



## PRODUCT BRIEF

# JMB391 SATA 3Gb/s RAID Port Multiplier

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### Revision History

Revision number	Effective date	Description of revision		Author
		Reference	Description of change	
1.00	9/27/2019	--	Initial release.	Wenbor Cheng

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## 1 Overview

JMB391 is a single chip, 1 to 5-ports SATA 3Gb/s Port Multiplier with RAID function supported. It is designed to provide SATA port expansion, data protection and performance aggregation at various applications.

JMB391 uses JMicron's production-proven Multi-port SATA PHY technology and JMicron-proprietary storage processor to provide very high efficient SATA RAID operation. With an easy configuration scheme, the device can be a pure port multiplier which provides SATA port expansion just like a SATA Hub, or hard-drive performance booster which provides a high performance device seen by host controller or hard-drive data protector which automatically backup data to prevent data loss from hard-drive damage. JMB391 also has an advanced mode to provide both benefit of performance boost and data protection.

JMB391 is a self-contained storage processor chip which completely frees up the main CPU loading and the SATA ports comply with eSATA specification, making it suitable for both internal system and external storage applications.

## 2 Features

### 2.1 Compliance

- Compliant with Serial ATA II Port Multiplier Spec. Revision 1.2
- Compliant with Serial ATA II PHY Electrical Spec. Revision 1.0
- Compliant with Serial ATA High Speed Serialized AT Attachment Spec. Revision 2.5

### 2.2 General

- Integrated 6-port SATA 3Gb/s PHY
- Integrated PLL for SATA 3Gb/s interface
- Total six independent SATA channels
- Integrated uP, PROM and SRAM for firmware programming
- Integrated high performance RAID storage processor
- 1.3V core and 3.3V I/O power supply
- Available in 64-pin QFN

### 2.3 SATA

- Supports 6-port SATA 3Gb/s interface
- Output swing control and automatic impedance calibration for SATA 3Gb/s PHY
- Supports asynchronous signal recovery
- Automatic speed negotiation for SATA 3 Gb/s or 1.5 Gb/s
- Supports BIST and loopback mode
- Supports staggered spin-up
- Supports 48-bit LBA addressing
- Supports ATAPI drives
- Supports Native Command Queue (NCQ)
- Supports Hot-Plug
- Supports Asynchronous Notification
- Supports PM aware and non-PM aware host

## 2.4 RAID

- Fully hardware-accelerated RAID Engine
- No driver, BIOS or software required for RAID operation
- No external DRAM or processor required for RAID operation
- Independent of device SATA port connection sequence
- Supports RAID levels: 0 / 1 / 10 / JBOD
- SATA In-band application interface
- Supports more than 2Tera Bytes RAID drive
- Supports on-line command based bad sector recovery
- Supports on-line Auto-Rebuild
- Rebuild speed: 200GB/hour
- Rebuild process will be continued between power cycling
- Supports various RAID configurations and monitoring methods

## 2.5 GPIO

- Supports 15 GPIOs
- Supports I2C interface
- Supports ISA interface
- Supports SPI interface
- Supports RS232 interface
- Supports LED indicators

