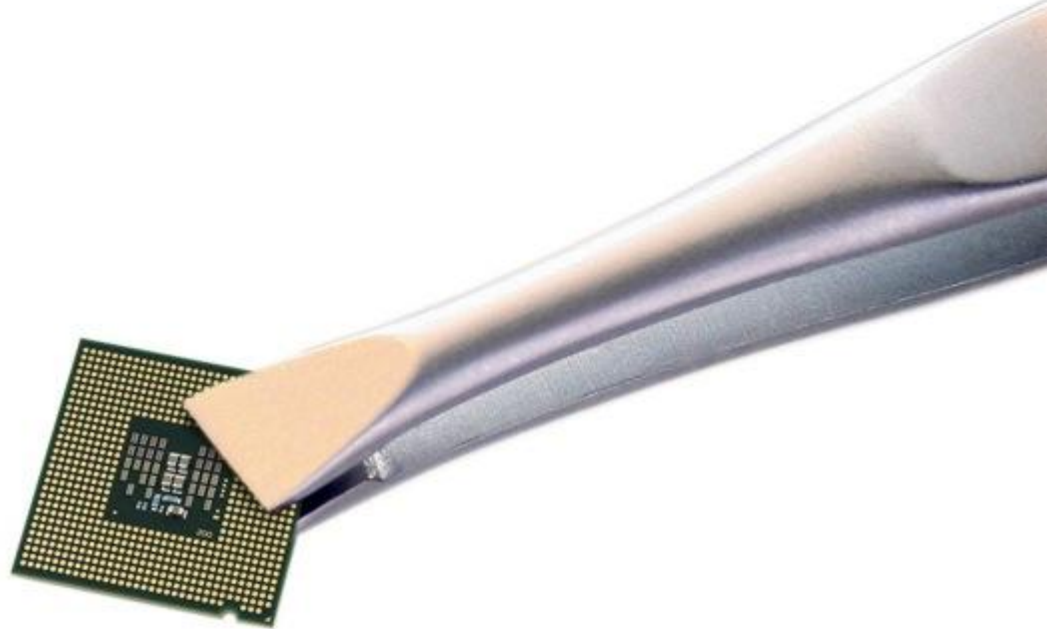


Ultra Low Power Bluetooth Transceiver Chip



Partners

Silicon Vision
NISC (Nile University)

May 2011



Agenda

- Introduction to Silicon Vision & NISC
- ITAC Process flow
- Product Description
- Development Status
- Outcomes

Introduction to Silicon Vision

- Egyptian Privately held Company established 2007
- 23 employees with over 150 years of cumulative design and management experience at companies such as **National Semi, Philips, Centillum, LSi, Memscap, Ti, and Mentor Graphics**
- Company design focus
 - Development of RF/optical products
 - Design services for Analog/Mixed Signal & RF domains
- Sales representatives in North America, Japan and Far-east
- Tier-1 Customers in the US, Japan, Europe, Hong Kong and China
- Investors: **Idevelopers EG & Sumitomo Electric Japan**

Sample of Our Customers



HUAWEI



NISC Introduction

- Excellence Center at NU; managed by Dr Yehea Ismail
- The team has over 200 publications and 30 patents in the area of Electronics and Wireless Communications systems design
- Previous industrial experience in system design for commercial chips
- Publications and patents related to Bluetooth
- Industry relations
- Intel relation: Internships, fellowships, and equipment
- Mentor graphics relation
- Equipment donations and equipment purchases
- Relations to startups and possible joint projects: techplus, si-vision, ferveo tech,...

Partnership between Si-Vision & Nile University

- Partners in local and international programs (RDI, FP7, ITAC)
- Mutual benefit from research and industry dimensions
- Visibility and impact on local industry to NU researchers
- Top notch researchers access to Si-Vision
- Long term on going collaboration

IPR agreement

- Si-Vision owns “product”
- Patents filed owned by respective party
 - Joint patents possible
 - Si-Vision will receive a life time non-exclusive license to the IP developed at NU
 - First right of refusal on exclusive patents
- NU gets royalties on revenue

ITAC Experience

- Pre-selection
 - Proposal writing
 - Application submission
 - Shortlist announcement
 - Presentation to reviewers
 - Project- selection

