Sony Sub-LVDS-to-Parallel Sensor Bridge

Sony IMX136/IMX104/IMX036 Sub-LVDS High-Speed Sensor Interface

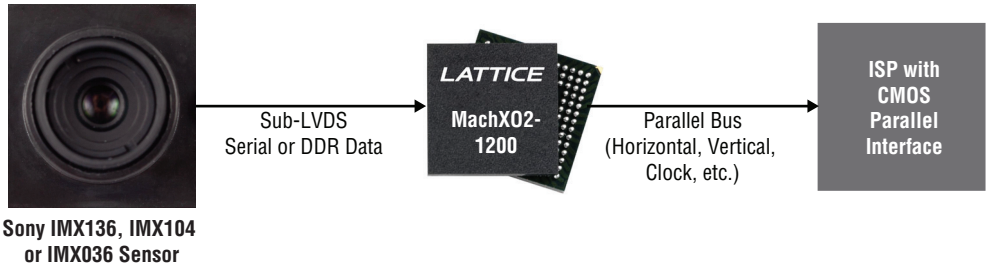
Previously, all resolutions and frame rates were supported by a simple CMOS parallel interface. When Sony introduced sensors with higher resolutions and frame rates, the CMOS parallel interface was no longer able to handle the bandwidth requirements. To support the higher bandwidth needs of the IMX136 and IMX104 sensors, Sony utilizes a serial sub-LVDS interface. For the legacy IMX036, Sony uses a 10/12-bit parallel sub-LVDS DDR interface.

The Need for Sub-LVDS-to-Parallel Sensor Interface Bridging

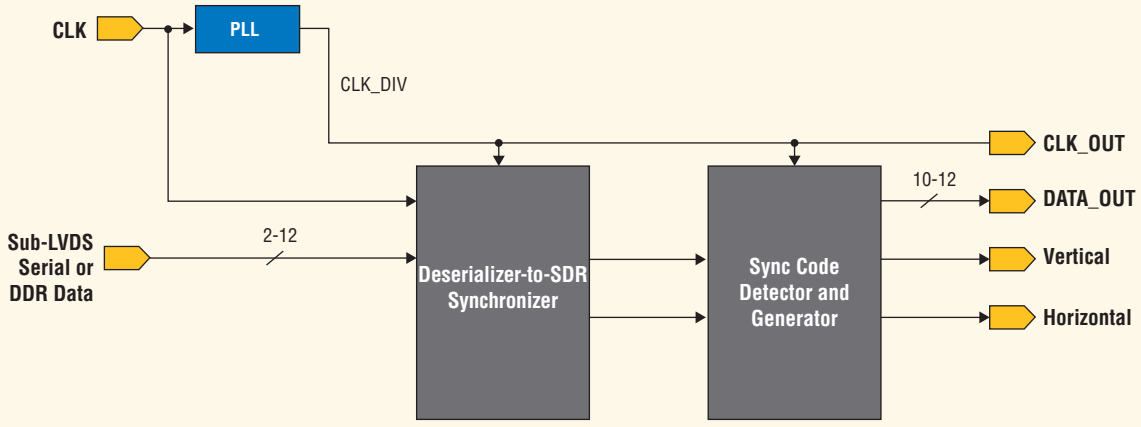
The majority of ISP (Image Signal Processing) devices support traditional CMOS parallel sensor interfaces. They usually lack interfaces that support serial sub-LVDS or DDR. Therefore, a bridge device is required to convert the sub-LVDS serial data or DDR parallel to a CMOS parallel format. The MachXO2™-1200 and LatticeXP2™-5 non-volatile devices provide an efficient and cost-effective solution for bridging sub-LVDS.

Key Features

- Complete Reference Design
- Designed to Emulate Parallel Sensor Output Bus Width of 10 or 12 Bits
- Supports 1080P Outputs up to 120fps
- Tested with Sony IMX036 and Texas Instruments DM814X IP Camera
- Interfaces to Serial Sub-LVDS or Parallel DDR Data
- Converts the Sub-LVDS Sync Commands to Valid Signals
- Supports Built-in WDR (Wide Dynamic Range) Feature of the IMX136/104
- Bridge Device Offered in Space-saving 8x8 mm 132-Ball csBGA. TQFP Packages Also Available.
- Requires No External PROM
- Parallel Interface can be Configured for 1.8V, 2.5V or 3.3V LVCMOS Levels



Sub-LVDS-to-Parallel Sensor Interface Bridging Block Diagram



Download the free reference design at: www.latticesemi.com/sensorbridge

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