

# eInfochips CUDA & Application Porting Capabilities



September 2014

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eInfochips' Introduction

GPU application migration expertise

CUDA expertise

Case Studies

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**Expert**

20 Years  
500+ Products  
CMMI L3 | ISO9001

**Reliable**

Cash Positive  
Debt Free  
Profitable

**Agile**

1400 Professionals  
12 Sales Offices  
10 Design Centers

# Product Engineering Services

Software | System | Silicon



# Our Work.

BI and Big Data  
Cloud  
Mobility  
e-Commerce

## Application

Firmware  
Operating System  
BSP and Drivers  
On-Chip Features

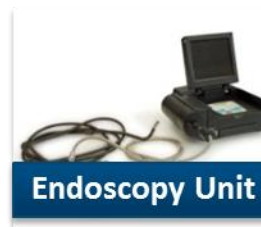
## System

Electronic / PCB  
FPGA  
ASIC and SoC  
IP Integration

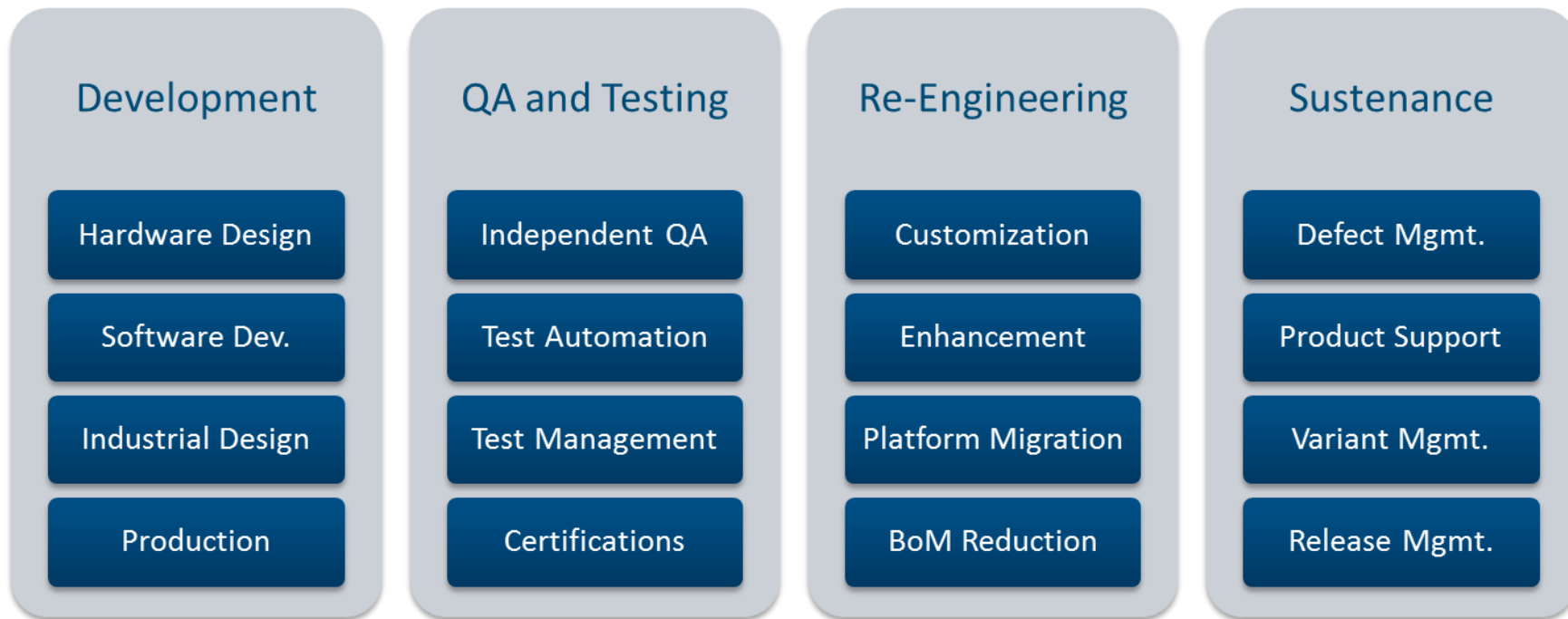
## Hardware

Enclosures  
CAD Modelling  
Ergonomics  
Industrial

## Mechanical



# Concept – to – Sustenance Services





# Industry Focus



Aerospace



Consumer



Home



Medical



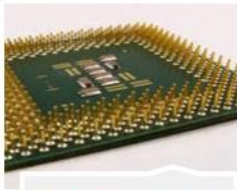
Retail



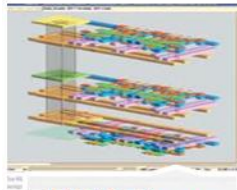
Security



Surveillance



Semiconductor



ISV / Software

## Clientele

World Leader in **Commercial Aerospace**

World Leader in **Video Analytics**

World Leader in **Grocery Supermarkets**

World Leader in **Networking Equipment**

World Leader in **Semiconductor Sales**

World Leader in **Nutritional Supplements**

World Leader in **Display Panels**

World Leader in **Biometric Access Devices**

World Leader in **IP Surveillance Camera**

