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# Company Profile

Linux Expertise

**GRACE System TechnologyLabs  
(India) Pvt. Ltd.**

*Technology Centric, Value Driven*

# Expertise on Linux

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Over the past few years we have been involved in many exciting Linux / Embedded Linux based projects.

Some of the Projects in which our Associates have been involved are listed below:

# Linux – Wireless Related

- On Linux-Java Platform Marvell-8686 WIFI Driver Support
- Android OMAP3430 TI-1271 WIFI Driver Support
- Keypad and Capacitive touch support on Qualcomm's MSM6246 based device
- Nucleus BSP and related drivers for a Cell phone platform based on TI Neptune Processor. This involved:
  - ❖ OS porting:
  - ❖ Driver/software for :
    - Interrupts,
    - watchdog timers
    - RTC,
    - External memory interface
    - IC Identification
    - ONE-WIRE
    - Keypad, captouch
    - Power Key,
    - Dedicated Lock( Touchscreen lock in pocket ),
    - Accessory detection
    - I2C
    - Backlight support
    - Support for Cypress Antioch USB chip
    - Keypad light support using IO-Expander

# Linux – Wireless Related

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- CMS key support
- ❖ HWCONFIG block (Part of Flash used to keep Phone configuration info).
- ❖ Smart Battery Charging Management for phone charger interface.
- ❖ Wifi Driver Support for TI chipset
- ❖ Qualcomm BSP support
- ❖ Touch screen driver support on Android based OMAP platform
- ❖ Datacard software development.
  
- ❖ **SIM Card Management**
  - The Hardware is replaced with the TI Board.
  - The Lower level modules are changed to support the New Hardware.
  - The Scope of work is to modify the SCSM and replace the existing tightly coupled driver with TI's SIM driver.
  - The TI's SIM Card reader Driver supports a BAT( Binary AT ) interface.
  - The software is modified to send the BAT commands and receive the response.

# Linux – Wireless Related

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- Porting of Android to beagle board from TI
- Design and implementation of Linux device driver for 802.11 a/ b / g chipset
- Linux device driver for PCMCIA/CF 802.16/WIMAX device
- Development of 802.1x/EAPOL supplicant on Linux
- Design and implementation of Wireless LAN driver and protocol for PCI based PRISM chipset on Linux and Windows. It implements a basic host based Access point based on PRISM chipset.
- Design and implementation of USB Wireless LAN driver for Linux, Windows and Windows CE.

# Linux – Storage Related

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- Storage Processor Platform Functional Model Porting from earlier version.
- Linux 2.6 Porting of Storage Processor Platform Control Path Drivers, Libraries and Applications. Involved porting Driver for various 2.6 Kernel versions used in RHEL, SuSE Distributions and porting drivers to Intel IXDP Platform running Montavista Linux Distribution.
- The IXDP port was released with Functional model to Intel and supported Bug Fixes for the releases.
- Linux to Windows Drivers porting, feature addition, bugfixing and support.

# Linux – Storage Related

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- Host controller driver for SD/MMC storage card in embedded Linux and Uboot
- Raw test driver for SD/MMC card on embedded Linux and Uboot
- Embedded Linux test project (LTP) for Kernel Debugging
- Ethernet driver for Davicom DM9000 controller in embedded linux and Uboot
- Porting of Flash utilities and file system to different version of VxWorks
- Development of Flash controller driver on VxWorks.

# Linux – USB related

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- USB Ethernet driver for Linux, Windows and Windows CE.
- USB Wireless LAN driver for Linux, Windows and Windows CE.
- USB device drivers and function drivers for CDC ACM and 3G-PP Multiplexer protocol for Virtual serial ports over USB on Windows, Apple MAC, VxWorks and Linux
- USB mass storage function driver on Linux
- USB host controller driver for ISP1761 on embedded Linux
- USB HID (Mouse And Keyboard), Mass storage, CDC-ACM, CDC Ethernet, USB-WMC function drivers on Linux
- Apple MAC/Linux USB IrDA driver.
- USB device stack on Linux.
- USB MTP stack on embedded Linux.
- Involved in maintenance of Bluetooth and USB stack for cell phones.



