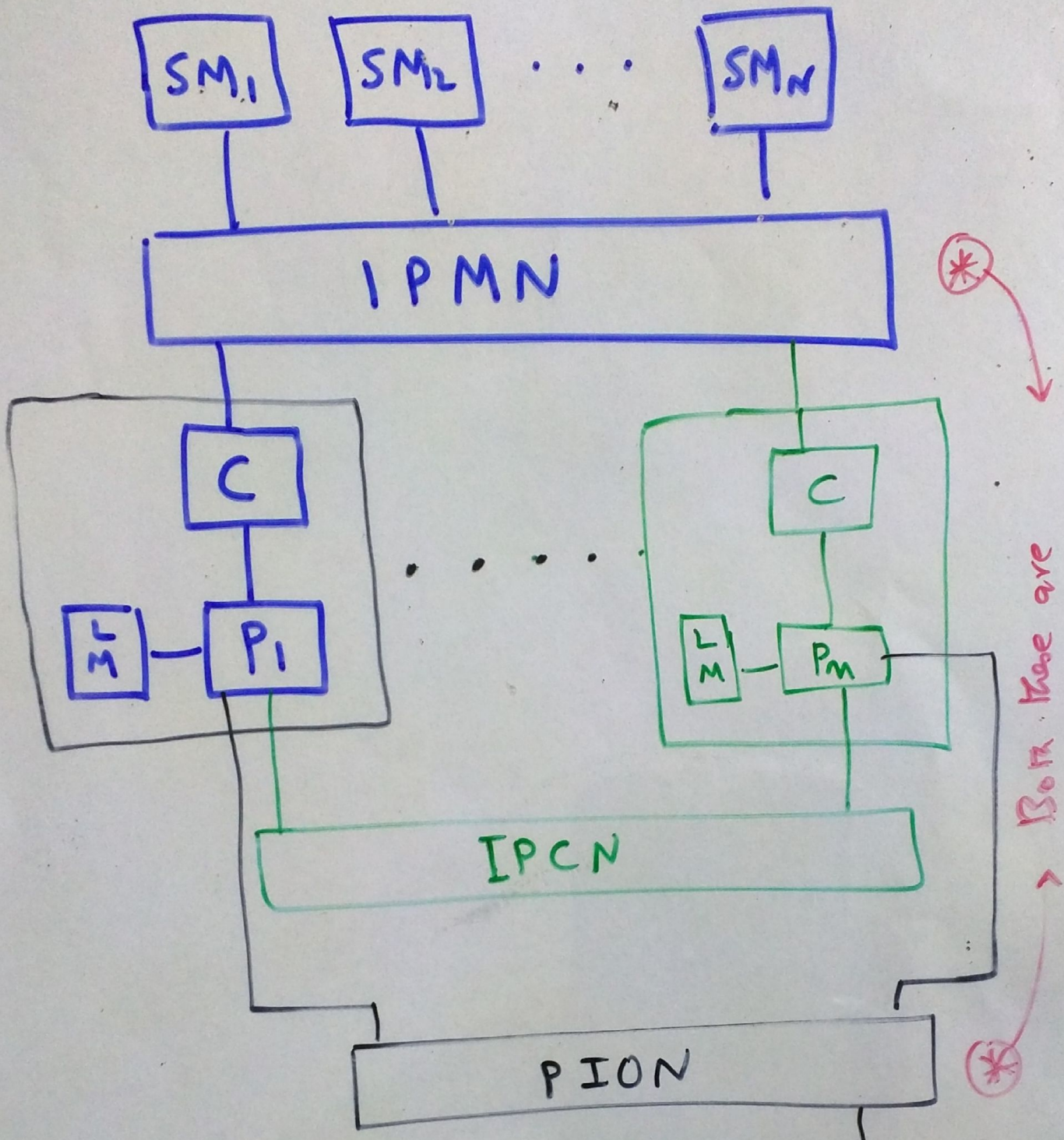
