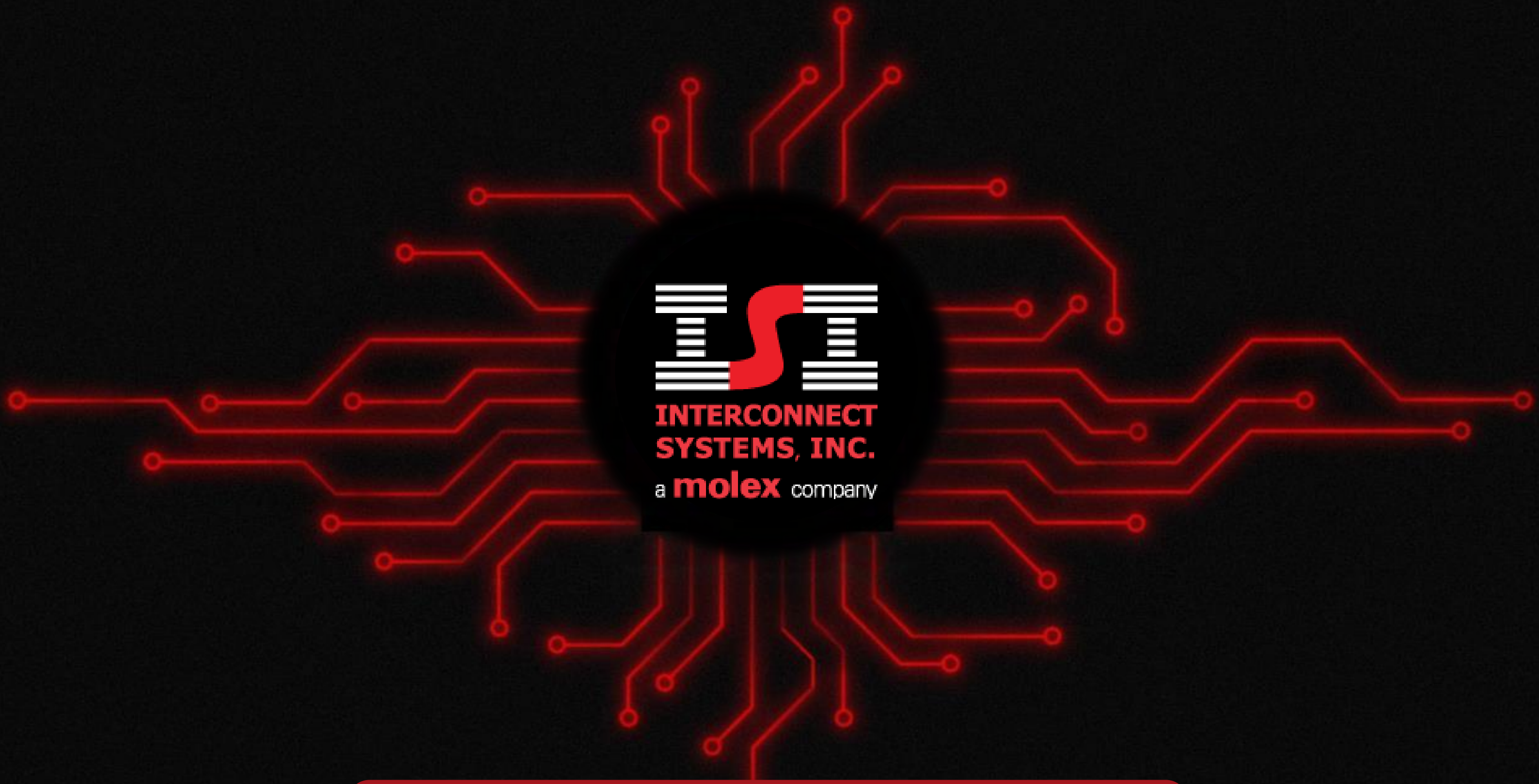
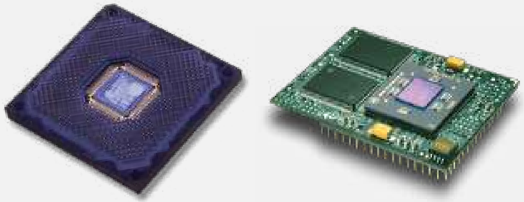


Company Overview

Friday, September 09, 2016

HISTORY

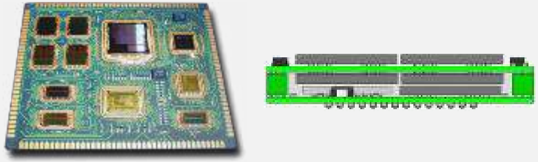
1987



Company started to design and manufacture low-cost, high-performance IC packages.

