



```
output: process (present_state, rx_d, clk, bit_addr, bit_sub)
begin
  case present_state is
    when idle =>
      bit_sub <= "111";
      bit_addr <= "000";
      data_out <= "00000000";
      when ph1 =>
        if dord = '1' then
          data_out(to_integer(bit_addr)) <= rx_d;
        elsif dord = '0' then
          data_out(to_integer(bit_sub)) <= rx_d;
        end if;
      when ph2 =>
        if rising_edge(clk) then
          if dord = '0' then
            bit_sub <= bit_sub - 1;
          elsif dord = '1' then
            bit_addr <= bit_addr + 1;
          end if;
        end if;
      end case;
    end process;
```

