Proactive obsolescence management: critical advantage in aerospace and defense

Lansdale Semiconductor's VP of sales, Amy Clements, examines how obsolescence planning helps organizations reduce lifecycle risk, shortages and operational disruption

Obsolescence remains a persistent and complex challenge in the military aerospace sector, particularly regarding ICs. Unlike commercial markets that thrive on innovation and short product lifecycles, aerospace and defense platforms are designed to operate for decades. This structural imbalance creates an ongoing risk to project readiness, sustainment costs and overall program viability.

ICs are especially vulnerable to obsolescence due to the rapid pace of semiconductor wafer process evolution. Many manufacturers frequently discontinue legacy components in favor of newer, more efficient technologies, leaving defense programs scrambling to secure diminishing supplies. In many cases, original components become unavailable long before the systems they support are retired, forcing program managers into reactive and often costly mitigation strategies. The system design and qualification cycle will, many times, exceed the integrated circuit life cycle, particularly when using commercial marked products.

Last time buys, while effective in the short term, introduce their own risks due to the inability to forecast accurate usage and maintenance requirements, which leads to shortages or excess inventory and long-term storage concerns.

Monitoring product lifecycle data lets organizations anticipate obsolescence events before they become critical. This involves proactive obsolescence management. Continuing to utilize components with longer lifecycle projections, leveraging industry-standard parts where possible, and designing for interchangeability can significantly reduce future risk.

For companies still committed to ongoing IC support, the ability to provide traceable, reliable and form-fit-function compatible replacements is increasingly valuable. This may include sourcing hard-to-find components, offering proven alternatives or supporting redesign or replacement efforts. Advanced strategies such as die banking and aftermarket manufacturing can further extend legacy system life, while ensuring compliance with stringent standards.

Obsolescence is an ongoing challenge. Organizations that treat it as a strategic discipline are better positioned to control costs, maintain program readiness and support long-term mission success. In an environment where reliability is paramount and failure is not an option, a proactive and collaborative approach to obsolescence management is essential.

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