

## Actel Corporation COTS and Up-Screening Policy

In 1994, Dr. William Perry, Secretary of Defense, announced a policy of adopting best commercial practices for procuring military electronics, including the purchase of Commercial Off The Shelf (COTS) products. The definition of COTS was vague. Some defense contractors thought it permitted the use of commercial products in military applications while others interpreted it as a directive to procure “Standard Products.”

Actel defines “Commercial Off The Shelf” as any product that is manufactured through a standard production flow and is listed in the price book, data sheet, or product catalog. This would include space-level, MIL-STD-883, commercial, and industrial temperature products. COTS does not include source-controlled drawings or special screening.

Design engineers need to use the right parts for their applications. They must evaluate the required operating conditions and determine if commercial, industrial, military, or space-grade products are required in plastic or ceramic packages. Actel provides detailed quality reports to help design engineers decide which product is right for their intended application.

Following the adoption of the Perry initiative, there has been increased up-screening of commercial devices to higher temperature, military, or even space-level standards. **Actel does not support up-screening. The testing of any part outside of Actel, or the use of any part beyond its recommended operating conditions, voids the warranty for that part. Actel will not accept devices tested beyond their recommended operating range for failure analysis. In addition, Actel accepts no liability for up-screened product or devices used outside of their intended application or temperature range.**

Actel FPGAs are very sophisticated devices. Many years of experience and countless thousands of hours have been devoted to refining test methodologies that assure high fault coverage and quality. Third party up-screen houses do not have the expertise to handle or test these devices properly. There is a high risk of damaging parts during additional testing, which could result in the use of a damaged product in production. In the FPGA screening process, Actel measures and controls parameters such as leakage current, supply voltage, and device propagation delays in order to determine suitability for each product grade. Third party up-screening facilities do not have the expertise or training specific to Actel FPGAs to enable them to perform these tests to the rigorous levels offered by Actel.

A common misconception is that all grades of an FPGA use the same basic dice. In many instances Actel offers military or space-grade products using dice that are different from those used in the corresponding commercial or industrial products. The benefits of the different dice will not be available to customers buying devices up-screened by a third party. There is also significant cost associated with up-screening, such as high NRE for hardware and software development. Yield loss in the up-screening process also needs to be accounted for. Customers considering up-screened FPGAs should bear this in mind.

Actel provides a wide selection of products covering commercial, industrial, and military temperature ranges in both ceramic and plastic packages. Actel offers MIL-STD-883, space level, radiation-tolerant, and radiation-hardened products for military, space, and other high-reliability applications. These COTS products are cost effective and fully guaranteed.



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