ARM Holdings
Investor and Analyst Day

New York/London – May 2005

Agenda

09.45	Coffee and registration
10.00	**Warren East – Chief Executive Officer** **Introduction and Strategic Overview**
10.30	**Mark Templeton – Chief Strategy Officer** **PIPD Insight**
11.30	Break
11.50	**Mike Inglis – EVP of Marketing** **The 2010 Opportunity - Royalty Outlook**
12.40	**Warren East** **Wrap up and closing Q&A**
13.00	Buffet lunch

Introduction and Strategic Overview

Warren East

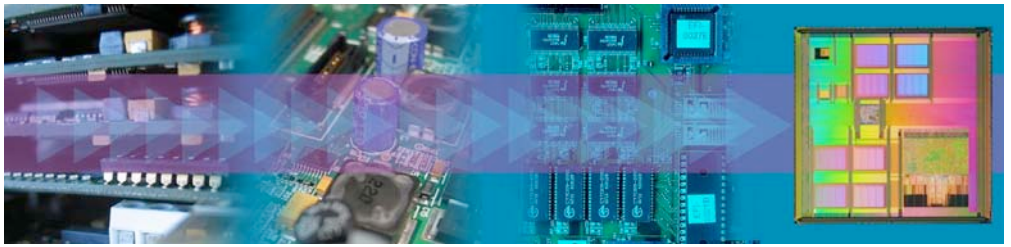
Chief Executive Officer

Overview

- ARM in context - Semiconductor IP and Microprocessors
- Strategy and Business Model
- Customer requirements
- The ARM/Artisan combination
- ARM's potential

Background – Semiconductor Market

- ARM is a secular growth story with a 25+ year time horizon
- Industry is 50 years old and looks set to continue for another 50 years
- Several waves of semiconductor technology
  - Now in the middle of CMOS
  - CMOS has enabled MSI>LSI>VLSI>SOC
- Technical progress brings a basis for industry evolution
  - Miniaturisation
  - Reductions in costs
  - Increases in complexity



- Vertical integration gives way to horizontal specialisation
  - Creates a sub-sector: Semiconductor IP

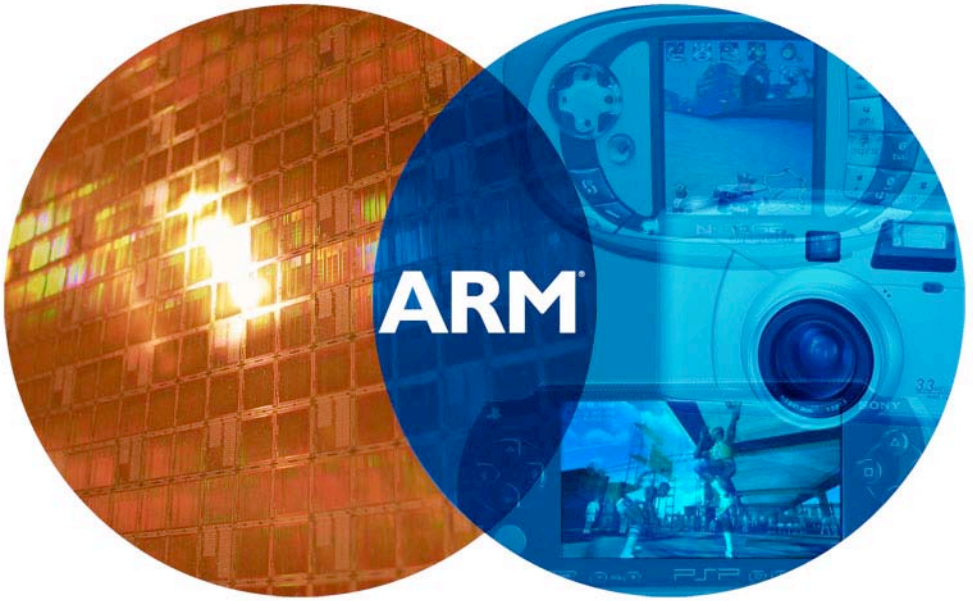
Background – Computing Market

- Computing has evolved in parallel with the Semiconductor market over a similar but slightly longer period

- Semiconductor technology is now allowing computing to become embedded into everyday products
  - Enhancing existing products
  - Enabling the creation of new ones

ARM Position

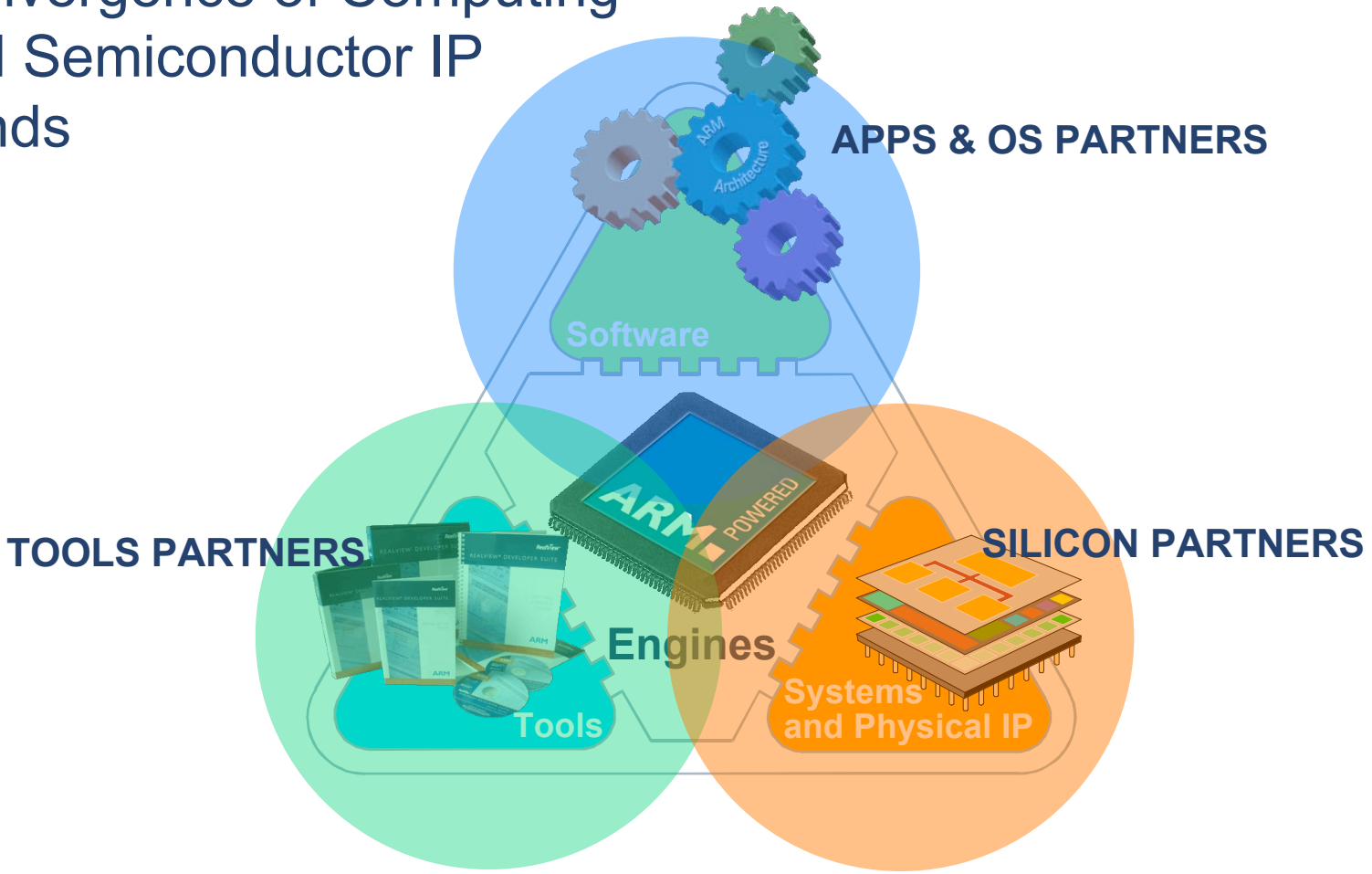
ARM is at the epicentre of this exciting combination



- Enabling SOC
- Reusable System IP
- Physical IP
- System design tools
- Low-power
- Software
- 8-bit>>32-bit migration
- Wireless
- “Lightly” embedded
- “Deeply” embedded

Strategy

- Broad technology portfolio
- Convergence of Computing and Semiconductor IP trends



Business Model

- IP – licence and royalty model
  - Licensing
    - Continuous enhancement of the established base of future royalty generating licences
    - Innovative technology roadmap
  - Royalties
    - Proliferation – one licence>>multiple designs over many years
    - Environment for licensee success - Connected Community
    - Enhanced royalty through additional IP (value) per product

Customer Requirements

- Standards upon which to build
- Ecosystem
  - ARM Connected Community
  - Market creation
- Innovation
- Quality IP
  - Out of the box experience
- Roadmap
- Value

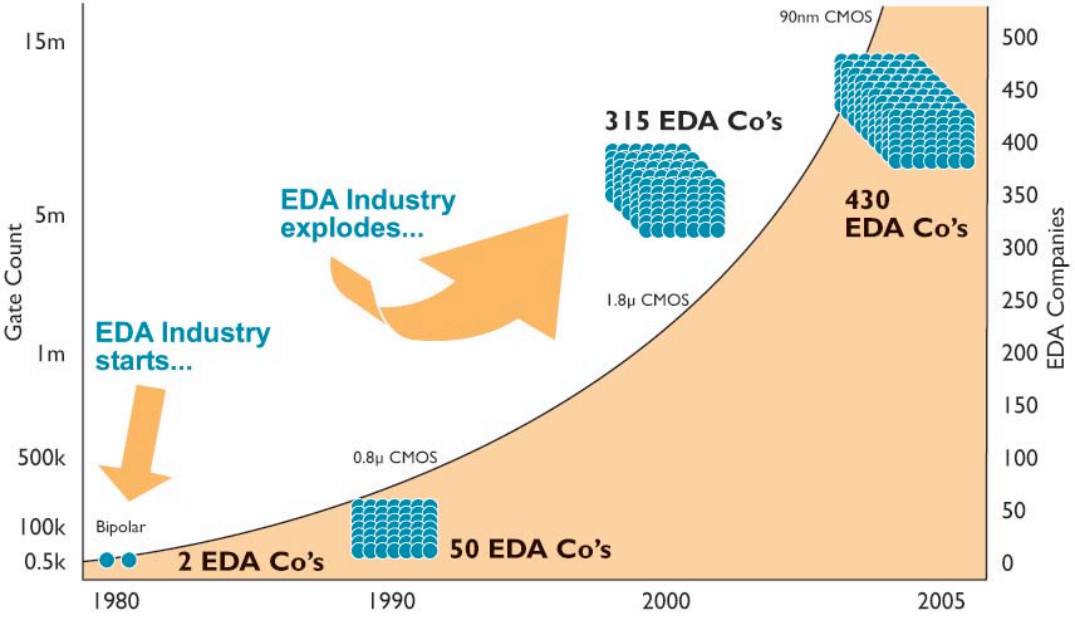
Meeting Customer Requirements

- Standards
  - ARM, AMBA, ASL, RVD, OpenMax
- Partnership
  - Vibrant third party Connected Community
  - Leverage partners' differentiation
- Low-power system design
  - Power efficient cores
  - OptimoDE
  - IEM
  - Artisan Physical IP

