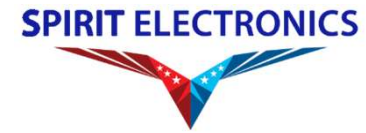


SPIRIT ELECTRONICS



**Redefining
Distribution**

SPIRIT ELECTRONICS PROPRIETARY INFORMATION



OUR CULTURE

Team **SPIRIT 43** years of service

*Continually Achieving and Improving Quality and Customer Satisfaction Through
Our Spirit and Commitment to Excellence. ISO9001 and AS9100 Certifications*



SPIRIT ELECTRONICS



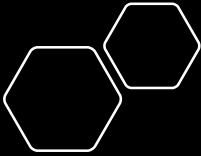
SDB ADVANTAGES

SDB SPEND
CATEGORIES

- Veteran Owned
- Woman Owned
- Hub Zone Certified
- Small Business

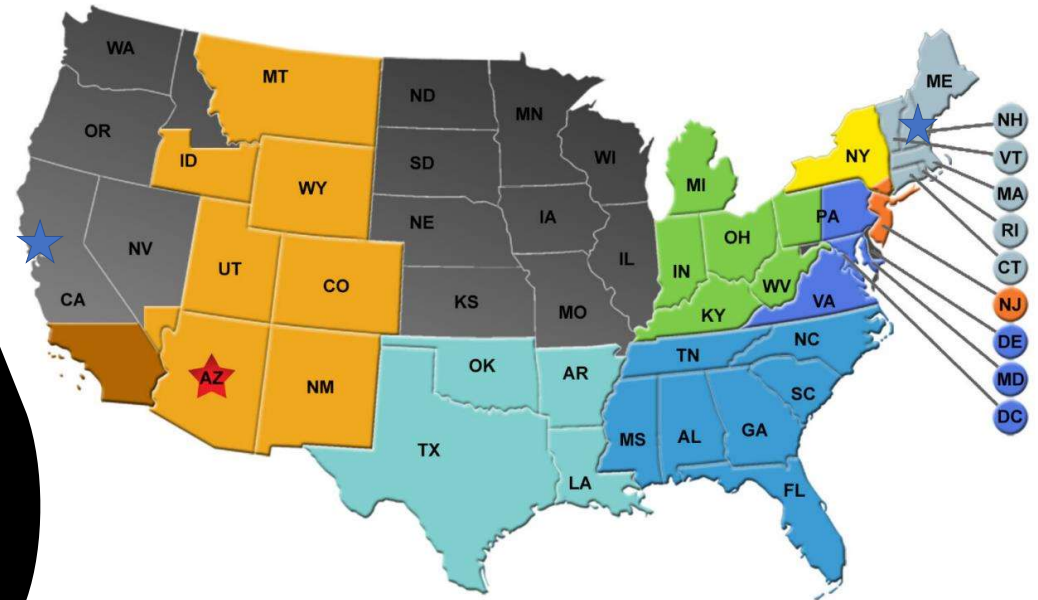


SPIRIT ELECTRONICS PROPRIETARY INFORMATION



Strategic Growth

- Territorial salespeople
- Support staffing at major primes
(Inside support position at BAE & LMCO)
- Strategic VMI engagements
- Select line card expansion





FRANCHISED HIGH RELIABILITY DISTRIBUTOR

CERTIFICATIONS | ACCREDITATIONS

COMPREHENSIVE QUALITY

- AS9100
- ISO9000
- Trusted
- Successful audits by primes
- DLA Certified
- Cyber Security CMMC Level 3

- *Trusted Accreditation in Process*

EXCELLENT DEMAND FULFILLMENT

UNMATCHED ERP SYSTEM



- Inventory Management
- Box Stock Inventory
- Die/Wafer Processing
- MRP Control
- Specific Insurance Riders for Vendor Inventory
- Just-in-time Delivery
- Supply Chain Solutions



Your One-Stop Shop

We are redefining the meaning of distribution in our industry with value add, test and assembly services now available under one roof.

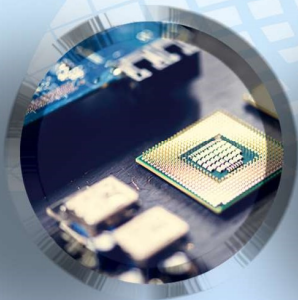
SPIRIT ELECTRONICS PROPRIETARY INFORMATION

Your **Full Turnkey**
SOLUTION

SPIRIT ELECTRONICS



✓ **Component
Procurement**



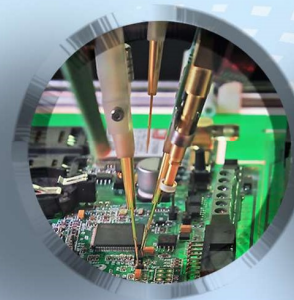
✓ **Screening /
Value-Add**



✓ **BOM
Management**



✓ **Contract
Manufacturer**



✓ **System
Level Test**



Advantages

- Cost & Schedule Reduction
- Robust QA Controls & Oversight
- Reduced Material Handling
- Reduced Paperwork & Processing
- Care Custody and Control
- Expertise and Tribal Knowledge

• ***One PO, One Supplier***



One order. One shipment.

Our line card is formulated to be synergistic. Spirit can provide many parts from multiple suppliers — passives, memory, timing control, connectors and more — so customers can place one order and track one shipment instead of many.