Focus on using advanced organic substrates to reduce cost of ceramic IC packages

2001



Invested in equipment and clean room to provide bare die assembly

Continue to invest to provide 3D and advanced packaging solutions to underserved mid-volume markets

2008

Nallatech

Innovative Integration

Added Systems Design Capabilities and FPGA Computing expertise.

Acquired Nallatech in 2008 and Innovative Integration in 2010

2016

molex®

one company › a world of innovation

ISI acquired by Molex: "The unique capabilities and technologies the ISI team brings to Molex... strengthens our platform for growth in existing markets and opens doors to new opportunities."

COMPANY AT A GLANCE

Design and Manufacture of Electronic Solutions

- Microelectronics / 3D & Advanced Packaging
- Ruggedized Modules
- IC Obsolescence Solutions
- High Performance Interconnect

Headquarters: Camarillo, CA, USA

Subsidiary of molex

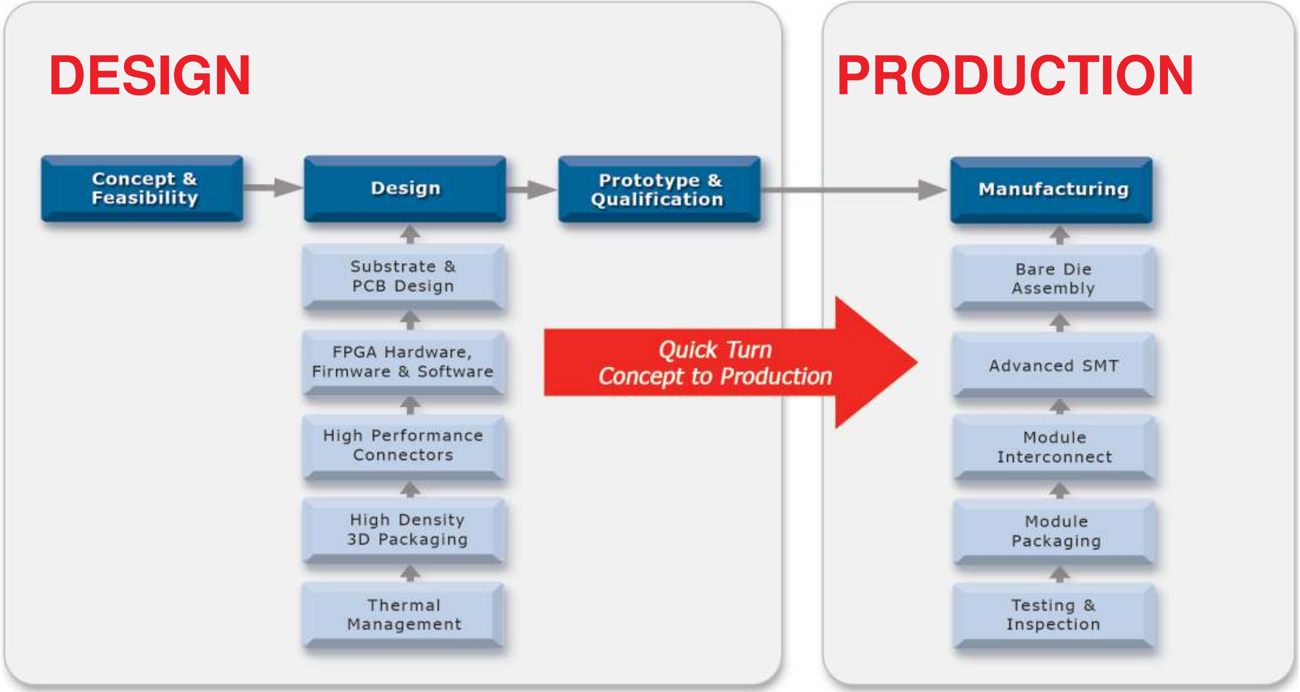
ISO9001:2008 Certified
by Perry Johnson Registrars

- IPC Class III compliant soldering
- Certified IPC Specialist inspectors & key operators
- In-house Certified IPC Trainer

ITAR registered
North American facilities

CAPABILITIES

ISI's uncommonly **broad design and production capabilities** allow quick creation of innovative solutions that would otherwise require multiple suppliers