# Linux – USB related

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- USB OHCI driver for UBOOT on MIPS platform
- USB mass storage support for UBOOT on MIPS platform
- USB Ethernet driver for UBOOT on MIPS platform.
- Linux USB driver for Finger print device
- Design and implementation of Nucleus driver and protocol modules (802.1x, WPA, WMM) for Ralink USB WLAN chipset.
- Host mode and device mode drivers for Transdimension USB OTG device on Sirf embedded Linux board to support mass storage, HID, Serial and ethernet classes.

# Linux – On Media Related Boards

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1. Linux 2.6 BSP for Samsung - S3C2413 based board. This involved :
  - ❖ ARM Cross Compile Tool Chain
  - ❖ Boot Loader, Flash Driver, SDRAM Test
  - ❖ Kernel Porting and Bring up
  - ❖ ATA Driver, I2C Driver, DMA Driver, GPIO Driver
  - ❖ BusyBox, Ramdisk build
  - ❖ Applications and Support

# Linux – On Media Related Boards

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2. Linux 2.4 BSP for Samsung - S3C24A0 based board. This involved :

- ❖ ARM Cross Compile Tool Chain
- ❖ Boot Loader, Flash Driver
- ❖ Kernel Porting and Bring up
- ❖ DMA Driver, GPIO Driver
- ❖ Applications and Support

# Linux – On Media Related Boards

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3. Linux 2.6 drivers on TI TMS320DM6446 based board. This involved :
  - ❖ GPIO Driver and Audio Support
  - ❖ SD Card Driver
  - ❖ SDIO Driver
  - ❖ EDMA Driver
4. Video Decoder Driver on TMS320DM6441

# Linux – On Media Related Boards

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5. Linux 2.4 drivers on Samsung - S3C24A0A based board. This involved :

- ❖ LCD Framebuffer driver
- ❖ HDMI Driver
- ❖ I2C Client driver
- ❖ Audio Driver

6. Linux 2.6 drivers on TMS320DM6441 based board. This involved :

- ❖ Custom Power controller Driver
- ❖ Battery Gas Gauge Driver
- ❖ Support Kernel HRT driv
- ❖ JFFS2 filesystem

# Linux – On Media Related Boards

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8. Application for playing media files in the target board
9. Audio Support and Video Encoder Driver, SDRAM test on Texas -  
TMS320DM6446
10. Development of Buffer Flush & Frame Drop features in HAL of QV1721
11. Development of AP-Client support for RT-73 Wireless chipset on ST Board
12. Development of virtual display driver for ST Mobile2Display board
13. Enhancements for flash driver & utility for ST M2D board

# Linux – *OTHER DEVICE DRIVERS*

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- Device driver for storage virtualization device on Windows/Linux.
- SCSI miniport driver on Windows.
- Embedded Linux based Gigabit NIC side software and corresponding network driver on Linux.
- 3GPP multiplexer protocol on Linux
- Gigabit Ethernet driver on Windows 95, 98, NT, 2K, ME, Linux, Solaris, Netware, UnixWare, SCO Open server, VxWorks.
- Embedded Linux based software for a MIPS based multi media device.
- Virtual Serial Port driver on VxWorks.
- Design and implementation of ATA driver on Linux
- ATA driver on Solaris

# Linux – *PROTOCOLS RELATED*

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- Design and implementation of Layer 2 protocol (STP, RSTP, GARP, GVRP, GMRP, 802.1x) stack for Linux .
- Design and Implementation of iSCSI protocol stack on Windows and Linux.
- Design and implementation of USB device stack on Linux and Windows CE.
- Design and implementation of LACP protocol on Windows and Linux.



