



**THE DATASHEET OF
MCIMX6X4AVM08AB**





i.MX 6 Series Portfolio Overview

AMF-CON-T0060

Pat Stilwell
Product Marketing



August 2013

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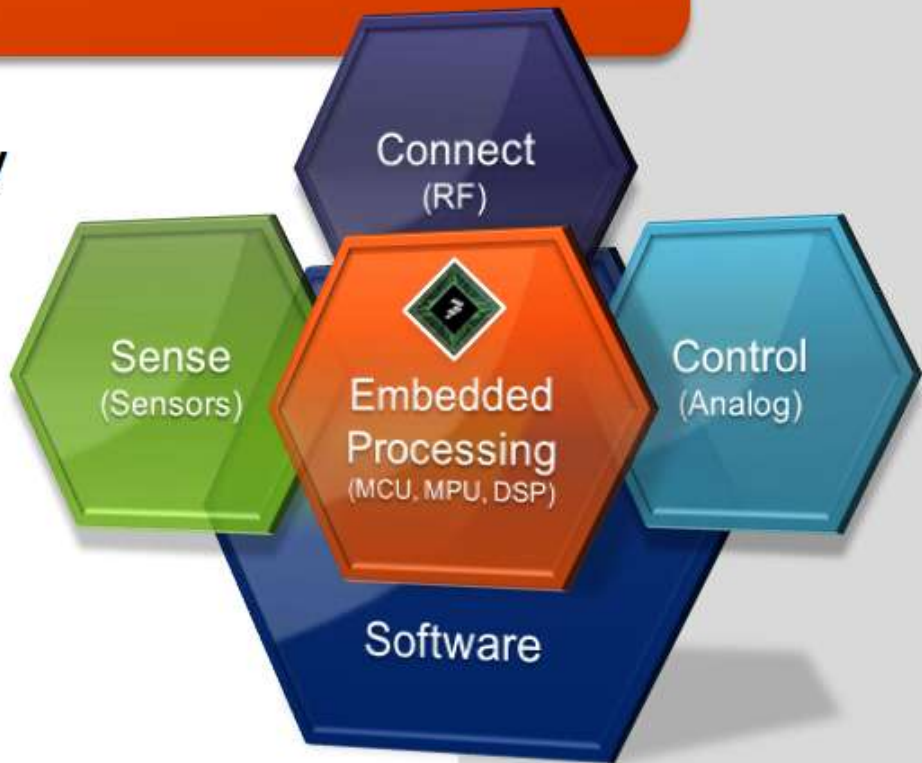
A Global Leader of Embedded Processing Solutions

Two Core Product Groups

- Automotive, Industrial & Multi-Market Solutions
 - Microcontrollers
 - Sensors
 - Analog
- Networking and Multimedia Solutions
 - Communications Processors
 - Applications Processors
 - RF Power

