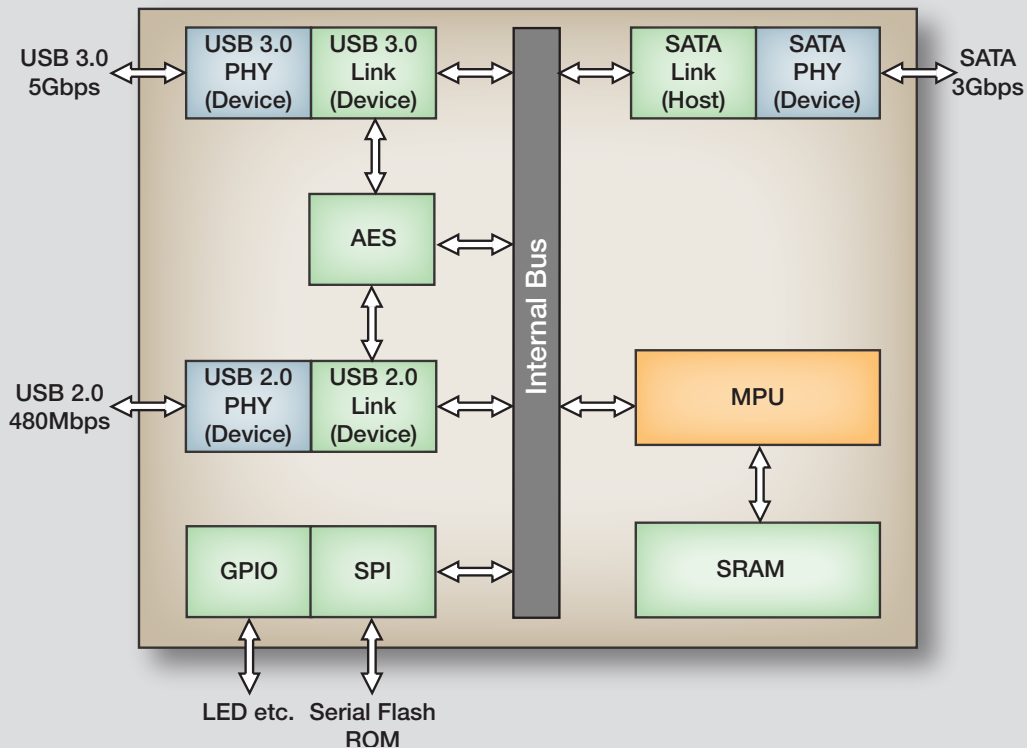


# MB86C31

## USB 3.0-SATA Bridge IC



MB86C311A Block Diagram

### Description

The Fujitsu USB 3.0 external storage solution is the bridge IC that connects USB 3.0 and SATA, ATA and ATAPI devices. Its USB 3.0 interface delivers super-high-speed data transfer of up to 5Gbps between the host PC and SATA storage devices such as HDD, SSD and Blu-ray. Embedded with a high-performance 32-bit RISC processor for interaction with the USB host, the Fujitsu USB 3.0 LSI family complies with Universal Serial Bus Specification 3.0

Revision 1.0 and is backwards compatible with Universal Serial Bus Specification Revision 2.0.

The Fujitsu MB86C31 features available high-speed encryption hardware support, USB PHY for robust connectivity, and UAS (USB-attached SCSI) in addition to BOT (Bulk-Only Transport). The IC also supports both GPIO interfaces for design flexibility and a SPI interface for serial Flash ROM, which supports plural SPI devices.

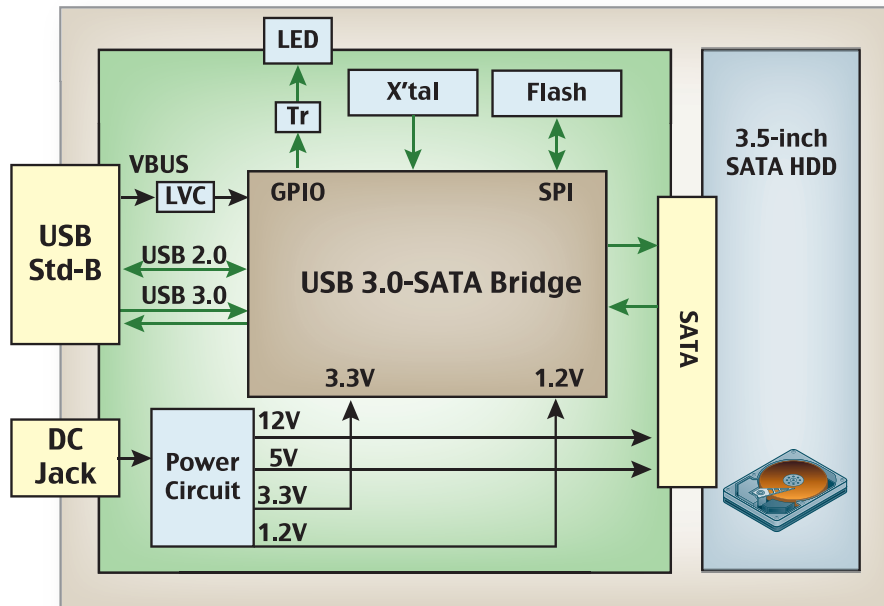
### Applications

USB 3.0 external storage application using SATA devices:

- HDD with encryption function
- SSD with encryption function
- HDD
- SSD
- Blu-ray
- DVD

# MB86C31

## USB 3.0-SATA Bridge IC



HDD System Diagram

### Key Features

- SuperSpeed (5Gbps), high-speed (480Mbps) and full speed (12Mbps)
- UAS protocol transport
- Mass Storage Class Bulk-Only Transport
- NCQ function
- HID class (firmware option)
- SATA Gen2i (3Gbps) and Gen1i (1.5Gbps) HID class (firmware option)
- SATA Gen2i (3Gbps) and Gen1i (1.5Gbps) Support for ATA and ATAPI devices
- Support for hot-plugging of ATA devices
- Support for port-multiplier device
- ATA command pass-through function
- Support for hard disk drives 2TB and larger
- Support for 4KB sector hard disk drives
- Integrated high-performance 32bit RISC MPU Support for customized functions such as VID/PID
- Integrated high-speed encryption hardware: AES (MB86C311A only)
- IEEE 1667 (firmware option)
- Support for 10 GPIOs (LQFP) and 9 GPIOs (QFN), including PWM
- Support for SPI for serial Flash ROM and plural SPI devices
- Embedded SSCG for SuperSpeed and EMI reduction
- Only one external crystal (25MHz) required
- Two packages available: 64-pin LQFP (7mm x 7mm) and 48-pin QFN (6mm x 6mm)
- 65nm CMOS technology
- Pb-free (RoHS)

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