DESIGN

Concept & Feasibility

Design

Prototype & Qualification

Substrate & PCB Design

FPGA Hardware, Firmware & Software

High Performance Connectors

High Density 3D Packaging

Thermal Management

Quick Turn Concept to Production

PRODUCTION

Manufacturing

Bare Die Assembly

Advanced SMT

Module Interconnect

Module Packaging

Testing & Inspection

Capabilities: DESIGN

System Engineering

Requirement Definition
IC & Component Selection
Schematic Generation
Signal & Power Integrity
Firmware & Software Development

- FPGAs & Programmable Logic
- Microcontrollers
- Memory
- DAC, ADC
- Power Supplies

PCB / Substrate

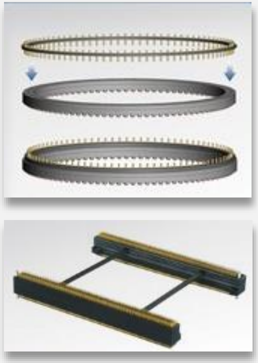
Highly experienced designers with state-of-the-art experience
Broad supplier base to cover multiple technology requirements
High density design rules

- 25 Gbps+ digital designs
- On-shore and off-shore supply base

Mechanical / Physical Packaging

High Density / 3D / Stacked Packages
Ruggedization
Thermal Management & Modeling
Precision Mechanics & Tolerance Analysis
Material Selection & Optimization

- Design for Manufacture (DFM)
- Design for Test (DFT)
- Design for Reliability (DFR)



Advanced Interconnect

Connector solutions optimized for module-level interconnect
Solder Attach

- BGA, LGA
- Leadframe (QFP, SOIC)
- Through Hole (PGA, DIP)

Socketed

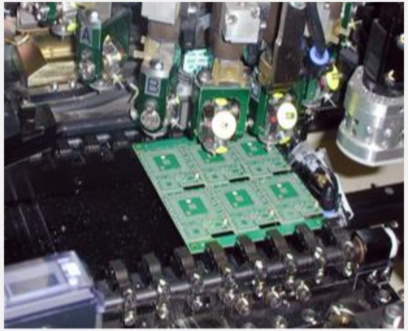
- Board-to-Board
- BGA socketing

Custom Interconnect Solutions

Capabilities: ELECTRONICS ASSEMBLY

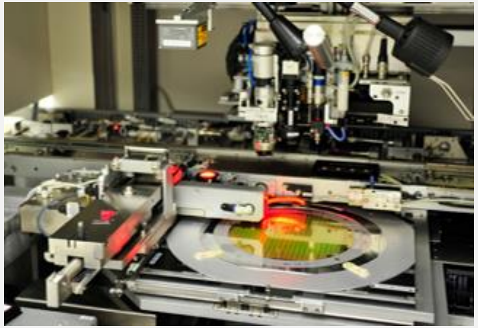
Advanced SMT

- State-of-the-art SMT assembly
- RoHS (lead-free) and Leaded
- uBGA to 55mm+ devices
- Precision dispense & coating
- Process Development for non-standard requirements



Bare Die Assembly

- Die attach & Wirebond
- Flip Chip & Underfill
- Wafer Dicing
- Stacked Die Assembly
- Mixed Assembly (SMT + Bare Die)



Capabilities: INTERCONNECT

ISI’s unique data-driven manufacturing process uses standard materials and processes to quickly create cost-effective custom configurations with low NRE.

This provides a level of design freedom that enables miniature, high-performance designs.

ISI has unique capability to make a multi-component module form-fit-function compatible to a standard semiconductor package

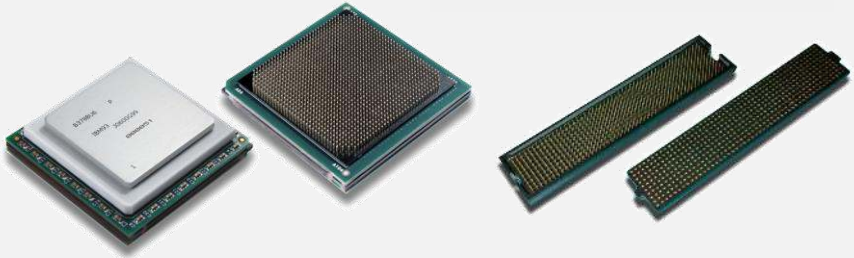
Soldered Module

- BGA & LGA
- Leadframe / FlexFrame
- PGA, MicroPGA & DIP

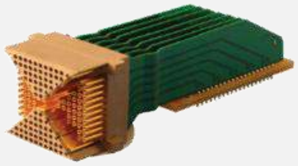
Socketed Module

HiLo Flexible Interconnect

- 2500+ position
- 0.8mm, 1mm, custom pitch
- Low profile, < 3mm mated pair
- 10Gbps + applications



