

STAC Summit Fall 2022

What CXL means for FSI

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New CXL protocol
is game changing!!

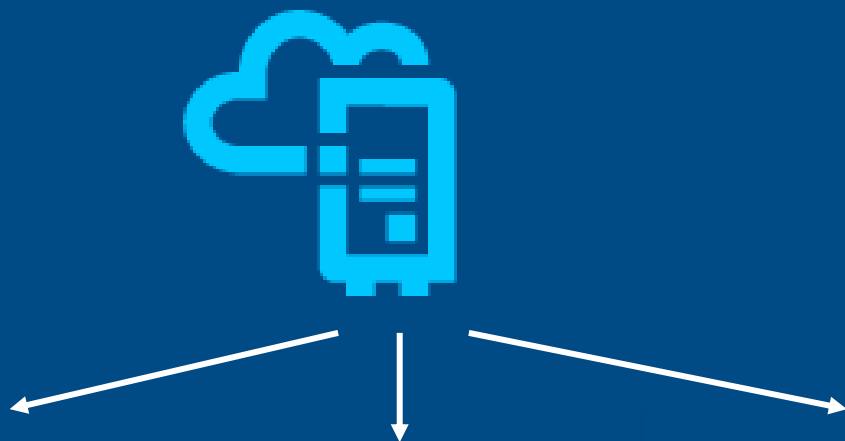
Matt's prediction is coming
to fruition...



Dr. Matthew Grosvenor
at Global STAC Live
(Spring 2020)



Introduction



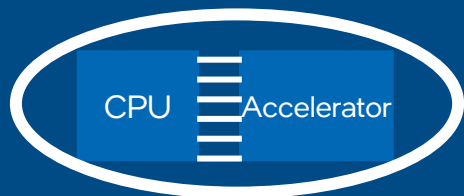
Application/Workload Acceleration
(Data transformation)

Infrastructure Acceleration
(Processing of data in motion)

Smart Storage/Memory
(Processing of data at rest)

