

TI技术研讨会

嵌入式处理器解决方案

10/27~11/07 青岛 | 南京 | 厦门 | 杭州 | 广州 | 成都



OMAP/ARM 最新技术与开发工具介绍

- Low Power SoC Overview

讲师: Thomas Mu

Minds in Motion

Focused Industrial Applications

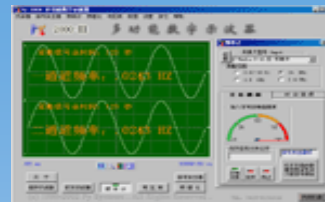
Electric Power



Machine



Instrument

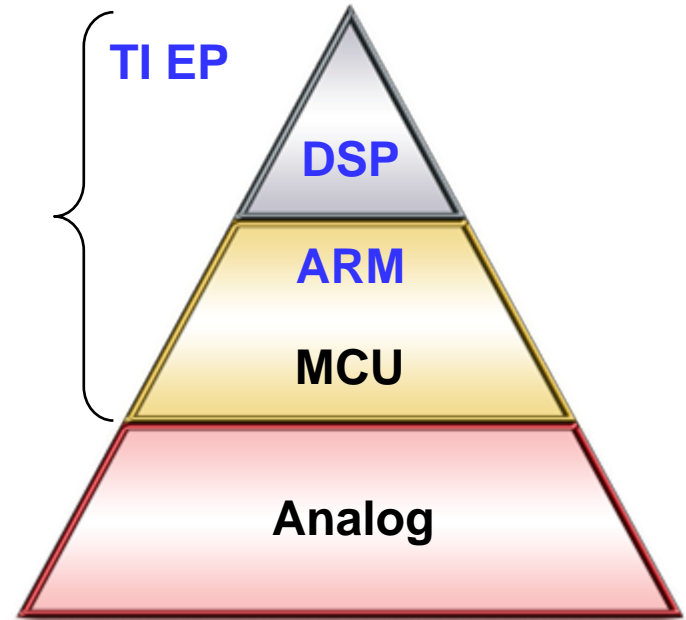


Smart Terminal

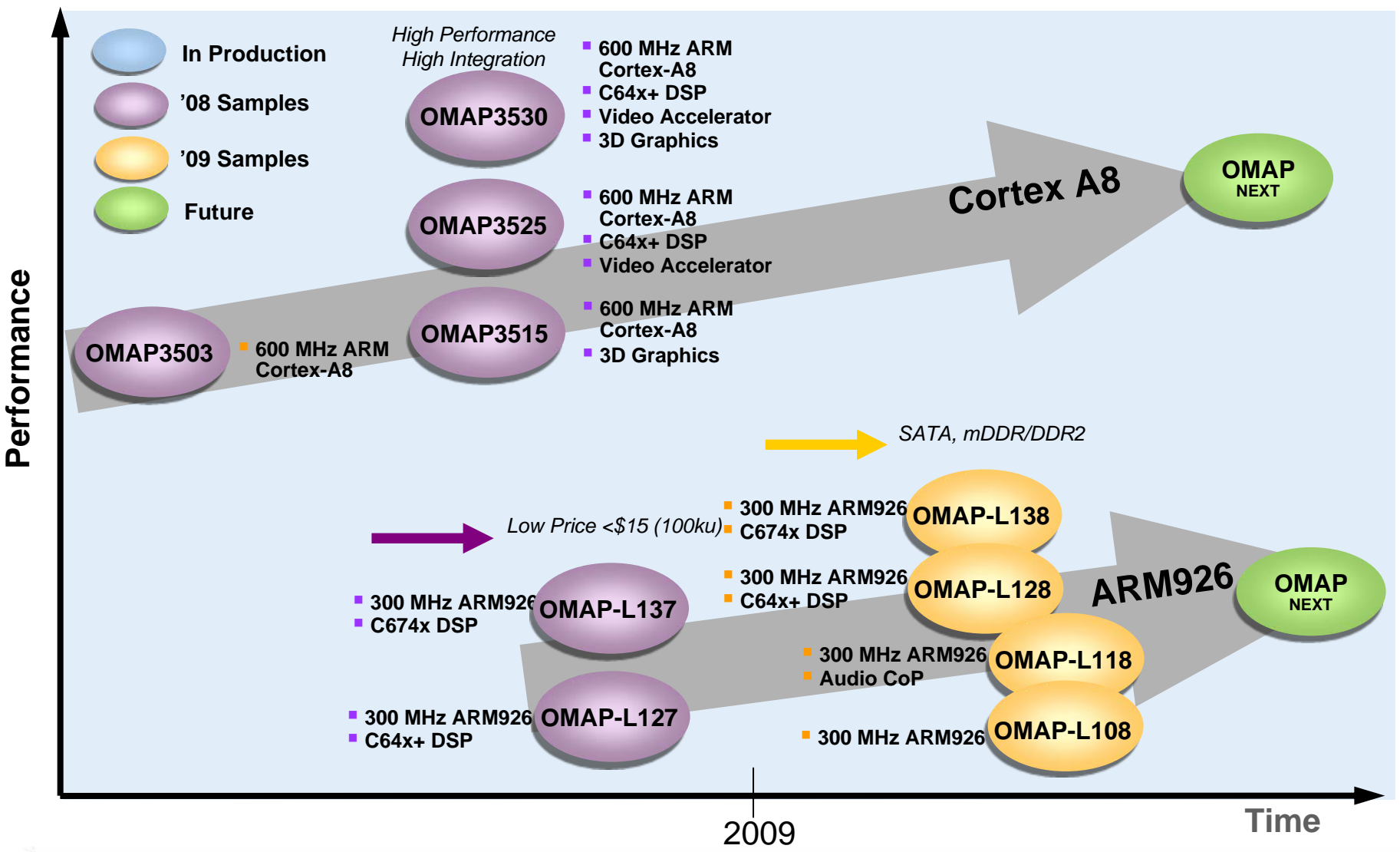


Market Needs & Value Proposition

- **Lower Power Consumption**
 - Saving Energy (National Mandate)
 - Wind tight Shell, no Fan
 - Longer Battery Life
- **Machine Vision**
 - LED → STN LCD → TFT LCD
 - Customized Display Content
 - 3D for some applications
- **Intelligent Control**
 - Friendly Human Machine Interface
 - Higher Efficiency and Precision
 - Higher Real Time Performance
- **Networked**
 - Easy to configure the system
 - Remote operation and software upgraded
 - More and more data **Capture**, **Processing**, **Display**, and **Transportation**



Low-power applications processors roadmap



Four Low Power Product Lines

More than 15 new processors coming soon

Application

Up to 2400 MMACs



- Portable instrumentation
- SDR radio
- Portable data terminals
- Portable connectivity

New product generation



Highly Integrated
Linux/ WinCE

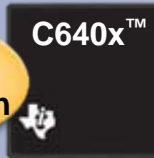
20mW – 400mW

Application processing

Industry's lowest power
ARM + DSP SoC

- Public Safety Radio
- Military radio
- Diagnostics
- Portable music recording

New product generation



High Performance
Up to 2400MMACs

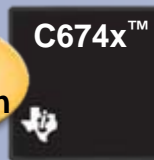
12mW – 350mW

Low power
High Performance

More than 2X the performance
with the same power as
existing low power DSPs

- Music effects
- Industrial
- Conference phones
- Portable medical

New product generation



High Precision
and low power

12mW – 385mW

Industry's lowest power
floating-point DSP

20X lower standby power and
1/3 the power consumption
of existing floating-point devices

- Portable audio recording
- Wireless microphone
- Noise cancellation headphones
- Medical monitoring

