



DEFENSE LOGISTICS AGENCY

GEM & AME PROGRAMS

F-16 Fighting Falcon

Generalized Emulation of Microcircuits



System

F-16 Fighting Falcon

(WSDC 26F)

Role: Multi-role combat fighter

Produced: 1973- Present

Deployed: 1978

Number Produced: >4,600

Number in Service: 2,966

- U.S. Air Force: 936
- Foreign Military: 2030

Emulation Support

Over 1,800 individual parts delivered to support the F-16 Fighting Falcon.

Eliminated costly system redesign and maintained system readiness.

The DLA GEM program provides a permanent on-demand manufacturing source.

GEM Part Number: GEM16301BCA

Application	Power Control Assembly
Obsolete Device	M38510/30101BCA (54LS73 generic device).
Emulation Solution	A sample device was electronically reverse engineered and reference information was used to create a Form-Fit-Function-Interface (F3I) Emulation of the original part with matching critical programmable timing precision.
Customer	Honeywell
Benefit to Program	Eliminated hardware and software redesign due to part obsolescence, and maintains long-term production support.
Manufacturing Support	Utilized on-demand GEM manufacturing capability to deliver over 1,800 parts.

Our Story

In the late 1980s, DLA recognized that microcircuit obsolescence threatened the readiness of many American defense systems. Numerous systems in the armed forces were designed and developed in the 1960s and 1970s. For example, the U.S. Air Force began flying the F-15 Eagle tactical fighter in 1972, and the U.S. Navy first tested the AEGIS phased-array radar at sea in 1973. Because of continued advancements in semiconductor technology, the original suppliers stopped manufacturing the microelectronic components used in these and other systems. In 1987, DLA contracted with SRI to begin research and development on how to best replace obsolete microcircuits with standardized, modern integrated circuits (IC). DLA and SRI collaborated to develop the GEM Program. Using its on-site Trusted semiconductor foundry and deep knowledge of IC design/development, SRI produces on-demand, Class Q microcircuits matching the Form-Fit-Function-Interface (F3I) criteria of the required microcircuit. DLA is developing the next generation of F3I microcircuit Emulation capability through the AME Program to further alleviate growing IC obsolescence issues caused by the continued rapid advancements in technology. The new capabilities developed by AME are utilized by the GEM Program to ensure the Emulation Programs continue to meet weapons systems wide-ranging requirements. SRI's semiconductor foundry is accredited as a Department of War (DOW) Trusted Foundry supplier, and our manufacturing processes are qualified to MIL-PRF-38535.