SPIRIT ELECTRONICS PROPRIETARY INFORMATION



OUR LINE CARD: BEST BRANDS IN THE BUSINESS

WE ARE THE **BOM.**

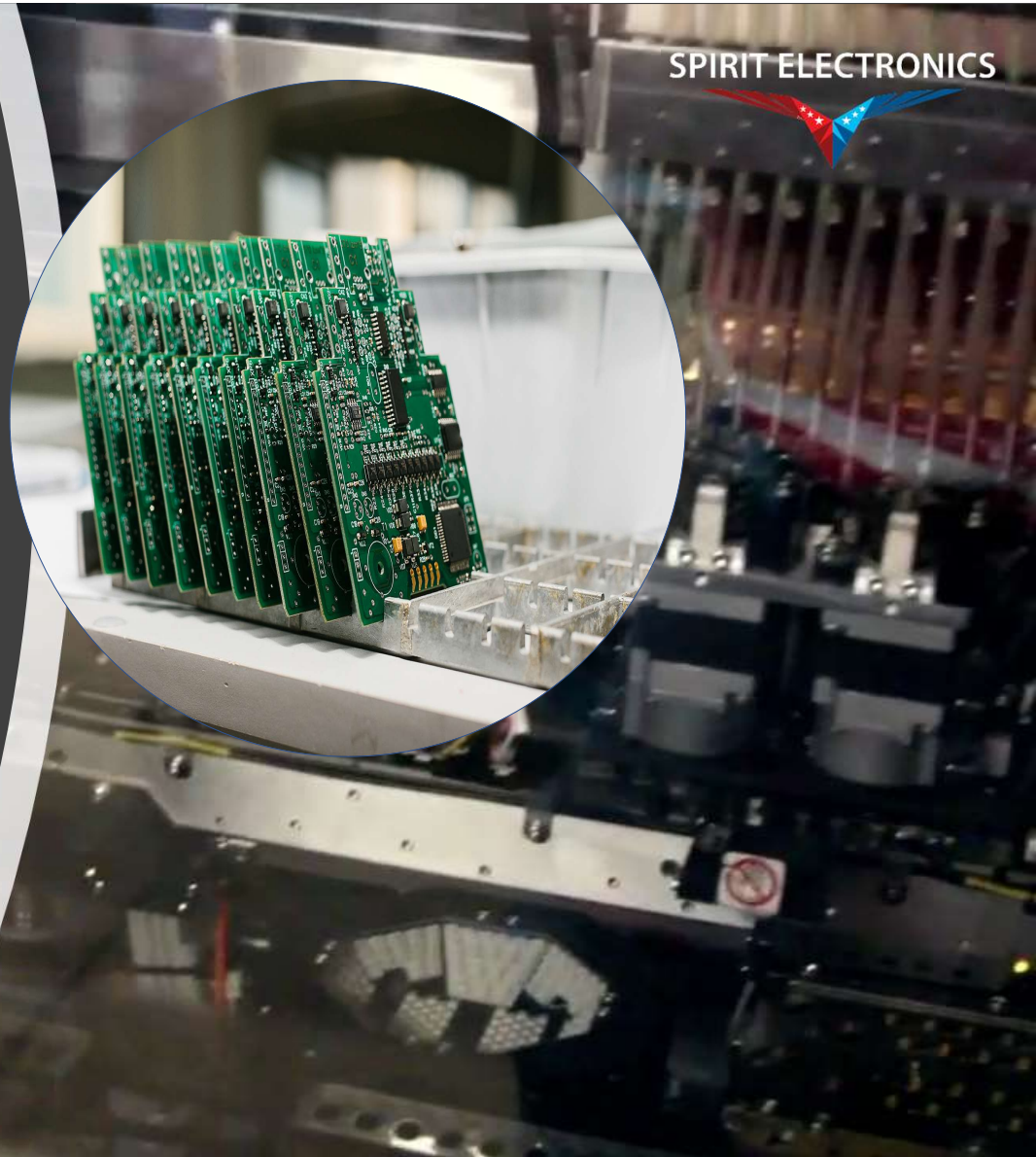
With inventory options for EOL and LTB, we're protecting your interest. We are a designated high reliability distributor and an accredited distributor for your EOL products. We are a franchised and authorized distributor for these brands:



Circuit Card Assembly Line

- 45,000 chip-per-hour pick & place machine
- High accuracy, can place an 03015 ultra-tiny chips, up to the industry's largest FPGAs.
- SMT/SMD thru-hole and mixed technology PCB assemblies
- Ability to trace a part all the way down to the reference designator on the board
- PCB sizes from 50mm x 50mm (2" x 2") to 810mm L x 480mm W
- 5300 sq ft dedicated to board assembly (Phx, AZ HQ Facility)
- Equipment: Screen Printer, Pick & Place, AOI (Automated Optical Inspection), Reflow Oven (10x 12.5" Zones)
- Prototype quantities, up to production volume runs
- Able and willing to handle high \$ ASP components

