

# FPGA Blueprint for Havoc

Martin Hart  
TopLine Corporation

*AN EXPEDIENT WAY TO CREATE havoc in the Defense Industrial Base would be to acquire control of a particular Silicon Valley subcontractor, then close down its operations.*

*Alternatively, one could take a less aggressive approach by keeping the subcontractor open and tripling the cost of services offered to its best customers.*

*The price to acquire subcontractors of similar size is probably a rounding error for a cash rich investor.*

*However, the collateral damage caused by such market disruption is upward of several billion dollars.*

*This is a frightening prospect.*

## Monopoly Businesses have Power

Let's take a better look into understanding how a tiny subcontractor can wield such power.

Let's consider that the above mentioned subcontractor is responsible for performing a supply chain service to attach solder columns to 90% of the free-world's production of ruggedized Field Programmable Gate Array (FPGA) components.

Why is this the case?

Ruggedized FPGA components with solder columns are essential to the operation of warfighters and many aerospace applications. National security would be compromised without such ruggedized FPGA components.

The monopoly business described above is basically supported with the blessings of the Department of Defense (DoD) and the Defense Industrial Base that has been in place for over 20 years.

The policy of relying on just one supplier can only have justification if this sole-source subcontractor stays in business ad infinitum, which is a risky bet no matter how you consider it.

Simply stated, one tiny business has a vulnerable choke hold on the industry.

The Nation does not have a Plan B, even in case that the sole-supplier fails to deliver.

Company	CAGE CODE
BAE Systems	1RU44
CAES (Aeroflex)	65342
Cypress Semiconductor Infineon Technologies	65786
Data Device Corporation	19645 / 7NV27
Honeywell International	34168
Microchip (Actel/Microsemi)	0J4Z0
Microchip (Atmel)	F7400
Teledyne Technologies	OC7V7
Texas Instruments	01295
Xilinx	68994

## FPGA and ASIC Makers using Solder Columns.

### 3 Years for Supply Chain to Fill the Void

Decision makers - most of whom are civilians - within the Defense Industrial Base are aware that it can take many years for an alternative supplier to jump through all of the necessary hurdles to become certified to attach solder columns on FPGA components.

One reason for this is that the U.S. Defense Logistics Agency (DLA) is backlogged 3 years for conducting field audits for the purpose of certifying a second source of solder column attachment services.

Another reason is that providing column attachment services is an artisan endeavor in a constrained niche market.

Any subcontractor who is interested in providing column attachment services needs to be willing to invest millions of dollars in specialized equipment and commit to training employees for years to be proficient in the art and science of making and attaching solder columns.

A lot of havoc can occur while the Defense Industrial Base remains vulnerable during a 3-year period, even as the Nation's warfighters and aerospace capability remains idle, due to a lack of FPGA components with solder columns.

### Summary

Defense-grade FPGA and ASIC component makers comprise an impressive list of market leaders.

Sadly, these prominent companies are reluctant to move beyond the current supply chain status-quo for the critical last step of attaching solder columns.

The industrial base is not taking action to expand their reliance beyond the current single source subcontractor who provides 90% of America's solder column attachment services.

### Conclusion

Stakeholders need to initiate a shared vision to ensure a robust and sustainable supply chain for FPGA devices with solder columns.

Fortunately, alternative manufacturing of copper wrapped solder columns and attachment services is already available domestically, pending certification.

Action should be taken now to qualify multiple subcontractors who are ready and willing to provide the critical process of copper wrapped column attachment services for FPGA packages.

A prudent investment today can mitigate the risk of waiting for an unexpected disaster to strike, with its potentially unimaginable cost to the defense industry.

An unplanned production stoppage of critical FPGA components could imminently severely diminish market readiness at any time.

The Defense Industrial Base has the means to act swiftly and proactively to build a solid foundation for the long term. ♦