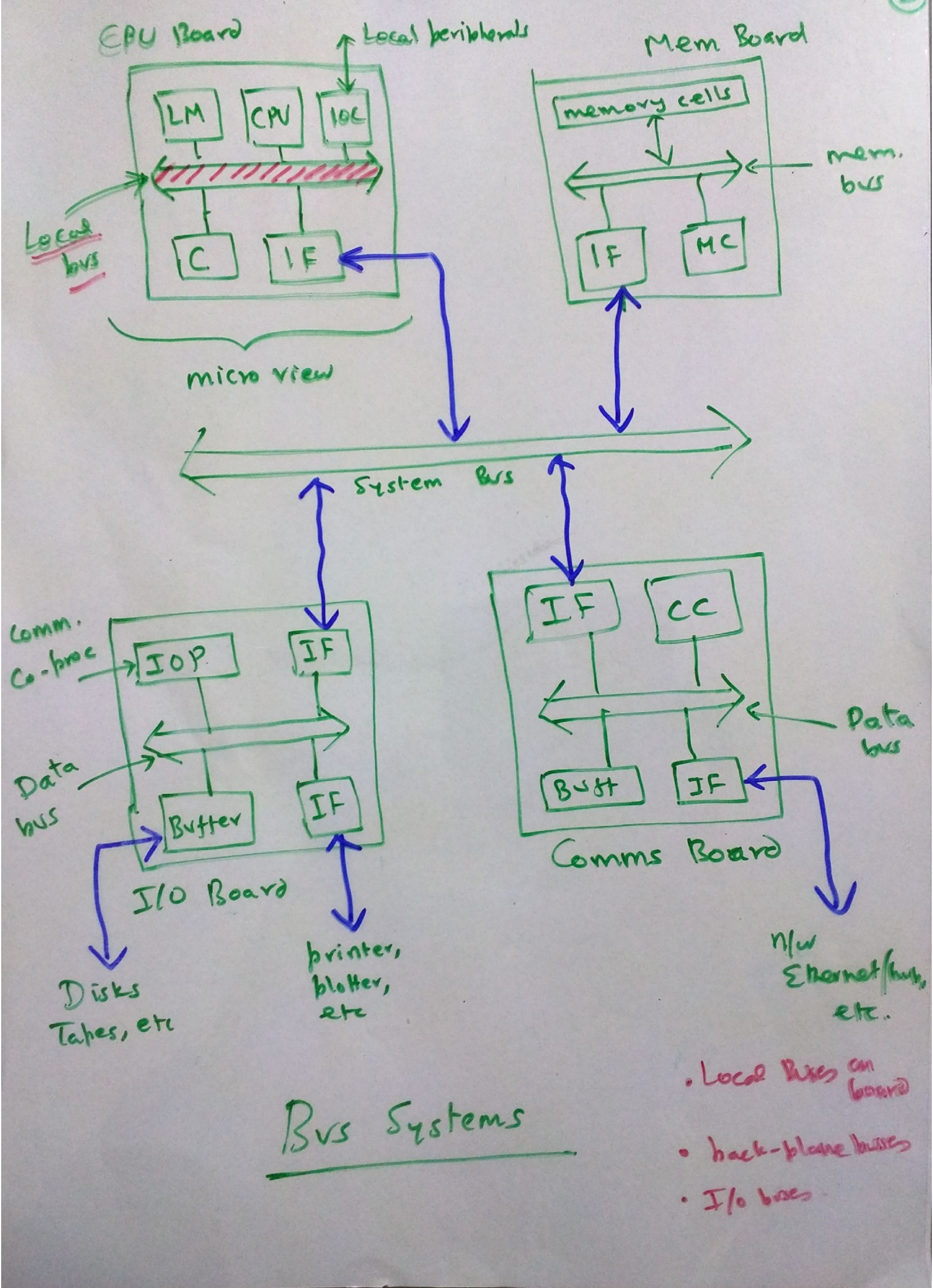


