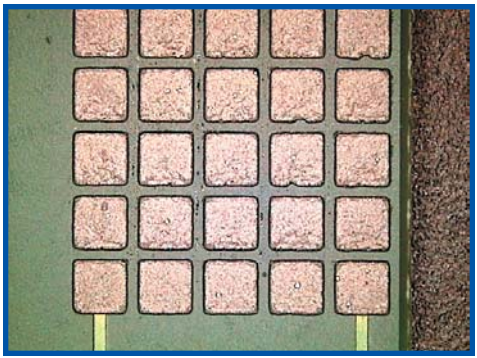


FIGURE 1: Screen-printed solder paste deposits in PIHR maximize the surface area on the topside of the board and penetrate the holes (here, for part of a 110-pin connector).

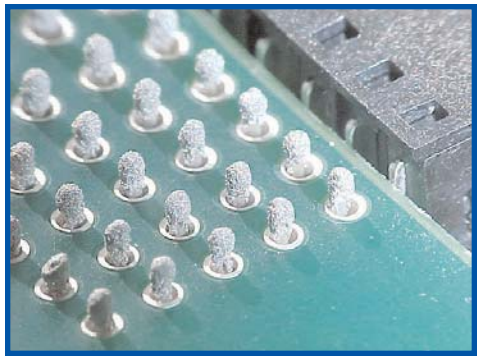
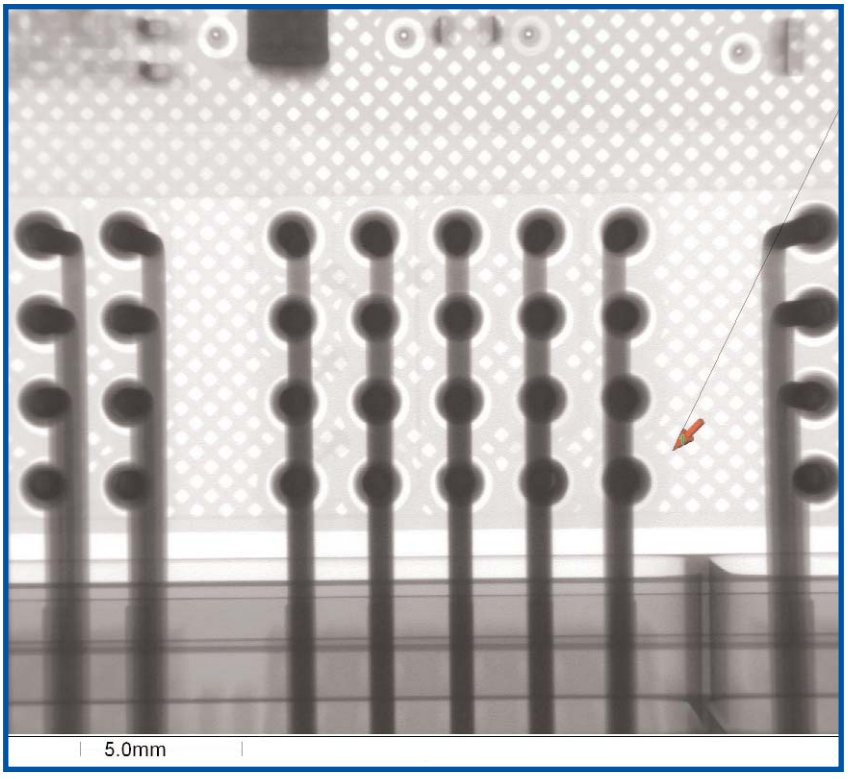
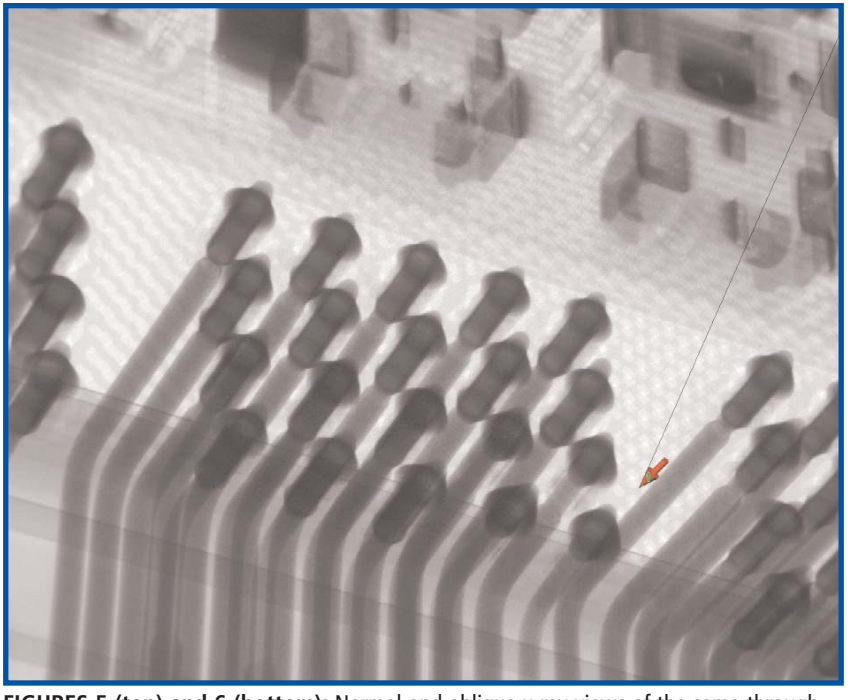


