Components of friendly polyominoids

The set of free polyominoids of any size may be divided into distinct components of friendly polyominoids. Each component may be classified as follows:

S	Snakes. This is a component of parallel polyominoids that have at least one pair of friends with distinct topologies.
SASP	Stuck and almost stuck parallel. This is a component of parallel polyominoids that have very little possibility of transformation. They are either stuck (no possibility of transformation), or limitedly transformable with no possibility of a change in topology.
SASNP	Stuck and almost stuck non-parallel. As SASP for non-parallel polyominoids.
F	Free. As S for non-parallel polyominoids.

The term parallel is used to describe polyominoids that have all hinges (edges that connect 2 squares) parallel to each other. Examples of these can be seen below, in Component 1 of size 4. Each of these polyominoids adheres to 2 conditions: (i) its faces are parallel to at most 2 planes, and (ii) it has a "width" of 1.

A table is given for each size from 4 to 9, with accompanying illustrations (of maximum 8 examples for each component).

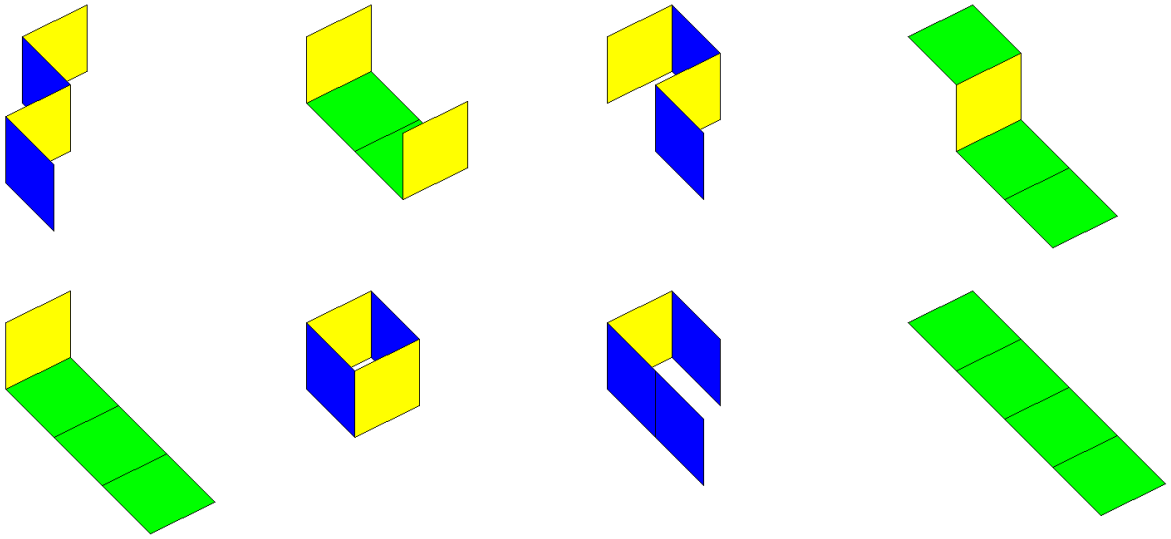
Note that, obviously, the total of elements for each size corresponds to a term in the OEIS sequence A075679 (Free polyominoids).

For sizes 10 to 12, the table is limited to parallel polyominoids. In this case, the total number of elements corresponds to OEIS sequence A019988.

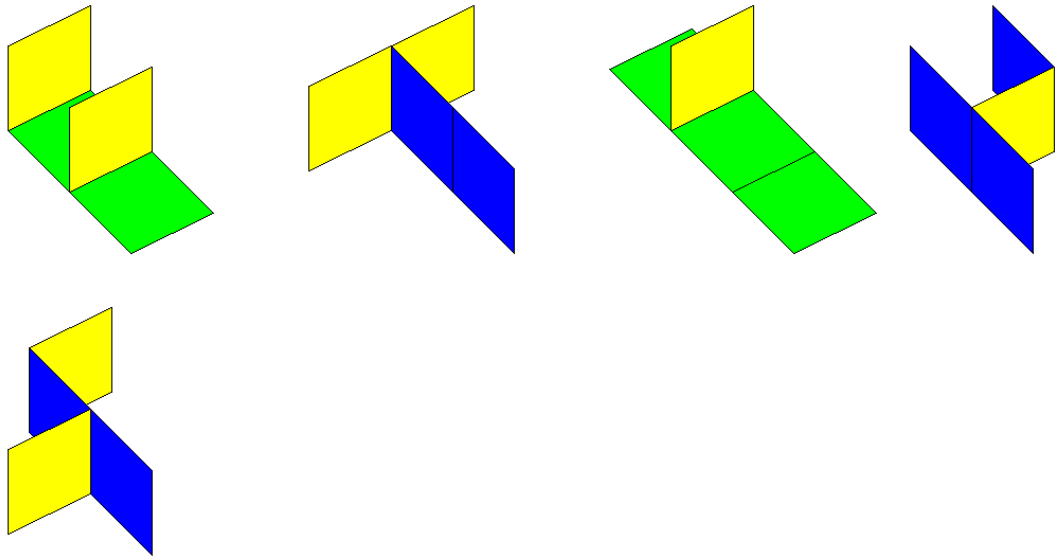
Size 4:

Component	#Elements	Type
1	10	S
2	5	SASP
3	10	SASNP
4	28	SASNP
5	1	SASP
Total	**54**	

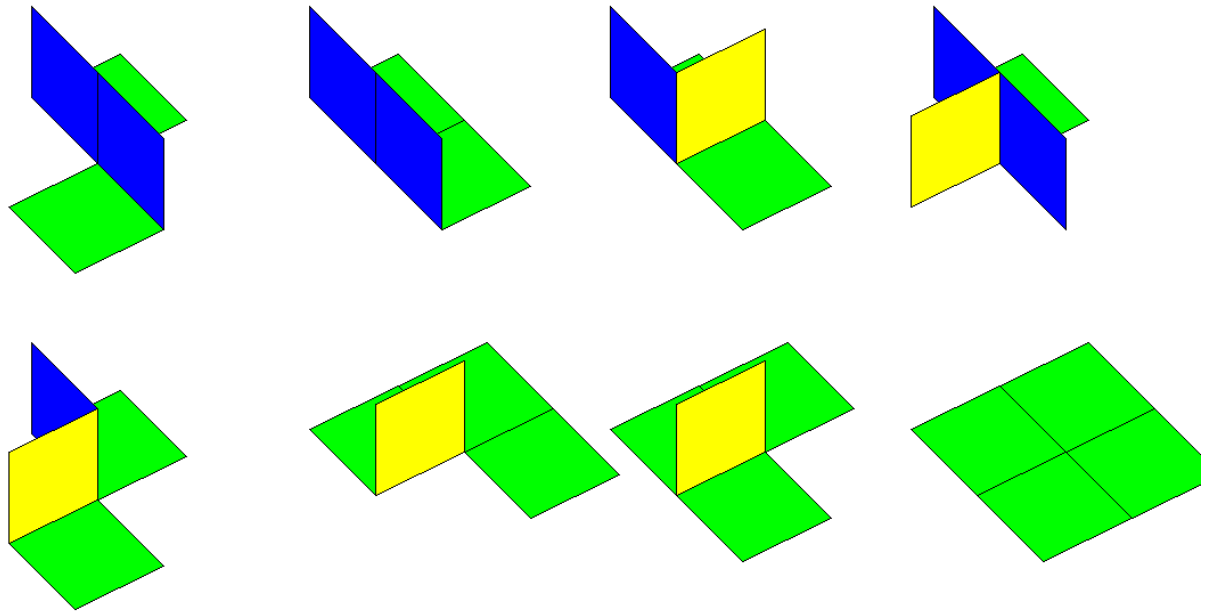
Component 1 (subset)



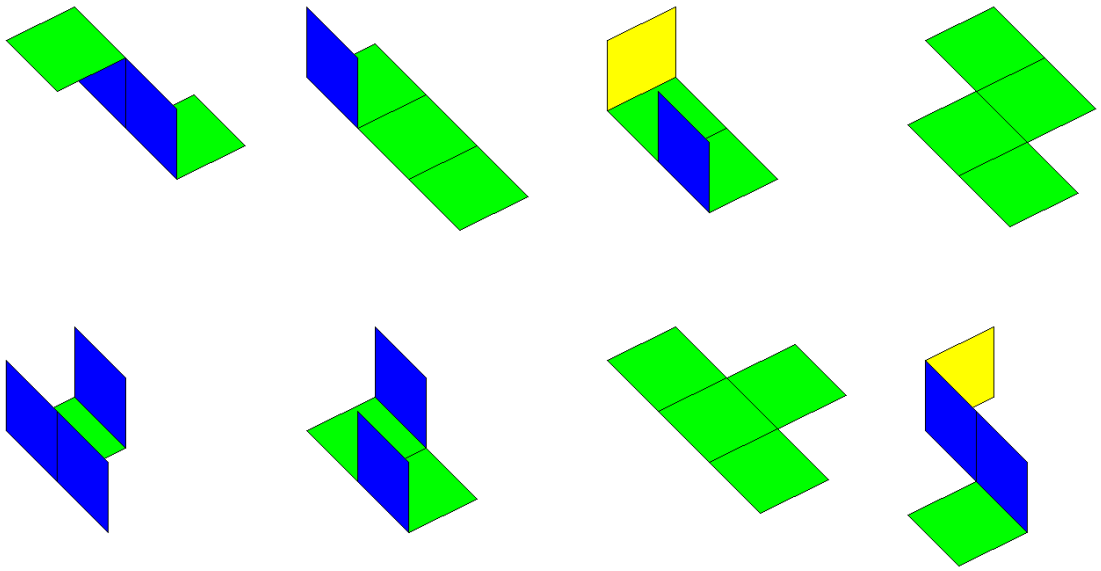
Component 2



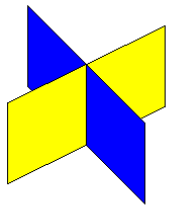
Component 3 (subset)



