



# Semiconductor Evolution to 4G

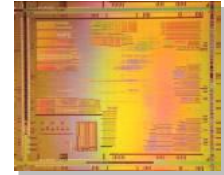
IEEE ComSoC

May 13th, 2009

# Wavesat – Broadband Everywhere

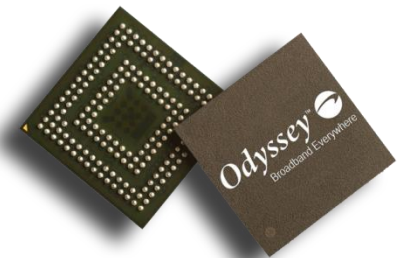
## ➤ Private fabless semiconductor company

- Founded in 1994
- Well-funded
- Seasoned, stable team of 80+
- Located in Montreal, with offices in Silicon Valley, Ottawa, Taiwan, Japan and India
- Over 300 man years of OFDM/OFDMA development; holder of dozens of related patents



## ➤ Leading supplier of mobile and fixed 4G silicon

- WiMAX 802.16d – since 2005
- WiMAX 802.16e Wave 2 – since 2008
- XGP – since 2008
- LTE in early Q1



## ➤ Innovator in multimode 4G baseband chipsets

- Wavesat Odyssey architecture: one chipset supports WiMAX 802.16e, LTE and XGP

