

## U-Boot : Weird behavior with DP83867 Ethernet PHY configuration

Hello,

We are developing a product using the Texas Instrument DP83867 Ethernet PHY chip. We are using Petalinux 2018.1

When initializing the chip, we need to pass custom delay parameters to the chip.

After many days of debugging, we got it to work with a workaround. However we don't quite understand it. After looking at various online resources (like the file ti,dp83867.txt in the linux-xlnx github), here's how we implemented it in system-user.dtsi :

```
/include/ "system-conf.dtsi"
/ {
};

&axi_ethernet_0 {
    phy-handle = <&phy0>;
    xlnx,has-mdio = <0x1>;

    mdio {
        phy0: phy0@12 {
            device_type = "ethernet-phy";
            compatible = "ti,dp83867", "ethernet-phy-ieee802.3-c22";
            reg = <12>;
            ti,rx-internal-delay = <0x8>;
            ti,tx-internal-delay = <0x0>;
            ti,fifo-depth = <0x1>;
            ti,dp83867-rxctrl-strap-quirk = <1>;
        };
    };
};
```

It works under Linux but not under U-Boot. The DP83867 driver doesn't find the "ti,tx-internal-delay" parameter. As a test we moved the parameters up:

```
/include/ "system-conf.dtsi"
/ {
};

&axi_ethernet_0 {
    phy-handle = <&phy0>;
    xlnx,has-mdio = <0x1>;

    ti,rx-internal-delay = <0x8>;
    ti,tx-internal-delay = <0x0>;
    ti,fifo-depth = <0x1>;
    ti,dp83867-rxctrl-strap-quirk = <1>;

    mdio {
        phy0: phy0@12 {
            device_type = "ethernet-phy";
            compatible = "ti,dp83867", "ethernet-phy-ieee802.3-c22";
            reg = <12>;
        };
    };
};
```

```
};
};
```

Now U-Boot works correctly but not Linux. To get them both working, we need to repeat the parameters :

```
/include/ "system-conf.dtsi"
/ {
};

&axi_ethernet_0 {
    phy-handle = <&phy0>;
    xlnx,has-mdio = <0x1>;

    /* START of DP83867 patch for U-Boot */
    /* For some unknown reasons, DP83867 PHY driver for U-Boot doesn't read its properties
    from the phy0 node. */
    /* As a workaround we repeat them here */
    ti,rx-internal-delay = <0x8>;
    ti,tx-internal-delay = <0x0>;
    ti,fifo-depth = <0x1>;
    ti,dp83867-rxctrl-strap-quirk = <1>;
    /* END of DP83867 patch for U-Boot */

    mdio {
        phy0: phy0@12 {
            device_type = "ethernet-phy";
            compatible = "ti,dp83867", "ethernet-phy-ieee802.3-c22";
            reg = <12>;
            ti,rx-internal-delay = <0x8>;
            ti,tx-internal-delay = <0x0>;
            ti,fifo-depth = <0x1>;
            ti,dp83867-rxctrl-strap-quirk = <1>;
        };
    };
};
```

With that patch I can get 10/10 U-Boot and Linux boots with network working.

Is there anyone with enough Device-Tree experience that can explain to me what I am missing ? Is that expected behavior ? Or just a coincidence ?

Thank you

