Shri Prakash Sikariwal

Domain Experience Areas

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| GSM, (E)GPRS, BTS, C, Micro Assembly (Intel IXP2350), Cavium Network Processor (CN6335) |

Skills/Competencies

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| Total Experience | 9 Years |
| Objective | * Aspiring for an organization where I can provide the best of my aptitude & potential nurtured with the knowledge acquired through studies, experience gained through projects handled and by perpetual up gradation so as to add value to the organization & contribute substantially for its global presence & productivity. |
| Contact Details | [sikariwal@gmail.com](mailto:sikariwal@gmail.com); +91-9015838242 |
| Current Role/Responsibilities | * Technical Manager * Managing Team of 12 to 15 people working in Transmission SW data path processing area of GSM/(E)GPRS capable Base Transceiver Station SW development * Contributes in Estimations, Requirements Analysis, Architecture Development, Interface Development, Functional Specification, Designs, Coding, Module testing, System Integrations and Reviews in all phases of SDLC. |
| Educational Qualifications | MCA |
| Domain Knowledge | * Review System feature Specification, Analyze and derive BTS Requirements, Estimate Effort and Schedule, Develop Architecture, Design modules, Implementation and Testing of Transmission Software Fast Path for **NSN 2G/2.5G BTS** in Abis mode **TDM** and **Packet**. Fast Path SW does conversion of User plane data traffic between air interface (input or output of channel coding) and Abis interface and vice-versa for TRAU (GSM) and (E) GPRS frames. It also does Abis Termination e.g. Controls Downlink Time Alignment, Phase Alignment and Block Alignment. In addition Fast Path SW also does Multiplexing, Demultiplexing, Scheduling and Shaping of traffic towards Abis link in Packet Abis mode. GSM Specification 48.060, 48.061, NSN proprietary (E)GPRS Layer 1 Specification, 48.103, RFC 3551 for FR and EFR, IETF RFC (draft-ietf-avt-rtp-gsm-hr-00) for GSM HR, RFC 4867 for AMR and AMR-WB codecs. * Design, implementation and testing of Load Tester for TRS SW Fast Path. * Design, implementation and testing of GSM Layer 1 SW e.g. Channel coding for GSM FR, EFR, HR and AMR codecs. GSM Specification 45.003. * Design, implementation and testing of Memory Manager, Inter Process Communication and Timer Services Modules of TRX Platform on Texas Instruments Digital Signal Processor (**TI DSP C64xx**). |
| Tools / OS | * Intel IXA SDK 4.3, 4.2, Intel IXP2350 Processor * Cavium Octeon CN6335 * Code Composer Studio and Emulator for TI DSP C64xx * QNX 6.3 * Clear Case * MS Office * Spirent SmartBits * GL Card * GEMU * HP Quality Centre, NOKIA Testman, Web Pronto, IRMA and PI * NetHawk * Wireshark / Ethereal * Tera Term Pro * HIT Tool * MiniSTE |
| Test Equipments | * GL Card, Data Channel Simulator, Abis Breaker, SmartBits, GEMU and NetHawk |
| High Level / Assembly Languages | * Assembly Languages: Micro Assembly for Intel IXP2350 processor and TI DSP, * Good knowledge of C |
| Technical Skills | * Knowledge of GSM/GPRS/EGPRS systems. * Architectural understanding and good grip of Instruction Intel IXP2350 Processor. * Architectural understanding Cavium Network processor CN6335. * Architectural overview and understanding of Instruction Set of TI TMS320C64x Processor. |
| Quality and Soft Skills | * Awarded snap award in team excellence. * College scholarship was awarded for getting first position in class during M.C.A. * Topped my class in High School Board Examination. * Served as a Group Leader in the Boy’s Scouts in my High School. * Awarded scholarship from state govt. for four years till class Tenth * Knowledge of Software Development Life Cycle. * Good Communication skills and Inter-personal skills. * Hard worker, good learner and good team player with good analytical skills. * Knowledge of Configuration Management Tools – Clear Case. * DETS (Defects Enhancement & Tacking System) for Software Problem report (SPRs). * NSN Web Pronto – To track issues reported by Testing Team and Customers |

