

Design Adjustments and Flexible Manufacturing Keep Airborne Radar on Schedule

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DEFENSE SOLUTIONS

Challenge

- Keep an airborne radar upgrade program on schedule
- Adjust smoothly to a late change specifying lead-free solder
- Switch manufacturing from Acrylic to Paralyne conformal coating

Solution

- CHAMP-AV8 and CHAMP-FX4 6U OpenVPX COTS modules
- Boards available with leaded or lead-free solder technology
- Advanced manufacturing with multiple conformal coating options

Results

- Despite requirement changes, no schedule slip
- No issues with solder choice
- Addressed tin whisker risk with customer preferred method

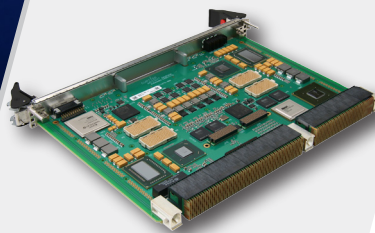
Challenge

Curtiss-Wright recently engaged with a customer designing an upgrade to an airborne radar processing system. Working with Curtiss-Wright systems engineers, the design team developed a powerful configuration build around the CHAMP-AV8 Intel-based and CHAMP-FX4 FPGA-based DSP boards.

Our customer's understanding was that leaded solder technology was acceptable; given this choice, tin whiskers were not a concern. Radar processing prototype systems

were built and application testing began using leaded solder boards, keeping to the program development schedule.

Then, at a fairly advanced point in the schedule, it was decided that lead solder technology was not going to be acceptable for this program. And, with a change to lead-free solder, mitigating against tin whiskers became a design issue, something the customer's design team had not dealt with before.



6U Intel-based DSP board

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Solution

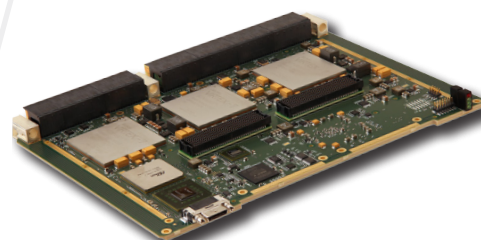
First, we assured the customer team of our ability to deliver the same design configuration with lead-free solder technology; our in-house manufacturing facility is fully capable of working with either type. We also shared our experience in dealing with tin whisker issues and offered conformal coating options as ways to deal with that problem. The customer selected acrylic conformal coating, also available in-house at the Curtiss-Wright plant.

At this point, new part numbers were assigned and adjusted manufacturing orders were expedited by Curtiss-Wright to keep the program on schedule. Work continued to move forward and then there was another new directive; to take tin whisker risk as close to zero as possible, the customer now wanted paralyne conformal coating.

While highly effective, paralyne conformal coating is a more complex and costly process; it is also yet another option Curtiss-Wright offers with our in-house manufacturing (urethane is also available). We adjusted the manufacturing plans again to meet the customer's newest requirements.

Results

Despite the last-minute changes, our customer's program still stayed on schedule. Curtiss-Wright not only supplied the latest in radar processing capability, we provided design and manufacturing flexibility that could adjust to shifting requirements. Our advanced manufacturing capability was key, supporting multiple options that are all part of standard product offerings.



6U OpenVPX FPGA DSP board