Custom Interconnect



Orthogonal Board-to-Board

Automotive - Overmolded

Capacitor Doubler

Capabilities: ELECTRONICS OVERMOLDING

Electronics Overmolding

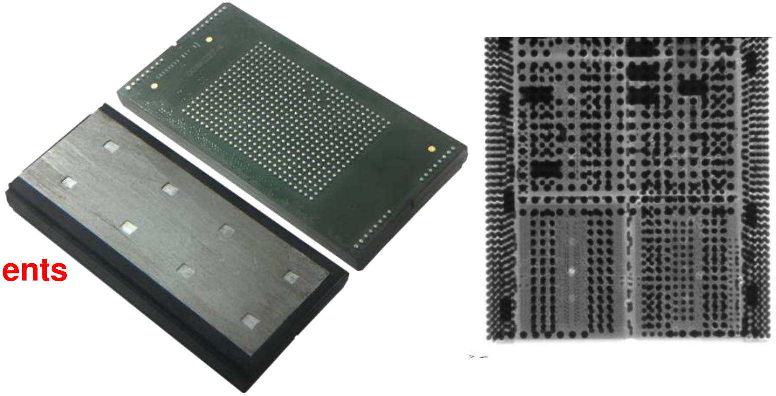
Multiple components integrated in a monolithic module

- Void-free encapsulation/underfill of all components
- Thermoset epoxy compatible with standard SMT reflow profile

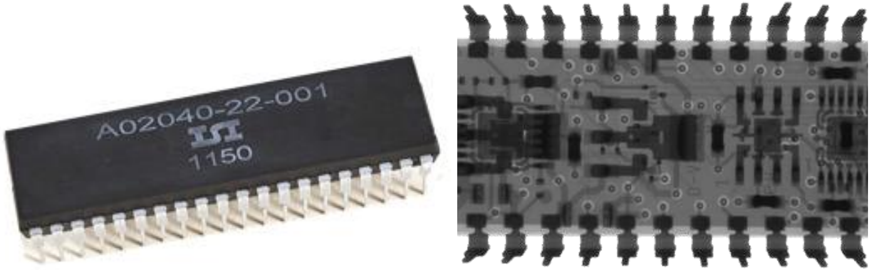
✓ **Cost-effective way to ruggedize electronics for harsh environments**

  ✓ **Extended temperature and temp cycling**

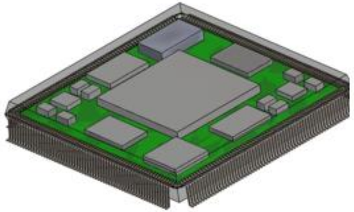
  ✓ **High shock & vibration environments**



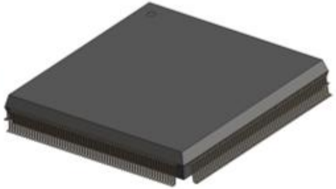
3D-DDR3 BGA module



40-pin DIP module



QFP Top View
(mold compound shown transparent)

