New structure of digital pixel evaluation

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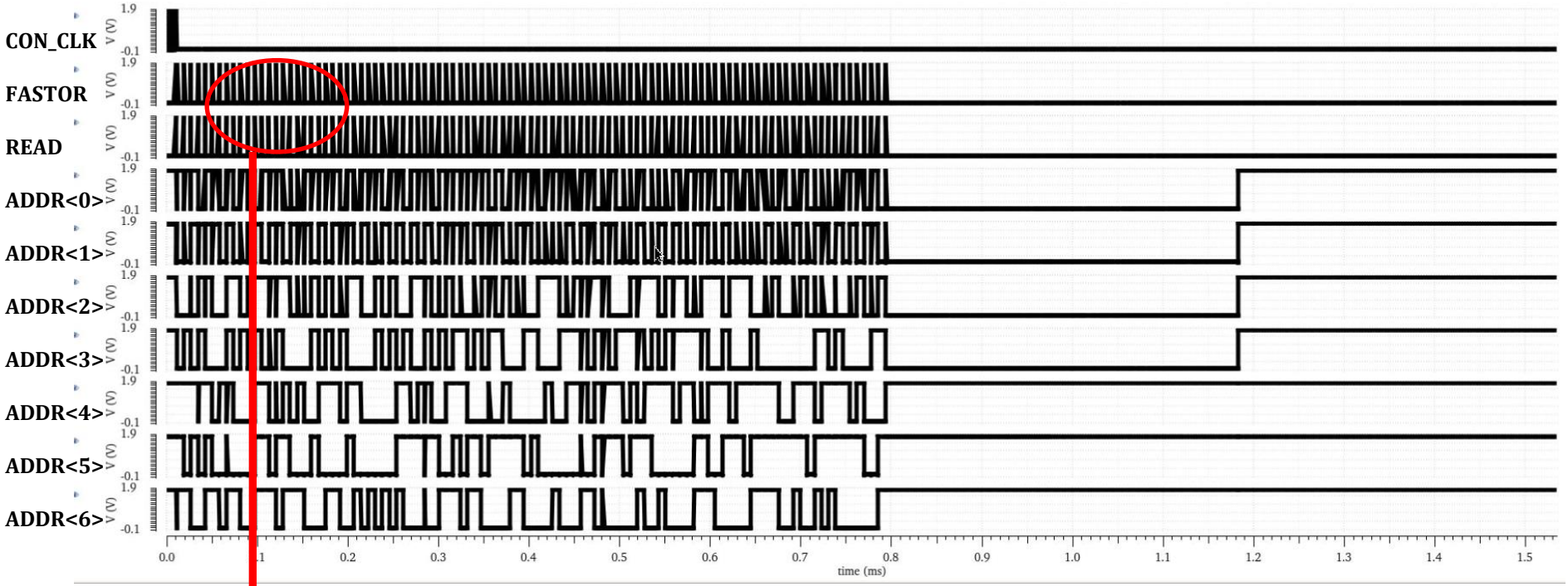
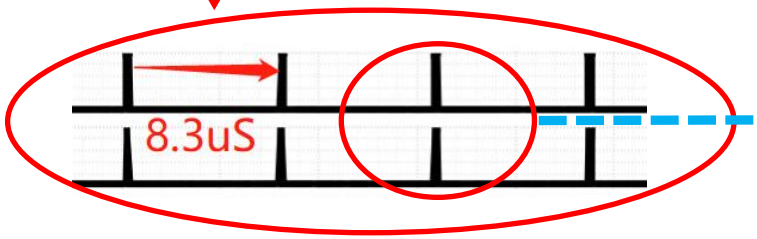
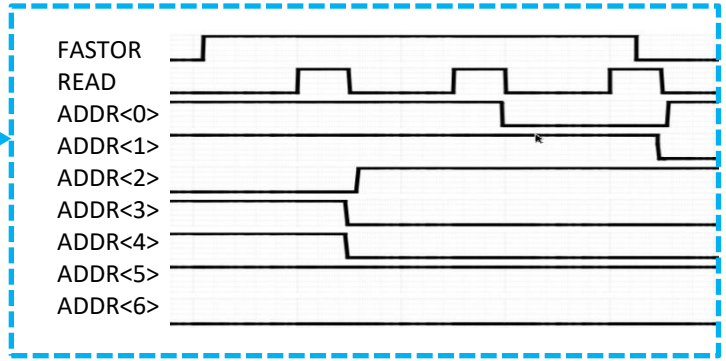
Simulation of power density

Simulation condition: The waveform shows the result of FEI-I3. Every 8.3us generates 3 random hits.







Simulation of power density(Martrix:512x1024)

Average Power	FE-I3 upgrade	ALPIDE upgrade
Initialization phase	301.98uA	193.21uA
Readout phase	351.577uA	395.74uA
Static phase	160uA	62.24uA
Average current (every 8.3us)	263.84uA	103.06uA
Power density during readout phase	99.02mW/cm2	111.3mW/cm2
Power density average	74.205mW/cm2	28.9mW/cm2

Calculation of Power density:
Power density(FE-I3)= 263.84uA*1.8V / (512x25umx50um) =74.205mW/cm2

Thanks for your attention.