Welcome to our latest edition of the Emulation Zone Newsletter. We are often asked what is the process for obtaining a GEM quote for new Emulations, how do you engage? In this issue we answer this question. We are also excited to announce that the AME program has transitioned Fast CMOS TTL-Compatible (FCT) technology to the GEM program for production use. We are taking orders! Finally, the COVID pandemic continues to limit our ability to travel, but virtual Emulation briefings are an effective alternative and have been very popular this year. Contact us at geminfo@sri.com to schedule yours today!

SRI International, as the prime contractor for the Defense Logistics Agency’s (DLA) Generalized Emulation of Microcircuits (GEM) & Advanced Microcircuit Emulation (AME) Programs, provides technical solutions for microcircuit obsolescence. Our mission is to maintain and consistently develop obsolete microcircuit manufacturing capability for DLA and its DMSMS customer base to support U.S. military weapons systems and readiness. The programs deliver a permanent solution to microcircuit obsolescence that can be utilized during any phase of the weapon systems life cycle.

What is the Process for Obtaining GEM Parts?

The Generalized Emulation of Microcircuits (GEM) program provides Form, Fit, Function, and Interface replacements for a variety of non-procurable microcircuits including logic devices, programmable devices, static memory, microprocessors, microcontrollers, and ASICs. A GEM replacement of an obsolete microcircuit can prevent having to redesign an entire circuit card assembly and can be a very cost-effective solution. You may be asking yourself how much will a GEM part cost? Can my part even be emulated? How do I get started?

The first step is to request a quote (RFQ) or a rough order magnitude (ROM) estimate. GEM quotes or ROM estimates are provided not only to various Government agencies, but also to Original Equipment Manufacturers (OEMs), and distributors. Anyone who is supporting a military weapon system may submit an RFQ or ROM request.

To get started simply submit a request through your DLA logistic channels or to SRI (please see contact information at the end of this article). It is recommended that Government agencies contact the DLA Land and Maritime GEM Program Office directly for a quotation and SRI for a ROM estimate. If you are an OEM or distributor submit your RFQ/ROM requests directly to SRI. A part number along with a procurement specification (i.e., Standard Military Drawing, Source Control Drawing, Chip Manufacturer Datasheet, etc.) will be required. Other useful information to provide include NSNs (required if this will be a DLA managed item), forecast, military system name (WSDC), and application information.

Next, we enter a source verification phase. Because the GEM program is Government funded through DLA, we cannot provide a quotation if there is a qualified solution in the market. DLA will look for a DLA authorized supplier (someone who can provide traceability) for that part. DLA will also investigate whether there is an approved alternate, or if the obsolete part number has been standardized to another NSN. If an alternate solution is identified this information is shared with the customer.

Upon verification that no alternate source exists, the procurement specification is submitted through the SRI technical review cycle, where it undergoes an emulation assessment. This is where all electrical, functional, mechanical, and screening requirements are evaluated to establish whether existing GEM QML technology can meet the device requirements and a form-fit-function solution can be delivered. Multiple staff members review the specification due to the scope of analysis required. All key technical attributes are captured, including test and design requirements. An overall recommendation whether to undertake the emulation solution is made including the estimated scope/scale of work. If a “Bid” is recommended, the bid package is sent to DLA for a final review. Even if the outcome is a “No Bid,” information is still recorded for future AME roadmap consideration.
What is the Process for Obtaining GEM Parts? (cont.)

In the DLA proposal review process, DLA evaluates whether it is in the best interest of the Government to pursue. Several items are considered including level of effort required, criticality of target weapon system, number of weapon systems addressed, estimated annual usage, etc. If the part is used on multiple weapon systems, the non-recurring engineering fee may be greatly reduced or eliminated altogether. Once DLA approves the bid package a proposal is provided. The minimum order quantity through the GEM program is 50 microcircuits for brand new emulations. The entire quote process typically takes two weeks after a complete technical package has been submitted.

To see if a GEM replacement solution is viable for your application and/or to submit a ROM or RFQ contact:

**DLA Land and Maritime GEM Program Office:**
- Phone: (614) 692-4007
- Email: GEMOffice@dla.mil
**SRI GEM Program Office:**
- Email: geminfo@sri.com
- Website: gemes.com RFQ Form

**Tradeshows/Upcoming Conferences**

We attended the Tinker and the Primes conference, August 10-12, in Midwest City, OK, and the F-16 & Proven Aircraft TCG Worldwide Review, September 13-17, in Ogden, Utah. It was great getting back out there again and promoting the GEM/AME programs. Thanks to all who stopped by our booth to visit.

Unfortunately due to the uncertainty of rising COVID cases and the Delta Variant, travel for the remainder of the year will be limited. The Parts and Materials Management Conference (PMMC), originally scheduled for December 13 – 16, 2021, at the Gaylord Rockies Resort & Convention Center in Aurora, Colorado, has been postponed to the Spring of 2022. The Defense Manufacturing Conference (DMC) will occur at this time/location as originally planned. In lieu of attending in-person events we are scheduling virtual Emulation program introduction/briefings. Please contact us at geminfo@sri.com to schedule your virtual briefing today!

**Planned 2022 Trade Show Attendance**
- GOMAC, March 20-24, Miami, FL
- Dixie Crow Symposium, March 21-24, Warner Robins, GA
- Tinker and the Primes, August 9-11, Midwest City, OK
- F-16 & Proven Aircraft TCG Worldwide Review, September, TBD
- C-130 TCG Worldwide Review, October, TBD
- F-15 TCP WWR, November 14-15 Miramar Beach, FL
- DMC/PMMC (formally DMSMS), TBD

**Contact Us**

Visit the Emulation program at www.gemes.com, or contact us at geminfo@sri.com. A complete GEM parts list is available at our website. Also, you can download previous newsletter editions at this site. Remember, GEM microcircuits are NEVER discontinued!

Stay Connected - follow us on Twitter AND LinkedIn

**Resupply for Fast CMOS Technology (FCT) is Now Available**

- Technology: 0.5 μm CMOS
- Voltage: 5.0 V
- Metal: 3 Levels
- Speed/Power product: 3.6 pJ
- (Best 5V logic family performance)

We are pleased to announce that the AME program has developed capability to re-establish a continuing manufacturing source for obsolete Fast CMOS TTL-Compatible (FCT) microcircuits. The FCT logic Family was first introduced in early 1986 and offered the fastest speed and output drive capability and the lowest power dissipation in the industry at the time. It became available in a number of different functions and was popular in military applications. We have developed FCT technology that can emulate a variety of product types including registers, counters, multiplexers, transceivers, and others, in an assortment of ceramic packages - FPs, DIPs and LCCs, in the 16-56 pin range. The technology is flexible enough to address other similar logic families featuring high speed and low power dissipation such as the AC/ACT (Advanced CMOS Logic) families. According to DLA’s Standard Microcircuit Cross Reference (SMCR) system this capability will provide resupply for more than 275 FCT and more than 77 ACT unique parts with no sources listed, many of which have NSNs. The DLA sourcing and qualification division (VQ) has recently certified a new GEM FCT part as qualified under QML-38535 and this will be listed on the SMCR soon! Full part details as follows: GEM PN GEM46901QLA - SMD PIN 5962-9222901MLA - Generic 54FCT823AT – NSN 5962-01-554-4559. The FCT Emulation solution provides a permanent source for Form-Fit-Function-Interface (F3I) equivalent component, improving Warfighter readiness and DMSMS system planning.