Four Primary Markets

- Automotive
- Industrial
- Networking
- Consumer



Platform-Level Solutions

>50 Year Legacy

>5,500 Engineers

>6,000 Patent Families

>18,000 Customers



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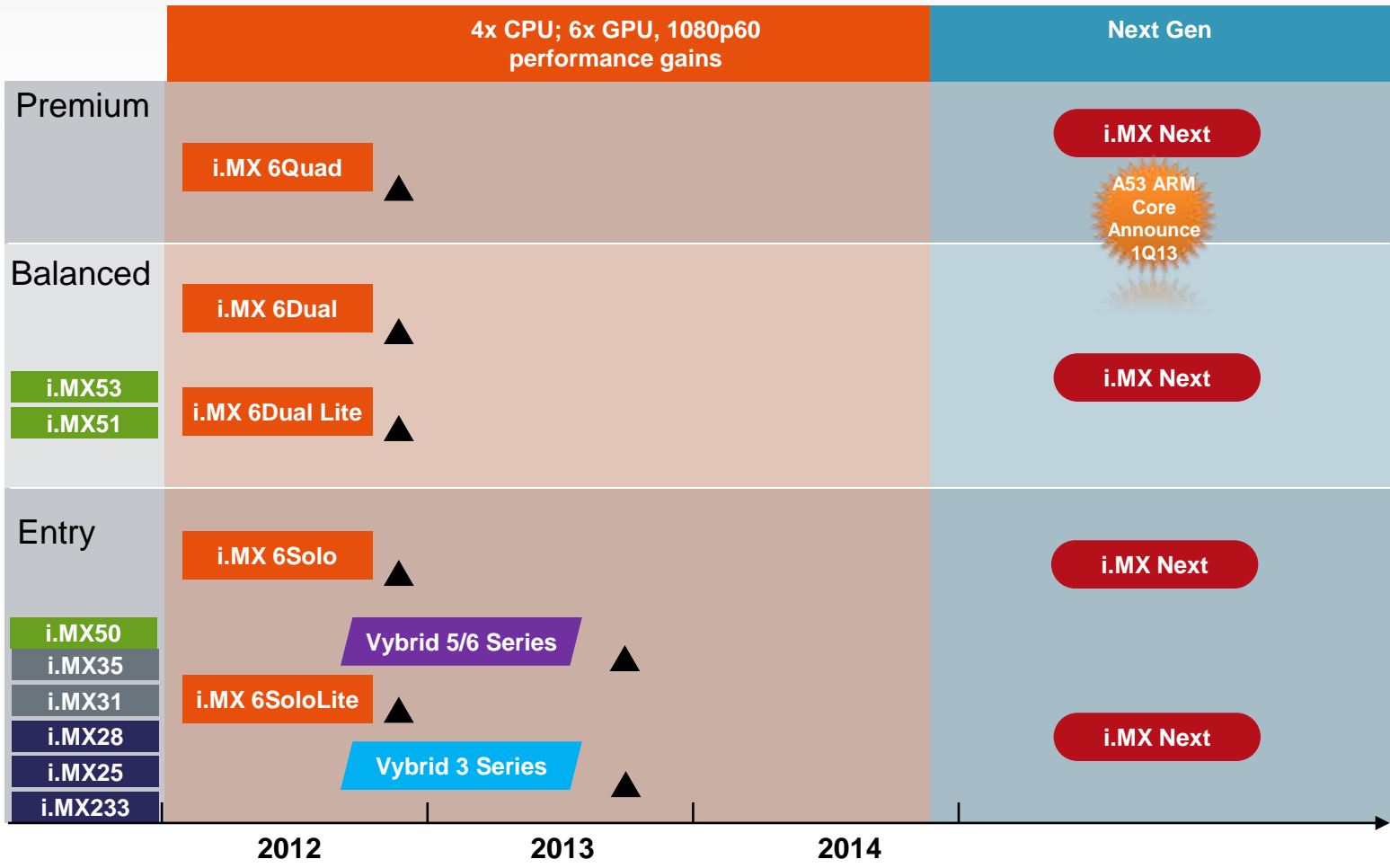


Applications Processor Family Roadmap

Good, Better, Best
Differentiation

Content Creation,
Technology Driver

Performance/
Multimedia Capability



Product Qual

Proposal

Planning

Execution

Samples

Production

▲ Mass Market Availability

- ARM9
- ARM11
- Cortex A8
- Cortex A9
- Cortex A5+M4
- Cortex A5
- Cortex A9+M4
- Cortex A53+M4

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Freescale, the Freescale logo, ARMv6, D.S., CodeTEST, CodeRunner, CodePilot, CodeFire, CodeWise, the Energy Efficient Solutions logo, i.MX, i.MX50, i.MX51, i.MX53, i.MX54, i.MX55, i.MX56, i.MX57, i.MX58, i.MX59, i.MX6, i.MX60, i.MX61, i.MX62, i.MX63, i.MX64, i.MX65, i.MX66, i.MX67, i.MX68, i.MX69, i.MX70, i.MX71, i.MX72, i.MX73, i.MX74, i.MX75, i.MX76, i.MX77, i.MX78, i.MX79, i.MX80, i.MX81, i.MX82, i.MX83, i.MX84, i.MX85, i.MX86, i.MX87, i.MX88, i.MX89, i.MX90, i.MX91, i.MX92, i.MX93, i.MX94, i.MX95, i.MX96, i.MX97, i.MX98, i.MX99, i.MX100, i.MX101, i.MX102, i.MX103, i.MX104, i.MX105, i.MX106, i.MX107, i.MX108, i.MX109, i.MX110, i.MX111, i.MX112, i.MX113, i.MX114, i.MX115, i.MX116, i.MX117, i.MX118, i.MX119, i.MX120, i.MX121, i.MX122, i.MX123, i.MX124, i.MX125, i.MX126, i.MX127, i.MX128, i.MX129, i.MX130, i.MX131, i.MX132, i.MX133, i.MX134, i.MX135, i.MX136, i.MX137, i.MX138, i.MX139, i.MX140, i.MX141, i.MX142, i.MX143, i.MX144, i.MX145, i.MX146, i.MX147, i.MX148, i.MX149, i.MX150, 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Gaming Performance

- **Benchmarking 3D game performance is tricky**
 - Dependent upon the 3D HW, the CPU speed and memory BW
 - Must balance all three to get best performance
- **Review websites use generally available benchmarks to rate tablets**
 - Example: Basemark, NenaMark, Antutu, Quadrant