Choose best accelerator HW: CPUs, GPUs, AI, FPGAs, other chipsets

CXL Improves Efficiency

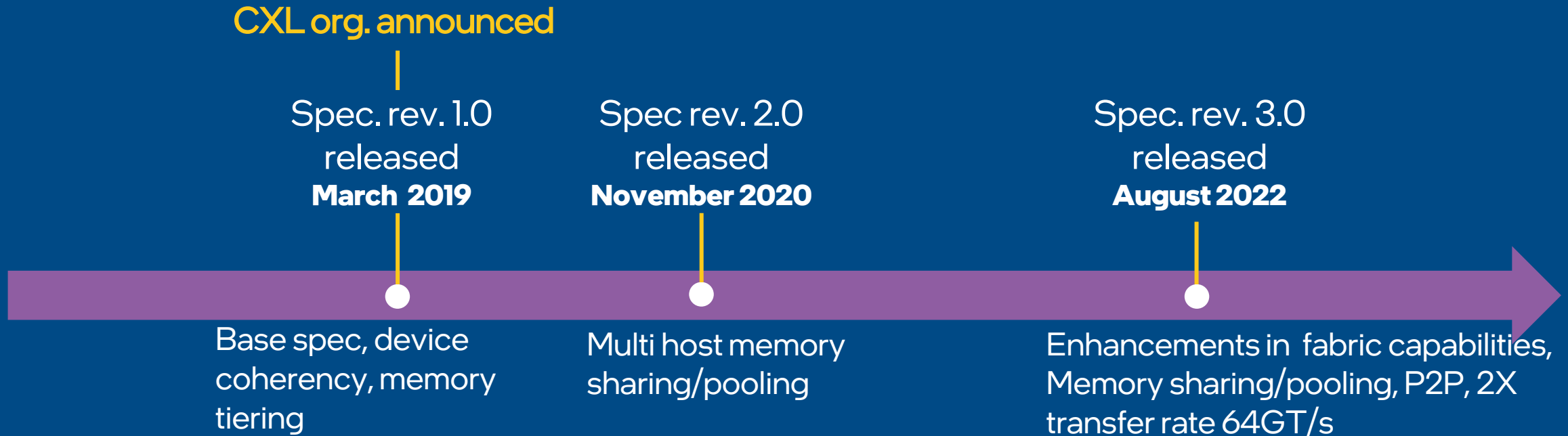


Close
Coupling

↙ Lower
Latency

↗ Improved Memory Organization
for better resource sharing

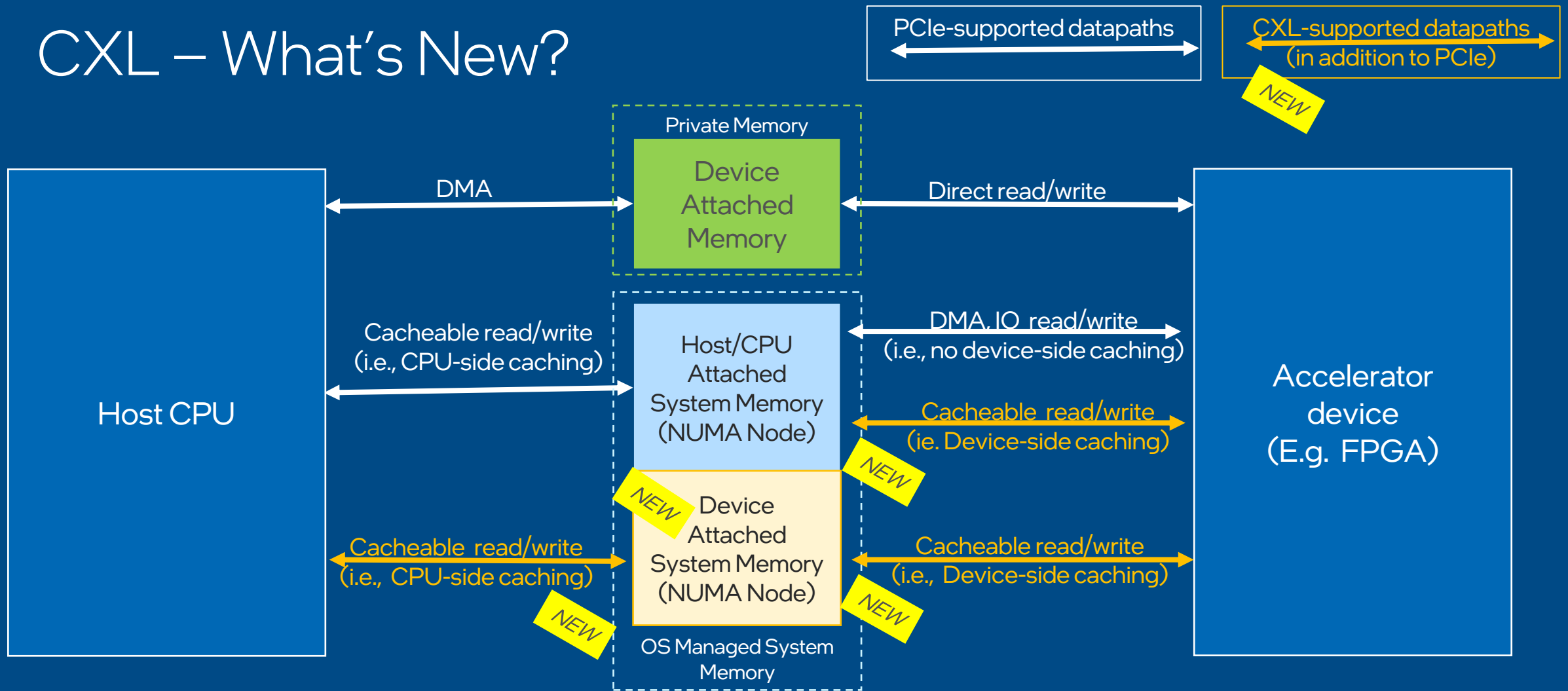
Compute Express Link (CXL) – Overview & Latest News



