SoCtronics Corporate Overview
Industry's 1st Design Foundry™

Hyderabad India

![Design Foundry™ Experts On Demand]
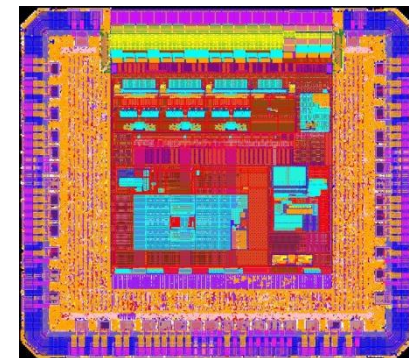
Santa Clara California

Company Profile

- **One-stop design service group of companies operating since 2003**
- **Offices in Hyderabad, India and Santa Clara, California**
- **500+ employees world-wide**
- **Services**
  - **Logic and circuit design**
  - **Functional verification**
  - **Embedded development**
  - **Physical design**
- **Engagement models**
  - **Turnkey: spec to SOW to deliverables**
  - **Off-shore Design Center in India**
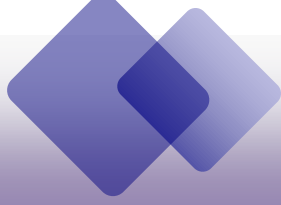   - **Operated by SoCtronics**
    - **Directed by customer**
- **http://www.soctronics.com/**

2011 Press release

SoCtronics Announces the First 28nm Design Tapeout From India by the World's Premier Design Service Company

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SANTA CLARA, CA -- (MARKET WIRE) -- Oct 18, 2011 -- SoCtronics, a leading semiconductor and embedded software engineering services company located in Santa Clara, CA and Hyderabad, India, today announced that it has successfully completed India's first 28nm design by a design service provider. The design project was contracted by a leading fabless semiconductor company from Silicon Valley. It is targeted for 28nm HPL process at the world's leading semiconductor foundry. Customers of SoCtronics can now benefit from the know-how and experience accumulated from this combination of trail-blazer technology and project.

Customer Testimonials

"SoCtronics has helped us solve difficult technical challenges and address urgent project needs."

Mkt Cap $400M Rev $275M   **VP Engineering, Publicly listed fabless semiconductor company**

"SoCtronics has provided high quality engineering teams at steep ramp-up cycles to meet our project needs."

Mkt Cap $2.48B Rev $4.86B   **Executive VP Engineering, Publicly listed fabless CPU IC company**

"We have had our share of urgent projects and difficult challenges. SoCtronics showed time and again that they have the customer's priorities in mind and helped us meet those challenges."

Mkt Cap $80M Rev $94M   **VLSI Engineering Director, Publicly listed fabless company**

"SoCtronics is a quality conscious, technically competent and schedule sensitive engineering services provider. Our project was for spec to silicon. SoCtronics met and exceeded our expectations in every step of the project."

Mkt Cap $1.43B Rev $1.16B   **VP & GM, Publicly listed fabless company**

"We have used SoCtronics resources primarily as verification and application support teams. We are quite satisfied with their responsiveness and high work quality."

