



*Transforming Ideas into Reality
through Innovation & Expertise*

COMPANY PROFILE

ABOUT US :



OUR STORY

"RaceEL Systems based in Bangalore, INDIA was founded in 2023. We offer unique solutions including Embedded Hardware Design, Wireless Technology, Signal Integrity, Power Integrity, Antenna Design, Thermal Analysis, EMI/EMC Analysis, RF & Microwave. We work with customers to design, develop technology solutions that are optimum, innovative, and profitable".



OUR VISION

Our Vision is " Sustained Excellence in Product Engineering & Technology Integration for Customer Success and Innovation "

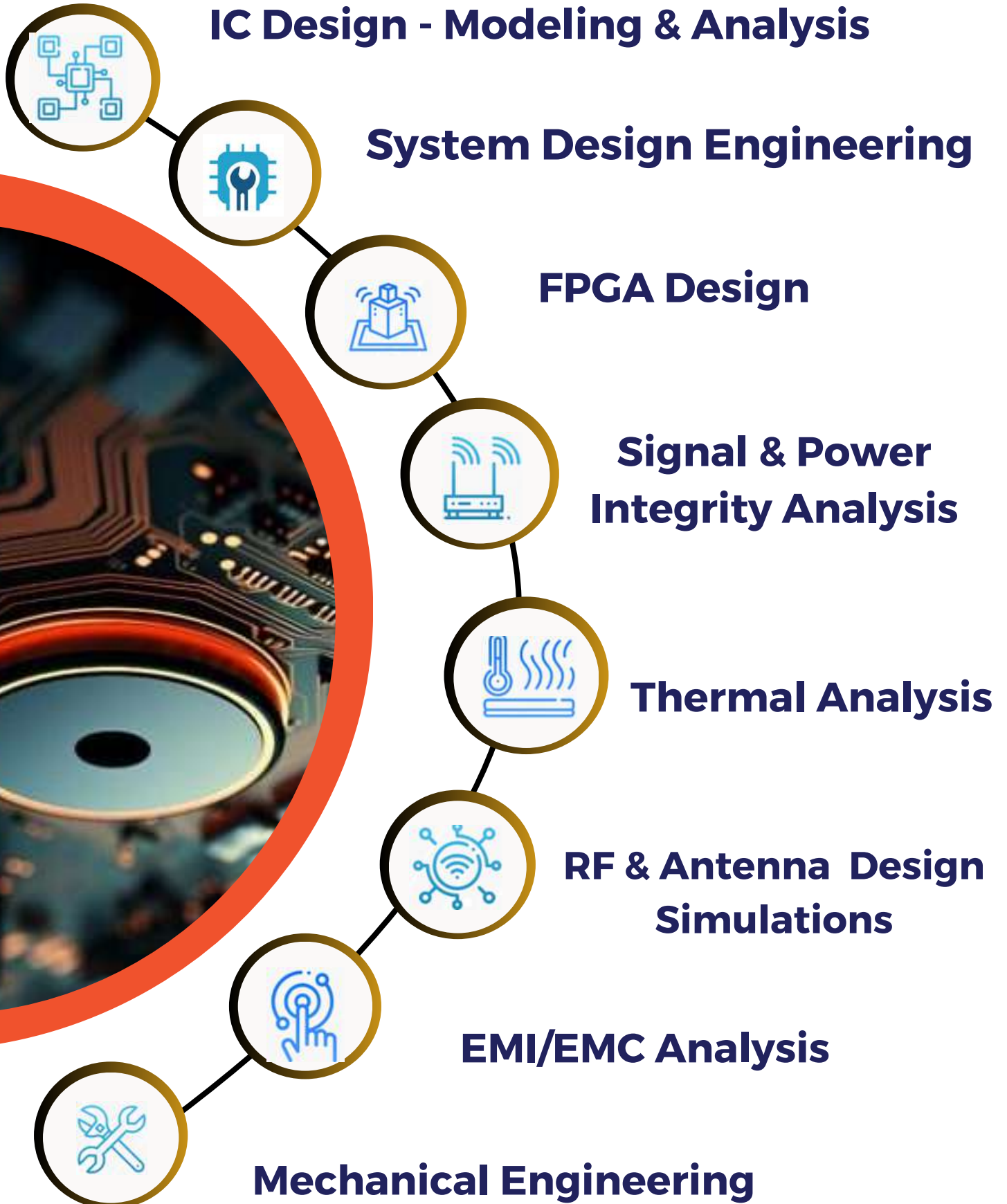


OUR MISSION

Our Mission is to be the most reliable and innovative global company that delights customers through our world class products and services.

