THE POSSIBILITIES ARE INFINITE FUJITSU

MB86C30A
USB3.0-SATA Bridge IC

MB86C30A

USB3.0 5Gbps — USB3.0 PHY (DEVICE) / USB3.0 Link (DEVICE) — SATA Link (HOST) / SATA PHY (HOST) — SATA 3Gbps

AES — Internal Bus — MPU

USB2.0 480Mbps — USB2.0 PHY (DEVICE) / USB2.0 Link (DEVICE) — SRAM

GPIO / SPI

LED etc. Serial Flash ROM

## ■ Introduction

The Fujitsu MB86C30A is ASSP IC intended for an external USB HDD unit that is connected to PC. Especially this product is suitable for simple USB HDD that is composed of single HDD, for example, a low-end oriented desktop model and a portable model likely to require an encryption function.
This product can easily enable you to grade up legacy USB2.0 storage unit to up-to-date USB3.0 storage unit.

System Configuration example
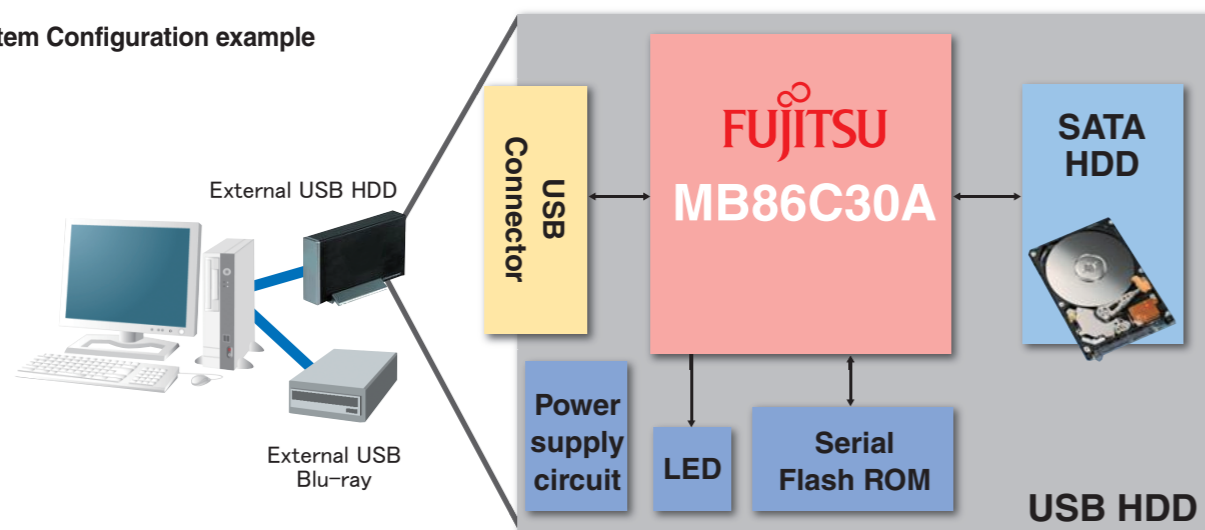
■ Features

● **Compliant with USB3.0 specification**
This product complies with USB3.0, 5Gbps that provides a maximum of over 10 times the data transfer rate of USB 2.0. The maximum transmission speed of USB3.0 allows for example 10-30 GBytes of video data to be copied to a 3.5 inch hard disk drive in 1/4 to 1/3 the time compared to the existing USB2.0 interface.

● **1-chip integration of necessary functions for USB storage using SATA device**
This product integrates all interface blocks and a control block on one chip. Thus this product can easily enable to build USB3.0 storage unit with a few peripheral ICs and SATA device which is HDD or Blu-ray.

● **High-speed AES encryption/decryption engine**
AES is an encryption standard, adopted by the U.S. National Institute of Standard and Technology (NIST), This product embeds high-speed AES encryption/decryption engine and supports the CBC mode and XTS mode which is suited to hard disks in terms of security strength and speed of encryption / decryption. An embedded AES encryption engine can enable to build USB3.0 HDD unit with encryption function to protect confidential data from the threats of being stolen or lost or to protect data when storage devices are disposed of. Moreover high-speed encryption and decryption processing at a maximum of 300 Bytes/sec provides throughput without impairing the speed performance of standard HDD.