Mkt Cap $5.61B Rev $1.91B   **VP & GM, Publicly listed fabless EDA/IP company**

SoCtronics can arrange for the above testimonial contributors to be our trade references
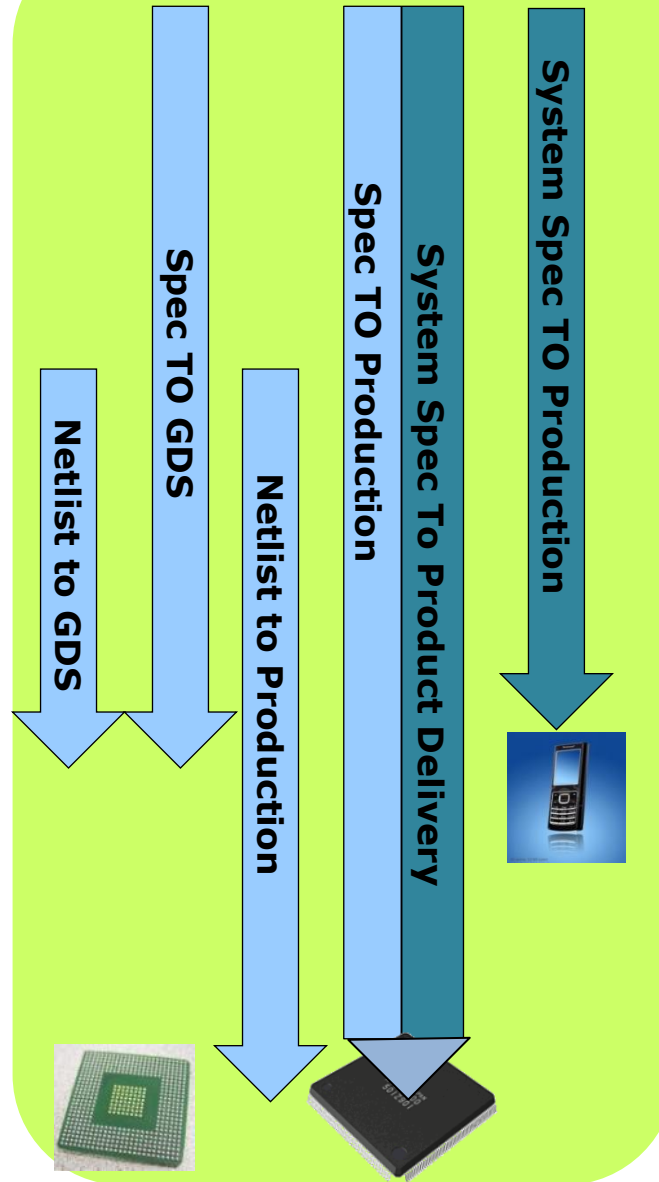
Services Offered

Chip/SoC Design

- Architecture Specification
- RTL Development & Synthesis
- Pre-layout Verification
- Design Implementation

- Physical Implementation
- Analog mixed signal design
- Post Layout Verification
- Physical Verification
- Tapeout / Foundry Interface

- Mask Tooling
- Assembly Management
- Test Dev. /Management
- Product Qualification
- Production Logistics

Service Offerings

Netlist to GDS

Spec TO GDS

Netlist to Production

Spec TO Production

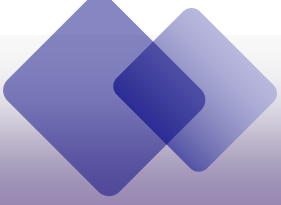System Spec To Product Delivery

System Spec TO Production

System Design

- Multimedia Codec Dev.
- Drivers, Firmware, API
- Android Applications
- Hardware Diagnostics
- System QA & Testing
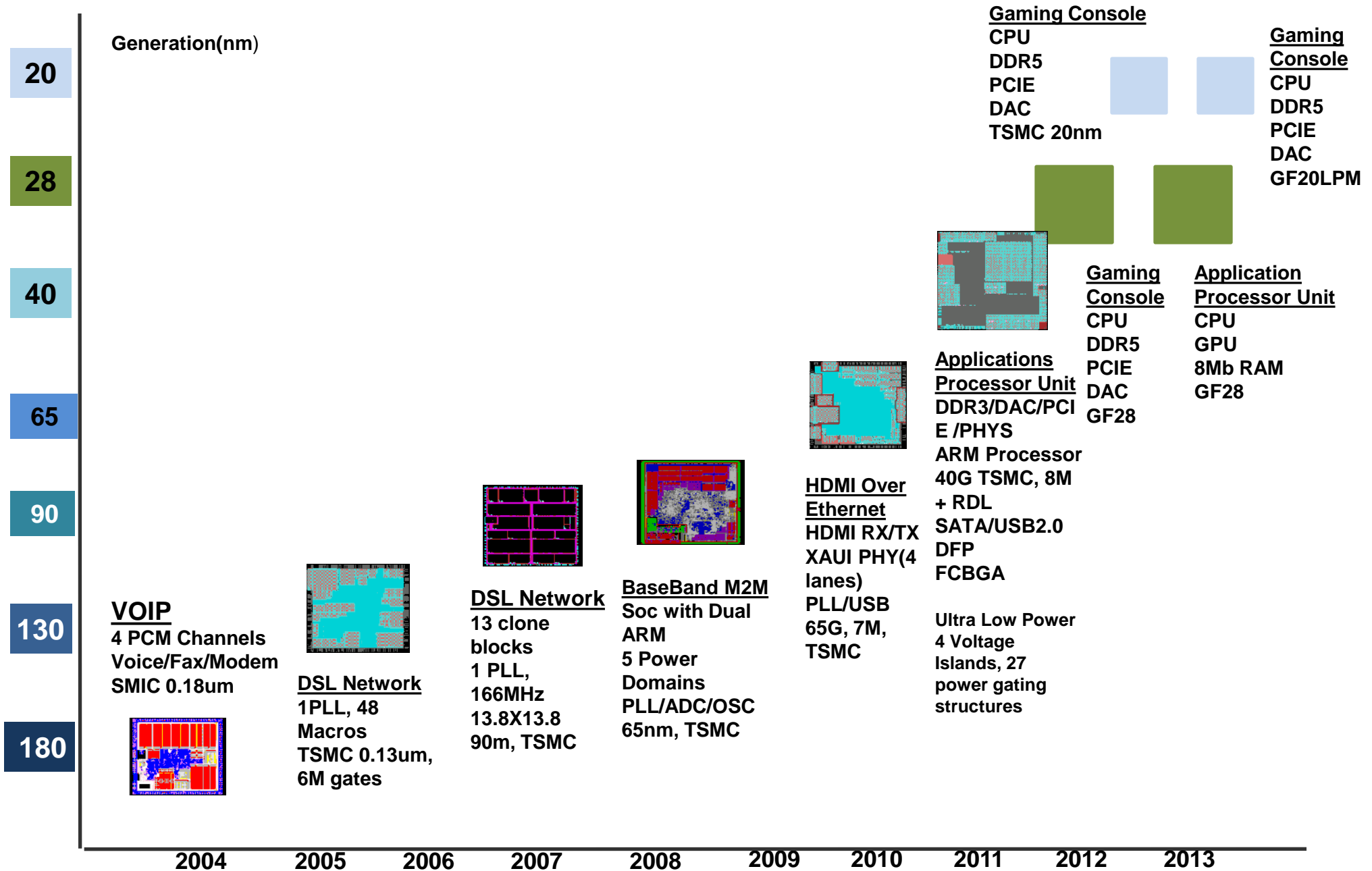
Independent Testing Solutions (ITS)
- Consulting Test Solutions
- Specialized Test Services
- Customized Test Services

