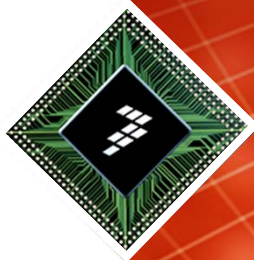




# Freescale Automotive Applications Processors



March 25, 2012

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# A Global Leader of Embedded Processing Solutions

\$4.5 Billion in Revenue in 2010

## Three Core Product Groups

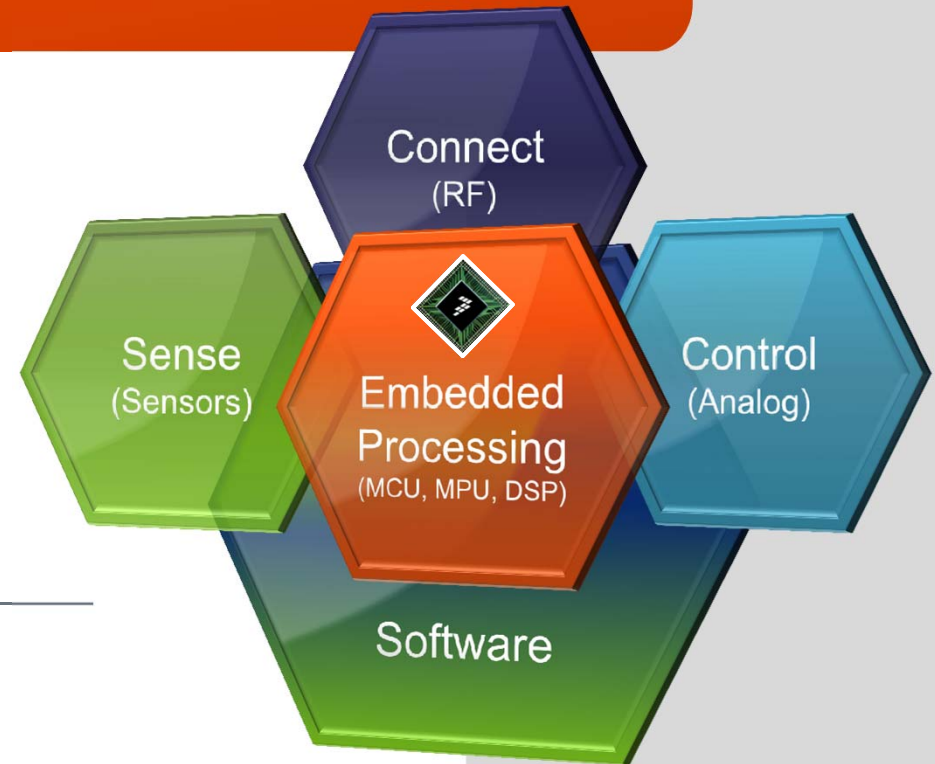
- Microcontrollers
- Networking and Multimedia Processors
- RF, Analog and Sensors

## Four Primary Markets

- Automotive
- Industrial
- Networking
- Consumer

**>50**  
Year Operating History  
**>5,500** Engineers

**>6,100**  
Patent Families  
**>18,000** Customers



## Platform-Level Solutions



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# Strategic R&D Investments with Platform Solutions



## Qorivva Automotive MCUs

- Industry's most powerful automotive architecture
- Unique non-volatile memory



## Xtrinsic Smart Sensors

- 1<sup>st</sup> Advanced Safety 77GHz Chipset
- Integrated Solution: Processing + Connectivity + Power Mgmt.



## QorIQ Qonverge Platform

- Industry's 1<sup>st</sup> "basestation-on-a-chip"
- Integrating QorIQ and Starcore DSP
- Delivers cost and power reduction



## Kinetis Microcontrollers

- Industry-first ARM Cortex-M4 MCU
- Industry's most scalable core-agnostic multi-market portfolio



## i.MX App Processors

- **Clear market leader** for eReader apps processors (IDC)
- **No. 2** in Auto Infotainment (Strategy Analytics)
- **No. 3** in Mobile Apps Processors (Linley 5/2011)

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# Freescale Microcontrollers Are Everywhere in Auto



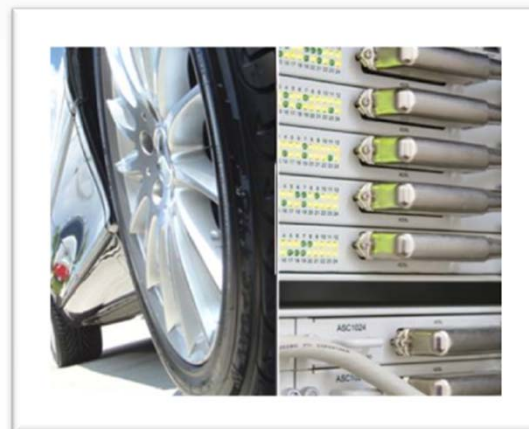
- Supplying automotive microcontrollers since **1978**
- Shipped **325 million** auto MCUs in 2010, **4 billion** since 1996
- Industry-leading architectures: **Power Architecture®**, **i.MX (ARM)**, **S12**, **S08**
- **Deep knowledge** of automotive requirements
- **World-class** automotive quality, support and service
- **Close customer relationships** with OEMs

