

1. datapath

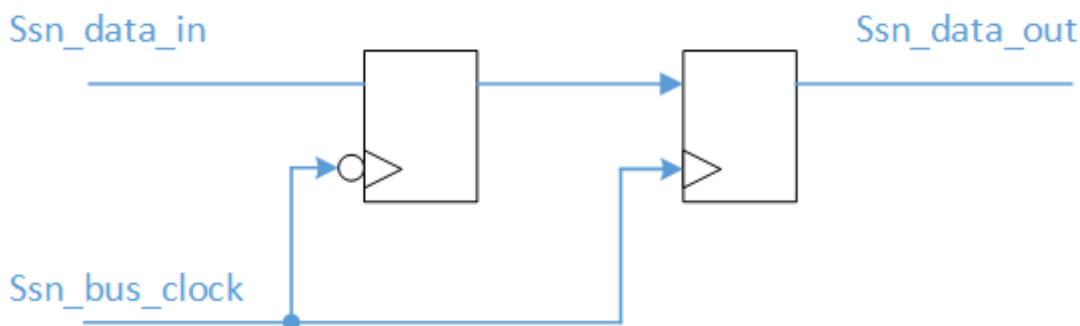
1.1 pipeline

有三种pipeline, 这三种pipe从端口上来看时序是一样的, 最终效果都是用正沿打一拍

Receiver1xPipeline

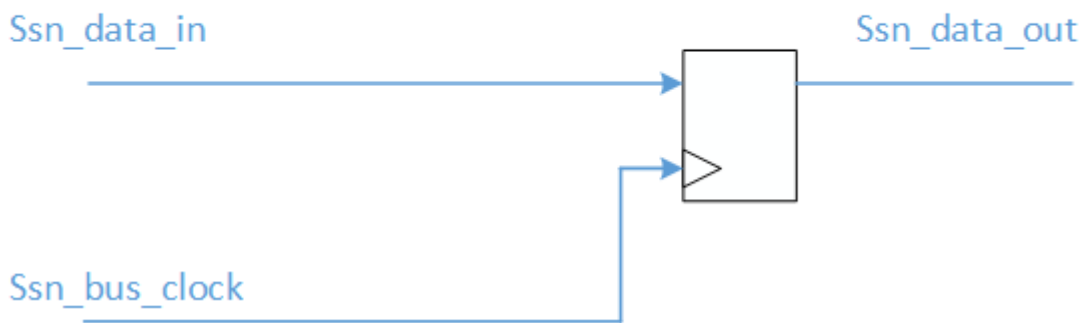
前一级是用正沿打出来的, 这里先用负沿打一下是为了修hold 比如前级reg的clk tree比较短, 后级的clk tree比较长, 这样后级采样的时候hold容易出问题。