Drivers for ARM/Artisan Combination

- Enhanced value per ARM Powered product
- Physical IP - ripe for outsourcing below 0.13 micron
  - Increasing cost and complexity in creation and maintenance
  - Increased dependencies with EDA tools
  - IP re-use
  - Fab–lite strategies
- Business opportunity to replicate the ARM story
- Opportunity for better products through co-design
  - eg 60% less energy with IEM / Artisan combination
- Well-established additional channel for IP delivery

Chip design is getting more complex



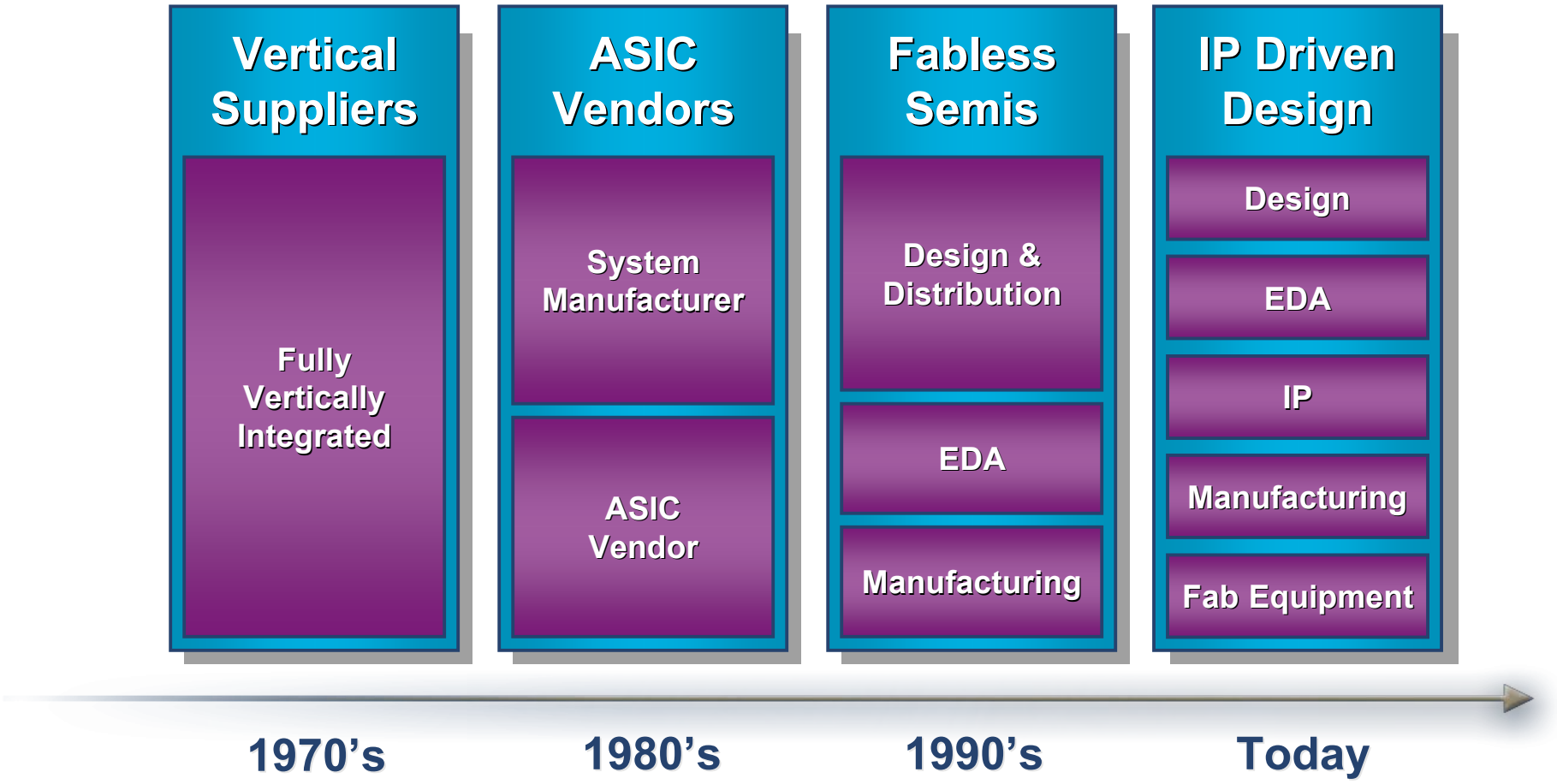
PIPD Insight

Mark Templeton
Chief Strategy Officer

ARM Physical Intellectual Property (IP)

- Overview
- Product Strategy
- Products & Roadmap
- Business Model
- Results
- Market Position

Semiconductor Disaggregation



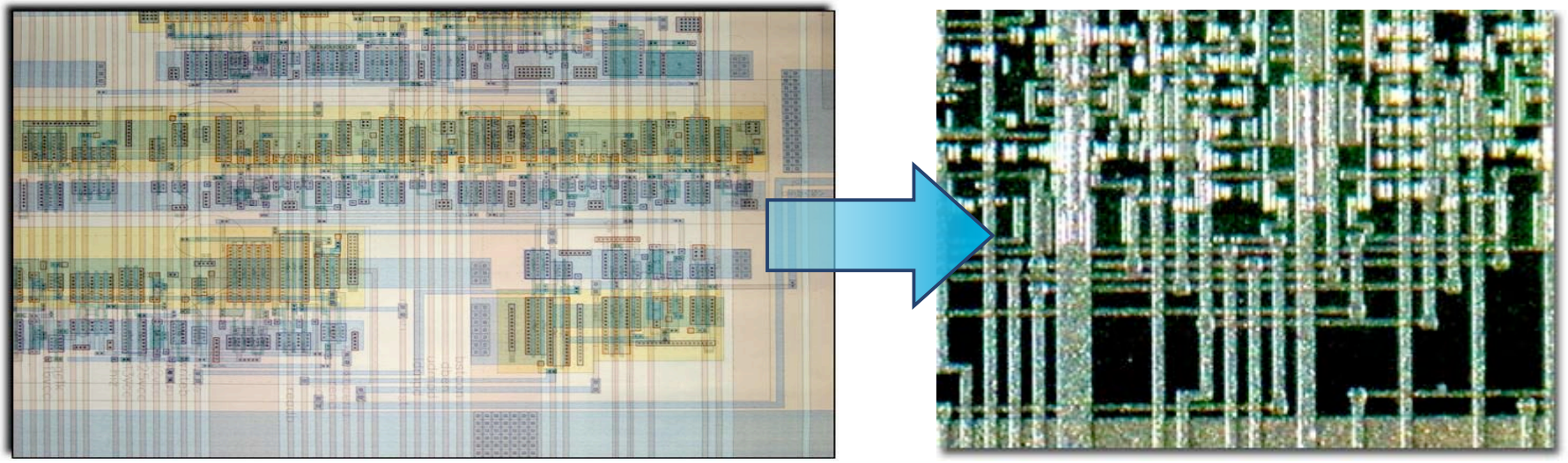
Physical Intellectual Property (IP)

- What is Physical IP?

- Analogous to building blocks
- Creating highly differentiated complexity from standard elements

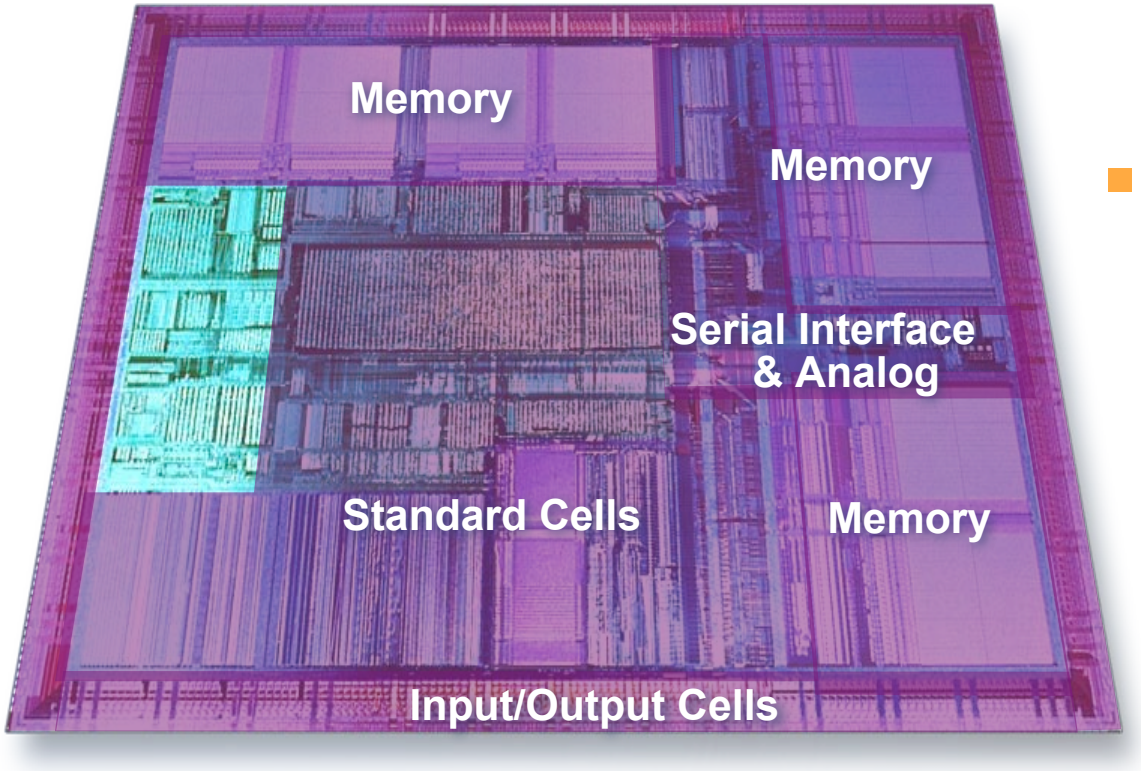
Physical Intellectual Property (IP)

- What is Physical IP?