Component 4 (subset)



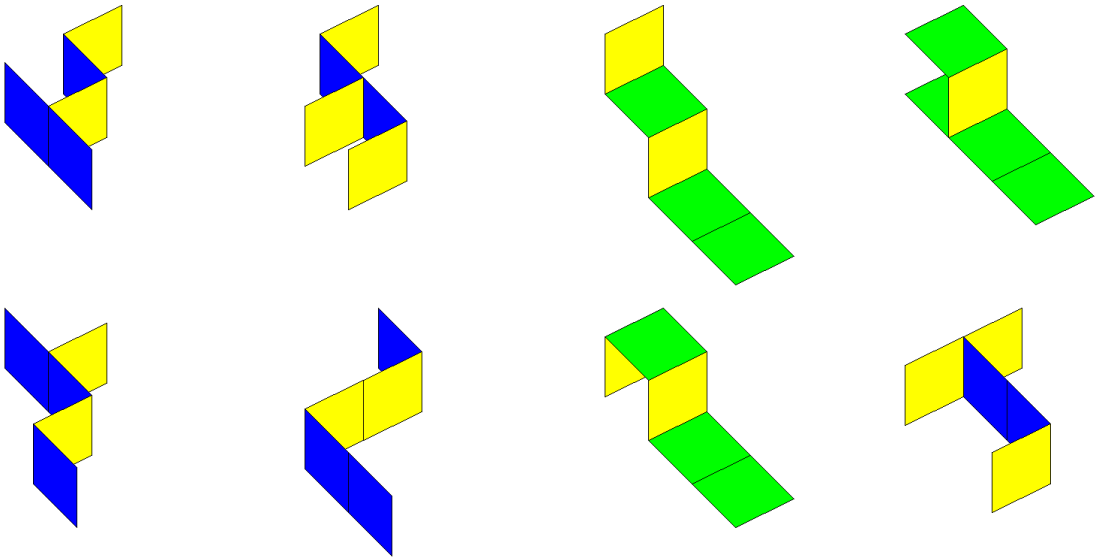
Component 5



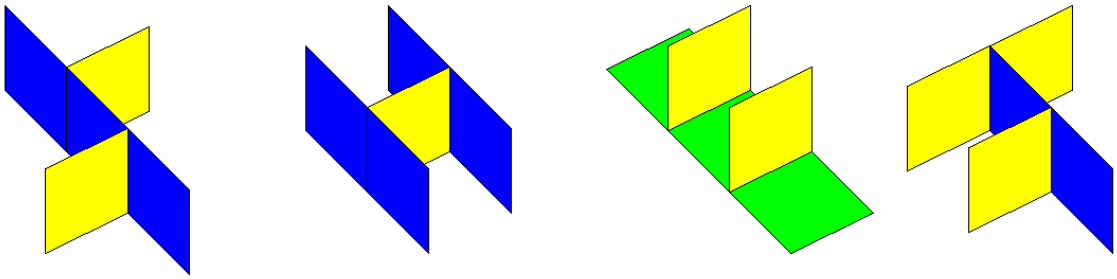
Size 5:

Component	#Elements	Type
1	49	S
2	4	SASP
3	188	F
4	184	SASNP
5	21	SASNP
6	2	SASP
Total	**448**	

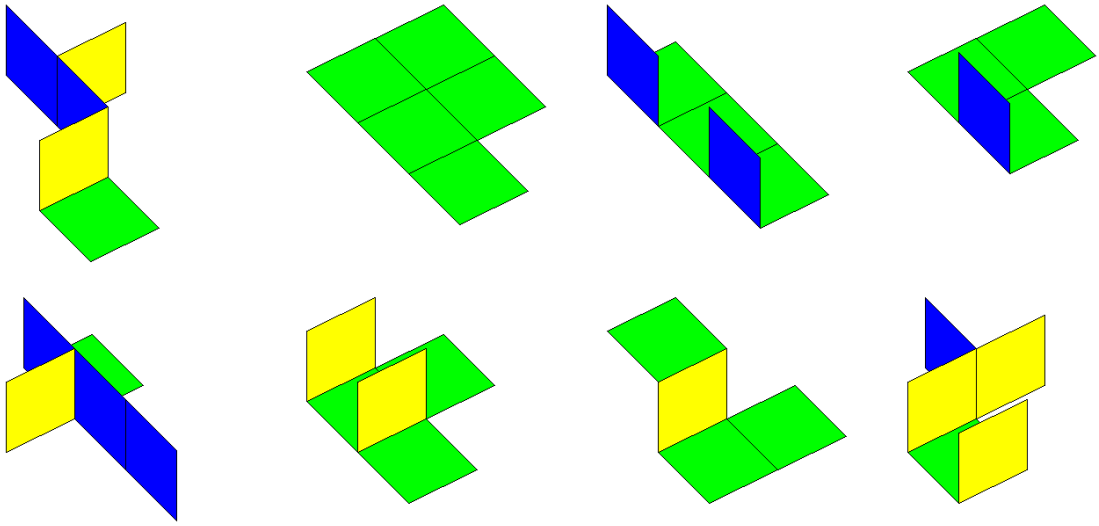
Component 1 (subset)



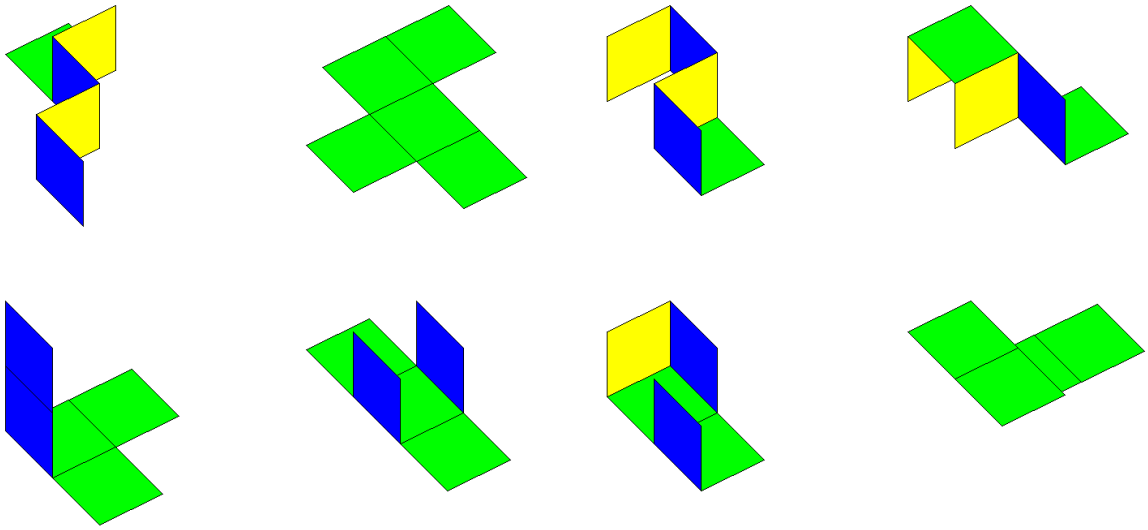
Component 2



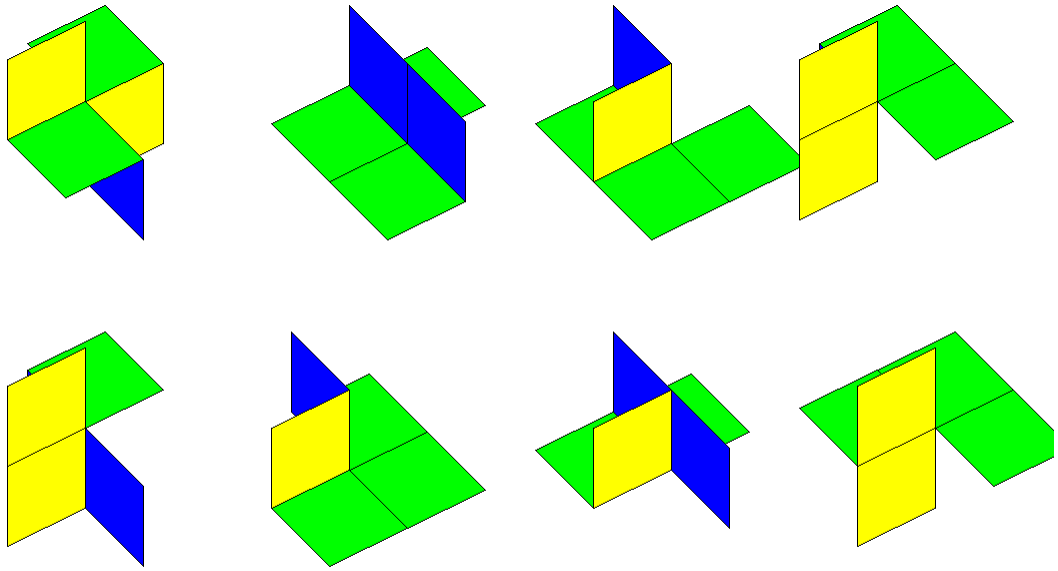
Component 3 (subset)



