



**Concept Development To
Product Delivery**



About Caliber Interconnects

- Technology-based company

- Adding value at every stage in test supply chain globally

- ISO 9001:2015 certification



- Handle multi-domain products
- Expertise in diverse ATE platforms

- 1,000 man-years experience in Semiconductor
- Industrial product engineering

- 150+ diverse global customers
- Over 75% patronage

Our Mission – Delight Customer by On time & On budget delivery Every time!



Expertise under One Roof

IC Testing

- ATE & bench testing
- Full turnkey test solutions
- NPI bring up
- Test IPs

HDI & ATE PCB Design Services

- Schematic Design and Layout
- Component Library, CAM check
- Manufacturing/Assembly/Testing

IC Packaging

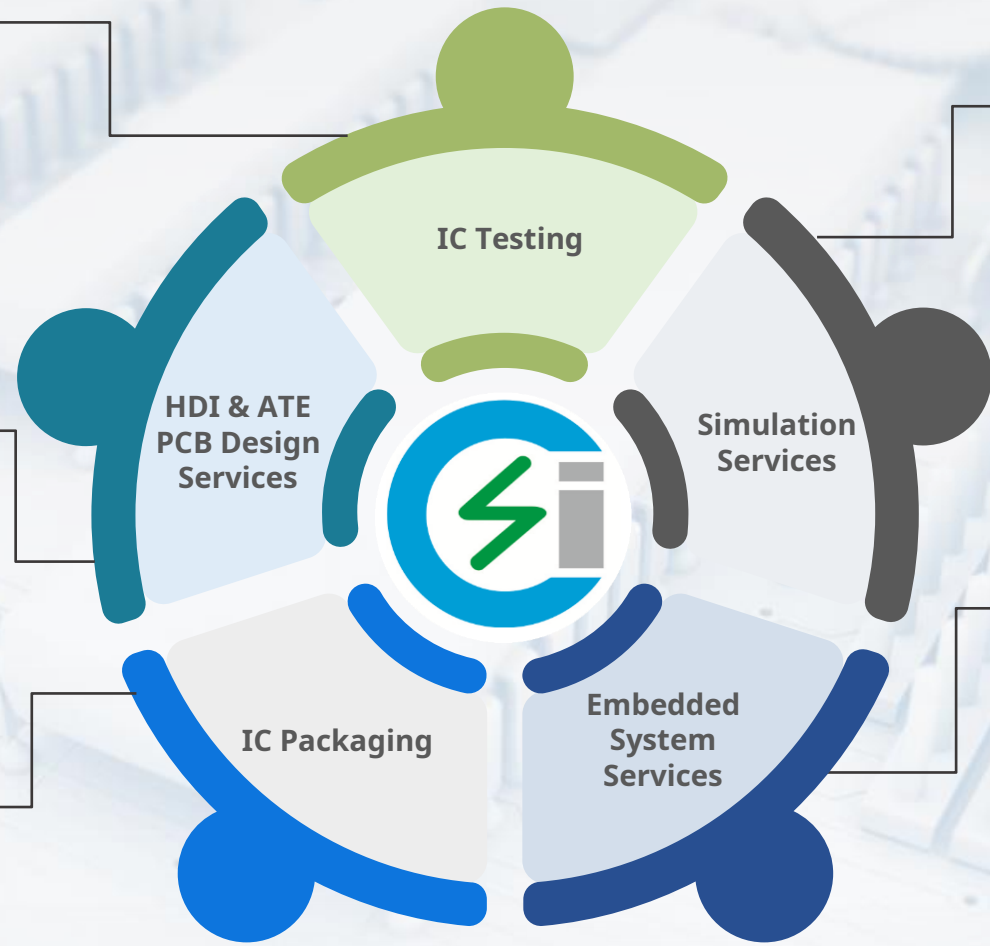
- BGA Packages for ICs
- SIP - System in Packages
- Substrate Design

Simulation Services

- Signal & Power Integrity
- Thermal Analysis
- EMI/EMC Analysis

Embedded System Services

- Electronic Hardware design (Digital, Analog, Power and FPGA)
- Embedded System Software design, implementation and testing
- IoT Platform and Applications (Web, Mobile, Cloud)
- Turn-key Solutions





