Mobile Devices Become Increasingly More Complex

**PHONE EVOLUTION**

- **1G**
  - Mobile Communication
  - Information
- **2G**
  - Entertainment / CE
  - Rich Communication
- **3G & Beyond**
  - User Generated Content/ Social Networking
  - Computing

**CONVERGENCE OF DEVICES & SERVICES**

- **Connected Devices**
  - Bluetooth Headsets
  - Multi-Function CE
  - Mobile Computing

**PC EVOLUTION**

- Computing
- Simple Communication
- Information
- Entertainment
- Rich Communication
- User Generated Content/ Social Networking

Converged devices demand higher HW complexity and SW content!
Product Development Challenges & Mitigation

Typical Product Development Cycle

- Architecture Definition
- Hardware Development
- Fabrication
- Software Development
- Integration & Test
- Production Ramp

24 - 30 months

- Market demands shorter but product complexity can drive longer development times.
- Delays cost **$10-20 million/week** or **$hundreds millions** lost revenue if the socket is lost!
- Virtual platforms, can decouple SW development from silicon availability; enable early HW and SW verification; avoid delays; increase quality and lower development costs

Concurrent HW and SW Development and Verification

- Architecture Definition
- Hardware Development
- Fabrication
- Software Development
- Integration & Test
- Production Ramp

6-9 months
EDA Requirements and Challenges

- Integrated tools and methodologies that enable:
  - Timely product requirements
  - Stable architecture specifications
  - Model availability (CPU, DSP, Multimedia, Modem, etc)
  - Tight integration of virtual platform and silicon verification environments
  - Integrated virtual platform models, HW and SW databases
  - Simulation speed
  - Affordable virtual platforms

- Support to enable customers to reduce their time to revenue
Thank You