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Devicetree BoF

Friday, 20 September 2024 10:00 (45 minutes)

Birds of Feather session around Devicetree in Linux kernel. Few topics from the top of my head:

1. Devicetree and firmware-abstracted hardware. Fore example consider some resources like clocks and regulators hidden behind SCMI interface. See also: https://lore.kernel.org/all/be31801e-bb21-426b-f7aa-2b52727de646@quicinc.com/

2. Devicetree bindings for virtual systems and their devices.

3. Common board-id property for identifying DTS by bootloaders. See also: https://lore.kernel.org/all/20240521-board-ids-v3-0-e6c71d05f4d2@quicinc.com/

4. "Configuration" parameters for SoC components, like I2C timings or thermal characteristics, based on fused values. The board with given SoC comes with one DTS, but the SoCs have different packages and bins or the board have different characteristics like I2C bus speed. Depending on the board configuration or the fused SoC values, we might need to customize certain device properties (e.g. I2C timings or thermal values). See also: https://lore.kernel.org/linux-devicetree/20240701151231.29425-1-kyarlagadda@nvidia.com/

5. Versioning of same board DTS, e.g. when using in A/B testing for customers - DTS could have little differences like pin configuration.

6. Reference counting DT properties, aka fixing property memory leaks on device tree overlay removal. See also: https://lore.kernel.org/all/20240624232122.3cfe03f8@booty/

This is part for bigger topic - runtime hotplug on non-discoverable busses with device tree overlays, see other session where we might discuss it more: https://lpc.events/event/18/contributions/1696/

7. Pleasu..., ekhm, pain points when working with Devicetree schema (dtschema).

8. Linux kernel is the source of DTS, so it might get DTS purely for other projects (e.g. OpenBSD). Such DTS was never tested with Linux and might not work, but having it in the kernel creates impression that it is being supported.

9. Using Linux kernel DTS in U-Boot (aka OF_UPSTREAM)

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