

# UCle Test Enablement

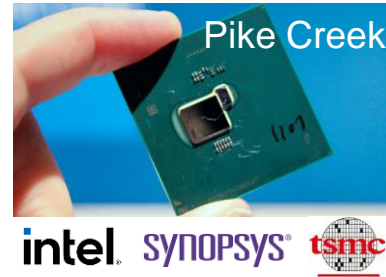
Keysight Technologies



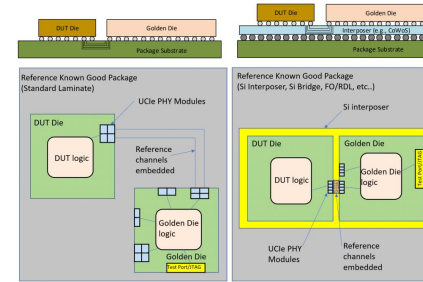
# Pathway to a Chiplet Ecosystem



First adopters



Inter-compatibility



Compliance program

Chiplet Marketplace



Open standards



Golden Die certification

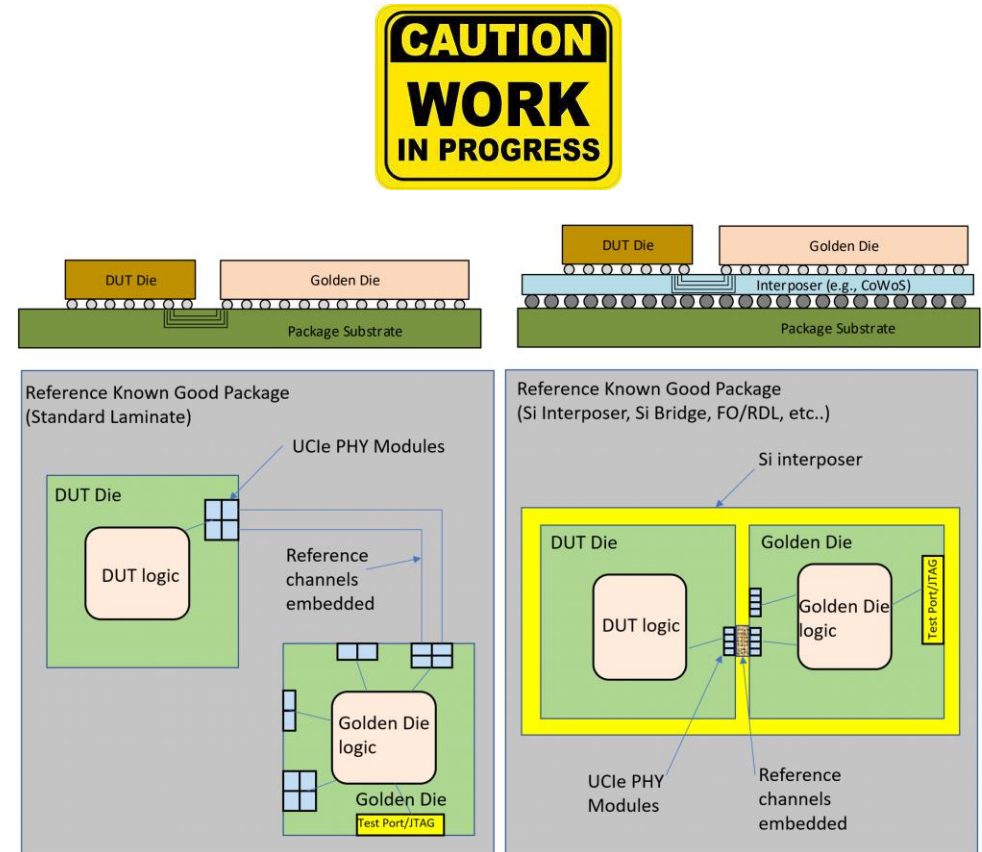


Note: timeline not at scale!



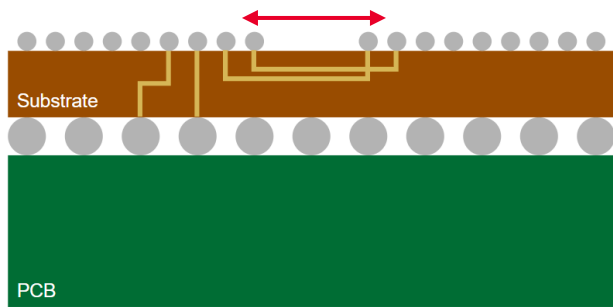
# UCIe Compliance Program

- Based on Golden Die (BIST)
  - Near-end and far-end loopback
  - Pattern checker
  - UCIe rev1.1 adds test/compliance register block
- **Golden Die validation is a pre-requisite**
  - TX amplitude, slew rate, jitter, skew, EQ
  - TX sensitivity, TJ, clk/data/track skew
  - Many unknowns
    - Test point definition
    - Test conditions
    - Parameter ranges



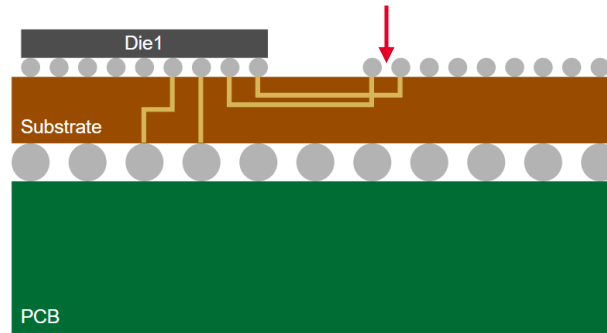
# Possible Golden Die PHY Validation (*unofficial*)

## Step 1



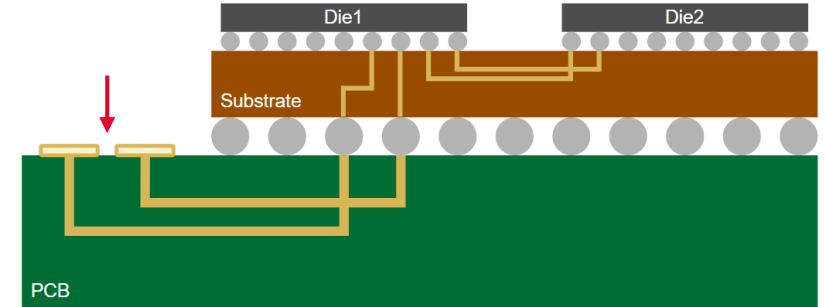
Unpopulated micro-bumps  
Measure replica channel

## Step 2



Populate one die  
De-embed replica channel  
Measure TX

## Step 3



Populate both dice  
Probe sideband  
Debug link bring-up

