5.2 MIPI—In Consumer IoT

USE CASES

In Connected Cameras:

- CSI-2 as a highly scalable interface to connect high-resolution camera sensors, using CCI for camera command and control over single MIPI C/D-PHY interface using USL
- SoundWire to drive high quality audio components such as microphones and speakers
- I3C to provide a shared, two-wire interface, to connect sensors, GPS and simple UI components, such as LEDs and buttons
- UFS over UniPro/M-PHY for storage of high-resolution images
- RFFE within cellular communications module

In Video Conferencing Devices:

- CSI-2 as a highly scalable interface to connect high-resolution cameras, using CCI for camera command and control over single MIPI C/D-PHY interface using USL
- SoundWire to drive high-quality audio components such as multiple microphones and speakers. Enables audio beam steering and advanced noise cancellation
- I3C to provide a shared, two-wire interface, to connect sensors, and simple UI components such as LEDs and buttons
- RFFE within radio communications module

In Portable Gaming Devices:

- CSI-2 as a highly scalable interface to connect high-resolution camera over single MIPI C/D-PHY interface
- DSI-2 over C/D-PHY to drive a high-resolution display, enabling display partitioning when device is in standby mode and a touchscreen user interface using MIPI Touch over I3C
- SoundWire to drive high-quality audio components
- I3C to provide a shared, two-wire interface, to connect sensors, GPS and simple UI components such as LEDs and buttons
- RFFE within cellular communications module

In Smart Speakers:

- I3C to provide a shared, two-wire interface to connect sensors and simple UI components, such as LEDs and buttons
- SoundWire to provide a shared two-wire interface, to drive high-quality speakers and microphones, enabling noise cancellation, low-power 'keyword' activation, and low-EMI operation to achieve tighter packaging of components with minimal EMC shielding

In XR Headsets:

- DSI-2 over C/D-PHY to drive state-of-the-art ultra-high-resolution displays, enabling a truly immersive virtual/augmented reality experience
- I3C to provide a shared, two-wire interface, to connect sensors, and simple UI components such as LEDs and buttons
- RFFE within radio communications module

LEGEND

- Functionally safe and secure IoT device that will benefit from MIPI's focus on safety and security
- IoT device with constrained power supply that will benefit from use of MIPI low-power interfaces
- IoT device with wide-area cellular connectivity that will benefit from MIPI's 5G preparedness
- Size-constrained, tightly packaged IoT device, benefiting from MIPI's low pin count, low wire count, low EMI interfaces

Associated MIPI SOFTWARE and DEBUG specifications also available to accelerate design process

Example Portable Gaming Device Schematic