New product



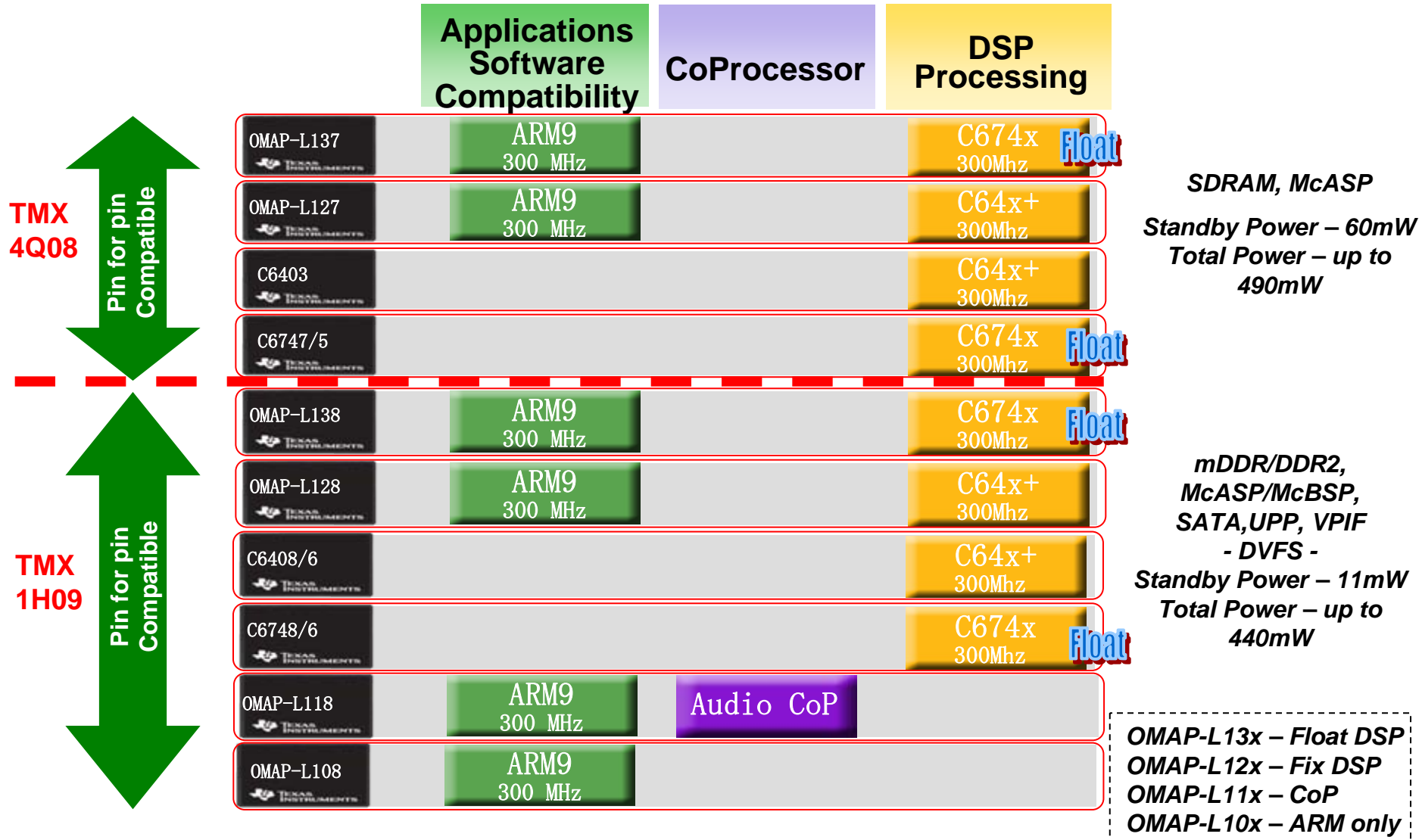
Analog integration
Parallelism

0.35mW – 46mW

Industry's lowest power
fixed-point DSP

1/2 the power consumption
of existing C55x devices
with **FFT coprocessor**

Software and Pin to Pin Compatibility



OMAP-L13x – Float DSP
 OMAP-L12x – Fix DSP
 OMAP-L11x – CoP
 OMAP-L10x – ARM only

