

Optimization of Arbitrary Loop Nests

```
CodeReg scop {
    perfect = BuiltIn.IsPerfectLoopNest();
    depth = BuiltIn.LoopNestDepth();
    if (RoseLocus.IsDepAvailable()) {
        if (perfect && depth > 1) {
            permorder = permutation(seq(0,depth));
            RoseLocus.Interchange(order=permorder);
        }
        {
            if (perfect) {
                indexT1 = integer(1..depth);
                T1fac = poweroftwo(2..32);
                RoseLocus.Tiling(loop=indexT1, factor=T1fac);
            }
        } OR {
            if (depth > 1) {
                indexUAJ = integer(1..depth-1);
                UAJfac = poweroftwo(2..4);
                RoseLocus.UnrollAndJam(loop=indexUAJ,
                                      factor=UAJfac);
            }
        } OR {
            None; # No tiling, interchange, or unroll and jam.
        }
        innerloops = BuiltIn.ListInnerLoops();
        *RoseLocus.Distribute(loop=innerloops);
    }
    innerloops = BuiltIn.ListInnerLoops();
    RoseLocus.Unroll(loop=innerloops,
                    factor=poweroftwo(2..8));
}
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      permorder = permutation(seq(0,depth));
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      if (perfect) {
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        indexUAJ = integer(1..depth-1);
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        RoseLocus.UnrollAndJam(loop=indexUAJ,
                               factor=UAJfac);
      }
    } OR {
      None; # No tiling, interchange, or unroll and jam.
    }
    innerloops = BuiltIn.ListInnerLoops();
    *RoseLocus.Distribute(loop=innerloops);
  }
  innerloops = BuiltIn.ListInnerLoops();
  RoseLocus.Unroll(loop=innerloops,
                   factor=poweroftwo(2..8));
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