5.3 MIPI—In Wearables

USE CASES

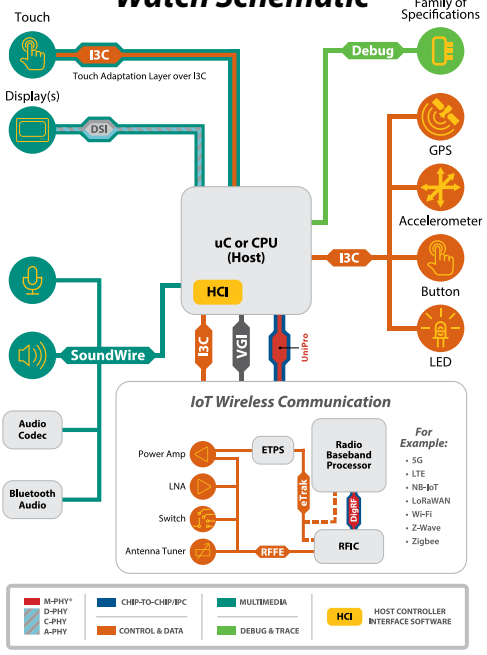
In AR Glasses:

- DSI-2 over C/D-PHY to drive an advanced, high resolution heads-up display, enabling low-power 'Smart Region of Interest' mode when watch is in standby mode
- CSI-2 over C/D-PHY to connect a high-resolution camera, enabling low-power vision inferencing
- SoundWire to provide a shared, two-wire interface, to drive speakers and microphones, enabling noise cancellation, low-power 'keyword' activation, and low-EMI operation to achieve tighter packaging of components with minimal EMC shielding
- RFFE within radio communications module

In Smartwatches:

- DSI-2 over C/D-PHY to drive an advanced high-resolution display, enabling low-power 'Smart Region of Interest' mode when watch is in standby mode
- MIPI Touch to enable touchscreen user interface
- C-PHY physical interface, reducing line and pin counts and generating low EMI, allowing smaller devices requiring less EMC shielding
- I3C to provide a shared, two-wire interface, to connect heart-rate, motion and other sensors and simple UI components such as LEDs and haptics
- SoundWire to drive advanced audio components such as microphones and headsets
- RFFE within radio communications module

Example Smart Watch Schematic



In Smart Earbuds:

- I3C to provide a shared, two-wire interface, to connect sensors and simple UI components such as LEDs and buttons
- SoundWire providing 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 Smart Sneakers:

- I3C to provide a shared, two wire interface to connect:
  - Simple UI components such as small dot-matrix displays, LEDs and switches
  - Motion and pressure sensors
  - Motor actuators

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

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