NEW OMAP-L137 (ARM9 + C674x DSP) Preliminary

Schedule: TMX – 4Q08; TMS – 1Q09

Features

CPU Cores

- ARM926EJ-S™ (MPU) upto 300 MHz
- C674x™ DSP Core upto 300MHz

Memory

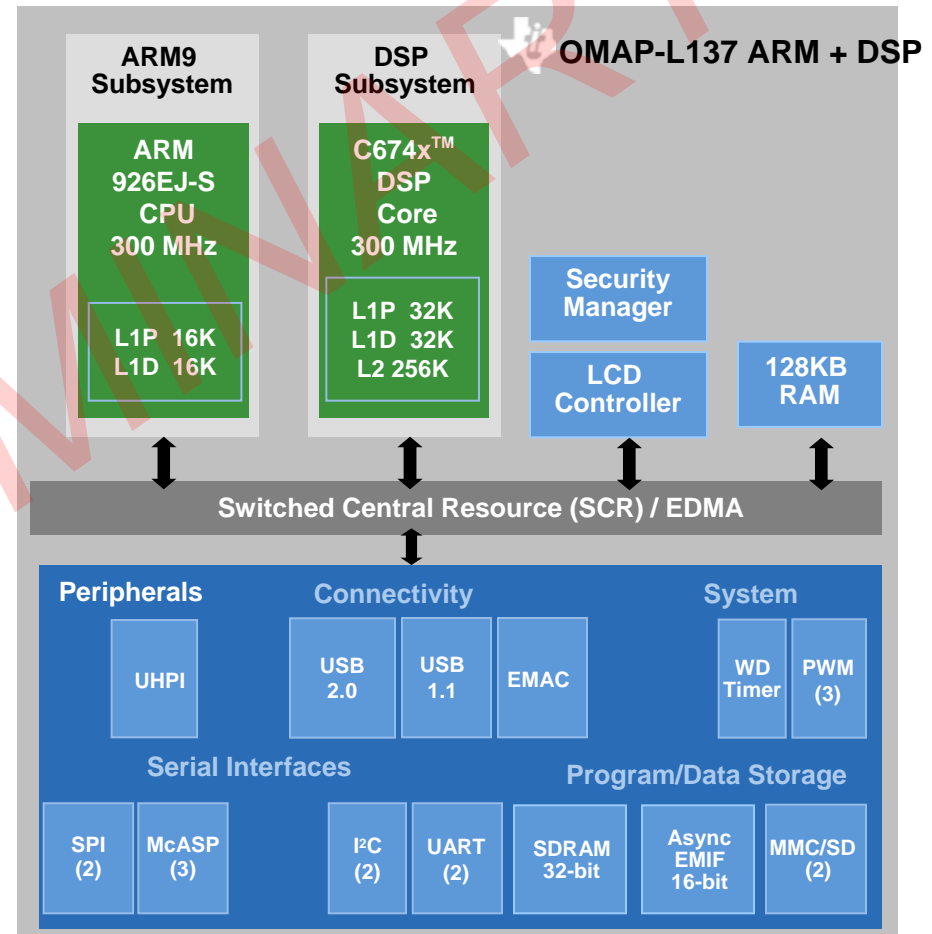
- **ARM:** 16K I\$, 16K D\$, 64K ROM
- **DSP:** 32K L1D, 32K L1P, 256K L2 Cache, 128K RAM
- 1MB ROM

Peripherals (1.8/ 3.3V IOs)

- 10/100 Ethernet MAC
- EMIF1 – Supports 133 MHz SDRAM (16/32-bit)
- EMIF2 – Supports Async/NAND Flash (8/16 bit)
- USB 2.0 - USB OTG
- USB 1.1 – USB Full speed (OHCI)
- UHPI, McASP (3), UART(2), I²C (2), SPI (2), RTC, Timers (3), MMC/SD (2), LCD Controller, GPIO, Security Manager - EFuse
- **Package - 17 x 17mm BGA (1.0mm pitch) ~256pins**
- **Pin to pin compatible with C6747**
- **Power (1.0-1.2V Core, 3.3V IOs)**
 - Active < TBD mW @ 300MHz/1.2V/70C (estimate)
 - Standby < 100 mW @ 300MHz/1.2V/25C (estimate)

