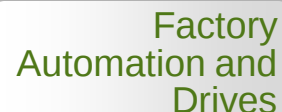
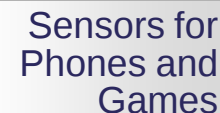
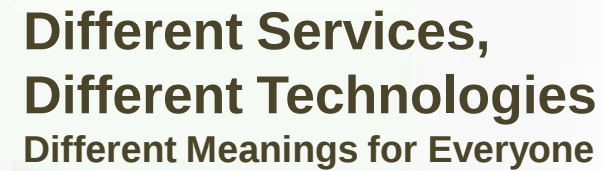


[illegible]





Control of my home, my
business, my way

Extending 'control' to a new class of devices never seen before

Enabled By

New class of powerful
but low-cost & low-power MCUs
and Apps Processors

Miniaturization & advances in packaging technologies

Ubiquitous security options

IP addresses for everything

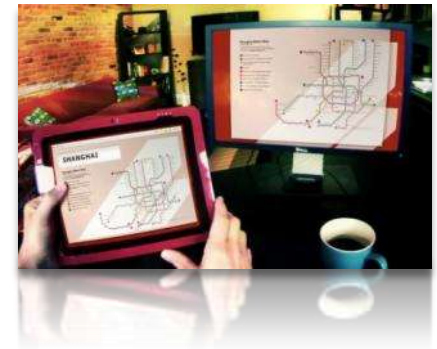
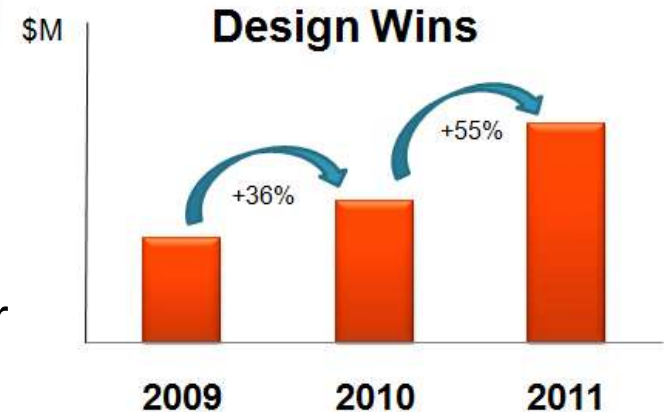
Cloud-based services

Your Interface to the World

i.MX families offer some of the most versatile platforms for multimedia and display applications, bringing personality and interactivity to a whole new world of products

Freescal Multimedia Solutions – Market momentum

- **ARM** architectural partner
- **150 Mu** i.MX processors shipped
- **8,000** boards shipped, doubling YoY
- Exceeded **2,000** active customers in 2011
- **150,000** web visits to i.MX page per quarter
- **300+** new members a month to i.MX Community



Car infotainment IP Phones Appliances DECT phones

Medical Education devices Digital signage

IPTV Industrial HMI Metering Enterprise tablets In-flight infotainment

To:

Specialized (low-end) hardware with RTOS

High-performance
hardware
+ OpenOS
+ Specialized apps





Advanced Graphics & Performance



Automotive Consumer Industrial

Announcing the i.MX 7 and i.MX 8 Series

- **i.MX 7 Series:** designed for IoT applications, point of sale products and a host of other cost-sensitive embedded applications. i.MX 7 series solutions for cost-sensitive markets will be a key driver of our long-term i.MX portfolio expansion.
- **i.MX 8 Series Portfolio:** targeting highly advanced driver information systems and other multimedia-intensive embedded applications and designed to exceed the stringent requirements of top automotive OEMs for years to come.

**Read Geoff Lees i.MX
Announcement Blog
at www.freescale.com**

Or

<https://community.freescale.com/community/the-embedded-beat/blog/2013/09/04/discover-the-next-generation-of-imx-applications-processors>

applications-processors
the-next-generation-of-mlx-
readprod/021310a104/discovers-
uncommonly-used-but-expected-

Industry's Most Scalable ARM Processors



Easy to use development kits

Optimized peripheral sets tailored to serve automotive, industrial and consumer markets



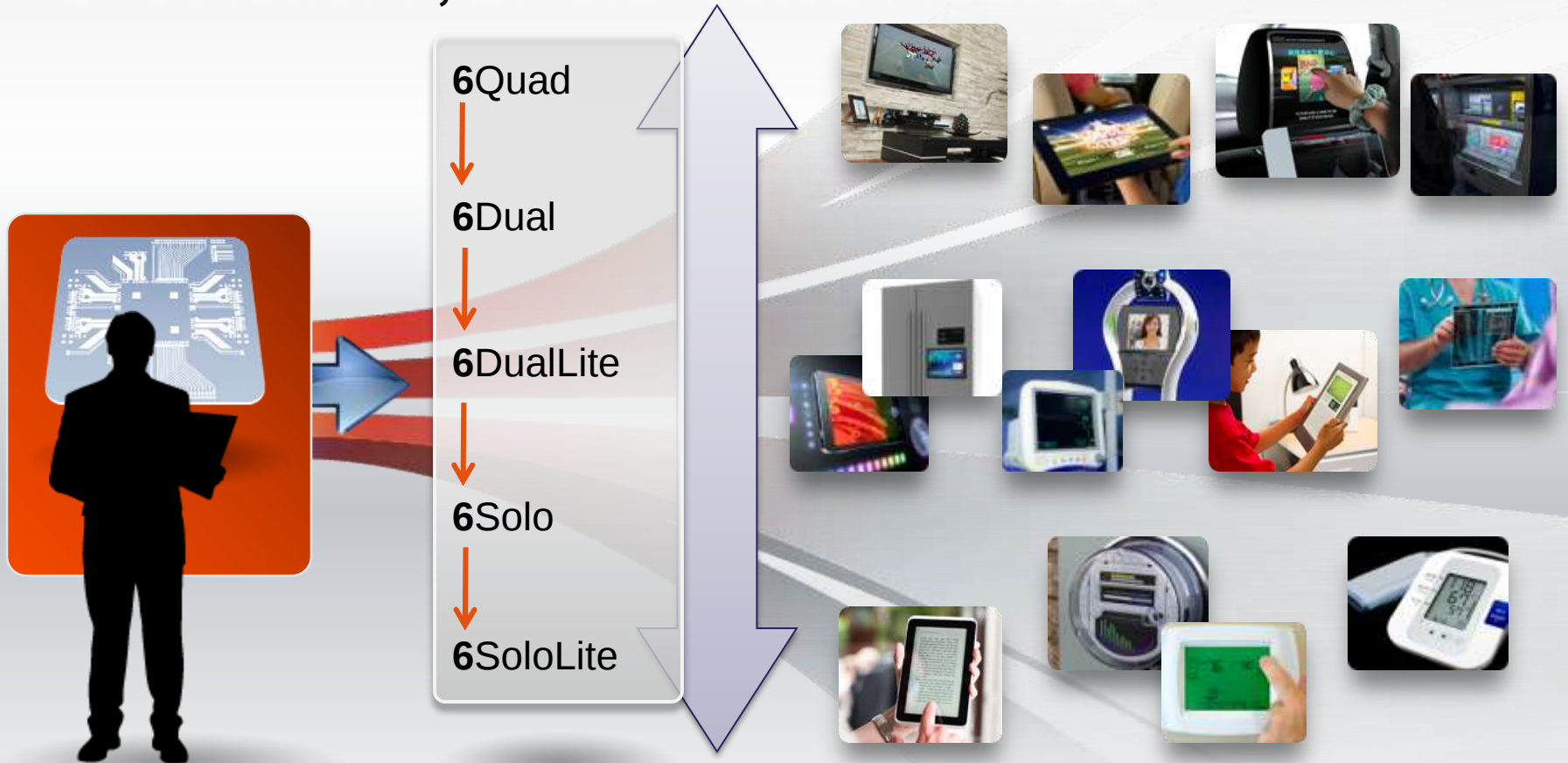
i.MX 6 Series

Silicon and Tools Update



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One Platform, Differentiated Products



- Provide customers and partners with the **broadest range** of choices
- Reduce **development costs** and **improve** time to market
- **Performance scalability** is key to implement this strategy

i.MX
6Quad

Pin-to-pin Compatible

Software Compatible

Freescale

Pin-compatibility
inside a family
(frequency scaling,
fewer features,
different qualifications)

Pin-compatibility inside a family (typically frequency scaling)