FIGURE 2: A har-busHM+ connector after assembly and prior to reflow soldering. In this x-ray image of the board, the paste deposit visible on both sides of the board and in the hole.

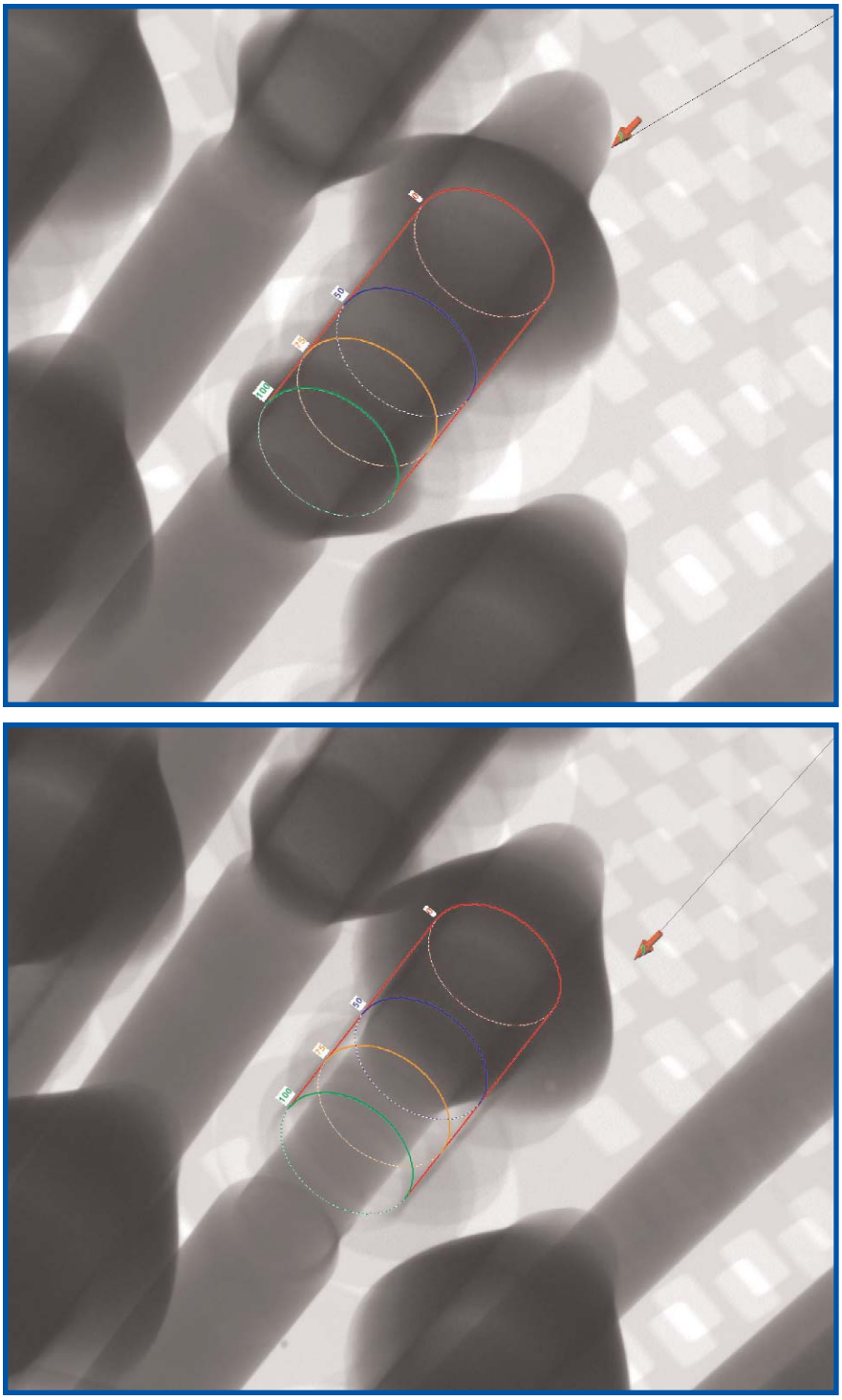
FIGURE 3: Typical bottomside joints produced using PIHR.

