

eInfochips CUDA & Application Porting Capabilities



September 2014

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eInfochips' Introduction

GPU application migration expertise

CUDA expertise

Case Studies

Contact Information



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

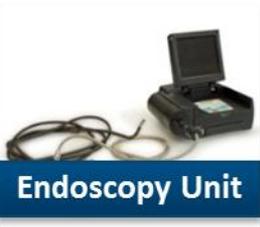
Mechanical



Cockpit Displays



Video Software



Endoscopy Unit



Tablet Software



16nm Silicon



Custom Camera



eCommerce SW



3D Conferencing



Retail IoT



Portable HD



Home Control



Biometric Access

Concept – to – Sustenance Services

Development

Hardware Design

Software Dev.

Industrial Design

Production

QA and Testing

Independent QA

Test Automation

Test Management

Certifications

Re-Engineering

Customization

Enhancement

Platform Migration

BoM Reduction

Sustenance

Defect Mgmt.

Product Support

Variant Mgmt.

Release Mgmt.

Industry Focus



Aerospce



Consumer



Home



Medical



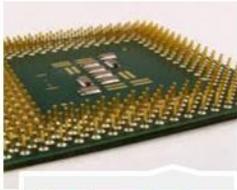
Retail



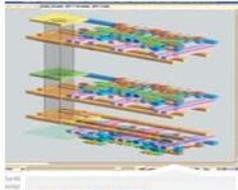
Security



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

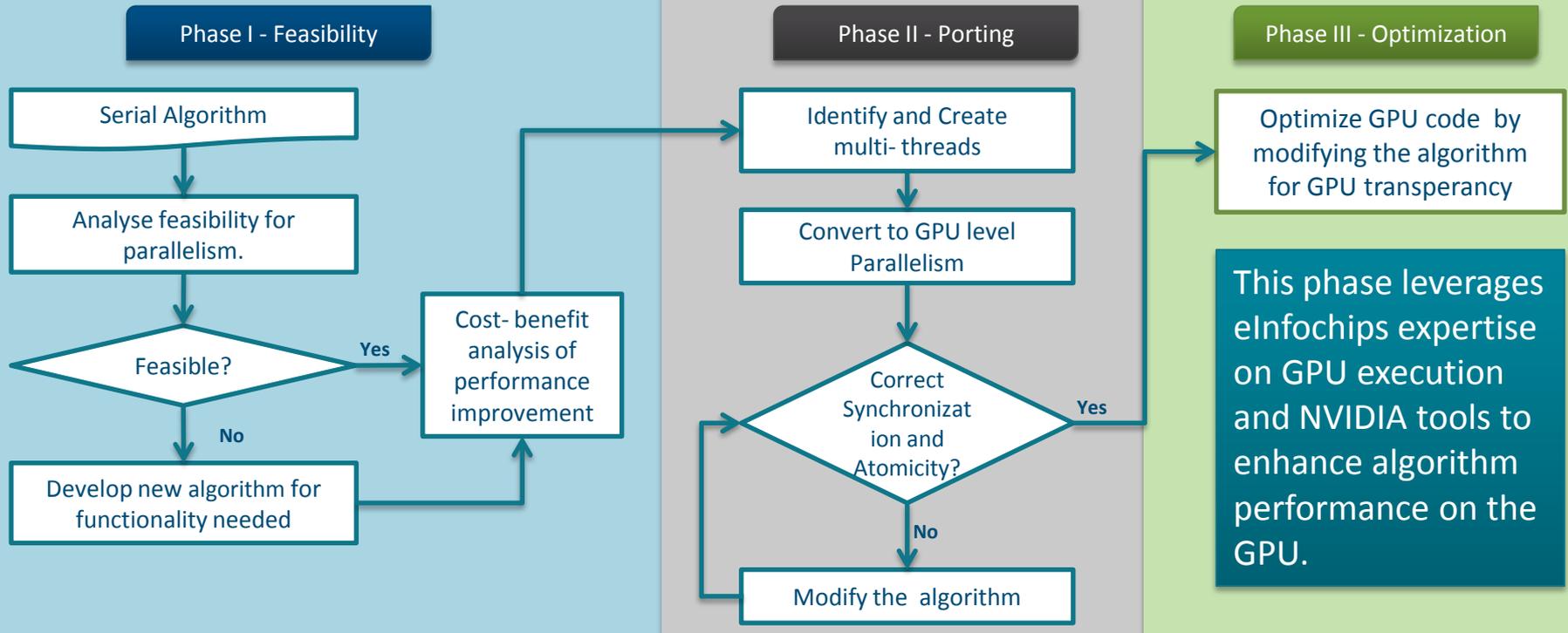
Expertise on algorithm migration for NVIDIA GPUs

- 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

enfochips methodology has evolved from multiple algorithm migration projects for GPUs



The Solutions People

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

Day 1

- Parallel Programming Computation
- Parallel Computing Tools
- Steps to Parallelize an algorithm
- Task and data decomposition

Day 2

- The age of HPC and its applications
- Shared and Distributed Memory Programming
- Development – Coprocessors, MPI, OpenMP
- Hands on Training with examples

Day 3

- Introduction to NVIDIA GPU and CUDA
- Floating point and performance consideration

Day 4

- Introduction to OpenCL
- CUDA programming using OpenCL
- CUDA threads and memories
- Performance and algorithm Optimization

Day 5

- CUDA Tools
- CUDA Applications
- CUDA example programs



GPU Software Porting

CASE STUDIES



The Solutions People

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

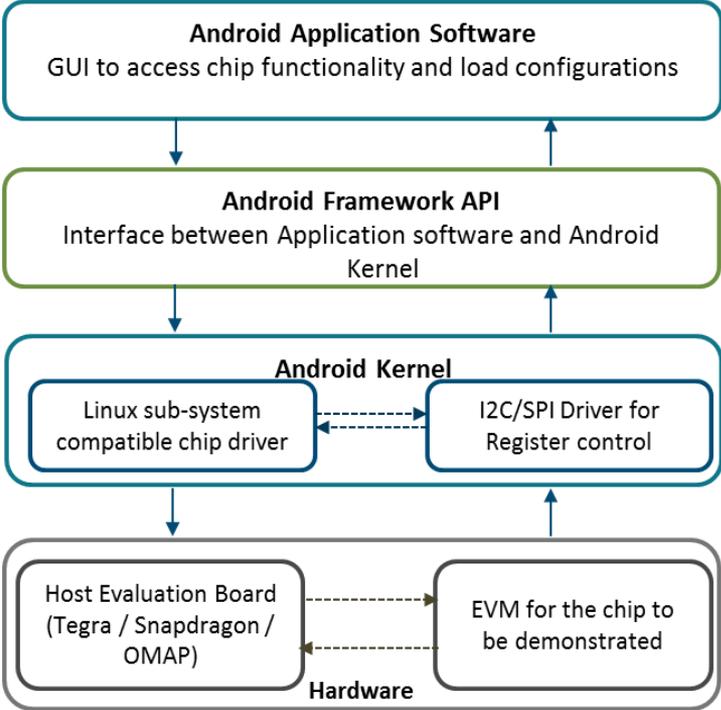


Platform Demo Projects



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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