

S1R72013

USB2.0 Device Controller



- 0.35μm CMOS Process
- Installed with UTMI1.0-compliant transceiver circuit
- Supports USB2.0 HS/FS modes
- QFP-64pin/PFBGA-100pin package

■ DESCRIPTION

The S1R72013 is a general-purpose device controller LSI that supports the USB2.0-compliant high/full-speed modes.

With the field-proven, UTMI Rev.1.0 specification-compliant transceiver circuit, it assures connectivity of USB devices. It realizes reduction of the number of pins and speed-up of the DMA on the basis of the S1R72003 with the field-proven as the USB2.0 device controller.

Moreover, the PFBGA packages are lined up as the mass production model for the world first USB2.0 device controller.

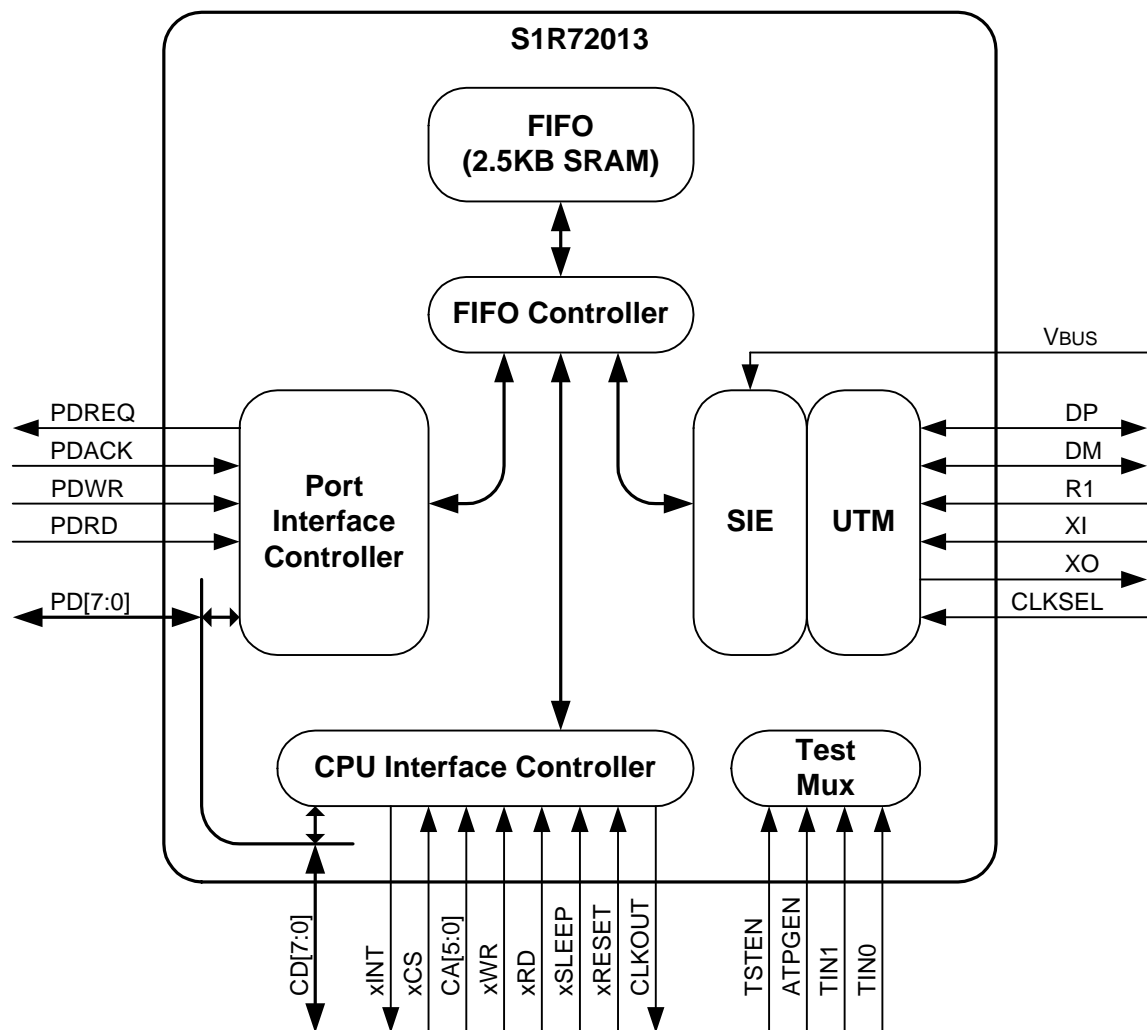
■ FEATURES

- Supports HS (480Mbps) and FS (12Mbps) transfer modes.
- Has built-in HS/FS termination.
- Supports Control, Bulk, and Interrupt transfers.