SoCtronics provides value added services to electronics & semiconductor industries

SoCtronics

VLSI Project Highlights

Generation(nm)

20	
28	
40	
65	
90	
130	
180	

Gaming Console
CPU
DDR5
PCIE
DAC
TSMC 20nm

Gaming Console
CPU
DDR5
PCIE
DAC
GF20LPM

Gaming Console
CPU
DDR5
PCIE
DAC
GF28

Application Processor Unit
CPU
GPU
8Mb RAM
GF28

Applications Processor Unit
DDR3/DAC/PCIE /PHYS
ARM Processor
40G TSMC, 8M
+ RDL
SATA/USB2.0
DFP
FCBGA

Ultra Low Power
4 Voltage Islands, 27 power gating structures

HDMI Over Ethernet
HDMI RX/TX
XAUI PHY(4 lanes)
PLL/USB
65G, 7M, TSMC

BaseBand M2M
Soc with Dual ARM
5 Power Domains
PLL/ADC/OSC
65nm, TSMC

DSL Network
13 clone blocks
1 PLL, 166MHz
13.8X13.8
90m, TSMC

DSL Network
1PLL, 48 Macros
TSMC 0.13um, 6M gates

VOIP
4 PCM Channels
Voice/Fax/Modem
SMIC 0.18um

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013

SoCtronics - Overview
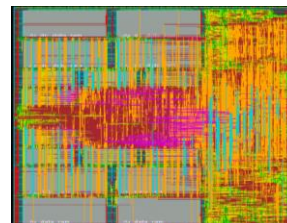
SoCtronics Differentiation
Investment in Infrastructure and Know-how

SOC-High Performance (HP) flow

SoCtronics provides physical design expertise to implement high performance designs.