Pin-compatibility
inside a family
(frequency scaling,
fewer features,
different qualifications)

i.MX 6 Series At a Glance

Red indicates change from column to the left

i.MX 6SoloLite

- Single ARM® Cortex™-A9 at 1.0 GHz
- 256 KB L2 cache, Neon, VFPv16, Trustzone
- 2D graphics
- 32-bit DDR3 and LPDDR2 at 400 MHz
- Integrated EPD controller



i.MX 6Solo

- Single ARM Cortex-A9 at 1.0 GHz
- **512 KB** L2 cache, Neon, VFPv4, Trustzone
- **3D graphics** with 1 shader
- 2D graphics
- 32-bit DDR3 and LPDDR2 at 400 MHz
- Integrated EPD controller



i.MX 6DualLite

- **Dual** ARM Cortex-A9 at 1.0 GHz
- 512 KB L2 cache, Neon, VFPv4, Trustzone
- 3D graphics with 1 shader
- 2D graphics
- **64-bit** DDR3 and 2-channel 32-bit LPDDR2 at 400 MHz
- Integrated EPD controller



i.MX 6Dual

- **Dual** ARM Cortex-A9 at **1/1.2 GHz**
- **1 MB** L2 cache, Neon, VFPv4, TrustZone
- 3D graphics with **4 shaders**
- **Two** 2D graphics engines
- 64-bit DDR3 and 2-channel 32-bit LPDDR2 at **533 MHz**
- Integrated **SATA-II**



i.MX 6Quad

- **Quad** ARM Cortex-A9 at 1.2 GHz
- 1 MB L2 cache, Neon, VFPv4, TrustZone
- 3D graphics with 4 shaders
- Two 2D graphics engines
- 64-bit DDR3 and 2-channel 32-bit LPDDR2 at 533 MHz
- Integrated SATA-II



- ARM Cortex-A9 based solutions ranging up to 1.2 GHz
 - HD 1080p encode and decode (except 6SL)
 - 3D video playback in High definition (except 6SL)
 - Low power 1080p playback at 350mW Integrated IO's that include HDMI v1.4, MIPI and LVDS display ports, MIPI camera, Gigabit Ethernet, multiple USB 2.0 and PCI-Express
 - SW support: Google Android™, Windows® Embedded CE, Ubuntu, Linux®, Skype™
- Features vary by product family*

i.MX 6 Series Highlights

Intelligent Integration of Multi-Media

i.MX 6Dual/6Quad VPU

- H.264 MVC1080p60 decode
- H.264 MVC 720p60 encode
- 350mW power consumption for single video!



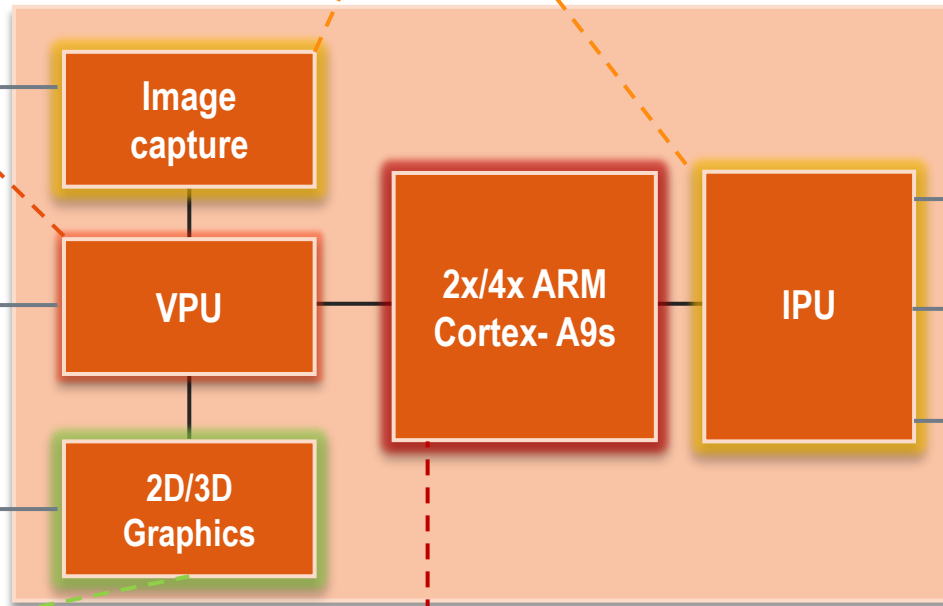
Recording Video



Movie Content



Game Content



i.MX 6Dual/6Quad IPU

- Four Display support (2x MIPI-DSI, Parallel, HDMI v1.4a)
- Stereoscopic camera input
- Color adjustments and gamut mapping
- Gamma correction and contrast stretching
- Compensation for low-light conditions & backlight reduction



3D LCD



Publish



3D Television

i.MX 6Dual/6Quad Triple-Play Graphics

- 3 engines: 3D, OpenVG and BLT
- 200 MT/s, 4 shaders, 3 separate engines
- High quality 3D games optimized for mobile
- Augmented reality views (real world + 3D objects)
- Advanced 3D video formats (source/depth format)

i.MX 6Dual/6Quad– 2x/4x cores

- Create, transform, enhance, & publish multimedia fast!
- Intuitive User Interfaces for content viewing
- Scalability for 'the next big use case'



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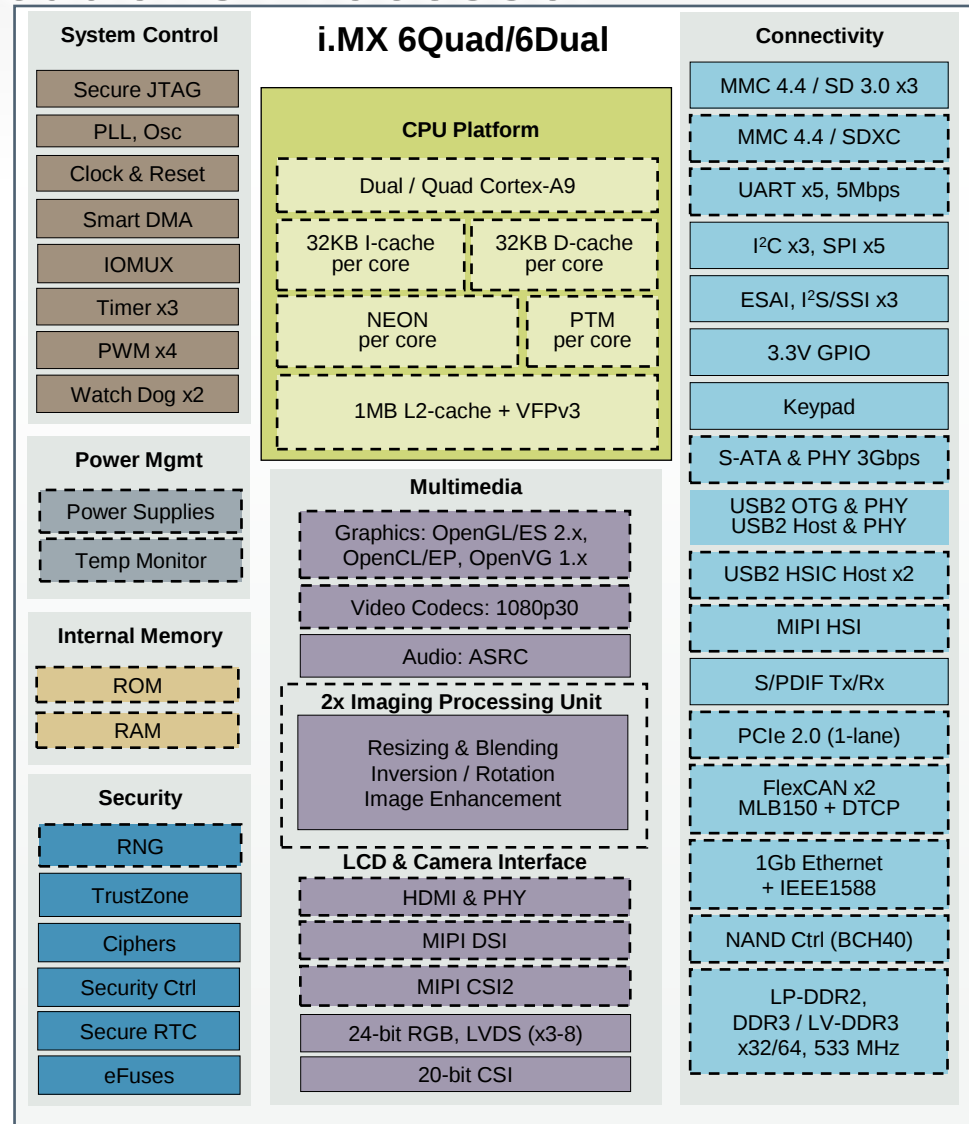
i.MX 6Quad/6Dual Applications Processor

- **Specifications**

- **CPU:** i.MX 6Quad 4x Cortex-A9 @1.2 GHz, 12000 DMIPS
i.MX 6Dual 2x Cortex-A9 @1.2 GHz, 6000 DMIPS
- **Process:** 40nm
- **Core Voltage:** 1.1V
- **Package:** 21x21 0.8 mm Flip-chip BGA
12x12 PoP (LP-DDR2, NAND)