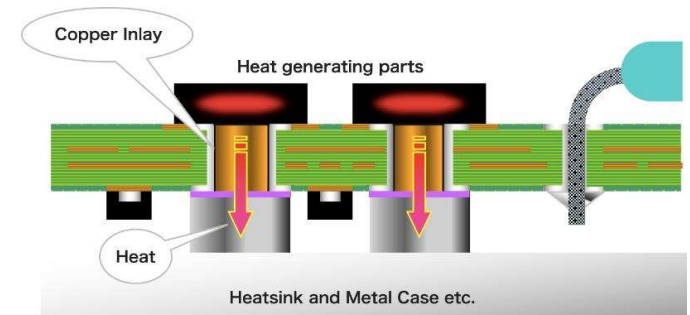
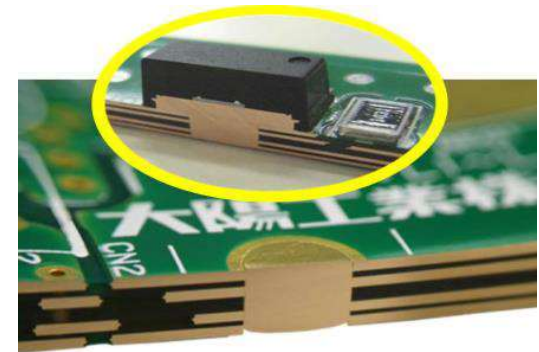
SPIRIT ELECTRONICS PROPRIETARY INFORMATION



PWB Fabrication Support

- Heavy copper inlay PCBs
- Support Ruggedized Designs
- Up to 6 layers and 3.5mm thickness.
- Copper Inlay, High Current, High Heat Dissipation
- Embedded BUS Bar Option
- Improve performance and lifespan
- Engineering support for design & layout
- ITAR Designs Accepted
- Spirit is sole US distributor

**Alternative PWB solutions also available*





Combination PCB



- Copper foil thickness : 8.6oz & 2oz copper on the very same layer
- Number of Layers : 2- 6 Layers
- Board thickness : 0.051"-0.137" (1.3 - 3.5 mm)
- Available : IVH / 11.4oz, 14.3oz and < 6.8oz copper for Inner layer
- UL Certified

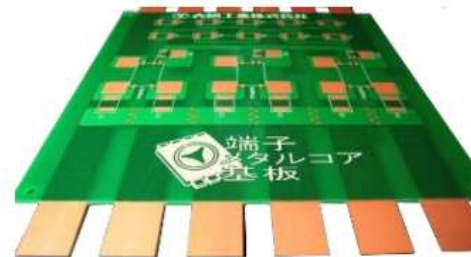
Heavy Copper PCB



- Copper foil thickness : 8.6/11.4/14.3oz (using rolled copper foil)
- Number of Layers : 2-6 Layers (depending on Cu foil thickness)
- Board thickness : 0.051"-0.137" (1.3-3.5 mm)
- Available : IVH / less that 6.8oz for Inner layer
- UL Certified



TAIYO KOGYO CO.,LTD.
Printed Circuit Company



**Embedded
Bus Bar PCB**

Instead of using etching process to make traces, 14.3oz. or heavier Bus-Bar is made with rolled copper foils by metal fabrication, and it can be embedded in the PCB.

IN-HOUSE VALUE-ADD SERVICES

- PEMs Qual: Temp Cycle, Burn-In, C-SAM, HAST, PIND
- XRF
- X-Ray
- Solderability / Steam Age
- Laser Marking
- Solder-Exchange / Hot Solder Dip
- Robotic BGA Re-Ball
- Tape & Reel
- Kitting



XRF Analysis

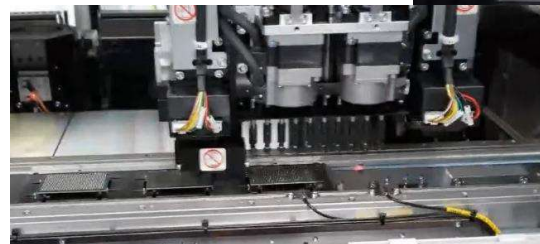
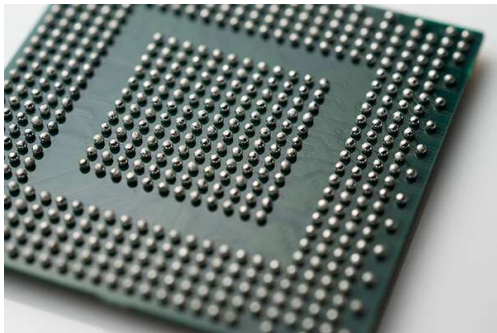


Our High-Sensitivity XRF Analyzer is capable of determining hazardous substances over entire surfaces as well as measuring microscopic points in a specified area, tasks that are not possible using conventional XRF instruments.

- High-speed Mapping
- High Count Rate Detector with No LN₂ Required
- Continuous multi-point Measurements
- High Precision Overlap Function
- Microscopic Area Coating Thickness Measurements
- RoHS Inspection
- Light Element Measurement
- See-through Mapping Function
- Contaminant Analysis
- Sample Collision Prevention Mechanism

Robotic BGA Reball

- High Precision
- Streamlined Process
- Robotic Ball Removal
- SMT Automated Flow
- MIL/Aero Focused



SPIRIT ELECTRONICS



STATE - OF - THE - ART

ADVANTEST TESTERS

9

SmartScale
93K Series
Testers

\$3.5M each

8 Position
System Level
Test Board

9GHz Cards

High-End Low-Noise
Hot & Cold Wafer Probes



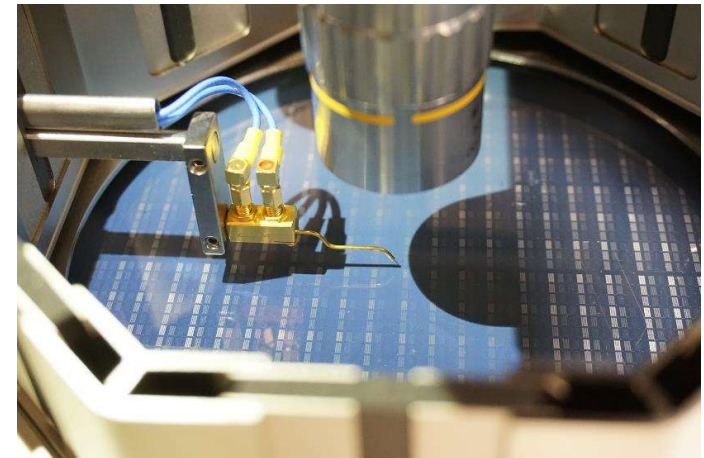
VALUE-ADD SERVICES

- Up-Screening
 - Extended temperature testing
 - Space-level screening
- Qualification & Reliability
 - X-Ray
 - Temp cycling
 - Burn-in
 - C-SAM
 - Electrical testing
 - Preconditioning
 - HAST
 - DPA
- Radiation Effects Testing