World Leader in **ATM Machines**

World Leader in **DSP Platforms**

World Leader in **EDA Tools**

World Leader in **Automated Test Equipment**

World Leader in **Microprocessor Products**

# Analysts Opinions.

eInfochips has been  
recognized time and  
again, by globally  
reputed organizations  
for **excellence** and  
**innovation** in the  
solutions we deliver.



## Asia Fast500 Award

Asia's Fastest Growing Technology Companies, Deloitte, 2014

## Global Supplier of the Year

Engineering and Design Services, Rockwell Collins, 2014

## Company of the Year

Semiconductor and Product Design, Frost & Sullivan, 2013-14

## Corporate Leadership Award

Outstanding contribution to VLSI & Embedded Design, Silicon India, 2013-14

## Leadership and Execution Zone

Global Service Providers Ratings, Zinnov Management Consulting, 2013-14

## World #1 in Semiconductor Services

Rated on revenue-per-design index, Gartner, 2010

# Client Endorsements and Results

"The team shows incredible amount of initiative and commitment to customers."

"To bring this product to market quickly, we found a partner in eInfochips."

"Have rarely seen such commitment from a consulting organization."

"The skillset is second to none, allowing them to deliver high quality products."

## Client Awards

The Best of Infocomm

Engineer's Choice Award

NeoCon Gold Award

TV Technology Award

Apex Crystal Cabin Award

EH Product of the Year

ISC West Best in Biometrics



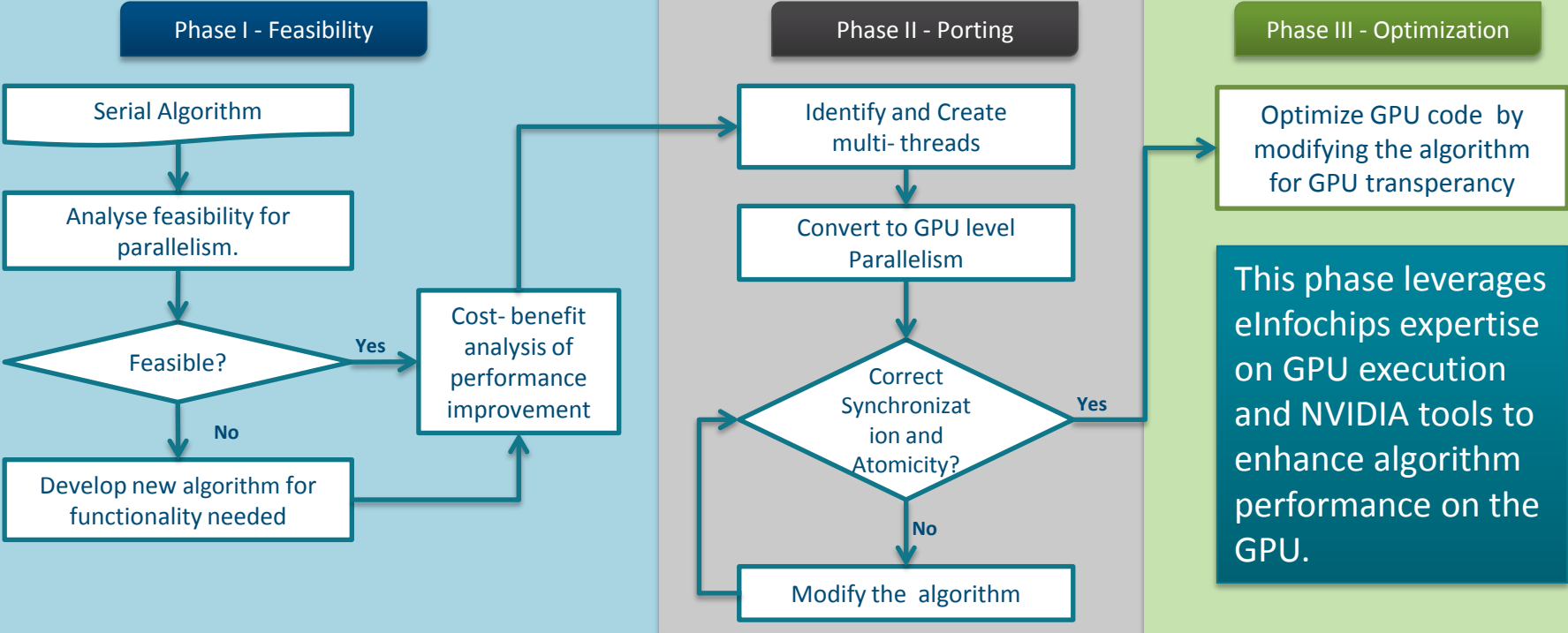
# Expertise on algorithm migration for NVIDIA GPUs