Generalized MP System

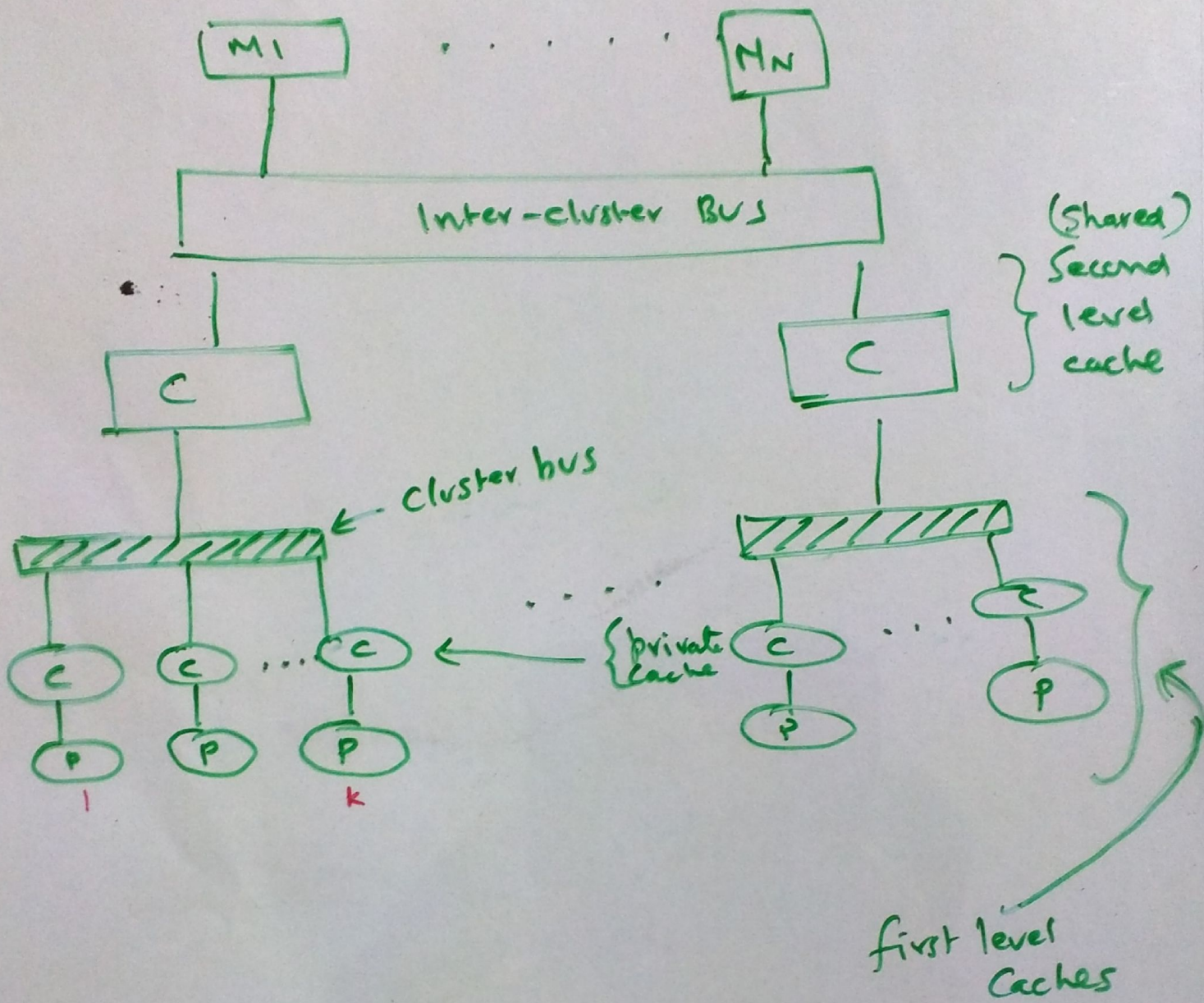
- Combines features from UMA, NUMA & COMA (chapter 1)
- Direct IP comms via optional IPCN instead of a SM.



