

## xCORE-200 XL/XLF General Purpose

A new generation of high performance general-purpose multicore microcontrollers



### FEATURES

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

**Hardware Response<sup>™</sup> 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<sup>™</sup> tools.

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

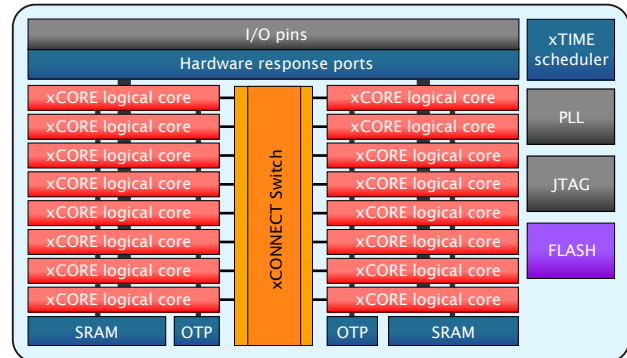
xCORE-200 XL/XLF implements a dual-issue processor pipeline to boost peak compute performance to 2000MIPS and 1000MMACS.

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

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<sup>™</sup> development environment, and a wide range of microcontroller and application libraries are freely downloadable from [www.xmos.com](http://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 [42]                          | TQ128 [88]       | FB236 [128]      |
| XL208  | 8     | 128      | -          | XL208-128-TQ64<br>XL208-256-TQ64   |                  |                  |
|        |       | 256      |            |                                    |                  |                  |
| XL210  | 10    | 256      | -          |                                    | XL210-256-TQ128  | XL210-256-FB236  |
|        |       | 512      |            |                                    | XL210-512-TQ128  | XL210-512-FB236  |
| XL212  | 12    | 256      | -          |                                    | XL212-256-TQ128  | XL212-256-FB236  |
|        |       | 512      |            |                                    | XL212-512-TQ128  | XL212-512-FB236  |
| XL216  | 16    | 256      | -          |                                    | XL216-256-TQ128  | XL216-256-FB236  |
|        |       | 512      |            |                                    | XL216-512-TQ128  | XL216-512-FB236  |
| XLF208 | 8     | 128      | 1024       | XLF208-128-TQ64<br>XLF208-256-TQ64 |                  |                  |
|        |       | 256      |            |                                    |                  |                  |
| XLF210 | 10    | 256      | 2048       |                                    | XLF210-256-TQ128 | XLF210-256-FB236 |
|        |       | 512      |            |                                    | XLF210-512-TQ128 | XLF210-512-FB236 |
| XLF212 | 12    | 256      | 2048       |                                    | XLF212-256-TQ128 | XLF212-256-FB236 |
|        |       | 512      |            |                                    | XLF212-512-TQ128 | XLF212-512-FB236 |
| XLF216 | 16    | 256      | 2048       |                                    | XLF216-256-TQ128 | XLF216-256-FB236 |
|        |       | 512      |            |                                    | XLF216-512-TQ128 | XLF216-512-FB236 |

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

[www.xmos.com/distributors](http://www.xmos.com/distributors).