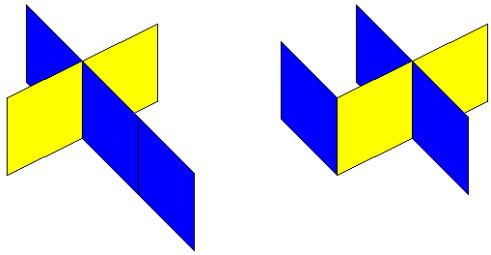
Component 4 (subset)



Component 5 (subset)



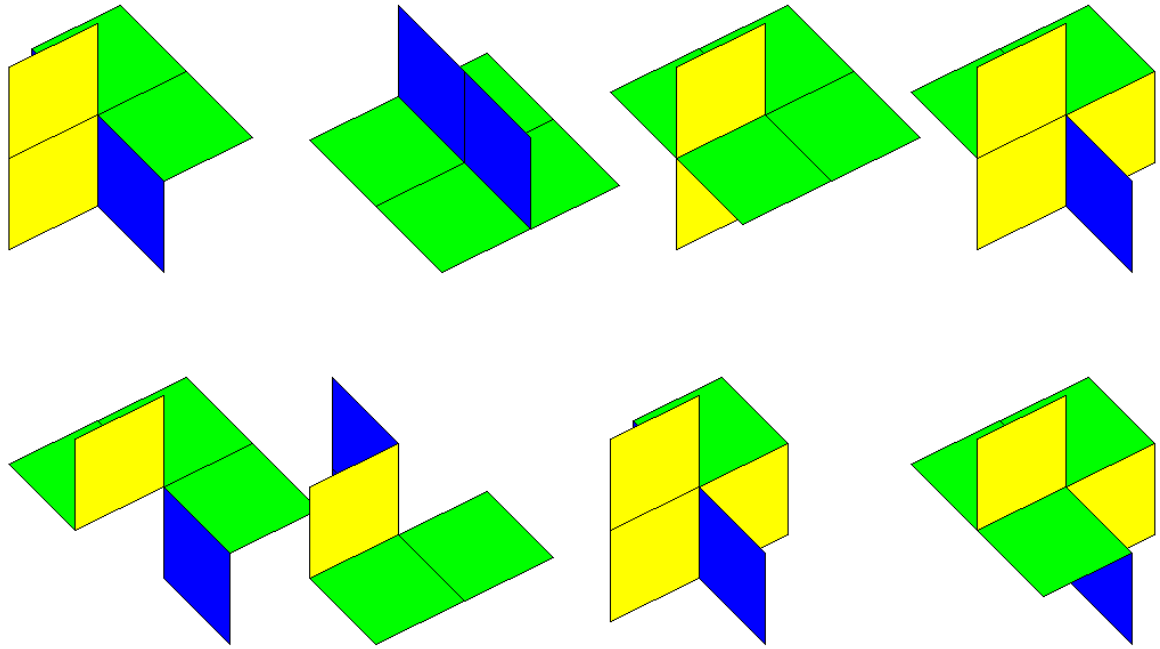
Component 6



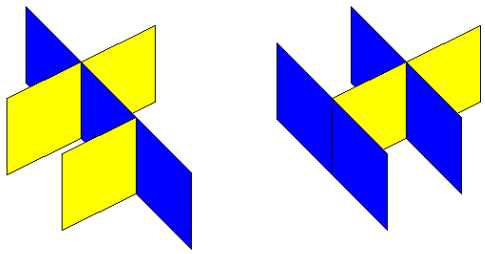
Size 6:

Component	#Elements	Type
1	28	SASNP
2	2	SASP
3	4	SASP
4	216	S
5	4400	F
Total	**4650**	

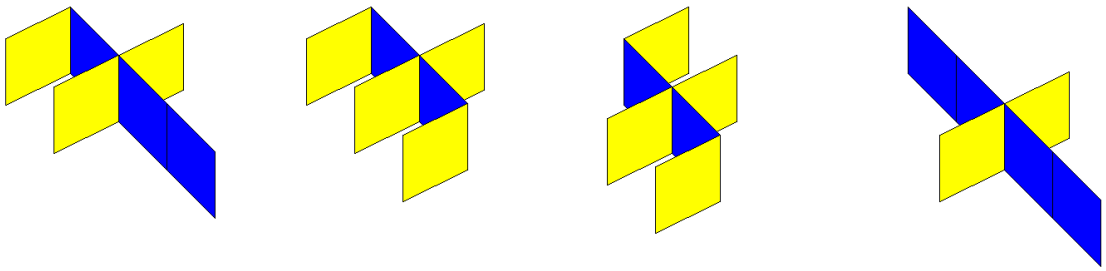
Component 1 (subset)



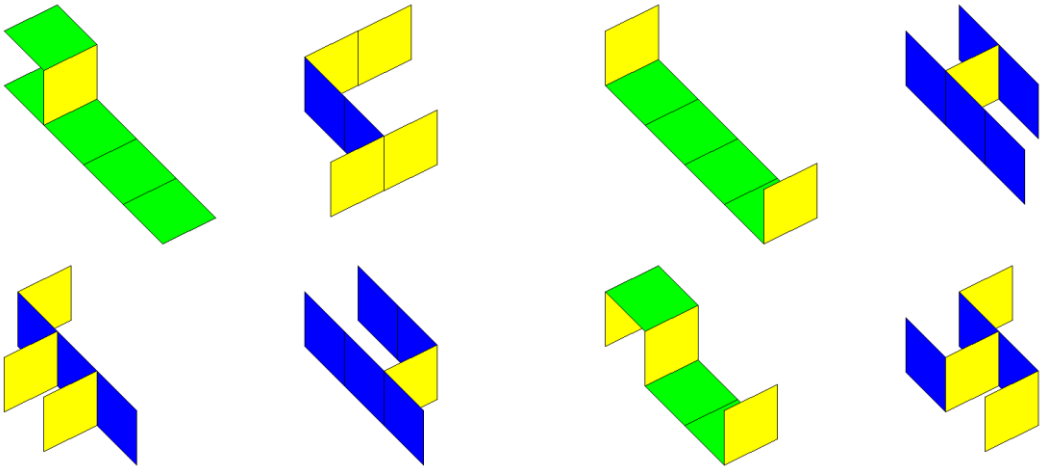
Component 2



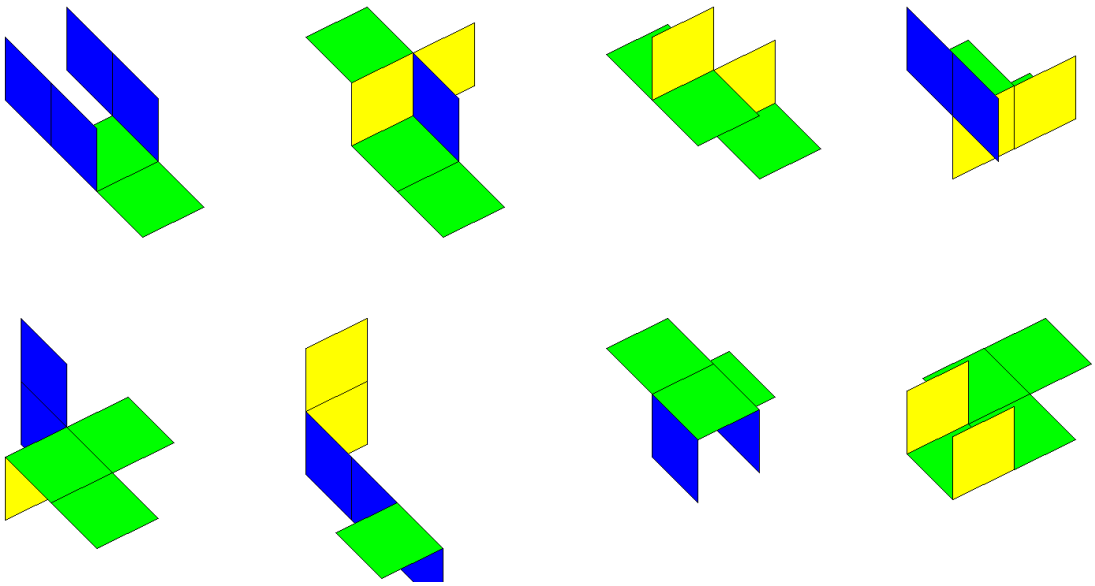
Component 3



Component 4 (subset)