- Actual geometric patterns for printing integrated circuits
- Defines a chip's performance, power area and yield

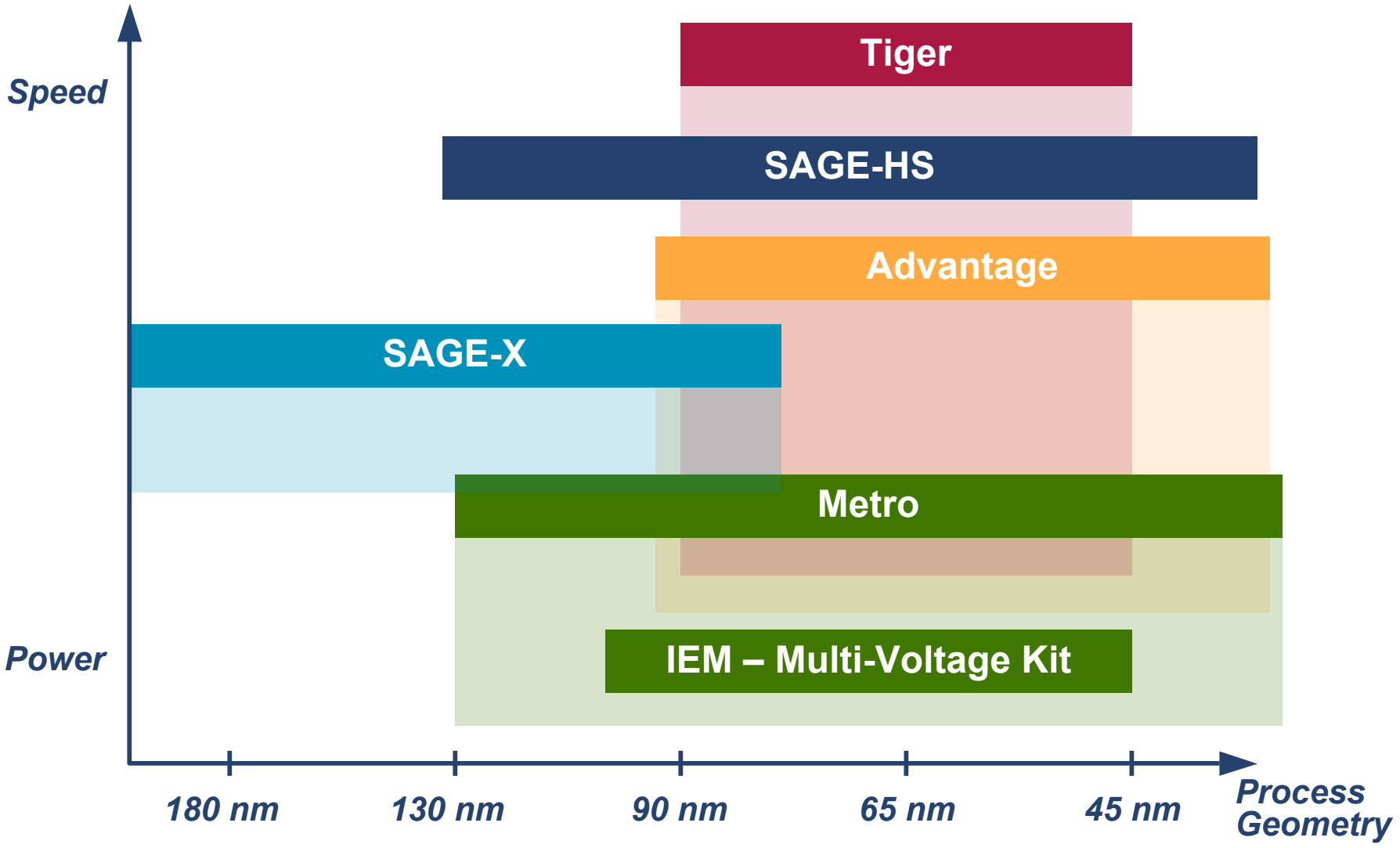
Physical IP Product Focus



- Product strategy to maximize royalty
  - Pervasive need
  - Standard
  - Diverse market

Physical IP
Product Overview

Physical IP Product Roadmap



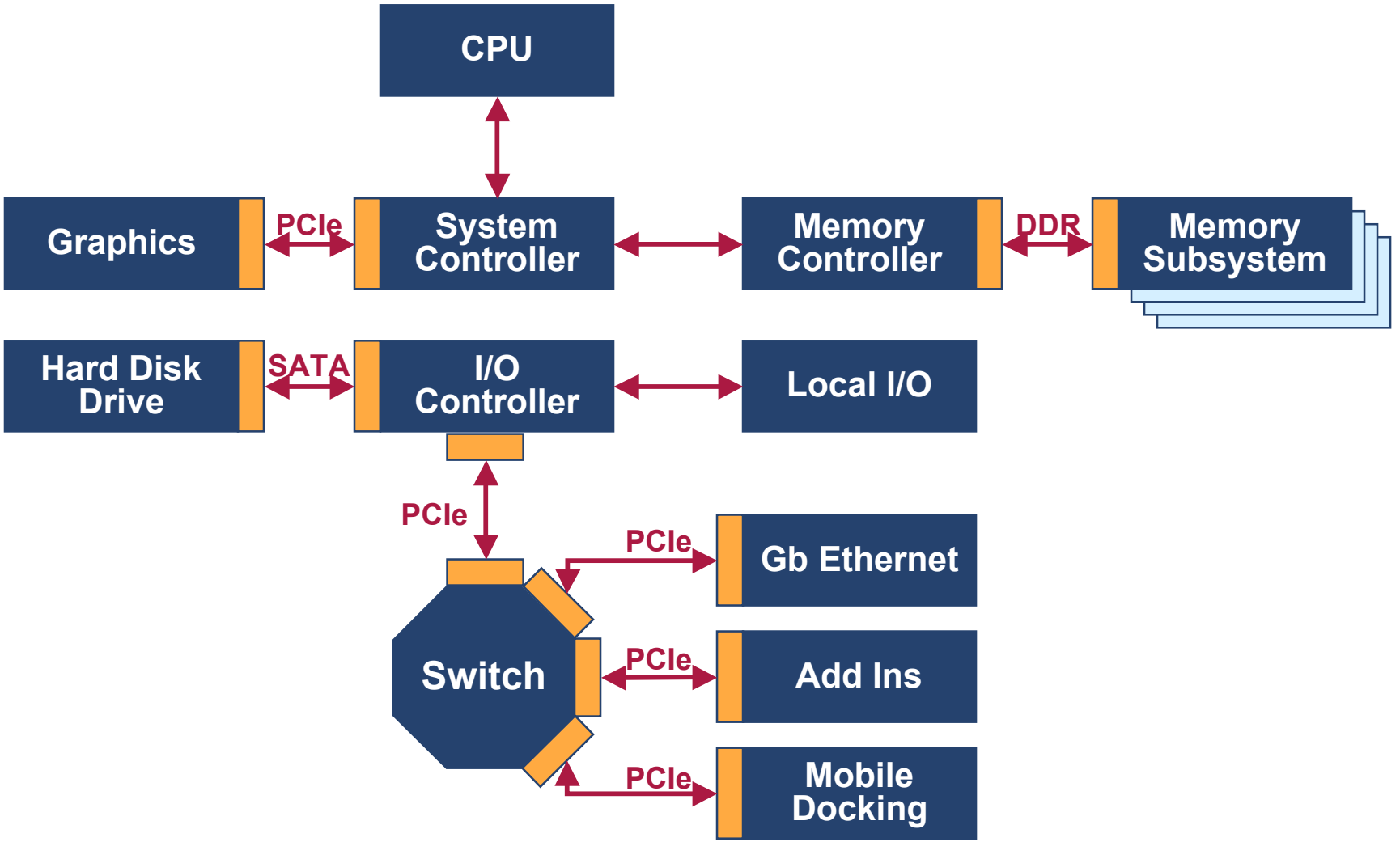
Physical IP - Advantage Solutions

- Best combination of speed and density
- Choices for optimization for multiple design points
  - Performance, Power and Area
  - 4 unique architectures
- Memory speeds up to 1 GHz in 90nm
  - Robust testability features
  - Design for manufacturing features
- Aggressive power management features
- High-performance microprocessor implementation IP
  - Datapath optimized cell libraries
  - Memories for cache implementations
  - High-speed I/O

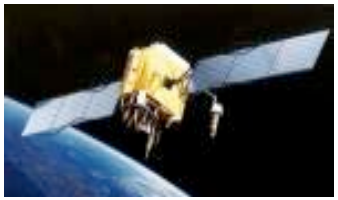
Physical IP- Metro Solutions

- Complete low-power solution
- Low-power memory products
- Multiple cell architectures for optimization
- Multi-voltage design kits
  - Leakage power reduction (Stand-by power)
  - Dynamic voltage scaling (Active power)
- Design support
  - Low-power reference methodologies with EDA partners
- Low-power microprocessor implementation IP
  - Intelligent Energy Management (IEM) design kits
  - Proprietary leakage reduction circuits

Physical IP - High-Speed Interface Solutions



Concept Smart phone of 2008



GPS

Biometrics

20 GB HD

3.5G (HSDPA)
WiMax (10 Mbit down)

Stereo Headset

Bluetooth/UWB

DMB (Digital Mobile Broadcast)

NFC / RFID

TV out

PC / Mac

512 MB Memory card

- 1 billion transistor chips
- Cortex™-A8 or ARM11 MPcore™ 1GHz CPU
- VGA H.264 encode
- GPU (PSP level performance)
- 256MB DRAM, 64MB Flash
- WVGA screen (852x480)
- 4 Mega Pixel Camera

Physical IP Business Model

Connecting Manufacturers with Designers

World's Leading IC Manufacturers

ARM User Community

2,000+ Companies, Estimated 10,000 Design Teams

Customer Case Study - IBM

The Community at Work

IBM

IC Designers

"Customers are recognizing that our technology can do much more for their products than traditional foundries are able to provide. We're working with Artisan to make it easier for customers to do business with IBM."

