
MERRITRONIX

Electronics Systems Design & Manufacturing Excellence

Established & Trusted for 25 Years

 MICRO-ELECTRONICS

 AEROSPACE & DEFENCE

 MEDICAL ELECTRONICS

 COMPLEX PCBA & NPI

Delivering "First Time Right" solutions for mission-critical applications.
From simplest PCBs to highest density 2200-pin BGA assemblies.

Company Overview

Electronics Systems Design & Manufacturing

Merritronix has established itself as a premier partner in the electronics ecosystem, delivering precision manufacturing solutions for over two decades. We specialize in bridging the gap between design conceptualization and production reality.

Our expertise spans from simple PCBAs to highly complex assemblies comprising fine-pitch BGAs, LGAs, and package-on-package technologies. We serve as a critical manufacturing partner for engineering services companies and customers in niche high-reliability segments.

FOCUS SEGMENTS

Niche & High-Rel

BUILD TYPES

NPI to Production

25
YEARS



Medical Electronics

Manufacturing critical care and diagnostic equipment components with rigorous quality standards and traceability.



Aerospace & Defence

Delivering high-reliability assemblies for mission-critical applications that demand zero failure rates in harsh environments.



Complex Assemblies

Handling components from 0201 packages to 2200-pin BGAs with industry-leading density capabilities.



Service Partnership

Trusted partner for engineering services firms, providing seamless manufacturing support from prototype to volume.

Technical Capabilities

Advanced Manufacturing & Process Expertise



Advanced Packaging

Expert handling of complex packages including fine-pitch BGAs, LGAs, QFNs, and high-pin-count components.

TECHNOLOGY: BGA, LGA, QFN



3D Integration

Specialized capabilities in Package-on-Package (PoP) assembly and double-sided high-density board population.

FEATURE: PACKAGE-ON-PACKAGE



Extreme Miniaturization

Precision placement and soldering of passive components down to 0201 imperial size for high-density applications.

MIN SIZE: 0201 COMPONENTS



Large Scale PCBA

Equipment and processes capable of handling large format boards up to 460mm x 560mm with high component counts.



High Density Builds

Handling extreme component density with thousands of parts per board, including multiple high-pin BGAs.



Process Excellence


In-depth process understanding ensuring "First Time Right" delivery for critical aerospace and medical builds.

Record-Breaking Achievements

HIGHEST DENSITY

115 components

Packed into a compact 15mm × 15mm area. Includes advanced 0.35mm pitch BGA and QFN packages.

 0.51 components / mm²



LARGEST PCBA FORM FACTOR

460 × 560 mm

Massive board featuring 6,302 components and 78 BGAs spread across both sides.

 Double Sided Assembly



MAX BGAS PER BOARD

798 BGAs

Single PCBA populated with nearly 800 distinct BGA packages (9-pin type), demonstrating high-throughput precision.


 100% Placement Accuracy



LARGEST BGA HANDLED

2,200 pins

Complex assembly of 4 separate 2,200-pin BGAs on a single PCBA, requiring exceptional thermal profile management.

 Advanced Thermal Profiling



Quality Excellence & Recognition

Validated Performance & Industry Trust

ISO 9001

AS 9100D

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*"We are the only company to whom a written recommendation was issued by a **semiconductor device manufacturer** stating that we are recommended for assembly of their component."*



Semiconductor Industry Leader

Official Endorsement of Capability



First Time Right

100% track record for all showcased assemblies. Our process controls ensure zero rework on complex NPIs.



Process Mastery

Demonstrated in-depth understanding of material science and thermal profiles essential for reliability.




Global Certification

Acquiring international certifications to qualify as a direct supplier to global OEMs for mission-critical applications.

Trusted by Leading Organizations

Partnerships Driven by Precision & Reliability

 Global Reach

 Multiple Verticals



CERN

SCIENTIFIC RESEARCH



MICROCHIP

SEMICONDUCTOR



CADENCE

ELECTRONIC DESIGN



SILICON LABS

IOT & WIRELESS



REGAL REXNORD

INDUSTRIAL MOTION



ABB

AUTOMATION



HONEYWELL

AEROSPACE & TECH



NICHE OEMS

MEDICAL & DEFENSE



Engineering Services

Rapid Prototyping & NPI Builds



Qualification

Testing & Certification Cycles



Volume Production

Reliable Manufacturing Scale-up

TRUSTED

Innovation & Custom Solutions

Transforming Engineering Challenges into Production Reality

Approach

Form-Fit-Function (FFF) Engineering



01

Obsolescence Management

Designed and developed FFF equivalents for DC-DC negative voltage converters to replace obsolete parts, ensuring continuity of production for critical customer systems without requiring board redesigns.

✂ LEGACY SUPPORT



02

Custom Logic Development

Indigenously developed and manufactured an FFF equivalent for CPLD (Complex Programmable Logic Device). Tailored specifically to meet unique customer logic requirements unavailable in standard off-the-shelf components.

🔗 INDIGENIZATION



03

High-Reliability Supply Chain

Established a specialized SCM network for sourcing bare dies from die banks and specific ceramic packages. Enables delivery of high-reliability components for niche segments where standard plastic packages fail.

🛡 DIE BANKING

Vision & Strategic Direction

Future Roadmap: From Manufacturing to Integrated Solutions

01



Manufacturing Evolution

Transitioning into a dedicated **High-Mix Low-Volume** semiconductor and microelectronics manufacturer, catering to specialized industrial needs.

Market Positioning

02



Fabless IC Capability

Building internal capabilities to operate as a **Fabless IC Company**, designing custom chips for high-reliability Aerospace & Defence applications.

Tech Independence

03



Global Qualification

Acquiring stringent international certifications to qualify as a direct supplier to **Global OEMs** for mission-critical complex assemblies.

Quality Assurance

04



Ecosystem Scale

Expanding infrastructure and forging **ecosystem partnerships** to support the end-to-end lifecycle of critical applications.

Infrastructure Growth

Market Challenges & Strategic Solutions

Bridging the Gap from NPI to Scale Production



THE CHALLENGE: NPI-TO-PRODUCTION GAP

📉 Product-Market Mismatch RISK

Disconnect between successful lab solutions and actual market requirements leads to stalled commercialization despite technical success.

🏭 Manufacturing Unavailability SCALE

Limited availability of large-scale manufacturing capabilities prevents transition from thousands of NPI types to volume production.

⌚ Qualification Cycles TIME

Extremely long and tedious qualification cycle times for high-reliability sectors delay market entry and revenue realization.



STRATEGIC SOLUTIONS

🔍 Prognostic Research

Synchronize design engineering with prognostic market research to ensure development aligns with future market needs.

🤝 Academia-Industry Link

SMEs partner with non-blue-sky academic research to deliver market-ready products with strong lifecycle management.

🏗️ Synced Infrastructure

Development of infrastructure synchronized with design maturity, supported by relevant policy measures to enable scaling.

🤖 AI-Enabled Manufacturing

For India: Policy push for AI robotics to revolutionize manufacturing, shifting workforce from shop floor to control centers for higher efficiency.

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