

COMPANY PROFILE

BASIC INFO

Phone: +8801712-277079
Website: www.metroscientific.com
Business Address: 57/11, Panthapath,
Dhaka-1215, Bangladesh.

Business Name: MetroScientific
Total number of Employees: **30**
Primary Line of Business: Hardware
& Software Development.

WHO WE ARE

MetroScientific is a leading semiconductor design services company with headquarters in Santa Clara, USA, and operations in Dhaka and Rajshahi, Bangladesh. With over 10 years of experience in the industry, we have a team of 30+ highly specialized engineers and scientists who are dedicated to providing innovative solutions to clients worldwide. At MetroScientific, our focus is on delivering top-notch semiconductor design services that not only meet but exceed the expectations of our clients. We offer a range of services, including semiconductor device modeling and simulation, machine learning, deep learning, VLSI design, verification, test, SoC, FPGA, ASIC, failure analysis, software/firmware development, embedded systems, and lot.

Our engagement model is flexible, allowing us to cater to the unique needs of each client. We are committed to the success of our clients and go above and beyond to deliver quality services that enable them to achieve their business objectives.

MISSION

Our mission is to support global semiconductor manufacturing companies by providing skilled and passionate engineers who can help reduce time-to-market and project costs, while enabling sustainable business growth. We understand that in today's fast-paced technology landscape, time is of the essence. That's why we work closely with our clients to deliver projects on time, within budget, and to the highest standards with pushing the boundaries of technology to deliver exceptional results to our clients.

VISION

Our vision at MetroScientific is to be a top global technology partner, unleashing the full potential of our skilled engineers. We strive to create a robust semiconductor design industry ecosystem in Bangladesh by connecting academics, professionals, policymakers, and industrialists worldwide. Our approach includes promoting Bangladeshi talent, raising awareness, and acquiring global clients. This ecosystem will pave the way for the semiconductor manufacturing and design services sectors in Bangladesh.

MGT. DIRECTORY



Mo Alam (MSc in CSE)
Texas A&M University, USA
CEO, Entrepreneur
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15 years of experience in MetroScientific in startup and large corporations. Worked as Software Engineer, Data Scientist and Startup Accelerator.



Amal Roy (BSc in CIVIL)
Bangladesh University of Engineering and Technology
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10 years of extensive IT & management experience and result driven leadership.

KEY PERSONS



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Symon Saroar (BSc in EEE)
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Md. Shahadat Akbar (BSc in EEE)

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Enam Ahmed Suhash (BSc in CSE)

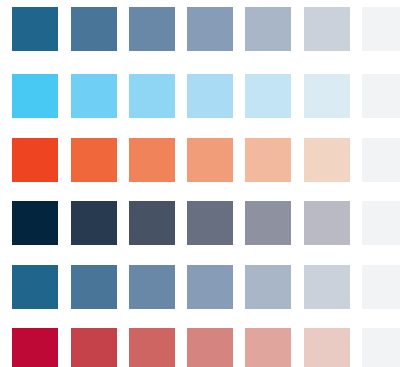
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R&D SERVICES



- **Embedded Solutions**
- **Modeling and Simulation**
- **Circuit Design**
- **RTL Design**
- **Layout Design**
- **Firmware Development**



EMBEDDED SOLUTIONS

MetroScientific delivers firmware and hardware development outsourcing for electronics manufacturers. We help global businesses build embedded software solutions for high-tech applications and IoT.

Embedded engineers at MetroScientific build efficient and secure embedded systems including wearables, Wi-Fi routers, sensors, home appliances, automotive solutions, and more. Our extended teams deliver full-cycle development services and build embedded solutions of any complexity.

MODELING AND SIMULATION

In MetroScientific, we develop and research the arithmetic formulation, circuitry design, characteristics curve of different electronic materials, and components. We assist to model and simulate the circuitry for electrical devices.

We reduce testing time and get to the finished product faster. We help to overcome engineering challenges and simplify calculations. We use industry-leading products to create the best design. We will provide accurate results for device.

CIRCUIT DESIGN

In MetroScientific, we develop and research the arithmetic formulation, circuitry design, characteristics curve of different electronics material, and components. We assist to model and simulate the circuitry for electrical devices. We reduce testing time and get to the finished product faster.