Applications

- SDR, Portable Catalog, Bar Code Scanners, Portable Communications, Portable Medical, Portable Audio



EVM Available 4Q08

NEW OMAP-L127 (ARM9 + C64x+ DSP) Preliminary

Schedule: TMX – 4Q08; TMS – 1Q09

Features

CPU Cores

- ARM926EJ-S™ (MPU) upto 300 MHz
- C64x+™ DSP Core upto 300MHz

Memory

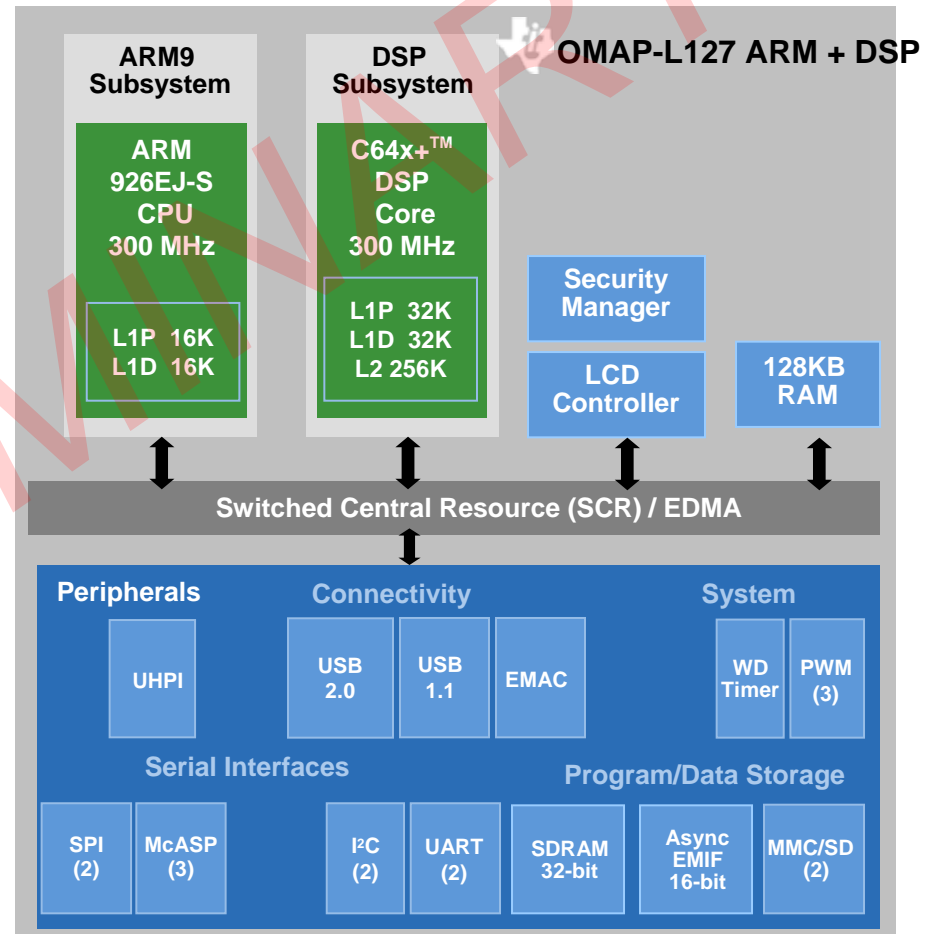
- **ARM:** 16K I\$, 16K D\$, 64K ROM
- **DSP:** 32K L1D, 32K L1P, 256K L2 Cache, 128K RAM
- 1MB ROM

Peripherals (1.8/ 3.3V IOs)

