

Job Title: 5G NR Protocol Stack Engineer (nFAPI)

Job Summary:

We are looking for skilled and motivated engineers to develop and integrate the nFAPI interface stack connecting the MAC layer with high-PHY, within a virtualized O-RAN Distributed Unit (O-DU) architecture. The role involves working on protocol message design, real-time data-plane handling, and emulation infrastructure to enable high-performance 5G networks.

Key Responsibilities:

- Develop and integrate a complete nFAPI interface stack for MAC-to-high-PHY communication
- Implement P5 (configuration) and P7 (real-time data plane) message interfaces per the nFAPI/FAPI specification
- Build emulation and test harnesses that mock high-PHY responses, enabling standalone validation of the MAC stack
- Support virtualized O-DU deployments, ensuring the interface operates correctly across containerized/orchestrated environments
- Handle strict TTI-level timing requirements for real-time MAC-PHY message exchange
- Debug interface-level issues related to message serialization, timing, and synchronization
- Work closely with the scheduler and O-DU accelerator card teams to ensure correct interfacing of scheduling decisions through the nFAPI layer

Required Skills:

- Strong understanding of 5G NR Layer 1/Layer 2 architecture and the MAC-PHY functional split
- Hands-on experience with nFAPI or FAPI interface specifications (Small Cell Forum), or comparable protocol-interface work
- Experience with message-based interface design, including serialization/deserialization of structured protocol messages
- Familiarity with socket/network programming, since nFAPI is designed to operate over a network interface
- Understanding of virtualization concepts (containers, orchestration), particularly relevant to virtualized O-DU deployments
- Proficiency in C/C++ programming (critical requirement)
- Familiarity with Linux systems, multithreading, and real-time/low-latency systems
- Experience with debugging tools (Wireshark, protocol analyzers, logs, traces) for interface-level troubleshooting

Experience:

- 2-4 years of experience preferred

Educational Qualifications:

- Bachelor's or Master's or PhD degree in Electronics, Telecommunications, Computer Engineering, or a related field. FRESHERS ARE NOT ALLOWED.
- Interested candidates may email their resumes to comet@iiitb.ac.in and mention the role for which you are applying clearly in the subject of the email.