# Linux – Other Projects

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1. Porting of Linux/Writing BSP for ARM boards.
2. Porting of uCLinux/Writing BSP for a DAPDNA based processor board.
3. Embedded Linux BSP for Samsung processor based board

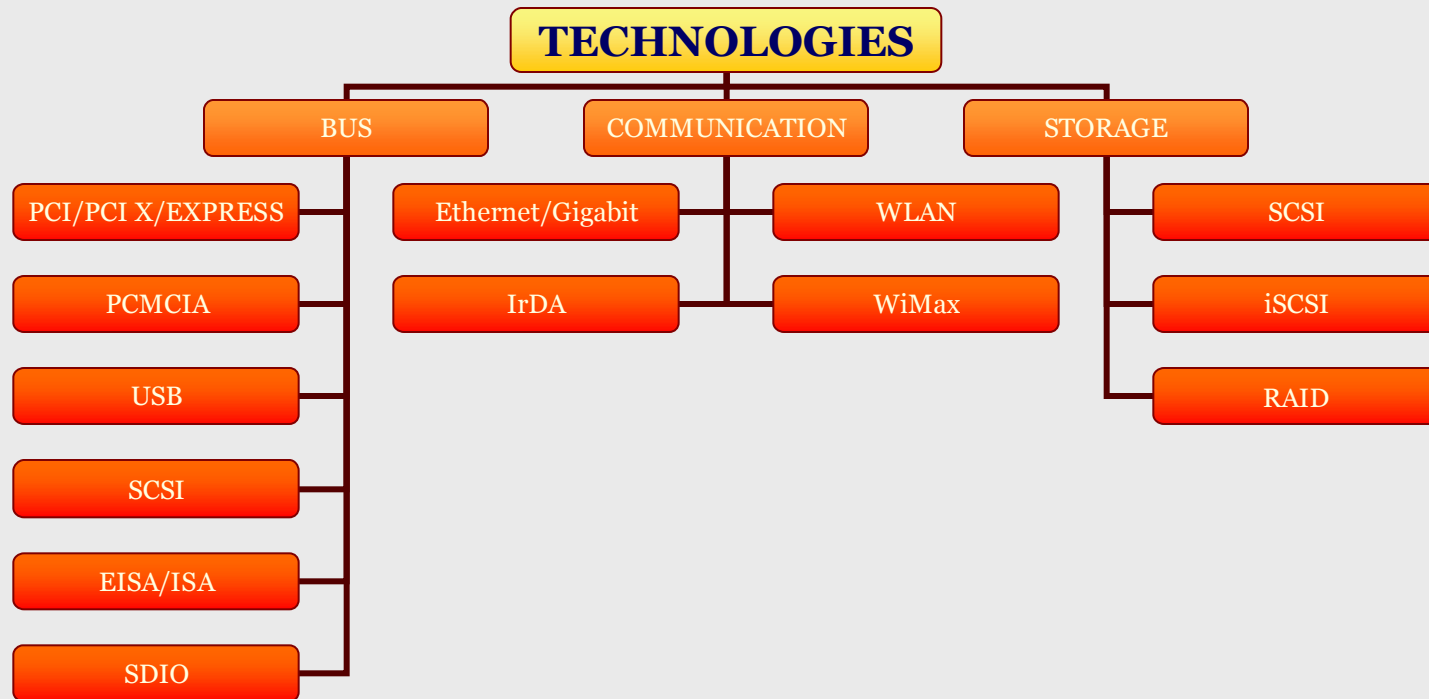
# Case Studies

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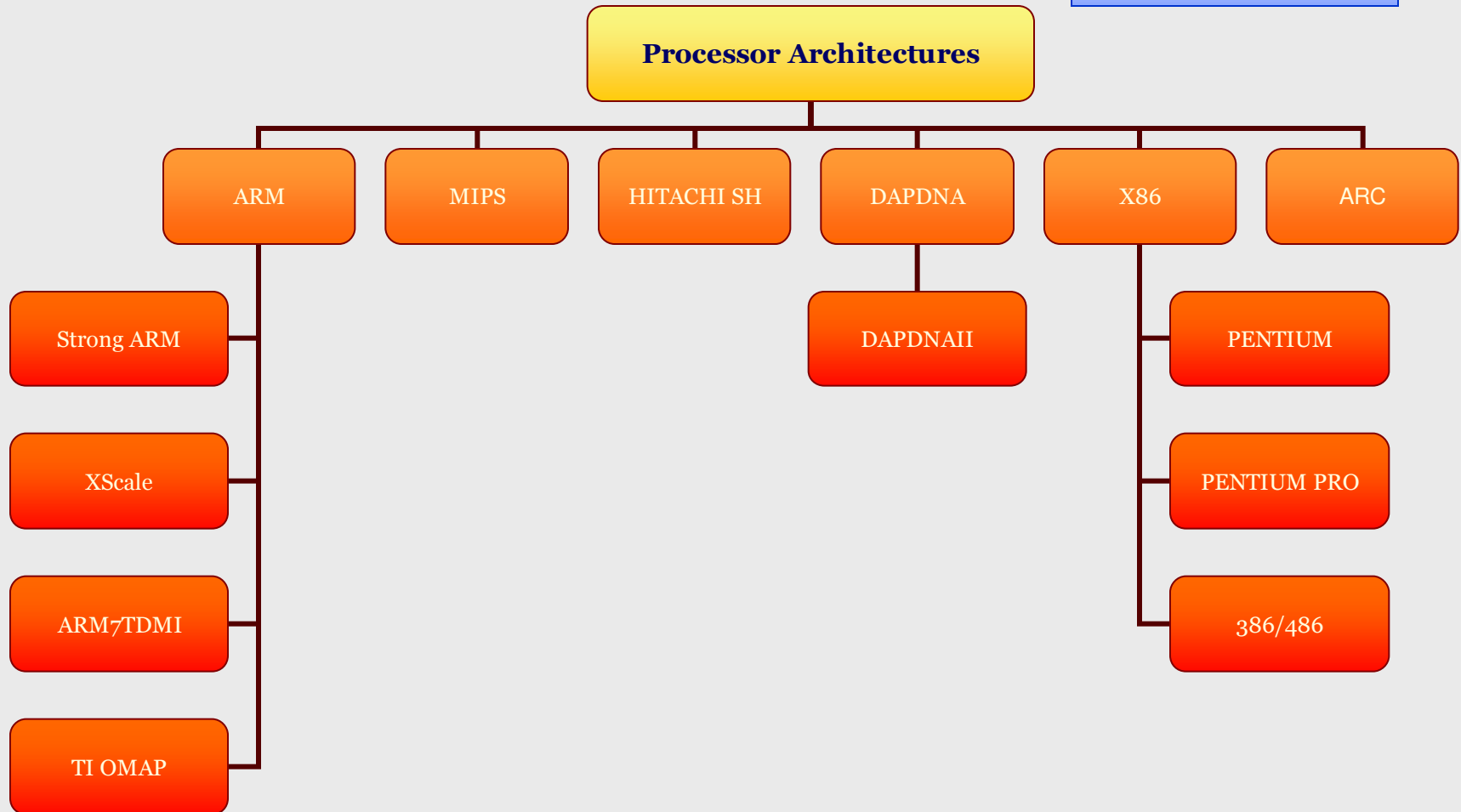
For case studies please visit :