Mike Concannon, VP of Contract Manufacturing Services
IBM Microelectronics

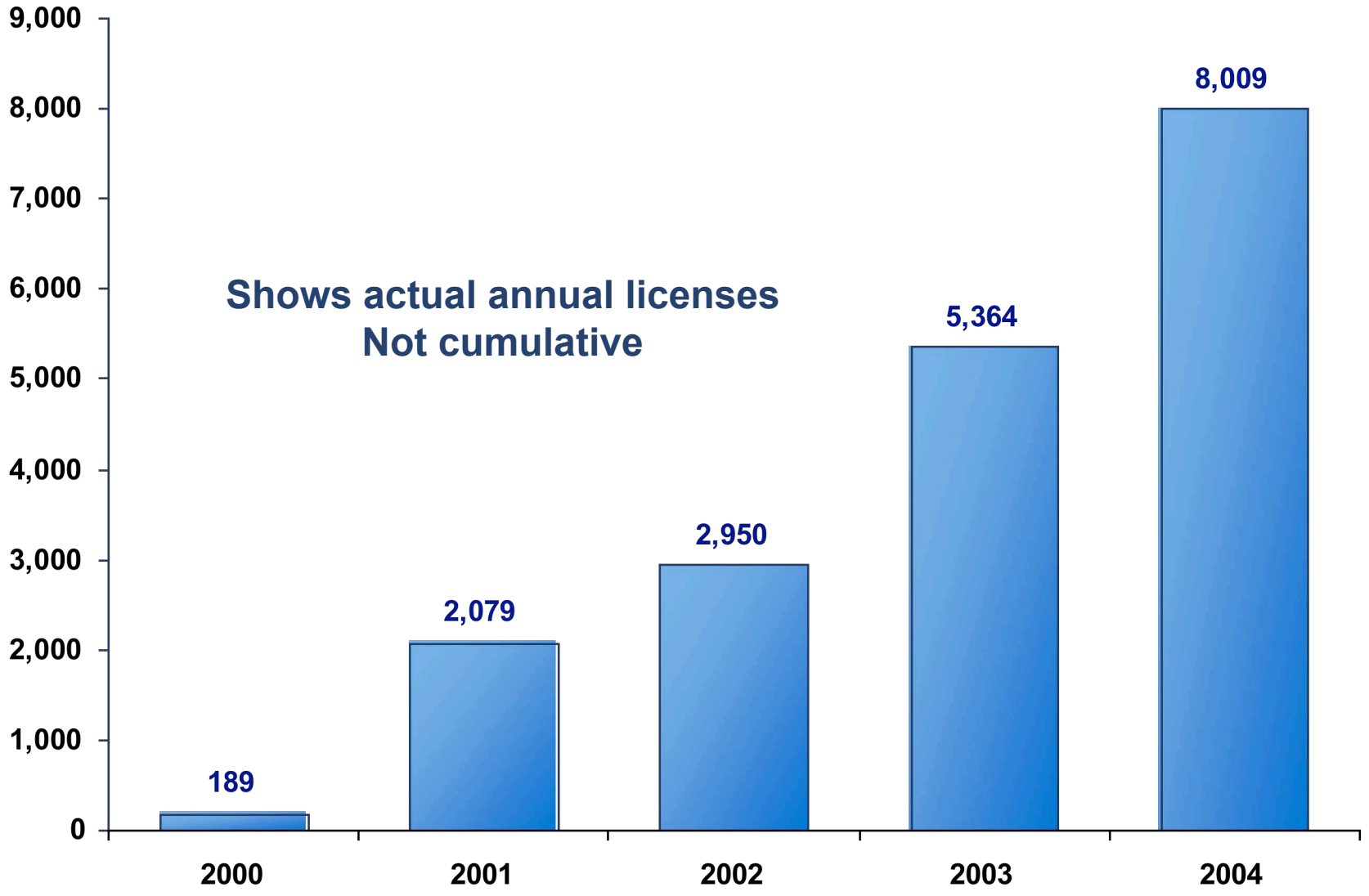
Leading Manufacturers Choose ARM

Customer Benefits – Physical IP

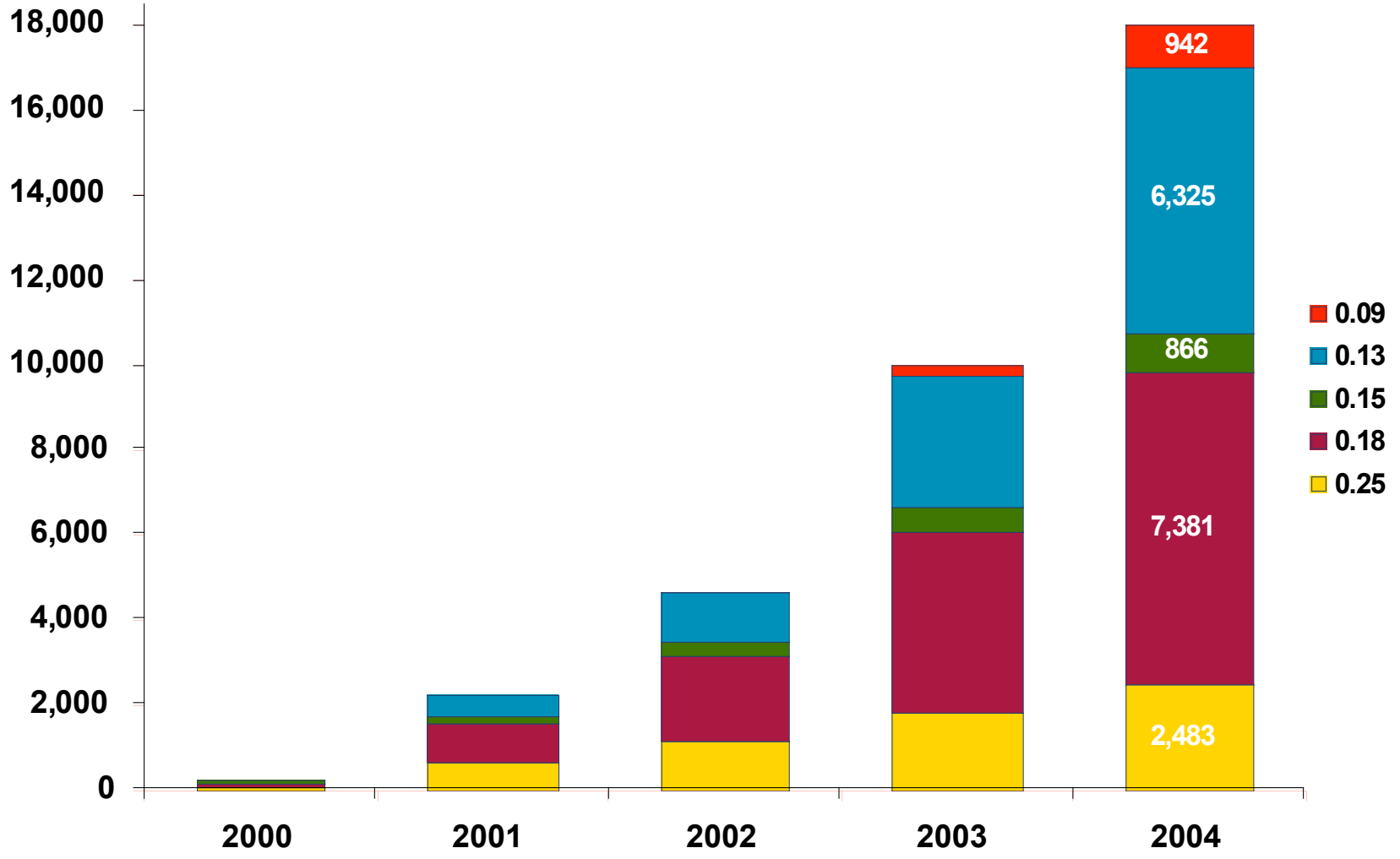
- Broadest choice of foundries (manufacturers)
- Broadest support of EDA tools and design flows
  - Pre-validated with EDA Partners
- “Battle tested”
  - Design Proven > 2,000 successful designs over past 2 years
  - Silicon Proven > 1 Million wafers over past 2 years
- Most complete IP offering
  - System IP
  - Microprocessor IP
  - Digital Implementation IP
  - Analog IP
  - High Speed Interfaces