ITAC Experience

- Post-Selection
 - Budget revision and approval
 - Contract preparation
 - Contract Sign
- Throughout the project
 - Milestone payments
 - Technical reviews
 - Changes to budget
 - Time extension

ITAC Experience

- Extension
 - Technical approval
 - Budget & contract preparation
 - Extension contract signing



Program Advantages

- Decrease market entry barrier
- ITAC support team
- High class reviewers
- S/W tools are funded
- Straight forward procurement rules with minimal paper work
- Program Supports travel, training, conferences, and marketing activities
- Quick response to budget changes

Program Disadvantages

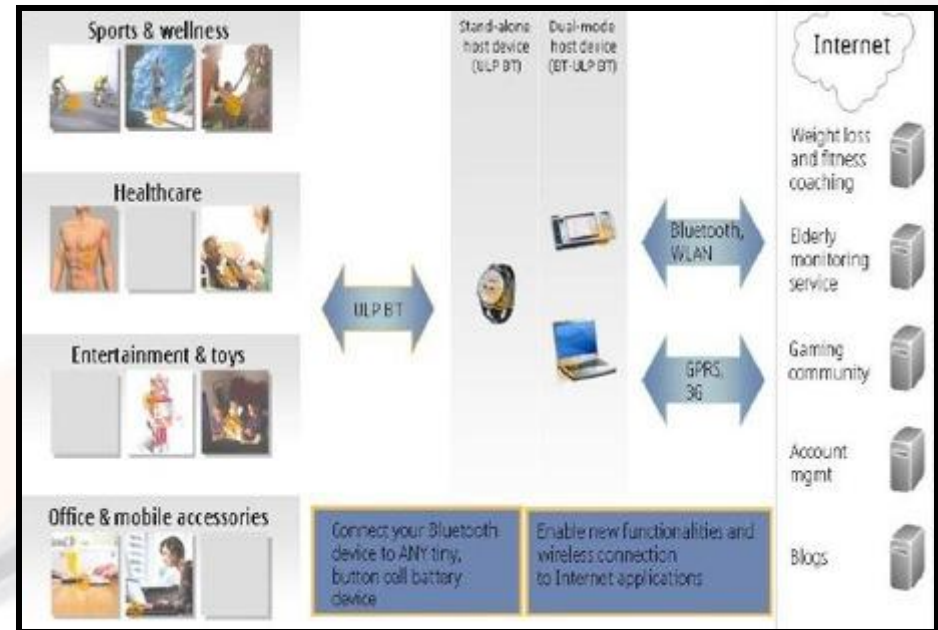
- Review time
- Sometimes late at financing milestones
- Marketing & commercial helping hands
- No funding to non-Egyptian consultants/agencies

ULPB Standard Evolution

- The need for a wireless technology with lower power, small form factor and less price while compatible with existing Bluetooth
- Standard started Development from 2004 by Nokia Research Center, then transferred to BT SIG under the name ULPB
- Main applications include devices such as wrist watches, wireless keyboards/mice, toys and sports sensors

Main Applications

- HID devices
- Wireless Keybrds/mice
- Watches
- Mobile handsets
- Automotive
- Home Automation
- Game Controllers
- TV/Audio/Remote controls
- Fitness and exercise monitors
- Medical Wellness equipment

