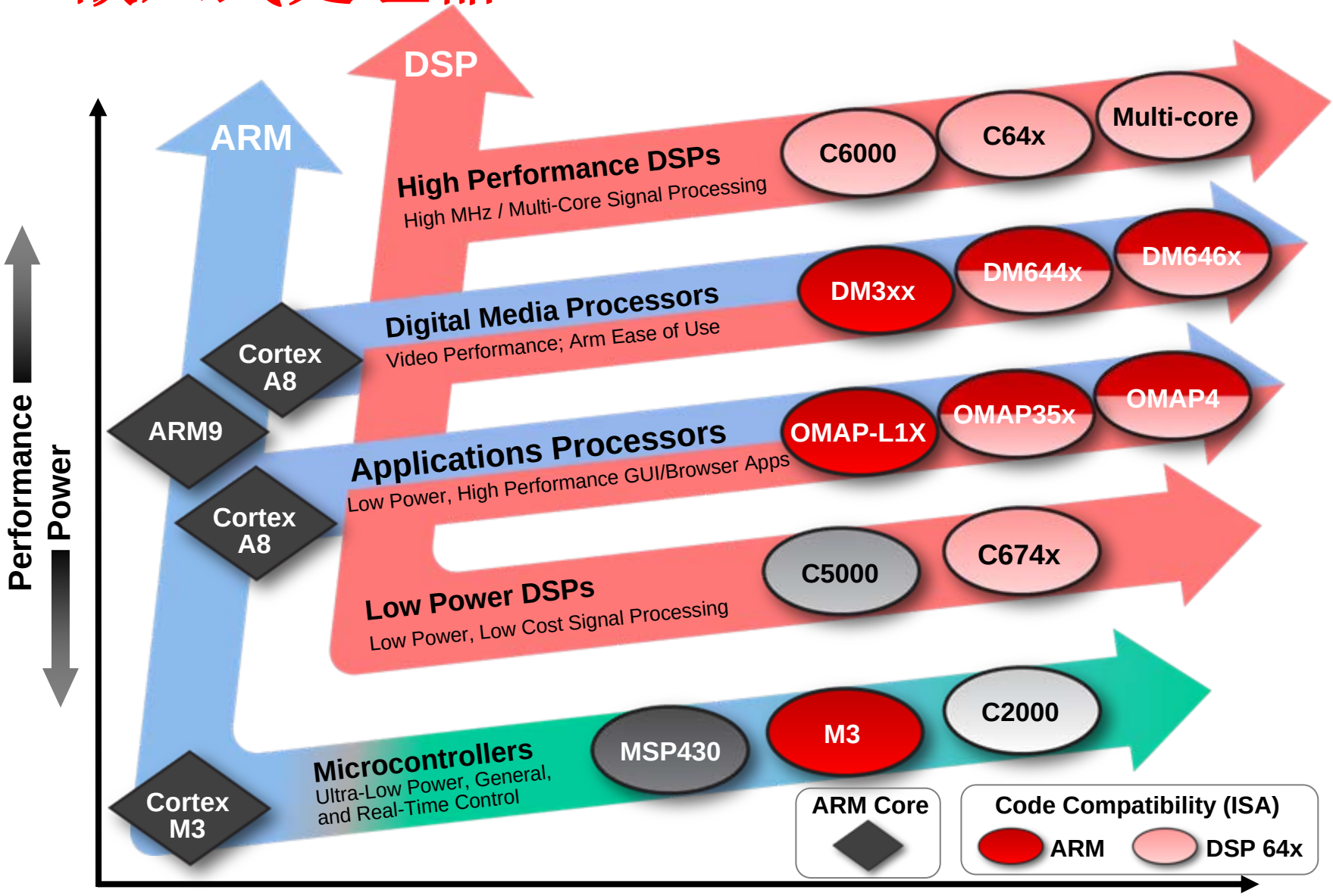
OMAP-L1x 基于ARM处理器

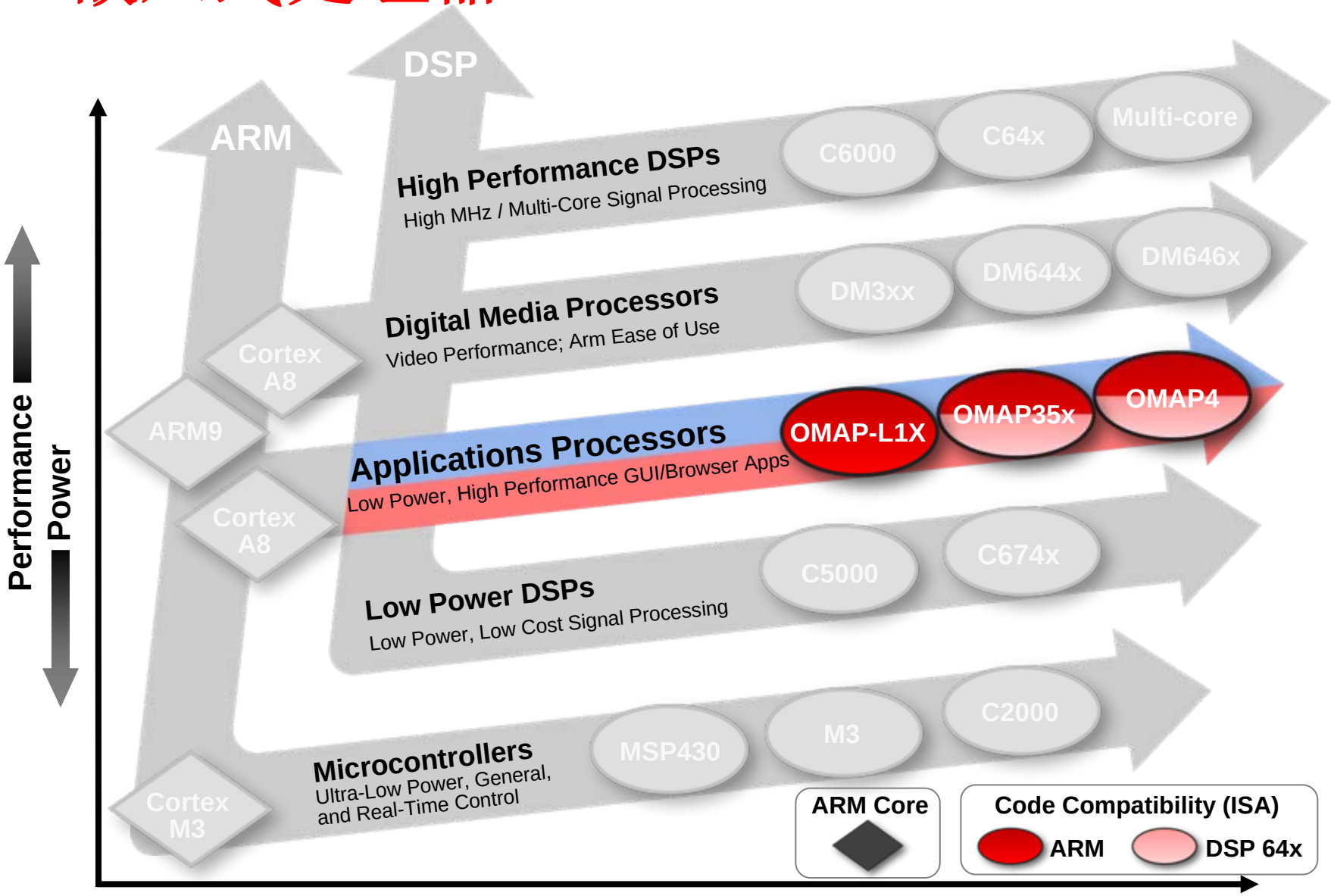
Texas Instruments

One Day, Multiple Solutions

TI 嵌入式处理器


DSP
ARM
Performance
Power
High Performance DSPs
High MHz / Multi-Core Signal Processing
C6000
C64x
Multi-core
Digital Media Processors
Video Performance; Arm Ease of Use
DM3xx
DM644x
DM646x
Cortex A8
ARM9
Cortex A8
Applications Processors
Low Power, High Performance GUI/Browser Apps
OMAP-L1X
OMAP35x
OMAP4
Low Power DSPs
Low Power, Low Cost Signal Processing
C5000
C674x
Microcontrollers
Ultra-Low Power, General, and Real-Time Control
MSP430
M3
C2000
Cortex M3
ARM Core
Code Compatibility (ISA)
ARM
DSP 64x

