Online Appendix to:
UNTANGLED: A Game Environment for Discovery of Creative Mapping Strategies

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Fig. 8. Cost factor tables for interconnect for all architectures.

ACM Transactions on Reconfigurable Technology and Systems, Vol. 6, No. 3, Article 13, Publication date: October 2013.
Fig. 9. Connectivity plots for the 4Way architecture. Warmer colors indicate higher-connectivity nodes are placed in these locations. (Top) Results from the top five human players on each graph; (bottom) results from the top five simulated annealing runs.

Fig. 10. Connectivity plots for the 4Way1Hop architecture. Warmer colors indicate higher-connectivity nodes are placed in these locations. (Top) Results from the top five human players on each graph; (bottom) results from the top five simulated annealing runs.

Fig. 11. Connectivity plots for the 4Way2Hop architecture. Warmer colors indicate higher-connectivity nodes are placed in these locations. (Top) Results from the top five human players on each graph; (bottom) results from the top five simulated annealing runs.
Fig. 12. Solving Stripe,M2: bottom-to-top and top-to-bottom strategies.

Fig. 13. Solving Stripe,M1: subchain identification. (a) This player has aligned various subchains to determine graph structure. (b) The final result, after much adjustment to compact the graph.

Fig. 14. Solving Stripe,M2: critical path alignment. (a) This player has identified a critical path in the graph. (b) After aligning nodes in this critical path in a compact manner.
Fig. 15. Solving Stripe,M2: passgate consolidation. (a) The player identifies an opportunity to create a pair of matching passgate chains exiting a single parent. (b) Moving the green node down creates this opportunity. (c) After the merge, many passgates have been eliminated.

Fig. 16. Solving StripeDR,M1: passgate rearrangement. (a) The right-hand column of this graph contains two nodes that cannot be moved into the DR column. (b) Scheduling these nodes later in the computation reduces the overall width of the graph.

Fig. 17. Solving 8Way,M2: organic growth. (a) The player picks out a single node with high connectivity. (b) Building out from that central node. (c) The final solution.
Fig. 18. Solving 4Way2Hop,H1: minimizing crossings. Two players are in the process of untangling the graph, understanding its structure, and minimizing crossings.

Fig. 19. Solving 8Way,H2: exterior routing. In this solution, the player has routed many long edges around the outside of the graph. This strategy was typically not successful in obtaining the highest score, although it was helpful in finding mappings without violations.

Fig. 20. Solving 8Way,E2: pivoting. A player uses two coordinated moves to improve upon a graph generated by SA.
Fig. 21. Solving 8Way,M1: pivoting. A player uses a sequence of coordinated moves to improve upon a graph generated by SA.

Fig. 22. Solving 4Way,M1: cluster rotation. (a) This player has identified an opportunity to rotate an entire cluster of nodes in order to make it fit more compactly into the graph. The cluster has been moved from its initial placement in the bottom-left of the graph for clarity. (b) The final graph after rotating and replacing the node cluster.
Fig. 23. Architecture-specific number of patterns (%) vs. pattern type.

Fig. 24. Architecture-specific number of patterns (%) vs. pattern type (excluding pattern A and Others).