**Enabling Innovative Designing and
Developing unique Engineering Solutions**

SEMICONDUCTOR ENGINEERING SERVICES





**IC DESIGN - MODELLING
& ANALYSIS**

EXPERTISE

- **Signal Integrity Design and Analysis of Redistribution Layer Interposer Channel**
- **ASIC Package, Chiplet Package & Interposer Design Services**
- **PCIe Gen5 IP Power noise analysis**
- **Die to Die interface modelling and extraction**
- **HBM DDR4 Interface analysis**
- **PCB/Package Modelling and Extraction**
- **DDR4,LPDDR4,PCIe Gen4/Gen5 Timing analysis**
- **56Gbps,112Gbps PAM4 analysis**
- **DC,AC PDN Analysis of PCB and Packages**
- **chip-package-system co-simulation, power induced SSN analysis, and PCB layout and decap optimization**



IC-PACKAGING

EXPERTISE

**Flip Chip
Designs**

**System in
Package
(SIP)**

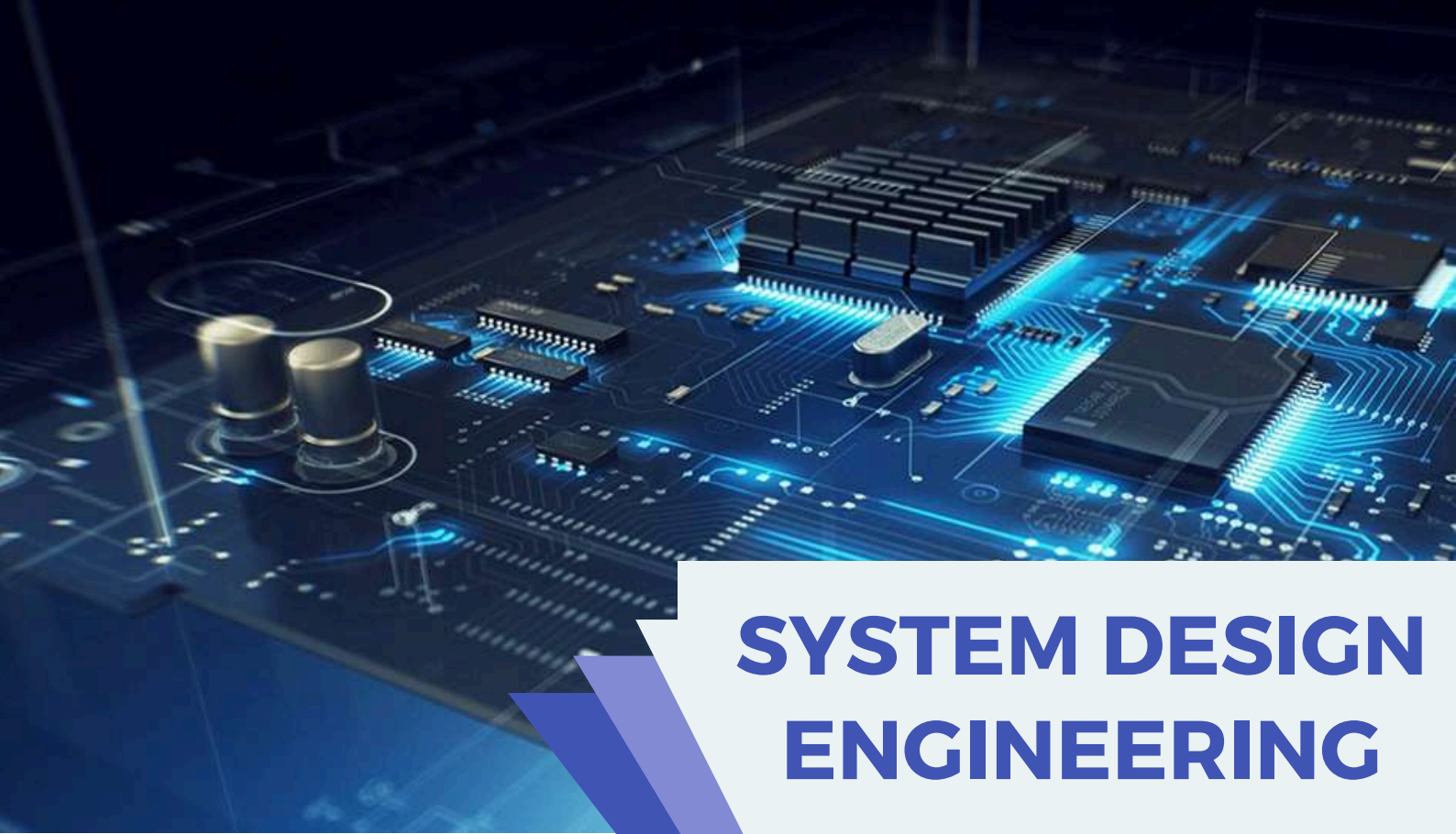
**Wire Bond
Designs**

**2.5D Package
Designs**

**Chiplet
Design**

We support flip chip & wire bond package designs for organic & LTCC substrate

- **High-density buildup organic substrate design support**
- **Fine-design-rules & multilayer**
- **Low-loss organic material support suitable for 50Gbps applications**
- **Organic substrate manufacturing & assembly support (third party)**
- **State-of-the-art signal integrity, power integrity simulation capabilities**
- **MIPI, CSI, DSI, DDRx, HDMI, PCIe, ADC, DAC, Serdes interfaces**
- **High-density complex routing with tight length matching requirement**



SYSTEM DESIGN ENGINEERING

EXPERTISE

**High-speed
digital designs
up to 56Gbps**

RF Designs

**RF Antenna
design**

**Mixed Signal
Design**

**Power supply
design**

PCB Design



HARDWARE DESIGN & MANUFACTURING

EXPERTISE

- **Provide application board development using our team's expertise in High-Speed Processors, Analog, Mixed-Signal, and RF domains.**
