# XMOS®

# xCORE-200 XL/XLF General Purpose

**A new generation of high performance general-purpose multicore microcontrollers**



## FEATURES

**Multicore compute** with up to 1000MIPS (8 core) and 2000MIPS (16 core) performance.

**Hardware Response™ ports** provide flexible, high-performance configurable I/O capability.

**Up to 512KB on-board memory** for demanding applications.

**Embedded flash option** – up to 2048KB on-board.

**Free software library support** to implement your exact mix of peripherals.

**Easy to use** with our free xTIMEcomposer Studio™ tools.

The xCORE-200™ General Purpose family of devices (XL and XLF) extends the popular xCORE™ architecture to provide increased performance, memory footprint and flexibility for the most demanding applications.

xCORE-200 XL/XLF implements a dual-issue processor pipeline to boost peak compute performance up to 2000MIPS and 1000MMACS.

Up to 512KB on-chip SRAM memory is available. Each member of the xCORE-200 family has an embedded flash option for applications.

The flexible Hardware Response ports are bonded out to I/O pins as 1bit, 4bit, 8bit, 16bit and 32bit ports, and provide support for serialized and buffered data transfer. Up to 128 general purpose I/O are available for user configuration.

xCORE-200 is supported by the advanced XMOS xTIMEcomposer Studio™ development environment. A wide range of microcontroller and application libraries are freely downloadable from www.xmos.com

Unlike conventional microcontrollers, xCORE-200 multicore microcontrollers execute multiple real-time tasks simultaneously. The xCORE-200 XL/XLF family includes devices with 8, 10, 12 and 16 cores. Each logical core can execute computational code, advanced DSP code, control software (including logic decisions and executing a state machine) or drive and sample data on the I/O ports.
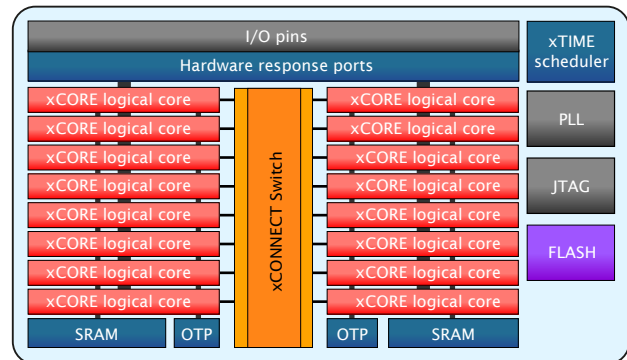
xCORE-200™ XLF216

The devices include xTIME scheduling hardware that performs functions similar to those of an RTOS, and hardware that connects the cores directly to I/O pins, ensuring fast processing and extremely low latency. The xTIME scheduler eliminates the use of interrupts and ensures deterministic operation.

The on-chip SRAM can be accessed in a single cycle, reducing shared memory requirements by passing data directly between tasks executing on logical cores. Similarly the xCONNECT switch is a high-speed network allowing all cores to communicate with each other.

xCORE-200 multicore microcontrollers include an area of one-time programmable memory with AES support to allow the implementation of secure boot functionality.

## ORDERING INFORMATION

xCORE-200 XL/XLF devices are available in a range of resource densities, packages, performance and temperature grades depending on your needs.

| Family | Cores | RAM (KB) | Flash (KB) | Package [GPIOs] | | | |
|---|---|---|---|---|---|---|---|
| | | | | TQ64 | TQ128 | FB236 | FB374 |
| XL208 | 8 | 128 256 | - | XL208-128-TQ64 [42] XL208-256-TQ64 [42] | XL208-128-TQ128 [42] XL208-256-TQ128 [42] | | |
| XL210 | 10 | 256 512 | - | | XL210-256-TQ128 [88] XL210-512-TQ128 [88] | XL210-256-FB236 [128] XL210-512-FB236 [128] | |
| XL212 | 12 | 256 512 | - | | XL212-256-TQ128 [88] XL212-512-TQ128 [88] | XL212-256-FB236 [128] XL212-512-FB236 [128] | |
| XL216 | 16 | 256 512 | - | | XL216-256-TQ128 [88] XL216-512-TQ128 [88] | XL216-256-FB236 [128] XL216-512-FB236 [128] | |
| XL224 | 24 | 512 1024 | - | | | | XL224-512-FB374 [176] XL224-1024-FB374 [176] |
| XL232 | 32 | 512 1024 | - | | | | XL232-512-FB374 [176] XL232-1024-FB374 [176] |
| XLF208 | 8 | 128 256 | 1024 | XLF208-128-TQ64 [42] XLF208-256-TQ64 [42] | XLF208-128-TQ128 [42] XLF208-256-TQ128 [42] | | |
| XLF210 | 10 | 256 512 | 2048 | | XLF210-256-TQ128 [88] XLF210-512-TQ128 [88] | XLF210-256-FB236 [128] XLF210-512-FB236 [128] | |
| XLF212 | 12 | 256 512 | 2048 | | XLF212-256-TQ128 [88] XLF212-512-TQ128 [88] | XLF212-256-FB236 [128] XLF212-512-FB236 [128] | |
| XLF216 | 16 | 256 512 | 2048 | | XLF216-256-TQ128 [88] XLF216-512-TQ128 [88] | XLF216-256-FB236 [128] XLF216-512-FB236 [128] | |
| XLF224 | 24 | 512 1024 | 2048 | | | | XLF224-512-FB374 [176] XLF224-1024-FB374 [176] |
| XLF232 | 32 | 512 1024 | 2048 | | | | XLF232-512-FB374 [176] XLF232-1024-FB374 [176] |

For pricing and availability, please visit the XMOS website for a list of our distributors.
www.xmos.com/distributors.