- What is CXL? An open-source coherent interconnect protocol (re-uses PCIe PHY/data layers)
- Who is in CXL.org? Over 200 members & growing
- Latest News:
 - Gen-Z Consortium joined CXL & transferred assets/technology
 - OpenCAPI Consortium letter of intent to join CXL
 - CXL joins open fabric management frameworks (DMTF, OFA, SNIA)

<https://www.computeexpresslink.org/>

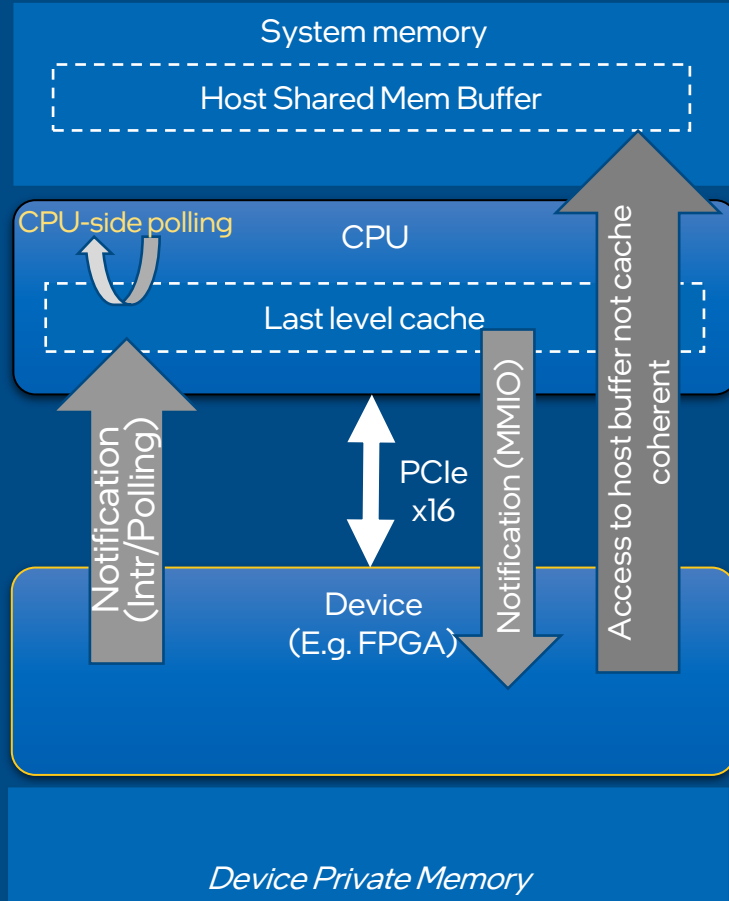
CXL – What's New?