Experience

## Project Title: Maintenance of Transmission Software Fast Path In Flexi Multi Radio BTS and Flexi BTS For NSN

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| **Description** | Assignment involved maintenance of Fast Path SW to handle traffic exchanged between Abis and Air Interface for Abis mode TDM and Packet.  In Flexi BTS SW release Fast Path SW runs on Intel IXP2350 Network processor.  In Flexi multi Radio BTS SW release Fast Path SW runs as simple executive over Cavium Octeon CN6335 Network processor. |
| **Duration** | Ongoing from Jan 2012 |
| **Team size** | Team-size: 12 Members |
| **Contribution** | * Analyze issues reported by NSN customers over Flexi multi Radio BTS SW. * Design solution for issues reported inside TRS SW Fast Path SW domain and its interfaces with other SW domains within BTS or Network entity towards abis side (TRAU/ETP/PCU) * Contribute and lead a team responsible for Functional Specification, Design development, Test Plan development, Test Case writing, Coding, Module Testing, Sub Component testing in Fast Path domain. Product Integration Testing, Integration with BSC and TRAU. |
| **Technology Skills** | GSM, GPRS and EGPRS  Intel IXP2350 network Processor  Cavium Network Processor CN6335, C  Tools and Equipment: SmartBits, Ethereal / Wireshark, HIT, Rational Clear Case. |

## Project Title: Packet Abis BSC Access from existing NSN BTSes using TDM Interface

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| **Description** | Common access solution towards BSC for all existing NSN BTS types. Develop conversion function to allow access to packet abis BSC from existing NSN BTSes operating in TDM Abis mode. |
| **Duration** | Apr 2011 to Dec 2011 |
| **Team size** | Team-size: 6 Members |
| **Contribution** | * Review System Feature Specification of the feature developed by NSN. * Responsible for self contribution and lead the team to derive Conversion Function System level requirements from System Feature Specification for the feature provided by NSN. * Define Conversion Function SW Architecture. * Define SW Interfaces within Conversion Function. |
| **Technology Skills** | GSM, (E)GPRS |

## Project Title: Orthogonal Sub Channel Support for AMR FR and AMR HR Codecs in Transmission Software Fast Path of Flexi BTS for NSN

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| **Description** | Orthogonal sub channel support in BTS doubles the voice capacity of BTS without any additional hardware resources. |
| **Duration** | (Apr 2010 to Mar 2011) |
| **Team size** | Team-size: 8 Members |
| **Contribution** | * Analyze and derive BTS level requirements from System Feature Specification for **OSC** provided by NSN. * Derive use cases from BTS level requirements and map them to functions of BTS components * Derive interfaces between components of BTS * Design Architecture of TRS SW Fast Path * Contribute and lead a team responsible for Functional Specification, Design development, Test Plan development, Test Case writing, Coding, Module Testing, Sub Component testing in TRS NP domain. Product Integration Testing, Integration with BSC and TRAU. * Performance validation (Processing time for 72 channels shall lie well within work window) for Fast Path SW. |
| **Technology Skills** | GSM,  Micro Assembly, C  Tools and Equipment: GL Card, Abis Breaker, SmartBits, Nethawk GSM Analyser, Ethereal / Wireshark, HIT, Rational Clear Case |