- Supports three general-purpose Endpoints and Endpoint 0.
- Has a built-in 2.5KB programmable FIFO for Endpoint use.
- Incorporates general-purpose DMA ports of 8/16-bit width (*1).
 - Capable of operating as general-purpose non-synchronous multiword/general-purpose non-synchronous singleword/synchronous DMA sleeve.
 - 30Mword/s high-speed/burst transfers.
- Installed with 8-bit width (*1) general CPU Interface
- Supports H/W protocol
 - Auto Speed Negotiation, Descriptor return, etc.
- Has built-in oscillation circuit (Supports f =12MHz/24MHz crystal oscillator)
- Uses multiple power management mode
- Runs on a single 3.3V power supply
- Uses 5.0V tolerant cells for VBUS, CPU Interface, and DMA port input pins.
- QFP13-64pin package, PFBGA-100pin package

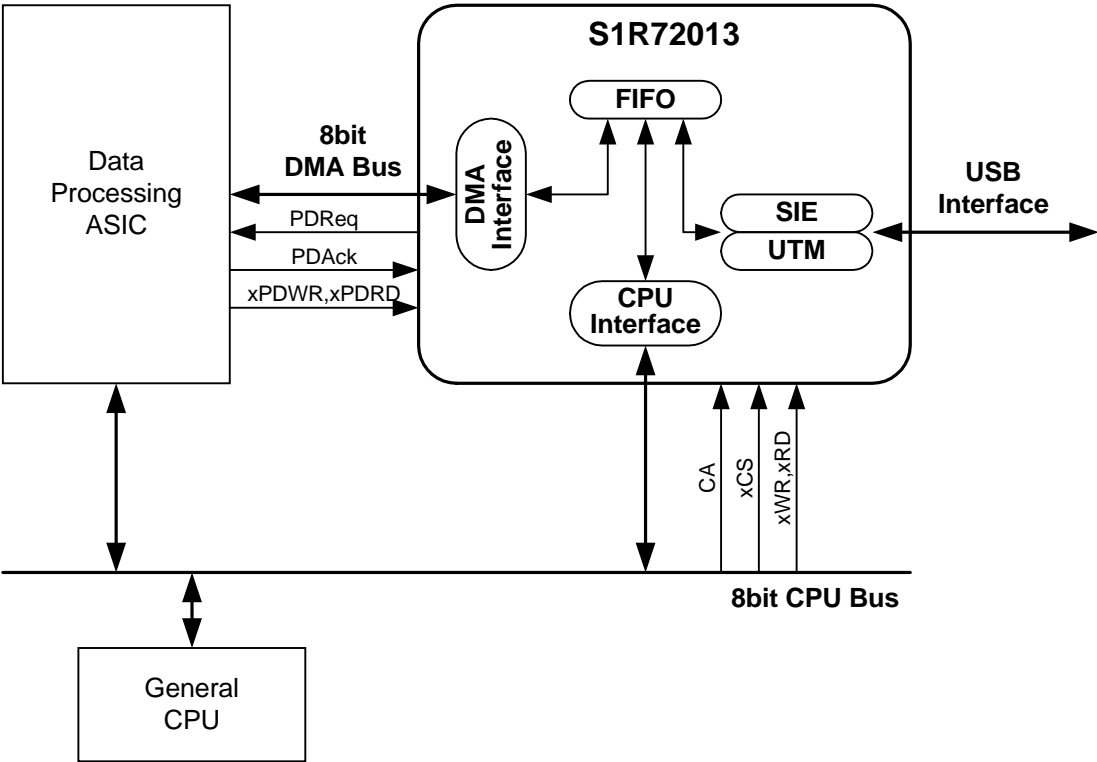
(*1) When using the DMA with 16-bit width, share with the bus. The register access is always 8-bit width.