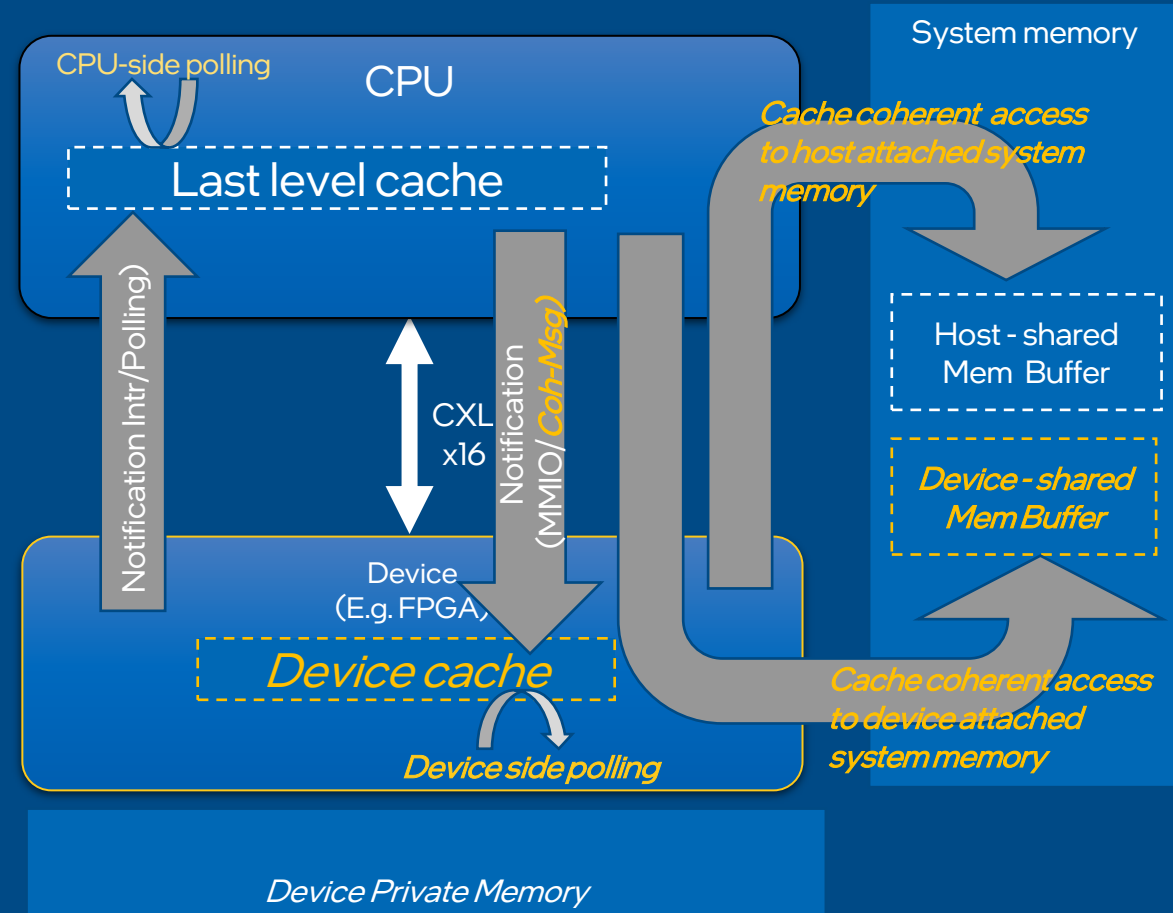
CXL-based accelerators elevated to 1st class priority

