# Virtex-5 GTX 与 Virtex-7 GTH 间通信应用

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摘要： 基于 Xilinx 的高速串口协议进行通信匹配，针对 Virtex-5 GTX 和 Virtex-7 GTH 之间的差异性，需要对预加重、接收均衡值、接收终端电压以及发送差分电压等参数进行调整，才能保证二者之间数据正确收发.利用 IBERT 测得的实际通信参数来设置 GTX/GTH 的收发端，并加入时钟校准模块屏蔽接收端由于时钟相位偏移而引起的差异，从而大大地提高了数据链路传输的稳定性.实验结果表明：Virtex-5 GTX 与 Virtex-7 GTH 间可以实现数据的高速串行通信，串行收发器的数据误码率达到 10-12 以下，单通道速率为 2.5 Gb/s，16 通道的总传输速率达到 40 Gb/s.

关键词： GTX 收发器；GTH；FPGA；高速串行通信

# Communication Applications Between Virtex-5 and Virtex-7 GTH

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Abstract： This paper is based on Xilinx high speed serial protocol to communicate matching. For the differences between Virtex-5 GTX and Virtex-6 GTH should made on pre-emphasis value, reception equalization values, receiving terminal voltage and differential voltage transmission values, so as to adapt to the data communication between GTX and GTH. The actual communication parameters are measured by IBERT GTX/GTH transceiver, and add the clock calibration module to shield the receiver due to differences in clock phase offset, greatly improving the stability of data transmission. Experimental results show that: Virtex-5 GTX and Virtex-6 GTH serial transceivers data error rate of 10-12 or less, the single lane speed reaches 2.5 Gb/s, the total transmission speed of sixteen lanes reaches 40 Gb/s.

Key words： GTX/GTH transceiver; FPGA; high-speed serial communication