



**THE DATASHEET OF  
MCIMX6X4CVM08AB**





# i.MX 6 Series Portfolio Overview

## AMF-CON-T0060

**Pat Stilwell**  
Product Marketing



August 2013

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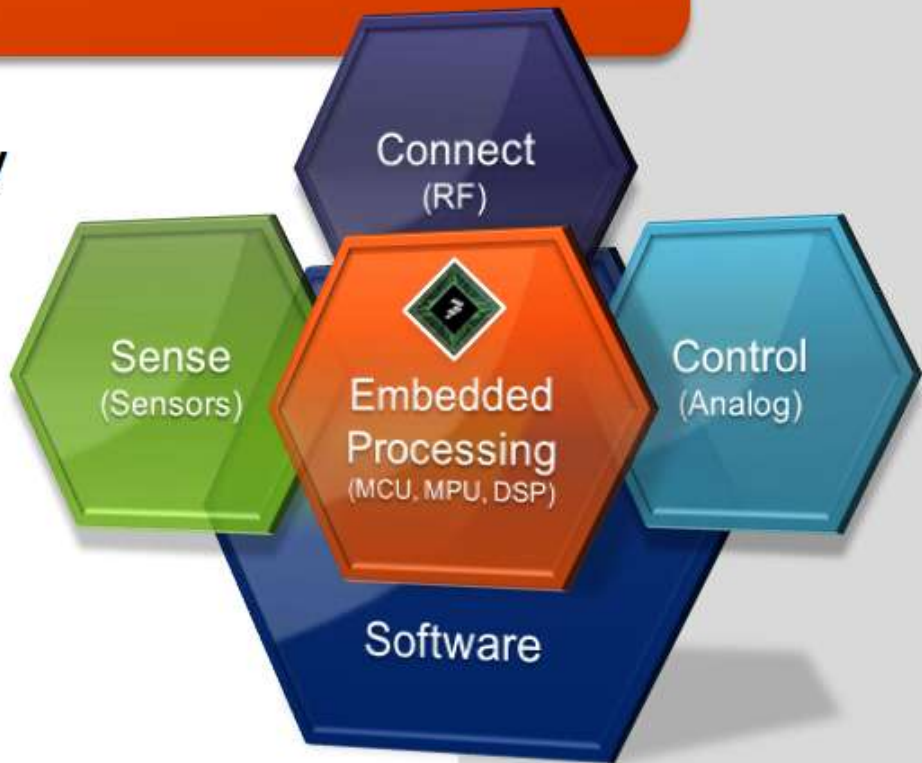
# A Global Leader of Embedded Processing Solutions

## 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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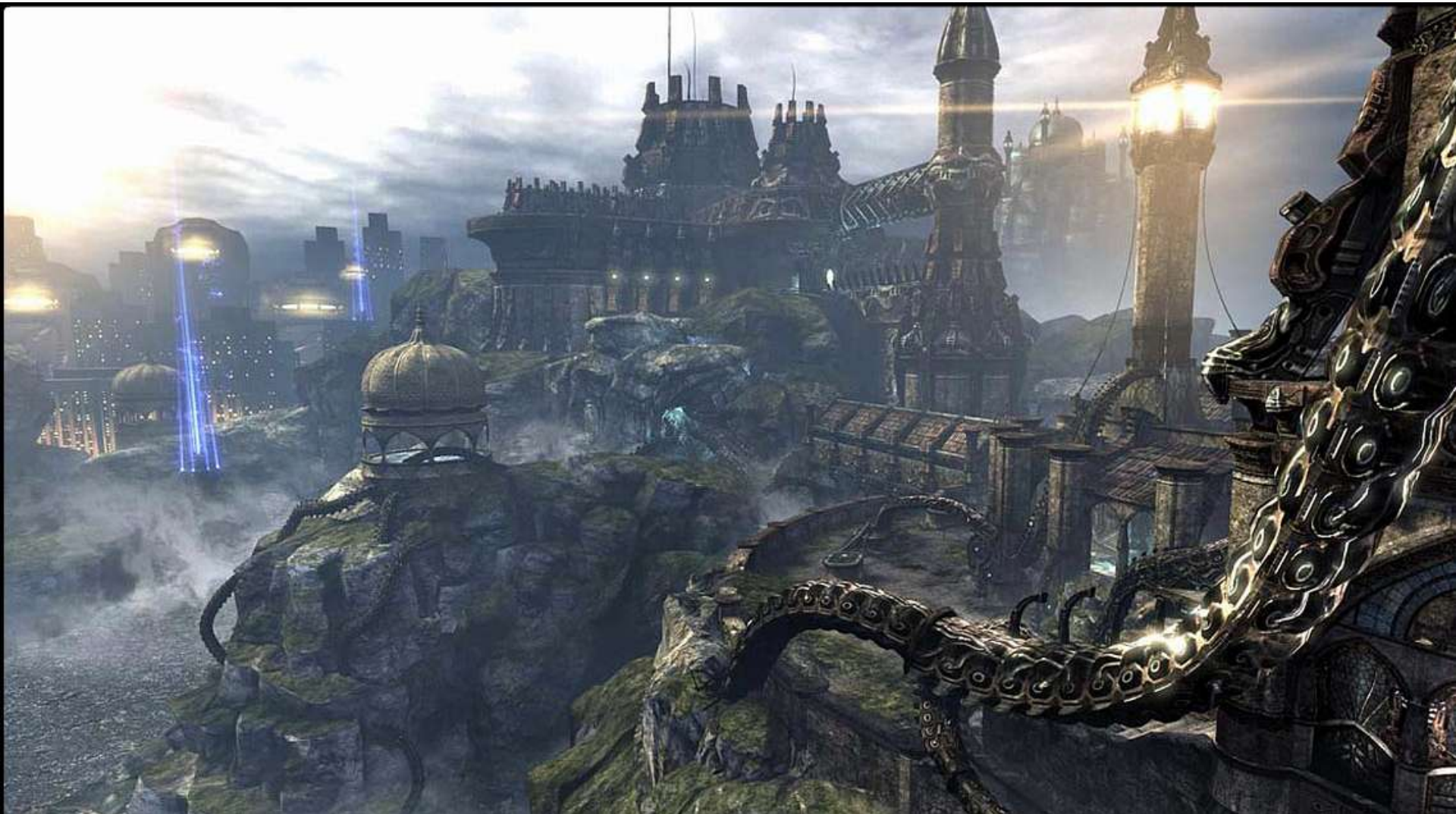