FIGURE 4: Typical topside joints produced using PIHR.





FIGURES 5 (top) and 6 (bottom): Normal and oblique x-ray views of the same through-hole joints. Figure 6 shows variation in fill level quickly and easily.



FIGURES 7 and 8: Fill percentage measurement on two through-hole joints in the same connector. The partially filled joint has substantially less than 50% fill, as shown against the scale.

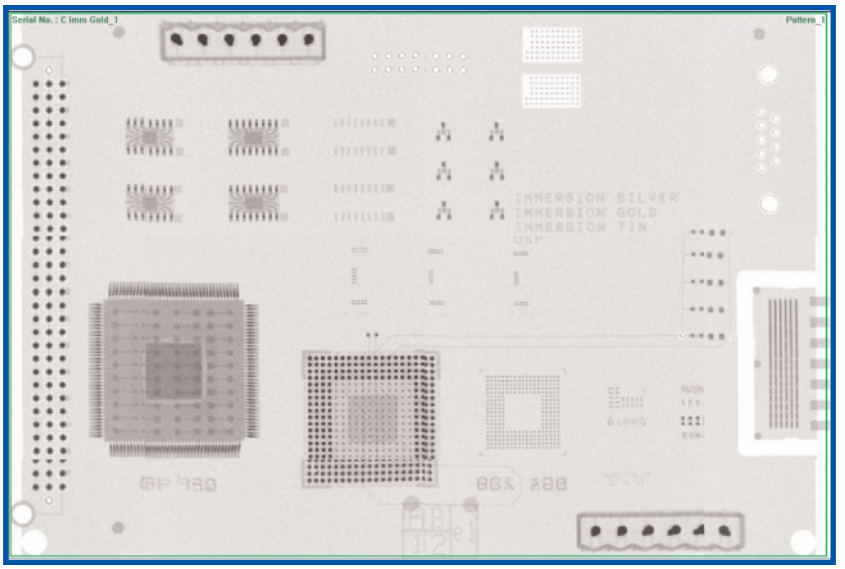


FIGURE 9: X-ray navigation map of test board used.

FIGURE 10: X-ray image of two pins in one of the IDC six-pin connectors on an immersion gold finish board that had undergone convection reflow. The pin location is shown by the small highlighted rectangle on the navigation map.

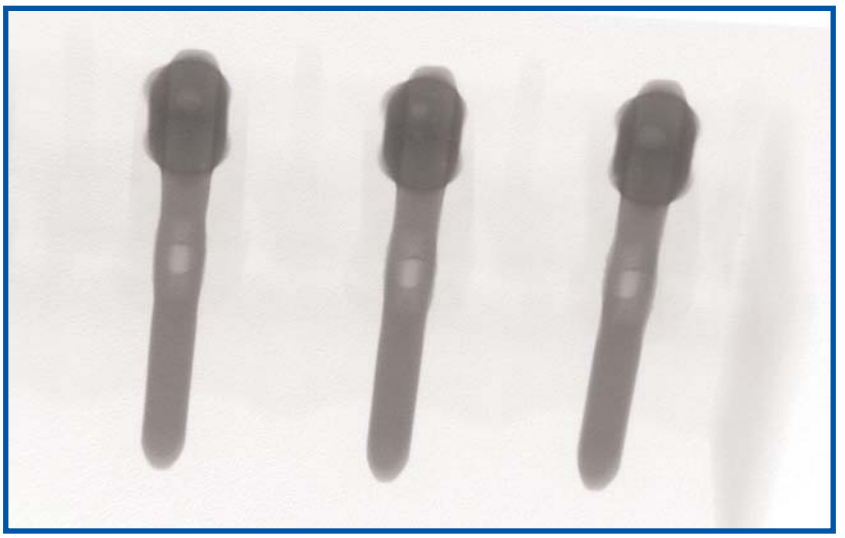


FIGURE 11: Oblique x-ray view of equivalent connector seen in Figure 12 but on a vapor phase reflow board with immersion tin finish.

