HW4

1. Ans
2. Since each node has a dedicated channel to every other node,

As

As

1. Ans

For a big n stages, N=2^n nodes

The geometric calculation denotes that

for that in fig4.3, avg = 10(n-1),

i.e. it is shorter

1. Ans

Tr = 20ns

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| k | n | w |  |  |  |  |
| 2 | 12 | 2 | 8 | 5 | 2 | 376 |
| 4 | 6 | 4 | 8 | 10 | 4 | 248 |
| 8 | 4 | 8 | 8 | 16 | 8 | 224 |
| 16 | 3 | 16 | 8 | 21 | 16 | 273 |
| 64 | 2 | 32 | 4 | 32 | 32 | 656 |
| 4096 | 1 | 64 | 0.125 | 64 | 64 | 20488 |

The minimal latency occurs when n=4. However, the latency of 224 ns when n=3 is close enough that it would probably be chosen to gain the packaging and wire length advantages of a lower dimension.