

# C32025TX

TI® TMS320C25-compatible Digital Signal Processor

## MAJOR FEATURES

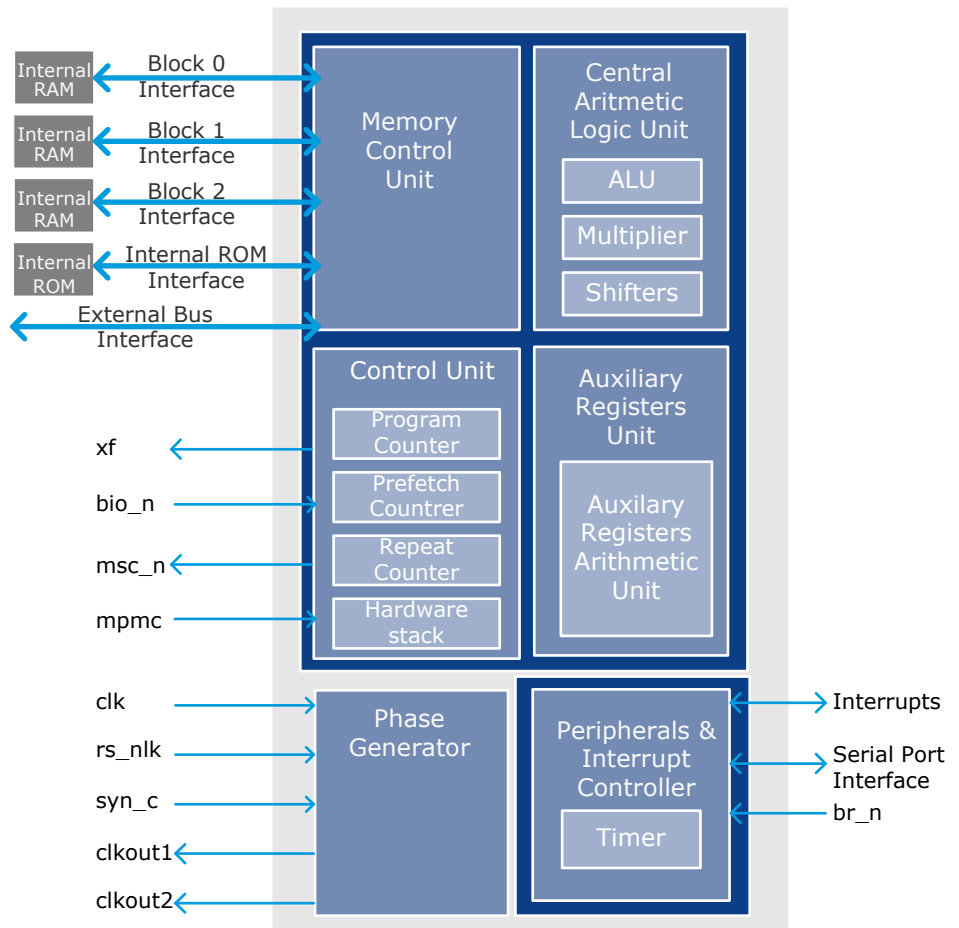
- ◆ Compatible with Texas Instruments® TMS320C25 DSP
- ◆ Up to 4 times faster than the original chip in terms of clock cycles per instruction
- ◆ Control Unit with 16-bit instruction decoding and repeat instructions function
- ◆ Central ALU with a 16-bit parallel shifter to perform 32-bit arithmetic and logical operations
- ◆ 16-bit Auxiliary Register Arithmetic Unit with eight 16-bit registers
- ◆ 3 memory addressing modes available - direct, indirect and immediate
- ◆ 8-level Hardware Stack
- ◆ Interrupt Controller with 6 interrupt sources, excluding reset and software interrupt
- ◆ Synchronous serial port for direct codec interface
- ◆ Program and Data Memory organization mechanisms
- ◆ 16 Input and 16 Output channels
- ◆ Wait states for interfacing slower off-chip devices
- ◆ Multiprocessing support

## OVERVIEW

The **C32025TX** is a single-chip, high performance 16-bit fixed-point digital signal processor. It is derived from the TMS320C25 design by Texas Instruments®.

**C32025TX** implements the same instruction set as the TMS320C25 and provides the same interrupts, serial interface, while executing most of instructions in a single clock cycle, some of them four times faster. The core implements a Harvard-type architecture and has a 16-bit reload timer and a synchronous serial port for a direct codec interface.

## BLOCK DIAGRAM



# C32025TX

## BENEFITS

- ◆ Architecture of the **C32025TX** ensures smooth integration in the user application
- ◆ A Harvard-type architecture maximizes processing power by maintaining two program and data buses for full speed execution
- ◆ The **C32025TX** implements the same instruction set as TMS320C25, but some instructions may be performed four times faster
- ◆ Most instructions can be used in repeat mode for efficient use of program space
- ◆ Three different instructions can be active during any given cycle

## CONFIGURABILITY

The **C32025TX** can be downward configured and its performance will be lowered so it becomes the **C32025** – a 16-bit fixed-point digital signal processor core, pin and timing compatible with the TMS320C25 DSP from Texas Instruments®.

The **C32025** has the same instruction set as the TMS320C25 and also provides the same interrupts, serial interface and timer.

## APPLICATIONS

- ◆ Digital sound processing (adaptive filtering, FFT, other special sound effects)
- ◆ Voice recognition
- ◆ Telecommunications (modems, codecs)
- ◆ Medical equipment (diagnostics tools)
- ◆ Computer peripherals
- ◆ Various embedded data-intensive systems

## STANDARD DELIVERABLES

- ◆ VHDL/Verilog source code
- ◆ Synthesis support for Synopsys® tools with a set of synthesis scripts
- ◆ Simulation support for Mentor Graphics® and Cadence® tools with a set of scripts and macros
- ◆ Extensive VHDL/Verilog 2001 test bench
- ◆ Documentation:
  - ▶ Design Specification
  - ▶ Verification Specification
  - ▶ Test Plan
  - ▶ Integration Manual
- ◆ 30 days of technical support
- ◆ 90 days of warranty against defects

## DELIVERY OPTIONS

- ◆ EDIF netlist for FPGA and low volume production
- ◆ One-year maintenance
- ◆ On-site support and training



For more information on our IP portfolio visit [www.evatronix-ip.com](http://www.evatronix-ip.com)



## ELECTRONIC DESIGN DEPARTMENT

Dubois 16, 44-100 Gliwice, Poland  
T: +48 32 231 11 71  
F: +48 32 231 30 27

info@evatronix-ip.com  
www.evatronix-ip.com