

Kapil Kumar

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Bengaluru, Karnataka

EMBEDDED SOFTWARE DEVELOPER

Motivated Embedded Systems Engineer with expertise in GPGPU compilers, RTOS, LDD, microcontrollers, and communication protocols. Proven in real-time systems, optimizing performance, and hardware-software integration.

TECHNICAL SKILLS

C/ Embedded C	RTOS	freeRTOS	LLVM
Linux Device Drivers	Embedded OS	STM32 Microcontroller	SPI, I2C, CAN
ARM Architecture	DSA	Beaglebone black	OpenCL

SOFT SKILLS

Creative Problem Solver	Quick learner TeamWork	Good Communication Skills HardWork
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PROFESSIONAL EXPERIENCE

Centre for Development of Advanced Computing, Bangalore
Project Engineer

June 2024 - Present

- Experience developing low level software in C or C++.
- Expertise in driver development and debugging.
- Gained hands-on experience with Linux kernel modules and device driver architecture, including memory management, interrupt handling, and I/O operations.
- Familiarity with firmware and driver development on ARM SoCs and knowledge of compiler architecture and optimizations.
- Developing and integrating GPGPU device drivers, enabling efficient communication between the CPU and GPGPU hardware.
- Optimizing data transfer mechanisms using memory management techniques & enhancing system throughput, stability, and performance in heterogeneous computing environments.
- Working with CPU & GPGPU architecture, gaining a deep understanding of the interaction between GPU cores and subsystems.

Codleo Foundation
Associate Software Engineer

March 2023-July 2023

- Customized Salesforce Sales Cloud (objects, fields, layouts) to optimize business processes and boost sales team productivity.
- Created reports and dashboards to provide stakeholders with actionable insights on sales performance, pipeline management, and forecasting.
- Automated sales processes with workflows and validation rules, improving efficiency and ensuring data accuracy.

PROJECTS

Implementation of Encrypted data transfer using CAN Communication Protocol

Platform: STM32CubeIDE, STM32 Board, MCP2551(CAN Trans receiver), Cortex-M4

This Project was aimed to implement CAN communication protocol and transfer the data between two nodes using STM32 development kit. The similar system is used for ECU communication in automotive industry. The data encryption was implemented using Diffie-Hellman key exchange algorithm on communication channel. The data of one node can be transmitted to another node by encrypting (cipher text) and CAN message signals were analyzed to determine the state of ECU.

Implementation of Secure Boot in ARM based SoCs(System-on-Chips)

Platform: U-Boot Bootloader, Linux Kernel, Cortex-A8, Beaglebone Black

Project is aimed to enhance security in modern computers by exploring secure boot implementation on ARM-based SoCs (System-on-Chips). The project is involved understanding the booting process of SoCs during startup, from power-on to reaching the main operating system. Implement techniques to guarantee the authenticity and integrity of software elements executed during boot, preventing unauthorized tampering or malicious code execution.

Virtual Cricket Game

Platform: C Language, vs-code

This project was aimed to develop a terminal based cricket game using c language, where users can perform different actions like Selecting 11 players Team, Choosing between Bowling or Batting, Specifying numbers of overs for the inning. The objective of the project was to demonstrate the practical application of cricket game by displaying the winner team decided based on game result and user's choice This project provided an opportunity to apply foundational knowledge of C Programming, including input/output handling, decision structures, and user interaction.

CERTIFICATES

Programming with C and C++ by Internshala

Salesforce associate by Salesforce

Campus Ambassador by MasterBuddy

EDUCATION

CDAC Acts ,Pune

PG- Diploma in Embedded Design System || Sept 2023 - Feb 2024 || 91%

UIET MDU

B.Tech in Electronics & Communication Engg. || Nov 2020 - June 2023 || 79.4%

Government Polytechnic Jhajjar

Diploma in Mechanical Engineering || Aug 2017- Oct 2020 || 72.5%

Board of School Education Haryana

10 || April 2016 - March 2017 || 80%

LANGUAGES

English

Hindi