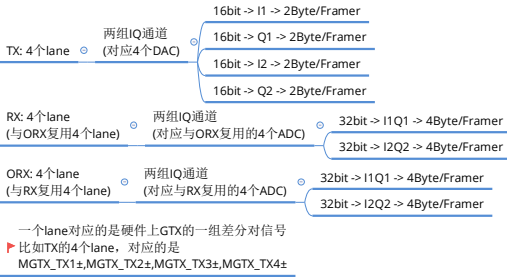


ADRV9009 JESD debug

TX: 4 lane
RX: 4 lane
jesd204b subclass1, 所以使用SYSREF和SYNC信号, 保证deterministic latency

1、4个DAC: I0/Q0, I1/Q1, DAC为14bit, 实际JESD204B传输按照16bit传输
2、4个ADC: I0/Q0, I1/Q1, ADC为16bit, 实际JESD204B传输按照16bit传输
即4个DAC对应两路TX, 每路TX对应I/Q两路, 所以需要两个DAC

xilinx的jesd204b的IP中, Lanes per Link参数配置, 指的是每个IP中最多有几个lane, 比如zynq 7100中最多有8个lane



Calculate the lane rate using Equation 1.

$$\text{Lane Rate} = I/Q \text{ Sample Rate} \times M \times N' \times (10 \div 8) \div L \quad (1)$$

Table 9. Maximum JESD204B Framer Parameters		
JESD204B Parameter	Device Value	Description
M	4	Number of converters (M can be 1, 2, or 4 per Table 10). JESD204B framer parameters dependent on number of lanes, number of ADCs, and number of samples.
L	4	Number of lanes (L can be 1, 2, or 4 per Table 10). JESD204B framer parameters dependent on number of lanes, number of ADCs, and number of samples.
S	4	Number of samples per converter per frame (S can be 1, 2, or 4 per Table 10). JESD204B framer parameters dependent on number of lanes, number of ADCs, and number of samples.
N	16	Converter resolution (N can be 12, 16, or 24).
N'	24	Total number of bits per sample (N' can be 12, 16, or 24).
CF	0	Number of control words/frame clock cycles/converter devices.
CS	0	Number of control bits/conversion samples.
HD	0,1	High density mode (only M1L251, M1L452, and M2L451 uses HD = 1).
K	Variable, suggested: 32	Number of frames in 1 multiframe. (20 ≤ F × K ≤ 256), F × K must be a multiple of 4.

1. 每个lane最多有8个link

The JESD204B specification calls out three device subclasses:
Subclass 0—no support for deterministic latency,
Subclass 1—deterministic latency using SYSREF,
Subclass 2—deterministic latency using SYNC-.
Subclass 0 can simply be compared to a JESD204A link.
Subclass 1 is primarily intended for converters operating at or above 500 MSPS
while Subclass 2 is primarily for converters operating below 500 MSPS.

2. JESD204B三个subclass的区别

3. 可支持的最大lane data rate

Table 1. Comparison Between Serial LVDS and JESD204 Specifications

Function	Serial LVDS	JESD204	JESD204A	JESD204B
Specification Release	2001	2006	2008	2011
Maximum lane Rate	1.0 Gbps	3.125 Gbps	3.125 Gbps	12.5 Gbps
Multiple Lanes	No	No	Yes	Yes
Lane Synchronization	No	No	Yes	Yes
Multidevice Synchronization	No	Yes	Yes	Yes
Deterministic Latency	No	No	No	Yes
Harmonic Clocking	No	No	No	Yes

JESD204的版本对比和LVDS对比