Helps customers realize the highest possible performance by utilizing a streamlined mix of technology and device mapping, optimal design margin development, performance optimization utilities/scripts and custom design work.
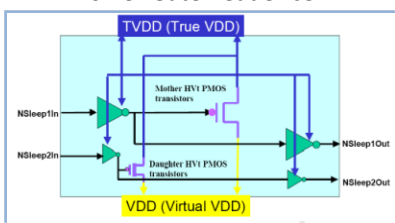
**Hardened core IP
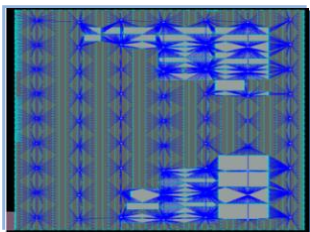20% higher performance**

SOC-Low Power (LP) flow

'**SOC-LP**' is leveraging Soctronics highly acclaimed SmartPower™ flow to help implement industry leading low power features with the best power metrics.
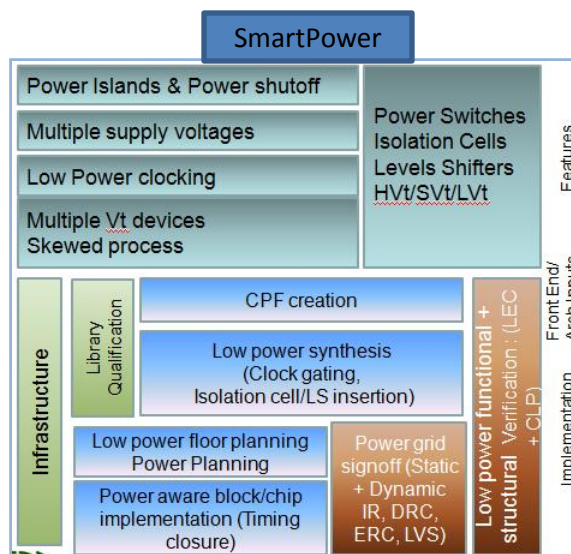
Power Gate header cell

Std Cell/Macro switch enable buffering

Example Complex SOC with DVFS, Multi-Vcc, Power and Voltage Islands implemented
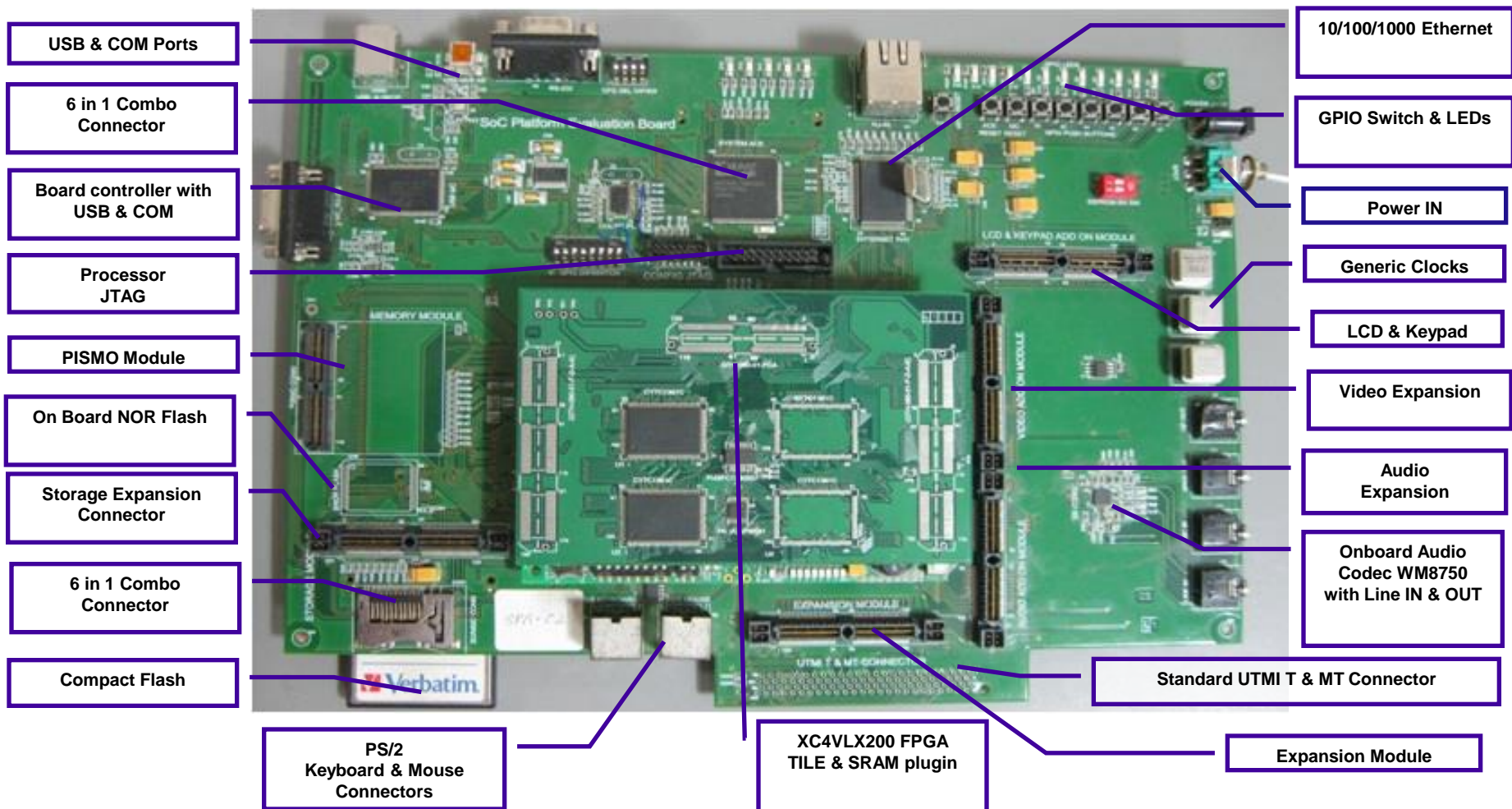
28 power islands

