



PRODUCT BRIEF

JMS580 USB 3.1 Gen2 to SATA 6Gb/s Bridge Controller

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Revision History

Revision number	Effective date	Description of revision		Author
		Reference	Description of change	
1.00	8/18/2017	--	Initial release.	Mika Cheng
1.01	9/20/2017	1	Corrected the typo.	Mika Cheng

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1 Overview

The JMS580 is a USB 3.1 Gen 2 to SATA 6Gb/s bridge controller between USB host and SATA storage device. The USB 3.1 Gen 2 interface offers data transfer speed up to 10Gbps, doubling the USB 3.1 Gen 1 data rate. Meanwhile, the downstream port of the JMS580 is compatible with storage device with SATA interface, such as HDD or SSD. The SATA port is compliant with SATA 6Gb/s specifications.

The JMS580 supports TRIM command for SSD and complies with USB Attached SCSI Protocol (UASP), providing much elevated performance for data transfer between USB and SATA devices.

USB Type-C™ connectivity is implemented in the JMS580 so that no additional component is required to enable Type-C™ connectivity when hardware system designers deploy this advanced controller. The built-in USB Type-C™ feature can save costs, PCB board space and development time for storage device developers.

Regarding power managements, the JMS580 is capable of working with specific power management controllers to develop a USB Power Delivery (PD) enabled device. For instance, a PD-enabled storage device with 3.5" HDDs can receive 12V from a PD-enabled host acting as the power provider to the device through the USB cable without additional plug-in. Designed with power management features, the JMS580 can meet the power consumption for a wide variety of applications such as data center, network attached storage (NAS), and thumb-sized Internet-of-Things (IoT) devices.

The JMS580 can be adopted with other JMicon SATA port multipliers, such as the JMB572, JMB575, JMB390, JMB393 and JMB394 to form a medium-sized data storage (with or without RAID) for digital video recorder (DVR) and network video recorder (NVR) surveillance storages.

The JMS580 is fully compatible with the JMS576, and therefore provides a seamless upgrade to double USB bandwidth.

2 Features

- Integrates with USB Type-C™ multiplexer & configuration channel (CC) logic
- Complies with Serial ATA 6Gb/s Electrical Specification 3.2
- Supports TRIM for SSD
- Complies with USB 3.1 Specification Revision 1.0, USB BOT Specification
- Complies with USB UASP Specification
- Supports USB 2.0 High-Speed/Full-Speed Operation
- Supports USB2.0/USB 3.1 power saving modes
- Supports external SPI NVRAM for Vendor VID/PID of USB2.0/USB 3.1 device controller
- Supports ATA/ATAPI PACKET command set
- 12x GPIO's for customization
- Provides hardware controlled PWM's
- Provides software utilities for downloading the upgraded firmware code under USB2.0/USB 3.1
- Compatible with Windows 7, Windows 10 and MAC 10.10.5 or later version
- Supports 25MHz external crystal
- Supports 3.3V I/O
- Embedded 5V to 1.0V voltage regulator
- Embedded 5V to 3.3V linear voltage regulator (LDO)
- QFN48 6x6 package
- Fully compatible with the JMS576