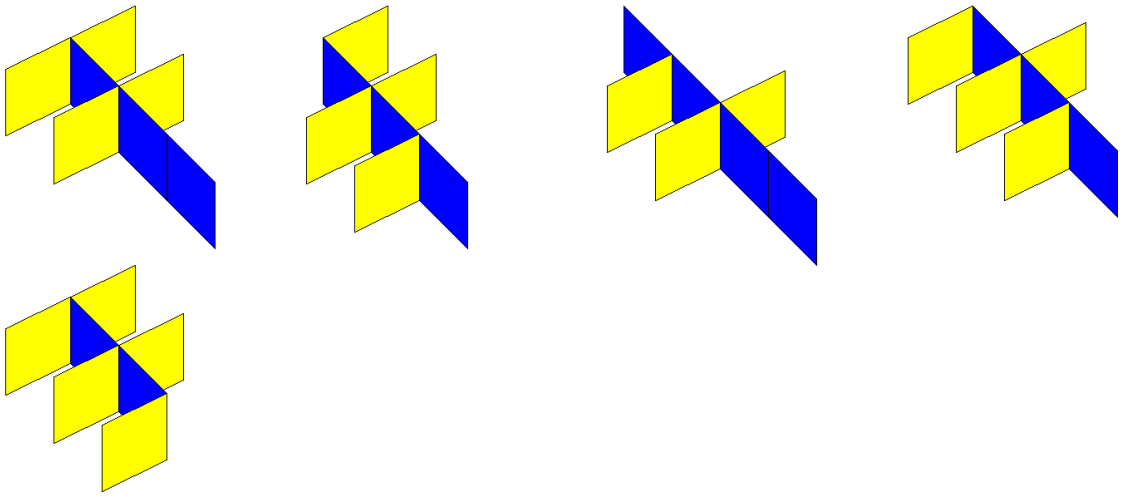
Component 5 (subset)



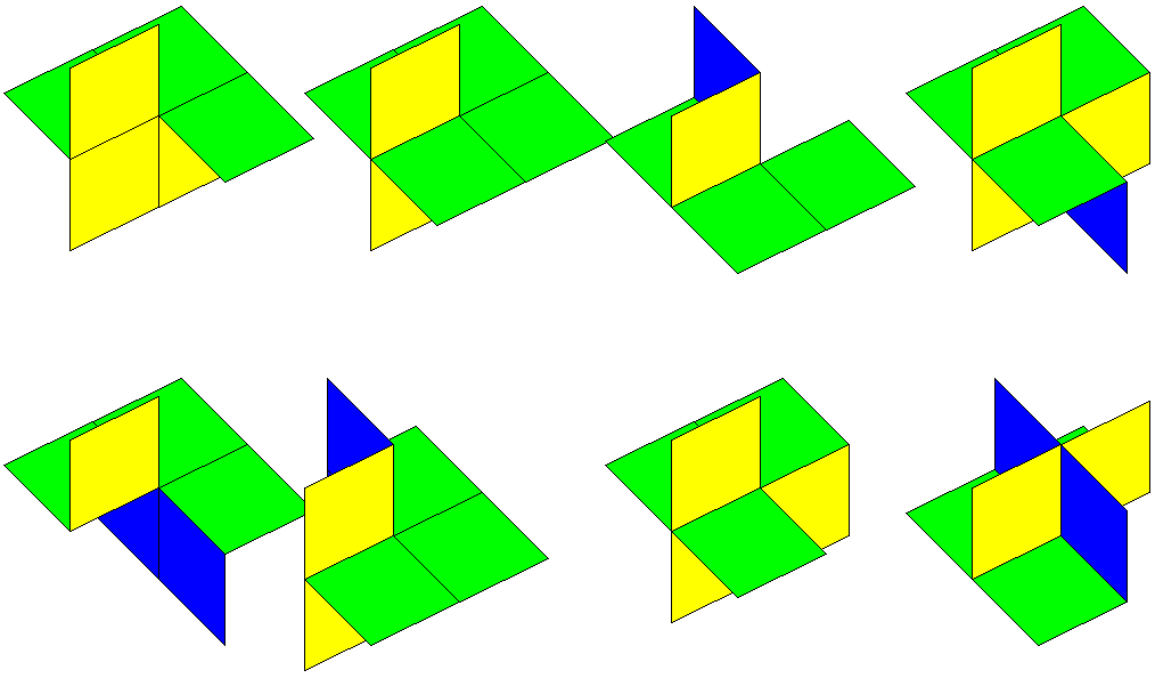
Size 7:

Component	#Elements	Type
1	5	SASP
2	24	SASNP
3	1	SASP
4	944	S
5	52637	F
Total	**53611**	

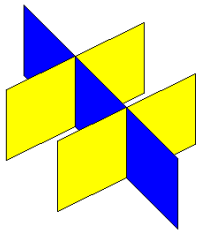
Component 1



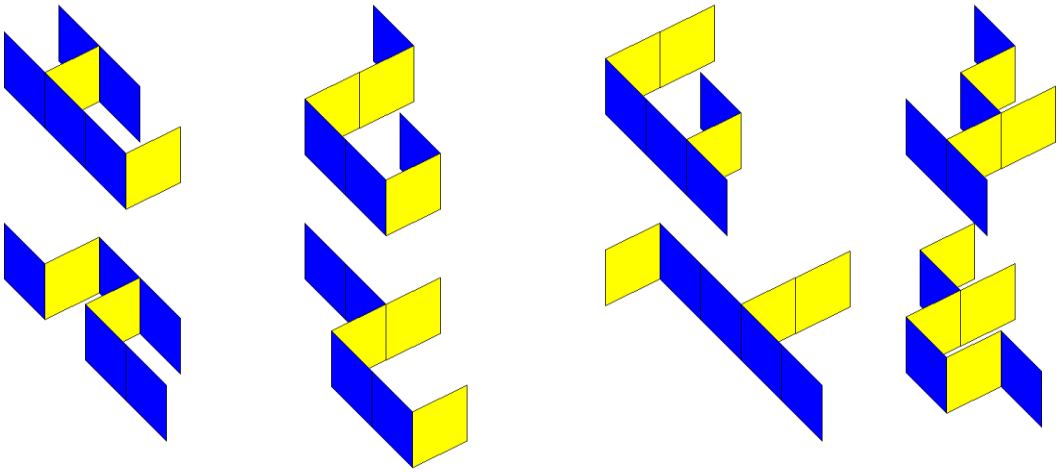
Component 2 (subset)



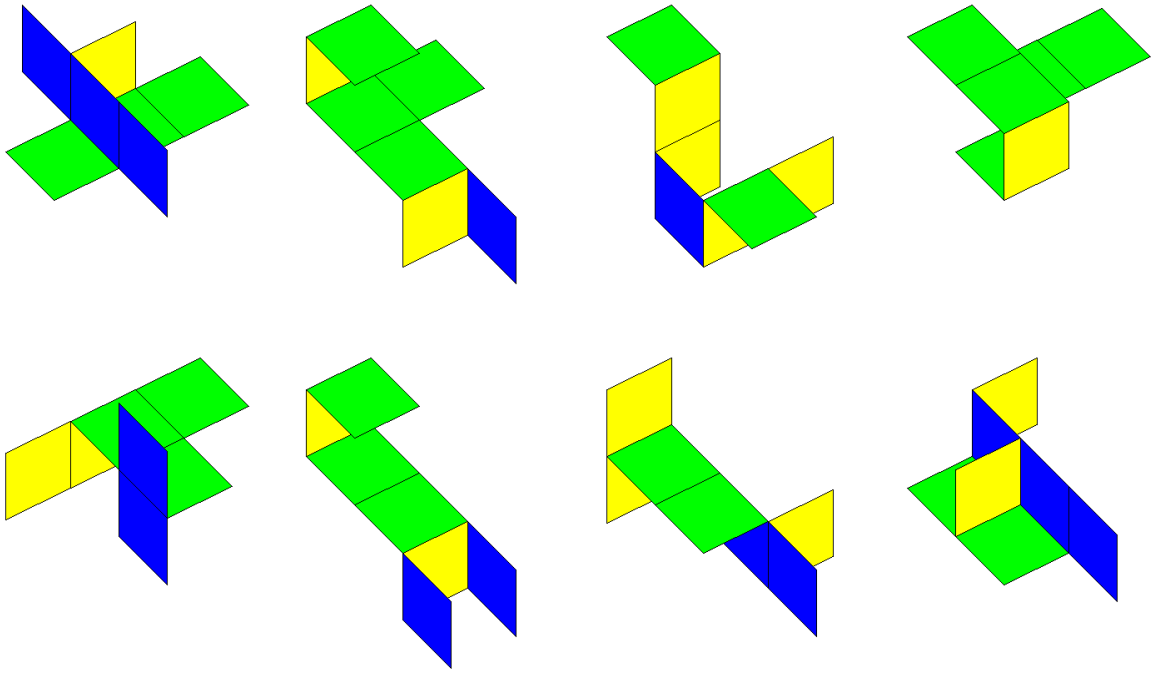
Component 3



Component 4 (subset)



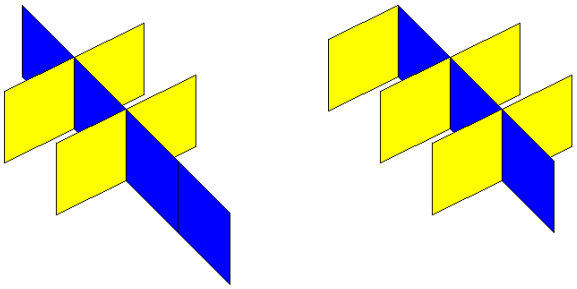
Component 5 (subset)



