# **Poster Session**



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### Reliability Evaluation of Wing Riser Solder Joint used in Post Silicon Validation Environment

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#### BACKGROUND

- This poster presents test methodology for assessing solder joint reliability for a soldered BGA wing riser used in post silicon validation.
- The installation of hardware on and off the riser can exert forces that stress the solder joints. These forces can be technicians tugging and pushing during hardware assembling or external force caused by accidental impacts.
- In addition to providing electrical connection, solder joint has to provide mechanical connection to hold the part on PCB under certain amount of mechanical load caused by physical handling.
- Evaluating the reliability of solder joint is very critical for understanding the failure mode of solder joint in a use environment.



#### CHALLENGES

- This assembly is used in post silicon validation. The heat sink hardware needs to be mounted and unmounted from riser multiple times per day, thus the solder joint failure may occur after repeated loadings
- □ The temperature range for silicon validation is wider than regular package assembly thermal cycling requirement, thus the impact of CTE mismatch is higher
- Back plate is removed from retention stack up, therefore there is no support and protection to the solder area
- Fine pitch and small solder ball diameter bring more difficulties to the reliability of solder joint. Small solder ball weakens the solder connection and the adhesion of the pad and substrate.



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