Semiconductor Test Engineering

Services

- High quality full turnkey test solutions
- NPI bring-up
- Prototype testing for IPs
- Modular and sustaining test support
- Onsite/Offsite engineering support
- In-house development center

Domain Experience

- Digital and Memory Logics
- Analog and Mixed Signal
- RF
- PMIC
- Photonics
- Sensors

Product Experience

- Automotive
- Defence
- Consumer
- IoT
- Sensors
- Industrial

Resources

- Advantest V93K & T2000 tester
- Teradyne uFlex, ETS & J750 testers
- Simulators of majority ATEs
- NI/R&S based bench test setup

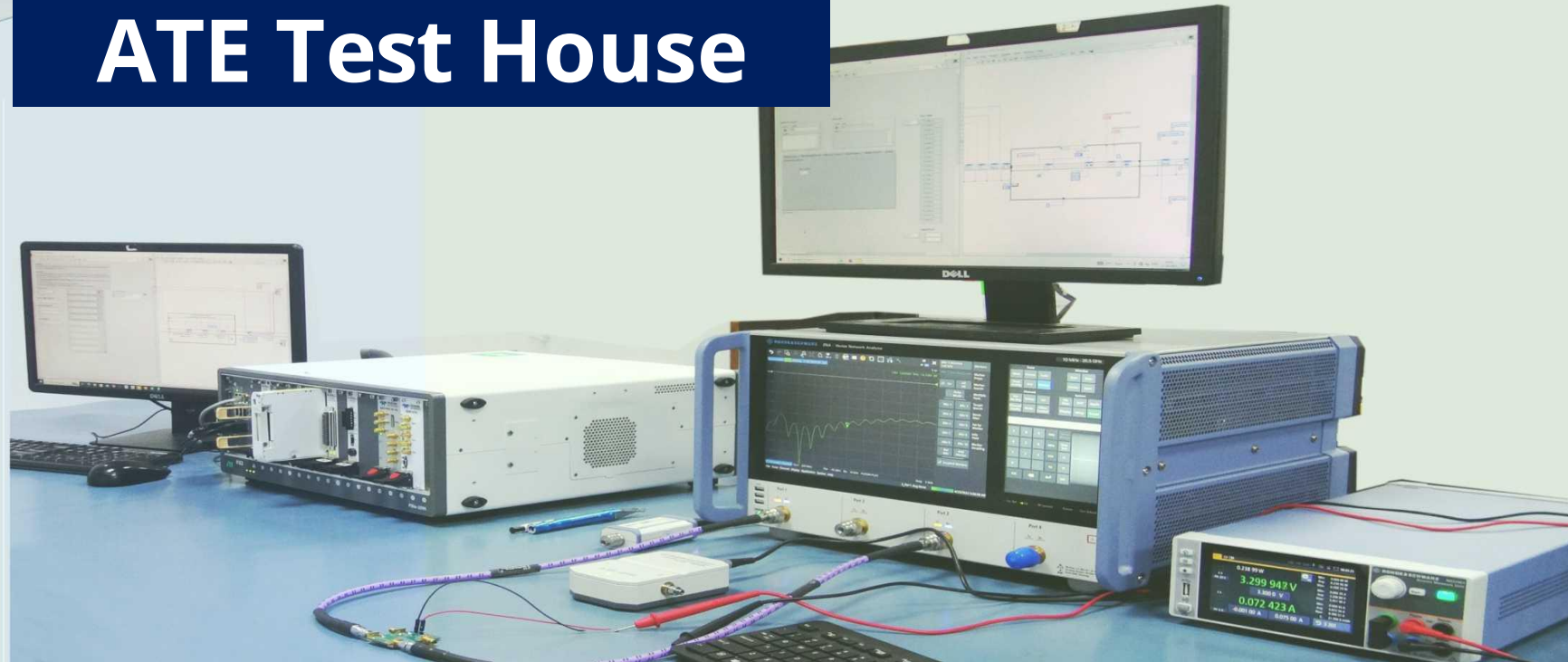
Skills

- Sorting and Final test
- Characterization and Qualification
- EDA to ATE vector conversion
- Cross tester platform conversion
- Throughput enhancement
- Scripting for automation
- Data analysis for product engineering
- Test IPs