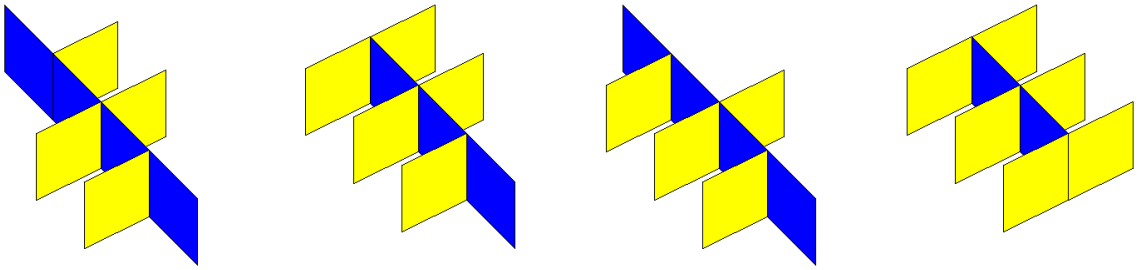
Size 8:

Component	#Elements	Type
1	2	SASP
2	4	SASP
3	4259	S
4	18	SASNP
5	650750	F
Total	**655033**	

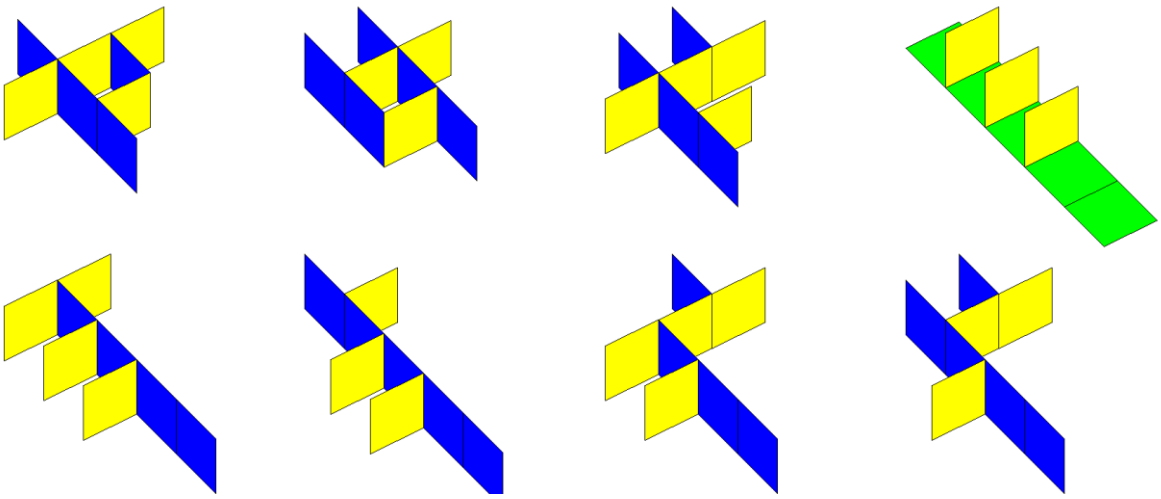
Component 1



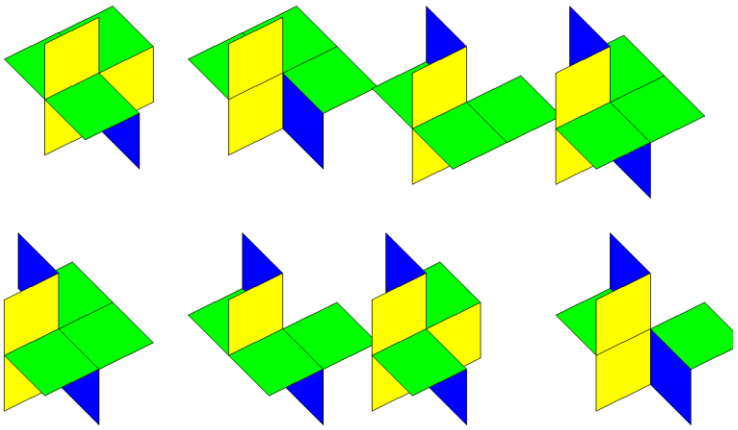
Component 2



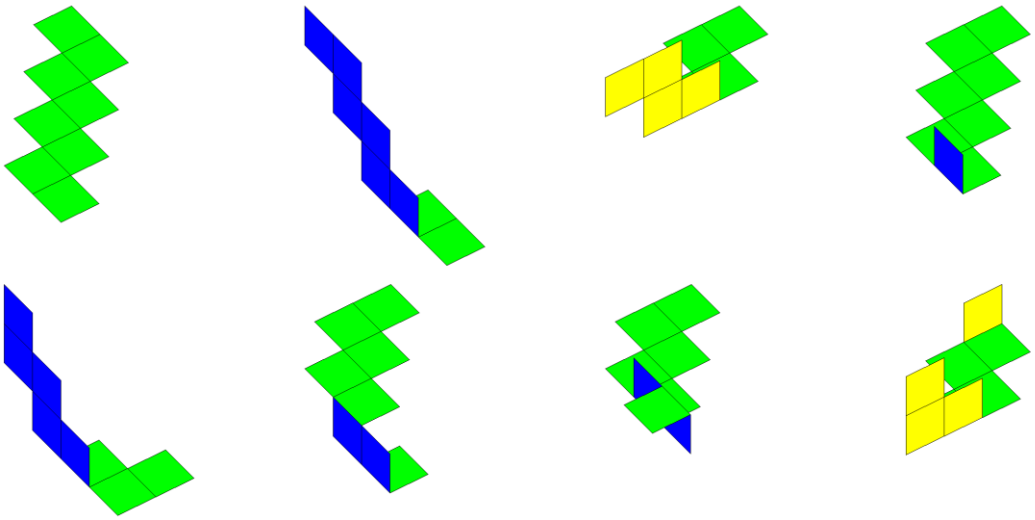
Component 3 (subset)



Component 4 (subset)



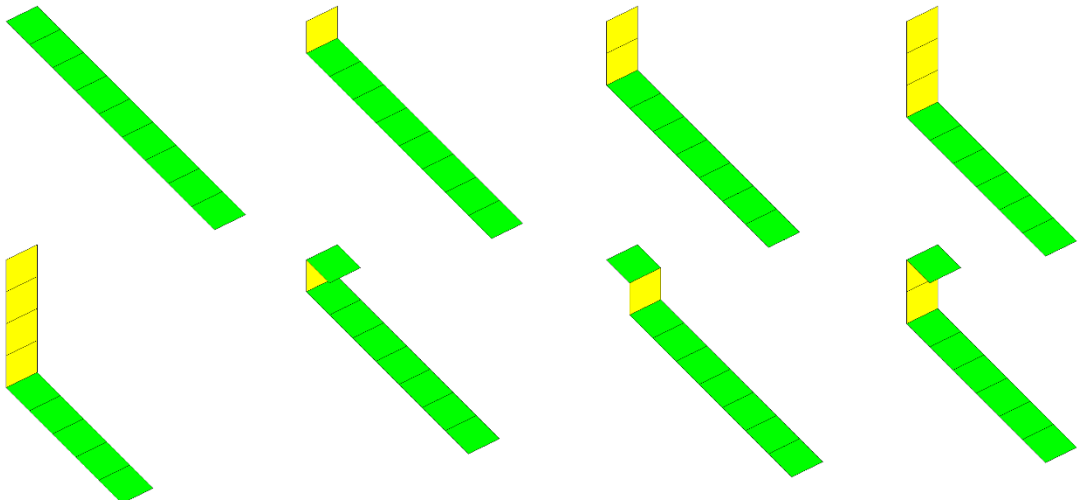
Component 5 (subset)



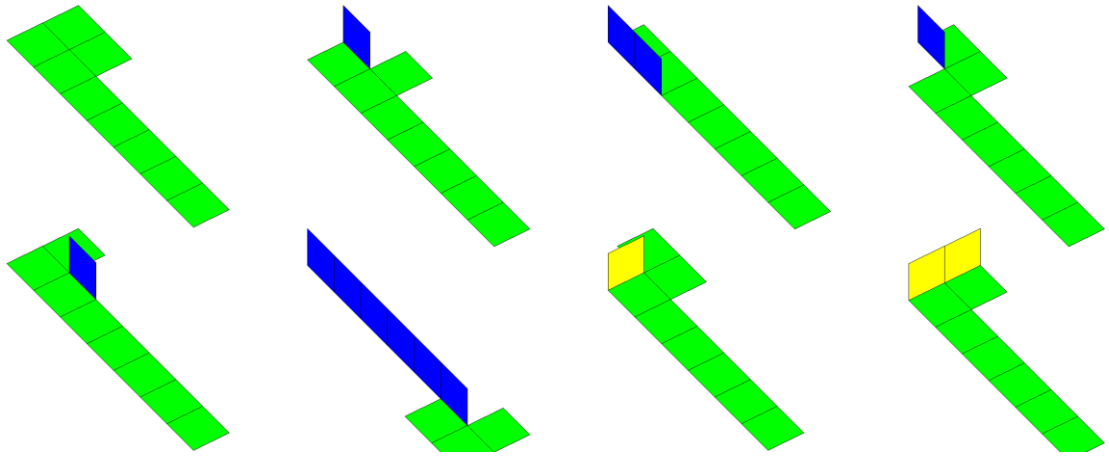
Size 9:

Component	#Elements	Type
1	19582	S
2	8240032	F
3	3	SASP
4	4	SASP
5	2	SASP
6	3	SASNP
7	9	SASNP
Total	**8259635**	

