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CXL HDM-DB support for Linux

Host-managed Device Memory –Device-coherent with Back-invalidate support (HDM-DB) is a type of device memory introduced in CXL 3.0. It allows Type 2 and Type 3 devices to manage memory coherence directly. With HDM-DB, the device acts as the final arbiter of coherence for addresses it owns. This mechanism enables devices to implement inclusive snoop filters to track host caching of device memory, reducing snooping overhead and allowing low-latency direct peer-to-peer communication to HDM-DB memory without constant host CPU involvement.

The purpose of this session is to discuss the available upstream support[0] and ways of moving forward, including:
- General BI discoverability approach.
- Integration with work around Type 2 and HDM-D model support.
- Region creation semantics for Type 2 and Type 3 devices.
- Uses cases in Linux.

[0] https://lore.kernel.org/linux-cxl/20250812010228.2589787-1-dave@stgolabs.net/

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