

E-mail Address:  
[manishks@engineer.com](mailto:manishks@engineer.com)

Work No : 82-31-4507239  
House No: 82-31-3860435

## MANISH KUMAR SINGH

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### Objective

Seeking a challenging position in a reputed software development organization.

### Summary

Nearly 5 years of software development experience in Networking Software, good knowledge of Telecom, Routing protocols, Linux OS design, RTOS (vxWorks/pSOS/Nucleus), Embedded Systems and having strong programming skills in C and C++.

### Experience

- As System Analyst, **LG Electronics Inc.** (<http://www.lge.com/>). Seoul (Form Sept' 2003 till date).
- As Senior Software Engineer, **Future Software Ltd.** (A SEI-CMM Level 5 assessed, ISO 9001:2000 certified and PCMM – Level 3 Assessed Company) (<http://www.futsoft.com/>), Chennai (Jan' 2001 – Aug' 2003).
- As Software Engineer, **Integra Micro Systems Pvt. Ltd.** (A ISO 9001:2000 certified Organization) (<http://www.integramicro.com/>), Bangalore (July'2000 – Dec'2000).

### Skills

Languages	C, C++, Motorola Assembly
Environments	Linux, AIX, SOARIS, HP-UX, Windows 98/NT/2000
Development Tools	Trace32, Tornado, Metrowerks, VC++, ACE, Code Composer
Protocols and Standards	TCP/IP Suite, RIP, MPLS, 802.1d, IGS, 802.1q, 802.1w, 802.1s, 802.1x, 802.3ad, QOS (DiffServ)
Debuggers	gdb, dbx, xdb
RTOS	vxWorks, pSOS, Nucleus
Design Tools	UML using Rational Rose, Microsoft Visio
APIs & Libraries	Parlay APIs, Tcl/Tk, Perl, XML library (DOM), ISAM
Configuration Tools	CVS, VSS
Optimization Tools	Rational Rose purify, Quantify, Truetime, Truecoverage

### Education

- First class degree (74.1%) in B. E. (Electronics and Power Engineering) from Regional College of Engineering (VNIT), Nagpur

### Highlights

- Strong programming skills in C/C++. Well versed with Linux Operating system.
- Strong Analytical and Programming skills.
- Hands on experience of PSP/TSP related Six Sigma methodologies.
- Systems Experience:
  - Development experience on Nucleus with Trace32 debugging environment.
  - Worked for porting of L2/L3 switch stack on vxWorks on Broadcom and Galnet Boards using Tornado development environment.
- Overall understanding of TCP/IP stack with deep insights on L2 stacks, MPLS and QOS (DiffServ).
- Experience on Configuration Management tools Visual Source Safe and CVS (windows and Linux).
- Good Understanding of Software life cycle models and principles.
- Team leading skills.
- Good academic record

## Significant Project Details

System	<b>3G Mobile Handsets</b>
Client	LG Electronics Inc.
Period	Since Sept'2003
Platform	Nucleus/Qualcomm/Code Composer
Languages	C
APIs and Libraries	PBL ISAM library
Tools	ADS C compiler and linker, Trace32 Integrated Debugging Environment
Design Tools	Microsoft Visio
Verification Tools	LGE specific tools

### Description:

Currently working on the 3G Mobile Handset platform to support DRM Solution in the Handset side. The work involves the design, development and testing of the source code for the DRM v1.0 and DRM v2.0 standards. Involved in the architecture for rendering engine for the DRM contents for good User Experience.

### Contribution:

1. Design, Development and testing of the DRM solution for 3G Handsets.
2. Integration and System testing of the DRM solution.

System	<b>Gigabit Ethernet Multiplayer Switch</b>
Client	Broadcom Inc.
Period	Jan'2003 – Sept '2003
Platform	VxWorks/Tornado, Nucleus/PowerTAP/CodeWarrior
Languages	C, PowerPC Assembly
APIs and Libraries	Driver library for the board
Tools	GNU C compiler and linker, debuggers like gdb
Design Tools	-
Verification Tools	Electric fence and Ethereal

### Description:

Worked for the Intelligent Switch Solution for Broadcom switching devices (5615/5645/5690). The work included the minimal porting of BSP for BCM5690, porting of the switch solution and system testing of the software. The Board has General-purpose processor (ARM/MPC/IDT-MIPS) for the control and Management plane activities and Broadcom switching devices (5615/5645/5690) for wire speed switching. The stack includes layer 2 (802.1d, IGS, 802.1q, 802.1w, 802.1s, 802.1x, 802.3ad) and layer 3 (RIP, OSPF, BGP, PIM) protocols. The RTOS used for the boards 5645/5690 are vxWorks/Nucleus respectively.

### Contribution:

1. Worked on the Broadcom boards for the BSP Porting and bringing the board up.
2. Stacking support for the switch.
3. Integration and System testing of the switch solution.

