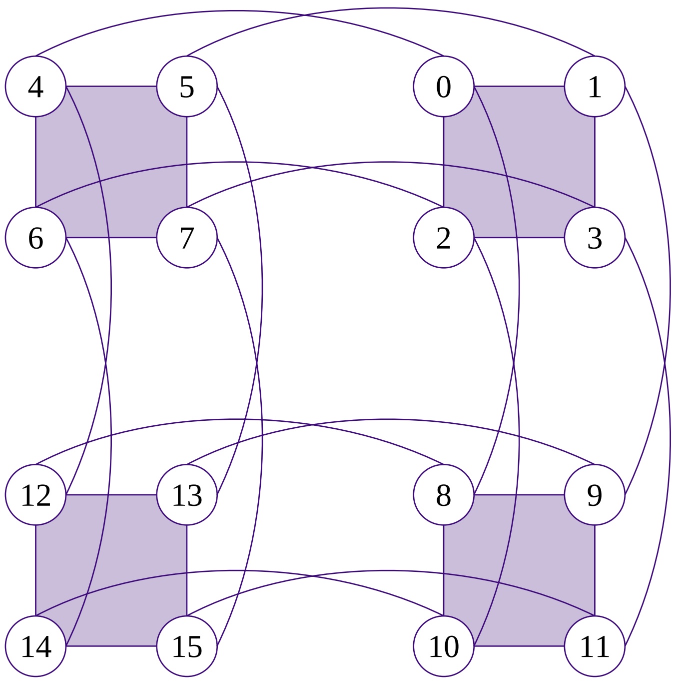
7.16 We give only one of the assignment alternatives. The other alternatives are left to the readers.

a) The exclusion graph for the 16-point FFT can be constructed as the same way in 7.11.1 for the memory assignment 2.



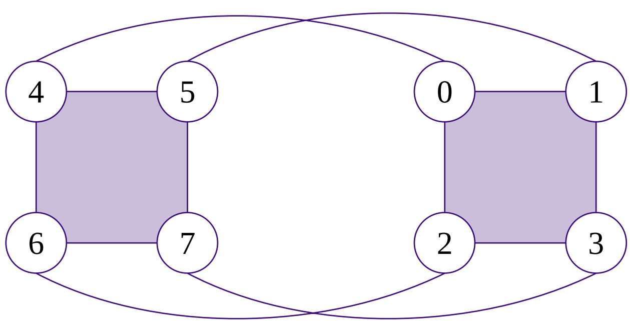
The four RAMs assignment can be expressed in terms of the binary representation of index $i = i_3 i_2 i_1 i_0$. A variable of index i is assigned to $\mathrm{RAM}_{P(i)}$ where

$$P(i) = p_1 p_0$$
$$p_0(i) = i_0$$
$$p_1(i) = i_2 \oplus i_1$$

Data index	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Data $x(i)$	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	RAM 0	RAM 1	RAM 2	RAM 3	RAM 2	RAM 3	RAM 0	RAM 1	RAM 2	RAM 3	RAM 0	RAM 1	RAM 0	RAM 1	RAM 2	RAM 3

A memory assignment for a 16-point FFT.

b) Using the PE assignment 2 in 7.11.2, we have the following exclusion graph.



A possible assignment, where butterflies in rows p, $p + N/8$, $p + N/4$ and $p + 3N/8$ are executed parallel, is given here. A butterfly operation in row *r* is assigned to the $\mathrm{PE}_{P(r)}$ where

$$P(i) = p_1 p_0$$
$$p_0(i) = r_1$$
$$p_1(i) = r_2$$