

MARVELL® MSB0143 Multimedia South Bridge

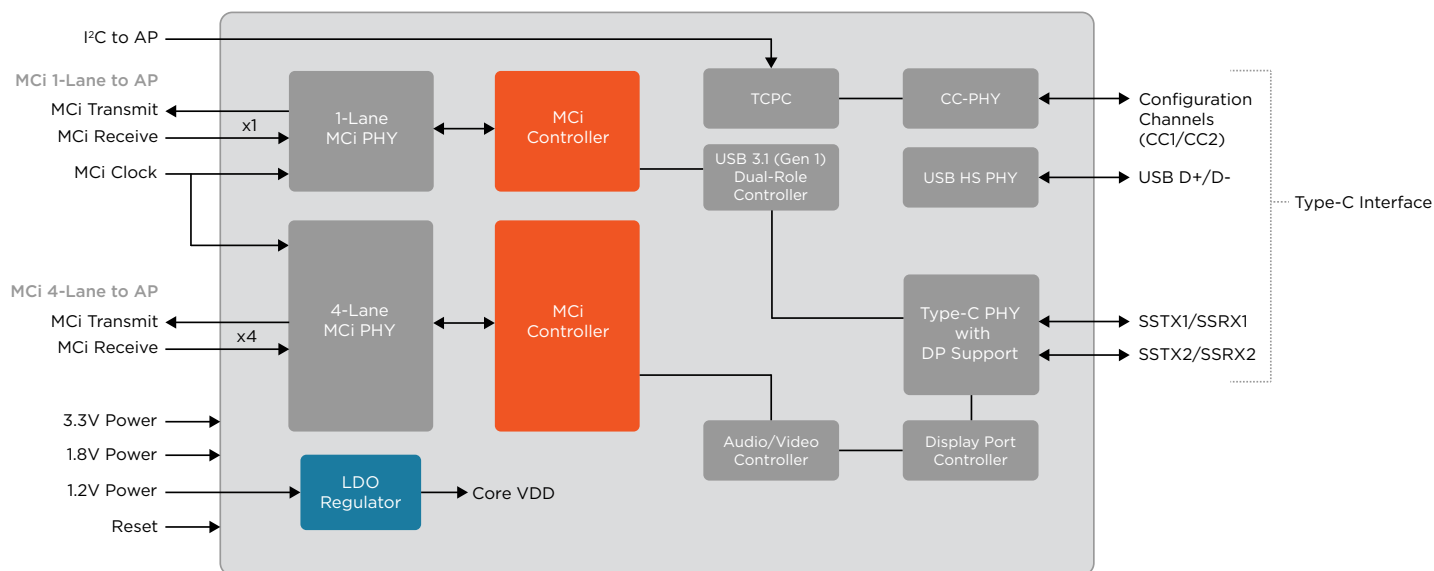
DisplayPort 1.3 and USB 3.1 (Gen 1) Connectivity through USB Type-C

PRODUCT OVERVIEW

The Marvell® MSB0143 is a multimedia solution in Marvell’s MoChi™ South Bridge (SB) family of products. The MSB0143 delivers USB 3.1 (Gen 1) and DisplayPort 1.3 connectivity through its USB Type-C interface. Its integrated display controller and DisplayPort (DP) controller supports 4K video resolution, its USB controller provides both Host and Device capabilities, and its integrated USB Type-C Port Controller (TCPC) supports attachment and orientation detection, power and data role negotiation, and alternate-mode handshaking. The MSB0143 offers 3 options for its Type-C interface: as a four-lane DP connection, as a two-lane DP connection and USB 3.1 (Gen 1) connection, or as a dedicated USB 3.1 (Gen 1) connection. Utilizing this MoChi solution offers developers many advantages, including: 1) scalability across product needs, 2) possibility to add/replace features with drastically improved time-to-market, and 3) flexibility in board placement.

The MSB0143 is connected through its two MoChi Interconnect (MCi) interfaces—one single-lane interface and one four-lane interface—to Marvell’s MCi-enabled Application Processor (AP) with a raw bandwidth of 8 Gbps and 32 Gbps respectively. Maximum performance is ensured by isolating the video and USB traffic to the four-lane MCi and the single-lane MCi. The MCi interface is transparent and, therefore, MSB0143 appears to the application as an integrated function in the AP.

