CDCE62005 Smart MUX

Smart MUX functionality

- It works only if the input signals either differs less than 20% or only one input is toggling while the other(s) is static.

  If either of the above condition are not satisfied, we can't guarantee the behavior at Smart MUX output.

- Two configurations are possible:
  - Smart MUX between PRI_REF and SEC_REF
  - Smart MUX between PRI_REF, SEC_REF and then AUX_IN

Smart MUX structure

In the GUI only ***one*** SmartMUX is depicted but actually there are ***two*** of them on chip.

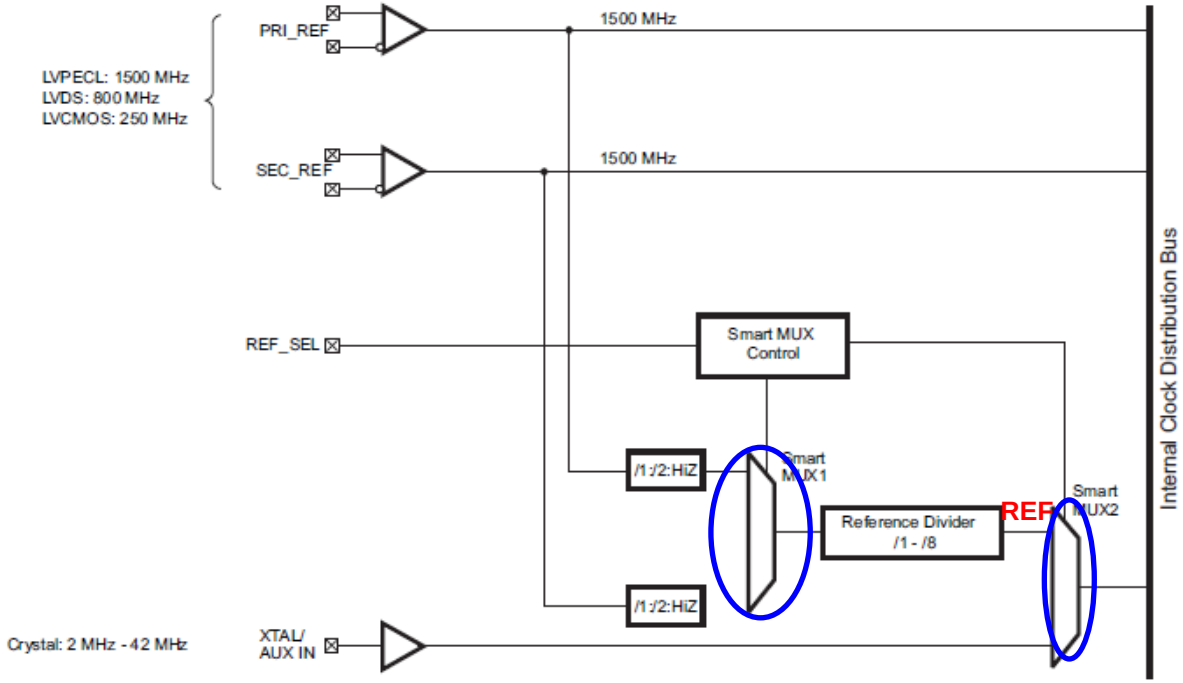

Figure 5. CDCE62005 Input Block

Smart MUX1 selects between the PRI_REF and the SEC_REF
Smart MUX2 selects between the signal at the output of the Smart MUX1 (REF) and the AUX_IN
Both SmartMUXs work as described in the previous slide

Smart MUX behavior

What happens when you touch the AUX_IN with a probe?

- The Capacitive Load of the Crystal oscillator stage changes ➔ the frequency can easily be off more than 20%
- The signals at the SmartMUX2 input differ more than 20%, therefore violating the SmartMUX recommend condition
- The signal at the SmartMUX2 output can be corrupted, therefore the PLL Lock condition gets lost.

Solution

- Consider to use the SmartMUX option only between PRI_REF and SEC_REF (without checking the AUX_IN)
- Consider to use the Manual Reference selection option
- Check the output of the SmartMUX2 on one of the UxP/N pair