## Project Title: Transmission Software Fast Path for Abis Mode Packet In Flexi BTS For NSN

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| **Description** | Replacing costly Legacy TDM (E1/T1) mode Abis Interface by low cost IP mode Abis Interface between BTS and BSS of GSM Network.  Assignment involved development of Fast Path SW to handle traffic exchanged between Abis and Air Interface.  On Abis interface voice and packet data is encapsulated in RTP payload.  In downlink first RTP frames are de-multiplexed and then data bits are extracted from RTP packets and input stream for channel coding is given to DSP processor.  In downlink Fast Path SW do de-jittering of RTP frames in order to avoid abnormally due to varying delay in packet network.  In uplink output from channel decoder is taken from DSP processor and encapsulated in RTP frames and then multiple RTP frames are multiplexed to single IP frame and sent to Abis interface as per defined scheduling scheme and shaping parameters. |
| **Duration** | (Nov 2008 to Mar 2010) |
| **Team size** | Team-size: 8 Members |
| **Contribution** | * Analyze and derive BTS level requirements from System Feature Specification for **User plane** and **Transport & QoS** provided by NSN. * Derive use cases from BTS level requirements and map them to functions of BTS components * Derive interfaces between components of BTS * Design Architecture of TRS SW Fast Path * Contribute and lead a team responsible for Functional Specification, Design development, Test Plan development, Test Case writing, Coding, Module Testing, Sub Component testing in Fast Path domain. Product Integration Testing, Integration with BSC and TRAU. |
| **Technology Skills** | GSM, GPRS and EGPRS  Micro Assembly, C, QNX6.3  Tools and Equipment: SmartBits, Ethereal / Wireshark, HIT, Rational Clear Case. |

## Project Title: Maintenance of Transmission Software Fast Path for Abis Mode TDM In Flexi BTS For NSN

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| **Description** | Assignment involved maintenance of all modules e.g. Packet\_RX, Packet\_TX, Timer, Queue Manager, Uplink Interworking and Downlink Interworking present in Fast Path SW, responsible to handle traffic exchanged between Abis and Air Interface.  On Abis interface voice and packet data is encapsulated in TRAU frame format.  In downlink data bits are extracted from TRAU frames and input stream for channel coding is given to DSP processor.  In downlink microcode does Abis termination e.g. DL Time Alignment, Phase Alignment and Block Alignment.  In uplink output from channel decoder is taken from DSP processor and encapsulated in TRAU frame. |
| **Duration** | (May 2007 to Oct 2008) |
| **Team size** | Team-size: 6 Members |
| **Contribution** | * Analyze and derive BTS level requirements from Change requests proposed or Issues reported by customers. * Contribute and lead a team responsible for Functional Specification, Design development, Test Plan development, Test Case writing, Coding, Module Testing, Sub Component testing, Product Integration Testing, Integration with BSC and TRAU. |
| **Technology Skills** | GSM, GPRS and (E)GPRS  Micro Assembly, C, QNX6.3  Tools and Equipment: GL Card, GEMU, Abis Breaker, SmartBits Nethawk GSM Analyser, Ethereal / Wireshark, HIT, Rational Clear Case |

## Project Title: Load Tester for Fast Path SW in Transmission line of NSN Flexi BTS

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| **Description** | Development of load tester for Fast Path SW.  Design and Implement PCU functionality to generate DL PCU frames  Design and Implement TRAU functionality to generate DL TRAU frames  Design and Implement BTS-DSP functionality to generate output of channel decoding in Uplink |
| **Duration** | (Aug 2006 to Apr 2007) |
| **Team size** | Team-size: 4 Members |
| **Contribution** | * Contribute and lead a team responsible for Functional Specification, Design development, Coding and Testing |
| **Technology Skills** | GSM, GPRS, EGPRS  Micro Assembly, C, QNX6.3  Tools and Equipment: GL Card, Abis Breaker, SmartBits Nethawk GSM Analyser, Ethereal / Wireshark, HIT, Rational Clear Case |

## Project Title: Memory Management, Inter Process Communication and Timer Services on Texas Instruments Digital Signal Processor in NSN Flexi BTS

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| **Description** | Development of Platform SW for DSP processor (TI DSP C64xx)  Designed and Implemented Best Fit Memory Allocation.  Designed and Implemented Delta timeout mechanism of a Timer in a list of running timers.  Designed and Implemented Messaging Mechanism using Message Queues between two tasks. |
| **Duration** | (Aug 2004 to Jul 2006) |
| **Team size** | Team-size: 20 Members |
| **Contribution** | * Responsible for Functional Specification, Design development, Test Plan development, Test Case writing, Coding, Module Testing, Sub Component testing. |
| **Technology Skills** | GSM, (E) GPRS  Micro Assembly, C  Tools and Equipment: Rational Clear Case |