

*Conv*

Configuration mode

$W \leftarrow AXI\ stream$

BRAM

$W, h_{\mu}, h_{\mu}^{new}, S_t, S^{new}$

Computation mode

(a) Receive IP vector

(b) Spike firing

(c) Receive spike kernel

(d) Update dynamics

Dot-product

$$\sum_{j=0}^{N-1} h_{\mu}(j) W(s_t | j)$$

Neuron update

(e) Dispatch new IP vector

(f) Dispatch output spike matrix

AXI lite

AXI stream

AXI stream