# Vivante GC2000 Ultra-threaded GPU















# Browsing and Image Viewing

Webkit Browser  
page rendering  
and scrolling

JPEG decode +  
encode  
1024x768



- All workloads implemented on CPU
- Does not use HW accelerators at all
- Done in order to test CPU capabilities

App	1 Core	2 Core	Dual Core vs Single Core	4 Core	Quad Core vs Dual Core
JPEG	.2 fps	~1fps	5x faster	~4.5 fps	4x faster
Browser Scroll Time	289	36.25	>87% faster	15	>50% faster
Browser FPS	3.45	27.58	8x higher	64.4	>2x higher

Watch it live!

<http://www.youtube.com/watch?v=JYFmBlk3itl#t=2m49s...>

# 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

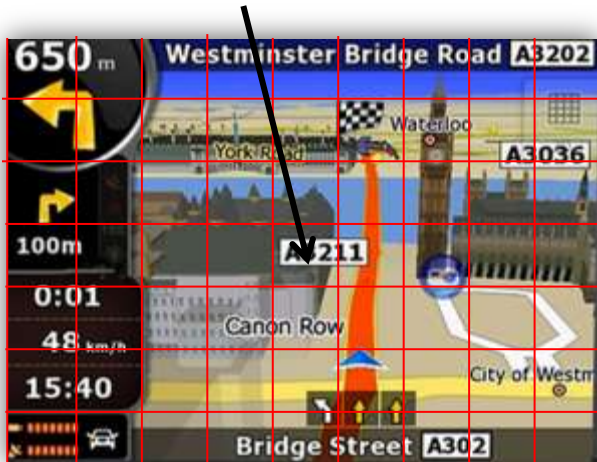




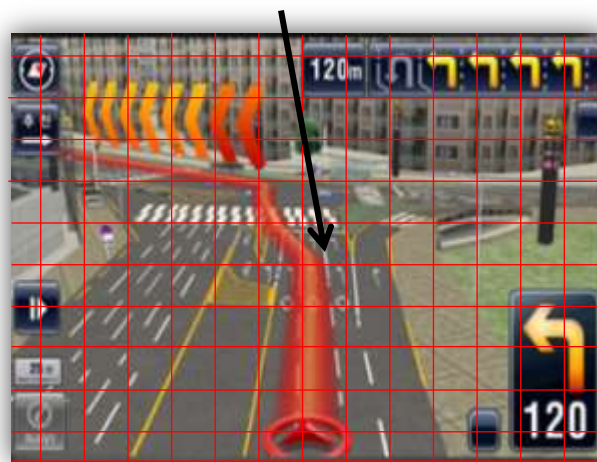
# Tile Based Rendering (Chunkers)