CXL Accelerators – Common Shared Cache/Memory

PCIe



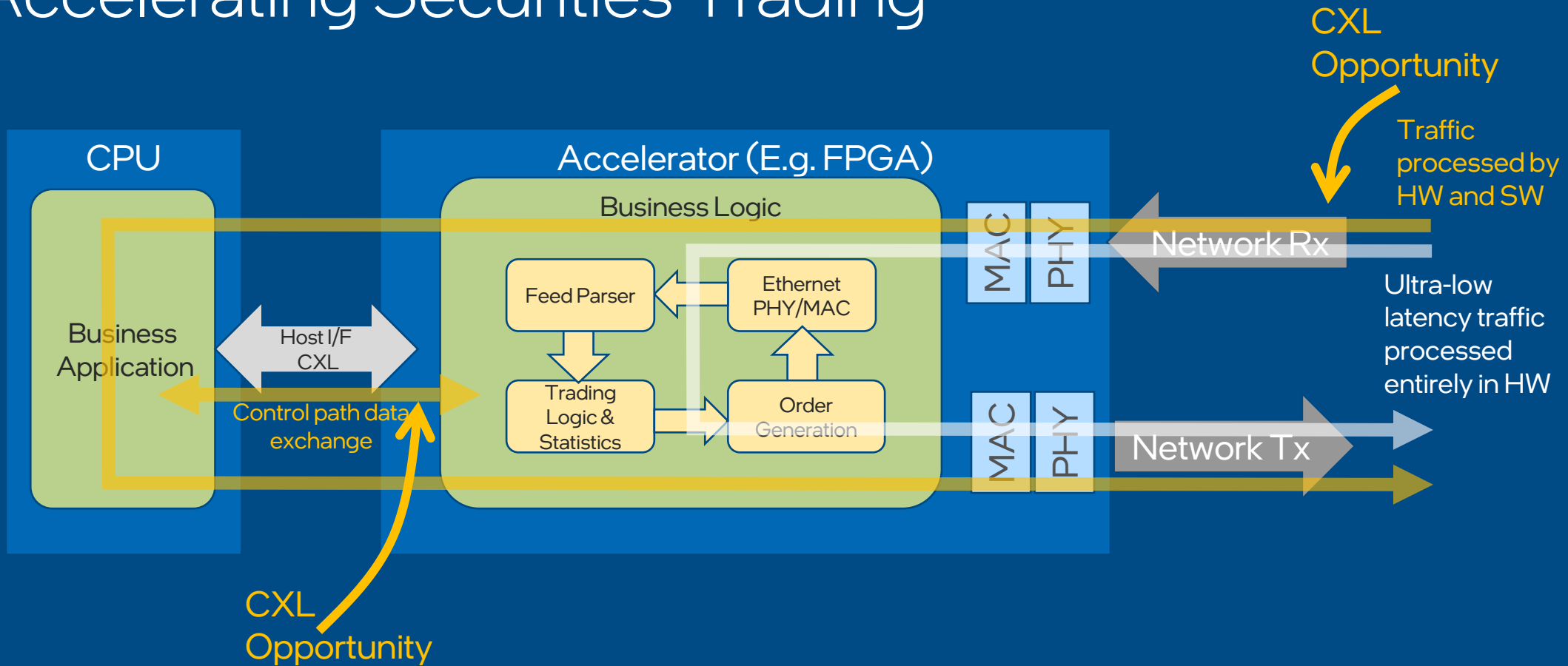