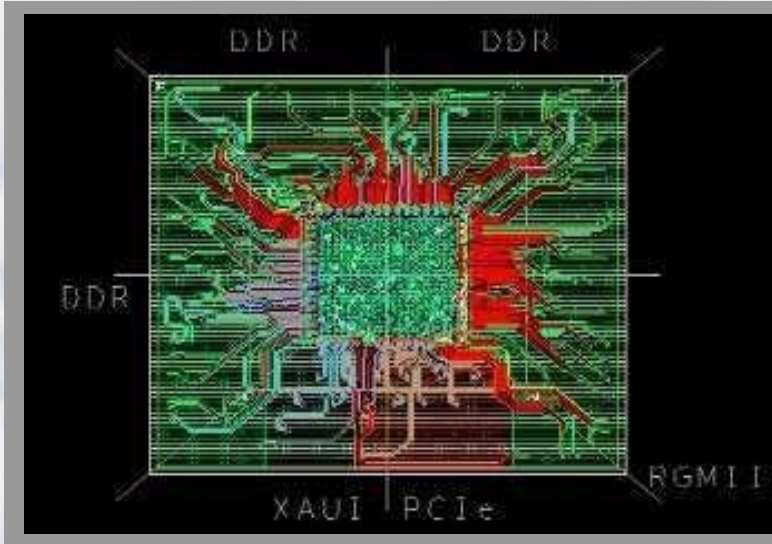




State of the Art ATE Test House

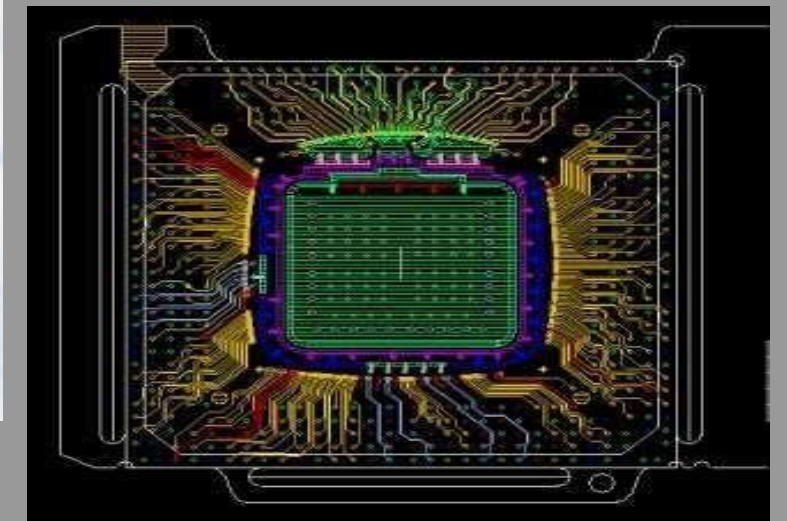


IC Package and Substrate Design



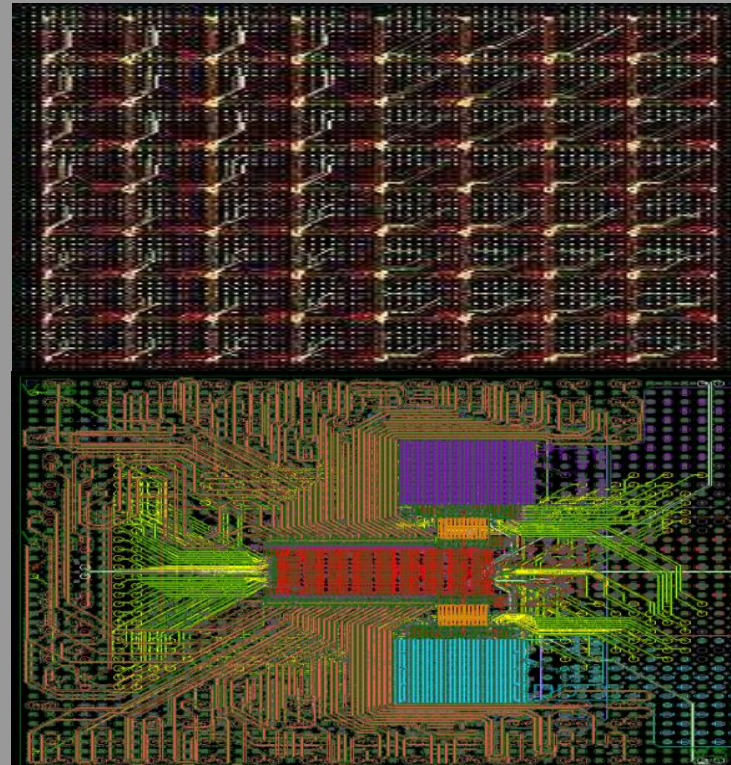
Design / Analysis and Layout

- More than 1250+ package designs successfully completed
- From 1-2-1 to 8-2-8 layers for Flip Chip and Wire bonds
- SiP designs with 12 DDR chips in 3 stacks



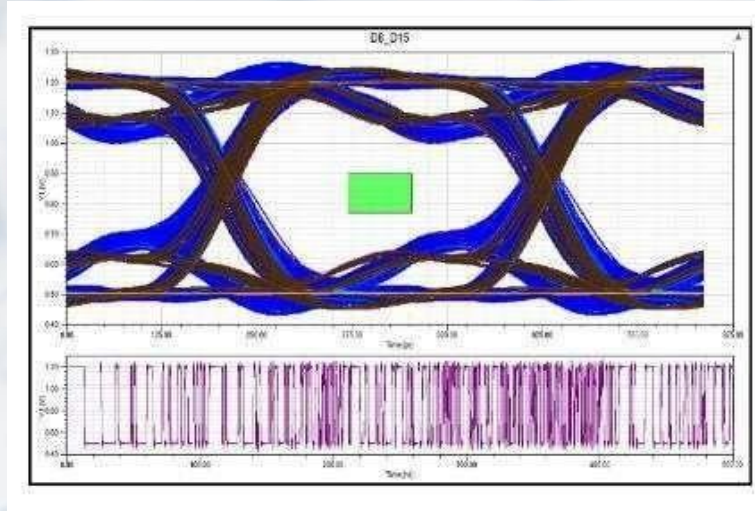
IC Package Design

- Package designs for both single-die and multi-die.
