

DLA's Generalized Emulation of Microcircuits (Solution for Microcircuit Obsolescence)

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For more than 20 years, DLA has maintained a capability to provide form-fit-function-interface (F3I) microcircuits to support DoD requirements. SRI International (formerly the Sarnoff Corporation) is the contractor for this program and maintains a QML qualified, trusted (level 1), low volume wafer fab in Princeton, NJ. Unlike commercial wafer foundries, DLA support ensures that no fabrication capability is ever obsoleted or discontinued, thereby ensuring continued, long term availability. In addition to being listed as the sole source for nearly 1,000 standard military drawing part numbers, this capability can also be used to support program specific microcircuit requirements including ASICs and obsolescence-proof board level redesigns using custom developed microcircuits. An overview of the capability, including technical approach and examples of specialized support provided through the GEM program will be presented.

The presentation will review the unique approach to cost effectively emulate a wide variety of microcircuits, including: the extensive reverse engineering and characterization of customer-provided, known good reference devices; the use of specialized silicon base arrays and associated library elements to match the closely performance of part being emulated; a unique approach to low volume wafer fabrication; new technology offerings such as larger memory arrays and ECL emulation; and the various channels that can be utilized to access the GEM Program.