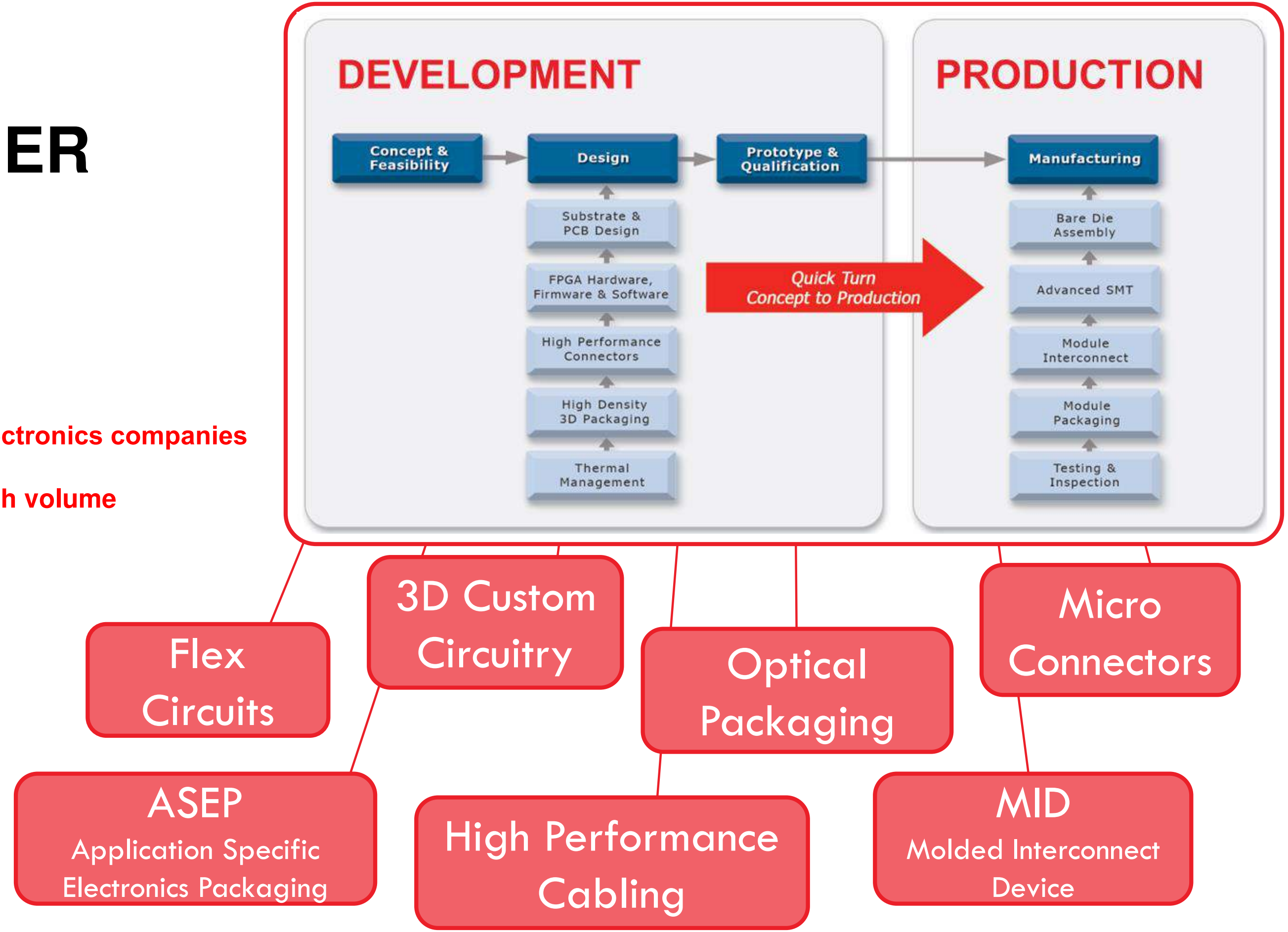


QFP Top View
(actual appearance)

Capabilities:
ISI + MOLEX = BETTER TOGETHER

one company › a world of innovation

- ✓ Trusted supplier to worlds' leading electronics companies
- ✓ Scale and resources to compete in high volume
- ✓ Global customer sales and support
- ✓ Leader in technologies complimentary to ISI



DEVELOPMENT

Concept & Feasibility → Design → Prototype & Qualification

Substrate & PCB Design

FPGA Hardware, Firmware & Software

High Performance Connectors

High Density 3D Packaging

Thermal Management

Quick Turn Concept to Production

PRODUCTION

Manufacturing

Bare Die Assembly

Advanced SMT

Module Interconnect

Module Packaging

Testing & Inspection

Flex Circuits

3D Custom Circuitry

Optical Packaging

Micro Connectors

ASEP
Application Specific Electronics Packaging

High Performance Cabling

MID
Molded Interconnect Device

CO-DEVELOPMENT PROCESS

We work best when engaged with our customers at the **early concept development stage**

Together we explore multiple approaches to arrive at the **best technical and commercial solution** with a **quick time-to-market**