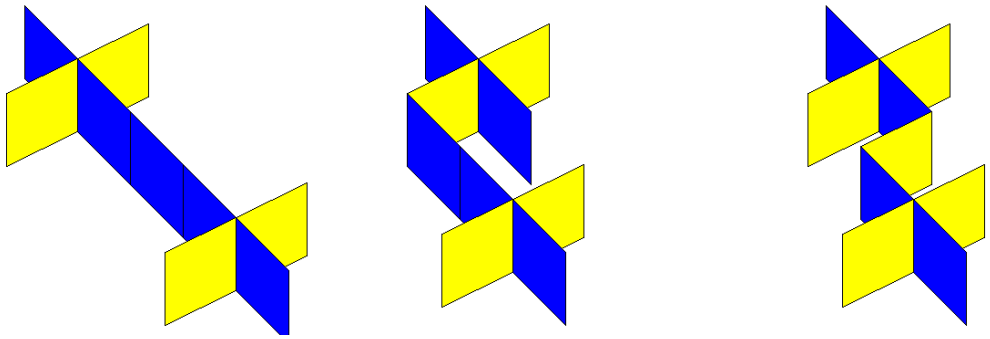
Component 1 (subset)



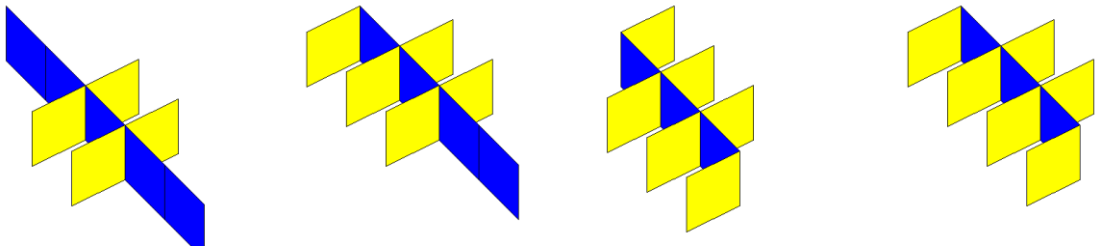
Component 2 (subset)



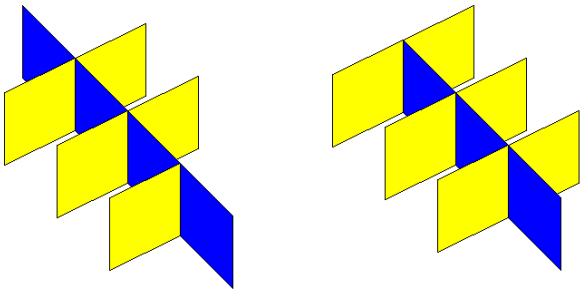
Component 3



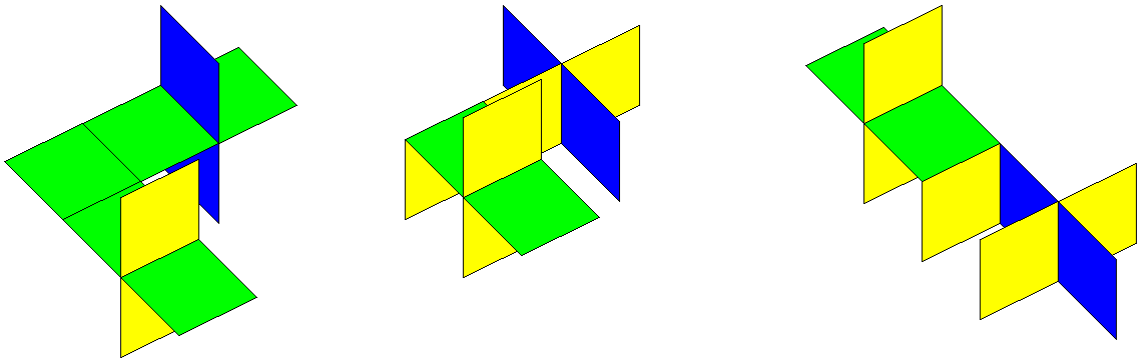
Component 4



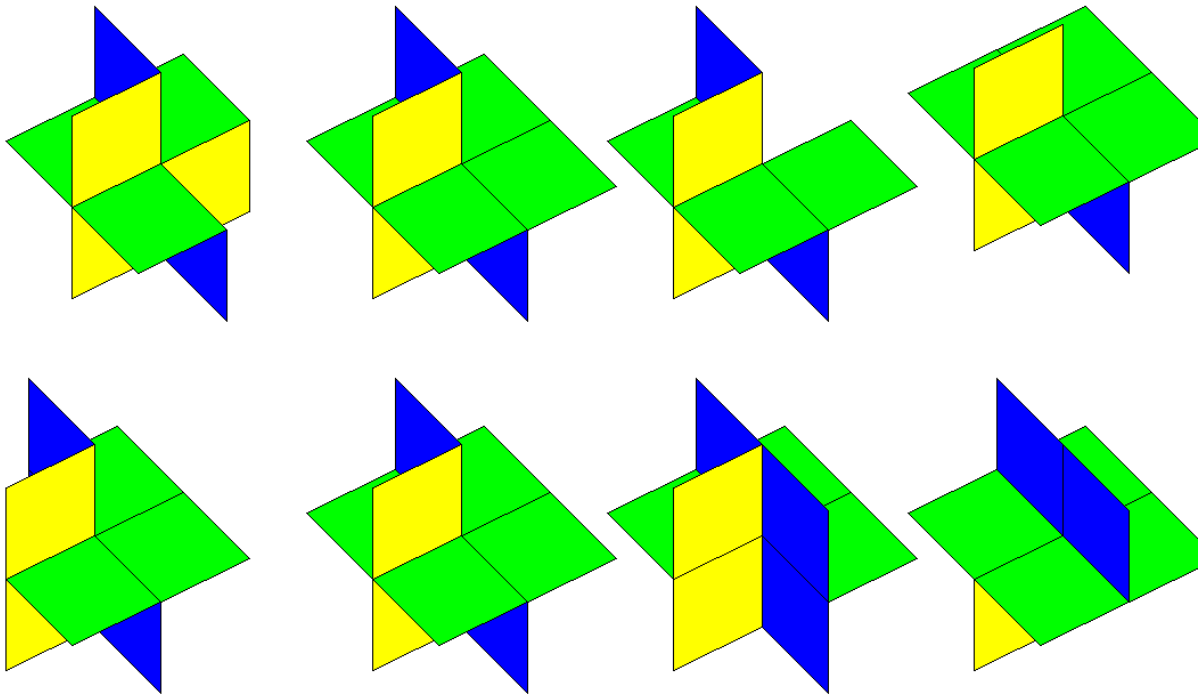
Component 5



Component 6



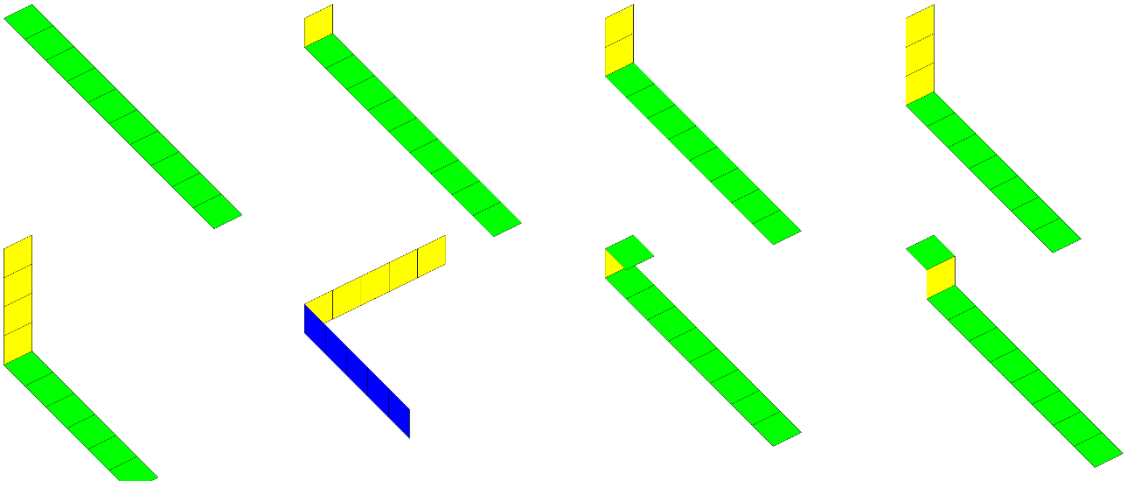
Component 7 (subset)



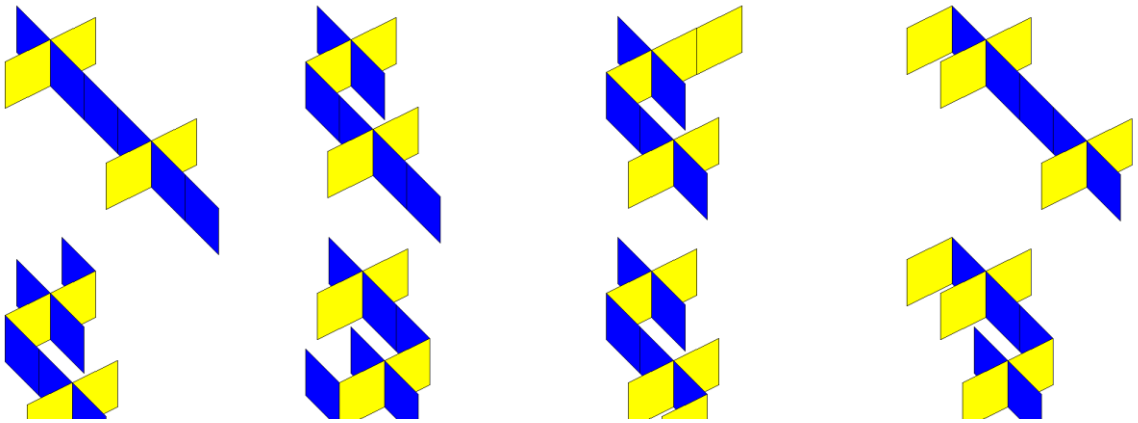
Size 10 restricted to parallel polyominoids