Physical IP Results

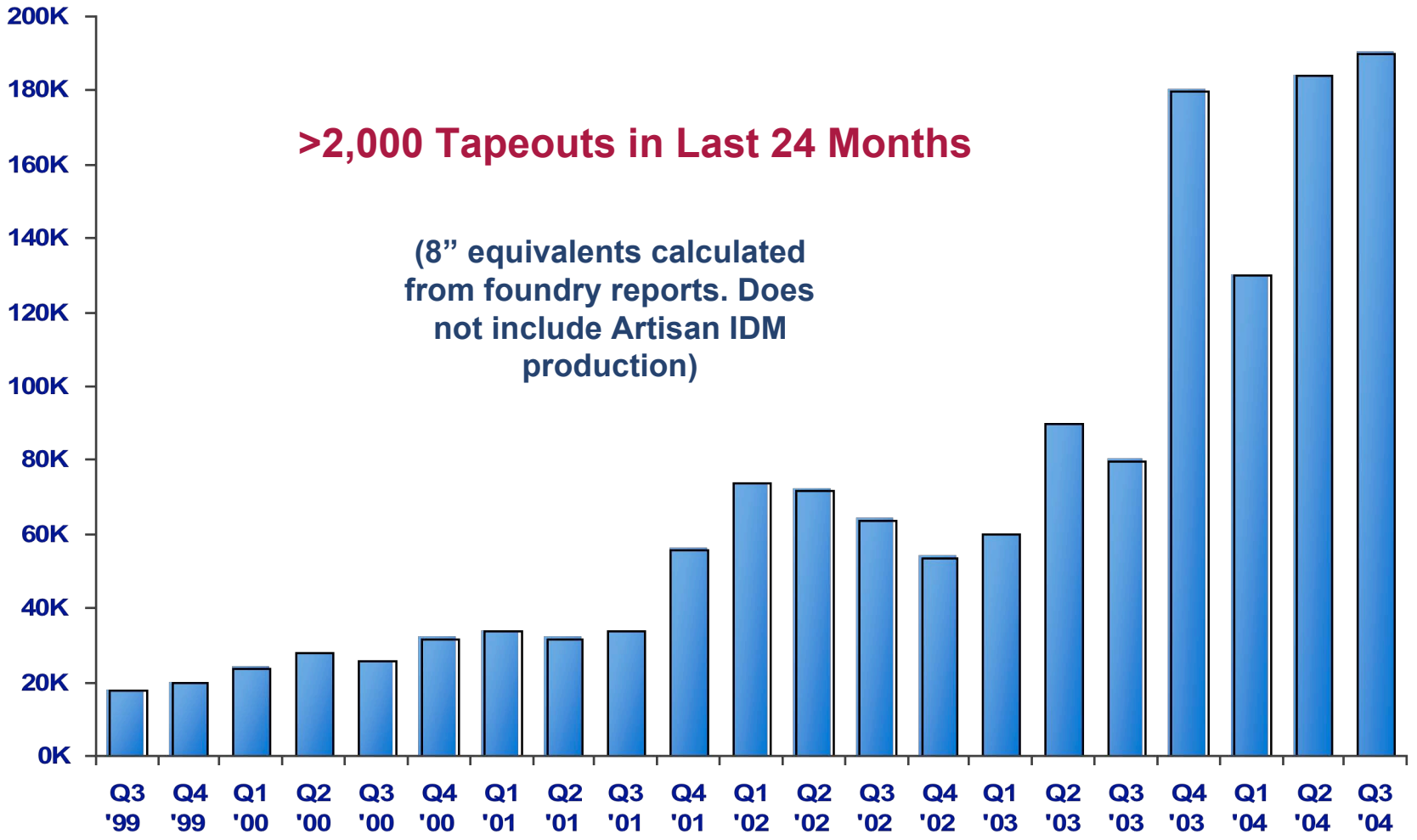
Community Design Kit Licenses



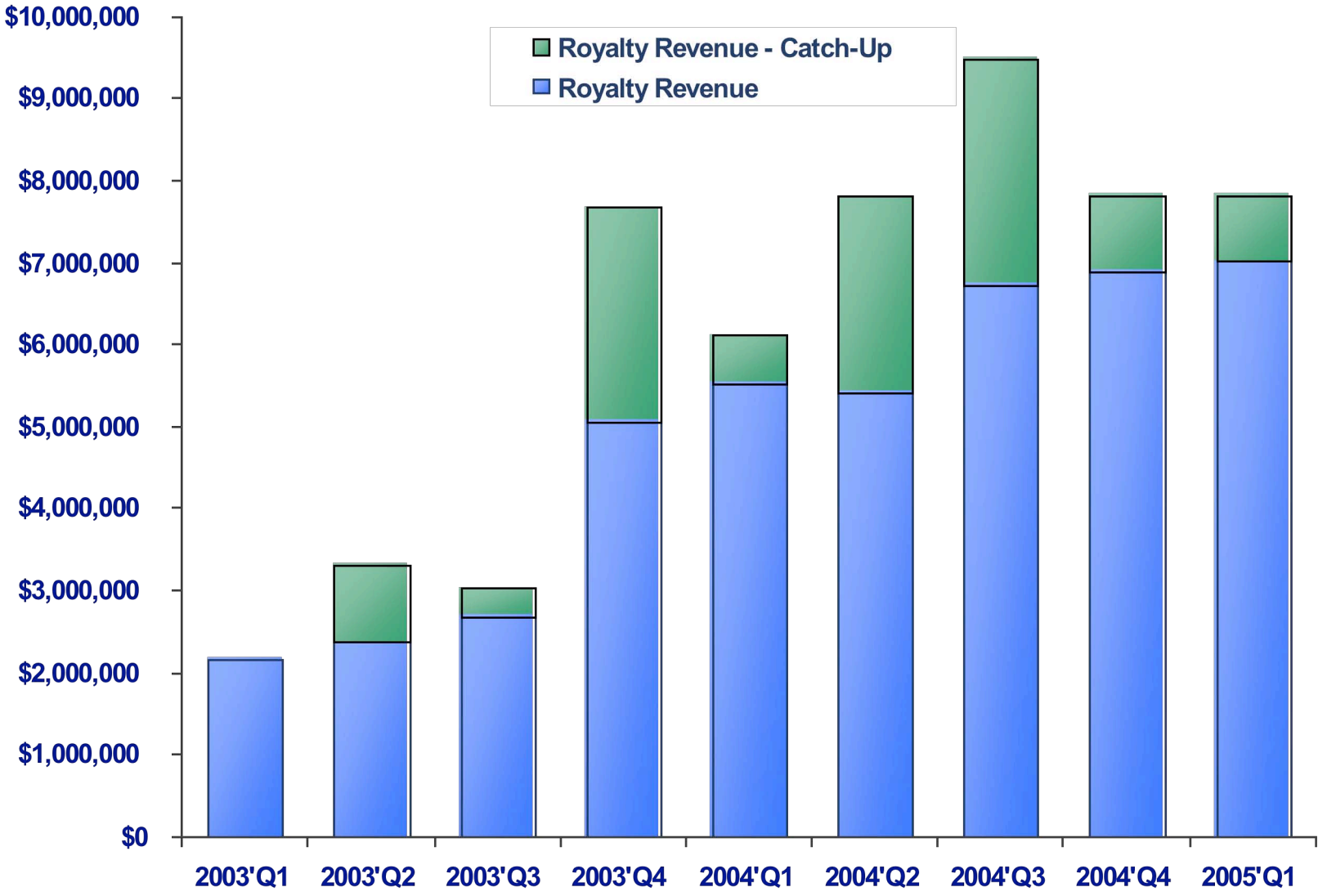
Cumulative Licenses By Geometry



Physical IP Wafer Volume



Royalty Revenue



Physical IP Market Position

Competitive Environment

Competitor	Standard Cell	Memory	I/O	Analog	PHY
Artisan	Leader	Leader	Leader	Strong	Leader
Virage	Limited	Leader	Partners		
TriCN			Strong	Partners	Focus
VST	Limited		Strong	Strong	
Faraday	UMC Only	UMC Only			
TSMC	TSMC Only		TSMC Only (Artisan Distributed)	TSMC Only	
Rambus					Leader
Synopsys					Focus

Dataquest's 2004 IP Company Rankings

	Rank	2003 ($M)	Growth
ARM	1	175.2	
Rambus	2	118.1	
Synopsys	3	81.2	
Artisan	**4**	**74.6**	**71%**
TTPCom	5	73.5	
MIPS	6	47.0	
Virage	7	40.0	-16%
Ceva	8	36.8	
Imagination	9	23.6	
Mentor	10	22.2	
Monolithic	11	20.4	-18%
ARC	12	17.8	
NewLogic	13	17.0	
Mosaid	14	15.9	-13%
Tensilica	15	15.1	
Faraday	16	15.0	
QualCore	17	13.7	
Sci-Worx	18	13.2	
Cadence	19	12.4	
Virtual Silicon	20	11.6	15%

Integration Update

- Acquisition completed December 2004
- 340+ people in California, North Carolina & Bangalore
- Sales forces combined
- Some facilities combined
- Bangalore growth accelerated
- Cross selling opportunities being exploited
- Early wins at ARM IDM partners
- Development underway for Tiger and IEM solutions

Summary

- Physical IP brings an important new dimension to ARM's business
- Product strategy to achieve large numbers of design wins
- Proven products with an aggressive roadmap
- Proven, effective business model
- Strong history of growth, through good and bad markets
- Well positioned for continued success

Break

The 2010 Opportunity

Royalty Outlook

Mike Inglis

EVP of Marketing

Delivering on our Targets

2003 Actual

- 782 million units

2004 Actual

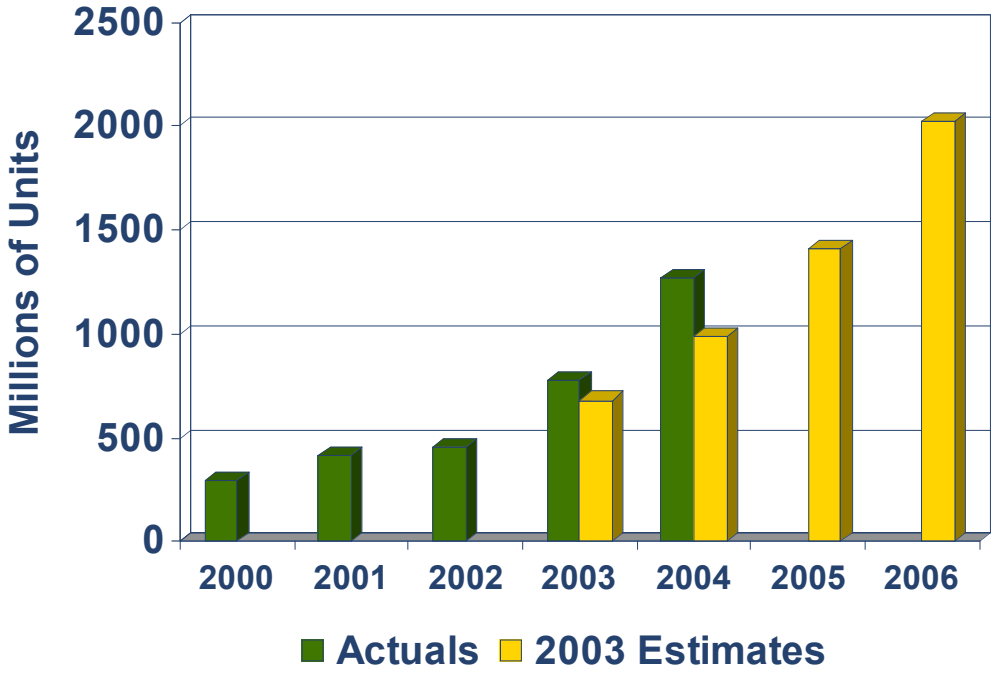
- 1.27 billion units

2006/7 Target (set in 2003)

- 2.0 billion units

New internal target

- 4.5 billion units in 2010



Convergence has become a Reality

- Phones with disc drive space for music
- MP3 players with storage
- PSP with Wi-Fi
- Game consoles with networking and DVD players
- Digital cameras with MP3 players
- Bluetooth embedded in everything for data transfer
- ARM devices in laptops via the drive
- WiMax broadband to the home

ARM Segmentation is Changing

- Set-top box
- Digital audio
- Gaming
- DVD

- ABS/airbag/safety
- Body & dashboard
- Infotainment
- Powertrain

- SIM
- Financial
- Gvt ID/IT security

- White goods
- Brown goods (low-end)
- Industrial control

- Wireless LAN
- VoIP
- Digital modem
- Home gateway

- Voice phone
- Feature phone
- Smart phone / PDA
- Bluetooth peripheral

- Hard disk drives
- Flash cards
- Networked storage

- Ink printer
- Digital camera
- Laser printer
- Digital video camera

From “Products You Use”…

…to “The Use of Your Products”

MOBILE SOLUTIONS

HOME SOLUTIONS

ENTERPRISE SOLUTIONS

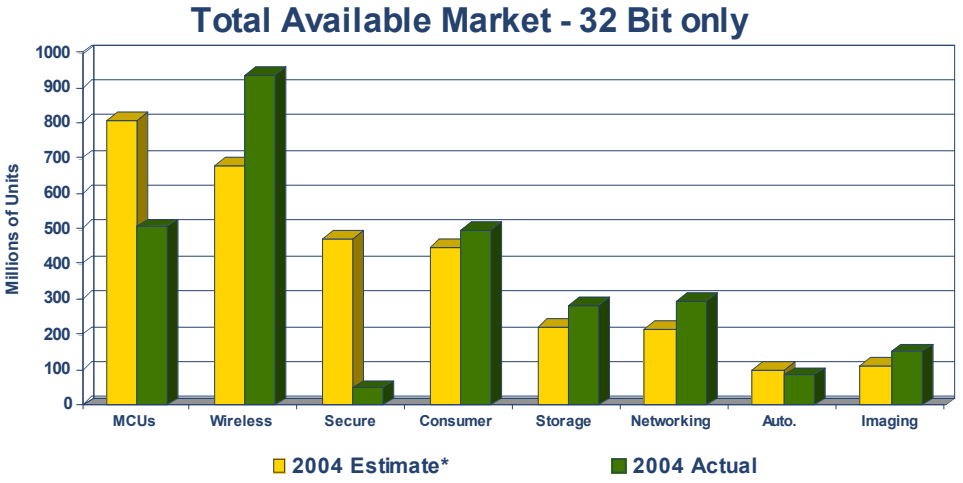
EMBEDDED SOLUTIONS

With The Same Applications

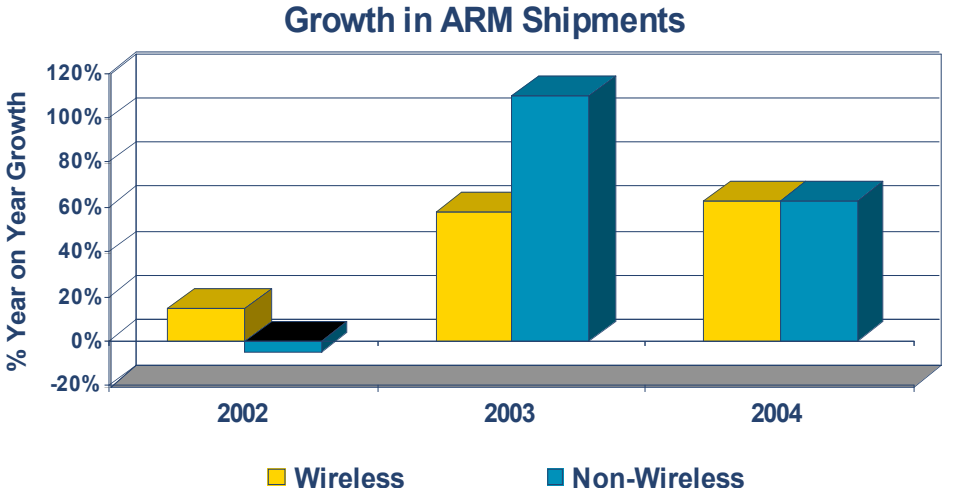
Smart Phone	STB	VoIP, V²OIP	Chassis Systems
Feature Phone	DTV/HDTV	Storage	ABS
Voice Phone	DSC/DVC	Printers	Powertrain
Cordless Phone	DVD	PC Peripherals	Infotainment
PDAs	Tethered Gaming	Wireless Connectivity	Industrial pdts.
Portable Audio	Portable Gaming	Home Networks	MCUs
Portable Media		Enterprise Networks	Smartcards

ARM Score Card

- 2004 markets outperformed
  - Wireless stronger
  - Other segments on track
  - Smartcard and MCU still early for 32-bit