### 3 Block Diagram

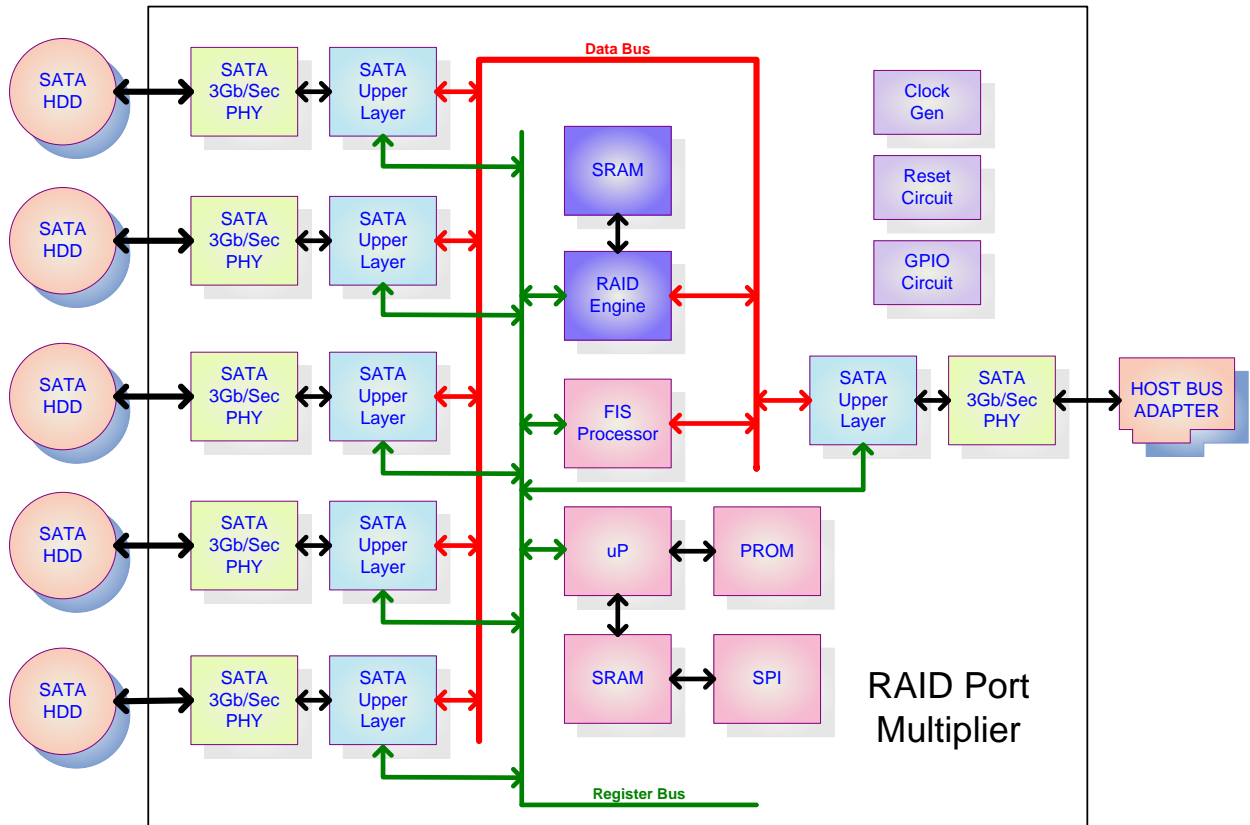


Figure 1 Block diagram



### 4 Package Dimension

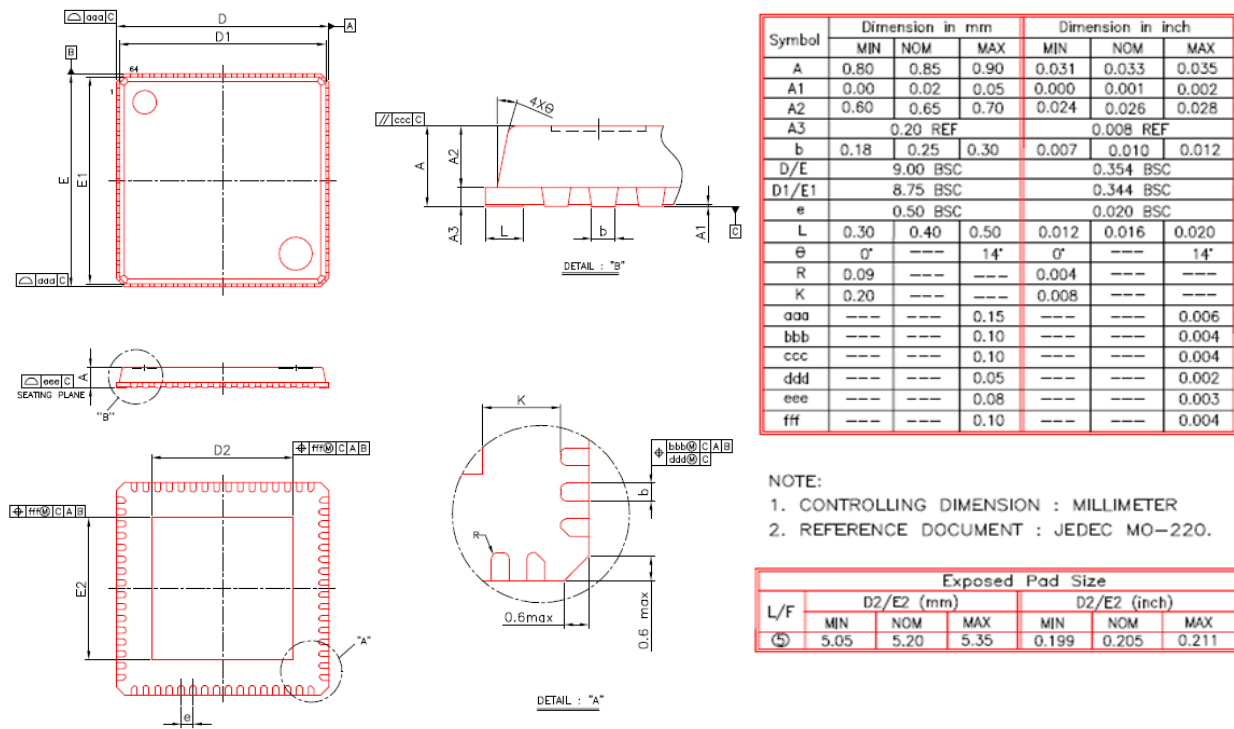


Figure 2 Package dimension

A series of thin, light gray lines that resemble circuit traces or data paths, starting from the left and moving towards the right, with some lines curving upwards and others downwards, creating a sense of movement and connectivity.

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