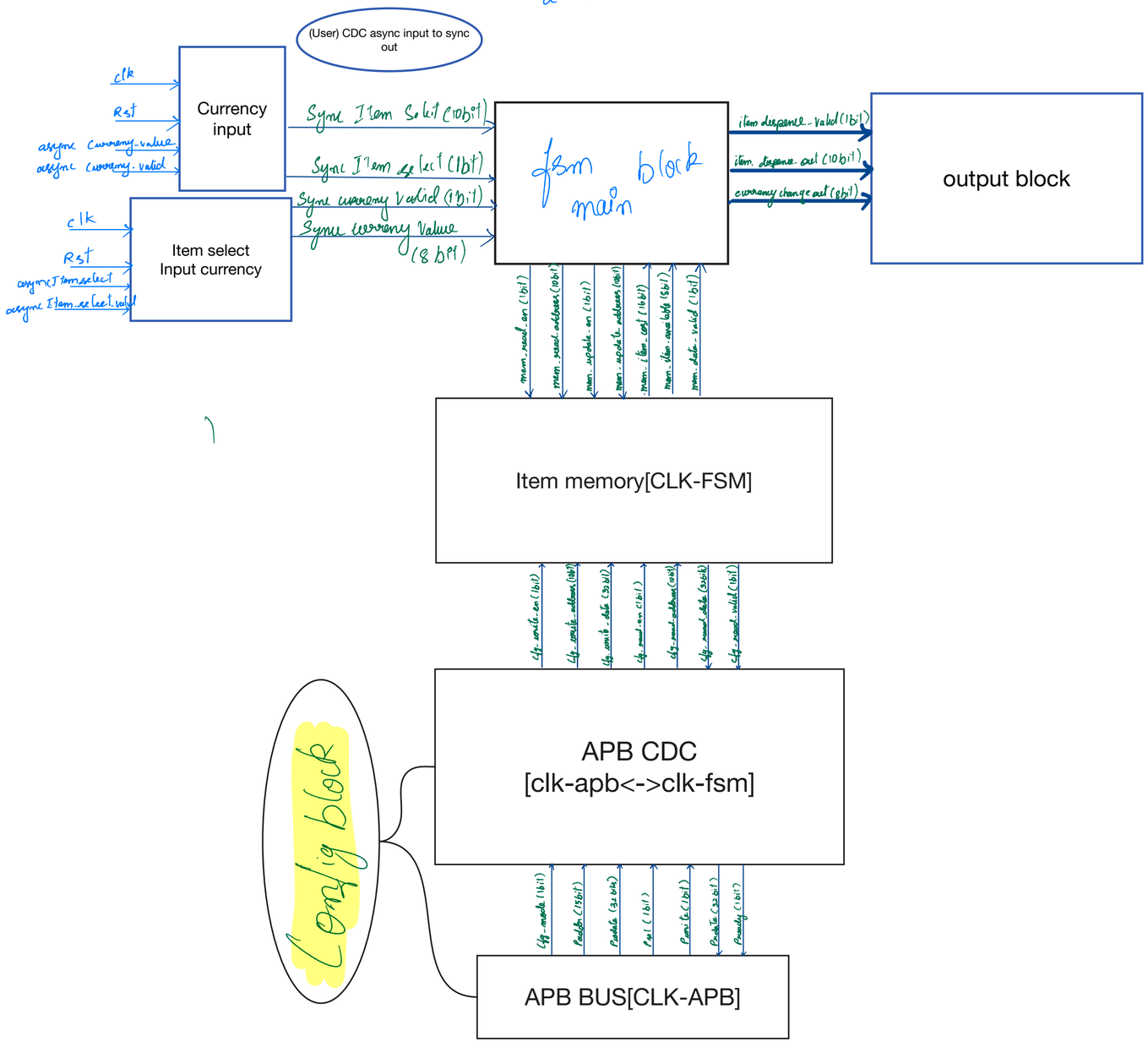
item availability → 8 bits ⇒ memory width (31 bit) allocated [23:16]

$2^8 - 1 = 255$ for each item

item_cost → 16 bits ⇒ memory [15:0]

$2^{16} - 1 = 65,535$




## States

Idle State → waits for valid Item select

Wait for money → ↳ check Item cost in CFG
↳ accumulate money >= item

Dispense Item → ↳ Send Item_dispense valid signal
↳ Send update req to CFG block.

Return_change → ↳ Returns excess currency.
↳ Back to IDLE State

## Error handling

↳ If Item not available go to return_change and return all
↳ latency of 10 clocks [challenge]