C28/C28FDSOI/C32 Stacked vias design rule

Applicable to 6U1x_2U2x_2T8x metallization option only

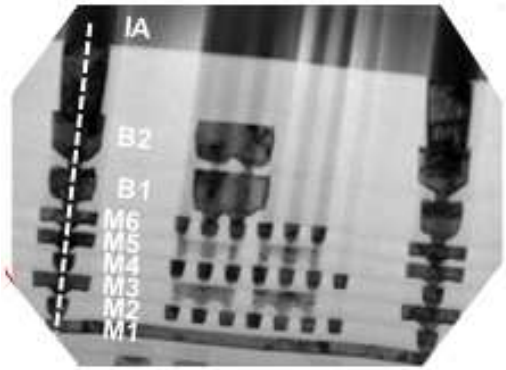
Design Foundation

life.augmented

Design rule description

- Stacked vias from Via2 to YZ are forbidden under Copper Pillar pads. This rule is applicable to 10ML option only.

Additional Design Rules in STMicroelectronics technology			
STK.R.1	Stacked_YZ_V2 on M3_B2_Pillar is not allowed under Bump[a].		

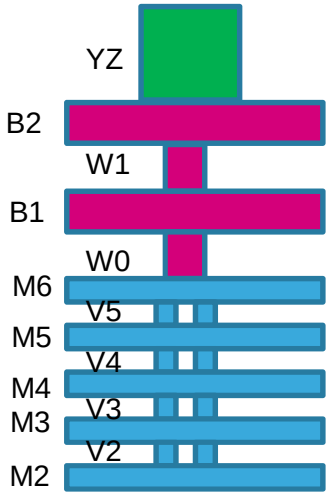


- Mechanical stress is propagated from the bump to the bottom metallization, through stacked vias.
- Mechanical stress propagation is enhanced as stacked vias are placed on small metal pillar (small stacked metal shapes)

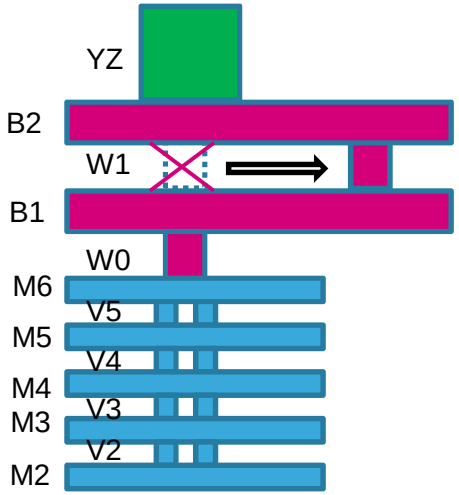
- To stop mechanical stress propagation through stacked vias, via stacks must be broken at the uppest via level.

How to fix ? (1/2)

x **Fail**

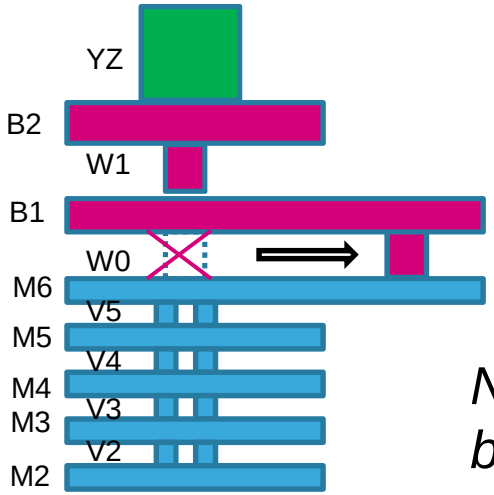


Break via stack by shifting W1 or W0 via



ok **Pass**

No more stack by shifting W1

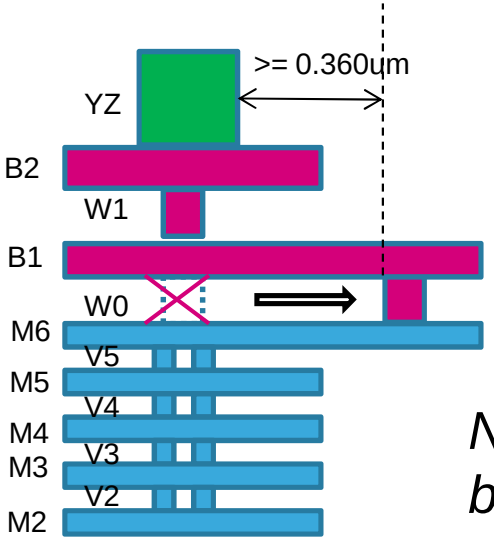


ok **Pass**

No more stack by shifting W0

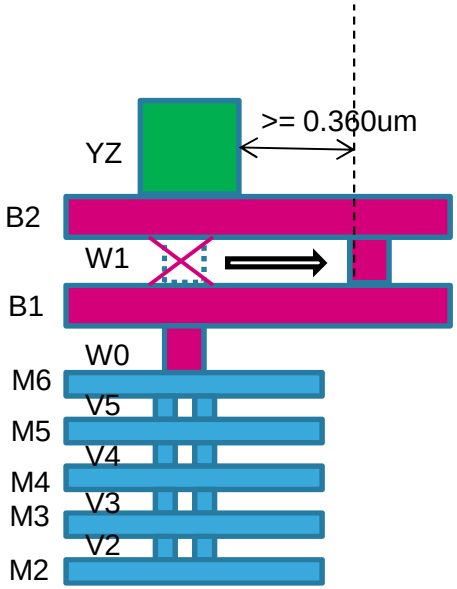
How to fix ? (2/2)

- For stacked via fix, the reference position is YZ.
  - W0 or W1 should be shifted by at least **0.360um** from YZ for a mechanically efficient solution



ok **Pass**

No more stack by shifting W0



ok **Pass**

No more stack by shifting W1