CUSTOMERS

Alcatel·Lucent

BAE SYSTEMS

BOEING

CISCO

CRAY

DELL

DEPARTMENT OF DEFENSE UNITED STATES OF AMERICA

DRS TECHNOLOGIES

GENERAL DYNAMICS
Strength On Your Side

GE

HARRIS

Hewlett Packard
Enterprise

Honeywell

IBM

JOHN DEERE

L3
communications

LOCKHEED MARTIN

Masimo
Closer to the Heart™

NOKIA

NORTHROP GRUMMAN

PHILIPS
sense and simplicity

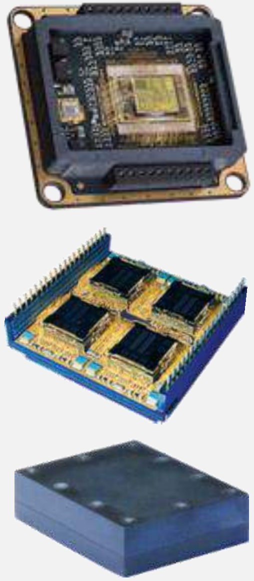
Raytheon

UTC Aerospace Systems

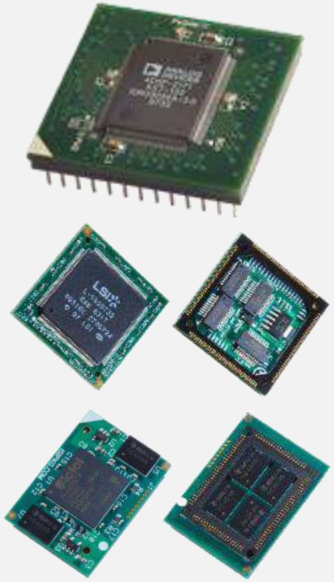
PRODUCT APPLICATIONS

Integrated Solutions

Advanced Packaging



IC Obsolescence & RoHS Solutions

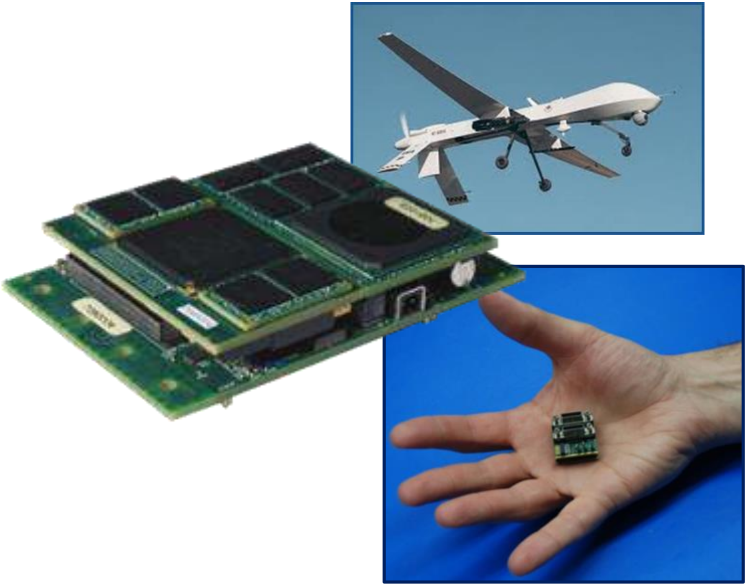


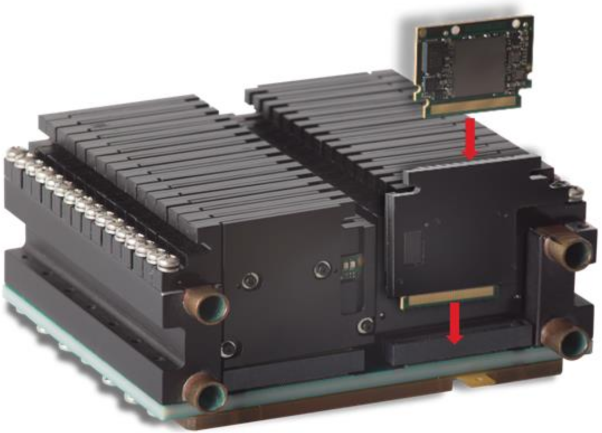
Module-to-Board & Custom Connectors

Systems ⟷ Components

INTEGRATED SOLUTIONS

Products with significant ISI design content & leveraging multiple ISI capabilities