SmartPower

Power Islands & Power shutoff	Power Switches Isolation Cells Levels Shifters HVt/SVt/LVt
Multiple supply voltages	
Low Power clocking	
Multiple Vt devices Skewed process	

Library Qualification — CPF creation

Low power synthesis (Clock gating, Isolation cell/LS insertion)

Low power floor planning Power Planning

Power aware block/chip implementation (Timing closure)

Power grid signoff (Static + Dynamic IR, DRC, ERC, LVS)

Low power functional + structural Verification (LEC + CLP)

Infrastructure

Front End/ Arch Inputs

Implementation

Features

Significant investments in know-how, EDA tools, facilities and computing/ storage servers
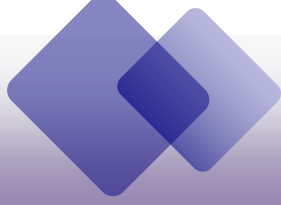
Knowledge base engineering process and signoff based procedure proven over many complex projects with tier-1 customers

Experience based proprietary design flows for complex high performance and low power designs

SoCtronics - Overview

FPGA Platform for SOC Implementation

- Customer Benefits
  - Hardware / Software co-development
  - System level validation prior to tapeout
  - Applications development acceleration
  - Proven platform – plug-and-play

USB & COM Ports

6 in 1 Combo Connector

Board controller with USB & COM

Processor JTAG

PISMO Module

On Board NOR Flash

Storage Expansion Connector

6 in 1 Combo Connector

Compact Flash

PS/2 Keyboard & Mouse Connectors

XC4VLX200 FPGA TILE & SRAM plugin

10/100/1000 Ethernet

GPIO Switch & LEDs

Power IN

Generic Clocks

LCD & Keypad

Video Expansion

Audio Expansion

Onboard Audio Codec WM8750 with Line IN & OUT

Standard UTMI T & MT Connector

Expansion Module

SoCtronics - Overview

SOC Value-Added Services

- Reference Platform Development
  - System Level Design
    - Experience on ARM11, Cortex-A8, TI 64X+, Tensilica HiFi2, ARC AS210, ARC 725D
    - Single core and multi-core frameworks
  - Multimedia Codec Development
    - Standard codecs: video, audio, speech
    - Custom codecs development and optimization
  - Peripheral drivers, firmware, API development
  - Multi-OS development and support
- System Hardware
  - Hardware/Software validation and diagnostics
  - Regression test development and implementation
- Complete System Software (Windows/Linux/RTOS) for Mobile/Computing platforms
- Android Applications
- Software Testing & QA

Client Directed Off-shore Design Center Model

- **Client deploys ODC team at agreed level**

- **Content of ODC team dynamically adjusted**

- **Provision available to increase deployment level**

- **EDA licenses and facilities included**

- **Design flow and expert level knowledge support from SoCtronics senior staff**

- **Project level direction and management completely under client exclusive control**

- **SoCtronics provides HR and administrative support**

- **Intellectual properties developed belong to client company**

- **BOT (Build-Operate-Transfer) option allows client to acquire ODC team at future time**

SoCtronics Engineering Pool

Logic Design Analog Design Physical Implementation Verification Embedded Development

Client ODC team