Square-division versus two-sample interleave (2SI)

Or in AVP terminology, Quad vs Interleaving

Quad (Square Division)

Quad (Square Division) is the way we started our AVP H.264 contribution. The 4K signal is presented as 4xHD-SDI (up to p30) or 4x3G-SDI (up to p60). Each input is a quarter of the image (quadrant).

As can be seen from the above diagram, each quadrant represents a part of the active 4K picture. There are two main issues that surround using Quad inputs in this way, and they are:

1. Sync issues between quadrants
2. Quadrant Order

If the quadrants are out of sync, then you can end up with an image that looks like four separate sources on the screen. The order of the quadrants can be confusing also. The first and last are generally the same (Top left first, bottom right last) However depending on the actual order, the middle two can get mixed up, the two orders are:

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Method 1                    Method 2

Top Left                    Top Left
Top Right                   Bottom Left
Bottom Left                 Top Right
Bottom Right                Bottom Right
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Two Sample Interleave (2SI)

Two sample interleave (two pixels) is a way of interleaving all of the parts of the image across the frame, still in quadrant format, to alleviate sync issues.