Near Sensor Computing

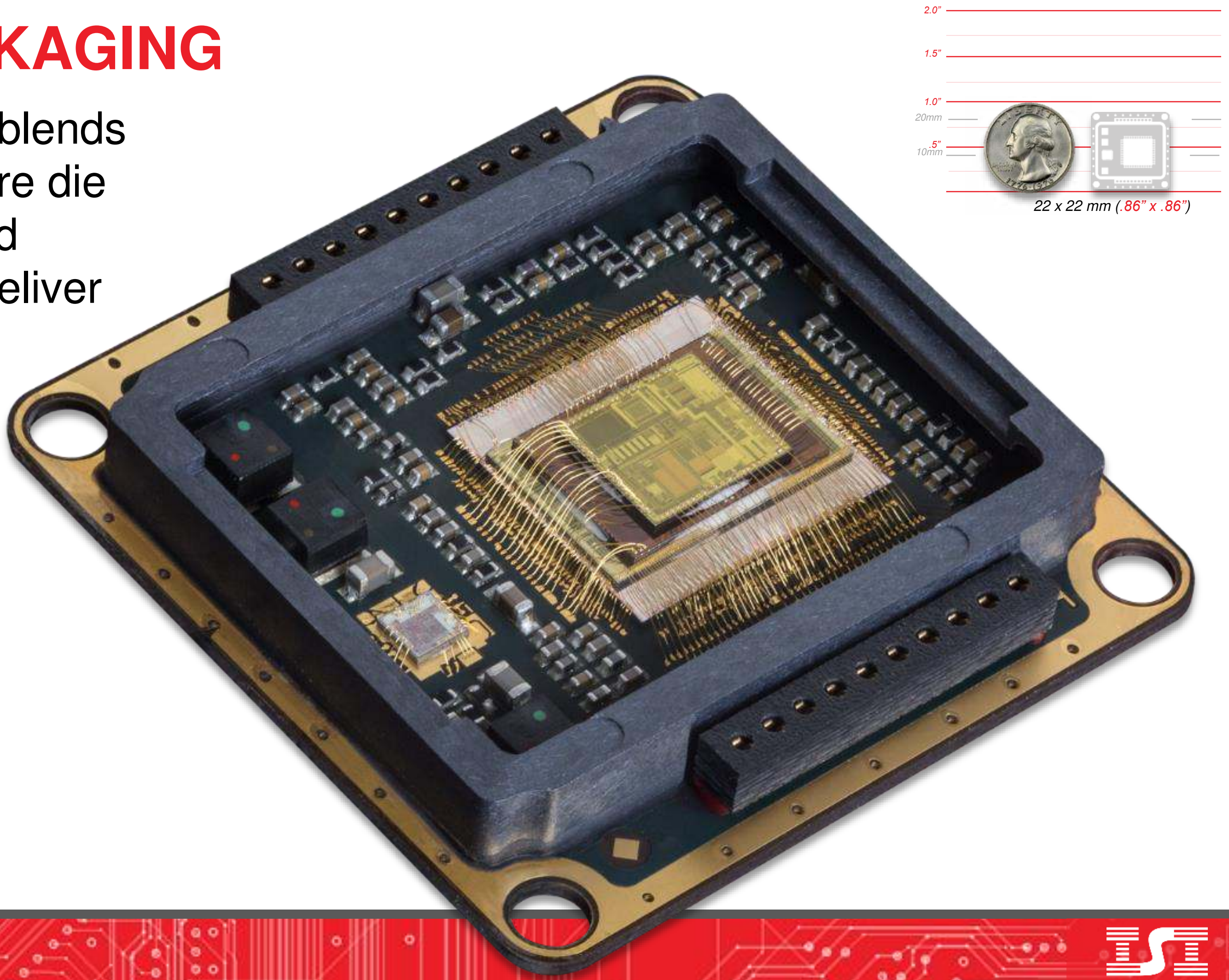
- Put processing at the sensor to reduce bandwidth to the host/datacenter
- Leverages ISI's FPGA & Analog design capabilities
- IoT play for data-intensive sensors (video, RF)

32 Node Compute-In-Memory Cluster

- Postage-stamp sized compute nodes
    - SoC FPGA
    - 8 GB DDR3
- (32) nodes in ~ 3" x 3" master modules
    - Water cooled thermal design

ADVANCED PACKAGING

Next Level Integration blends high density, 3D, and bare die packaging with advanced interconnect to quickly deliver miniaturized solutions



System in Package (SiP)

4 Die Stack:

- Processor
- DDR
- Flash
- ADC

VR Die & Passives

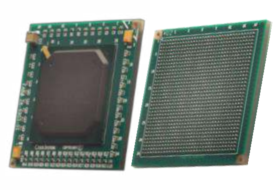
HiLo Connector for Stacking

22x22mm Module

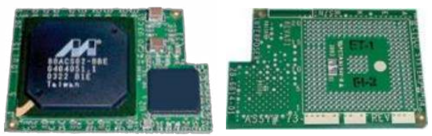
Shown prior to encapsulation

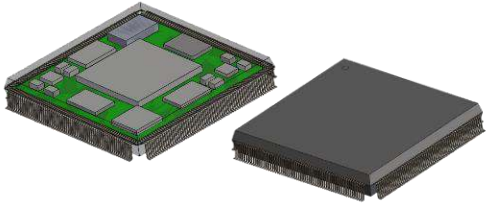
IC OBSOLESCENCE SOLUTIONS & BGA REGALLING