Taiji Girl (Basemark ES2)

NenaMark2 3D Benchmark

AnTuTu Benchmark

Quadrant Benchmark

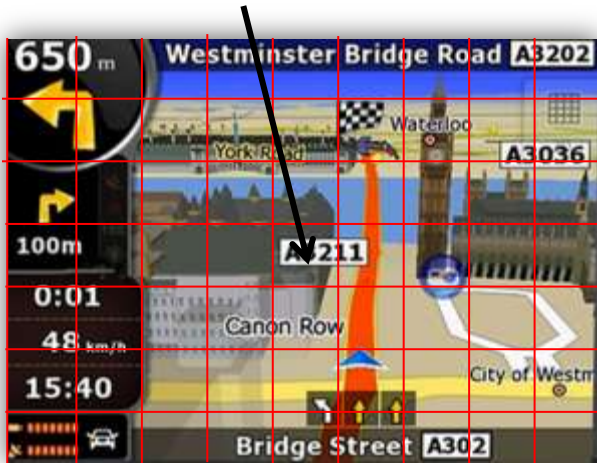


	6Quad	6DualLite	6Solo	Tegra2
Taiji Girl	25.65 fps	9.2 fps	7.67 fps	6 fps
NenaMark	49.2	30.5	27.2	21
AnTuTu	9605	5583	4531	4904
Quadrant	4011	3005	2414	2559

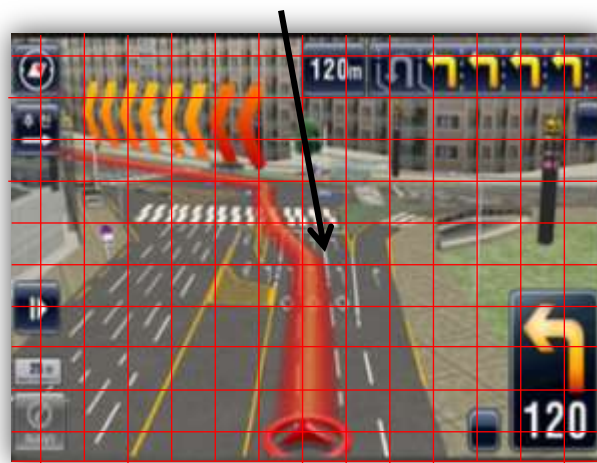
Tile Based Rendering (Chunkers)

- Size of scene buffer unknown before rendering
 - Possible overflow if scene requires more data than expected
- Good rendering method for baseline GUI/3D Apps with smaller object count (less details)
 - More bandwidth efficient than FMR in simple (yesterday) use cases
- For next generation dynamic scenes in new and future applications with lots of objects, details and post-processing effects, tile based Chunkers require multi-pass memory access to constantly process changing 3D/scene data
 - PC Level Applications (Performance, Quality, Effects) → Tablets → Smartphones → Infotainment

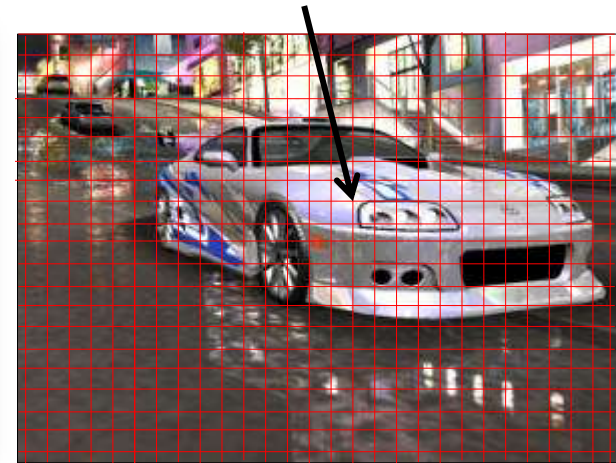
Tile



Tile



Tile (Complex Scene)





i.MX 6 Series feature list (3/4)

