Exynos Emulation Mode

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Written by Jonghwa Lee <jonghwa3.lee@samsung.com>

Description

Exynos 4x12 (4212, 4412) and 5 series provide emulation mode for thermal management unit. Thermal emulation mode supports software debug for TMU's operation. User can set temperature manually with software code and TMU will read current temperature from user value not from sensor's value.

Enabling CONFIG_THERMAL_EMULATION option will make this support available. When it's enabled, sysfs node will be created as /sys/devices/virtual/thermal/thermal_zone'zone id'/emul_temp.

The sysfs node, 'emul_node', will contain value 0 for the initial state. When you input any temperature you want to update to sysfs node, it automatically enable emulation mode and current temperature will be changed into it.

(Exynos also supports user changeable delay time which would be used to delay of changing temperature. However, this node only uses same delay of real sensing time, 938us.)

Exynos emulation mode requires synchronous of value changing and enabling. It means when you want to update the any value of delay or next temperature, then you have to enable emulation mode at the same time. (Or you have to keep the mode enabling.) If you don't, it fails to change the value to updated one and just use last succeessful value repeatedly. That's why this node gives users the right to change termerpature only. Just one interface makes it more simply to use.

Disabling emulation mode only requires writing value 0 to sysfs node.

```
 TEMP  120 |
           |
       100 |
           |
        80 |
           |                                +-----------
        60 |                                |          |
           |              +------------|     |          |
        40 |              |            |     |          |
           |              |            |     |          |
        20 |              |            |     +----------+
           |              |            |     |          |       |
         0 |_____|_____|_____|_____|_____
                    A            A           A                A    TIME
                    |<----->|    |<----->|   |<----->|         |
                    | 938us |    |       |   |       |         |
   emulation  : 0   50      |    70      |   20      |         0
   current temp:     sensor    50           70          20      sensor
```