Component	#Elements	Type
1	91661	S
2	11	SASP
3	5	SASP
4	1	SASP
Total	**91678**	

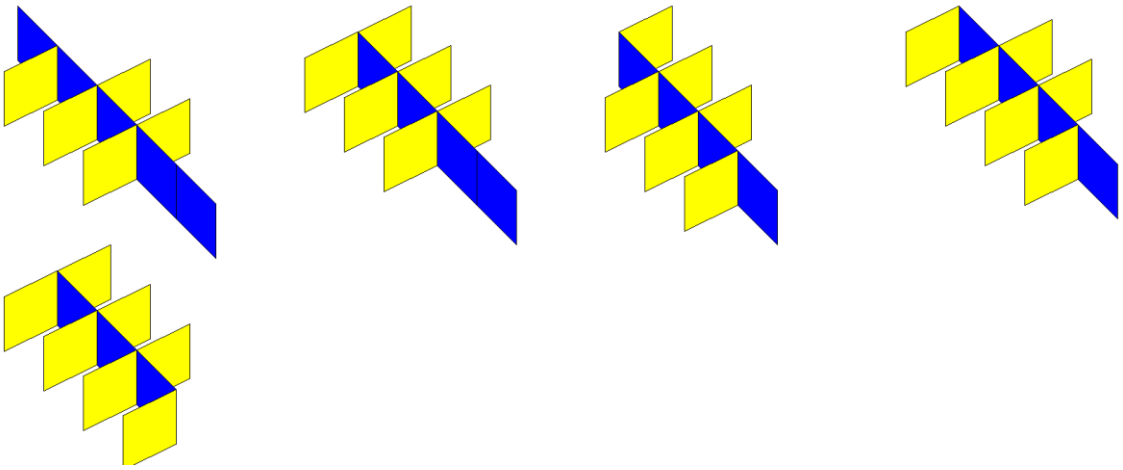
Component 1 (subset)



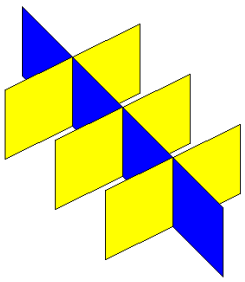
Component 2 (subset)



Component 3



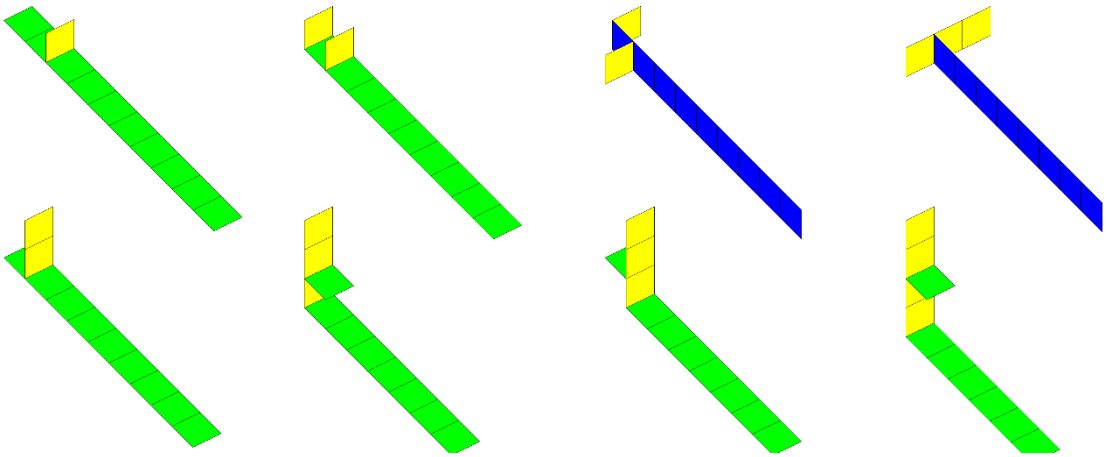
Component 4



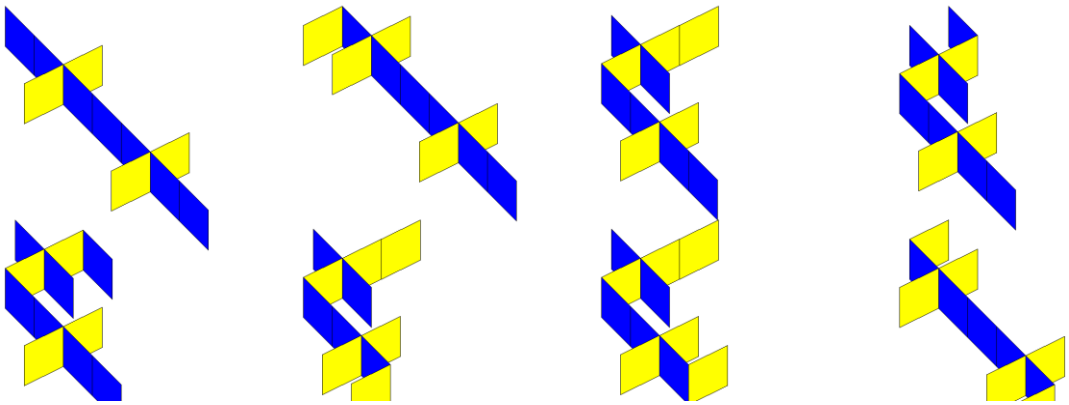
Size 11 restricted to parallel polyominoids

Component	#Elements	Type
1	433966	S
2	19	SASP
3	11	SASP
4	2	SASP
5	3	SASP
6	4	SASP
Total	**434005**	

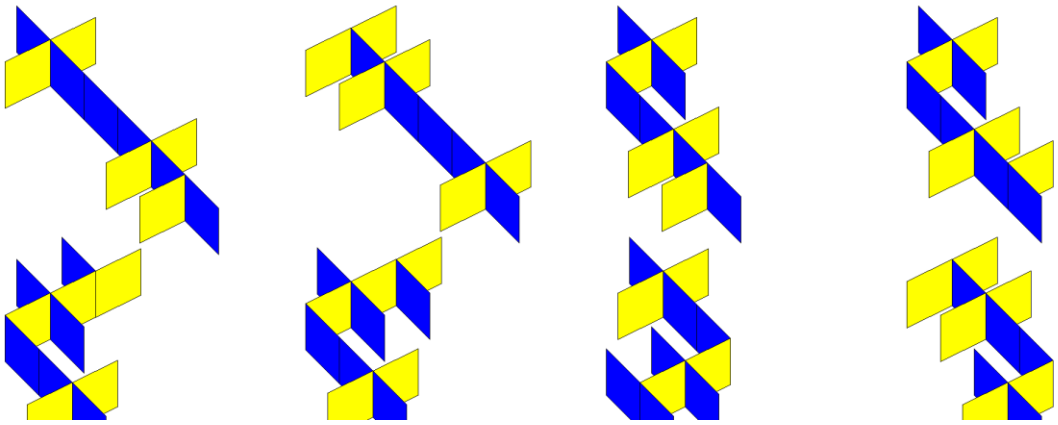
Component 1 (subset)



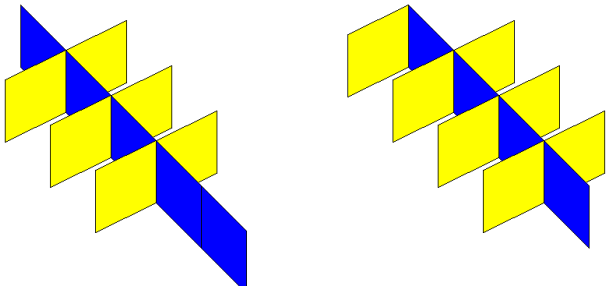
Component 2 (subset)



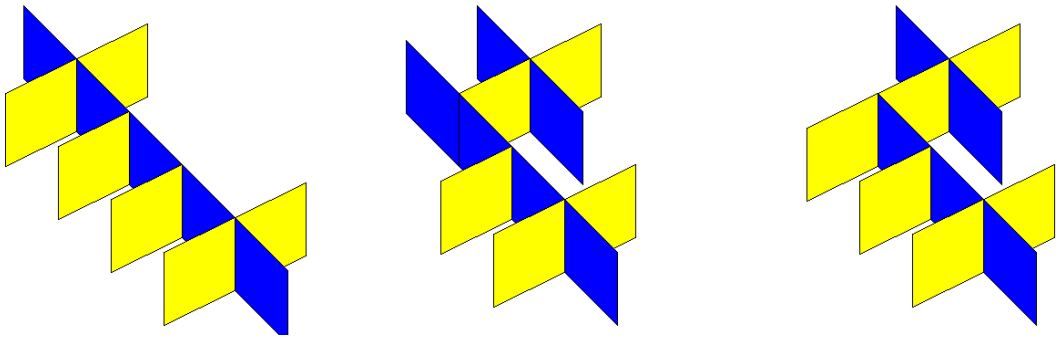
Component 3 (subset)