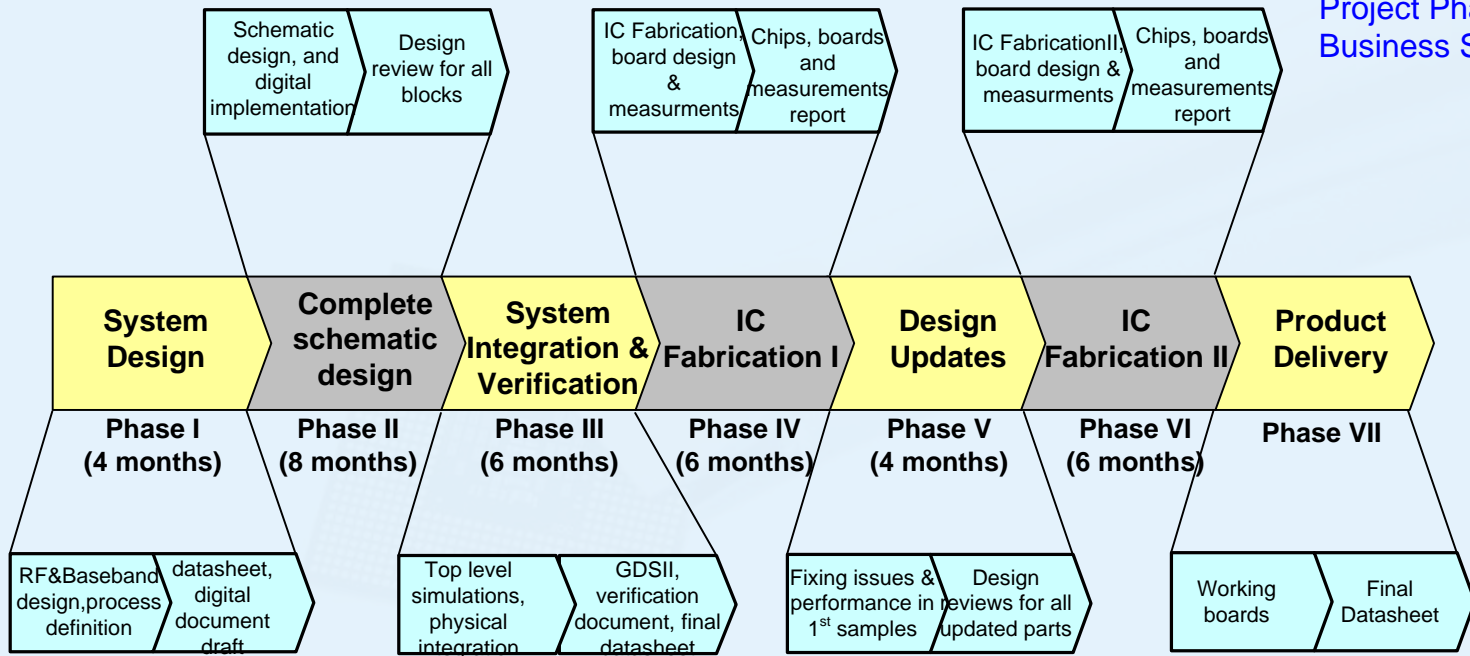


Project Description & Objectives

- Design, prototype and produce a commercial ultra low power wireless communications chip.
- The final objective of the project would be to deliver ULP Bluetooth chips to potential customers to obtain their feedback and their projected demands to enable Si-Vision to produce mass quantity chips and become a major market player in this market.