We help to overcome engineering challenges and simplify calculations. We use industry-leading products to create the best design. We will provide accurate results for device.

RTL DESIGN

MetroScientific has expertise in digital design. We provide digital design with Register Transfer Level (RTL) design, Verilog, and VHDL.

We help to overcome engineering challenges and simplify calculations. We use industry-leading products to create the best design. We will provide accurate results for device.

LAYOUT DESIGN

In MetroScientific, we provide IC layout, IC mask layout, or mask design, Analog and Mixed-Signal IC layouts of Analog and RF circuits.

We help to overcome engineering challenges and simplify calculations. We use industry-leading products to create the best design. We will provide accurate results for device.

FIRMWARE DEVELOPMENT

Big Data Analysis uses for complex machine learning algorithms and ensemble algorithms. With large data sets (several terabytes to petabyte), it can do calculations in reasonable wall-clock time.

However, often parallel processing techniques or cluster computing is required. Programs and languages like MatLab, R & Python use C/C++ 'under the hood' for some of their computations.

OUR PROJECT

Mean Estimation and Nominal Device Selection with the Pairwise Midpoint Method.

As part of a collaborative research effort, MetroScientific has developed an entirely novel approach for determining the mean and limits of functional data analysis, called the PMM method. It has been shown that the newly developed method is both much faster and far more accurate than earlier state-of-the-art techniques. This study was published and presented in 2023 in Seoul, South Korea at the 7th IEEE Electron Devices Technology and Manufacturing (EDTM) Conference.

Tolerance Bound Estimation and Bound Device Selection with the Pointwise Deviation Method.

Building upon Pairwise Midpoint Mean (PMM) device developed by MetroScientific, which efficiently represents the mean behavior from a set of electrical devices, the focus is now on developing a method to define the bound region. These bound devices will enable users to easily identify faulty electrical devices and assess potential aging deterioration. Additionally, this approach can provide insights into the expected lifetime of advanced electrical devices, making it a valuable tool for maintaining the reliability and performance of sophisticated systems.

Functional Data Analysis (FDA) Mean and Pairwise Midpoint Method (PMM) Estimation Tool.

Precise mean characteristics curves for a range of active and passive electronic components, such as diodes, transistors, resistors, inductors, and capacitors, can be produced with this tool. Device characteristic curves can come from observed I-V sweeps obtained in the lab across a range of processes and temperatures, or they can come from SPICE simulations. With the use of this tool, semiconductor designers can produce fabrication recipes or refine their designs to increase device yield and reliability.

Thermal Management of HEMT.

As research into High Electron Mobility Transistor (HEMT) devices continues to expand, enhancing the performance of these semiconductor devices has become increasingly critical. HEMTs are essential for high-frequency and low-voltage operations, but they face significant challenges due to the severe thermal issues that arise during high-frequency operation. These thermal limitations can hinder device performance and reliability. Optimizing the thermal behavior of HEMT devices is crucial for advancing industrial and technological applications. Our work focuses on mitigating thermal spikes and designing more efficient heat transfer systems for HEMT devices, which will play a key role in improving their overall performance and enabling further advancements in the field.

Mixed Signal Benchmark Circuit Simulation.

Under a joint research collaboration, MetroScientific has developed a novel method to evaluate the Xyce Simulation software. This is done by analyzing some benchmark circuits including Compensated CMOS Operational Amplifier, CMOS Operational Amplifier, Continuous Time State Variable Filter, Leapfrog Filter, Single State Common Emitter Filter and Differential Amplifier using the software.

Embedded Computational Storage System with FPGA and NVMe.

MetroScientific introduced a novel approach to optimize data processing latency, speed, and power by developing custom Linux kernels and drivers to support PCIe communication between the FPGA and HOST, as well as FPGA to SSD.

Design, Implementation, Test, and Maintain Firmware for FPGA.

Under a joint research collaboration, MetroScientific performs designing, implementing, testing, and maintaining firmware for FPGA & involves working with digital logic, programming languages, and hardware description languages to create efficient and reliable FPGA designs.

OUR CLIENTS



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National
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