Praveen Ganiger
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Experience:

- +11 years of experience in Firmware development of Embedded and Digital signal processing products like 5GNR gNodeB, broadcast, broadband, and Satellite Modem's.

Technical Expertise:

- Currently working in Saankhya labs Pvt Ltd Bangalore, INDIA as a Project Lead.
- Has good experience on team management and task assignment.
- Currently working on 5G NR gNodeB Physical layer development.
- Working on 5GNR End to End integration.
- Working on Intel FlexRAN 22.07 code base.
- Hands on experience on Keysight signal studio pro, ORAN Studio, VSA, XCAL, and log analysis.
- Good understanding on 5G NR, ORAN 7.2 split.
- Good understanding on OFDM and Single carrier systems.
- Worked on DSP firmware/L1 development of 5G NR, DTV Modem's, TVWS, Satellite Mobile Radio, Vessel Tracking System and RTIS.
- Proficient in floating point C, fixed point C, SIMD, VLIW Assembly and MATLAB programming.
- Hands on code optimization using VLIW, SIMD and pipelining.
- Strong knowledge of embedded Linux Kernel (e.g., boot loader, u-boot, various drivers) and multi-thread application development experiences.
- Good knowledge of the Linux Operating System, Bare-Metal Microcontroller Programming, and embedded systems.
- Worked on various RF Transceivers like AD9352, AD9361, NXP, RFMD and Maxim.
- Experience in Integration of Linux kernels, Memory management, Kernels complexity estimation, and Optimization of the kernels.
- Hands on experience with oscilloscope, logic analyzer, RTSA, SFU and lab equipment.
- Experienced in drive team to achieve goals with collaboration with different functional teams.

Technical Skills:

- **Operating Systems:** Windows and Linux.
- **Programming languages:** C, Fixed Point C, VLIW SIMD Assembly and MATLAB.
- **Domains:** Embedded, ORAN, 5GNR, DSP, DTV, UMTS, TVWS, Satellite & Digital communication.
- **Tools:** Git, Jira, Jile, VS Code, Visual Studio, Atollic Studio, Eclipse, CCS, SASM, and CVS.
- **Hardware protocols:** JTAG, SPI, I2C, UPP and RS232 / RS485.
- **Hardware:** Intel Xeon processors, STM32xx, picoChip, SL100x and SL900x.

Education:

- Bachelor’s degree in Electronics and Communication Engineering (2011) from VTU University Katakana, INDIA with CGPA of 9.12 out of 10.00.

Professional Experience:
Company: Saankhya labs Pvt Ltd Bangalore, INDIA. **July 2014 – Currently Working**
Designation: Project Lead.
Project Title: 5GNR gNodeB. **March 2021 – Till date**
Description: 5GNR gNodeB product development.
Responsibility:

- Leading a team with task assignment and status follow up in guidance of project manager.
- Working on Intel FlexRAN code base.
- Added parameter and buffer logger code to FlexRAN code base.
- Working on XRAN interface.
- Working on PUSCH, PDSCH channels.
- Worked on Test case generation using Keysight tools.
- Developed tool for remote gdb debugging with VS code.
- Tools: Intel Xeon processor Cascade Lake and Ice Lake processors, VS code, FlexRAN, Jira, Jile and Git.

Project Title: RTIS**.** **Jan 2019 – March 2021**
Description: Satellite based Real Time Tracking Information System.
Responsibility:

- Developed the digital signal processing chain for both transmitter and receiver.
- Developed Bare-Metal STM software for system management.
- Working on design, development, testing, troubleshooting through the product development life cycle, closely cooperating with cross functional teams.
- Worked on UART, SPI, I2C and RTC protocols.
- Hardware used STM32F4xx, SL100x, SL900x, Maxim Trans-receiver and U-blox Module.
- Used MATLAB, Fixed Point C, SIMD VLIW Assembly programming and C# used for test application development.
- Tools used Visual Studio-2012, Atollic True Studio, Saankhya Assembler and debugger.