SOLUTIONS FOCUSED:

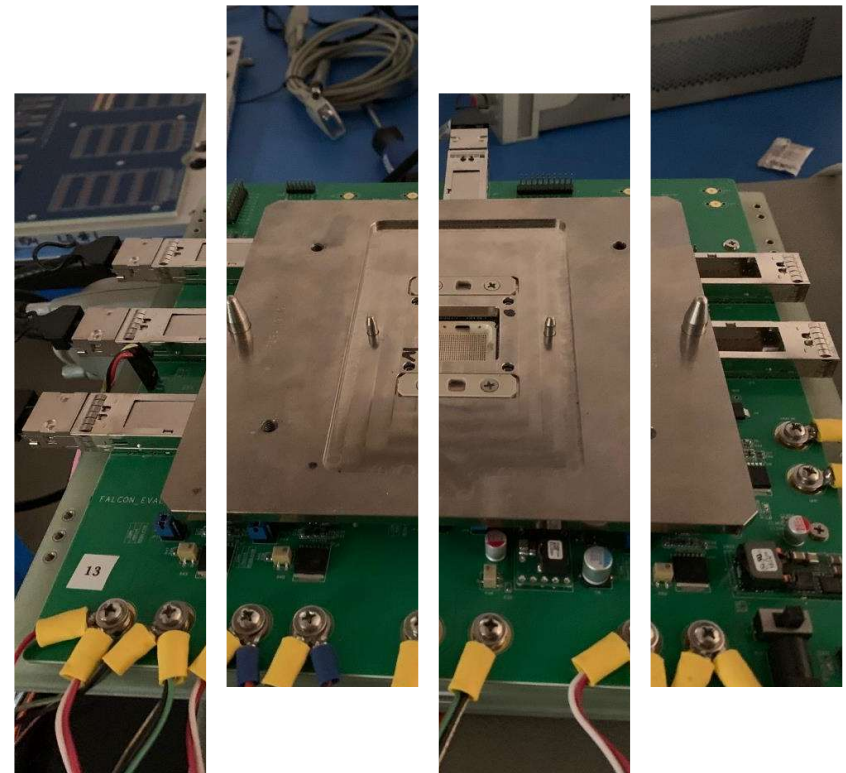
HI-REL, APPLICATION SPECIFIC AND PEM QUALIFICATION SOLUTIONS

- Value-added up-screening for custom and application-specific requirements
(Source Control Drawings: Spirit Part Numbers)
- Enhanced testing integrated into OEM manufacturing flows designed to produce certified and application-specific qualified products
- OEM valued added and final up-screening
- Mil-Std. Compliant Groups A, B, C, D and E testing
- Radiation testing and screening
- System Level Testing



Testing & Screening

- Electrical Testing: High Speed RF, Three-Temp, Programming, Active & Discreet, Analog & Digital
- FPGA
- ASIC
- Microprocessor
- Memory
- Mixed Signal
- RF
- ADC/DAC
- High speed transceivers





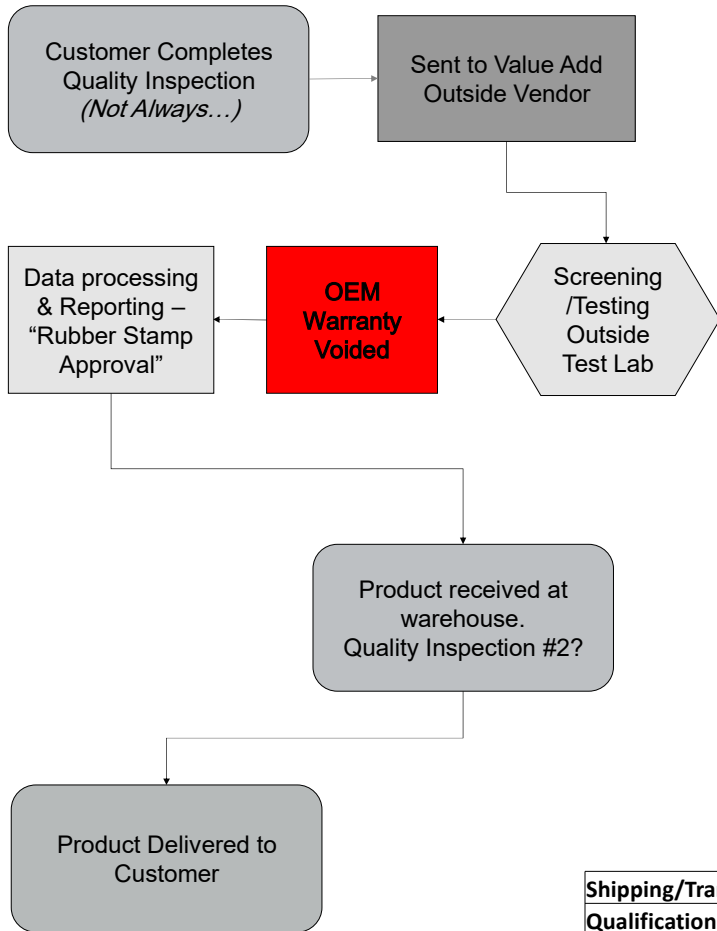
RADIATION & SCREENING

- Application Specific Use Requirements
- Customer Specs Required
- Radiation Test Logistics
- Proprietary, Power-On Methodology
- Pre/Post Electrical Characterization
- Existing Beam Time Reservation
- Flash / FPGA / Microprocessor