**We estimate we were in 50 million new vehicles in 2010.**



# Freescale's Product Longevity Program

- ▶ The automotive market requires **long-term product support**
- ▶ Freescale has a longstanding track record of **providing long-term production support** for our products
- ▶ Freescale is pleased to introduce a **formal product longevity program** for the market segments we serve
  - For the automotive and medical segments, Freescale will make a broad range of solutions available for a minimum of **15 years**
  - For all other market segments in which Freescale participates, Freescale will make a broad range of solutions available for a minimum of **10 years**
  - **Life cycles** begin at the time of launch
- ▶ A list of participating products is available at:  
[www.freescale.com/productlongevity](http://www.freescale.com/productlongevity)



# i.MX Markets and Applications

## Automotive



- Infotainment
- Telematics
- Instrument Clusters
- Vision/Camera Systems

## eReaders



- Monochrome eReader
- Color eReaders

## Smart Devices



- Media Tablets
- IPTV/Streaming Media
- Smart Monitors
- Media Phones
- Printers
- Appliances
- Scanners



- Medical – Patient Monitoring
- Medical tablets
- Industrial tablets
- Smart Energy
- Factory Automation
- HMI
- Aerospace & Defense
- Digital Signage

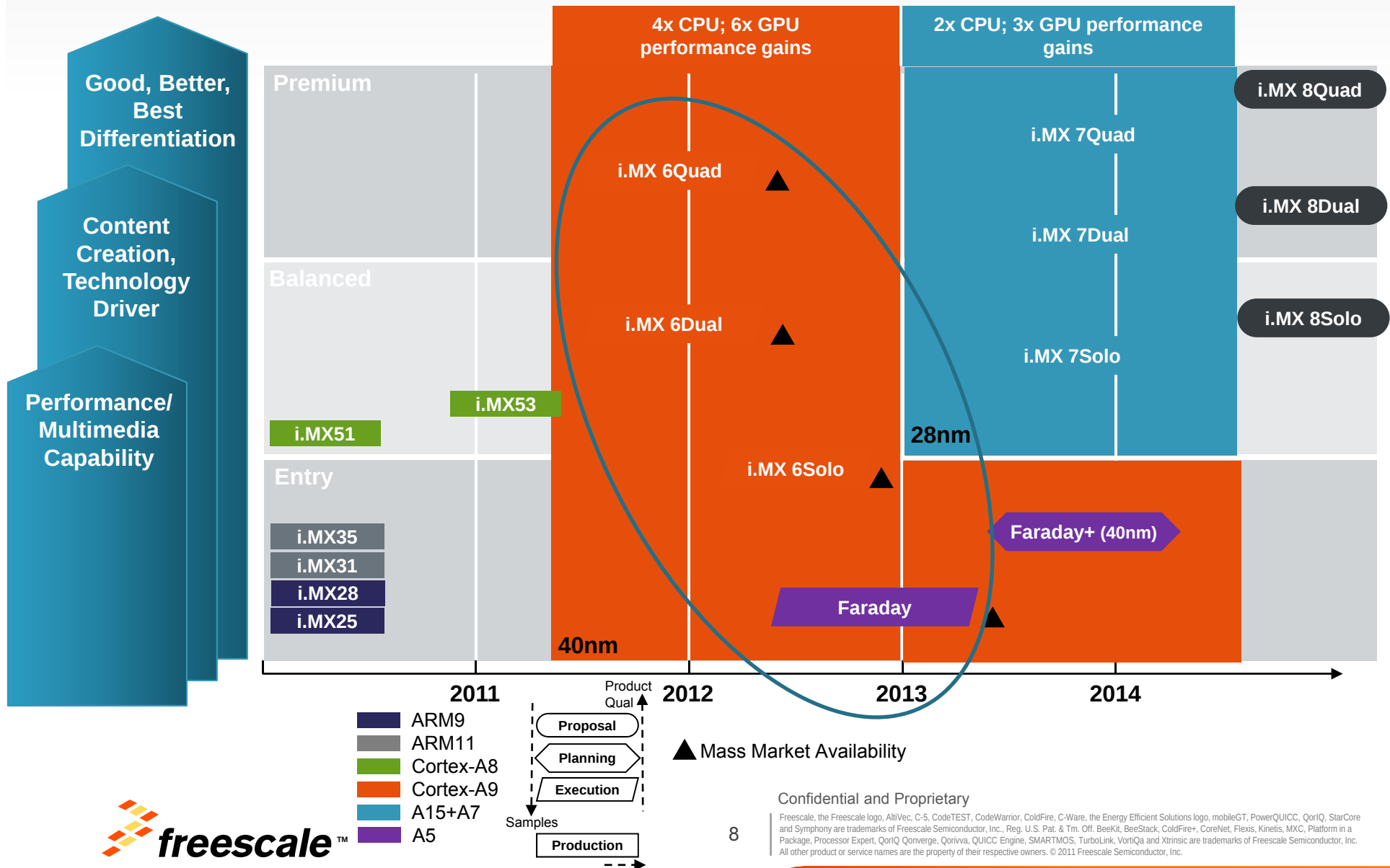


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# Automotive Applications Processors Roadmap Update



# Automotive Applications Processor Roadmap



# i.MX 6 Series Update



# i.MX 6 Series Introduction



## i.MX 6Solo

- Single ARM Cortex A9 at up to 800MHz auto / 1.0GHz consumer
- 256KB L2 cache, Neon, VFPv16, TrustZone
- 3D graphics with 1 shader up to 27MT/s, plus hardware X-acceleration engine
- External memory support up to 32bit DDR3 and LPDDR2



## i.MX 6Dual

- Dual ARM Cortex A9 at 850MHz and 1GHz auto / 1.2GHz consumer
- 1 MB L2 cache, Neon, TrustZone
- 3D graphics with 4 shaders up to 176MT/s and OpenCL Embedded Profile support, plus hardware OpenVG and X-acceleration
- External memory support up to 64-bit DDR3 and 2-channel 32-bit LPDDR2
- Integrated SATA-II



## i.MX 6Quad

- Quad ARM Cortex A9 at 850MHz and 1GHz auto / 1.2GHz consumer
- 1 MB L2 cache, Neon, TrustZone
- 3D graphics with 4 shaders up to 176MT/s and OpenCL Embedded Profile support, plus hardware OpenVG and X-acceleration
- External memory support up to 64-bit DDR3 and 2-channel 32-bit LPDDR2
- Integrated SATA-II



## Common Features of the i.MX 6 Series Platform

- Pin compatible ARM Cortex A9 based solutions up to 1GHz per core for automotive and 1.2GHz per core for consumer
- HD 1080p encode and decode
- 3D video playback in High definition
- Integrated IO's that include HDMI v1.4, MIPI and LVDS display ports, MIPI camera, Gigabit Ethernet, multiple USB 2.0, PCI-Express, dual CAN controllers, MLB150/50/25 support
