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 radio 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 radio 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

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

Example Portable Gaming Device Schematic

**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

IoT white paper:
*Enabling the IoT Opportunity*