Maximum Rectilinear Crossing Numbers of Polyhex Graphs

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A polyhex (hexagon polyomino, hexagon animal) is a set of hexagons of the Euclidean tessellation of the plane by congruent regular hexagons such that the set of hexagons and its complement are edge-connected. Then a polyhex graph has the vertexpoints of the hexagons as its vertices and the sides of the hexagons as its edges.

A rectilinear drawing of a graph is a mapping of its vertices into distinct points of the plane and of its edges into connecting straight line segments such that they have at most one point in common, either a vertex or a crossing. We will ask for the maximum number of crossings over all rectilinear drawings of a polyhex graph. Some partial results are presented.

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