

FPGA Makers Shrug off Action

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PAINSTAKING INVESTIGATION typically follows the aftermath of major calamities, such as the collapse of a bridge or after a train wreck.

During discovery, it often becomes apparent that a number of people suspected that something was amiss.

A progression of warnings usually precedes the catastrophe.

In hindsight, a subject matter expert, whistle blower or leader within the knowledge base may have raised a red flag providing compelling evidence, or even presenting a paper to peers on the potential problem.

Whether through apathy, conflicting priorities or simply a lack of funding, action is not taken to correct a systemic problem, which ultimately results in a failure that affects government or society.

FPGA Makers Fail to Move the Needle

During the past 3 years, 15 articles have been published by six different industry publications citing a potentially risky issue that involves defense grade Field Programmable Gate Array (FPGA) and Application Specific (ASIC) devices.

90% of companies involved in the manufacture of FPGA and ASIC devices all rely on a tiny sole-source subcontractor to attach solder columns as the last step in the manufacturing process to attach solder columns to chip packages.

A couple of proactive FPGA makers understand the danger of depending on a single-source supplier and have moved forward with qualifying a second source for solder columns.

However, most FPGA makers have not taken action to broaden their reliance on the current supply chain choke point to perform column attachment services.

Supply Chain Sustainability at Risk

Defense-grade FPGA and ASIC devices with solder column interconnects

are required to keep warfighters flying and rockets launching.

A halt in the production of defense-grade FPGA devices due to the demise of the current monopoly subcontractor will result in an unexpected pause or interruption in the Defense Industrial Base.

This is a potentially dangerous situation.

The defense establishment needs to be more involved in efforts to encourage the industrial base to expand their reliance beyond the single source subcontractor, one who provides 90% of America's solder column attachment services.

The defense establishment would be incapable of providing black box systems to downstream customers due to the lack of FPGA and ASIC devices with solder columns.

A stoppage of production, caused by the demise of the single-source column attachment vendor, could trigger a catastrophic chain reaction in the US defense establishment and could adversely affect our allies who rely on a continuous source of defense-grade FPGA and ASIC devices.

This calamity could commence without a single shot being fired.

Market Ripple Effect

Defense-grade FPGA and ASIC devices with solder column interconnects are critically important in a tiny market consisting of less than 100,000 devices per year.

However, the lack of these components would initiate a ripple that quickly grows into a tsunami affecting the multi-billion dollar defense market.

To support the industry, the Department of Defense (DoD) can mitigate the risk by offering incentives to encourage the private sector to qualify alternative sources of solder columns.

The defense establishment needs to be more involved in efforts to encourage the industrial base to expand their reliance beyond the single source subcontractor, one who provides 90% of America's solder column attachment services.

A Plan "B" safety-net is needed to protect the defense industry in the event of a loss of a key and critical supplier.

Even under the best circumstances, it will take 3 years to build up capability within the supply chain for qualification and certification of alternative manufacturers of solder columns.

Conclusion

Production of defense-grade FPGA and ASIC devices with solder columns resides in a fragile market and ignoring the problem will not solve this issue.

America needs to broaden its supply base to include multiple suppliers who are capable of making and attaching solder columns for aerospace and defense grade FPGA components.

The clock is ticking.

The Space and Defense Industrial Base cannot afford to be unprepared.

America cannot afford to lose control of her superiority in these devices.

The time for action is now. ♦