3 Block Diagram

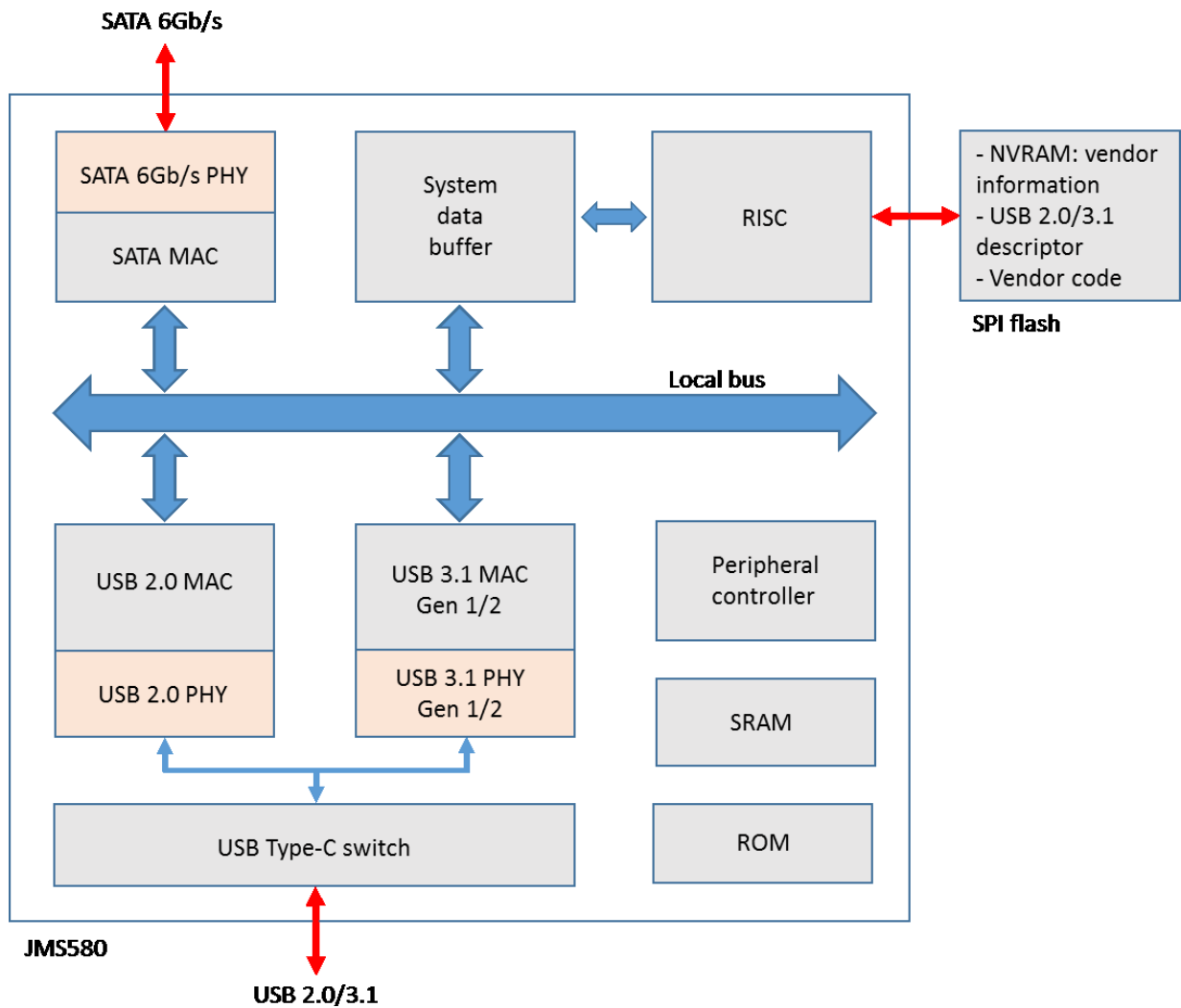


Figure 1 Block diagram

4 Application

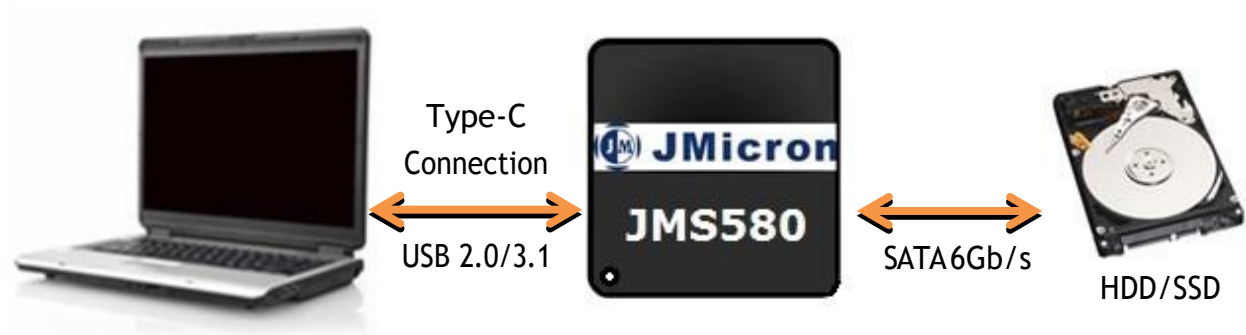


Figure 2 Illustration of an application

