

Parametric OCV

The Practical SSTA

Approach

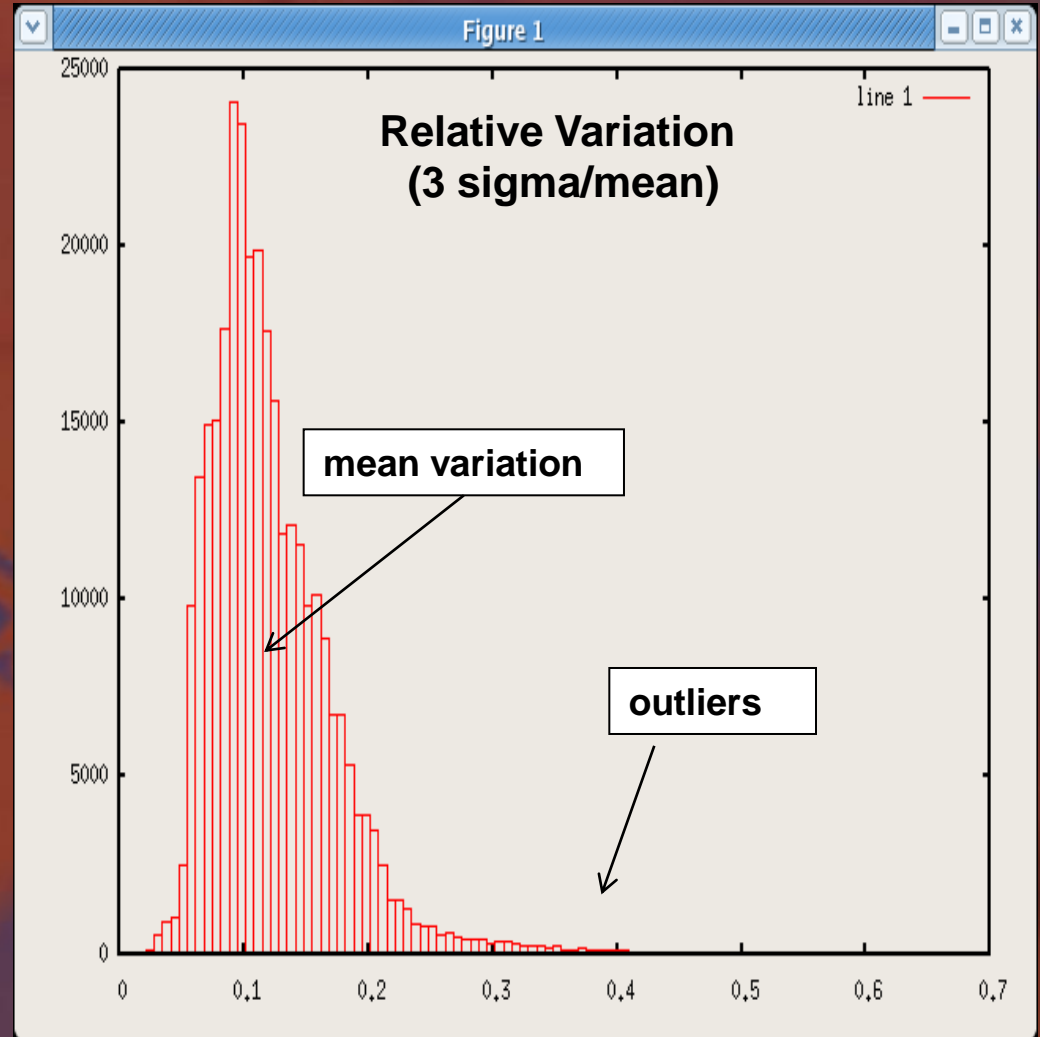
Sign-off with Certainty

Why Extreme DA For Statistical Analysis?

- ***Faster***
 - Multi-threaded architecture built from scratch to address SSTA computation
- ***Larger Capacity***
 - Built on Threadwave technology minimum memory footprint
- ***Easy to Use***
 - Usage models for easy adoption
- ***The Most Advanced SSTA Tool in the Industry***
 - In the business and working with customers since 2005
- ***Value***
 - Reduces time to market, timing pessimism, power, yield
 - You choose the level of sophistication