S1R72013

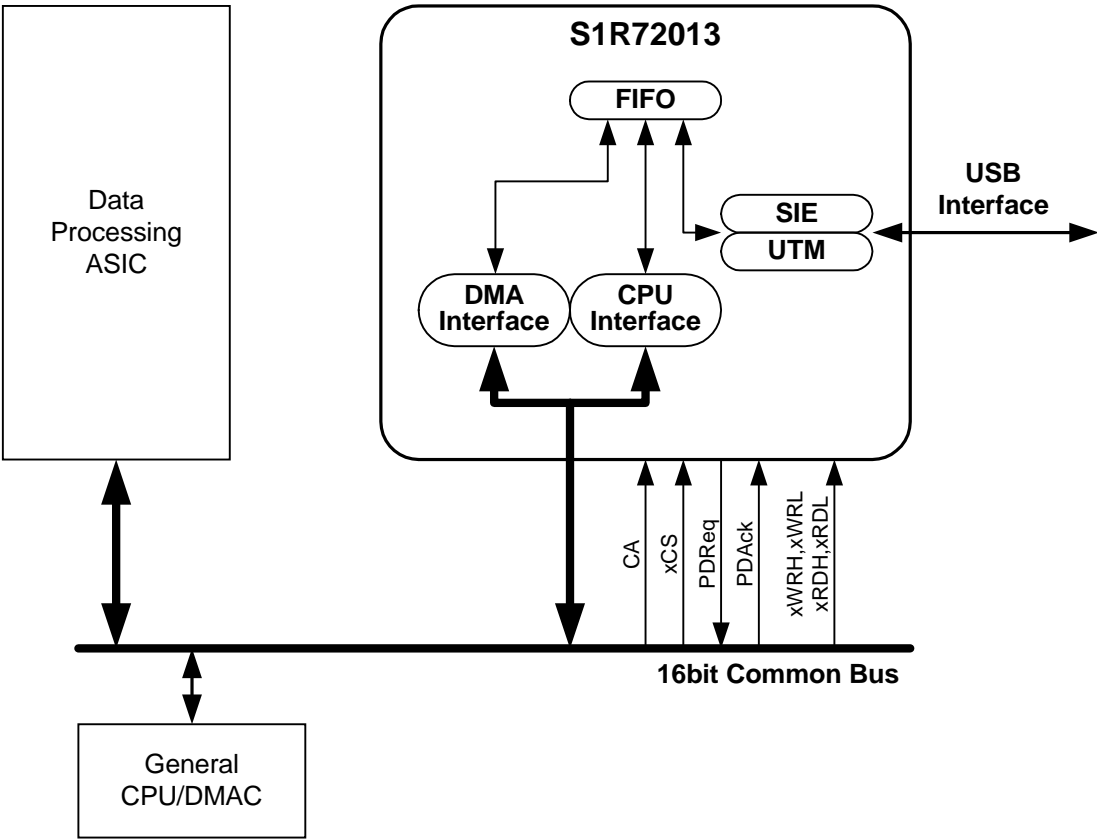
■ BLOCK DIAGRAM



CIRCUIT EXAMPLES



Exclusive Bus Mode



Common Bus Mode

S1R72013

NOTICE:

No part of this material may be reproduced or duplicated in any form or by any means without the written permission of Seiko Epson. Seiko Epson reserves the right to make changes to this material without notice. Seiko Epson does not assume any liability of any kind arising out of any inaccuracies contained in this material or due to its application or use in any product or circuit and, further, there is no representation that this material is applicable to products requiring high level reliability, such as, medical products. Moreover, no license to any intellectual property rights is granted by implication or otherwise, and there is no representation or warranty that anything made in accordance with this material will be free from any patent or copyright infringement of a third party. This material or portions thereof may contain technology or the subject relating to strategic products under the control of the Foreign Exchange and Foreign Trade Control Law of Japan and may require an export license from the Ministry of International Trade and Industry or other approval from another government agency.

©Seiko Epson Corporation 2003, All rights reserved.

All other product names mentioned herein are trademarks and/or registered trademarks of their respective companies.

SEIKO EPSON CORPORATION

ELECTRONIC DEVICES MARKETING DIVISION

IC Marketing & Engineering Group

ED International Marketing Department

421-8 Hino, Hino-shi, Tokyo 191-8501, JAPAN
Phone: 042-587-5814 FAX: 042-587-5117

■ EPSON Electronic devices Website

<http://www.epsondevice.com/>



First issue March, 2003

Printed in Japan (H)

Rev.1.0