- **Deliver FPGA Emulation and Logic development/porting.**
- **RaceEL goes as far as preparing products for certification, ROHS/EMI-EMC.**
- **RF, Analog, High-Speed Digital, Mixed Signal, and Power Management devices.**
- **High Voltage and High Current devices.**
- **HDI Stackup.**
- **Experience in handling PCB materials like Nelco Meteorwave, Rogers, and Megtron series.**



SIGNAL INTEGRITY ANALYSIS

EXPERTISE

- **High-speed serial/parallel interface analysis and design guidelines (NAND Flash, DDR3, DDR4, multi-gigabit Serdes, PCIe gen3, gen4 & 5 XAUI, HDMI, SATA, USB, Flash, chip-to-chip IO, FPGA IO)**
- **25Gbps, 56Gbps and Different Ethernet standards COM Simulations and their metrics**
- **Signal integrity & power integrity co-design SSN modelling pre-layout & post-layout SI analysis.**
- **IBIS/IBIS-AMI-based system-level SI evaluation.**
- **Routing studies, termination schemes, stack-up design & analysis.**
- **Trace & Via design for controlled impedance using EM solver.**
- **Full-wave EM modelling of all kinds of interconnects (via, connector, end-to-end channel)**
- **Crosstalk and s-parameter modelling of traces and interconnects on the package and board.**
- **Connector design modelling and simulation. IBIS model generation.**



POWER INTEGRITY ANALYSIS

EXPERTISE

- **Analyze and verify the power supply quality at the chip, package & board levels.**
- **Target impedance estimation and optimization.**
- **Decoupling cap estimation and optimization**
- **Power-ground loop inductance & stack up optimization.**
- **S-parameter & parasitic extraction (R, L, C)**
- **IR drop analysis and give recommendations about the placement of components.**
- **Time-domain power integrity noise estimation.**



