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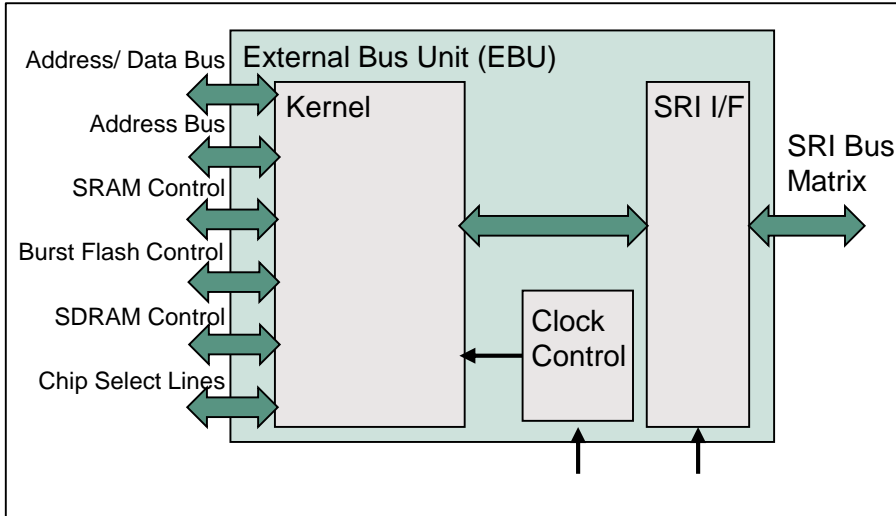
External Bus Unit

AURIX™ TC2xx Microcontroller Training
V1.0 2019-03



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External Bus Unit



Highlights

- > Allows to connect high variety of external memories
- > Highly programmable access parameters for extended configuration capabilities to configure Bus components (Burst Flash, synchronous & asynchronous SRAM, NAND Flash, FPGA...)

Key Features

Burst FLASH support

Synchronous SRAM support

Highly programmable access parameters

Customer Benefits

- > Extend the NVM capabilities for large SW Projects (code and constants)
- > Extend the VM capabilities for large SW Projects (data)
- > Wide variety of external memories can be supported

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Burst FLASH support



The Memory Controller is designed to generate waveforms compatible with the access modes of:

- › INTEL and compatible burst flash devices
- › SPANSION and compatible burst flash devices
- › Samsung OneNAND™ burst capable NAND flash and compatible devices
- › M-Systems DiskOnchipG3 and compatible devices

Synchronous SRAM support

The Memory Controller is designed to generate waveforms compatible with the asynchronous/synchronous modes of:

- › Standard asynchronous SRAM
- › Standard synchronous SRAM
- › INFINEON and MICRON cellular RAM
- › Fujitsu and compatible FCRAM™/uTRAM™/CosmoRAM
- › SSRAM from e.g. GSI/ISSI/IDT