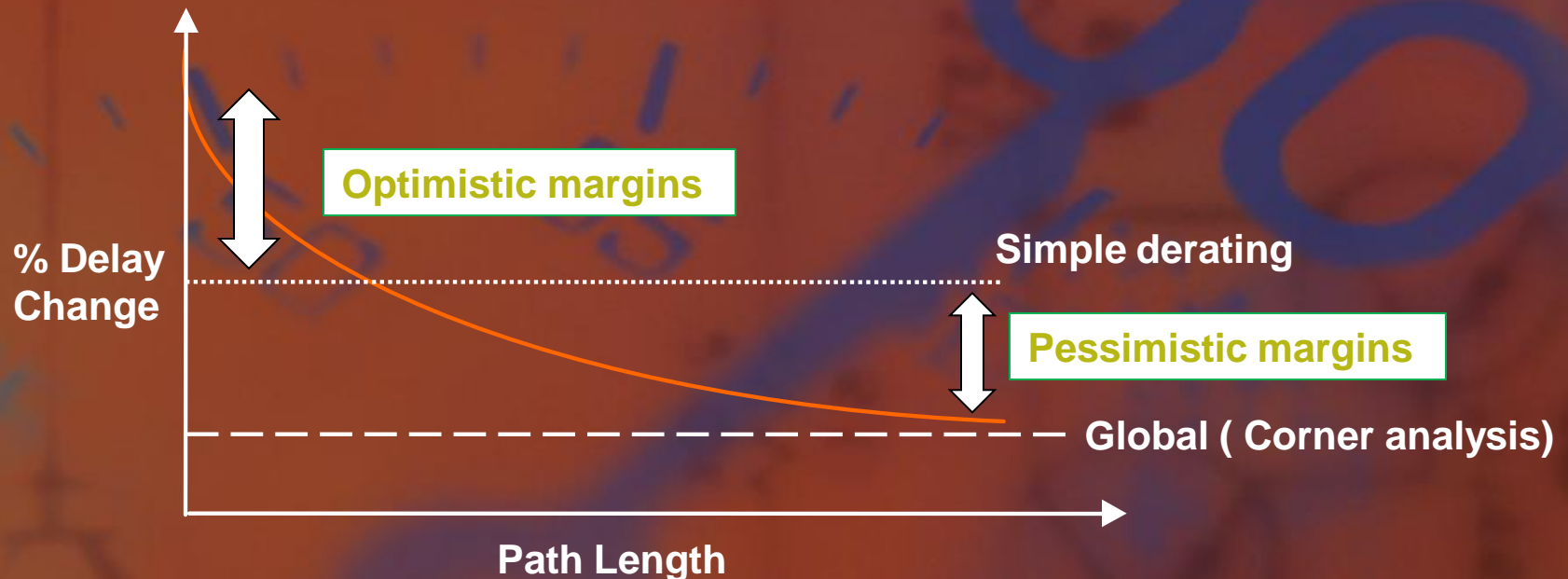
Local Variation Impacts

- Histogram of local variation for a 45nm library
 - 10% timing variation on average
 - Up to 40% timing variation for some cells
- For 45nm technologies, local variation becomes a significant portion of total variation



Problems with OCV Derating Approach

- One derating factor does not cover timing all paths
 - Depends on path length, cell types and slew / load points

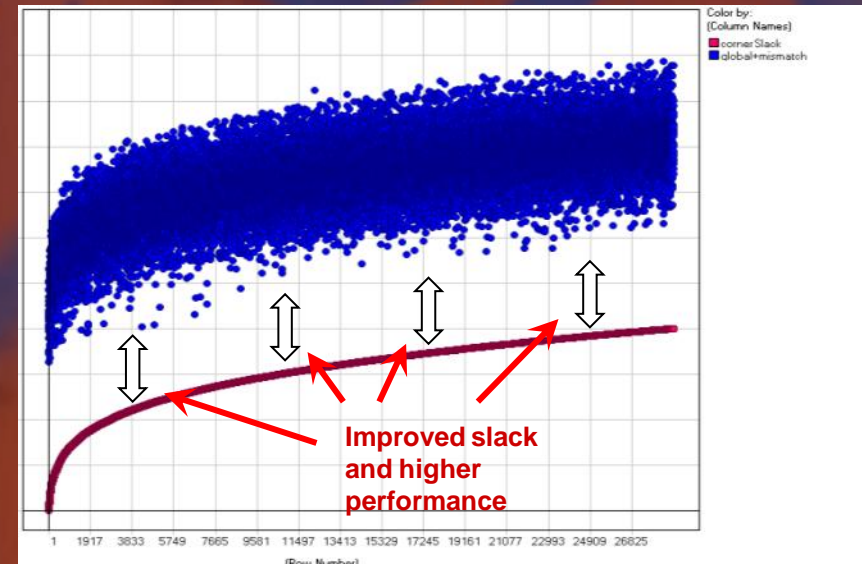
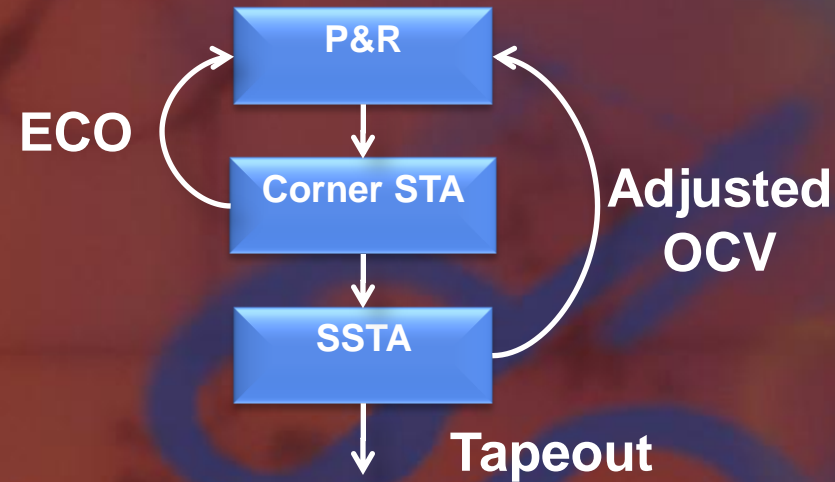


What is Parametric OCV?

- **POCV IS SSTA without the effort overhead**
 - **Stage based variation for lib, cell, or arc**
 - **Statistical library characterization not required**
- **Sits between OCV corner analysis and SSTA with statistical models**
- **Reduces pessimism by modelling OCV statistically**
- **Block based analysis**

POCV for Improved Performance

- Addresses local variation
- Two options for stage based variation
 - Derived by customer or...
 - Extracted from existing AOCV tables
- Corner based OCV adjusted for timing closure
- Final tapeout with SSTA



Conclusion

- GoldTime addresses design challenges at 65nm, 45nm and beyond
- Capacity and Runtime Breakthrough for delay and SI analysis
- Plug'n'Play in Existing Flows
- Multi-dimensional Timing Optimization (MXO) to ease design closure
- Natural transition from traditional STA to SSTA

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