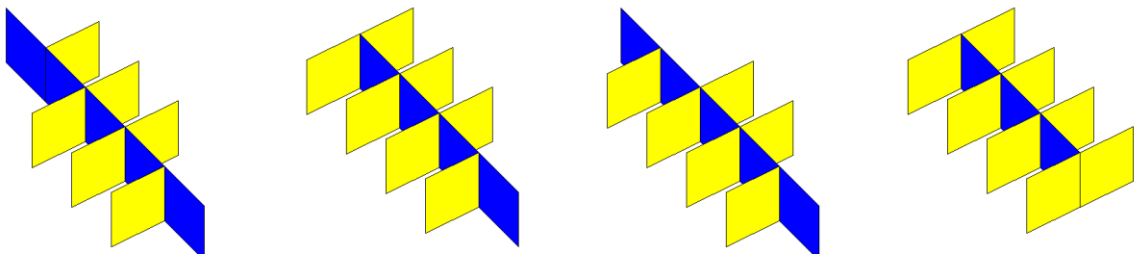
Component 4



Component 5



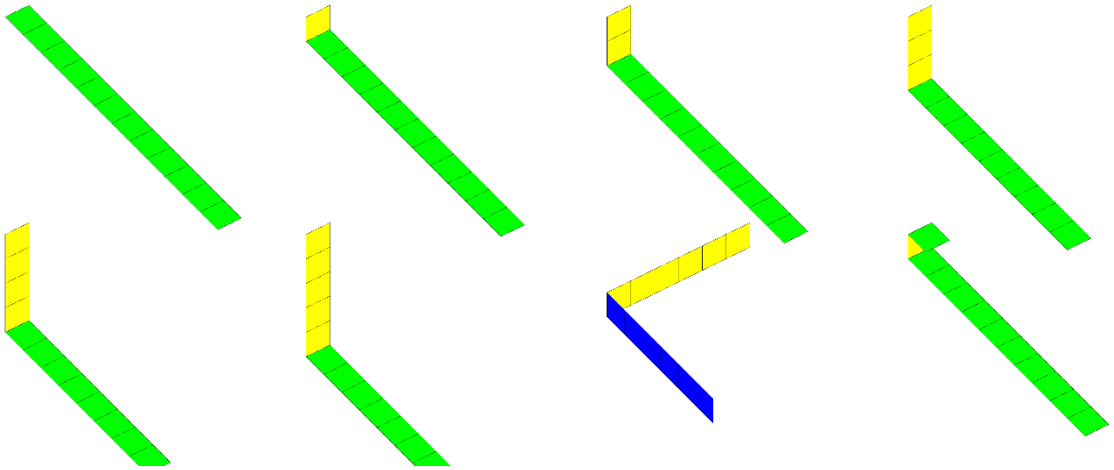
Component 6



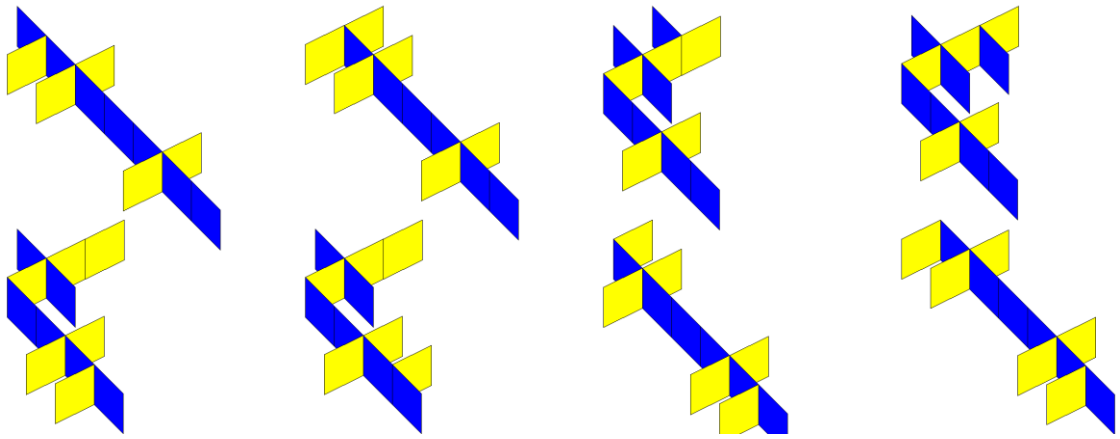
Size 12 restricted to parallel polyominoids

Component	#Elements	Type
1	2073724	S
2	32	SASP
3	4	SASP
4	15	SASP
5	4	SASP
6	2	SASP
7	1	SASP
8	1	SASP
Total	**2073783**	

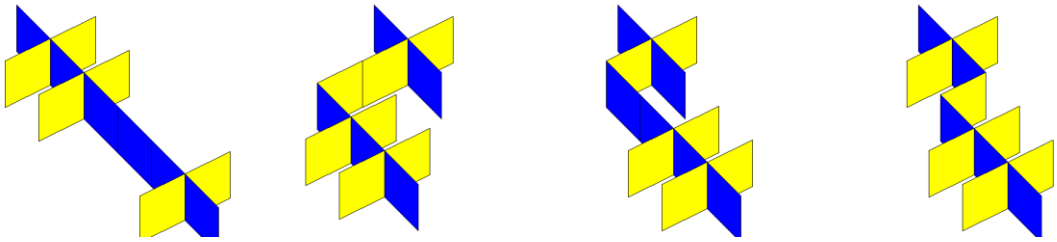
Component 1 (subset)



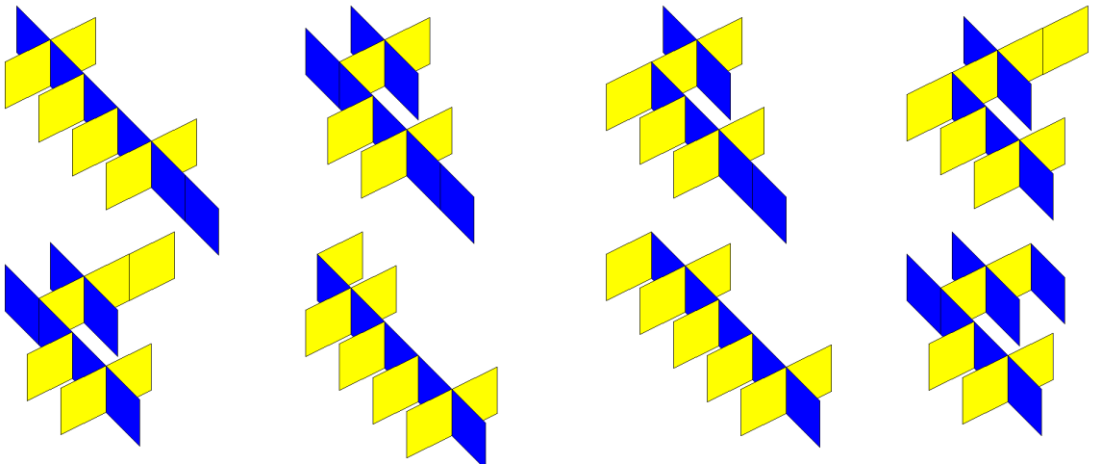
Component 2 (subset)



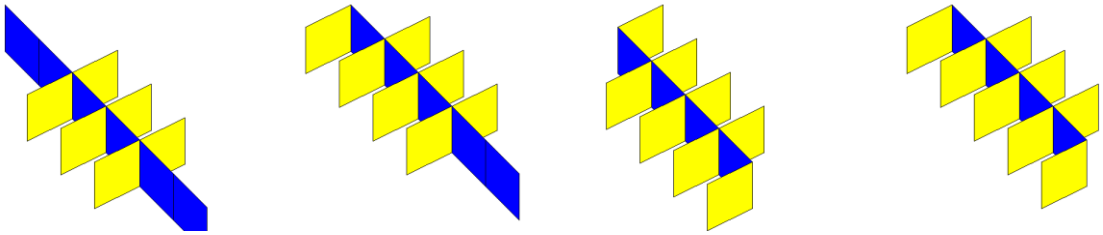
Component 3



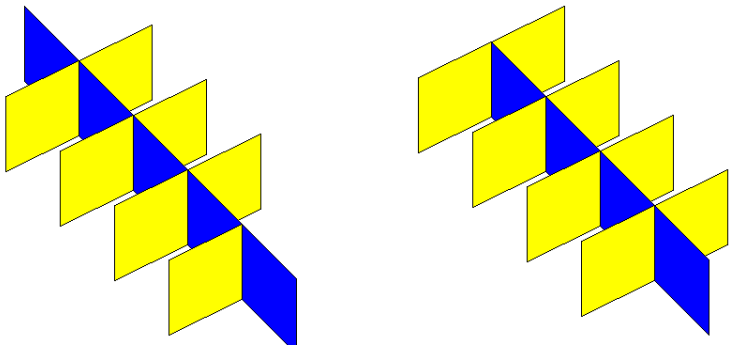
Component 4 (subset)



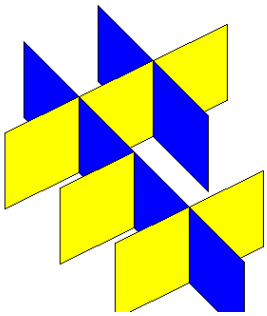
Component 5



Component 6



Component 7



Component 8