- **Key Features and Advantages**

- Multi-core architecture for high performance, 1 MB L2 cache
- 64-bit LP-DDR2, DDR3 and raw / managed NAND
- S-ATA 3 Gbps interface (SSD / HDD)
- Delivers rich graphics and UI in HW
 - OpenGL/ES 2.x 3D accelerator with OpenCL EP support and OpenVG 1.1 acceleration
- Drives high resolution video in HW
 - Multi-format HD1080 video decode and encode
 - 1080p60 decode, 720p60 encode
 - High quality video processing (resizing, de-interlacing, etc.)
- Flexible display support
 - Four simultaneous: 2x Parallel, 2x LVDS, MIPI-DSI, or HDMI
 - Dual display up to WUXGA (1920x1200) and HD1080
- MIPI-CSI2 and HSI
- Increased analog integration simplifies system design and reduces BOM
 - DC-DC converters and linear regulators supply cores and all internal logic
 - Temperature monitor for smart performance control
- Expansion port support via PCIe 2.0
- Car network: 2xCAN, MLB150 with DTCP, 1Gb Ethernet with IEEE1588



Updated from i.MX53

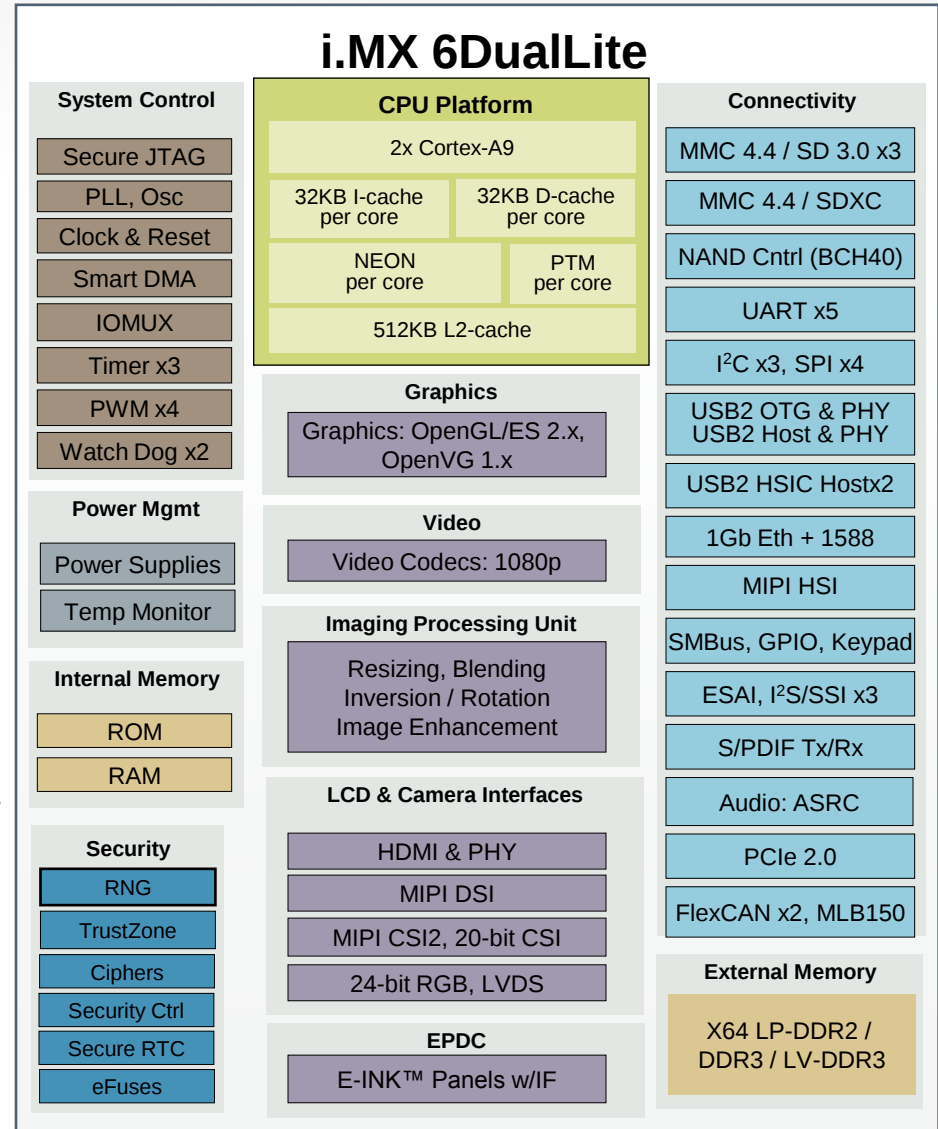
i.MX 6DualLite Multimedia Processor

- **Specifications**

- **CPU:** 2x Cortex-A9 @ 1 GHz
- **Process:** 40nm
- **Core Voltage:** 1.1V
 - **Package:** 0.8mm 21x21 BGA (pin compatible to i.MX 6Dual/Quad/Solo)

- **Key Features and Advantages**

- High performance **Cortex-A9 up to 1 GHz** with 512 KB L2 cache
- 2x32 or x64 LP-DDR2, DDR3/LV-DDR3 at 400 MHz, raw / managed NAND support, and 8/16/32-bit parallel NOR
- **EPD controller** for next gen display support
- Delivers rich graphics and UI in HW
 - **OpenGL/ES 2.x 3D** accelerator and **OpenVG 1.1** acceleration
- Drives high resolution video in HW
 - Multi-format **HD1080 video decode and encode**
 - High quality video processing (resizing, de-interlacing, etc.)
- Flexible display & camera support
 - Dual display up to WXGA (1366x768) and support for HD1080
 - 2x Parallel, LVDS, MIPI-DSI or HDMI
 - MIPI CSI2 (2 lanes) and 2x CSI for camera
- Expansion port support via **PCIe 2.0**
- Car network: 2xCAN, MLB 6-wire, **1Gb Ethernet** with IEEE1588



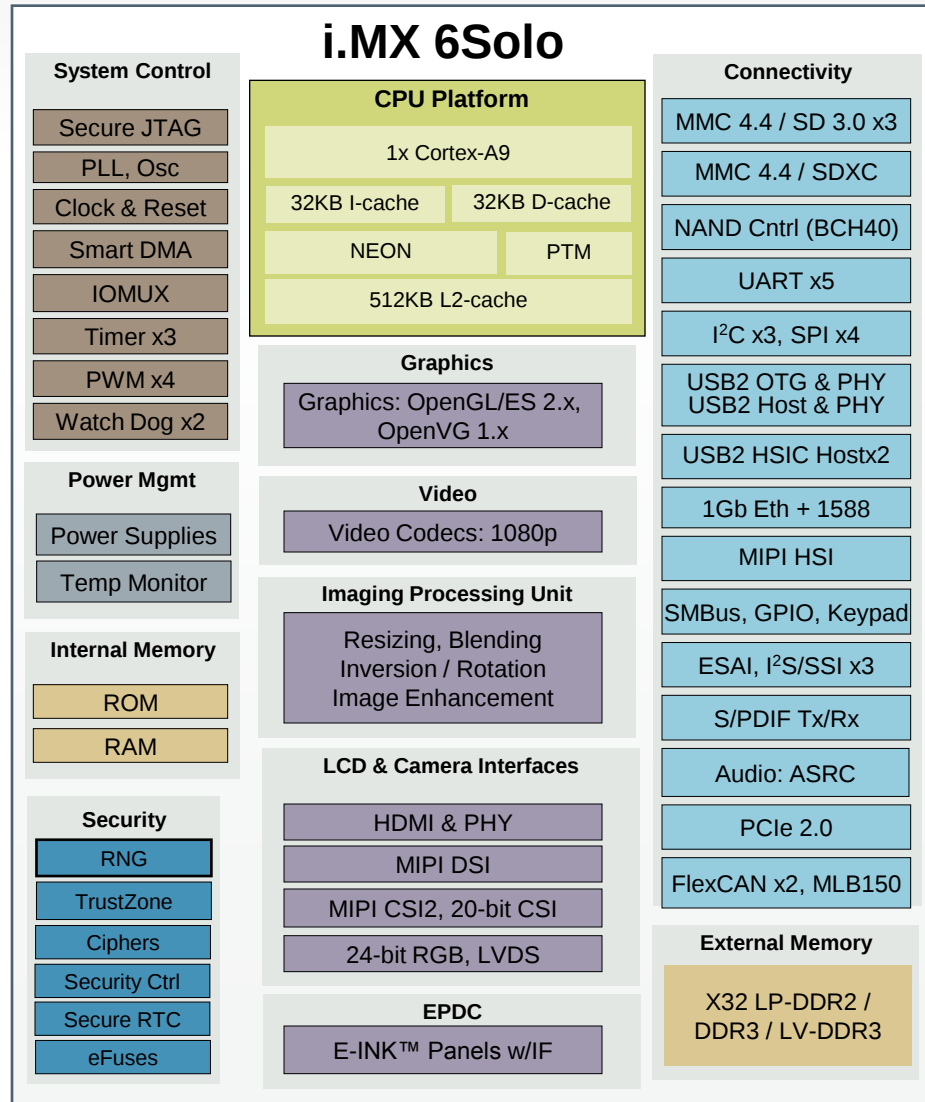
i.MX 6Solo Multimedia Processor

- **Specifications**

- **CPU:** 1x Cortex-A9 @ 1 GHz
- **Process:** 40nm
- **Core Voltage:** 1.1V
 - **Package:** 0.8 mm 21x21 BGA (pin compatible to i.MX 6DualLite/Dual/Quad)

