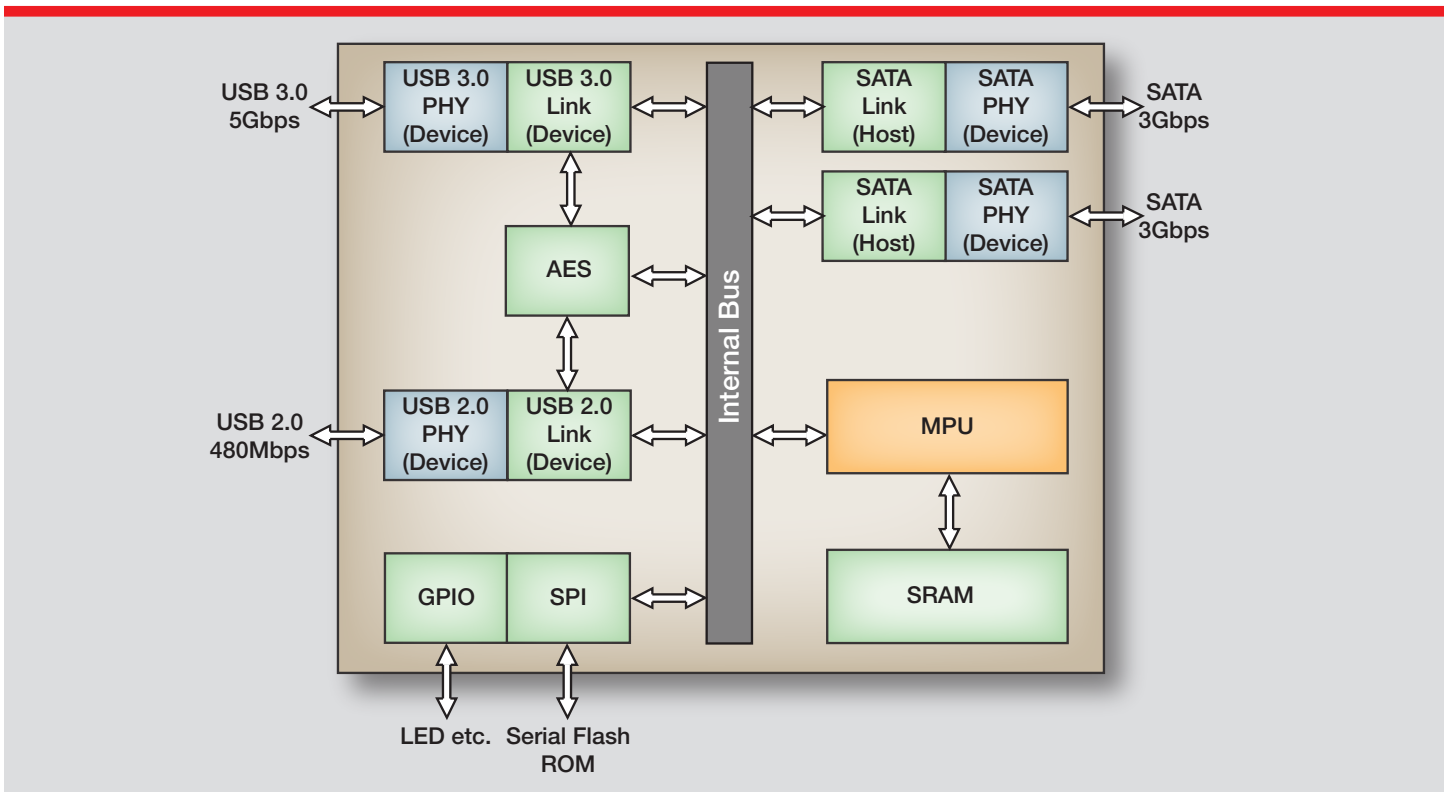


# MB86E50

## USB 3.0-SATA RAID Bridge Controller IC



MB86E501A Block Diagram

### Description

The Fujitsu USB 3.0 external storage solution is the bridge IC that connects USB 3.0 and SATA/ATA 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 hard disk drives (HDDs) and solid state drives (SSDs). 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 MB86E50 is specifically designed for external USB 3.0 RAID HDD/SSD applications. The IC supports both UAS (USB-attached SCSI) and BOT (Bulk-Only Transport). The available integrated high-speed encryption hardware engine makes the bridge IC suitable for RAID systems.

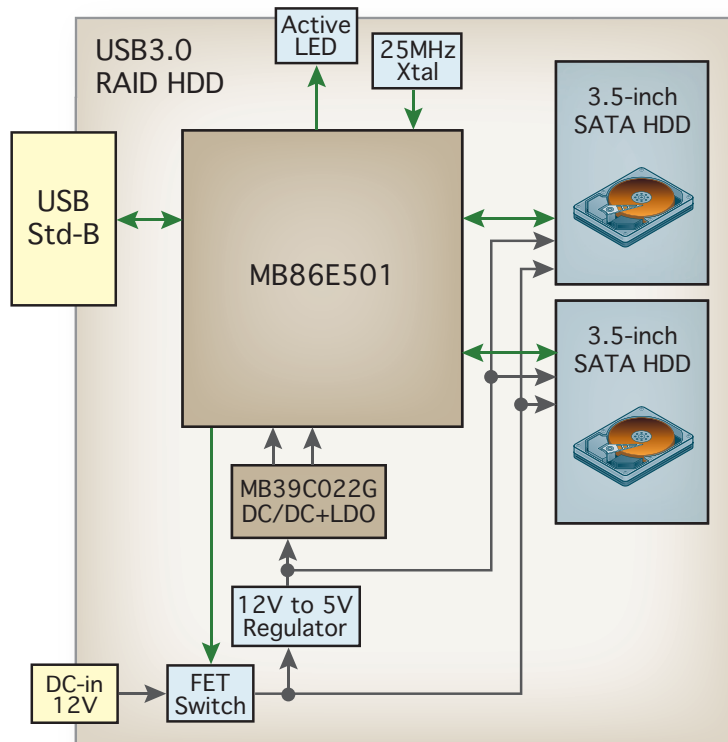
### Applications

USB 3.0 external storage application using two SATA devices:

- RAID HDD/SSD with encryption function
- High-performance dual HDD/SSD systems

# MB86E50

## USB 3.0-SATA RAID Bridge Controller IC



A RAID HDD System Example Diagram

### Key Features

- SuperSpeed (5Gbps), high-speed (480Mbps) and full-speed (12Mbps)
- UAS protocol transport
- Mass Storage Class Bulk-Only Transport
- NCQ function in Dual LUN mode
- Support for RAID0 (striping), RAID1 (mirroring) JBOD, and dual LUN
- SATA Gen2i (3Gbps) and Gen1i (1.5Gbps)
- Support for hot-plugging
- ATA command pass-through function
- Support for hard disk drives of more than 2TB
- Integrated high-performance 32bit RISC MPU
- Support for customized functions, such as VID/PID
- Integrated high-speed encryption hardware: AES (MB86E501A only)
- IEEE1667 (firmware option)
- Support for GPIOs, 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
- Compact package: 68-pin QFN (0.4mm pitch, 8mm x 8mm)
- 65nm CMOS technology
- Pb-free (RoHS)

### FUJITSU SEMICONDUCTOR AMERICA, INC.

Corporate Headquarters  
1250 E. Arques Avenue, M/S 333, Sunnyvale, CA 94085-5401  
Tel: (800) 866-8608 Fax: (408) 737-5999  
E-mail: FSA\_inquiry@us.fujitsu.com | Website: <http://us.fujitsu.com/semi>



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