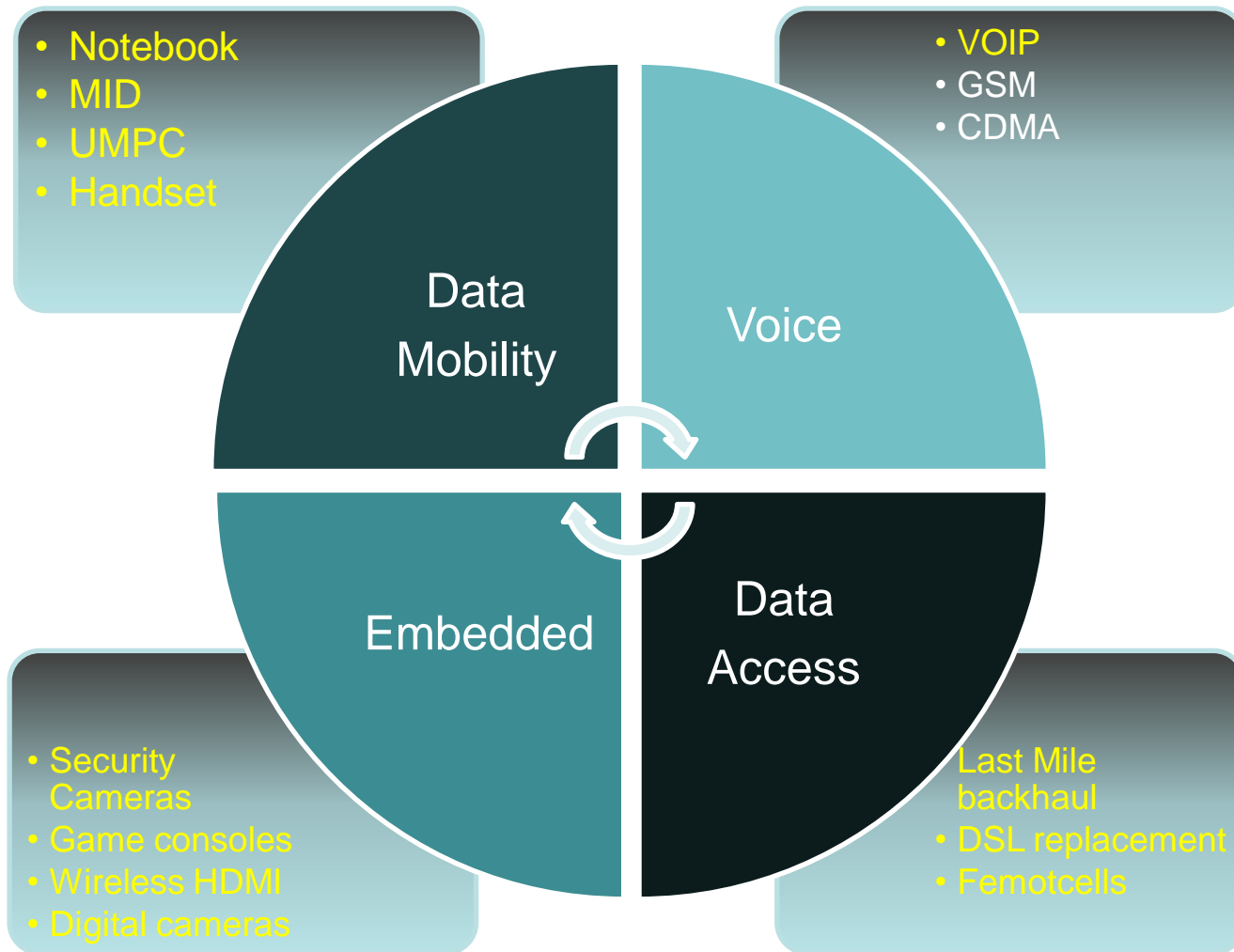
## ➤ Well-established product ecosystem

- Distribution and support channels worldwide
- Wavesat-enabled devices available from top-tier OEMs and ODMs
- Direct partnerships with carriers and wireless infrastructure providers

# 4G Wireless Standards – how many ?



# 4G market segments

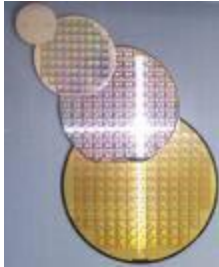


# Product diversity



ZOOM IN

# Silicon Processes & Wireless



## Advanced Technology nodes

- Very dense process geometry
- Very low power
- Mixed signal availability on bulk CMOS
- CMOS volume drives pricing
- Dense geometries allow significant integration

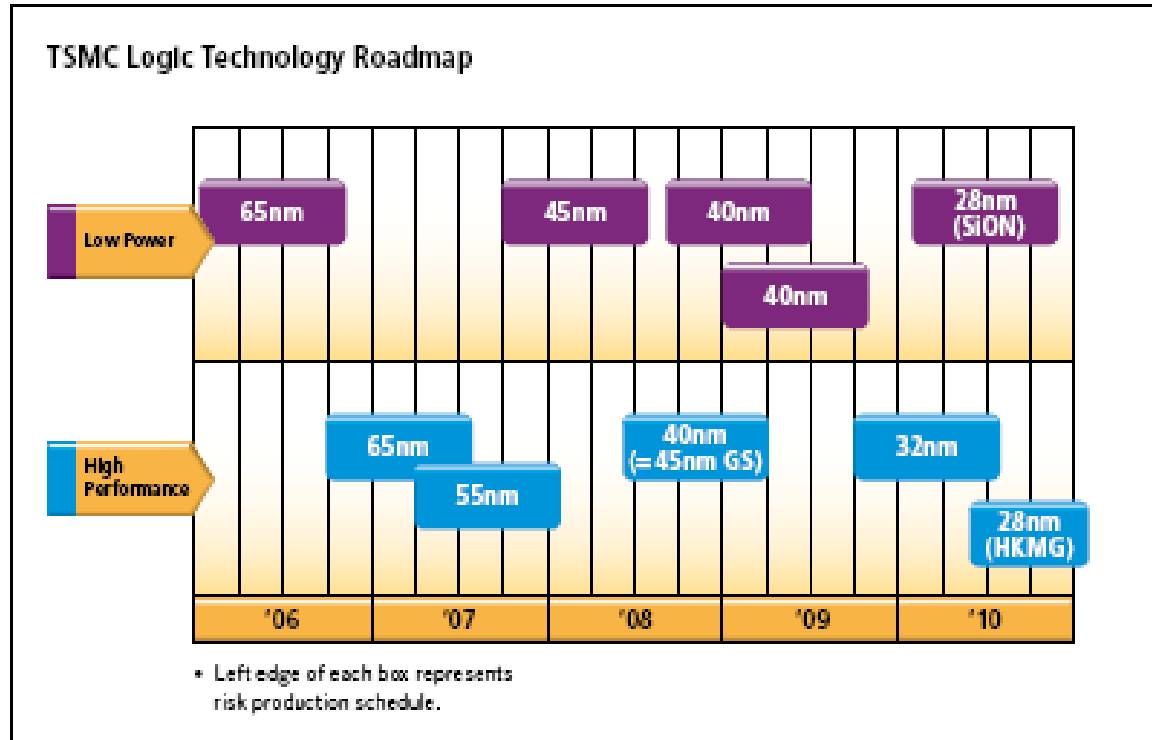
Consumers want ever increasing levels of performance and functionality.