- **Key Features and Advantages**

- High performance **Cortex-A9 up to 1 GHz** with 512 KB L2 cache
- x32 LP-DDR2, DDR3/LV-DDR3 at 400 MHz, raw / managed NAND support, and 8/16/32-bit parallel NOR
- **EPD controller** for next gen display support
- Delivers rich graphics and UI in HW
 - OpenGL/ES 2.x 3D** accelerator and **OpenVG 1.1** acceleration
- Drives high resolution video in HW
 - Multi-format **HD1080 video decode and encode**
 - High quality video processing (resizing, de-interlacing, etc.)
- Flexible display & camera support
 - Dual display up to WXGA (1366x768) and support for HD1080
 - 2x Parallel, LVDS, MIPI-DSI or HDMI
 - MIPI CSI2 (2 lanes) and 2x CSI for camera
- Expansion port support via **PCIe 2.0**
- Car network: 2xCAN, MLB 6-wire, **1Gb Ethernet** with IEEE1588



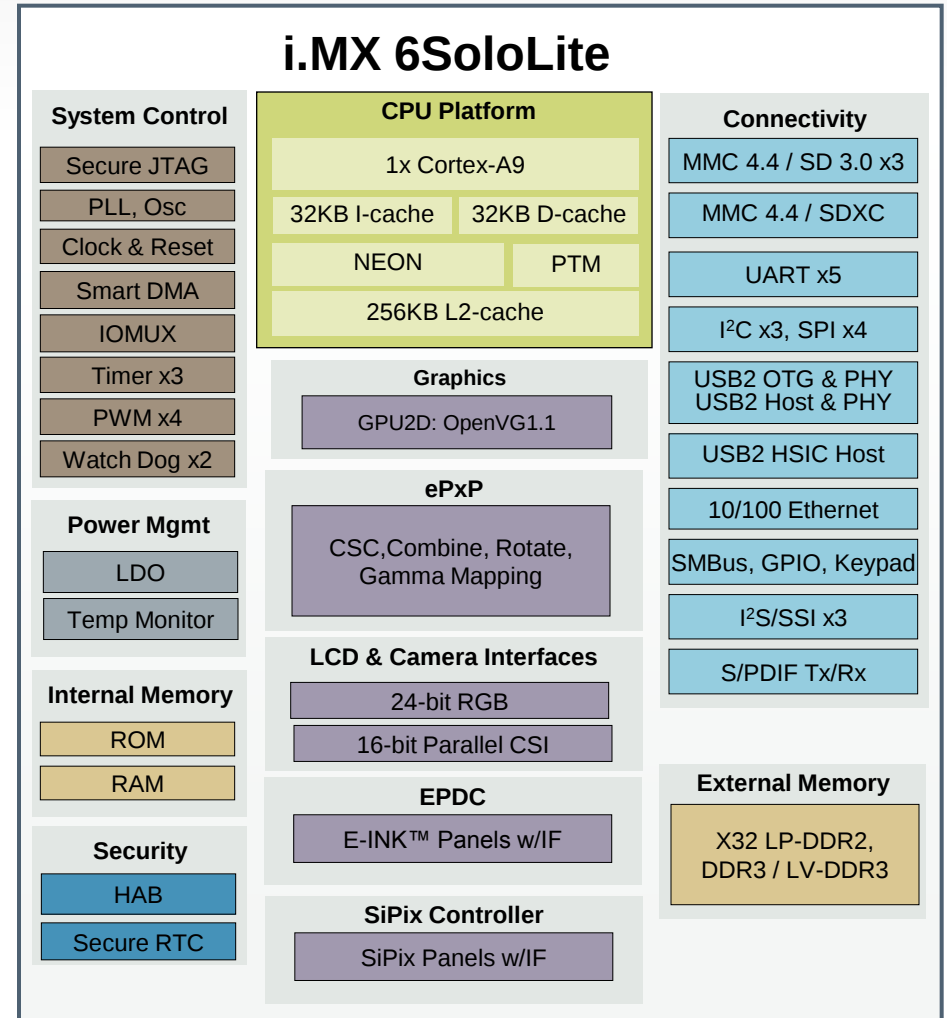
i.MX 6SoloLite Multimedia Processor

- **Specifications**

- **CPU:** 1x Cortex-A9 @ 1 GHz
- **Process:** 40 nm
- **Core Voltage:** 1.1V
- **Package:** 0.5 mm 13x13 MAPBGA
0.5 mm 13x13 PoP

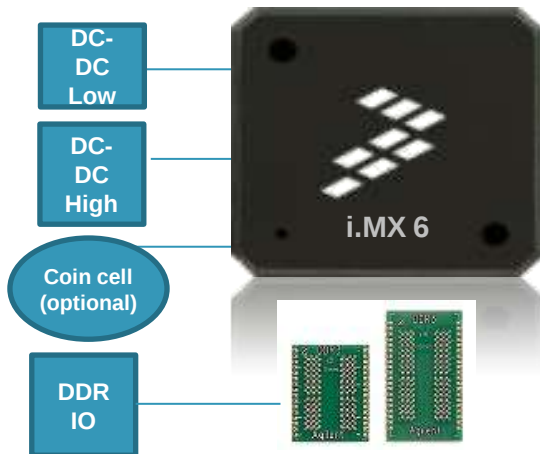
- **Key Features and Advantages**

- High performance **Cortex-A9 up to 1 GHz** with 256 KB L2 cache
- **x32 LP-DDR2, DDR3/LV-DDR3** and managed NAND support
- Flexible display options for next gen solutions
 - **Integrated EPD controller**
 - LCD Display up to WXGA (1366x768) with Parallel
- **3 USB 2.0** support with 2 integrated PHY, x1 HSIC
- **Audio Interfaces** include I²S/SSI, S/PDIF Tx/Rx
- **10/100 Ethernet**



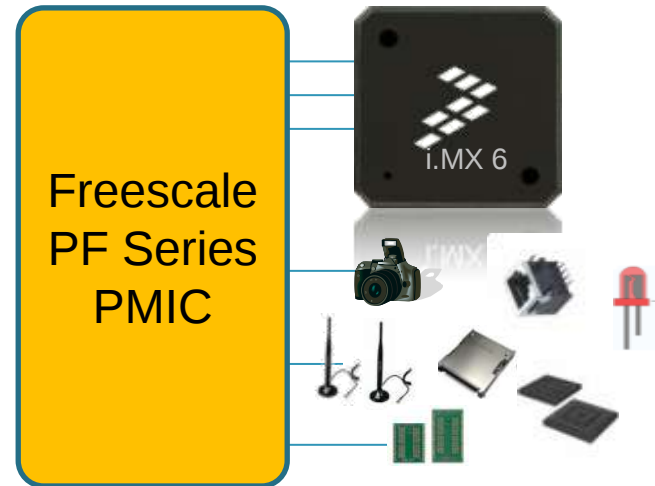
i.MX 6 Series Power Management

- **i.MX 6 Series and Freescale PF Series PMICs → Maximal flexibility in power mgt system design**
 - i.MX 6 + Freescale PF-Series PMIC → Flexibility to power latest Smart Devices, Auto infotainment, embedded platforms
 - i.MX 6→ Integrated PMU with efficiencies approaching 90% for high power applications, no multiple inductors, fewer caps
 - i.MX 6→ Pass through voltage rails that can be used to power external components
 - i.MX 6→ Start of day code entirely in silicon
 - Option to use discrete regulators to power i.MX 6/DDR for basic platforms with few peripheral component needs



Discrete Only

- Simple implementation
- Good for basic platforms with few components beyond CPU, Memory, Storage
- Platform flexibility is more limited vs PMIC