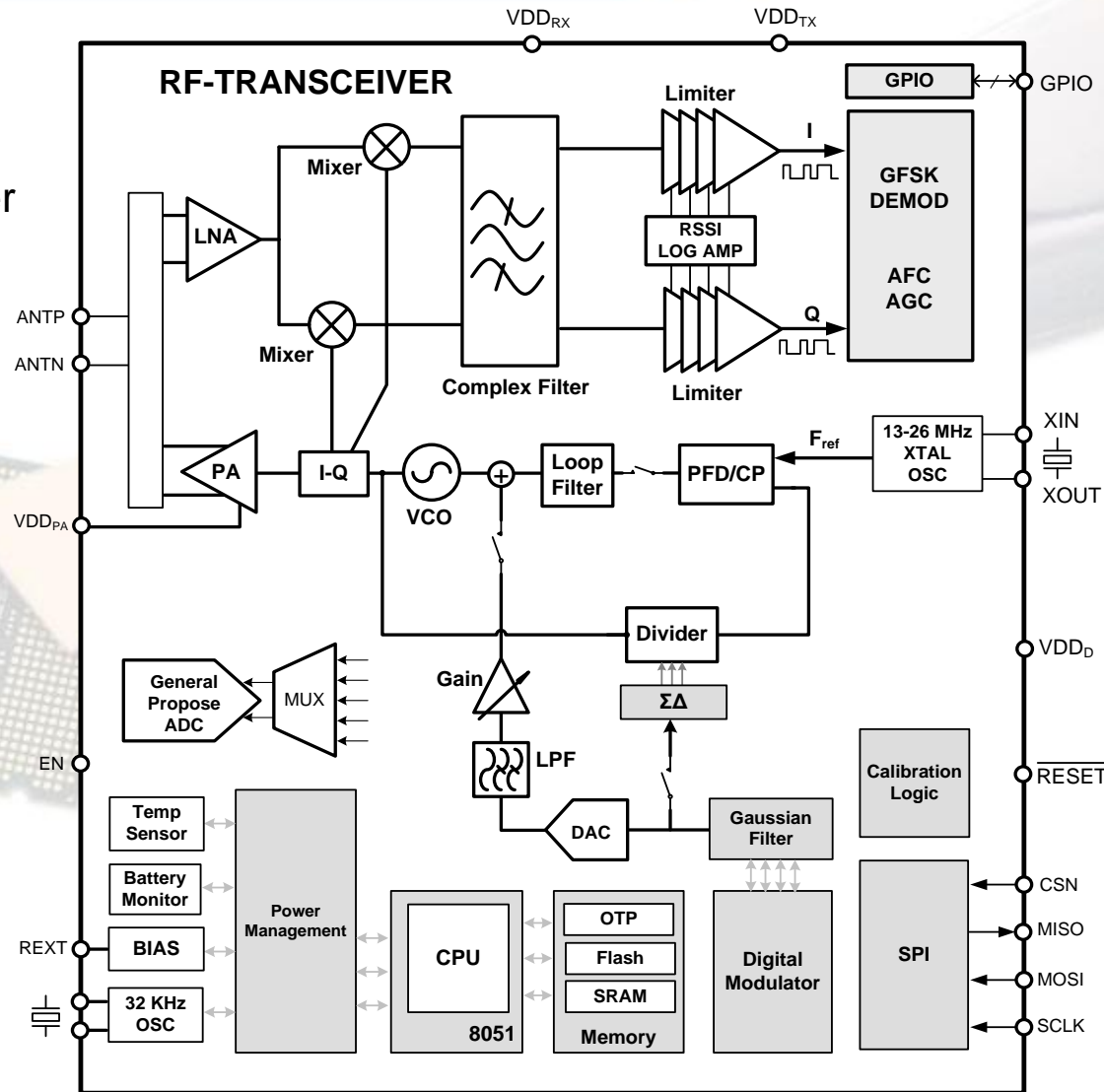
Project Milestones

SiVi-ulpbt-1801
Project Phases &
Business System

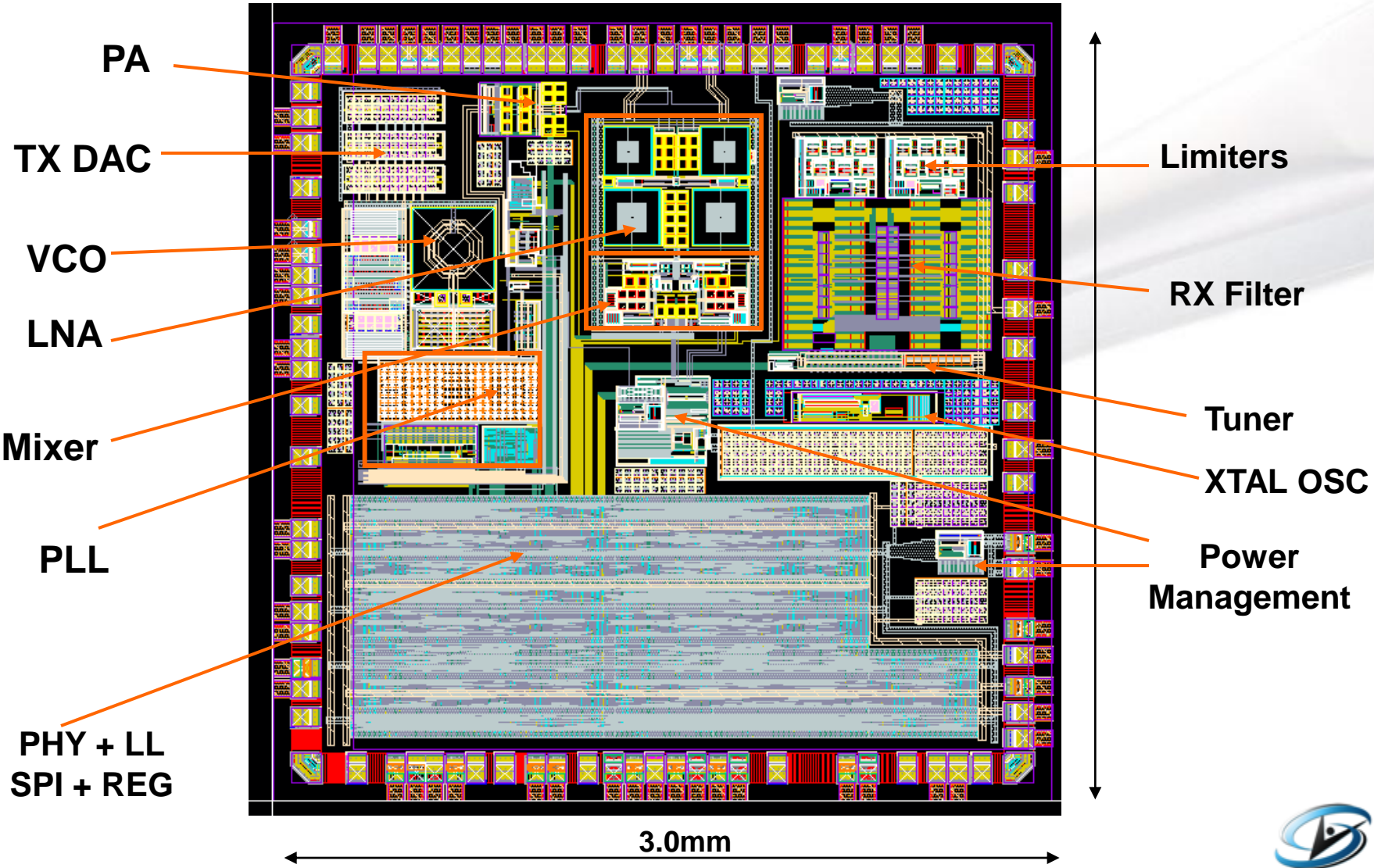


Chip Block Diagram