Red indicates change from column to the left

	i.MX 6SoloLite	i.MX 6Solo	i.MX 6DualLite	i.MX 6Dual	i.MX 6Quad
Display Resolution (@60Hz)	WXGA (WXGA=1366x768)	2x WXGA	2x WXGA	2x 4XGA or 2x [1080p + WXGA] (4XGA=2048x1536)	2x 4XGA or 2x [1080p + WXGA]
Display Interfaces	2x Outputs • 1x Parallel • EPDC	2x Outputs • 2x Parallel • 2x LVDS • HDMI • MIPI-DSI • EPDC	2x Outputs • 2x Parallel • 2x LVDS • HDMI • MIPI-DSI • EPDC	4x Outputs • 2x Parallel • 2x LVDS • HDMI • MIPI-DSI	4x Outputs • 2x Parallel • 2x LVDS • HDMI • MIPI-DSI
GPU 3D	-	Vivante GC880 • 53Mtri/s • 266Mpxl/s • OpenGL ES 1.1/2.0/3.0	Vivante GC880 • 53Mtri/s • 266Mpxl/s • OpenGL ES 1.1/2.0/3.0	Vivante GC2000 • 176Mtri/s • 1000Mpxl/s • OpenGL ES 1.1/2.0/3.0 • OpenCL 1.1 EP	Vivante GC2000 • 176Mtri/s • 1000Mpxl/s • OpenGL ES 1.1/2.0/3.0 • OpenCL 1.1 EP
GPU 2D (Vector Graphics)	Vivante GC355 • 300Mpxl/s • OpenVG 1.1	via GPU 3D • OpenVG 1.1	via GPU 3D • OpenVG 1.1	Vivante GC355 • 300Mpxl/s • OpenVG 1.1	Vivante GC355 • 300Mpxl/s • OpenVG 1.1
GPU 2D (BLIT)	Vivante GC320 • 600Mpxl/s	Vivante GC320 • 600Mpxl/s	Vivante GC320 • 600Mpxl/s	Vivante GC320 • 600Mpxl/s	Vivante GC320 • 600Mpxl/s
Video Dec	SW Only	1080p30 + D1 MPEG-2, H.264 MVC, VC1, MPEG-4/Xvid, DivX 6, H.263, MJPEG, VP6 / WebM VP8	1080p30 + D1 MPEG-2, H.264 MVC, VC1, MPEG-4/Xvid, DivX 6, H.263, MJPEG, VP6 / WebM VP8	1080p60 + D1 2x 1080p30 MPEG-2, H.264 MVC, VC1, MPEG-4/Xvid, DivX 6, H.263, MJPEG, VP6 / WebM VP8	1080p60 + D1 2x 1080p30 MPEG-2, H.264 MVC, VC1, MPEG-4/Xvid, DivX 6, H.263, MJPEG, VP6 / WebM VP8
Video Enc	-	1080p30 2x 720p H.264, H.263, MPEG-4, MPEG-2, MJPEG	1080p30 2x 720p H.264, H.263, MPEG-4, MPEG-2, MJPEG	1080p30 2x 720p H.264, H.263, MPEG-4, MPEG-2, MJPEG	1080p30 2x 720p H.264, H.263, MPEG-4, MPEG-2, MJPEG

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

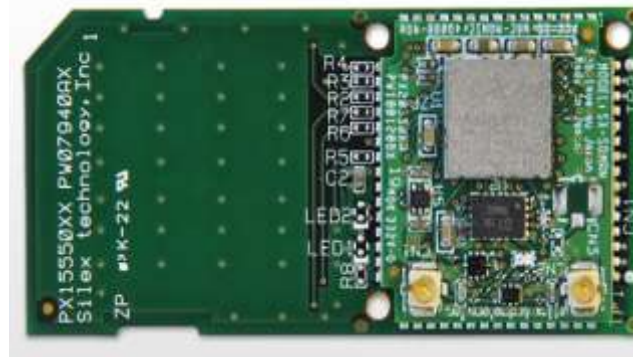


i.MX 6SoloLite Evaluation Kit

- 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



- 802.11a/b/g/n low power SDIO cad based on Qualcomm Atheros AR6003
- Wi-Fi driver software integrated with Freescale i.MX 6 platform
- Family of hardware solutions available
 - System-in-Package (SiP)
 - Radio Module
 - SD Card Form Factor





Backup



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i.MX 6 Reference Designs (with Production Silicon)

- All Boards FSL designed
- All Boards FSL supported
- Each board designed for 6Q/6D/6DL/6S except for 6SL EVK
- Common set of boards for 6Q/D/DL/S
- SoloLite will have its own EVK

i.MX 6Quad • Dual DDR	i.MX 6Dual • Dual DDR	i.MX 6Dual Lite • Dual DDR	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
(\$599)



✓			✓	
✓		✓		
✓				
				✓

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

SABRE Platform for Smart Devices (SDP)

i.MX 6Quad 1GHz Cortex-A9 Processor i.MX 6DualLite 1GHz Cortex-A9 Processor

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

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

Part Numbers:

- MCIMX6Q-SDP (\$999)
- MCIMX6DL-SDP (\$999)

Display (4.3"): WiFi:

- MCIMX28LCD (\$199)
- Silex WiFi module



Tools Support

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

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
- 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



Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View MCIMX6X4AVM08AB](#) on WIN SOURCE

 [NXP / Nexperia](#) Information

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