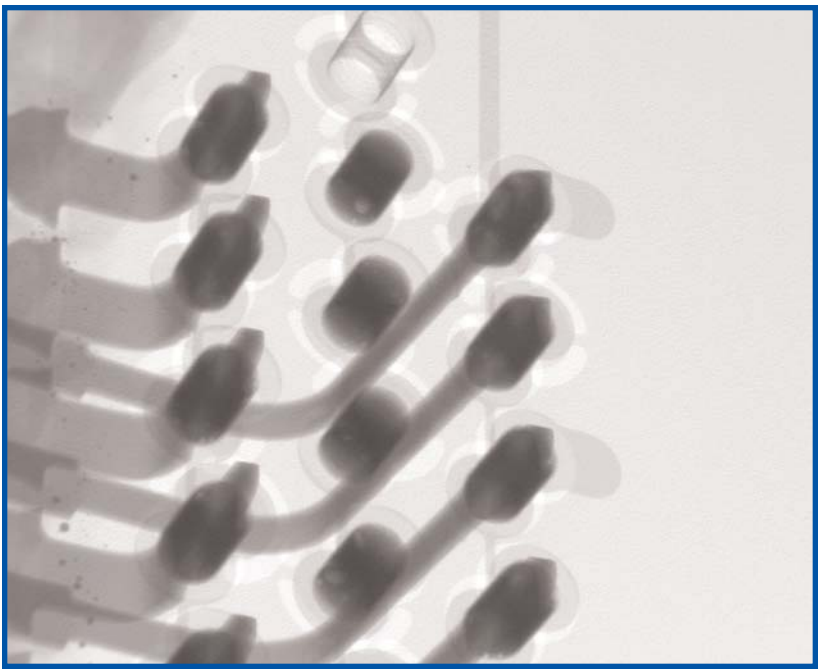


FIGURE 12: Part of 96-pin connector on an OSP board after convection reflow, center contact row not fitted.

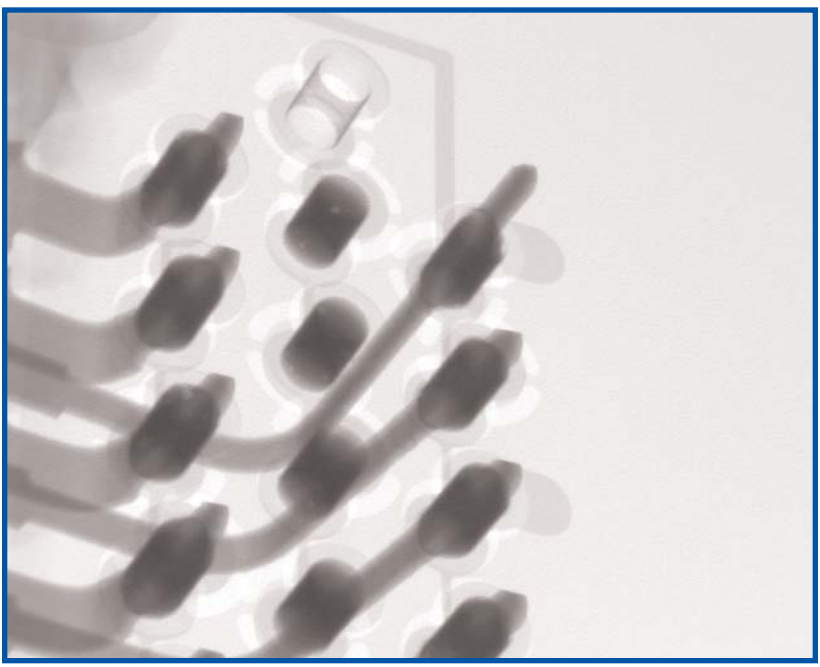


FIGURE 13: Part of 96-pin connector on an ImAg board after convection reflow, center contact row not fitted.