EMI/EMC ANALYSIS

EXPERTISE

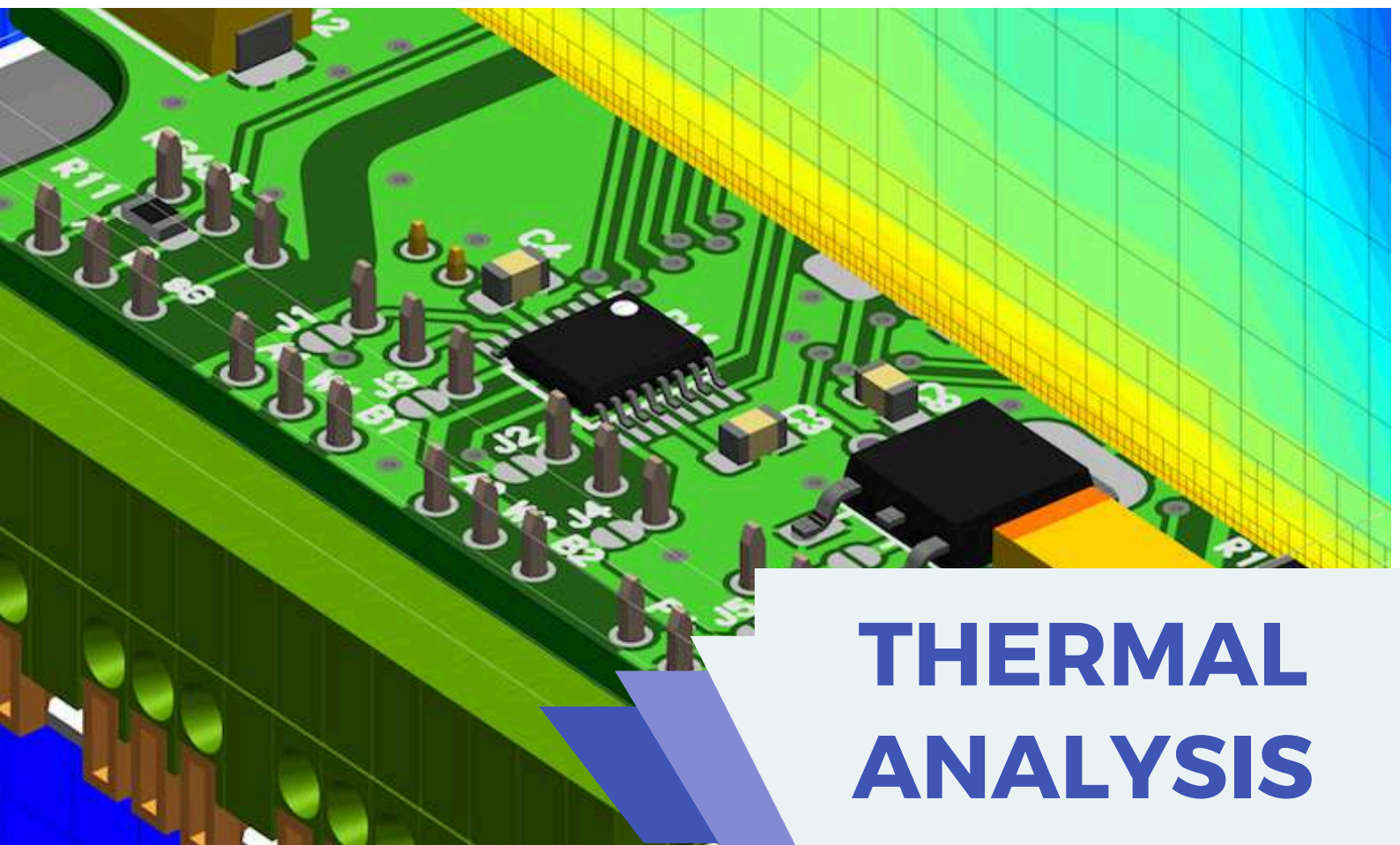
- **Board level & System level EMI/EMC Analysis.**
- **RE Analysis - Near-field and Far-field analysis**
- **RE and CE Analysis with Shield case**
- **Conduction noise (CE) analysis and modelling for Power lines**
- **Frequency V/S dB plot for Different standards**
- **(FCC, CISPR, VCCI or User specific)**
- **Electromagnetic susceptibility analysis**
- **3D Magnetic/Electric & Current density Plot**
- **Filter design**