CXL



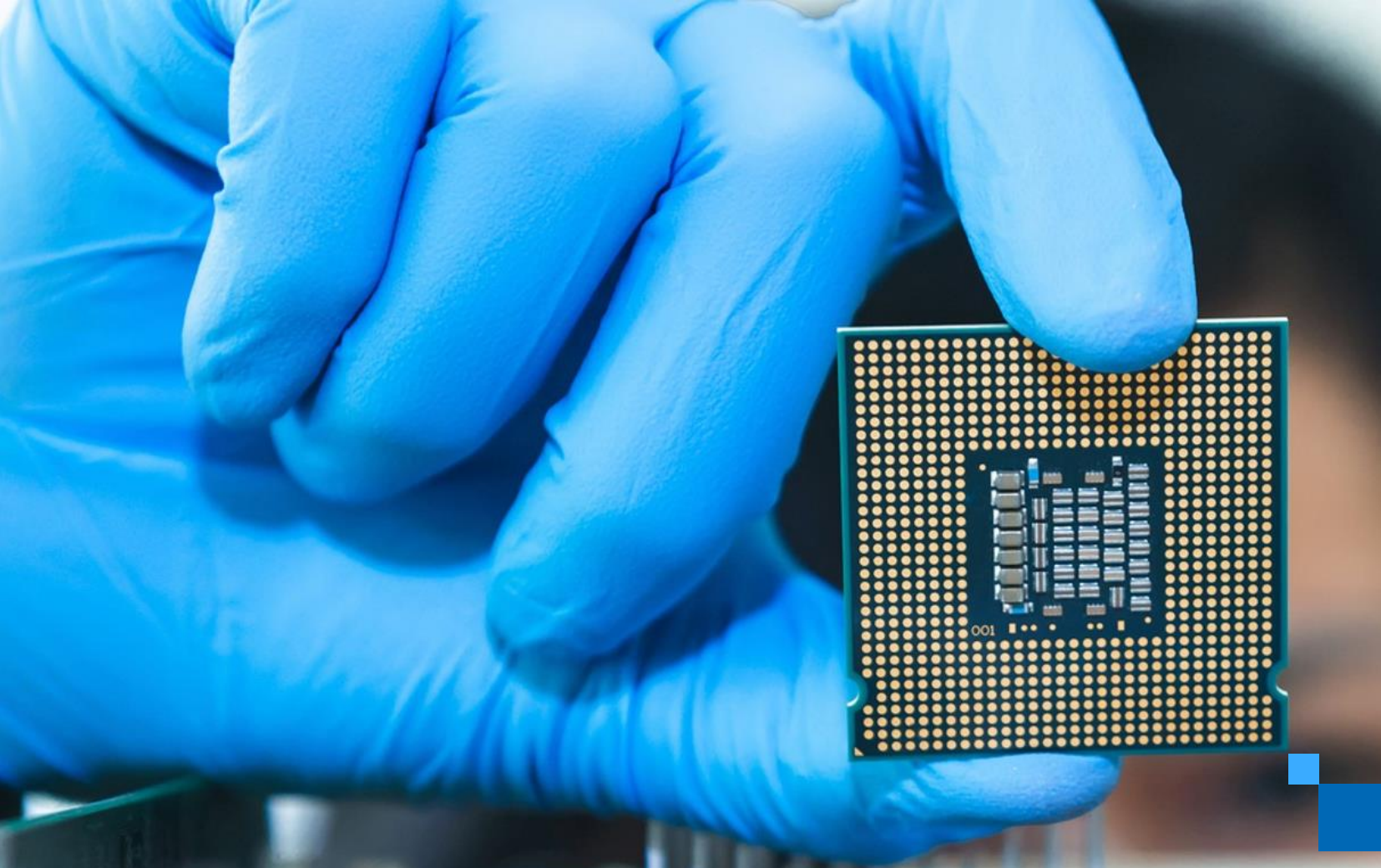
CXL enables:

- Low latency notifications using coherency semantics (*new*)
- Device-side polling (*new*)
- Shared memory buffers cache coherently accessible by CPU and device (*new*)

Accelerating Securities Trading



CXL enables tightly coupled CPU-HW interactions, resulting in better use of CPU and hence helping reduce accelerator complexity



Intel® Agilex™ FPGA

- 1st & only FPGA with CXL hard IP
- 4x more B/W vs. FPGA competitors
- CXL 1.1 and 2.0 (see schedule)

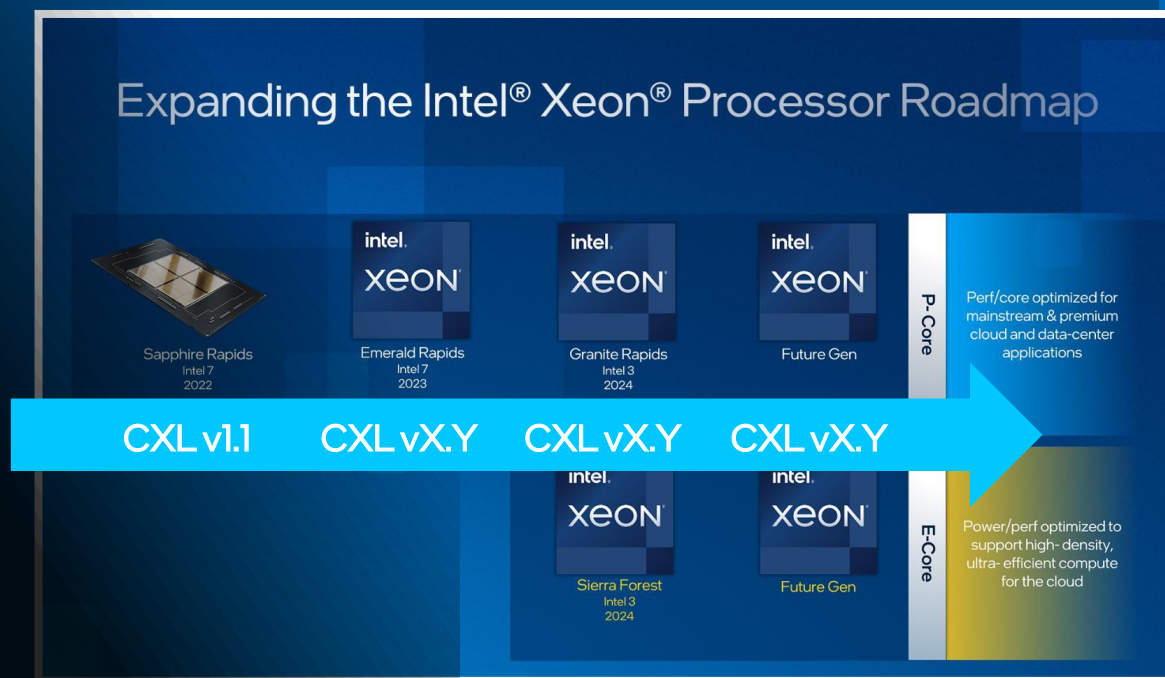
CXL-Capable HW & Ecosystem

Contact OEM/ODM

- ✓ Server embargo release dates under CNDA
- ✓ Based on 4th Gen Intel® Xeon® Scalable processor (formerly codenamed Sapphire Rapids)

Start CXL R&D now!

- ✓ Choose your production intercept
- ✓ Intel FPGA offers SW upgrade CXL 1.1 to 2.0
- ✓ Choose from a variety of Intel FPGA devices & board options

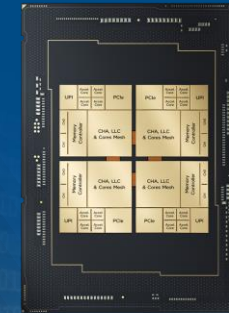


Source: Intel Investor Day (Feb. 17, 2022)

Intel Agilex FPGAs – Leading Financial Services

Leadership with CXL

- ✓ 1st and only FPGA with CXL hard IP
- ✓ FPGA HW supports CXL 1.1 and 2.0



Strategic Collaboration with LMS

ÜberNIC™ Exclusively Based on Intel Agilex FPGAs

- ✓ Fully hardware network stack w/ CXL
- ✓ Truly supports modern market data rates