Bus Systems

- Local Buses on board
- back-plane buses
- I/O buses

WILSON's HIERARCHICAL MODEL

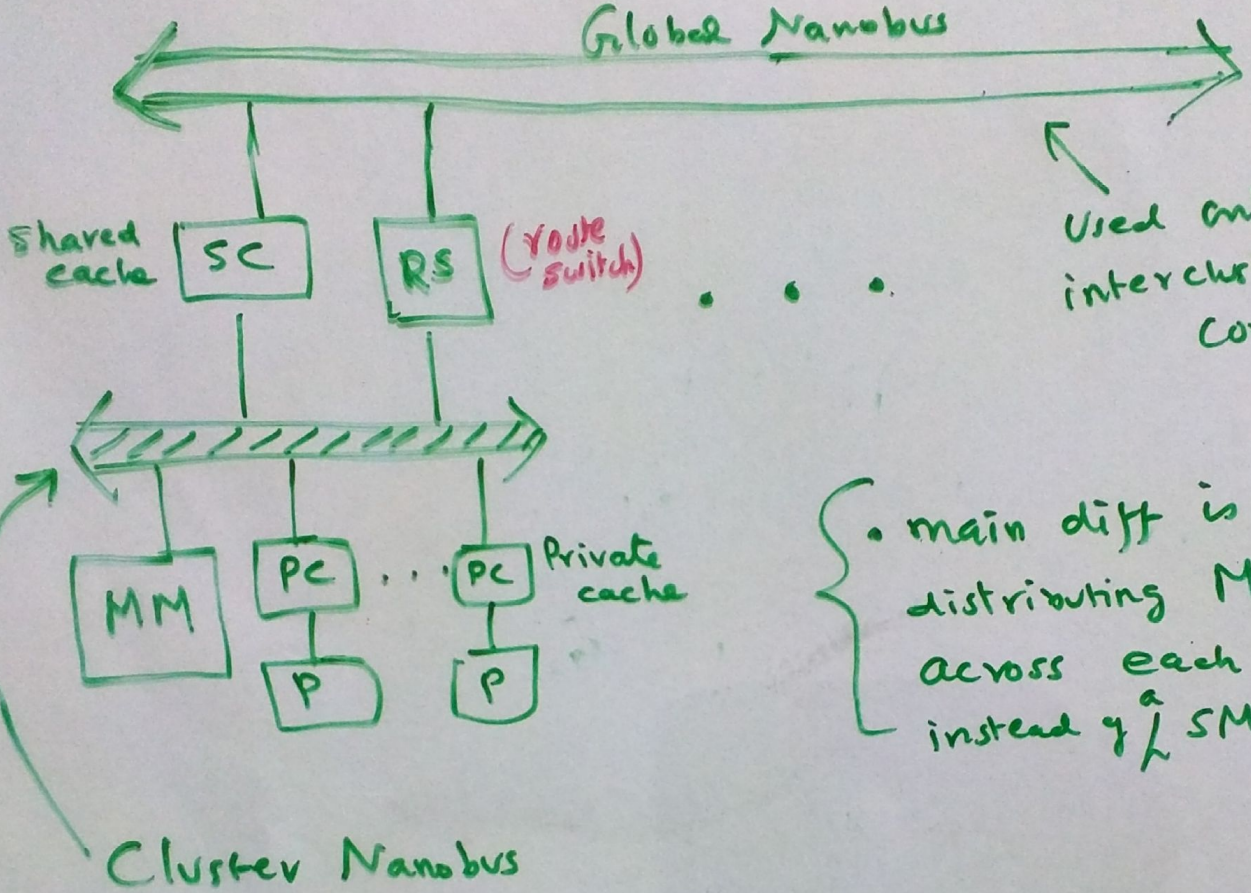


- Capacity of each 2nd level cache $\geq$ Sum of all the Capacities of 1st level caches beneath it.

