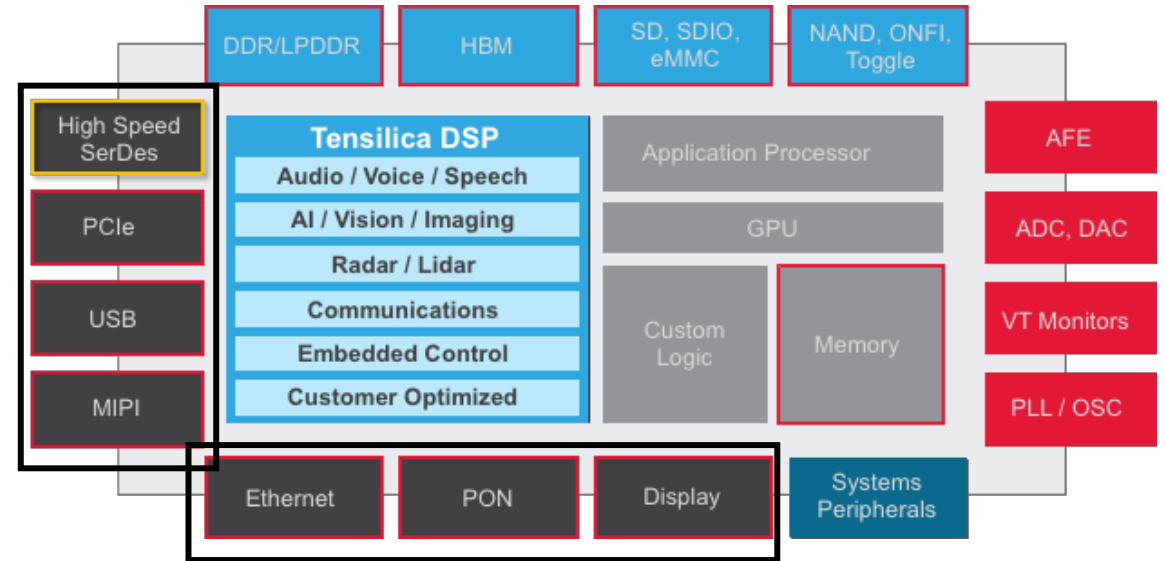




# How to improve relationship between IP consumers, IP providers and IP democratization?

# Cadence Interface and Processor IP Portfolio

<b>SerDes</b>	1G To 112G NRZ and PAM4 Portfolio
<b>Ethernet</b>	1GbE to 400GbE MAC and PHY
<b>PCI Express</b>	PCIe 4.0, 3.0, 2.1, 1.1 Controller and PHY
<b>CCIX</b>	CCIX 1.0
<b>Memory</b>	DDR5, LPDDR5, HBM2E, GDDR6, ONFI, eMMC Controller and PHY
<b>HD Display</b>	DisplayPort and Embedded DisplayPort
<b>USB</b>	USB Type-CTM, USB3.0, USB2.0 Controller and PHY
<b>MIPI</b>	DSI, CSI, SoundWire, I3C, SLIMbus, D- PHY, M-PHY



Advanced nodes in TSMC, Samsung and GF

**Comprehensive interconnect portfolio enabling reduced customer product development time**

# IP consumers & IP providers relationships already quite good

*Transparent cooperation essential, IP providers are extended R&D*

- **3 phases of IP development/deployment**

- Pre-study phase, program not committed
  - Cadence looking for few lead-customers to validate plan and schedule
- Early Adaptor: MRD → draft engineering datasheet
  - Limited audience only, e.g. D2D
- General Availability; Datasheets online, engineering datasheet, Si reports, user guides under NDA
  - Broad audience, customers, partners, IP Portals, conferences,...
- Not aware of any significant gaps:
  - **Key is bi-directional communication! Meetings and webex are key: PPA Config space is huge, sensitive data**

- **Innovation from smaller IP providers/spin-offs/Academia**

- Absolutely, good example is NuSemi, acquired after PAM4 working Silicon
- On-going scouting to augment and enhance our IP offering, not only M&A!
- IP providers focusing on emerging process nodes like FDX22
  - Cadence investing in eco-system, integrating 3<sup>rd</sup> party physical IPs with Cadence soft IPs

- **Cadence tapping/scouting IP market and investing/broadening IP Eco-system<sup>®</sup>**

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