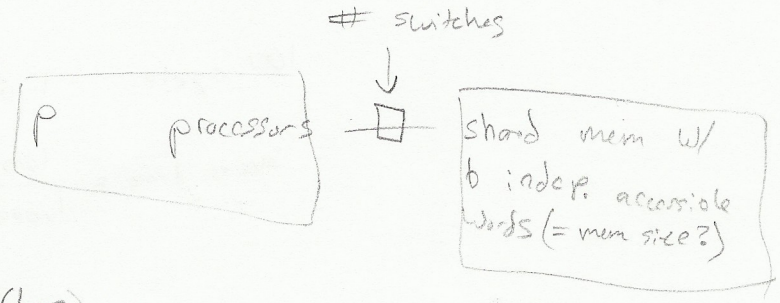
2.8)



$\Theta(bp)$ switches. cost prohibitive for a reasonable memory size. p. 32

UMA shared-mem is physical org. that can enable logical org. of shared addr space (as can distributed-mem). p. 29-30.

1MB w/ 1 cpu $= 8 \cdot 1024 = 8{,}192$ sw

1GB w/ 1 cpu $= 8 \cdot 1024^2 = 8.3 \times 10^6$ sw

2.11) $f(p) = \left[\left(\quad \right) \times p \right]^T$

blocking = 2 comms $\overset{\text{paths.}}{\nearrow}$ will access the same link

1) $p!$ $p=8 \rightarrow 40{,}320$

assuming perfect shuffle and $\log p$ switches.

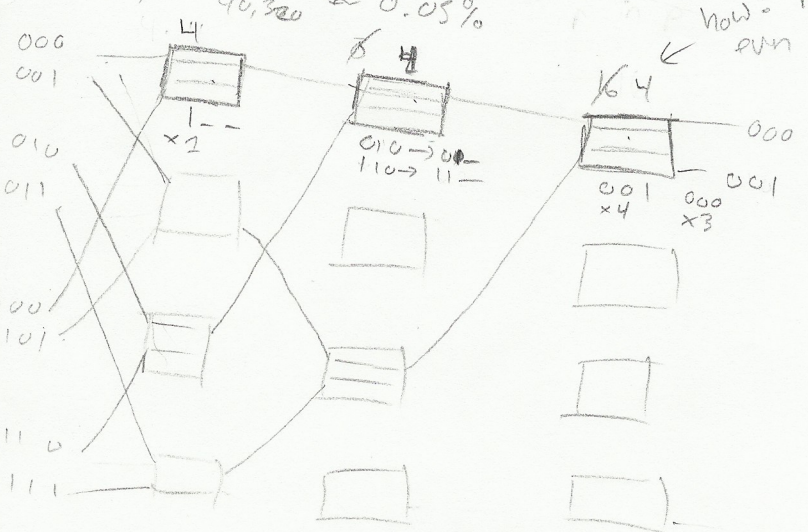
2) $p \sum_{i=1}^{\log_2 p} \left(2^{(\log_2 p)-1}\right)^i$ $p=8$ $8 \cdot (4+8+16) = 224$

$010 \rightarrow 111$

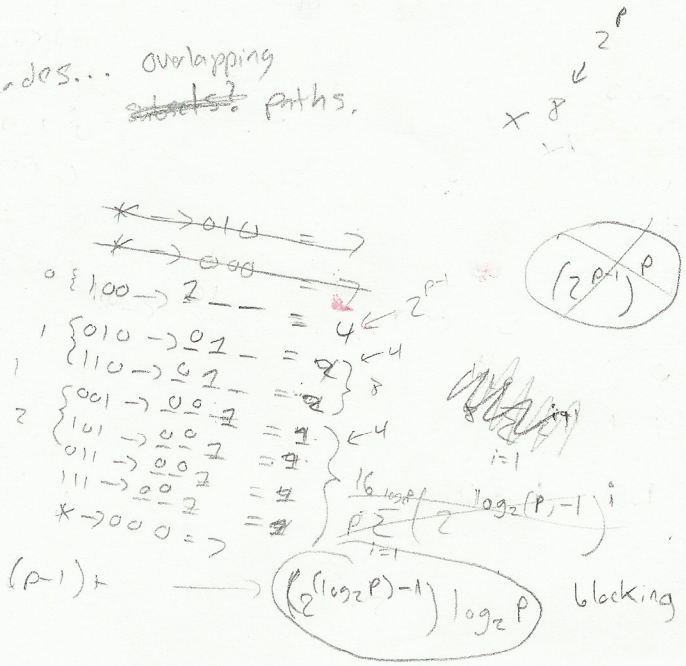
$110 \rightarrow 100$

$p! - (2^{\log_2 p}) 2^{p-1}$ $p=8 \rightarrow 4 \cdot 3 = 12$

3) $\frac{224}{40{,}320} \approx 0.05\%$



how? not enough nodes... overlapping ~~select~~ paths.



2^{p-1}

$(2^{p-1})p$

$\sum_{i=1}^{\log_2 p} \left(2^{(\log_2 p)-1}\right)^i$

$\left(2^{(\log_2 p)-1}\right) \log_2 p$ blocking