System	<b>L2/L3 Switch solution</b>
Client	Marvell Technology Group Ltd.
Period	Feb'2002 – Dec'2002
Platform	VxWorks/Tornado
Languages	C
APIs and Libraries	Driver library for the board
Tools	GNU C compiler and linker, debuggers like gdb
Design Tools	-
Verification Tools	Electric fence and Ethereal

### Description:

Worked for the Intelligent Switch Solution porting on Galnet2p switching devices. The work included the programming Galnet2p devices for the L2/L3 support. The Board has General-purpose processor (IDT-MIPS) for the control and Management plane activities and ganet2p for wire speed switching. The stack includes layer 2 (802.1d, IGS, 802.1q, 802.1x, 802.3ad) and layer 3 (RIP, OSPF, BGP, PIM) protocols.

Contribution:

1. Plane separation activity for the QOS Stack. Porting for the VLAN, LA and PNAC modules.
2. Drafted a proprietary MIB for the Differentiated Services and development of the low level code for the same. Provided Differentiated services support for the switch hardware.
3. Integration and System testing for the switch solution.

System	<b>Front End Processor</b>
Client	Huawei Technologies Ltd., Shenzhen, china
Period	July'2001 – Feb 2002
Platform	AIX, HP-UX, SOLARIS, UNIXWARE
Languages	C++
APIs and Libraries	Libsocket, libxerces, libtcl, libcrypto etc.
Tools	GNU C compiler and linker, xlc_r compiler on AIX, aCC compiler on HP-UX, debuggers like gdb, xdb, dbx etc
Design Tools	UML using Rational rose
Verification Tools	Purify, Quantify etc.

Description: A multithreaded design using the ACE (Framework) for the Multiple OS like (AIX, HP-UX, SOLARIS, UNIXWARE) for a client Huawei Technologies Limited. An onsite work in Shenzhen, China for 8 months. The System was designed using Rational Rose. Used for Intelligent Networks with SCP for multiple platform data-support. High Performance and time critical design.

Contribution:

1. Designed Analysis and Processing Module for the Project
2. Integration and System testing for the software

System	<b>Supplementary Services implementation in Application Server of Open Telecommunications' OpenCallAgent (SSOT)</b>
Client	Open Telecommunications, Australia
Duration	March' 2001 – July'2001
Platform	Solaris
Programming Languages	C++
APIs and Libraries	Parlay API Specification, TAO (The ACE ORB)
Design Tools	UML using Rational Rose

Description:

SSOT project involves the development of Application Server of OpenCallAgent softswitch implementing the value added services like Call Waiting (CW), Three Way Calling (3WC), Call Return (CR) etc derived from ITU-T E131 recommendation. OpenCallAgent is a tier-one carrier-grade softswitch that enables voice services and establishes call connections on packet data networks. It also enables inter-working between modern packet-based networks and traditional circuit-switched networks, including ISDN and Intelligent Network (IN) services. Application server complies with Parlay API specification allowing development of network independent supplementary services. The services implemented used CORBA (TAO) for the softswitch.

Contribution:

1. Preparation of SRS and Test Strategy for 3 Supplementary Services.

System	<b>MPLS stack</b>
Duration	Jan' 2001 – March' 2001
Platform	Linux and different RTOS (pSOS and VxWorks)
Programming Languages	C

Description:

Future Software Architecture for Portability (FSAP) is a generic, portable framework used for abstracting OS services from the protocol implementations. It provides all the OS features required by the protocol like Tasks, Queues, Timers, Memory Pools, Chained Buffers, etc. All the protocol implementations of Future Software use FSAP for making the protocol easily portable to any RTOS. Worked for the Forwarding Module of MPLS stack. Worked on CRLSP for the testing of the module.

Contribution:

1. Design and Development of FM of MPLS stack.

System	<b>Topplan</b>
Client	BSH Germany
Duration	Sept' 2000– Dec'2000
Platform	VC++, MS Windows
Programming Languages	C++
APIs and Libraries	-
Design Tools	DFD

Description: VC++(MFC) project for a financial institution BSH in Germany. Application uses a DLL as a communication interface with the server. MS-ACCESS used as the Database.

Duration: 4 Months, Size: 40KLOC, Team Size: 8

Contribution:

1. Design of the DLL and testing of the Application.

System	<b>Transaction Update System</b>
Client	Integra Micro Systems Pvt. Ltd. Bangalore
Period	July'2000-Aug'2000
Platform	Linux and HP-UX
Languages	C
Tools	GNU C compiler and linker, gdb

Description: A project developed in C language for as a part of product development. Used for the different file systems mounting and raw copying for the backup purpose. A Linux shell interface given for management purpose. Implementation of a shell on Linux Operating system was a part of the project.

Contribution:

1. Involved in design, development and testing.

System	<b>Microprocessor Based Electrical Relay</b>
Client	Motorola Inc.
Duration	July ' 1999– March'2000
Platform	MS Windows 95
Programming Languages	Assembly
APIs and Libraries	-
Design Tools	DFD

Description:

A Project developed for Motorola Inc. at the college level in Regional College of Engineering, NAGPUR. The language used was MC68HC705P6A assembly and Motorola Inc provided the hardware board. The work included the development of the program and downloading it on to the micro-controller.

Duration: 9 Months, Size: 5 KLOC, Team Size: 5

Contribution: 1. Design, Development and Testing of the software.