

Swapped Dragonfly

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The Swapped Dragonfly, $D3(K, M)$, is an algebraically defined graph designed for use as the interconnection network of a supercomputer. The graph consists of K complete graphs of size M connected as a network of size KM^2 . It has coordinates (c, p, d) , $c \bmod K$, d and $p \bmod M$. Connectivity is given by $(c, d, p) \longleftrightarrow (c', d, p)$, which uses the swap of d and p . The graph has diameter three. This graph is a three hop simulation of a complete graph on KM^2 nodes,

This talk will show how the swap makes it possible to perform a one-to-all (scatter) in time $3MK/2$ and an all-to-all exchange in time $KM^2(1 + 1/M)$ on a network of size KM^2 .

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