- Wire-bond and flip-chip designs
- System in Package
- Chip Scale Package designs
- Chiplet designs



Substrate Design

- Substrates for Vertical Probe cards to test wafers
- Organic(MLO) and Ceramic(MLC) Substrates
- Coreless / Hybrid Substrates
- Multiple Die in single substrate with 50+ layer counts



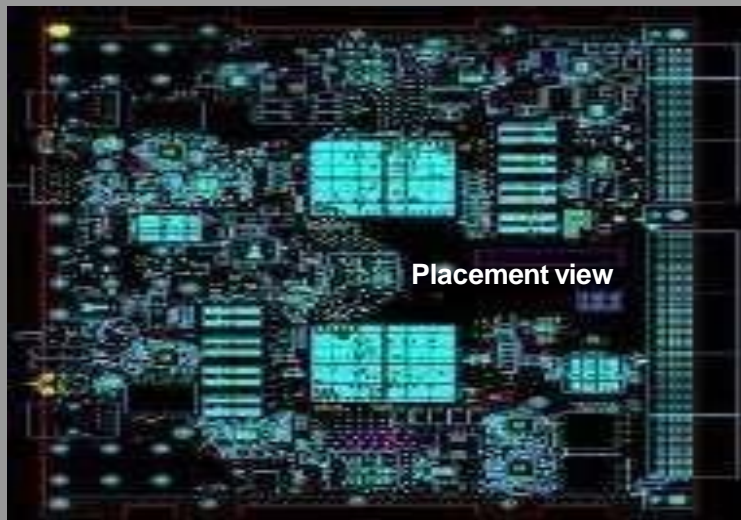
Thermal Analysis

- Simulation of board thermal behaviour
- Joule heating effect
- Power dissipation
- Hot spot identification