5 Package Dimension

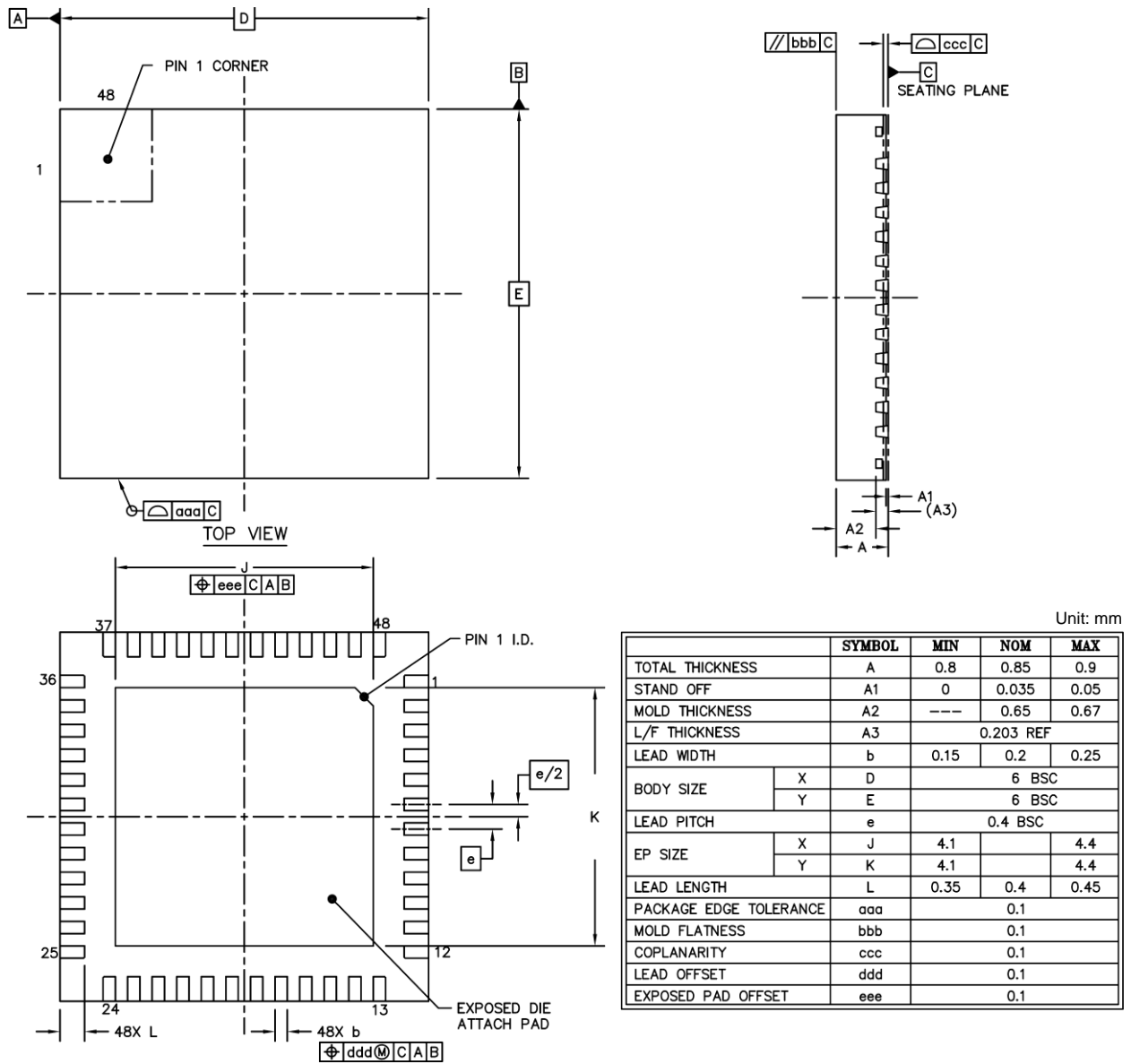


Figure 3 Package dimension

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