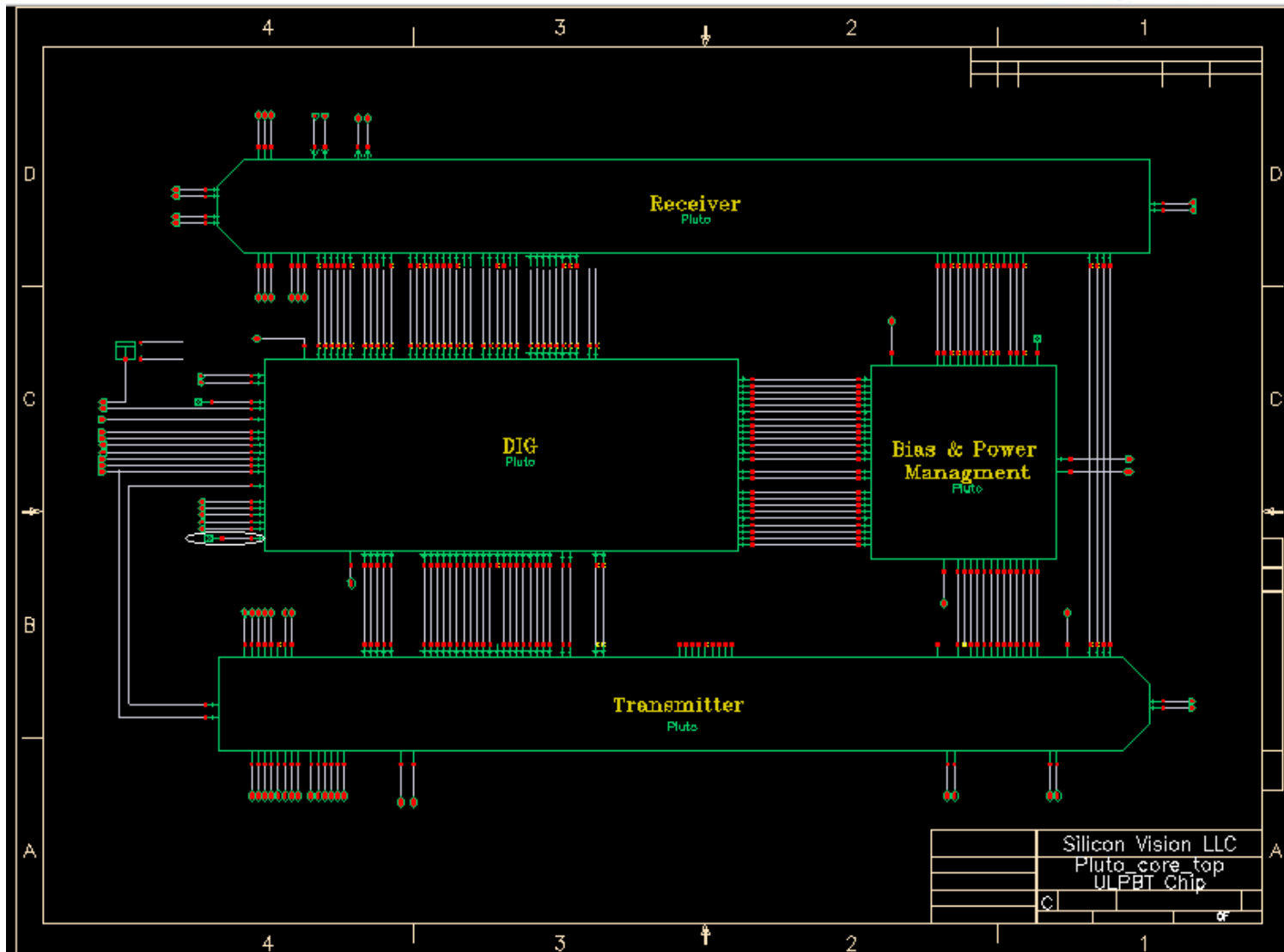
- Fully integrated 2.4GHz transceiver
- Power Consumption <20mW
- Estimated Area 6mm²
- Physical layer bit rate is 1Mbps
- Coverage range is 25mt
- Main Blocks:
 - Direct Conversion RF Transmitter
 - Low IF RF receiver
 - Frequency synthesizer
 - PHY layer



GDSII File (Top Level layout)

