

NUC970 serial External pull down issue

02/22/2017

Nuvoton Technology Corp.

External Weak Pull Down Resistor / Device requirement

- The NUC970 I/O supports 5V input tolerance function, have special design at the input circuit,
 - Has one NMOS to decrease input signal voltage when the signal is 5V. In order to avoid leakage of input buffer, a feedback PMOS is also added which is as follows schematic.
 - Because of the PMOS is weak feedback, if external pull down resistance is larger than the feedback PMOS resistance, there is leakage from PMOS to external pull down resistance.
- For all of the corner and find the safe external pull down resistance is less than 160Kohm and this
 value is need to been consider when application. If there's external week pull down resistor/device
 is tied to the NUC970 digital I/O pin in system board or bus, that it should be less than 160Kohm to
 get correct low input level.
- Such as the application CKT of GPIO PH0 for USB0_VBUS detection, the R60 < 160Kohm is necessary.





