# JMB38X Product Family
# PCI Express to 1394a OHCI and Memory Card Host Controller

## Overview

JMB38X is product family that includes 1394a OHCI and Memory Card Reader Host Controller. They are all 1-lane PCI Express to 1/2-port 1394a and 1-slot SD/MMC/MS/xD Memory Card Reader Host Controller. The table below shows the brief feature lists of JMB38X product family.

| | JMB380 | | JMB388 | | JMB381 | | JMB385 | | JMB387 | | JMB389 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Host IF | PCIe | | PCIe | | PCIe | | PCIe | | PCIe | | PCIe | | |
| 1394a IF | x1 Port | | x1 Port | | x2 Port | | None | | None | | None | | |
| Card Reader | x1 Combo | | x1 Combo | | None | | x1 Combo | | x1 Combo | | x1 Combo | | |
| Package | QFN48 | | QFN48 | | LQFP48 | | LQFP48 /QFN48 | | LQFP48 | | LQFP48 | | |
| Boot Function | None | | Support* | | None | | None | | Support | | Support | | |
| Version | -- | C | A | B | -- | B | -- | C | A | B | A | B | C |
| On-board application | -- | v | v | X | -- | v | -- | v | v | X | v | X | v |
| Add-on/ExpressCard application | -- | X | X | V | -- | V | -- | X | X | V | X | V | X |
| SDXC UHS-1 | -- | x | v | v | -- | x | -- | x | x | x | v | v | v |
| D3E | -- | v | v | x | -- | v | -- | v | v | v | v | x | v |
| EEPROM | -- | x | x | v | -- | v | -- | x | x | v | x | v | x |
| SPI(Boot) | -- | x | x | x | -- | x | -- | x | v | v | v | v | x |
| CR1_CD2 | -- | v | v | x | -- | x | -- | v | v | x | v | x | v |
| Co-layout | Co-layout | | | | | | | | | | | | |

*"x1 Combo" means 1 set of "4-in-1 Combo Memory Card Reader Mechanism" supporting SD/MMC/MS/MS Duo/MS-HG (1/4/8-bit) & xD.*

# Feature

## Compliance

- Compliant with PCI Express Base Spec. Revision 1.1
- Compliant with 1394 Open Host Controller Interface (OHCI) Release 1.1
- Compliant with SD Spec. Part 1 Physical Layer Spec. Version 3.00
- Compliant with SD Spec. Part A2 SD Host Controller Standard Spec. Version 2.00
- Compliant with SD Spec. Part E1 SDIO Spec. Version 2.00
- Compliant with SD Spec. Part 2 File System Spec. Version 2.00
- Compliant with MultiMediaCard System Spec. Version 4.2
- Compliant with Memory Stick Standard Format Spec. Version 1.43-00
- Compliant with Memory Stick Standard Memory Stick PRO Format Spec. – without security spec. – Version 1.02-00
- Compliant with Memory Stick Pro-HG Duo Spec. Version 1.00
- Compliant with xD-Picture Card™ Card Spec. Version 1.20
- Compliant with xD-Picture Card™ Host Guideline Version 1.20
- Compliant with xD-Picture Card™ Format Spec. Version 1.11

## Overall

- Integrated 1-Lane PCI Express PHY (2.5Gbps) and 2-port 1394a PHY (100/200/400Mbps)
- Integrated two PLL for both PCI Express bus and 1394a interface
- Output swing control and Automatic impedance calibration for both PCI Express and 1394a PHY
- Fabricated 0.18um/3.3V CMOS Standard Logic Process with single 3.3V power source

## PCI Express

- Supports 1-Lane 2.5Gbps PCI Express bus
- Internal native interface multiplexed to OHCI and Memory Card (SD/MMC/MS/xD)
- All registers of Memory Card accessible in unified memory space

## 1394a

- Supports 1394a PHY hub function between 2-port
- Supports Hot Plugging on 1394a port

## Memory Card

- Support Extended Capacity SD Memory Card (SDXC): more than 32GB and up to and including 2TB

  ➢ Default speed mode: 3.3v signaling, Frequency up to 25MHz

  ➢ High speed mode: 3.3v signaling, Frequency up to 50MHz

  ➢ SDR12/25/50/104, DDR50: 1.8v signaling, Frequency from 25MHz to 208MHz

- Support MSXC memory card: more than 32GB and up to and including 2TB
- Supports 1 set of "4-in-1 Combo Card Reader"
- Programmable IO driving to adjust signal trace length
- Programmable pull high/low control for different memory card bus topology

- Support MSPRO-HG Duo 8-bit mode
- Support xD-Picture Card $^{TM}$ (xD) including Type M+, Type M and Type H

## Peripherals Components

- Supports External Serial EEPROM
- Integrate 3.3v-to-1.8v regulator for code power
- Integrate 3.3v-to-3.3/1.8v power switch for SDA3.0 IO power
- Integrate Power Switch for power control of memory card

## DOS Utility

- Provide Serial EEPROM DOS Update Utility
- Provide GUID Setting DOS Program Utility for Main BIOS

## Product Information

| Name | Description | Controller |
|------|-------------|------------|
| JMB380 | PCI Express to 1-port 1394a + x1 Combo Card Reader | Host Controller |
| JMB381 | PCI Express to 2-port 1394a | Host Controller |
| JMB385 | PCI Express to x1 Combo Card Reader | Host Controller |
| JMB387 | PCI Express to x1 Combo Card Reader with boot function | Host Controller |
| JMB388 | PCI Express to 1-port 1394a + x1 Combo Card Reader with boot function (SDXC/UHS-1 and MSXC compliant) | Host Controller |
| JMB389 | PCI Express to x1 Combo Card Reader with boot function (SDXC/UHS-1 and MSXC compliant) | Host Controller |

## Supporting Document

| | |
|---|---|
| 1 | Product Brief |
| 2 | Data Sheet |
| 3 | Hardware Design Guide |
| 4 | Application Schematic |

## Contact Information

| Department | Email |
|------------|-------|
| Sales | sales@jmicron.com |
| Tech. Support | fae@jmicron.com |