Freescal PF-Series PMIC Based

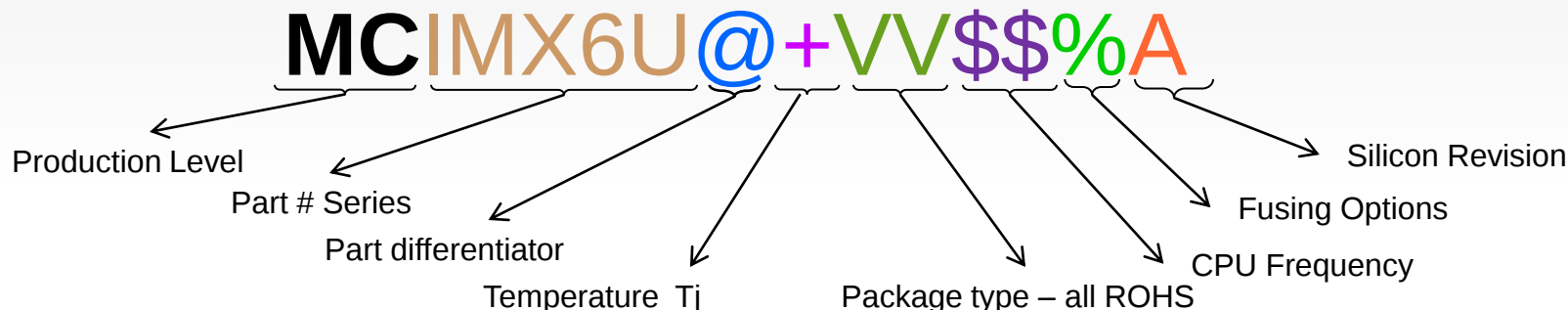
- Optimized for i.MX 6 Series
- Flexible power options for driving Smart Device and Auto infotainment systems
- Supplies processor and DDR IO
 - Good for more complex platforms with WI-FI, BT, data modems, FPGAs, LEDs, etc

i.MX 6 Series: Qual. Tiers and Operational Lifetime

Qual. Tier	Junction Temperature Tj	CPU Fmax	Operational Lifetime	Lifetime at max Tj and CPU Fmax	6SL	6S	6DL	6D	6Q
Commercial	0 to +95°C	1 GHz	5 yrs	50% (2.5yrs) Tj = +95°C, 1 GHz	X	X	X		
Extended Commercial	-20°C to +105°C	1 GHz	5 yrs	50% (2.5yrs) Tj = +105°C, 1 GHz		X	X	X	X
Extended Commercial	-20°C to +105°C	1.2 GHz	5 yrs	50% (2.5yrs) Tj = +105°C, 1.2 GHz				X	X
Extended Commercial	-40°C to +105°C	1 GHz	5 yrs	50% (2.5yrs) Tj = +105°C, 1 GHz	X				
Automotive AEC-Q100	-40°C to +125°C	1 GHz	15 yrs	10% (1.5yrs) Tj = +125°C, 1 GHz				X	X
Automotive AEC-Q100	-40°C to +125°C	800 MHz	15 yrs	10% (1.5yrs) Tj = +125°C, 800 MHz		X	X	X	X
Industrial	-40°C to +105°C	800 MHz	10 yrs	100% (10yrs) Tj = +105°C, 800 MHz		X	X	X	X

- “Use Case Life” is determined by qualification stresses and assumes maximum T_j and maximum CPU speed.

MX 6Series Part Number Definition



Production Level	
Samples	PC
Mass	MC
Special	SC

Part # Series	
IMX6Q	i.MX 6Quad
IMX6D	i.MX 6Dual
IMX6U	i.MX 6DualLite
IMX6S	i.MX 6Solo
IMX6L	i.MX 6SoloLite

Part differentiator	@
Consumer IMX6Q/6D: No MLB IMX6U/6S: EPDC, No MLB IMX6L: OpenVG, EPDC	8
Industrial IMX6Q/6D: No MLB IMX6U/6S: No EPDC/MLB Non-Industrial IMX6L: EPDC, No OpenVG	7
Automotive IMX6Q/6D: All features IMX6U/6S: No EPDC	6
Consumer IMX6Q/6D: No MLB IMX6U/6S: No EPDC/MLB	5
Automotive IMX6Q/6D: No VPU IMX6U/6S: No VPU/EPDC	4
Consumer IMX6L: OpenVG, No EPDC	3
Consumer IMX6L: No OpenVG/EPDC	2
Automotive IMX6Q/6D: No VPU/GPU IMX6U/6S: No VPU/GPU/EPDC	1

Temperature Tj	+
Consumer: 0 to + 95C	D
Extended Cons: -20 to + 105C	E
Industrial: -40 to +105C (IMX6Q/6D/6U/6S)	C
Auto: -40 to + 125C (IMX6Q/6D/6U/6S)	A

Package Type	ROHS
FCBGA 21x21 0.8mm "lidded" (IMX6Q/6D "A/C")	VT
FCBGA 21x21 0.8mm "not lidded" (IMX6Q/6D "E")	YM
MAPBGA 21x21 0.8mm (IMX6U/6S)	VV
MAPBGA 13x13 0.5mm (IMX6L)	VN

CPU Frequency	\$\$
800 MHz	08
1 GHz	10
1.2 GHz (IMX6Q/6D)	12

Fusing Options	%
No HDCP/DTCP All Licensed codecs* off	A
HDCP on All Licensed codecs* off (IMX6Q/6D/6U/6S)	C

*codecs = Real Networks

Silicon Revision	
Rev 1.0	A
Rev 1.1 (IMX6U/6S/6L)	B
Rev 1.2 (IMX6Q/6D)	C

i.MX 6 Series: Silicon Availability (Consumer)

i.MX 6 Family	Type	Part Number	Feature Description
i.MX 6Quad	Consumer	MCIMX6Q5EYM10AC	1 GHz, Quad-core, 64-bit DDR 1.2 GHz, Quad-core, 64-bit DDR
i.MX 6Dual	Consumer	MCIMX6D5EYM10AC	1 GHz, Dual-core, 64-bit DDR 1.2 GHz, Dual-core, 64-bit DDR
i.MX 6DualLite	Consumer	MCIMX6U8DVM10AB MCIMX6U5EVM10AB MCIMX6U5DVM10AB	1 GHz, Dual-core, 64-bit DDR, EPDC 1 GHz, Dual-core, 64-bit DDR, no EPDC, Ext. Temp. 1 GHz, Dual-core, 64-bit DDR, no EPDC
i.MX 6Solo	Consumer	MCIMX6S8DVM10AB MCIMX6S5EVM10AB MCIMX6S5DVM10AB	1 GHz, Single-core, 32-bit DDR, EPDC 1 GHz, Single-core, 32-bit DDR, no EPDC, Ext. Temp. 1 GHz, Single-core, 32-bit DDR, no EPDC
i.MX 6SoloLite	Consumer	MCIMX6L8DVN10AB MCIMX6L7DVN10AB MCIMX6L3EVN10AB MCIMX6L3DVN10AB MCIMX6L2EVN10AB MCIMX6L2DVN10AB	1 GHz, Single-core, 32-bit DDR, EPDC, OpenVG 1 GHz, Single-core, 32-bit DDR, EPDC, no OpenVG 1 GHz, Single-core, 32-bit DDR, no EPDC, OpenVG, Ext. Temp. 1 GHz, Single-core, 32-bit DDR, no EPDC, OpenVG 1 GHz, Single-core, 32-bit DDR, no EPDC, no OpenVG, Ext. Temp. 1 GHz, Single-core, 32-bit DDR, no EPDC, no OpenVG

- Always visit www.freescale.com/imx6series for latest info. on part number availability.
- The respective SoC datasheet details the features enabled/disabled per part number.
- Standard 12 week lead time applies to all orders.

i.MX 6 Series: Silicon Availability (Automotive)

i.MX 6 Family	Type	Part Number	Feature Description
i.MX 6Quad	Automotive	MCIMX6Q6AVT10AC	1 GHz, Quad-core, 64-bit DDR
		MCIMX6Q4AVT10AC	1 GHz, Quad-core, 64-bit DDR, no VPU
		MCIMX6Q6AVT08AC	800 MHz, Quad-core, 64-bit DDR
		MCIMX6Q4AVT08AC	800 MHz, Quad-core, 64-bit DDR, no VPU
i.MX 6Dual	Automotive	MCIMX6D6AVT10AC	1 GHz, Dual-core, 64-bit DDR
		MCIMX6D4AVT10AC	1 GHz, Dual-core, 64-bit DDR, no VPU
		MCIMX6D6AVT08AC	800 MHz, Dual-core, 64-bit DDR
		MCIMX6D4AVT08AC	800 MHz, Dual-core, 64-bit DDR, no VPU
i.MX 6DualLite	Automotive	MCIMX6U6AVM08AB	800 MHz, Dual-core, 64-bit DDR
		MCIMX6U4AVM08AB	800 MHz, Dual-core, 64-bit DDR, no VPU
		MCIMX6U1AVM08AB	800 MHz, Dual-core, 64-bit DDR, no VPU, no GPU
i.MX 6Solo	Automotive	MCIMX6S6AVM08AB	800 MHz, Single-core, 32-bit DDR
		MCIMX6S4AVM08AB	800 MHz, Single-core, 32-bit DDR, no VPU
		MCIMX6S1AVM08AB	800 MHz, Single-core, 32-bit DDR, no VPU, no GPU

- Always visit www.freescale.com/imx6series for latest info. on part number availability.
- The respective SoC datasheet details the features enabled/disabled per part number.
- Standard 12 week lead time applies to all orders.