Project Title: Vessel Tracking System for Coastal Security. **Oct 2017 – Jan 2019**
Description: Tracking the Vessel carrying ships.
Responsibility:

- Designed and documented the System flow and Software flow.
- Developed the digital signal processing chain for both transmitter and receiver.
- Developed I2C, SPI, USART drivers on STM32F4xx Micro-controller.
- Hardware used ISM43340 Bluetooth and Wi-Fi module, STM32F4xx, SL100x, SL900x, Maxim Trans-receiver and CAM-M8Q GPS Module.
- Used MATLAB, Fixed Point C, SIMD VLIW Assembly programming and C# used for test application development.
- Tools used Visual Studio-2012, Atollic True Studio, Saankhya Assembler and debugger.

Project Title: Satellite Mobile Radio. **July 2014 – Oct 2016**
Description: Android Mobile interfaced Handheld Satellite radio.
Responsibility:

- Designing and documentation of L1 and L2 interface flow.
- Developed FEC, Mapper and Filter kernels in Transmitter path, Channel estimation,
- Integration, unit testing, lab and field testing.
- Hardware used SL100x, SL900x, Maxim Trans-receiver, STM32F47xx.
- Used MATLAB, Fixed Point C, SIMD VLIW Assembly programming and C# used for test application development.
- Tools used Visual Studio-2012, Atollic True Studio, Saankhya Assembler and debugger.

Company: CDOT Alcatel Lucent Research Center Chennai. **Feb 2014 – June 2014**
Designation: Physical Layer developer (Contract Engineer).
Project Title: WiMAX C2C.
Description: Development of WiMAX based CPE to CPE communication device.
Responsibility:

- Understand the Pico Chip PC20x architecture, picoTools and programming.
- Understand the Pico Chip interfacing with SDRAM, RF Trans-receiver IC AD9361.
- Understanding
- Understanding of Wi-Max for designing the C2C software.
- Designing and development of physical layer of C2C.
- Integration of modules, unit testing, debugging and solving the bugs.
- Development of C2C trans-receiver signal chain by using fixed point VLIW assembly, VHDL and C programming.
- Tools used Pico Tools.

Company: Saankhya Labs Pvt Ltd, Bangalore. **July 2012 – Nov 2013**
Designation: Member Technical Staff.
Project Title: WCDMA CPE Development.
Description: 3GPP CPE development**.**
Responsibility:

- Physical layer development of WCDMA CPE.
- Developed CPE Physical Layer modules like Rate Matching, Cell searching process, Physical channel Mapping and Channel estimation modules.
- Documentation, unit testing and complexity estimation of modules.
- Used MATLAB, Fixed Point C, SIMD VLIW Assembly programming and C# used for test application development.
- Tools used Visual Studio-2012, Saankhya Assembler, debugger and MATLAB.

Company: Vayavya Labs Pvt Ltd, Bangalore. **July 2011 – June 2012**
Client: Saankhya Labs Pvt Ltd, Bangalore.
Designation: Software Engineer.
Project Title: DTV Universal Cable Modulator and DE-modulator.
Description: DVBC, ISDBC, QAMB and DVBS Broadcast system development.
Responsibility:

- Understanding of I-TUT Standard.
- Understanding of developed software for further development.
- Added 64 QAM, 128QAM and 256 QAM support to software.
- Unit testing, Integration of modules and testing.
- Documentation and complexity estimation of kernels.
- Developed Adaptive Equalizer (LMS), Timing, Carrier recovery, DSF and USF modules.
- Performance testing and field testing.
- Used MATLAB, Fixed Point C, SIMD VLIW Assembly programming and C# used for test application development.
- Tools used Visual Studio-2010, Saankhya Assembler, debugger and MATLAB.

Personal Information:

- **Date of Birth:** 1st June 1989.
- **Languages Known:** English, Kannada, Hindi, and Telugu.
- **Address:** #51/97, 22nd main, 22nd cross Marenahalli Vijayanagar,
  Bangalore Karnataka, INDIA-560040.