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

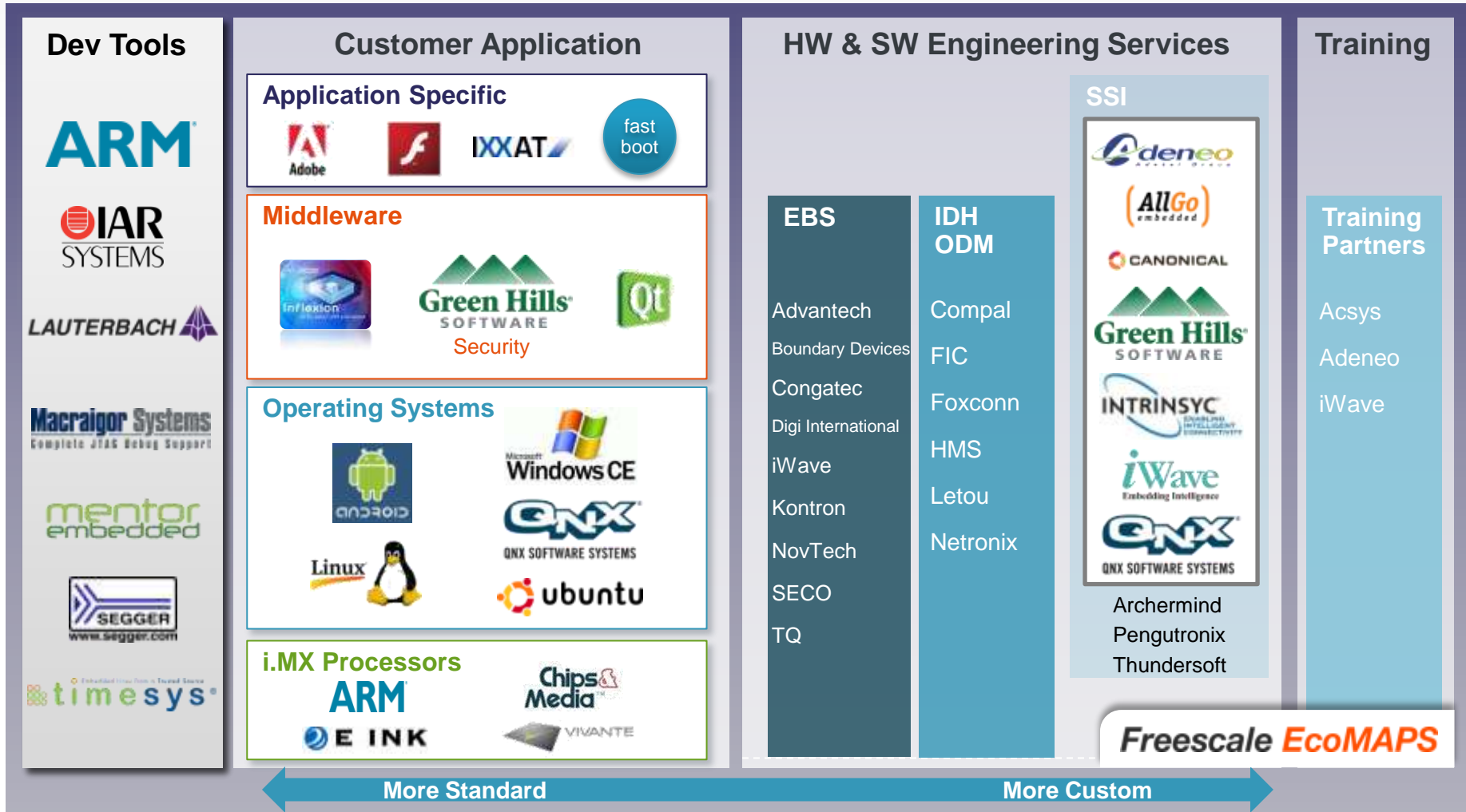








# Freescale EcoMAPS for i.MX Architectures



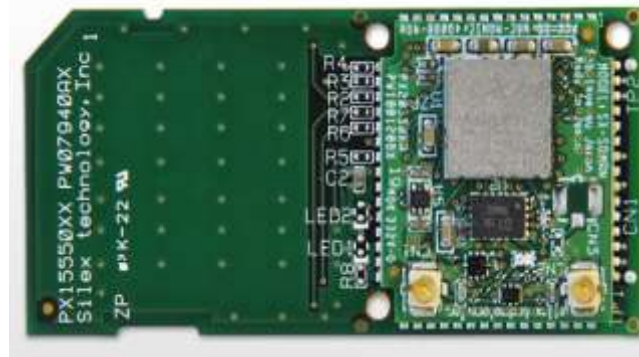
**IDE:** Integrated Development Environment  
**BDM:** Background Debug Module

**EBS:** Embedded Board Solutions

**IDH:** Independent Design House  
**ODM:** Original Design Manufacturer

**SSI:** Software & Solution Integrators

- 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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