ESD ANALYSIS

EXPERTISE

- **Board level & System level ESD Analysis.**
- **ESD Circuit modelling and ESD GUN Model**
- **Air Charge ESD Simulation**
- **ESD Path analysis with 3D Simulation tools.**



THERMAL ANALYSIS

EXPERTISE

- PCB and System level thermal analysis
- Joule heating effect analysis including power loss information on traces
- Heat sink and cooling proposals
- Metal core and thermal ladder PCB designs
- Major heat transfer mechanisms analysis viz., Conduction, Convection, Radiation
- Detailed reports indicating component and board temperature profiles



WIRELESS/ANTENNA DESIGN MODELING SIMULATIONS

EXPERTISE

- **Component design**
- **Antenna Placement**
- **Antenna Array**
- **Co-Site interference**
- **Lighting strike**
- **Bluetooth simulations at PCB and Enclosure level**
- **RLC Matching circuit to match PCB Antenna impedance**
- **Plotting radiation pattern, VSWR in HFSS**
- **Recommended matching tuning components**
- **Electromagnetic simulation of antenna design and its interaction with the entire system**

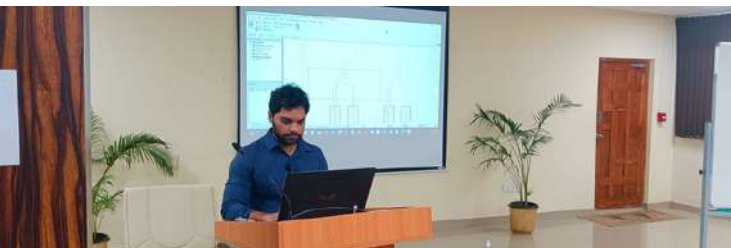


EDA TOOLS EXPERTISE

	<p>KEYSIGHT</p> 	
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OUR CORPORATE TRAINING SERVICES

1. Centre for Development of Telematics (C-DOT) Bangalore, India

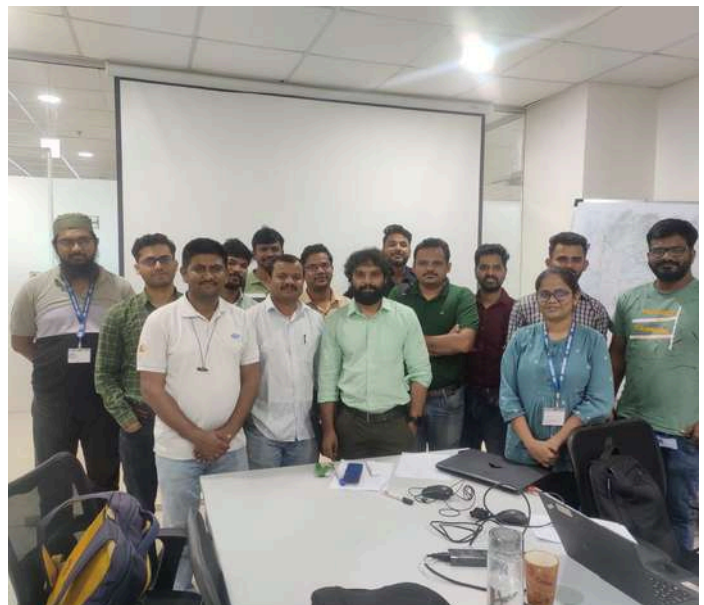


Training on "*High Speed Signal integrity for 56+ Gbps interfaces*"

Training on "**PCIe Gen5 and DDR5 Protocol training**"

2. Allegis Group

3. KNORR-BREMSE Technology Center India Private Limited



Training on "*Embedded Hardware Design*"

Training on "*Signal integrity, Power integrity & EMI/EMC Topics*"

LOCATIONS

Bangalore Office:



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