**[www.gracelabs.com/case\\_study.html](http://www.gracelabs.com/case_study.html)**

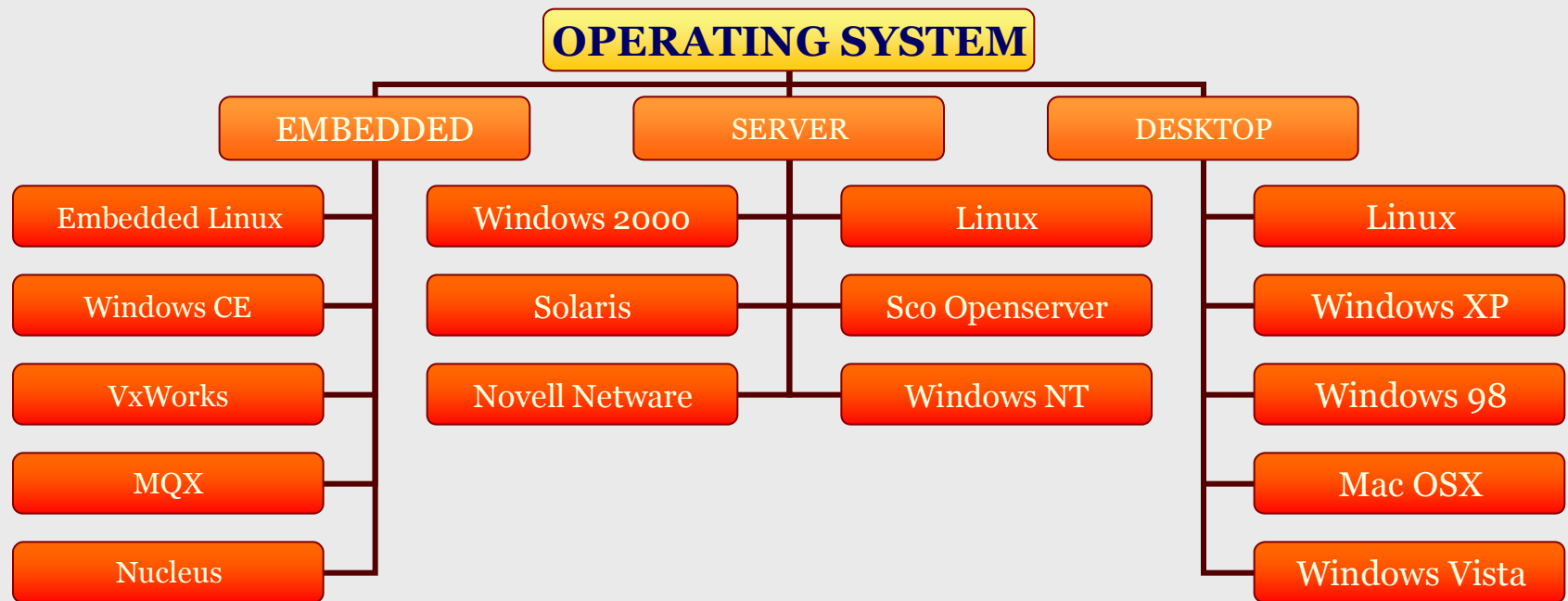
# Domain Expertise – TECHNOLOGIES



# Domain Expertise – ARCHITECTURES



# Domain Expertise – OPERATING SYSTEMS



# Contact Info

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**GRACE SYSTEM TECHNOLOGY  
LABS (INDIA) Pvt. Ltd.**

**#3274, 11<sup>th</sup> Main**

**HAL 2<sup>nd</sup> Stage**

**Bangalore-560008**

**Contact : Madhu K Illam (Director)**

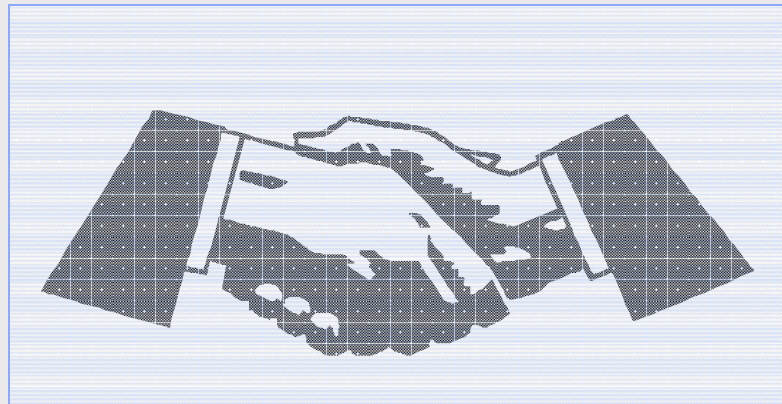
**Phone :91-80-41154683/91-9845038284**

**Email : [madhu@gracelabs.com](mailto:madhu@gracelabs.com)**

**URL : [www.gracelabs.com](http://www.gracelabs.com)**

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***Looking Forward to a mutually  
Beneficial relationship...***



**THANK YOU**

**Gracelabs**