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Hotplug DRM pipeline components on non-discoverable video busses

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Traditional DRM pipelines for embedded devices have no removable components, while PC-style pipelines have long time supported hotplug of the panel only, via standardized connectors such as HDMI or DisplayPort.

Embedded devices being currently developed by the industry have a video pipeline whose last components, including one or more bridges, are located on a hot-pluggable add-on using a non-hotplug video bus (MIPI DSI, LVDS, parallel). On the device we are working on, the "main" board ends at a custom connector where MIPI DSI signals are present, while the add-on has a DSI-to-LVDS bridge and a LVDS panel.

A proposal as been made to add a "hotplug DRM bridge" [Ceresoli 2024 v4] to decouple the fixed and the removable parts of the pipeline so that existing drivers can work transparently with no changes.

The latest discussion is in the v2 thread [Vetter 2024] and already led to improvements in v3 and v4, but there is a lot more work to do and development directions are still to be clarified.

Topics to discuss include:

- Any other similar use cases from the audience?
- Implementation approach: DP MST, transparent hotplug-bridge, others?
- Object lifetime issues
- What is the amount of hotplug-awareness that should be coded in the DRM core, as opposed to individual hotplug-bridge driver as proposed?

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