Receiver1xPipeline



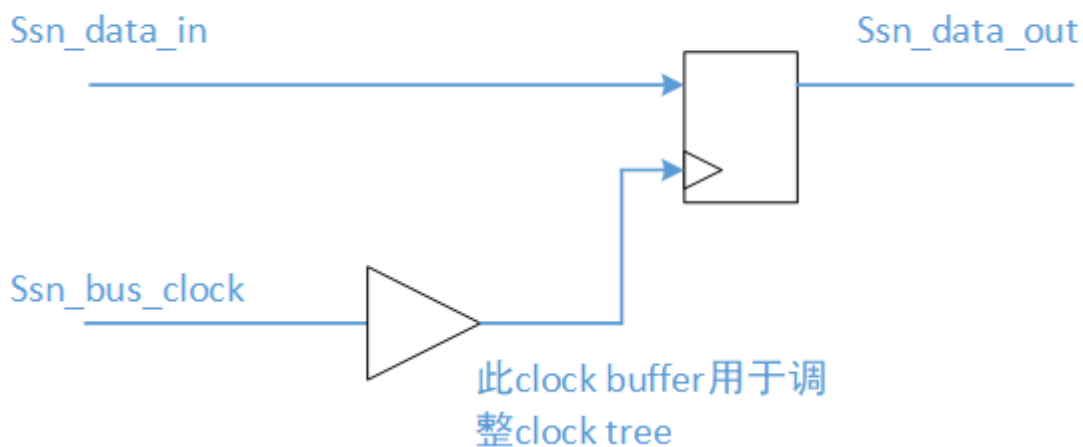
Pipeline

Pipeline



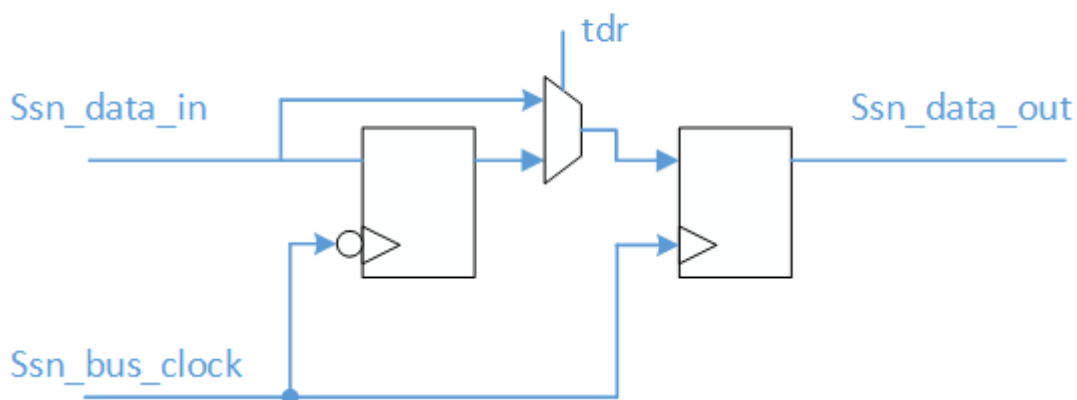
OutputPipeline

OutputPipeline



RxPipeline

ReceiverPipeline 定制



1.2 example 1

```

DataPath(1) {
  output_bus_width      : 2;
  Pipeline(2) {
  }
  ScanHost(1) {
  }
  Pipeline(1) {
  }
}

```

graph LR
 ssn_busin --> pipe1
 pipe1 --> ssh
 ssh --> pipe2
 pipe2 --> ssn_busout

1.3 example

```

DataPath(1) {
  output_bus_width      : 2;
  ScanHost(1) {
  }
  Multiplexer(1) {
    Connections {
      secondary_bus_data_in : ssn_s0_bus_data_in[1:0];
    }
    Pipeline(22) {
    }
  }
  Pipeline(1) {
    ExtraOutputPath {
      Connections {
        bus_clock_out      : ssn_s0_bus_clock_out;
        bus_data_out       : ssn_s0_bus_data_out[1:0];
      }
      Pipeline(11) {
      }
    }
  }
}

```

graph LR
 ssn_busin-->pipe1
 pipe1-->mux1
 pipe1-->pipe11;
 pipe11-->ssn_s0_bus_o;
 ssn_s0_bus_o -.->ssn_s0
 ssn_s0-->pipe22
 pipe22-->mux1
 mux1-->ssh
 ssh-->ssn_busout

1.4 example

```

DataPath(1) {
  output_bus_width      : 2;
  ScanHost(1) {
  }
  Multiplexer(2) {
    Connections {
      secondary_bus_data_in : ssn_s1_bus_data_in[1:0];
    }
  }
  Pipeline(2) {
    ExtraOutputPath {
      Connections {
        bus_clock_out      : ssn_s1_bus_clock_out;
        bus_data_out       : ssn_s1_bus_data_out[1:0];
      }
    }
  }
  Multiplexer(1) {

```

```
        Connections {
            secondary_bus_data_in : ssn_s0_bus_data_in[1:0];
        }
    }
    Pipeline(1) {
        ExtraOutputPath {
            Connections {
                bus_clock_out      : ssn_s0_bus_clock_out;
                bus_data_out       : ssn_s0_bus_data_out[1:0];
            }
        }
    }
}
}
```

```
graph LR
    ssn_busin-->pipe1
    pipe1-->mux1
    pipe1-->ssn_s0_bus_o
    ssn_s0_bus_o -.->ssn_s0
    ssn_s0 -.->mux1
    mux1-->pipe2
    pipe2-->mux2
    pipe2-->ssn_s1_bus_o
    ssn_s1_bus_o -.->ssn_s1
    ssn_s1 -.->mux2
    mux2-->ssh
    ssh-->ssn_busout
```