WE OWN THE QUAL.™

TRADITIONAL PROCESS



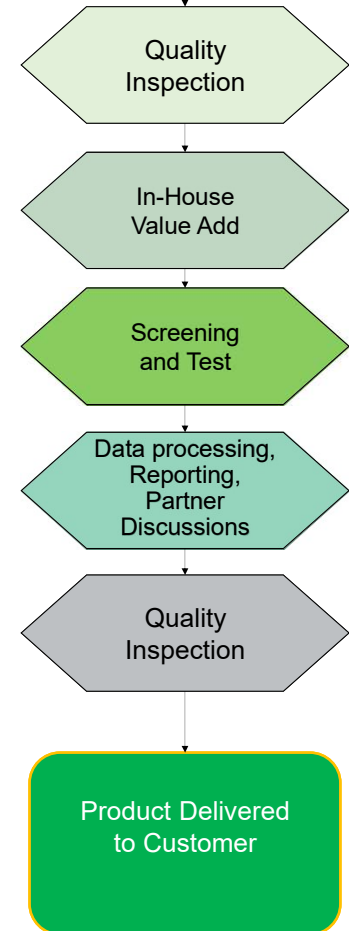
At Spirit Electronics, we own the lot until our customer receives it, taking full responsibility until it's in their hands. Our customers know that the parts they're receiving are 100% problem-free. Guaranteed.

Quality ^{with} Control

Components from Spirit Electronics have been qualified at our OEM authorized facility, never leaving our sight. Other distributors outsource their component testing to third-party subcontractors where they can change hands again and again, voiding the factory warranty.

	Traditional	Spirit	TOTAL Time Savings
Shipping/Transit Savings	30	10	20 Days
Qualification Test	9 Months	MOTS	9 Months

"We Own The Qual"
– from start to finish.



Data Sheets for Custom Devices

Eliminate the need for customer control devices.

With more than 40 years of experience, Spirit Electronics has a wide breadth of engineering knowledge.

We are equipped to collaborate with your engineering team or create a customized engineering solution for your project.





Micron[®]
MOTS Memory!

Accelerate your time-to-market with Micron Technology products. Now available as MOTS (Military-off-the-shelf) from Spirit Electronics. They are rigorously tested for reliability in a wide range of applications and optimized for performance, power and security.

Micron DDR, LPDDR and Flash
now available as military-off-the-shelf at
Spirit Electronics, your veteran-owned,
woman-owned SDB value-added supplier.