● **Supports various SATA device: HDD, SSD, Blu-ray and DVD**
This product supports not only ATA device but ATAPI device as default. In addition this product supports ATA PASS-THROUGH function, so vendor unique command can be communicated to connected device via Windows* standard API .

● **Free of charge firmware and user customizing function**
The firmware supporting default functions and the firmware update tool are provided free of charge.
USB information such as Vendor ID, Product ID and character strings can be set from PC via USB. The source code files of each tool are provided too.

*:Windows is a registered trademark of Microsoft Corporation in the United States and other countries.
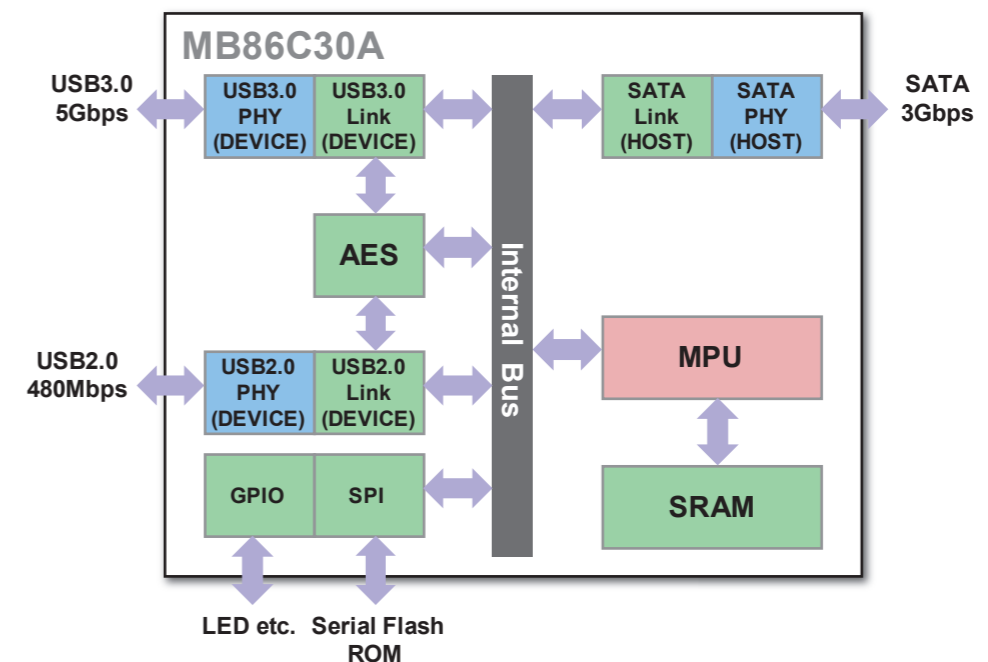
■ Specifications

USB	Standard	Universal Serial Bus Specification 3.0, Revision 1.0
		Universal Serial Bus Specification, Revision 2.0
	Bit Rate	5Gbps (SuperSpeed) / 480Mbps (High-Speed)
	Device Class	Mass Storage Class Bulk-Only Transport, Revision 1.0
SATA	Standard	Serial ATA Specification Revision 2.6
	Bit Rate	3Gbps (Gen2i) / 1.5Gbps(Gen1i)
	ATA/ATAPI Device	HDD/SSD/Blu-ray/DVD/CD
Encryption Hardware	Algorithm	AES
	Mode	CBC / XTS
	Block Size	128bit
	Key Length	128bit/256bit(CBC mode)
		128bit+128bit/256bit+256bit(XTS mode)
	Throughput	200MB/s (CBC mode, 128bit)
		150MB/s (CBC mode, 256bit)
		300MB/s (XTS mode, 128bit+128bit)
		270MB/s (XTS mode, 256bit+256bit)
MPU	Core	ARM7TDMI-S™*
	Max. Operating Frequency	75MHz
	RAM Size	64KByte
Package		LQFP 64 pin 7mm x 7mm (0.4mm pitch)
Process Technology		65nm CMOS

*:ARM7TDMI-S is a trademark of ARM Limited in the EU and other countries   ARM™

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