Example : Smart Phones today:

- High Performance
- Feature Laden
- Long battery life
- Affordable



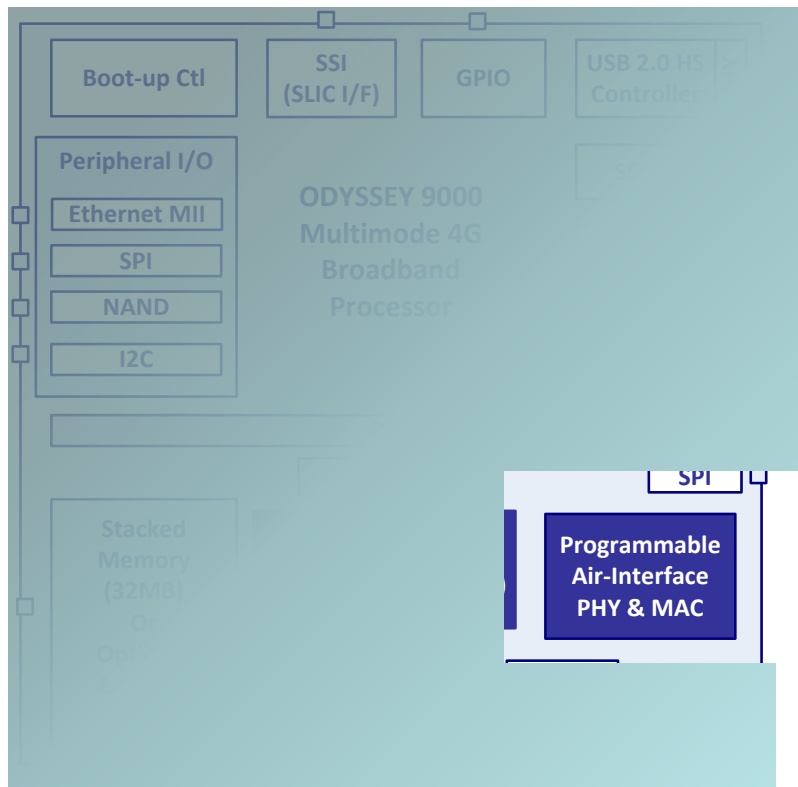
# Advanced Technology Nodes



Source: TSMC 2008

# Most Flexible OFDMA Solution

## Wavesat Odyssey Architecture



- Software Programmable Air-Interface offers flexibility and uncompromised performance
  - Programmable 4G PHY
  - WiMAX Wave 2 (MIMO Matrix A & B, beam-forming and H-ARQ), LTE Cat 3, XG-P 1.0
  - TDD & FDD with channelization of up to 20 MHz
  - Adaptive modulation schemes (up to QAM-256 in DL & UL), up to 1K FFT, multi-zone support per frame and advanced FEC techniques
  - Enhanced Security Protocol (EAP, AES and PKMv2)
  - OTA In-field programmable