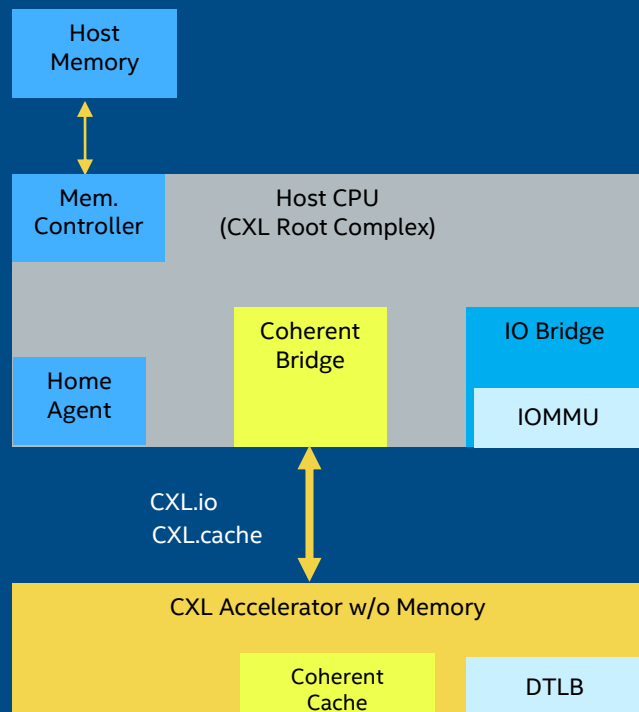


Attend LMS session at 3:20pm

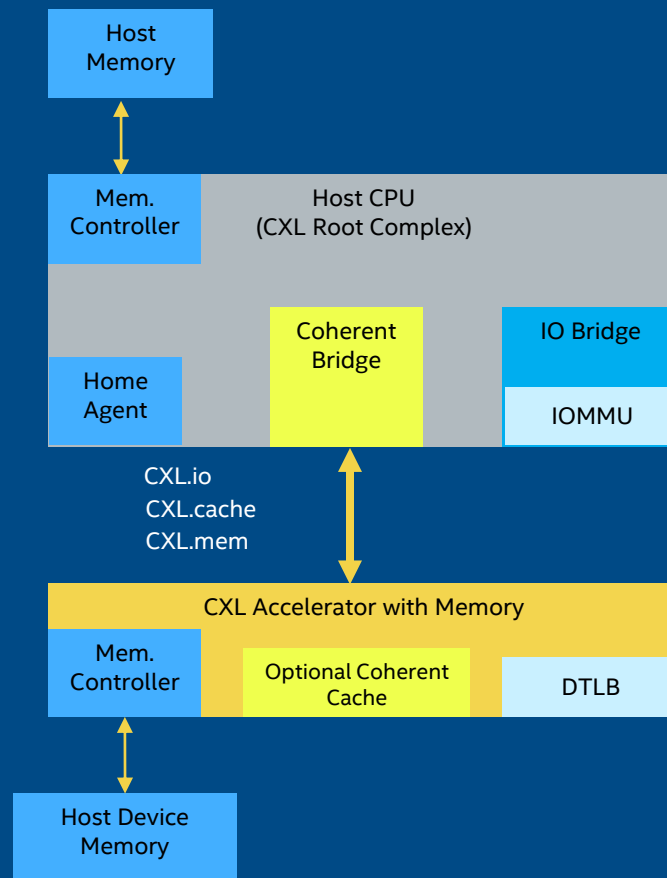
The Intel logo is centered on a solid blue background. It features the word "intel" in a white, lowercase, sans-serif typeface. A small, bright blue square is positioned above the first vertical stroke of the letter "i". To the right of the word "intel" is a small white registered trademark symbol (®).

intel®

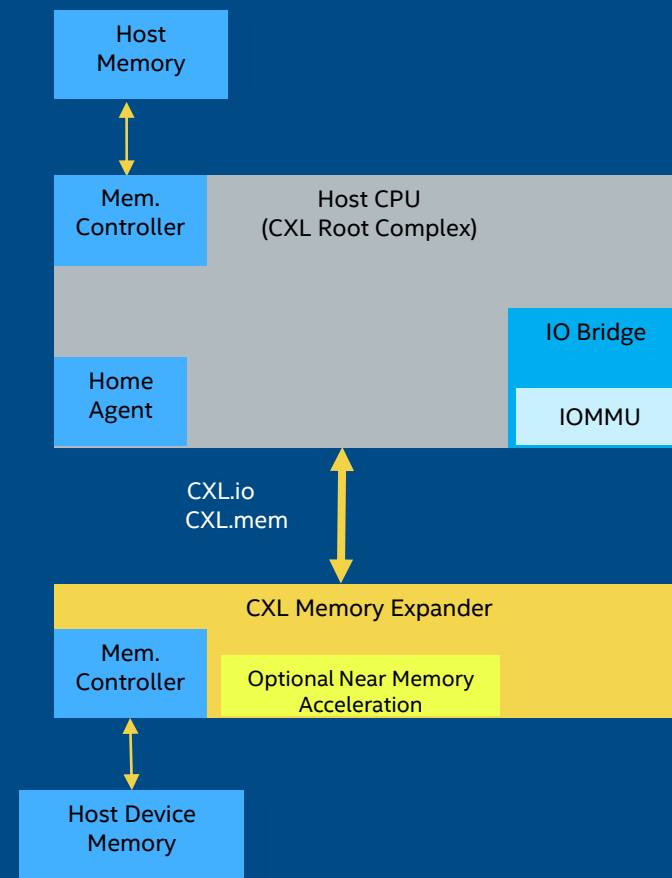
CXL Configuration Types – Types 1, 2, 3



**CXL Type 1
Accelerator Device**



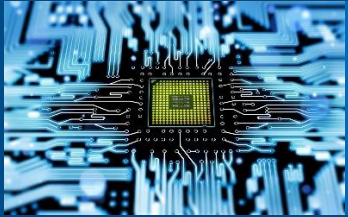
**CXL Type 2
Accelerator Device**



**CXL Type 3
Memory Expansion Device**

Intel Technology

Enables the Future of Financial Services



Microbursts and trading volumes continue to increase.
Throughput and performance make the difference.



Data is exploding, insight is the differentiation.
AI – Needs flexible architecture optimized for real-time data.



Engage now into the future of Financial Services.
Leverage technology and data to deliver value in meaningful ways.