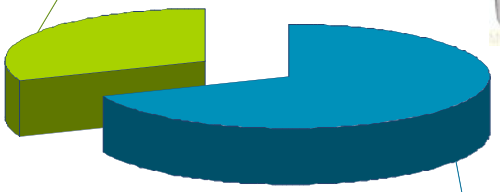


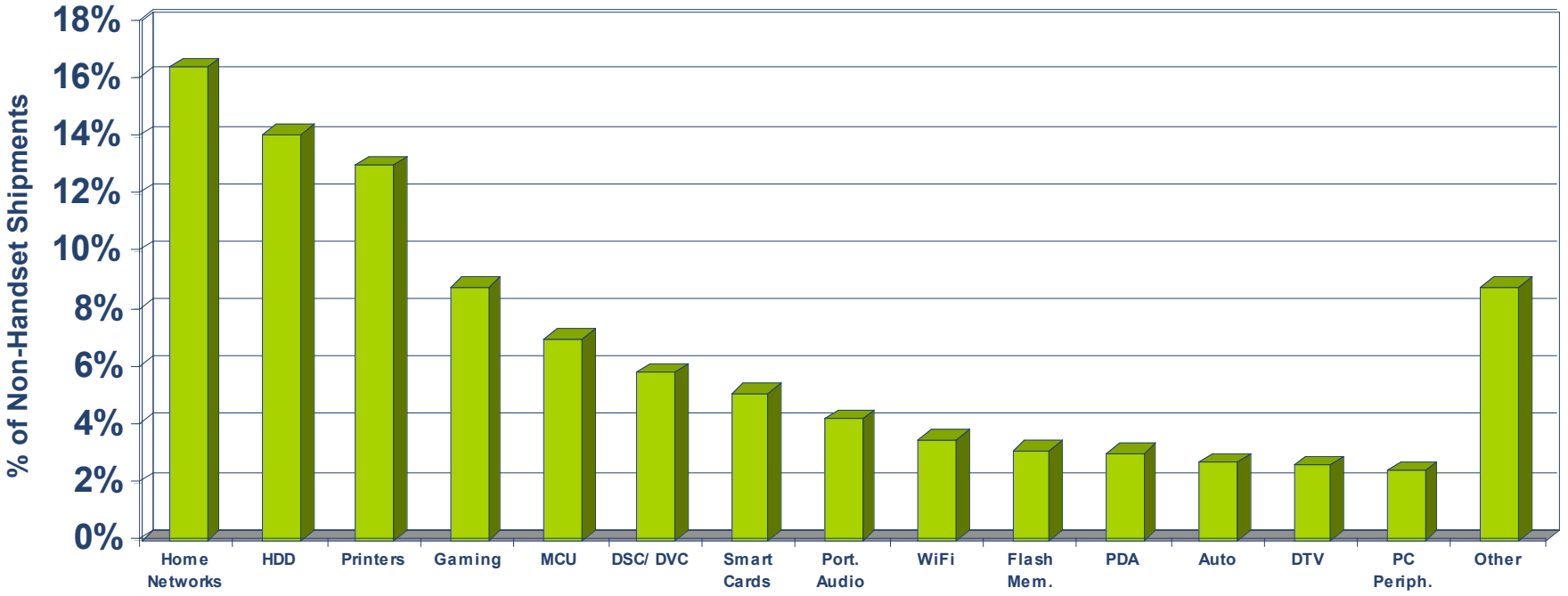
- Mix shift to non-wireless
  - Wireless remains strong
  - Crossover now 2009
- Overall on track



Note: Sources Semico, Strategy Analytics, ARC Group, IDC, IMS, Gartner, and ARM Estimates

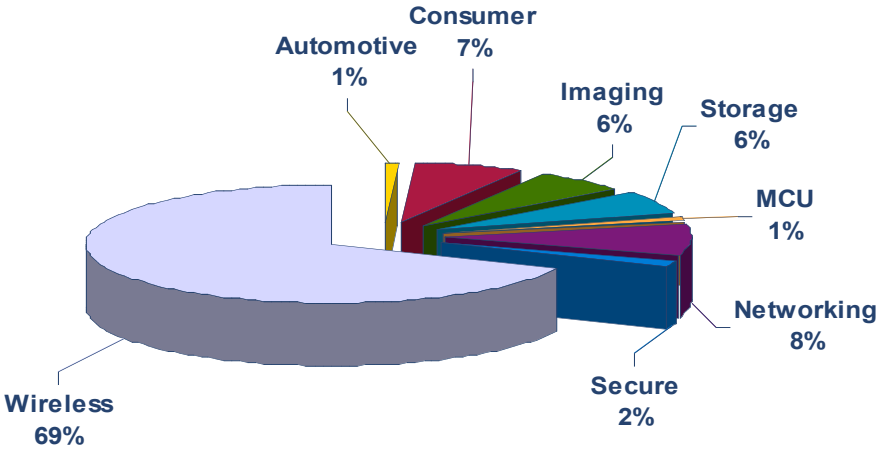
Real Products for Real People



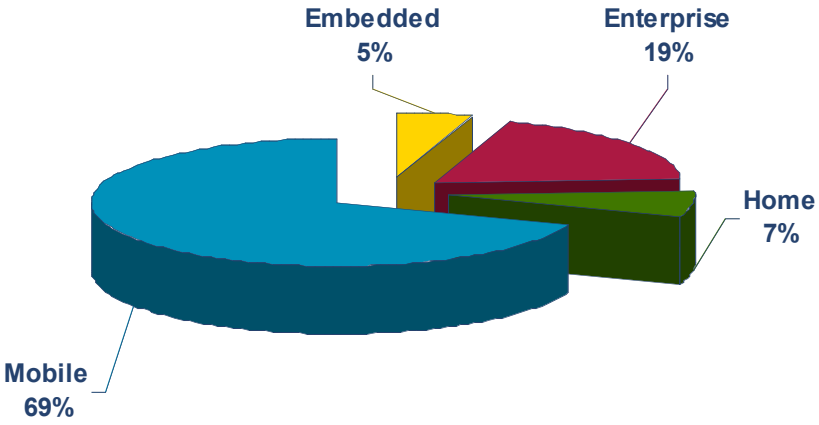


Shipments 2004 (1.27Bn) and Q1 2005 (389M)

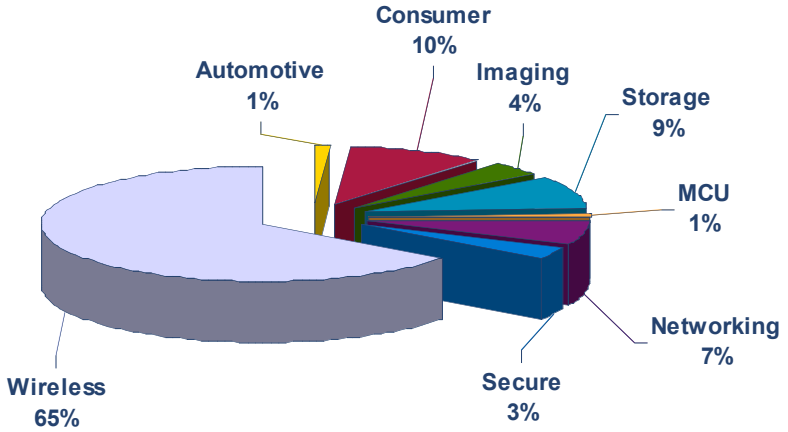
Original Segments



New Segments

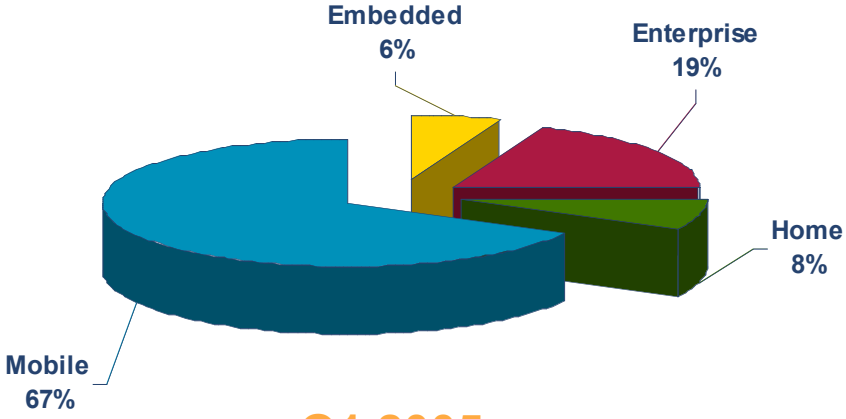


Full Year 2004



Q1 2005

Full Year 2004



Q1 2005

Mobile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HOME
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Battery Operated, On the Move

Applications

- Smart Phone
- Feature Phone
- Voice Phone
- Cordless Phone
- Bluetooth (Headset etc.)
- PDAs
- Portable Media Players

* ARM Estimate

TAM 2004	TAM 2010	Avg. SoCs per Product (2010)*
32M	255M	3.0
224M	340M	1.5
384M	255M	1.0
256M	561M	1.0
47M	284M	1.0
10M	16M	2.0
40M	168M	1.0

Segment trends

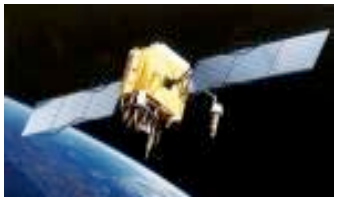
- Convergence drives performance
- Battery life remains critical
- 3G becomes a reality
- HSDPA on the horizon
- Mobile TV gaining momentum
- Hacking of phones emerging

Note: Sources Semico, Strategy Analytics, ARC Group, IDC, IMS, Gartner, and ARM Estimates

ARM meeting the trend

- Efficient design of processors
  - Maximum performance/min power
  - Minimum area
- System-level design tools
- Application driven technology
  - Media
  - Signal processing
  - Security
  - Battery life

Concept Smart Phone of 2008



GPS

Biometrics

20 GB HD

3.5G (HSDPA)
WiMax (10 Mbit down)

Stereo Headset

Bluetooth/UWB

DMB (Digital Mobile Broadcast)

NFC Forum

NFC / RFID

TV out

Wi Fi

USB

PC / Mac

512 MB Memory card

- 1 billion transistor chips
- ARM11™ MPcore™ 1GHz CPU
- VGA H.264 encode
- GPU (PSP level performance)
- 256MB DRAM, 64MB Flash
- WVGA screen (852x480)
- 4 mega pixel camera

Additional SoC Royalty Opportunity

Voice phone

BOM <$50
Cellular network

Feature phone

BOM >$50
Cellular network

Java brew

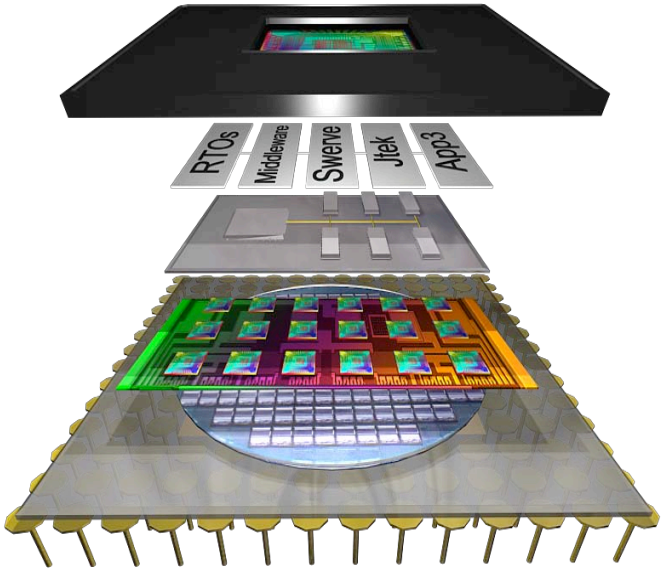
Smart phone

Uses OpenOS

Windows Mobile
symbian OS
SAVAJE
palm
Linux

Base Business:	ARM Processor
Software:	+ TrustZone™ Security
	+ Swerve Engine & Content
	+ JTEK Media
	+ IEM Battery
Hardware:	+ MBX 3D games
	+ OptimoDE™ algorithmic tasks
Physical IP:	+ Libraries (per wafer)

