A New Era of Integrated Computing

Integrated in Our Lives

Managing Global Cities

Delivering Tailored Healthcare
Moore’s Law
CPU Transistor Counts
1971 - 2013
TRANSISTORS
The Essential Element of Innovation

90 nm  2003
65 nm  2005
45 nm  2007
32 nm  2009
22 nm  2011
14 nm  2013
10 nm  2015
7 nm   2017
Billions of Transistors Per Chip
Overcoming TECHNICAL BARRIERS

"3D devices are too costly and not manufacturable."

"Hi-K is limited to low performance."

"Gate last approach cannot be manufactured."

"Phase shift masks will never be used in production."
From Cell Phone to SMARTPHONE
Fundamental Advancements in SILICON TECHNOLOGY
Dublin: CityWatch CitySensing
Managing MEGACITIES
Moving Healthcare Out of the HOSPITAL
Providing Real-Time HEALTH INFORMATION
Big Data CHALLENGE
Reducing the Cost of Human Genome Sequencing

Moore's Law

National Human Genome Research Institute

$1,000 GENOME
ONE THIRD of ALL WOMEN and ONE HALF of ALL MEN will be diagnosed with CANCER
Creating a Searchable DNA MAP

KNIGHT CANCER INSTITUTE
Oregon Health & Science University
“... From a Biology Problem to a 
Computational Problem ...”
Eric Dishman
Intel Fellow, GM of Health & Life Sciences
“Don’t be encumbered by history, go off and do something wonderful.”

Robert Noyce