- 10/100 Ethernet MAC
- EMIF1 – Supports 133 MHz SDRAM (16/32-bit)
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- USB 2.0 - USB OTG
- USB 1.1 – USB Full speed (OHCI)
- UHPI, McASP (3), UART(2), I²C (2), SPI (2), RTC, Timers (3), MMC/SD (2), LCD Controller, GPIO, Security Manager - EFuse
- **Package - 17 x 17mm BGA (1.0mm pitch) ~256pins**
- **Pin to pin compatible with C6403**
- **Power (1.0-1.2V Core, 3.3V IOs)**
 - Active < TBD mW @ 300MHz/1.2V/70C (estimate)
 - Standby < 100 mW @ 300MHz/1.2V/25C (estimate)

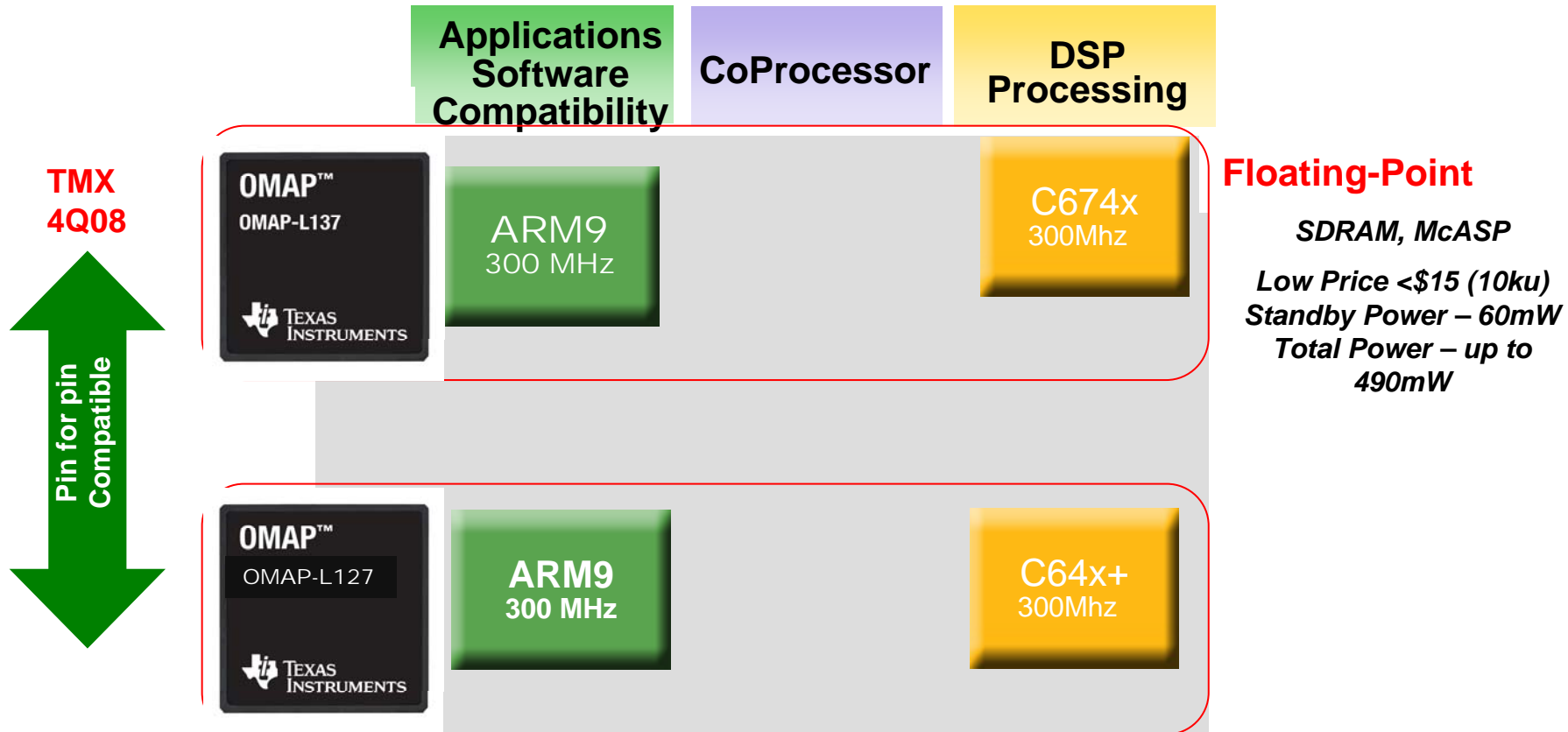
Applications

- SDR, Portable Catalog, Bar Code Scanners, Portable Communications, Portable Medical, Portable Audio