- Well defined methodology for parallel code creation
  - Optimized GPU Performance
  - Efficient Coding Practices
- Experienced CUDA Professionals
  - Domain and Technical Experts
  - Process SMEs timely execution
  - Trained CUDA Engineers
- Extensive expertise on various NVIDIA Platforms and Tools



# Methodology

eInfochips methodology has evolved from multiple algorithm migration projects for GPUs



# Core Team on CUDA Programming

## **Shashank Khare**

- Chief Technology Officer
- Spearheads all technology initiatives at elnfochips
- Hands-on experience on several processors and technologies
- 25 years of experience to address technology challenges

## **Lalit Chandivade**

- Senior Manager - Engineering
- Manages elnfochips CUDA Programming team for NVIDIA Tegra and Tesla
- Expertise on Linux API and Device Driver Development
- 15 years experience on system software projects

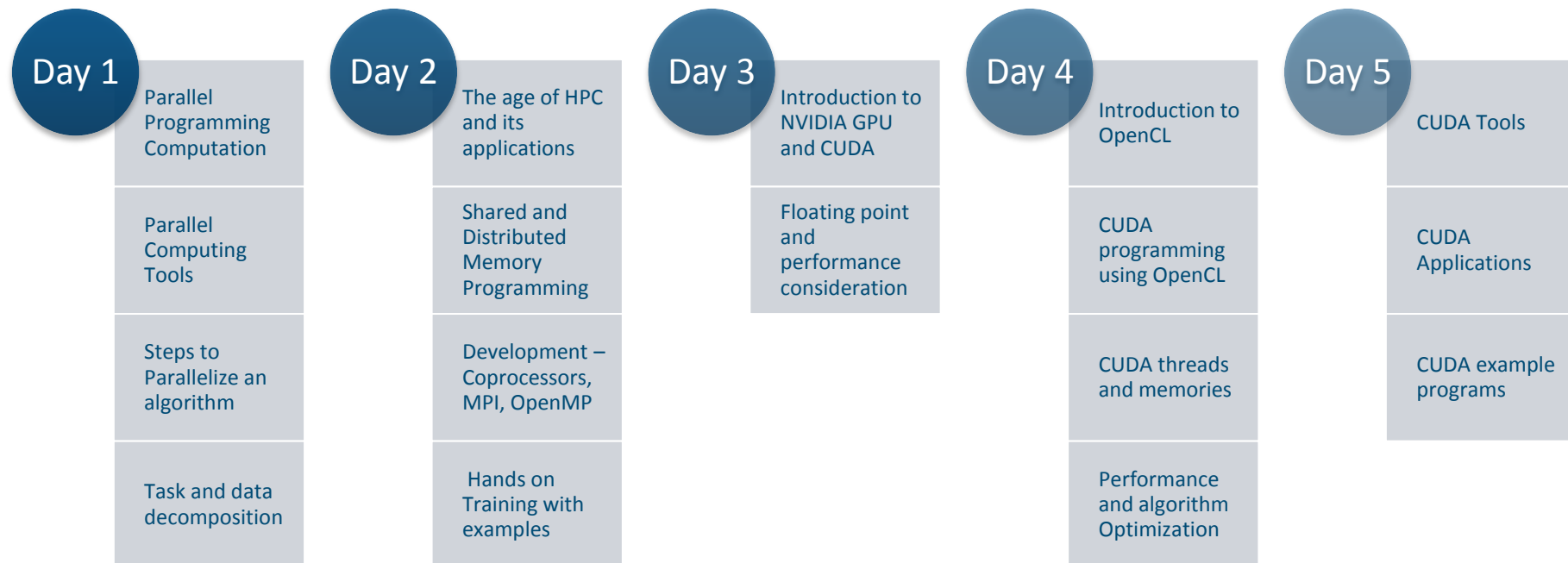
## **Prerit Kapadia**

- Technology Leader
- Experience on memory footprint optimization projects
- Expertise on Multimedia Technologies
- Execution with multi-site Agile and Scrum Methodology

# CUDA Trainings for our engineers

- Engineers trained and certified by NVIDIA
  - TESLA technical training by NVIDIA
  - UDACITY course on parallel programming
  - NVIDIA Developer training on CUDA
- eInfochips Training and Research Academy
  - In-house training engine for new hires and experienced professionals