BLOCK DIAGRAM



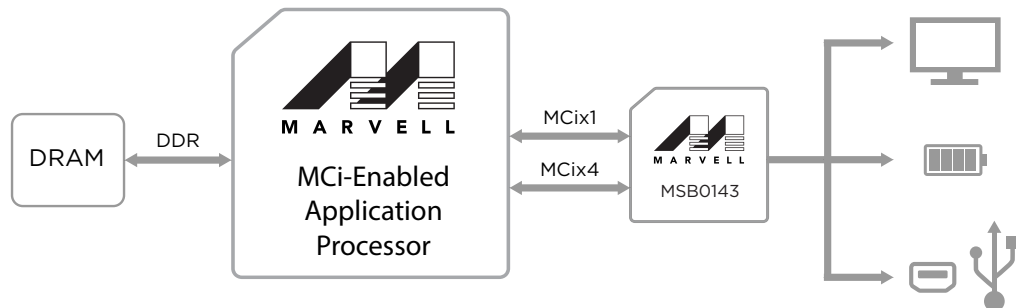
Marvell MSB0143 Block Diagram

KEY FEATURES AND BENEFITS

FEATURES		BENEFITS
Package		<ul style="list-style-type: none"> 6x6 mm DRQFN (76 pin, 0.5 mm pitch)
MCi Interface		<ul style="list-style-type: none"> 4 lane (up to 8 Gbps per lane) for video streaming 1 lane (up to 8 Gbps) for USB and audio
Power Supply		<ul style="list-style-type: none"> 1.2V, 1.8V, and 3.3V supplies required Built in, on-chip LDO regulator internal core supply
Low Power		<ul style="list-style-type: none"> USB 3.1 U1, U2, and U3 power management with remote wake up Reference clock removal and power gating when in hibernation
Display Controller		<ul style="list-style-type: none"> Input video data from AP: 8-bit and 10-bit RGB444-packed, 8-bit ARGB4444, 8-bit YCbCr422 Output video data to DisplayPort controller: 8-bit and 10-bit RGB444, 8-bit and 10-bit YCbCr444, 8-bit and 10-bit YCbCr422
DisplayPort Controller		<ul style="list-style-type: none"> 2-channel 192 kHz audio Compliant with DP 1.3 and supports HDCP 1.3 and 2.2
USB Controller	Host	<ul style="list-style-type: none"> 1 SS/HS/FS/LS root hub port compliant with USB 3.1 (Gen 1) and xHCI 1.1 Up to 32 device slots and 128 endpoints
	Device	<ul style="list-style-type: none"> 1 SS/HS/FS/LS port compliant with USB 3.1 (Gen 1) Endpoints: 8 IN with 2 supporting bulk streaming, 8 OUT with 2 supporting bulk streaming, and 1 control
Type-C Interface		<ul style="list-style-type: none"> Operation as dedicated USB 3.1 (Gen 1) connection, 2 lane DP and USB 3.1 (Gen 1) connection, or 4 lane DP connection USB 3.1 power and role negotiation and DP alternate-mode negotiation Power delivery compliant with USB PD 2.0
Analog-to-Digital Converter		<ul style="list-style-type: none"> 2 channels, 12 bits at 8 kHz with I²C-dedicated channel

TARGET APPLICATIONS

- I/O expansion in any Marvell MoChi platform
- Consumer electronic devices
- Digital entertainment (set-top boxes and DTV)
- Graphic and video displays
- Gaming platforms
- Personal computers (laptops)



ABOUT MARVELL: Marvell (NASDAQ: MRVL) is a global leader in providing complete silicon solutions. From storage to cloud infrastructure, Internet of Things (IoT), connectivity and multimedia, Marvell's diverse product portfolio aligns complete platform designs with industry-leading performance, security, reliability and efficiency. For additional information, including Marvell's sales offices and representatives, please visit our website at www.marvell.com.