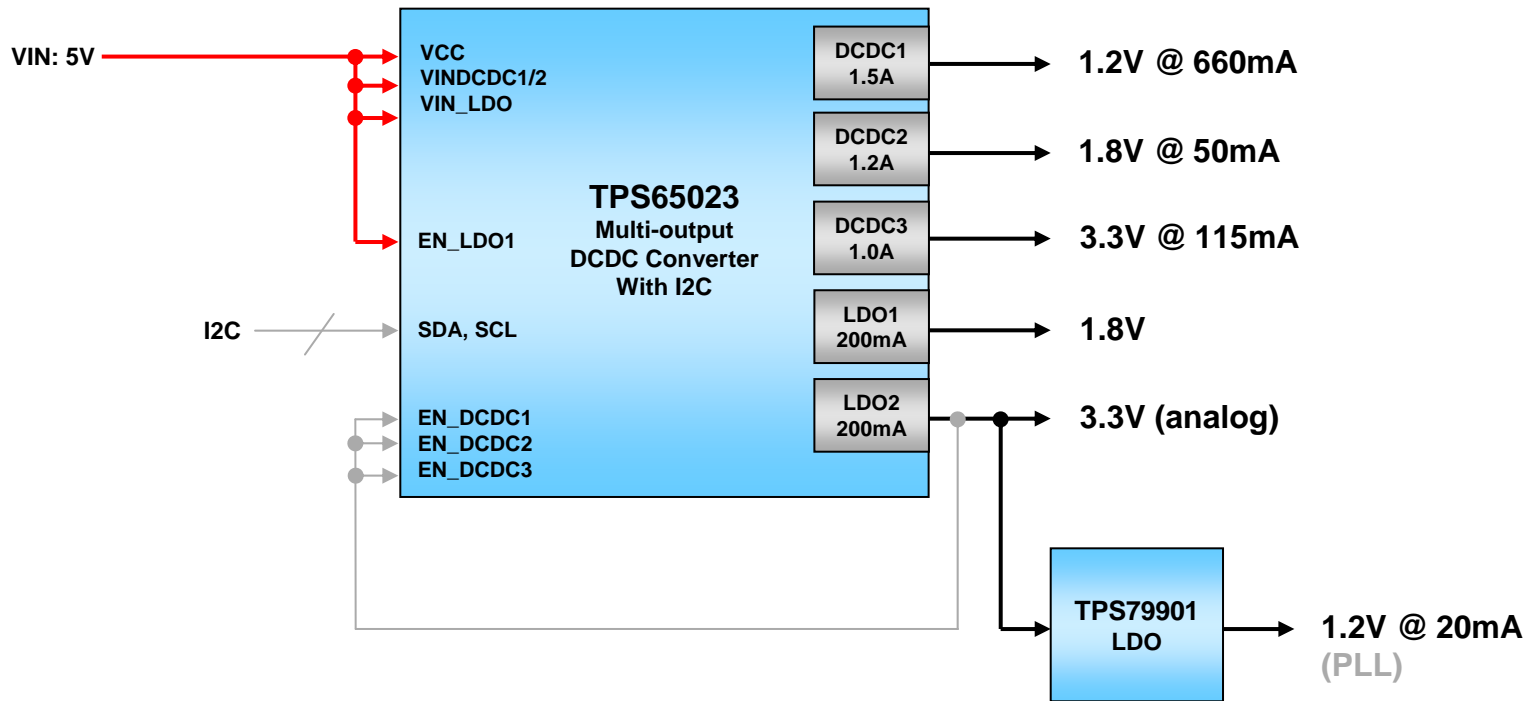


EVM Available 4Q08

Software and pin-for-pin compatibility



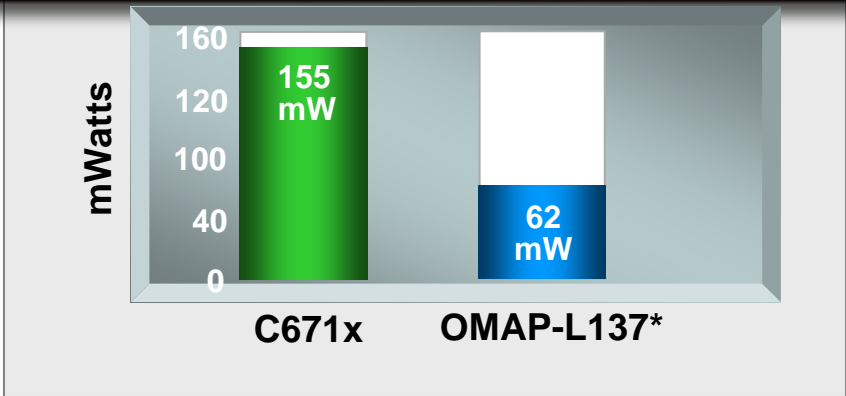
Power management solution for OMAP-L1x



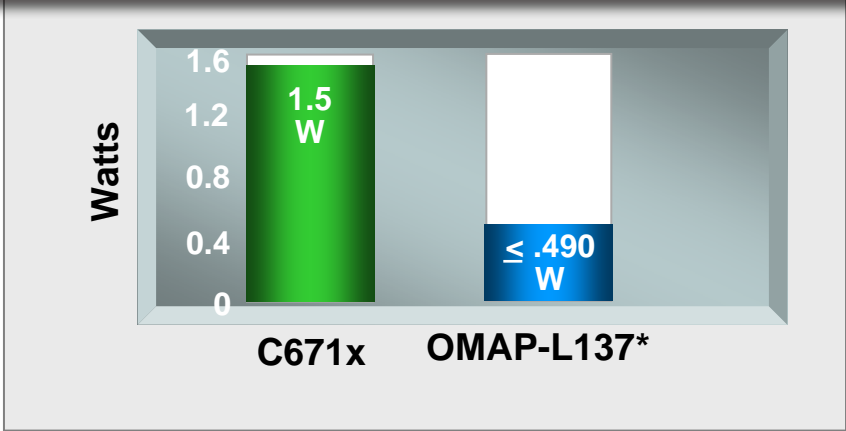
The TPS65023 allows you to use the power-saving SmartReflex feature of the OMAP-L1x and is capable of providing all of your system power depending on your system's architecture.

Extend product portability via low power options

> 50% reduction in standby power



< 1/3 the total power consumption



* 1.2V Core, 3.3V IOs at 25°C/300 MHz

Get Started Today!

OMAP-L137/ C6747 Starter Kit



Part Number: **TMDXOSKL137**

Available Sept. 08

\$395

Hardware

EVM board

- OMAP-L137/ C6747
- USB Interface
- AIC32 Stereo Codec
- Supports SD and other media interfaces

Emulation

- On-board XDS510 JTAG controller

Connectors

- Daughter Card connectors
- Expansion Port connectors

Software

- Development tools software including Montavista Linux 2.6.18, C6000 start Kit Code Composer Studio™, DSP/BIOS™ RTOS, Compiler, Assembler, and Linker
- Foundation software
- Full set of Linux and DSP drivers

OMAP-L1x Outline

- Lower Power Consumption;
- 300MHz ARM9 plus 300MHz DSP, up to 2400MMACs
- Both Fixed-Point and Floating-Point DSP
- Two USB, USB1.1 and 2.0 OTG;
- Larger On Chip Memory, up to 384K (may save external memory for DSP);
- Automotive level device, high reliability;
- Pin for Pin DSP only or ARM only products, same peripherals;
- Strong roadmap with floating-point;
- Cheaper development tools.

Thank You & Question

www.ti.com.cn/embeddedprocessing