SPIRIT ELECTRONICS



SPIRITELECTRONICS.COM

ENGINEERING SUPPORT

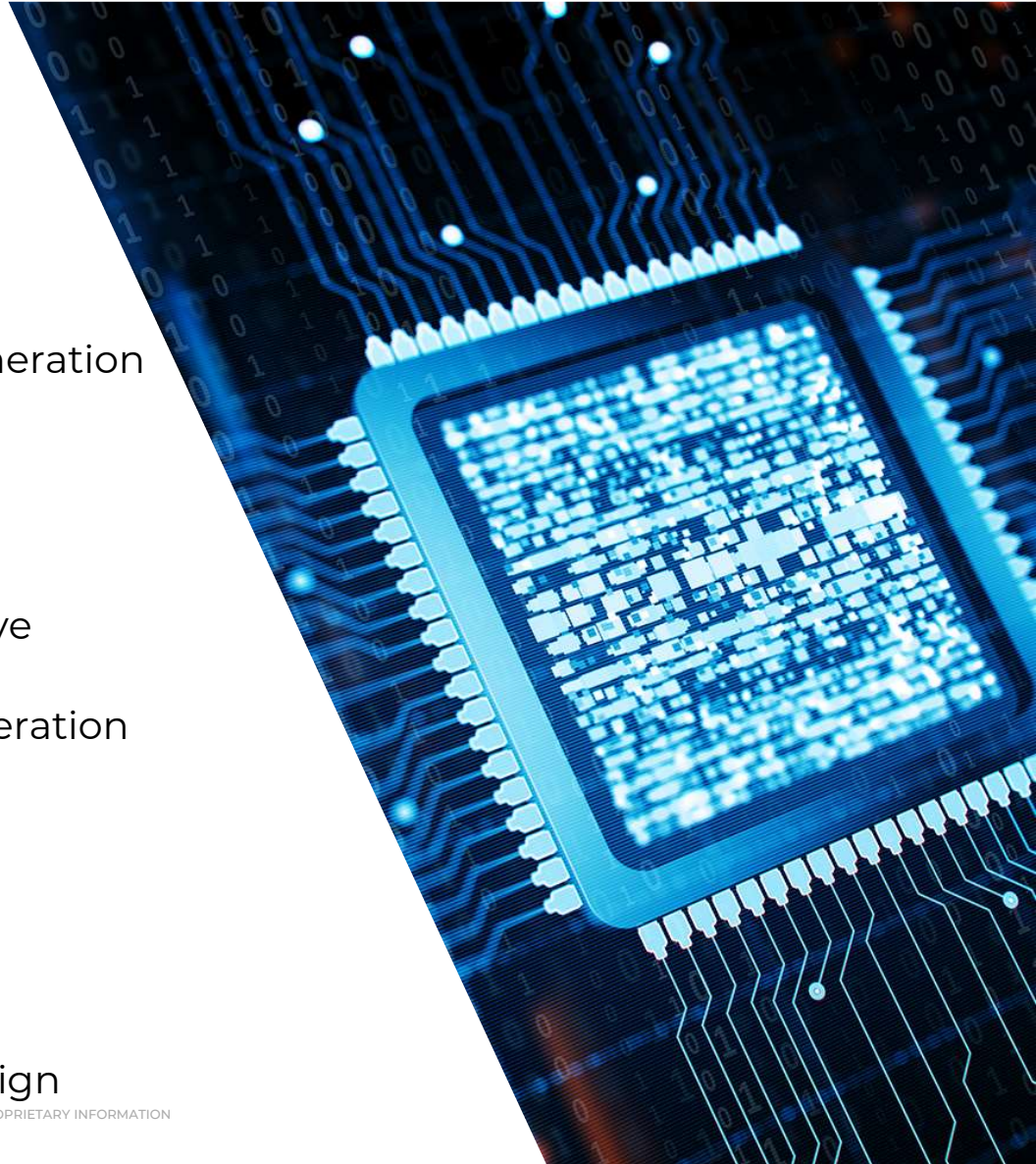
ASICs & SoCs

- ASIC test methodology and test pattern generation
- Memory built-in self-test (BIST)
- Scan insertion
- FPGA design and verification
- Design synthesis
- Custom integrated circuit solutions that solve problems and add value
- Robust ASIC design solutions for reliable operation in harsh environments

RF Design

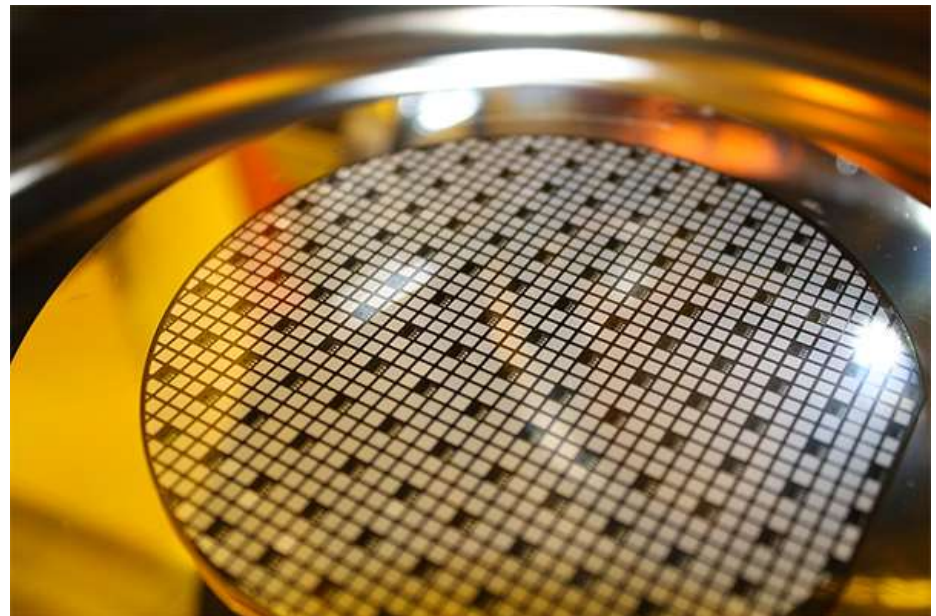
- From schematic to layout
- Enabling the IoT
- Meeting the challenges of 5G in RF PCB design

SPIRIT ELECTRONICS PROPRIETARY INFORMATION



WAFER & DIE SERVICES

- **Wafer Probing (hot & cold temperature)**
- **Wafer-Level Programming**
- **Wafer Thinning (to 50 microns)**
- **Wafer Sawing (to 300mm wafers)**
- **Wafer Mapping/Inking**
- **Wafer Dicing**
- **Pick-and-Place**
- **Visual Inspection (MIL-STD-883 or custom)**
- **Lot Qualification (Class H or K)**
- **Long-Term Die & Wafer Storage**

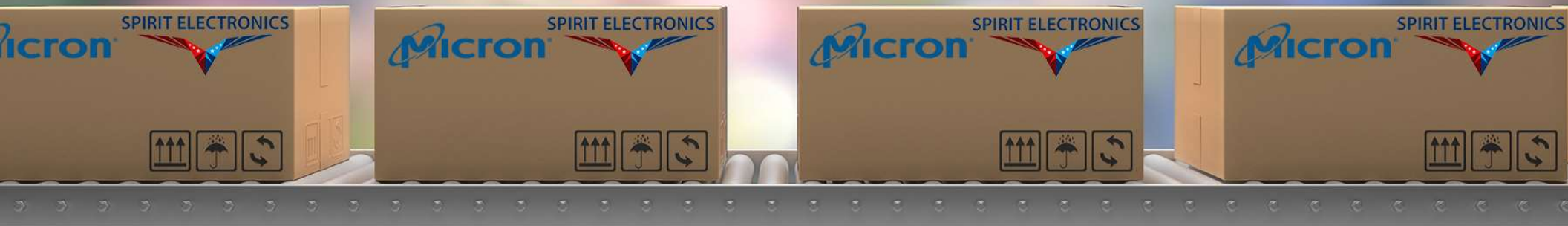




SMI Programming

- MRP Planning
- Procurement
- Inspection
- Test
- Packaging
- Warehousing of Inventory
- Timely Delivery