- Consumer, Industrial and Automotive temperature range qualifications
- SW support: QNX Neutrino, Google Android, Linux/Linaro, WINCE



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# i.MX 6x Automotive Momentum



**i.MX 6Solo**



**i.MX 6Dual**



**i.MX 6Quad**

*5 of global top 10 OEMs* by volume will go to production with i.MX 6x based infotainment

*Rapid Expansion of i.MX* into new automotive segments

- Graphical Instrument Cluster
- Telematics
- Driver Awareness and Assistance



# i.MX Automotive Customers



- Freescale has solid, long-standing customer relationships with nearly every automotive manufacturer and Tier 1 supplier in the world. know what it takes to meet the stringent requirements of the global automotive market
- Freescale has dedicated account teams for most car OEM's including BMW, GM, Ford, Chrysler, Daimler, VW/Audi, Fiat, Renault, PSA, Volvo, and Hyundai Kai

# QNX Supported Processors

QNX Software Systems offers extensive Freescale support

|                       |                                                                                                                                                                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Host processors       | MPC603, MPC603e, MPC604, MPC604e, MPC740, MPC745, MPC750, MPC750ex, MPC755, MPC7400, MPC7410, MPC7450, MPC7451, MPC7447, MPC8641D                                                                                                         |
| PowerQUICC processors | MPC821, MPC823e, MPC850, MPC855T, MPC860, MPC860T (P), MPC860DE (DT, DP, EN, SR), MPC8240, MPC8245, MPC8255, MPC8260, MPC8266, MPC8270, MPC8280, MPC8313, MPC8343, MPC8347, MPC8349, MPC8540, MPC8541, MPC8548, MPC8555, MPC8560, MPC857x |
| QorIQ                 | P10xx, P20x0, P40x0                                                                                                                                                                                                                       |
| i.MX                  | i.MX27, i.MX28, i.MX 31/21, i.MX 35/25, i.MX51, i.MX53, i.MX6                                                                                                                                                                             |
| MobileGT              | MPC5200, MPC5200B, Lite5200B, Media5200, MPC5121                                                                                                                                                                                          |
| Coming soon           | i.MX6 Series, P50x0, MPC8308/9, P1025, P2041                                                                                                                                                                                              |