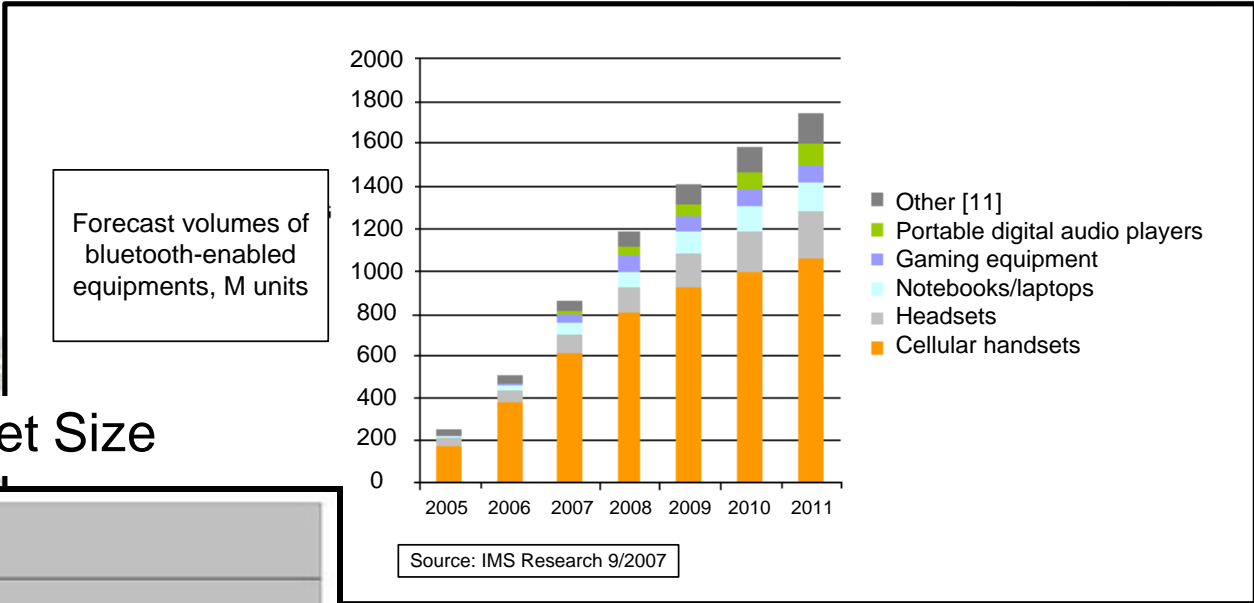


Top level schematic

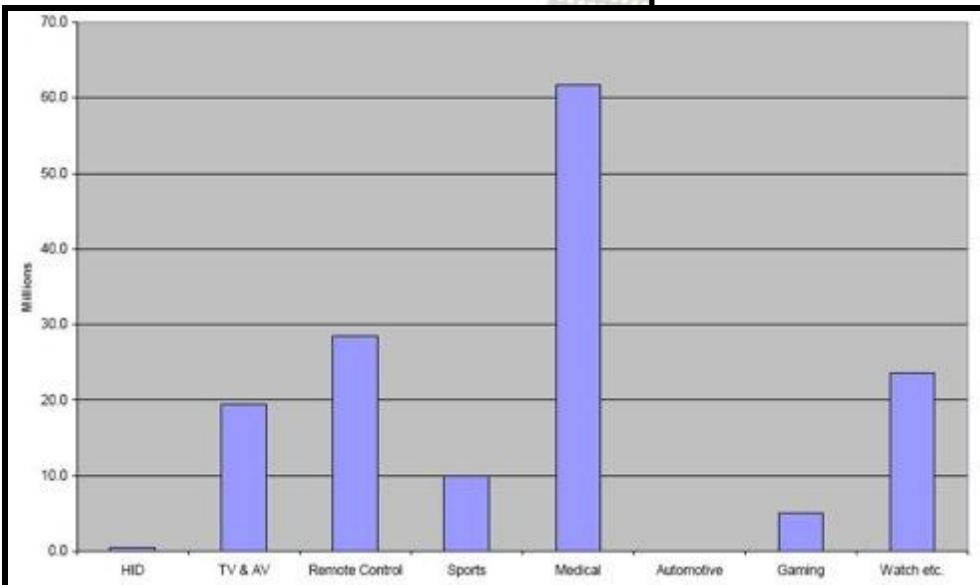


Market Size

Bluetooth Market Size



ULPBT expected Market Size



Marketing Strategy

- The Marketing strategy will depend on
 - Si-Vision relations with reputable customers
 - Marketing front in US & FarEast
 - Partners in US & Japan
- Customers Types
 - Partners (Cypress Semiconductor)
 - System Companies (Elehope, Fairchild Semiconductor & Huawei)
 - Product Companies (wireless kebrds (Logitech, microsoft) watches (Timex), toys, shoes (Nike))

Customer Approach

- Work closely with Partners
 - Standard Documents & Market inputs
 - Datasheet Feedback
 - Samples testing and required modifications
- System companies
 - Replacement to IR & wired systems
 - Demo boards creation for applications of interest
- Product Companies
 - Demo boards for new connectivity applications
 - Alliance with system companies for a more powerful position

Factors of Success

- **Competition**
 - Addressable market will be the individual ULP technology individual chips not the dual mode technology would protect us from competition with big players already acquiring the Bluetooth market share
- **IC Design Expertise available**
- **Time to market**
 - Customer relationship
 - The collective expertise of the team will allow us to be one of the very early to market
- **Price**
 - The product price target will be less than 1\$
 - China and Far East markets constituting a big market shares for the targeted applications
 - Development of the product in Egypt will surely impact the development price and assure low cost but high quality product

Project Costs

- Total project Cost ~3.8M
 - ITAC contribution ~3M
 - Silicon Vision contribution ~0.8M
- In-kind Contribution
 - Silicon Vision
 - Marketing
 - Part of licenses
 - Servers & computational power
 - Nile University
 - State of the art measurements lab
 - Tuition fees for researchers

Project Out-Comes

- ULPBT chip is ready for fabrication
- Feasibility study signing with tier-1 US company for 100k\$
- Potential talks with Logitech and Microsoft
 - Samples requests
 - Feedback on specifications