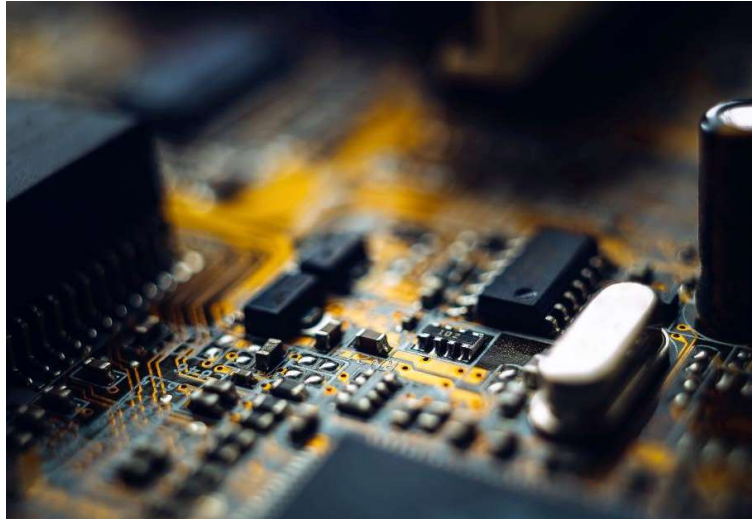
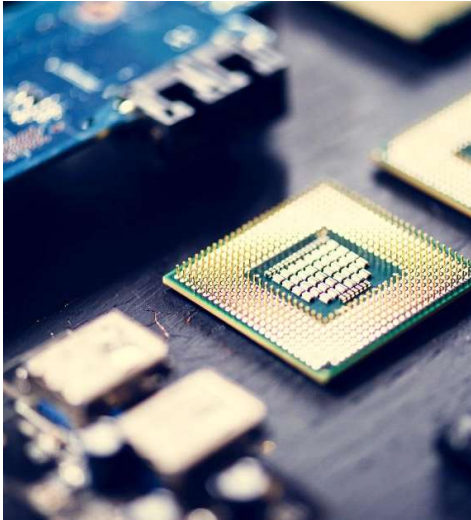
SPIRIT ELECTRONICS



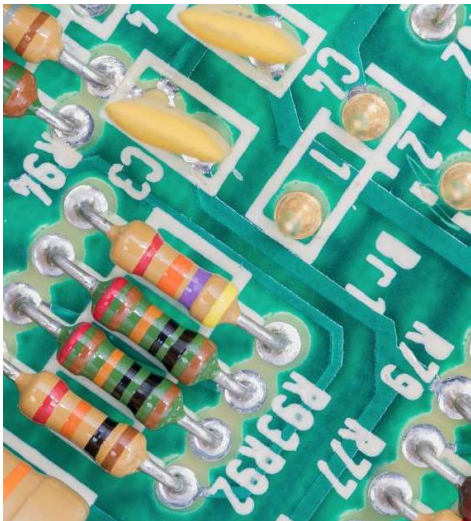
VMI – VENDOR MANAGED INVENTORY

SMI – SUPPLIER MANAGED INVENTORY

Spirit has a long and successful VMI engagement spanning 15+ years with major prime OEMs. Our focus on serving the customer has led to a deeper relationship and greater opportunities to support both Supply Chain and Engineering needs.



**YES,
WE DO
KITTING!**



We act as the single source for all the components used on a project - labeled, prepared and delivered ready for manufacture on a date that suits your production schedule.

Oracle Enterprise MRP System

- EDI integration and automation
- Top-tier, all-inclusive MRP system
 - Supports Fortune 500 companies worldwide
- Daily seamless, accurate operational infrastructure
- Order management
 - Quoting, contract review, purchasing, inspection, and shipping
- Configured and customizable to support test workflows
- Multi-location functionality
- Dedicated team support
- Traveler and work order data management
- CMMC Level 3

SPIRIT ELECTRONICS



SPIRIT ELECTRONICS ROBERT L. HARRIS, CHIEF FINANCIAL OFFICER



PC-2425 II



CAPITAL EQUIPMENT

- **Focused Test** – Power Discrete and Analog ATE
- **Hirayama** – HAST Chambers
- **Sonix** – Acoustic Microscopy
- **Eles** – Destruct Durability Test



SPIRIT ELECTRONICS



**Your one stop-shop and support team dedicated
to providing cost savings and liability reduction
while enhancing ease of order fulfillment.
A proven solution provider from order to delivery.**