Signal and Power Integrity

- Return loss and Insertion loss
- Crosstalk Analysis (Frequency & Time domain)
- Channel Analysis for serial IO (IBIS-AMI based)
- Simultaneously Switching Noise (SSN)
- Core Supply Noise Analysis (PDN noise)
- IR-Drop Analysis (DC)
- AC drop analysis
- De-coupling Capacitors Estimation (PDN Impedance)
- RF feed path analysis (Matching networks)
- EMI/EMC simulations
- Timing budget Analysis
- S-parameter extraction
- RLGC extraction
- 3D simulations
- End to End simulations (Package—Board— Backplane—Board—Package)

HDI and ATE PCB Design



Placement view

IPC Certified Engineers

- 1000 PCB designs per year – 7,500 plus designs delivered
- Expertise with multiple EDA tools
- Auto-tools and skills for speedy layout



Perfect skew matching

Interconnect Design for High Performance Applications

- System level boards
- Semiconductor testing (Loadboards and Probecards for ATE interface)



High density routing

Sample Case

- Connection count : 7500+
- Layers : 16
- Size : 160 mm x 234 mm
- Component count : 2100+

Highlights:

- 2 FPGAs, 8 DDR, 4 GbE transceivers, x12 PCIe lanes
- Connectors used (MultiGig RT2/VPX, Ethernet Jack, USB micro AB and Headers)
- Scope : Placement to Gerber file (Schematic frozen)
- Timeline : 18 days

High Speed PCB Design Expertise



Versatile Interfaces

- DDR 2/3/4; USB; PCIe
- SATA ; HDMI ; LVDS
- Serial links for JESD204C
- SerDes loopbacks (ATE)
- 1~112 Gbps speed

Fine, HDI Capability

- 0.4 mm pitch BGA
- Micro via (blind and buried)
- Hybrid stackups
- 64 layers Loadboards
- 88 layers Probecard
- Flex and Rigid flex

Electrical Engg. Competence

- Mixed signal designs
- Mixed impedance design (50/90/100 Ohms)
- High voltage and high current
- Low Voltage/Low loss
- Highly skilled in shield/tuning/pair routing



Embedded Systems - Services

Hardware Design

- Architecture development from Concept
- Schematic Design – Digital, Analog, Mixed Signal and Power
- DSP/FPGA/CPLD Logic Implementation
- High Speed Bus Interfaces
- PCB Design and Assembly



FPGA Programming

- IP Development
- Functional Verification
- Testing & Validation

Middleware & Application Software

- Multimedia
- Cloud – AWS, Azure, Custom
- Mobile – Android, iOS
- Enterprise and Web – ASP.NET, Angular, Bootstrap
- Database- SQL Server, MySQL

System Software

- BSP
- OS Porting & Customization
- Device Drivers
- Protocol Stacks





Why Caliber Interconnects?

Delivering solutions to the delight of the customer!

Keep your project on budget!

CUSTOMER FOCUS

ISO 9001 certified Quality Control procedures and practices

RIGHT PROCESSES

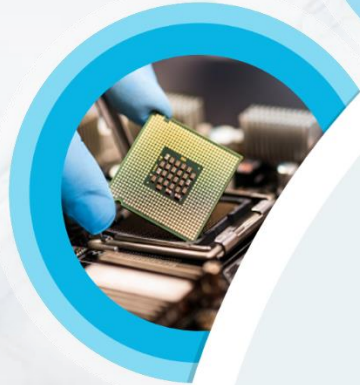
COST

Expertise and Experience. Get your product to market on-time to maximize your revenue potential!

TIME TO MARKET

20+ years of success
700 experienced engineers
1,500+ designs per year

LEADERSHIP



CALIBER
INTERCONNECTS

®

Flexibility to Meet your Project Needs



Time and Material Basis

Technical help available on-demand!
Pay for our services only when used.



Fixed Price Model

On a fixed budget?
We will deliver the project to you at a fixed price!



Off Site Development Centre

Use the full capabilities of our team at our Centre to deliver the complete project!



On site Resources

Need help for short-term? Augment your team with additional resources to realize your project schedules and costs!

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● Headquarter

● Development Centers