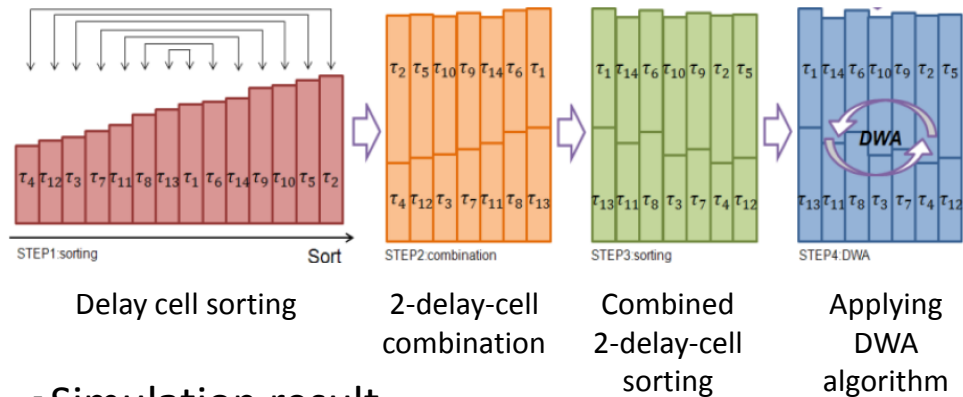
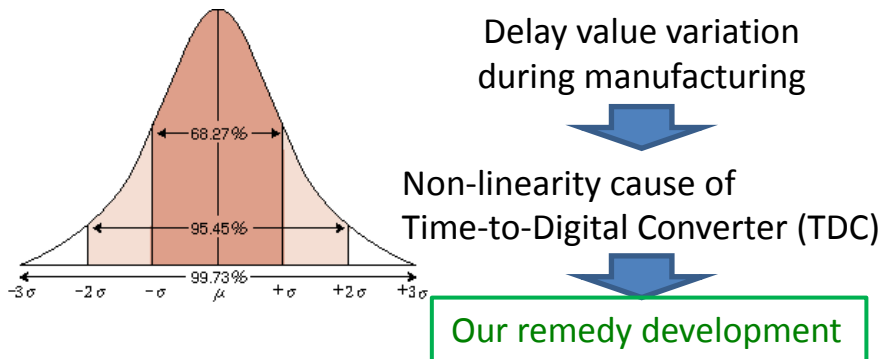


Multi-bit Delta-Sigma TDC for Timing Measurement

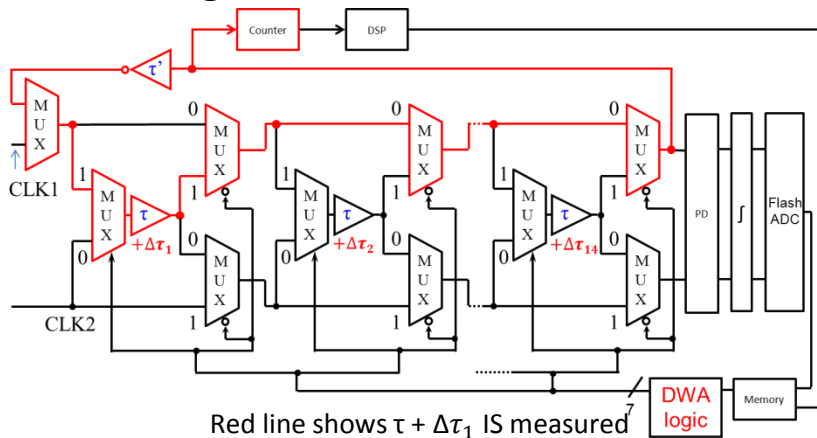
Yuta Arakawa, Yusuke Oosawa, Haruo Kobayashi, Osamu Kobayashi
Electronic Engineering Department, Gunma University

▪ Research Goal: Accurate timing measurement

▪ Our procedure of linearity improvement

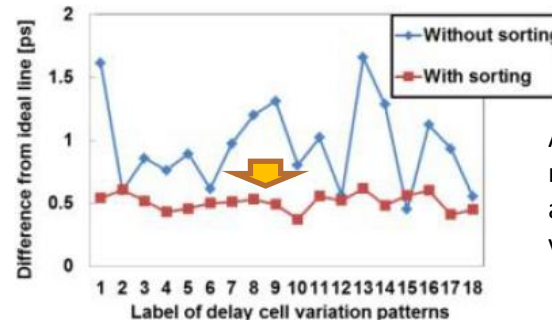


▪ Our timing measurement circuit



▪ Simulation result

Almost cases, sorting algorithm improves linearity of $\Delta\tau$ TDC



Averaged (rms) integral nonlinearity w/o sorting algorithm in 18 cases of delay cell variations.