

[PATCH] ARM: dts: exynos: Exynos5422 Odroid-XU* incomplete thermal-zones definition

Anand Moon linux.amoon@gmail.com

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Hi Krzysztof,

On 25 June 2017 at 19:01, Krzysztof Kozlowski <krzk@kernel.org> wrote:

> On Sun, Jun 25, 2017 at 06:53:24PM +0530, Anand Moon wrote:

>> Hi Willy,

>>

>> On 24 June 2017 at 02:39, Willy Wolff <willy.mh.wolff@gmail.com> wrote:

>> > Odroid XU*-family boards has thermal sensors per A15 cores, but the actual
>> > thermal-zones define only cooling-maps action for cpu0.

>> >

>> > If the application is running on all cores but core4 (first core of the A15
>> > cluster), the CPU can reach high temperature without any proper cooling
>> > action.

>> >

>> > As already discuss in prior mail, and on IRC, it's a quit big code
>> > duplication, but I don't found the write way to express that in a better
>> > way.

>> >

>> > The situation for this board is that we have multiple sensors, but
>> > matching cooling devices for these sensors act for the same physical
>> > device (FAN and A15 cluster, as each core of the cluster share the same
>> > frequency).

>> > In fact, of-thermal.c:473:thermal_zone_of_sensor_register() can't use
>> > multiple sensors for one single thermal zone.

>> > This patch follow the path taken in arch/arm/boot/dts/qcom-apq8084.dtsi:97
>> >

>> > I'm interested to extending the thermal driver, but it will takes time.

>> > So this is a workaround before refactoring the driver.

>> > If somebody knows how to write it better, any advice and suggestions
>> > are more than welcome.

>> >

>> > Also, the comment for cpu_alert4 in cooling-maps definition is not
>> > accurate, 11 steps for A15 correspond to 700MHz, not 600MHz.

>> >

>>

>> [snip]

>>

>> Few point to from my side.

>>

>> 1: We should also increase the trip points temperature so that it can
>> throttle at high temperature.

>

> It is not related to this problem. If you wish to address different
> problem related to non-optimal choice of temperature, then please send a
> separate patch explaining chosen values.

Certain task tends to run slow in current thermal zone setting.
If needed I will send a patch for this.

```
>> 2: We should also increase the tips from 4 to 8 to support different
>> cluster of cpu's.
>
> There are 4 CPU thermal zones on Exynos5422. What do you want to expand?
```

What I meant was to support more trip point to address below.
[2.776320] exynos-tmu 100a0000.tmu: More trip points than supported by this TMU.
[2.782370] exynos-tmu 100a0000.tmu: 2 trip points should be configured in polling mode.

```
>> 3: To avoid duplication of cooling-maps we can make tmu sensor work
>> differently for cluster of cpu's
>>     tmu_cpu0: handle pwm-fan control.
>>     tmu_cpu1: handle cpu[0-3] cpufreq mapping.
>>     tmu_cpu2: handle cpu[4-7] cpufreq mapping.
>
> I miss the point behind this. Why fan should work only when CPU4
> (tmu_cpu0) is heated and not CPU5-7 (rest of cpu tmu's)?
```

Ok fan should work on all the thermal zone. To avoid thermal shutdown.

But I want to avoid scaling down of all the cores of cpu to low freq as cooling-maps cross the alert temperature. For below example.

```
-----
map3 {
    trip = <&cpu1_alert3>;
    cooling-device = <&cpu0 0 2>;
};
map4 {
    trip = <&cpu1_alert3>;
    cooling-device = <&cpu4 0 2>;
};
map5 {
    trip = <&cpu1_alert4>;
    cooling-device = <&cpu0 3 7>;
};
map6 {
    trip = <&cpu1_alert4>;
    cooling-device = <&cpu4 3 12>;
};
```

What I want to configure thermal zone as.

```
cpu0_thermal: cpu0-thermal {
    configure cluster of cpu[0-3]
    {
        tips
    }
    cooling map
    {
        device handle cpu[0-3] with frequency scaling at particular
alert temperature.
    }
}

cpu1_thermal: cpu1-thermal {
    configure cluster of cpu[4-7]
    {
        tips
    }
}
```

```
cooling map
{
    device handle cpu[4-7] with frequency scaling at particular
    alert temperature.
}
```

We can chose to configure rest of the thermal-zone on this approach.
Please share your thoughts.

Best Regards
-Anand Moon

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