evatronix
We turn engineering into art

I²C

Philips® I²C-bus Compatible Bus Controller

MAJOR FEATURES

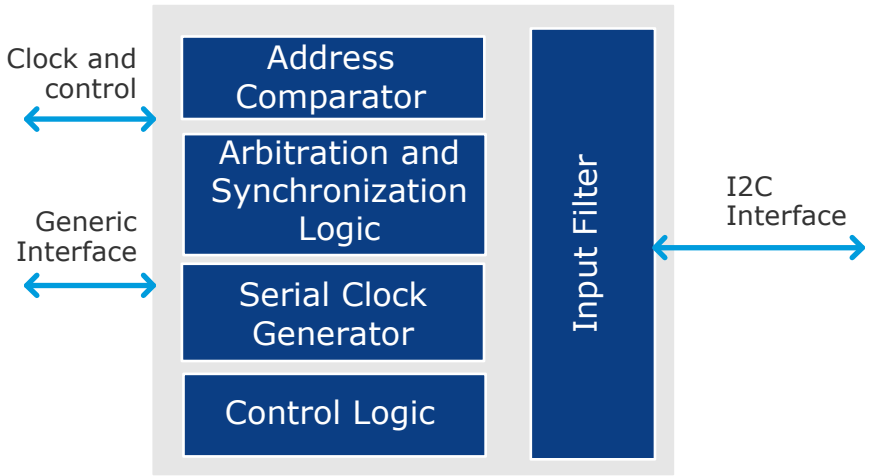
- Meets requirements of the Philips® I²C-bus specification
- AMBA® APB or generic PVCI system bus interface
- Support for both standard (100 kbps) and fast (400 kbps) transmission speeds
- Support for 4 master and slave modes
- Clock stretching support for communication with other I²C controllers

OVERVIEW

The **I²C** bus controller logic provides a serial interface that meets the Philips® I²C-bus specification and supports all transfer modes from and to the I²C-bus. The **I²C** logic handles bytes transfer autonomously. It also keeps track of serial transfers and a status register (I²Csta) reflects the status of the **I²C** controller and the I²C-bus.

The **I²C** controller IP can be customized to better fit user's application. Available versions of the **I²C** controller are: default, slave-only, high-speed capable or SMbus-compliant.

BLOCK DIAGRAM



I²C

BENEFITS

- **I²C** provides a convenient interface to the I²C-bus - the world standard in a broad range of applications
- **I²C** uses only 2 wires to connect a virtually unlimited number of devices, and therefore minimizes interconnections and usage of IC pins in the user application
- I²C standard implements a simple and efficient bus which does not require additional logic like address decoders or arbiters.
- Evatronix **I²C** controller's ability to change its own slave address by a simple change of register content facilitates replacement of obsolete I²C chips while keeping application code untouched.

CONFIGURABILITY

- Glitch removal length from both clock and data lines
- **I²C** slave address
- **I²C** clock generation from either division of system clock or an external clock generator
- Toggle general call address

PRODUCT VERSIONS

I²C-HS – an I²C-bus controller which provides a serial interface that meets the Philips® I²C-bus specification v.2.1 for high speed (400 kbps) transfers.

I²CS – a size-optimized I²C-bus controller which provides the I²C serial interface that supports only slave transfer modes from and to the I²C-bus.

APPLICATIONS

- Embedded microcontroller systems
- Communication systems

RELATED PRODUCTS

I²C Software Driver - a complete software controlling packet dedicated for the **I²C** controller.

SPI - a serial bus controller that enables full-duplex, synchronous, serial communication between the 8051-compatible microcontroller and peripheral devices.

R8051XC2 - the world's fastest, most configurable 8051-compatible microcontroller.

T8051 - the world's smallest microcontroller which executes the ASM51 instruction set.

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

TÜV CERT EN ISO 9001 | TÜV NORD PN-EN ISO 9001 AC 090/46/812/2006

For more information on our IP portfolio visit www.evatronix-ip.com

evatronix

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