- Always visit www.freescale.com/imx6series for latest info. on part number availability.
- The respective SoC datasheet details the features enabled/disabled per part number.
- Standard 12 week lead time applies to all orders.

i.MX 6 Reference Designs (with Production Silicon)

- All Boards FSL designed
- All Boards FSL supported
- Common set of boards for 6Q/D/DL/S
- SoloLite has its own EVK



- Dual DDR



- Dual DDR



- Dual DDR
- EPD



- **i.MX 6Solo**
- Single DDR
- EPD



- **i.MX 6SoloLite**
- Single DDR
- EPD

SABRE-AI for Auto (\$1499)



SABRE Platform for Smart Devices (\$999)



SABRE Board for Smart Devices (\$399)



**i.MX 6SLEVK
(\$399)**



✓	Use i.MX 6Quad	✓	Use i.MX 6DualLite	n/a
✓	Use i.MX 6Quad	✓	Use i.MX 6DualLite	n/a
✓	Use i.MX 6Quad	n/a	n/a	n/a
n/a	n/a	n/a	n/a	✓

i.MX 6 maximizes use of reference boards across derivative parts

SABRE Platforms: Enabling Faster Time to Market

i.MX 6 series development tools are **Freescale designed** and **Freescale supported**

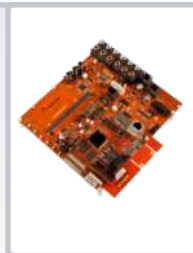
SABRE Platform for Smart Devices

- i.MX 6Quad/6DualLite 1 GHz ARM Cortex-A9
- Multiple connectivity options: Wi-Fi®, Bluetooth®, GPS, Ethernet, SD, parallel/serial interfaces, SATA (i.MX 6Quad only), PCIe and MIPI CSI
- SABRE Board plus:
 - 10.1" capacitive multi-touch display
 - Battery charging ICs
 - The SPI NOR Flash
 - MIPI display and MIPI camera connectors
 - 2x MIPI camera sensors
 - Digital microphones
 - Ambient light sensor, GPS
 - EPDC connector (i.MX 6DualLite only)



SABRE for Auto Infotainment

- Available to Tier 1 automotive OEMs
- i.MX 6Quad or i.MX6DualLite CPU card and i.MX 6 series base board
- Support for terrestrial and satellite radio tuners, Wi-Fi, Bluetooth, GPS, cellular modem, iAP authentication modules, MOST vehicle networking, cameras and displays
- Processor capability ranges from single ARM Cortex-A9 core at 800 MHz up to a quad core at up to 1 GHz



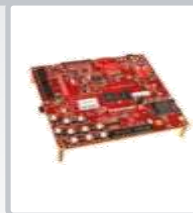
SABRE Board for Smart Devices

- i.MX 6Quad 1 GHz ARM Cortex-A9
- Intelligently designed with connectors on only two sides of board to eliminate 'octopus effect' on lab tables
- Evaluate the smartly integrated features of the i.MX 6Quad processor including an LVDS controller, USB PHYs, HDMI PHYs, SATA, PCI Express®, on-board power management and Ethernet



i.MX 6SoloLite Evaluation Kit

- i.MX 6SoloLite 1 GHz ARM Cortex-A9
- Integrated E Ink® display controller
- Enables EPD and/or LCD or HDMI display, touch control and audio playback, and the ability to add WLAN, a 3G modem or Bluetooth technology
- E Ink display available separately



i.MX 6 Series Freescale Development Boards

Development Tool	Part Number	Price
SABRE Board for Smart Devices	MCIMX6Q-SDB	\$399
	MCIMX-LVDS1	\$499
SABRE Platform for Smart Devices	MCIMX6Q-SDP	\$999
SABRE Platform for Smart Devices	MCIMX6DL-SDP	\$999
	MCIMXEBOOKDC3-E	\$499
SABRE for Auto Infotainment – CPU card	MCIMX6QAICPU1*	\$799
SABRE for Auto Infotainment – CPU card	MCIMX6DLAICPU1*	\$799
SABRE for Auto Infotainment – base board	MCIMXABASEV1*	\$699
i.MX 6SoloLite EVK	MCIMX6LEVK	\$399
	MCIMXEBOOKDC3-E	\$499

*Available only to automotive OEM's

- SABRE-SDB, SABRE-SDP, SLEVK
 - Wi-Fi modules are available through Silex: <http://www.silexamerica.com/freescale/>
- For more information on development boards, including available accessories, please visit:
 - www.freescale.com/sabresdp
 - www.freescale.com/sabresdb
 - www.freescale.com/sabreai
 - www.freescale.com/6slevk

SABRE Board for Smart Devices (SDB)

i.MX 6Quad 1 GHz Cortex-A9 Processor

- Can be configured as i.MX 6Dual
- Freescale MMPF0100 PMIC
- 1 GB DDR3 memory (non terminated)
- 3" x 7" 8-layer PCB

Display connectors

- 2x LVDS connectors
- Connector for 24 bit 4.3" 800x480 WVGA with 4-wire touch screen
- HDMI Connector

Audio

- Wolfson Audio Codec
- Microphone and headphone jacks

Expansion Connector

- Camera CSI port signals
- I2C, SSI, SPI signals

Part Numbers: MCIMX6Q-SDB (\$399)

Display (9.7"): MCIMX-LVDS1 (\$499)



Connectivity

- 2x Full-size SD/MMC card slot
- 22-pin SATA connector
- 10/100/1000 Ethernet port
- 1x high-speed USB OTG port
- mPCI-e connector

Debug

- JTAG connector
- Serial to USB connector

Additional Features

- 3-axis Freescale accel
- eCompass
- Power supply
- No battery charger

OS Support

- Linux and Android IceCream Sandwich from Freescale;
- Others: support by 3rd parties

Tools Support

- Lauterbach, ARM (DS-5), Macraigor debug/IDE tool chain

SABRE Platform for Smart Devices (SDP)

i.MX 6Quad 1 GHz Cortex-A9 Processor

i.MX 6DualLite 1 GHz Cortex-A9 Processor

- Freescale MMPF0100 PMIC
- 1 GB DDR3 memory (non terminated)
- 3" x 7" 8-layer PCB

Part Numbers:

MCIMX6Q-SDP (\$999)

MCIMX6DL-SDP (\$999)

WiFi:

SX-SDCAN-2830BT (\$60)

Connectivity

- 2x Full-size SD/MMC card slot
- 22-pin SATA connector
- 10/100/1000 Ethernet port
- 1x high-speed USB OTG port
- mPCI-e connector

Display connectors

- Native 1024x768 LVDS display (comes with kit)
- 2nd LVDS connector
- Connector for 24 bit 4.3" 800x480 WVGA with 4-wire touch screen
- HDMI Connector
- MIPI DSI connector

Audio

- Wolfson Audio Codec
- Microphone and headphone jacks
- Dual 1W Speakers

Expansion Connector

- Enables parallel LCD or HDMI output
- Camera CSI port signals
- I2C, SSI, SPI signals

Tools Support

- Lauterbach, ARM (DS-5), Macraigor debug/IDE tool chain



Debug

- JTAG connector
- Serial to USB connector

Additional Features

- 3-axis Freescale accel
- GPS receiver
- Ambient Light Sensor
- eCompass
- Dual 5MP Cameras
- Power supply
- Battery Charger
- Battery connectors

OS Support

- Linux and Android IceCream Sandwich from Freescale;
- Others: support by 3rd parties

SABRE Platform for Automotive Infotainment (AI)

CPU Card Details

- **Power and Memory**
- Freescale MMPF0100 PMIC
- 2 GB DDR3 memory (i.MX 6Dual/Quad)
- 1 GB DDR3 memory (i.MX 6Solo)
- 32 GB Parallel NOR Flash
- NAND Socket

Display

- LVDS connector
 - compatible with MCIMX-LVDS1
- Parallel RGB display interface
- HDMI output connector

Debug

- JTAG connector
- Debug UART connector

Connectivity and Expansion

- SD Card Slot
 - High Speed USB OTG
 - Ethernet
 - SATA
 - MIPI CSI
 - PCIe
 - MLB150 INIC connector
 - 281-pin MXM card edge connector for main board expansion
- 

SABRE AI boards will only be supported at automotive customers



Part Numbers

Base Board: MCIMXABASEV1 (\$699)

CPU Cards: MCIMX6DLAICPU1 (\$799)
MCIMX6OAICPU1 (\$799)

Display: MCIMX-LVDS1 (\$499)



Base Board Details

Can be reused from i.MX53 SABRE AI

- SD card slot (WiFi module or SD)
- Bluetooth or Bluetooth+WiFi header
- AM/FM tuner header
- Sirius XM Module header (de-pop'd)
- GPS (UART) module connector
- 2x CAN
- Dual High Speed USB Host connectors
- MLB 25/50 INIC connector
- SPI NOR flash

Display I/O

- LVDS connector
 - compatible with MCIMX-LVDS1
- Analog Video Input
- LVDS Input

Audio

- Cirrus multichannel audio codec
 - Up to 8 outputs
 - Dual microphone inputs
 - Stereo Line Level Input
- SPDIF receiver

