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4:1 Half-Rate Multiplexer

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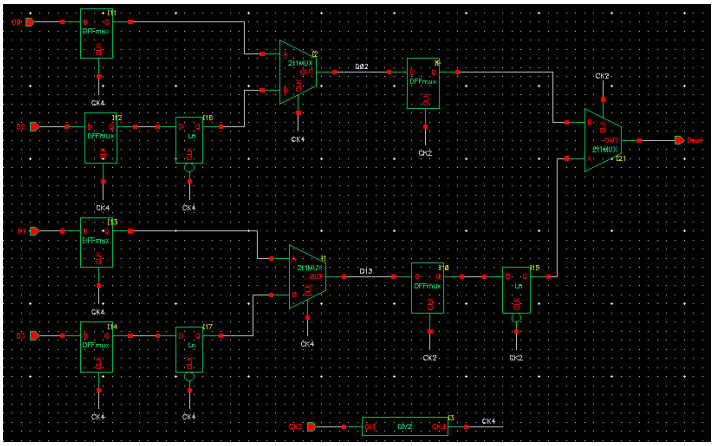
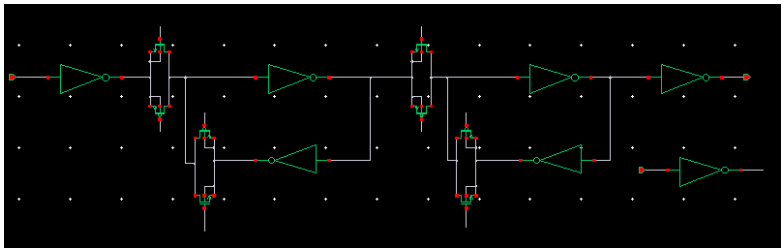
Software tools:
Cadence Virtuoso, 65nm

1.1 Structure

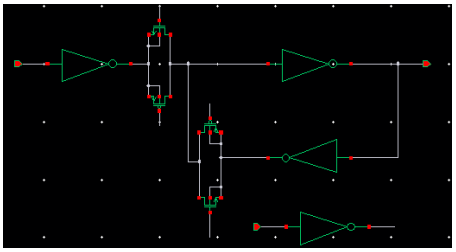
The serializer structure consist of two 2:1 MUX stages. The data rate of the output of each 2:1 MUX stage increases by a factor of two. The phase adjuster composed of two FFs, and a –ve edge latch is located in front of each selector.



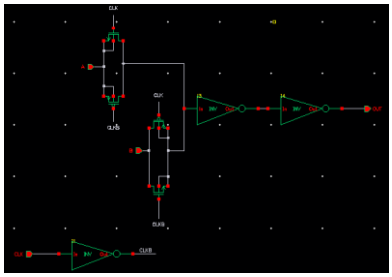
FF:



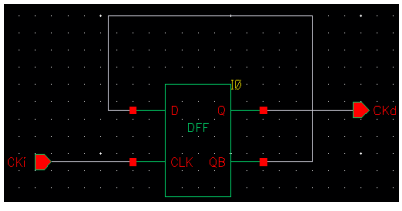
Latch:



2:1 MUX:



Divider by 2:



1.2 Simulation

CK2 is 6GHz, D1-4 will be 3GHz, and the output data rate is 12Gbps.