AEGIS: GENERALIZED EMULATION OF MICROCIRCUITS

System

Aegis Combat System (ACS)

Role:
Automated, command-and-control and weapons control system

Development:
1960s

Deployed:
1970s

Number in service:
USA: 89
Worldwide: 118

Emulation Support

Over 2,600 individual parts delivered to support Aegis systems.

Raytheon was able to fulfill a support contract to maintain a weapon system without a costly redesign effort.

The DLA GEM program provides a permanent on-demand manufacturing source.
Application | Aegis Radar System
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Obsolete Device | SG55470B Dual Peripheral Positive-And Driver
Emulation Solution | The requirements of this application were met using the GEM Program’s 100 V gate array technology and tested to the customer’s Specification Control Drawing. The GEM part GEM45620BCA is now available.
Customer | Raytheon
Benefit to Program | Eliminate system redesign due to part obsolescence, and provide long term production support
Manufacturing Support | Prototypes shipped in 2017 for system insertion testing. Over 2,600 production parts delivered

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 Defense (DoD) Trusted Foundry supplier, and our manufacturing processes are qualified to MIL-PRF-38535.

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