Total royalty processor plus + items



Home

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Visual Content

Applications

- DTV and iDTV
- DVD and HD-DVD
- Set-top box
- Portable Gaming
- Tethered Gaming
- DSCs and DVCs

* ARM Estimate






	TAM 2004	TAM 2010	Avg. SoCs per Product (2010)*
	27M	127M	4.0
	114M	122M	2.0
	45M	132M	3.0
	20M	55M	2.0
	31M	66M	3.0
	72M	106M	2.0

Segment trends

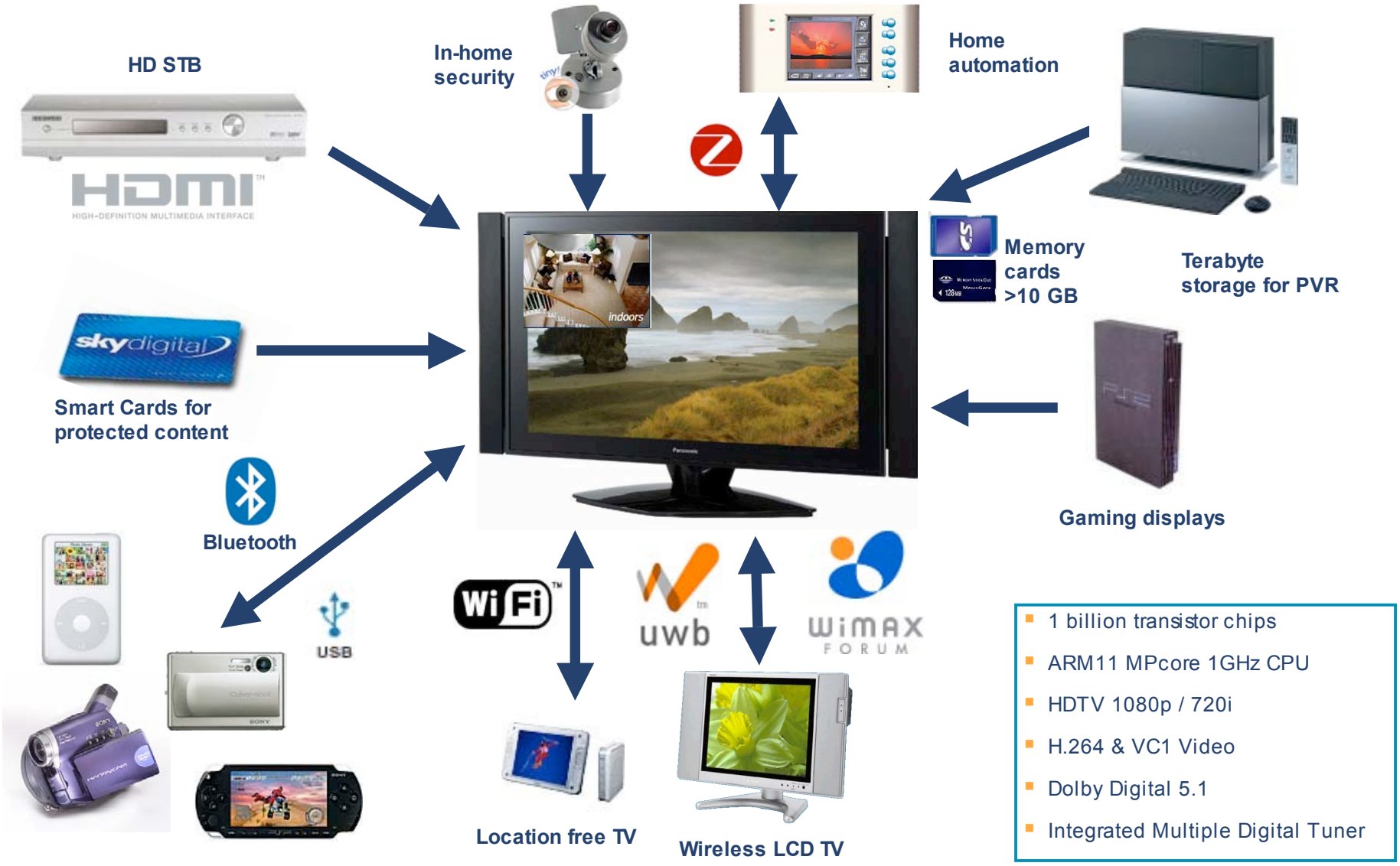
- Battle for the home
  - Media gateways v. set-top boxes
  - Xbox v. PS3 v. Nintendo
  - HD-DVD v. Blue-ray
- Analogue TV to digital
  - Mandated by governments
- Direct download of content

Note: Sources Semico, Strategy Analytics, ARC Group, IDC, IMS, Gartner, and ARM Estimates

ARM meeting the trend

- Efficient design of processors
  - Greater than a GHz of performance
- OptimoDE
  - Stabilising standards
- Java Technology
  - Delivers a 3x performance improvement on applications like MHP
- TrustZone for secure content

High-End TV: the Centre of Your Home



Enterprise

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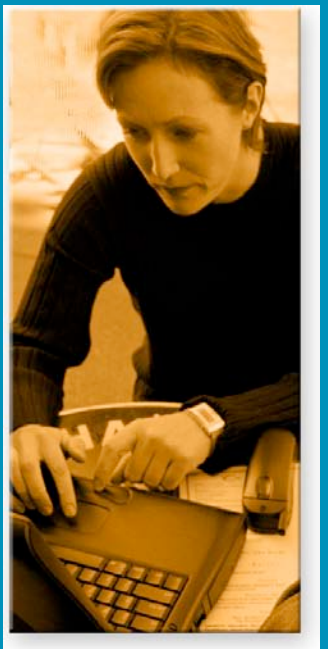

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Data Handling

Applications

- Storage (HDD & Flash Memory)
- Printer
- Home Networking (BB and Dial-up)
- Enterprise Networking
- Wireless Connectivity (WiFi, UWM, WiMax)
- VoIP, V^{2}oIP, VoWiFi

* ARM Estimate

	TAM 2004	TAM 2010	Avg. SoCs per Product (2010)*
Storage (HDD & Flash Memory)	509M	1134M	1.0
Printer	92M	147M	1.0
Home Networking (BB and Dial-up)	138M	230M	1.0
Enterprise Networking	97M	156M	1.0
Wireless Connectivity (WiFi, UWM, WiMax)	57M	435M	1.0
VoIP, V^{2}oIP, VoWiFi	10M	29M	1.0

Segment trends

- Wireless connectivity
  - UWB, WLAN – Ethernet replacement
  - WiMax – Broadband replacement
- Fabless start-ups re-entering
- Storage goes into everything
- Transition to VoIP starting to occur
  - WLAN access points with VoIP capabilities

Note: Sources Semico, Strategy Analytics, ARC Group, IDC, IMS, Gartner, and ARM Estimates

ARM meeting the trend

- Foundry program
  - DesignStart program, hardened cores in the foundry for proven reliability
- ARM enabling emerging technologies
  - ARM926™ – Single core VoIP solution
  - ARM968™ – low cost connectivity solutions (UWB, WLAN)
  - Dual-core ARM946™ solution for Intel WiMAX

Embedded

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Software Standardisation

Applications

- Body and Convenience
- Telematics and Car Multimedia
- Powertrain
- Chassis Systems
- MCUs
- Smartcards

	TAM 2004	TAM 2010	Avg. SoCs per Product (2010)*
Body and Convenience	733M	1712M	1.0
Telematics and Car Multimedia	107M	119M	1.0
Powertrain	74M	101M	1.0
Chassis Systems	44M	73M	1.0
MCUs	3981M	3868M	1.0
Smartcards	1288M	2055M	1.0

* ARM Estimate

Segment trends

- 50% of automotive field failures due to electronics
- Software increase
- Supply chain simplification
- Applications shift 8- → 32-bit
- MCUs proliferation

Note: Sources Semico, Strategy Analytics, ARC Group, IDC, IMS, Gartner, and ARM Estimates

ARM meeting the trend

- Open standards - Autosar
  - More testability for higher reliability
- Low-cost solution
  - Cortex-M3
- FPGA Model Actel/ARM collaboration

High-End Car of 2012

GPS

Biometrics

100 GB HD

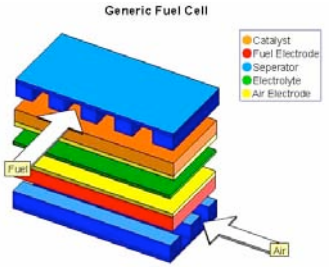
Car Multimedia
Digital
Audio/Video

Autosar Enabled

CellPhone

Bluetooth

Generic Fuel Cell



Fuel Cell
Technology

NFC / RFID
Automated
Car Toll

Gas Station/Garage
Digital Content –
Audio/Local Info
Car Servicing Data

Fault Tolerant Network
Chassis Control
Drive-by-Wire

Automotive Design-In's

"ARM Technology Powers **Freescale** MAC7100 32-Bit MCU Family For Automotive Applications…ARM received further endorsement today when Freescale Semiconductor announced…the availability of its ARM Powered® MAC7100 **32-bit microcontroller** (MCU)"

(Source –ARM press release, October 2004)

"**Philips** intends to integrate the FlexRay protocol engine design throughout its ARM-based **automotive microcontroller** portfolio, including the ARM7 SJA20xx and the ARM9 SJA25xx families"

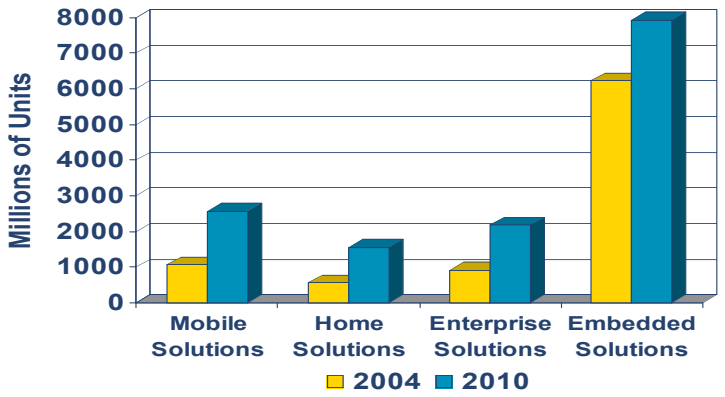
(Source –Philips press release, April 2005)

"In the automotive market, **TI´s** ARM7 family-based MCUs have captured 65% and 40% of the **chassis and braking, and airbag markets**, respectively, bringing proven reliability and performance to the general purpose market."