for every i : $C_{2,i}$

$\sum_{\forall j} C_{1,j}$

Encore's Ultramax MP architecture

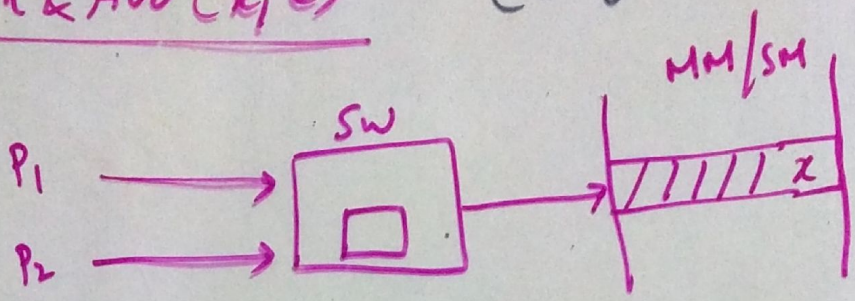


- main diff is in distributing M_i's across each cluster, instead of SM.

- Bridges are used to interface clusters
  - → protocol conversion
  - → interrupt handling in split transactions

Fetch & Add (x, e)

(fig 7.11 ; page: 346)

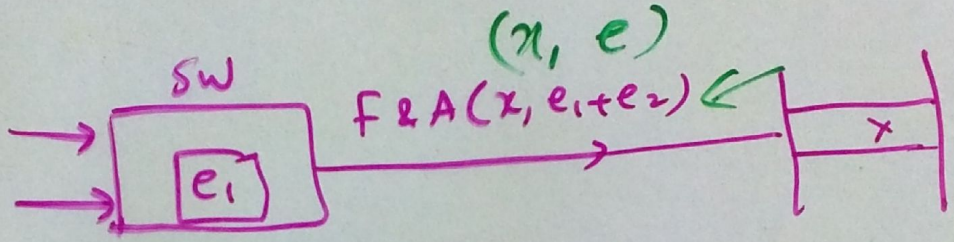


① P_1: F&A(x, e_1)

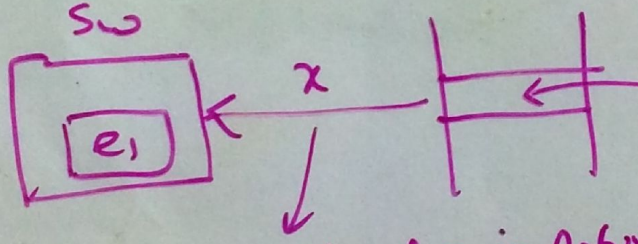
↓ P_2: F&A(x, e_2)

Result: $x \rightarrow P_1$

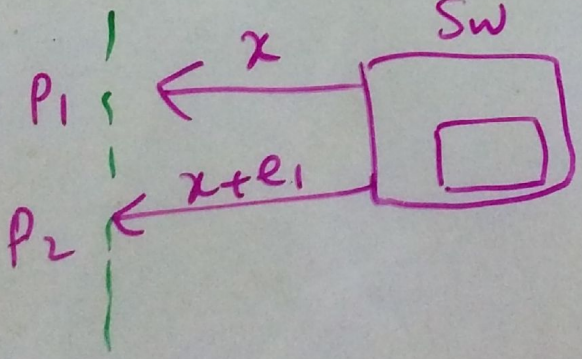
$x + e_1 \rightarrow P_2$



② Switch forms the sum $(e_1 + e_2)$, stores e_1 & forwards the combined req to MM.



③ original value is returned to the switch



④

Suppose

$P_2 \rightarrow P_1$

$Ans_2 \leftarrow x$

$Ans_1 \leftarrow x + e_2$

Regardless of the executing order, we have $(x + e_1 + e_2)$ is stored at that loc. in MM.