OS Support

- Linux
- Others: future support by 3rd parties

i.MX 6SL Development Platform Key Features

Processor

- Freescale i.MX 6SL 1 GHz ARM® Cortex™-A9 CPU
- Freescale PF0100 PMIC

Memory

- 512 MB Double Data Rate2 Mobile (LPDDR2) DRAM memory
- Footprint for Managed NAND (eMMC/eSD)
- SPI Flash
- Three Secure Digital (SD)/multimedia card (MMC) sockets

Display

- HDMI Daughter Card available
- Parallel WVGALCD add-on card via expansion connector
- EPD add-on card via expansion connector

Audio

- Audio HP Jack
- External speaker connection
- Microphone

Connectivity

- USB Host connectors
- Micro USB OTG connector
- Ethernet (10/100T) connector
- SIM Card Socket
- Mini PCIe connector

Debug

- JTAG connector
- One console UART

Other

- MMA8450QT three-axis digital accelerometer (SABRE)

Tools & OS Support

- VMware player to bring up image on a Windows PC
- Linux® and Android™ BSPs from Freescale
- LTIB



i.MX 6SL EVK Display options

EVK



i.MXSL EVK :
\$399 USD MSRP

HDMI



MCIMXHDMICAR:
\$49 USD MSRP

EPD



IMXEBOOKDC3:
\$499 USD MSRP

LCD



MCIMX51LCD :
\$250 USD MSRP

i.MX 6SL Family Processors

-

+

PF0100 PMIC

- 

==

i.MX 6SL Development Platforms

- Single-board evaluation kit (EVK)
- Eink Electrophoretic Panel Daughter Card
- Linux® and Android™ Board Support Packages are available through Freescale



A Single Solution for Streamlined Performance

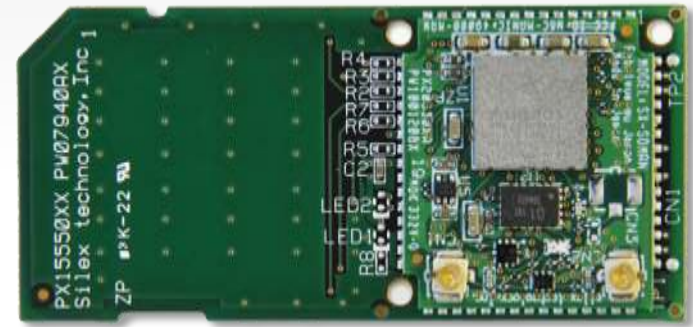
Qualified Wi-Fi Solutions for i.MX 6 Series

- **802.11a/b/g/n WLAN SDIO card based on Qualcomm Atheros AR6003 technology**
- **WiFi-driver readily integrated** with various i.MX 6 development systems
- **Low power design** ideal for portable battery operated device applications
- **Key Features:**
 - High performance, single stream (1x1), 2.4GHz/5GHz dual-band WiFi module
 - SDIO card form factor
 - 2 x U.FL external antenna connector
 - Optional TX/RX antenna diversity
- **Family of production “ready” hardware available**
 - SiP (System-in-Package)
 - Surface mount type
 - Board-Board connector type

Order at:

http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=i.MX6Q&fpsp=1&tab=Design_Tools_Tab\

Part Number: SX-SDCAN-2830BT



SPECIFICATIONS:

Product Name	SX-SDCAN-2830BT
Chipset	Qualcomm Atheros AR6233
Wireless	IEEE 802.11a/b/g/n
Host Interface	SDIO v2.0
Operating Voltage	3.30VDC +/- 5%
OperatingTemperature	-10 to + 70 degrees C
Regulatory Approvals	FCC/IC (US/Canada) R&TTE (EU), TELEC (Japan)
Solution Partner	Silex Technology (US/Japan)



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i.MX 6 Series Software – Current Status

- **Linux**

- All current Linux releases are based on 3.0.35 kernel with LTIB support
- L3.0.35_4.0.0 is the unified release for i.MX 6Quad/Dual/DualLite/Solo
 - Supports SABRE-SDB, SABRE-SDP, SABRE-AI
- L3.0.35_2.1.0 supports i.MX 6SoloLite
 - Supports 6SLEVK

- **Android**

- JB4.2.2_1.0.0 is the GA release of JB 4.2 for i.MX 6Quad/Dual/DualLite/Solo
- R13.4.1 is the GA release of ICS for i.MX 6Quad/Dual/DualLite/Solo
- R13.5 is the GA release of ICS for i.MX 6SoloLite

All public software releases are available at
www.freescale.com/imx6tools

i.MX 6 Series Software – Linux Release Strategy

- **L3.0.35 Unified Linux Release**
 - Unify i.MX 6Quad/Dual, i.MX 6DualLite/Solo, and i.MX 6SoloLite Linux release under a single major Linux release L3.0.35_4.x.x
 - L3.0.35_4.0.0 unifies i.MX 6Quad/Dual and i.MX 6DualLite/Solo -- available
 - L3.0.35_4.1.0 unifies entire i.MX 6 Series (adds i.MX 6SoloLite) -- in execution
- **Next GA release will be based on TBA Long-term Stable Linux kernel**
 - In preparation for this, move to 3.10.x kernel (“tip”)
 - Provide alpha 3.5.7 release, but this will not be GA quality or supported
 - “alpha” and “beta” releases are supported until the next BSP release
- **Deprecate LTIB/Ubuntu in favor of Yocto 1.4**
 - Release L3.0.35_4.x.x Linux kernel under LTIB (legacy) – Yocto 1.3 via community
 - Release 3.5.7-alpha Linux kernel under Yocto 1.4
 - Add support for hardware floating point



History of Android Development

	Android	Google Release	First Freescale Release
	Cupcake	Android 1.0 (September 2008) Android 1.1 (February 9, 2009) Android 1.5 (April 2009)	R3 (June 2009)
	Donut	Android 1.6 (September 2009)	R5 (September 2009)
	Eclair	Android 2.0 (October 2009) Android 2.0.1 (December 2009) Android 2.1 (January 2010)	R7 (January 2010)
	Froyo	Android 2.2 (May 2010) Android 2.2.1 (January 2011) Android 2.2.2 (January 2011) Android 2.2.3 (November 2011)	R9 (August 2010)
	Gingerbread	Android 2.3 (December 2010) Android 2.3.3 (February 2011) Android 2.3.4 (April 2011) Android 2.3.5 (July 2011) Android 2.3.6 (September 2011) Android 2.3.7 (September 2011)	R10 (January 2011)
	Honeycomb	Android 3.2 (July 2011) Android 3.2.1 (September 2011) Android 3.2.2 (August 2011) Android 3.2.4 (December 2011) Android 3.2.6 (February 2012)	R11 (September 2011 – i.MX53) R12 (September 2011 – i.MX 6D/Q)
	Ice Cream Sandwich	Android 4.0.1 (October 2011) Android 4.0.2 (November 2011) Android 4.0.3 (December 2011) Android 4.0.4 (March 2012)	R13 (December 2011) R13.1 (January 2012) R13.3 (June 2012) R13.4 GA (September 2012) *to align to 6Series launch
	JellyBean	Android 4.1 (September 2012) Android 4.2 (December 2012)	JB 4.1 GA candidate – Dec 2012 JB 4.2 Beta Feb 2013 JB 4.2 GA – April 2013

Android JB 4.2 New Features

- <http://www.android.com/whatsnew/>
- Key new features for Users:
 - Multiple, independent displays with preferred display selection
 - Wireless displays (need to find Sink device)
 - Multi-user support on tablets
 - System UI refresh and quick access to Camera/Widgets on lock screen
- Key new features for Developers:
 - Miracast and external displays
 - Low-latency audio
- Platform Enhancements:
 - Camera
 - New NFC HAL
 - New Bluetooth stack

Jellybean
4.1



Jellybean
4.2



Jellybean
4.3



Key Lime Pie
(Est.)