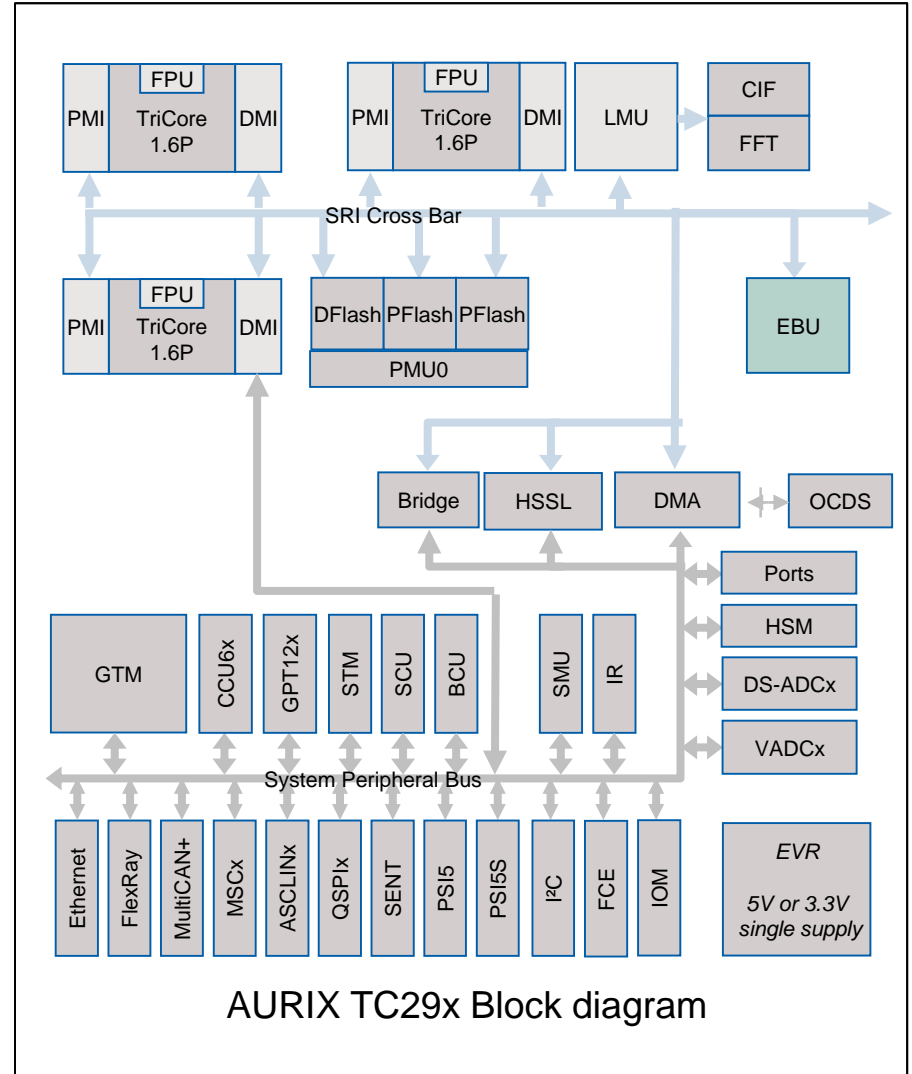
Highly programmable access parameters

- › Fully synchronous/asynchronous timing with flexible programmable timing parameters (address cycles, read wait cycles, data cycles). This allows optimized control waveforms to be generated for controlling accesses to the attached memory devices
- › Programmable WAIT function, which allows support of memory devices with a variable access latency
- › Programmable burst (mode and length)
- › 8-bit/16-bit/32-bit device width
- › Page mode read accesses
- › Resynchronization of read data to a feedback clock to maximize the frequency of operation (optional)

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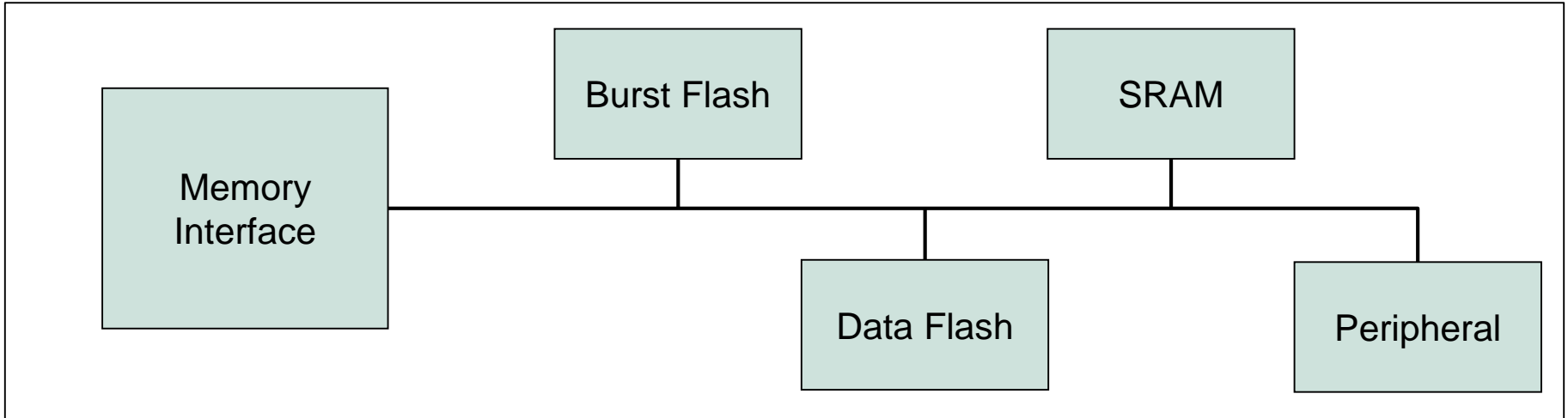
System integration

- > The Memory Controller module for SRI-based systems connects on-chip controller cores (e.g. TriCore™ CPU, DMA Controller) to external resources such as memories and peripherals
- > Any SRI master can (in conjunction with an SRI Matrix) access external memories through the Memory Controller
- > A pin multiplexing scheme has been implemented to allow the use of low power, 5 V compatible pads for the 32 bit data bus



Application example

Typical external memory system



Overview

- › External Flash memory
- › External SRAM memory

Advantages

- › Extend the memory capabilities for large SW Projects (code, constants and data)
- › Multiplexed access (address & data on the same bus)
- › Data buffering (1 single write buffer to SRI & 2 read buffers)

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