SPIRIT ELECTRONICS PROPRIETARY INFORMATION

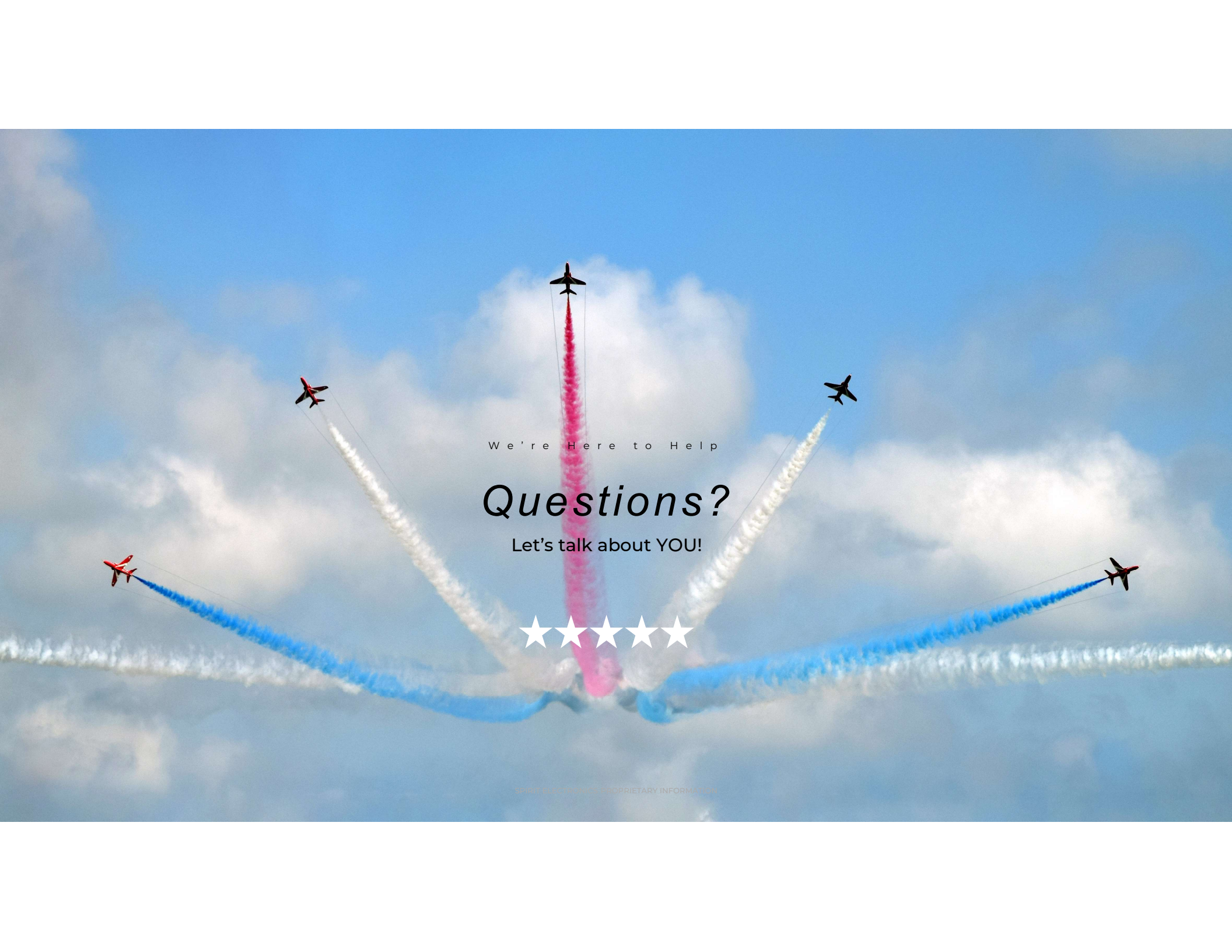
How can we help?

SPIRIT ELECTRONICS



ENGINEERING SUPPORT

- Maximize operational efficiency
- Project management
- In-house screening and qualification
- Source Control Drawing writing and requisition documentation for a BOM
- Experienced and knowledgeable staff for Supplier Managed Inventory through our expansive ERP system



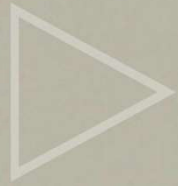
We're Here to Help

Questions?

Let's talk about YOU!



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APPENDIX





SPIRIT ELECTRONICS



Get the inside scoop on industry news and technology!

Spirit Electronics CEO Marti McCurdy talks with aerospace and defense experts about high-reliability components and industry-rocking topics affecting the supply chain.

Announcing our new **#podcast** launch, Spirit: Behind the Screen! Now live on **Apple**, **Spotify**, **Podbean** and more.

In the first episode, Spirit CEO **Marti McCurdy** sits down with **Jackie Mattox** of **Women in Electronics** for an interview about how to double down and chase your goals when your business is in a time of transition.

Subscribe and stay tuned; we have a great lineup in the works for you! Learn more:

<https://lnkd.in/epaviwv>

Together, we
soar.



Spirit Gives supports military families from tour of duty through civilian transition with events, activities and philanthropy to strengthen the family through community, mentorship, character/skill building and needs-based services.

Spirit Gives is a philanthropic arm of Spirit Electronics. Through charitable events and fundraisers, we invite you to join us in making a positive difference in our world.

Spirit Gives is a registered 501c3 charitable foundation.

[SPIRITGIVES.ORG](https://www.spiritgives.org)

TEAM SPIRIT'S STRENGTHS



INFRASTRUCTURE

- Sophisticated ERP system for inventory and operations management
- Warehouse capacity, in-house processes and resources for 6X increase in inventory
- Engineering input for design win opportunities
- Long-term employees with historic and abundant industry connectivity

QUALITY

- Quality Management System integrated for high reliability quality operation
- Heritage and Legacy programs with engineering support
- Full turnkey value-add from our sub-con approved suppliers
- Adaptation to customer application specific use for product screening and qualification
- Tier 1 customer integration

ENGINEERING

- ASIC design team with 3 decades of experience
- Value add spans design to manufacturing to product assurance
- Spirit is discriminating in product selection to support mil/aero existing customer base
- Core engineering strength for EOL supported products

THANK
YOU

SPIRIT ELECTRONICS



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