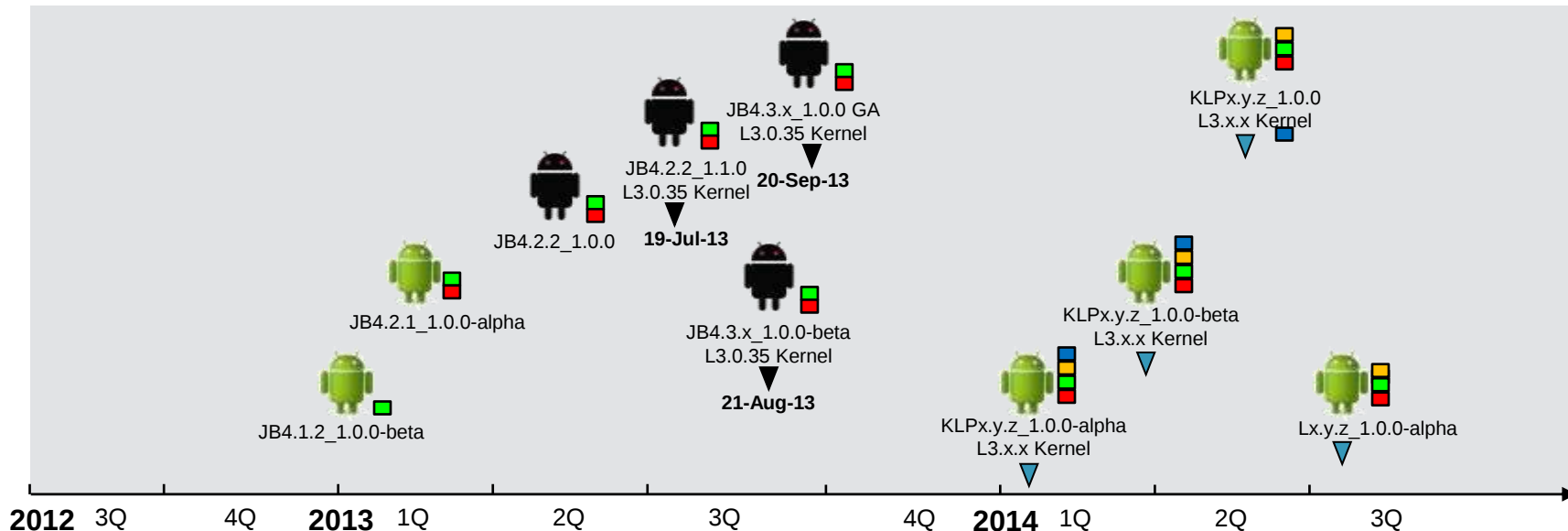
“L” Android
(Est.)

Long Term
Release
(Planning)

Key Lime Pie Android Release

“L” Android Release

Releases



Extended Android Release



Core Android Release



Execution



Planning



Proposed



i.MX6Q/i.MX6D SabreSDB/SDP, SabreAI



i.MX6DL/i.MX6S SabreSDP, SabreAI



i.MX6SL EVK



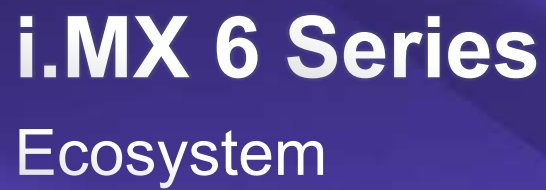
i.MX6SLX

GA – Support for 1 year
Alpha & Beta – Support until next release

Codec Availability on i.MX 51/53 and 6 Series

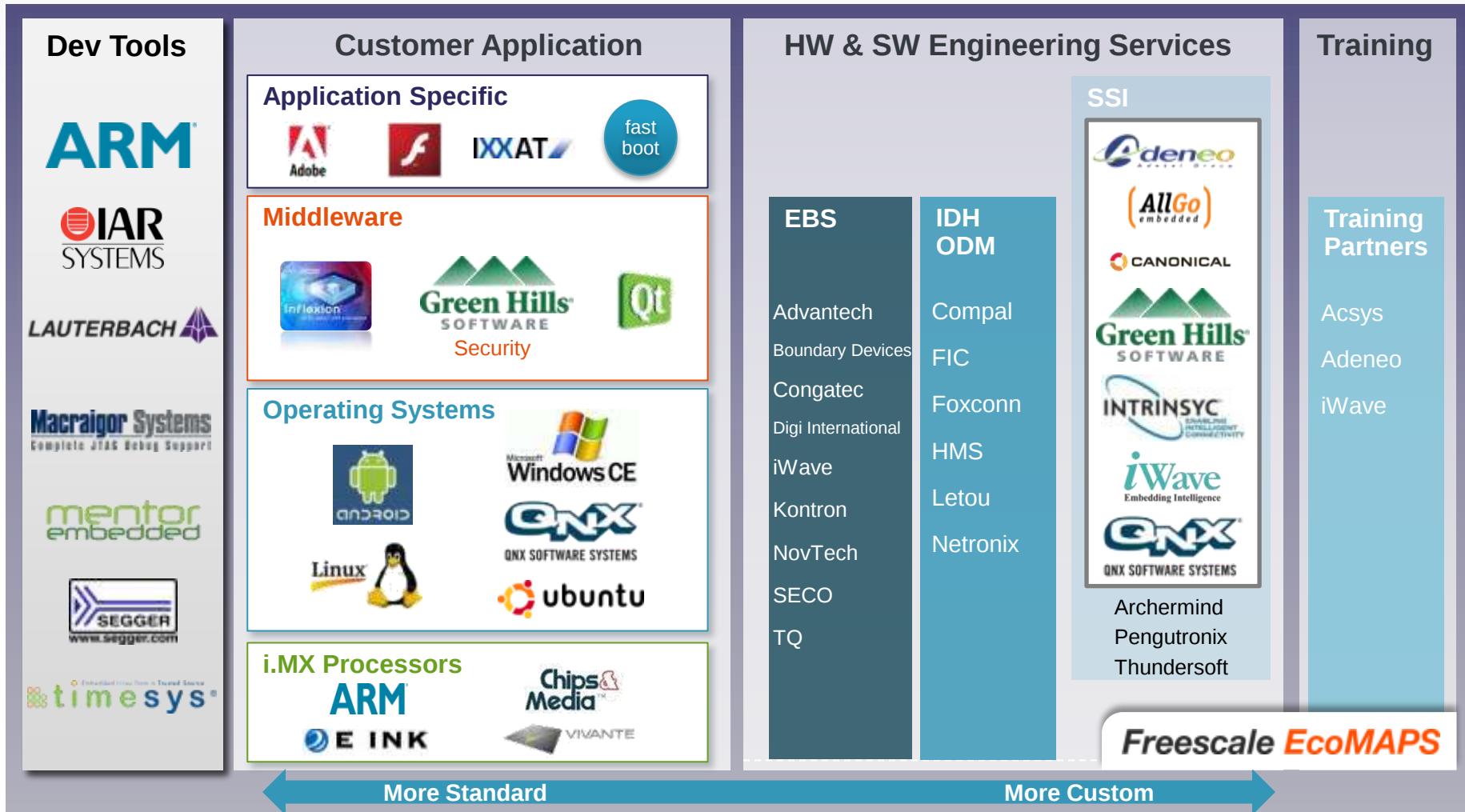
- Freescale has an extensive portfolio of HW and SW multimedia codecs
 - Standard Distribution: audio decoder (AAC, AACPlus (separate package), MP3, Vorbis, FLAC), audio encoder (SBC, MP3), speech codecs (G.723.1, G.726, G.711, G.729AB, NB/WB AMR), video decoder (MPEG-4 ASP, XVID, H.264 HP, H.263, MPEG-2 MP, MJPEG BP, VP8, Sorenson-H263), video encoder (MPEG-4 SP, H.264 BP, H.263, MJPEG BP), image codecs (JPEG, BMP, GIF, PNG)
 - Restricted Distribution: Microsoft Codecs (WMA10 decoder, WMA8 encoder, WMV7/8/9MP decoder), AC3 (Dolby) decoder, DivX 3/4/5/6 decoder
- Licensing
 - Freescale offers a full commercial license (royalty free) with all codecs
 - Freescale does not charge for these codecs. Depending on the intended use, Customers may need to obtain additional licensing or other rights.
 - Freescale is legally unable to provide guidance on when, where and how to obtain licenses as these are done by 3rd parties with varying and (sometimes) changing terms
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FreescalE EcoMAPS for i.MX Architectures



IDE: Integrated Development Environment
BDM: Background Debug Module

EBS: Embedded Board Solutions

IDH: Independent Design House
ODM Original Design Manufacturer

SSI: Software & Solution Integrators

i.MX 6 Series Partners – Lead Module Solutions

Company	Product	URL	Comments
	CoM	advantech.com	FTF Sponsor & Demo's now Production launch ready
	conga-QMX6: Qseven quad-core ARM module	http://www.congatec.com/qm_x6.html?&L=0	FTF Sponsor & Demo's now. Production launch ready
	PIGMC	TBA at FTF	FTF Sponsor Production target 4Q
	QUADMO747- X/i.MX 6	http://www.seco.com/en/item/quadmo747-x_i_mx6/	FTF Sponsor & Demo's now Production launch ready
Boundary Devices 	SABRE-Lite & Nitrogen 6X	http://boundarydevices.com/i_mx6-nitrogen	FTF Sponsor & Demo's now Production launch ready
	NOVPEK i.MX6Q/D System	http://www.novtech.com/novpek/novpek-imx-6	FTF Sponsor & Demo's now Production launch ready
	Rainbow-G15M-Q7 i.MX6 Q7 Module	http://www.iwavesystems.com/?q=node/239	FTF Sponsor & Demo's now Production launch ready
	OPEN-6 Platform	http://www.intrinsyc.com/services/	FTF Sponsor & Demo's now Production launch ready

Beta partners: Cogent, Phytex & TechNexion

