

QorIQ LS1024 GMAC3 debug experience share



Background

- Customer used LS1024 for SMB project. This design has two 4 ports RTL Switch by GMAC0 and GMAC1 and RTL Phy by GMAC2(Eth2).
- Customer raised up Eth2 is not workable on LS1024 ASK barebox and Linux kernel.



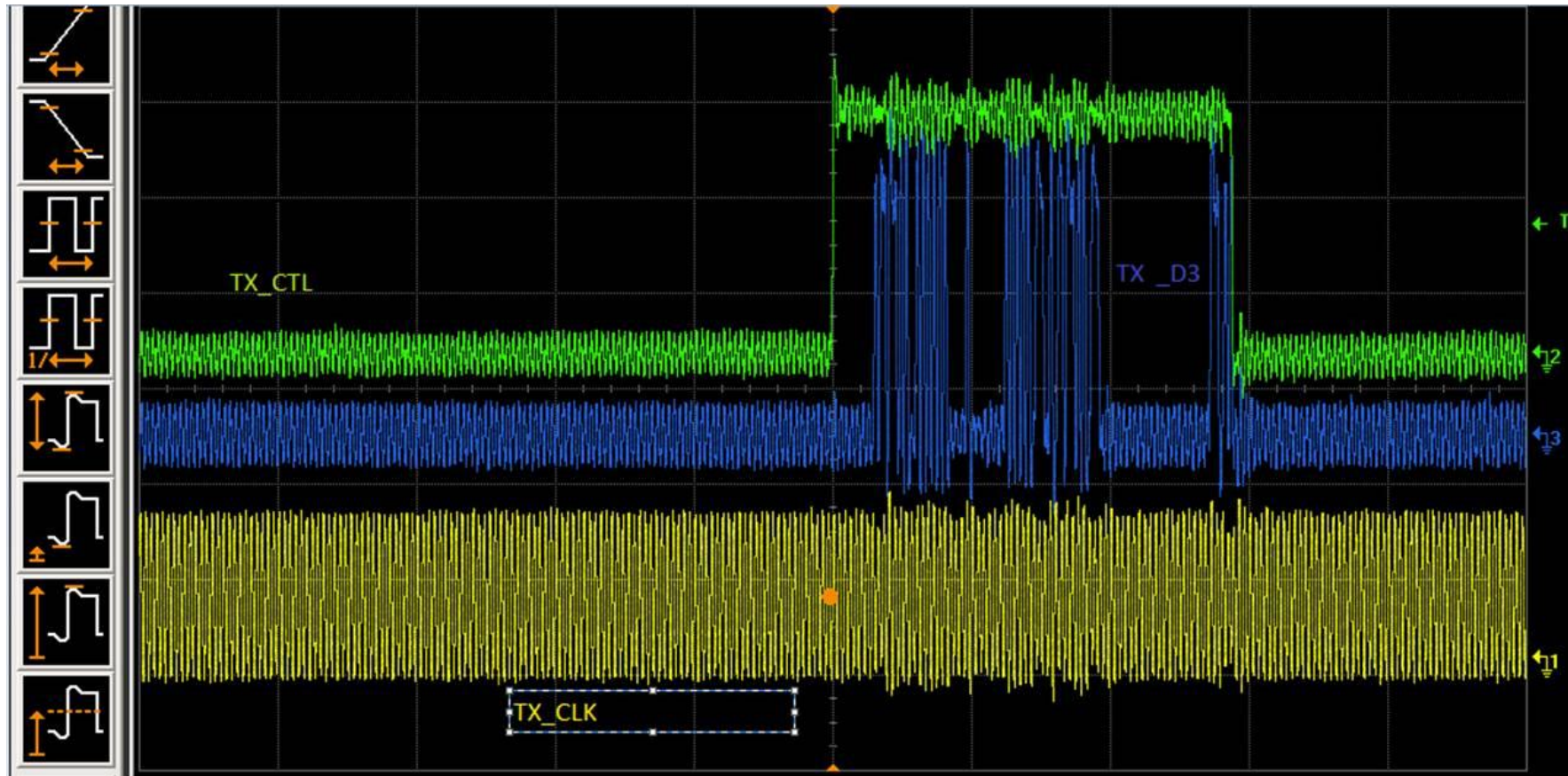
Debug - in barebox

- We did some test on barebox to set Ethernet port as GMAC2 then execute “ping 192.168.1.10” then “gmac_stats eth2” to check “ppfe” status.
- We checked the status and found GMAC2 sent out TX broadcast packet, but no more packet was sent out. And measure RGMII TX signals, found no active on TX bus.
- We also checked LS1024ARDB, got the same behavior.
- We also checked GMAC0 and GMAC1, the TX signals were Active once execute ping command.
- Finally, we make sure GMAC2 is not workable on barebox.



Debug - In kernel (1)

- Moving on Kernel debug, We set eth2 as default Ethernet port and perform “ping” command and measure GEMC2 RGMII TX signals, these signals are active. But Still no response on RX from RTL Phy.



Debug - In kernel (2)

- Using Ethernet packet to check Ethernet cable broadcast packet, there is no packet on cable, it seems RTL Phy isolated them.
- Checked RTL Phy documentation, need to add TX CLK delay by Phy register setting. After TX clock delay adding done, TX cable packet appeared and RX packets were sent out, but LS1024 still received bad packets.
- Checked RTL Phy documentation, need to add RX CLK delay by hardware pin. After modify circuit, this issue is gone.





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