Footprint Conversion Adapters


BGA to BGA


TSOP to SOJ

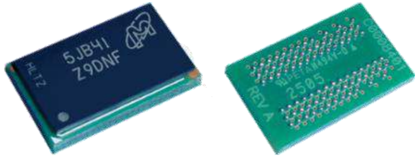

Multi-BGA to BGA


FPGA + Level Translators
in Monolithic QFP

**Replace obsolete ASICS and ICs
without re-spinning the motherboard**

RoHS / Lead-Free Solutions


Lead-Free → Leaded
BGA Reballing

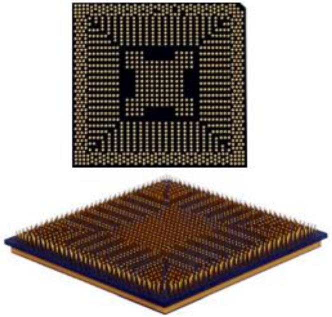

BGA Interposers

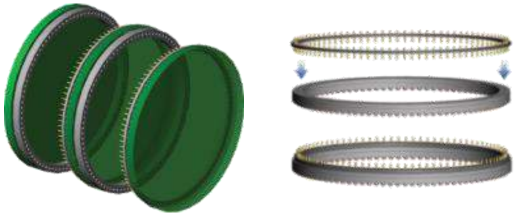
**Maximize Reliability
& SMT Process Compatibility**

CONNECTOR PRODUCTS

ISI’s **standard and custom** connector technologies support a wide range of commercial, industrial, and defense applications.

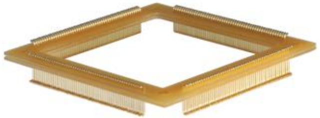
Our in-house design and manufacturing capabilities allows us to **quickly go from concept to mass production** in weeks, not months and allows for surprisingly affordable NRE.


HiLo™ Mixed Pitch


HiLo™ Custom Design


Orthogonal Board-to-Board


Automotive - Overmolded

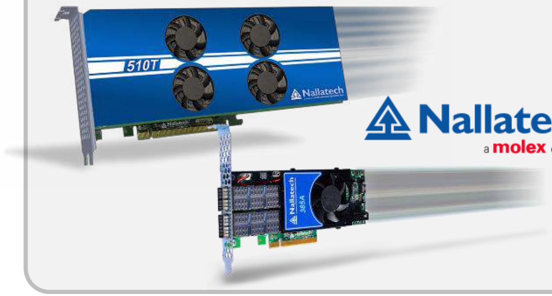

FlexFrame™


Molded Connectors

CO-LOCATED BUSINESS UNITS

Innovative Integration and Nallatech are leading suppliers of FPGA board-level solutions, their FPGA hardware, software, firmware expertise is available for advanced ISI projects.

Both were wholly-owned subsidiaries of ISI, and are now also Molex companies.



Nallatech products accelerate computing algorithms by leveraging high performance, programmable FPGA devices

www.nallatech.com

Innovative Integration combines FPGAs, analog ICs, firmware and software to provide data acquisition and signal processing solutions

www.innovative-dsp.com

THANK YOU!

Contact ISI to engage on your next project:

Address: ***741 Flynn Road / Camarillo, California 93012***
Phone: ***(805) 482-2870***
Website: ***www.ISIPKG.com***
Email: ***info@isipkg.com***

Factory Contacts:

» **Mike Oswald**
Inside Sales Manager
Office: (805) 383-3450
Email: mike.oswald@isipkg.com

» **Perry Munroe**
Project Manager
Office: (805) 383-8482
Email: perry.munroe@isipkg.com

» **Gilma Bustillos**
Inside Sales Representative
Office: (805) 383-3452
Email: gilma.bustillos@isipkg.com

Field Contacts:

» **Dave Gagnon**
Western USA
Office: (714) 993-9618
Cell: (714) 261-3733
Email: dave.gagnon@isipkg.com

» **Ken Roberson**
Midwest and Southeast USA
Cell: (443) 557-8897
Email: ken.roberson@isipkg.com

» **Tom Paulick**
Eastern USA and Government Accounts
Cell: (443) 717-2522
Email: tom.paulick@isipkg.com