√	√		√	√	√
807xx	MC56F8072	100	32	6	2	312ps	3	2	√	2/1/1		√	√		√	√
806xx	MC56F8064	100	64	8	2	10ns	3	2		2/1/1	√	√	√		√	
806xx	MC56F8062	100	32	6	2	10ns	3	2		2/1/1		√	√		√	

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