  - Certified CUDA Training Partner with NVIDIA

# eITRA CUDA training – 5 day programme





GPU Software Porting

# CASE STUDIES

# Quality Assessment Algorithm Optimization on NVidia GeForce 8800

## Features

- Hundreds of independent floating point processors that work in parallel
- 500 to 800 Giga floating point ops/sec
- Global 1GB onboard DDR shared by all processor cores
- PCI express x16 interface for external communication
- Interface maximum data throughput of 4 GB/sec

## eInfochips Role

- Ported a video quality measurement algorithm on GPU
- Achieved 300x performance improvement as compared to PC
- Reduced processing time from 90s to 250ms
- Optimized memory management for global memory to on chip shared memory to overlap data transfer and processing
- Achieved zero wait time for data while video processing

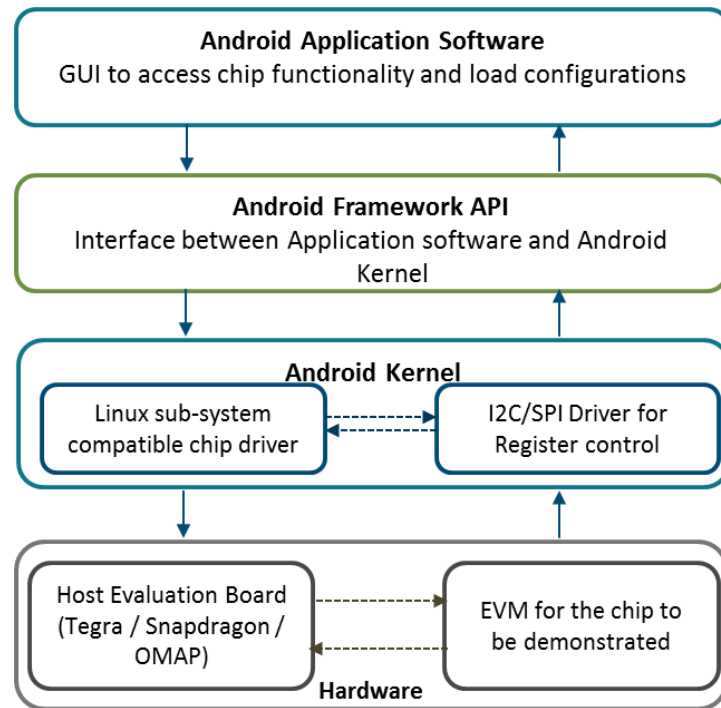


# Platform Demo Projects



## eInfochips Role

- Android Firmware and Application on Android Gingerbread, ICS, Jelly bean
- Interfaced with NVIDIA Tegra, Qualcomm Snapdragon and TI OMAP
  - Transfer Jet – NFC Wireless Protocol
  - Camera Sensors – 8 to 13 MP
  - Audio Codec – Noise & Echo cancellation
  - Bridge chips – H2C, Slim bus, D2LLP, D2DP, D4DP
- Demonstrated applications in international conférences – CES, MWC, EWC



# Thank You

For further details please write to :  
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