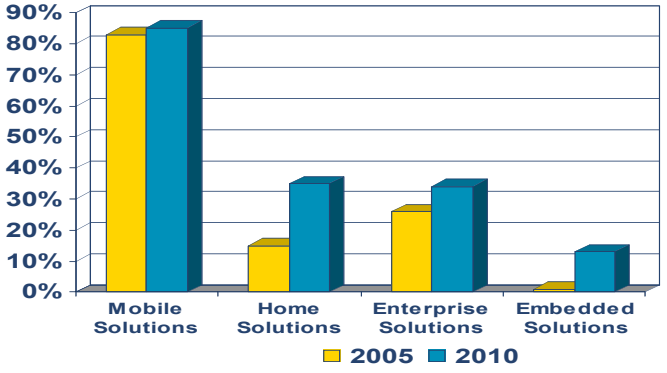
(Source – TI press release, January 2005)

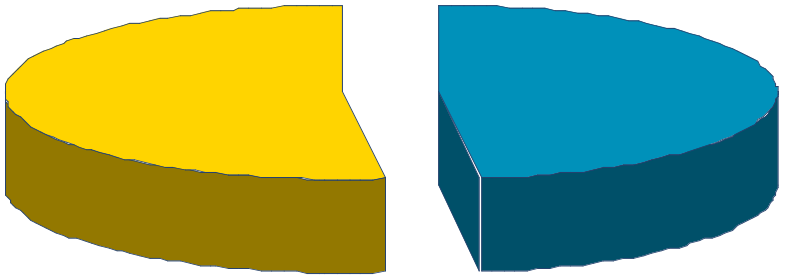
2010 Shape

Total Available Market (SoCs)



% Market Share



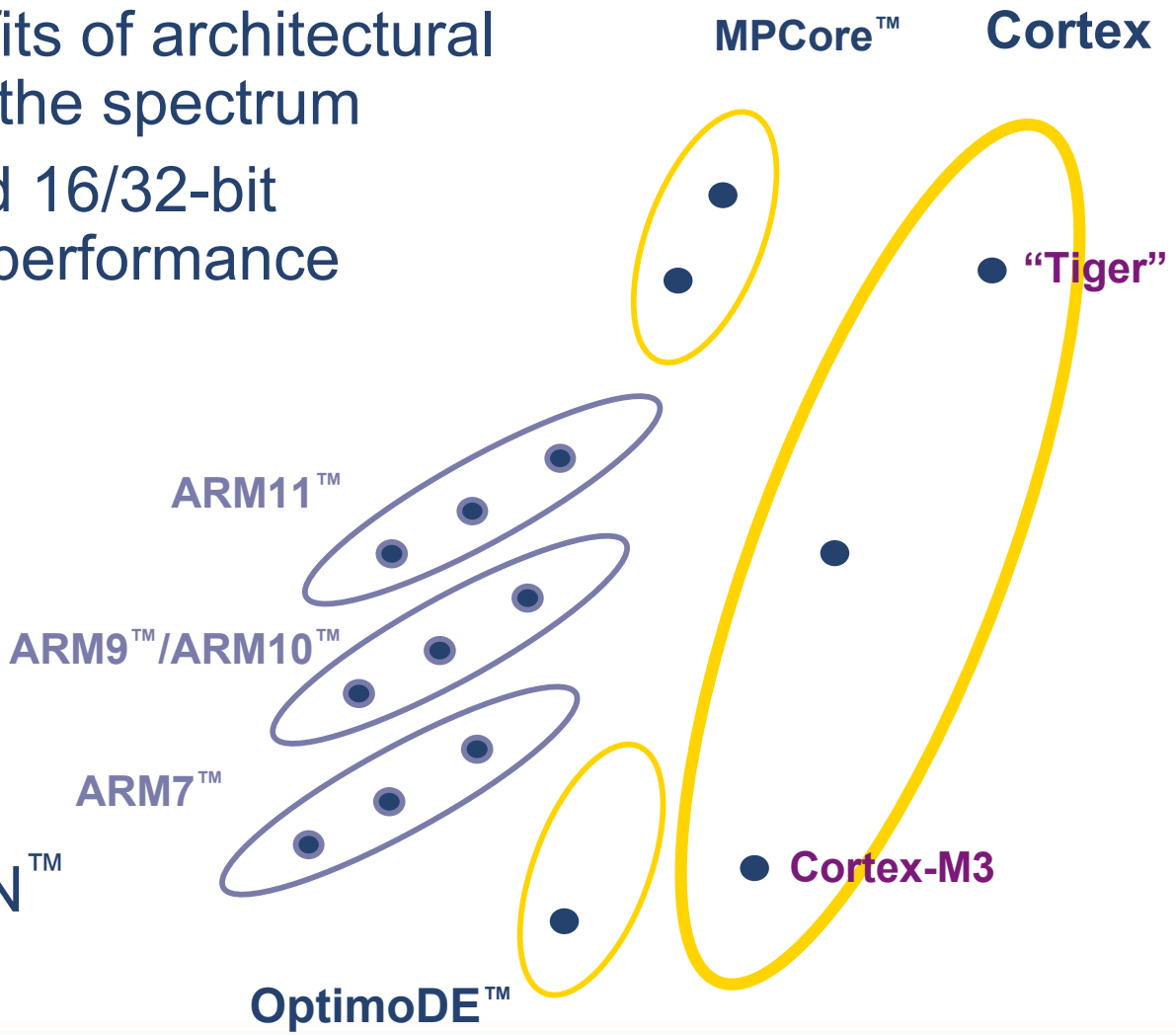


Mobile 48%

Non-Mobile 52%

Roadmap Drives Volume Beyond 2010

- Cortex volume beyond ARM11
- Bringing the benefits of architectural innovation across the spectrum
- Thumb®-2 blended 16/32-bit instruction set for performance and low power
- 3 Cortex series
  - Applications (A Series)
  - Real-time (R Series)
  - Microcontroller (M Series)
- ARMv7 with NEON™ media extensions



Cortex: Low-End

Cortex-M3 Processor

- 32-Bit performance for cost-sensitive applications
- First member of Cortex family of processors
- Exceptional platform for users transitioning from 8/16-bit
- Huge performance envelope

Performance	1.20+ DMIPS/MHz
Internal Core Size	33k Gates
Core & Integrated System	60k Gates
Core Power Consumption	0.09 mW/MHz
Worst Case Frequency	100 MHz (TSMC 180nm)

Cortex: High-End

Codename “Tiger”

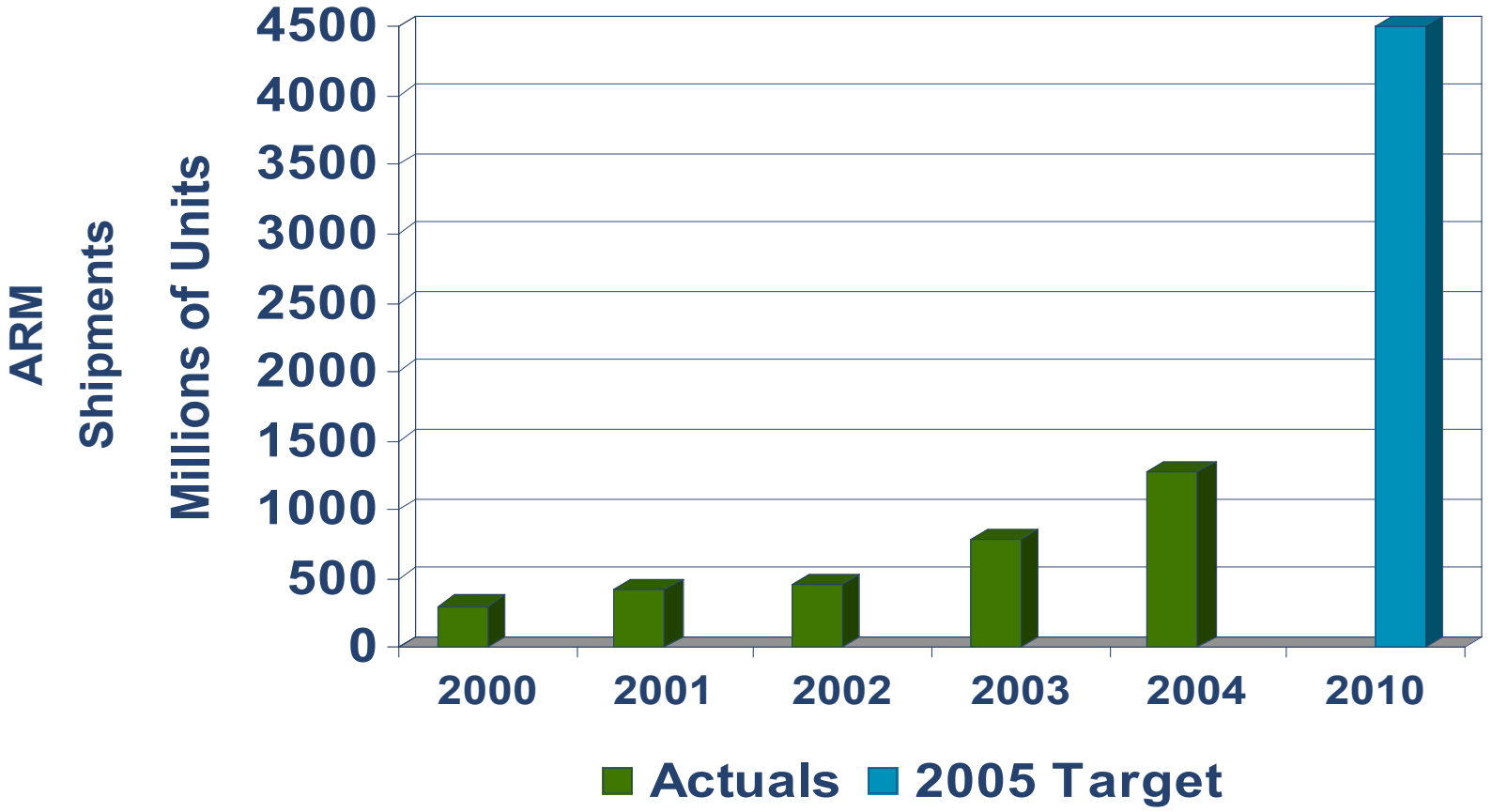
- Next-generation applications processor
- Targets mobile, wireless, gaming & consumer applications
- Specialised cell libraries for power & performance
- Superscalar microarchitecture
- Targets 65nm processes
- ARMv7 architecture
- 1 GHz+ operation
- 3 licensees

In Summary

- Convergence has become a reality
  - ARM segmentation is changing to “The Use of Your Products”
- We are on plan for our 2003 unit target and have set a new 2010 internal target of 4.5 Billion units
- The Cortex roadmap drives volume beyond 2010

- Upside Opportunity
  - Increased equipment growth
  - Increased technology pervasion
    - OptimoDE
    - Software
    - 3D graphics
  - Number of processors per application
- Downside risk
  - Longer design cycles in non-wireless
  - Competition

4.5 Billion Unit Opportunity



Wrap up and closing Q&A

Warren East

Understanding ARM

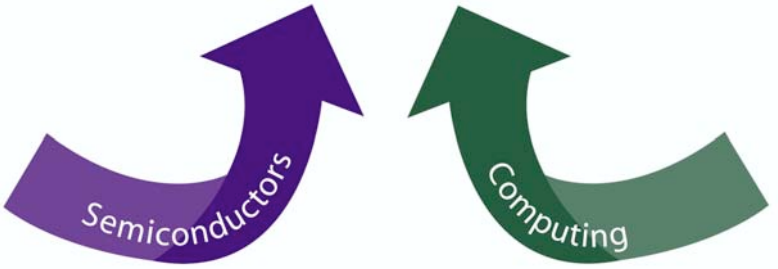
- Many moving parts each quarter

- The Architecture for the Digital World
- Energy (low power), standards, partnership
  - Tools and licensing revenues profitably fuel R&D
  - Royalty dramatically enhances profit
- Stable long-term growth story

ARM's Potential

- Industry evolution and horizontal specialisation means Semiconductor IP sub-sector is growing faster than the Semiconductor industry at large
- Secular shift from 8-bit to 32-bit embedded processing means 32-bit is growing faster than Computing industry at large
- ARM is at the intersection of Semiconductor IP and Computing…at the heart of Digital Products

ARM



Q&A