TI 嵌入式处理器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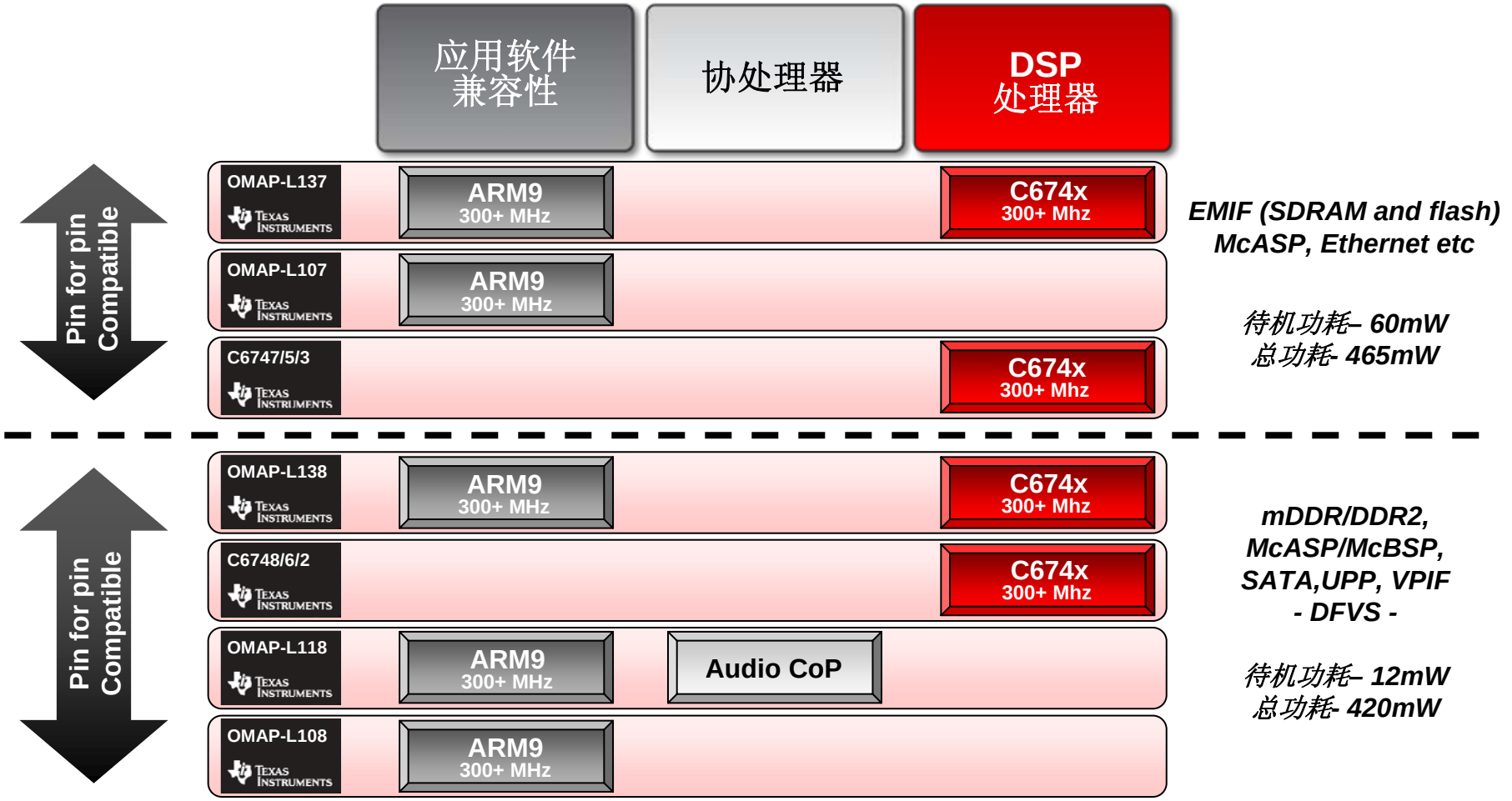
OMAP-L1x: 无可比拟的互联选项与低功耗的ARM9 和可选择的C674x DSP内核

灵活的系统接口 &网络互联	• SATA, uPP, EMAC, USB PHY • System cost savings in the range of 15%
在性能和功耗上 最优化你的系统	• Industry's lowest power floating-point DSP • Power management software • Dynamic voltage frequency scaling
开发变得 更加容易	• Fixed- & floating-point with C674x core • C67x+ & C64x+ code reuse • Pin-to-pin compatibility

OMAP-L1x Roadmap—低于$15 (10Ku)



C674x –DSP only
OMAP-L13x – ARM + Floating-Point DSP
OMAP-L118 – ARM + Co-Processor
OMAP-L10x – ARM only

Texas Instruments

TI's OMAP-L1x 应用处理器为以下这些应用而量身订制：

应用如下：

Bar code scanners

SDR

Test and measurement

Portable medical

Industrial monitoring

Medical monitoring

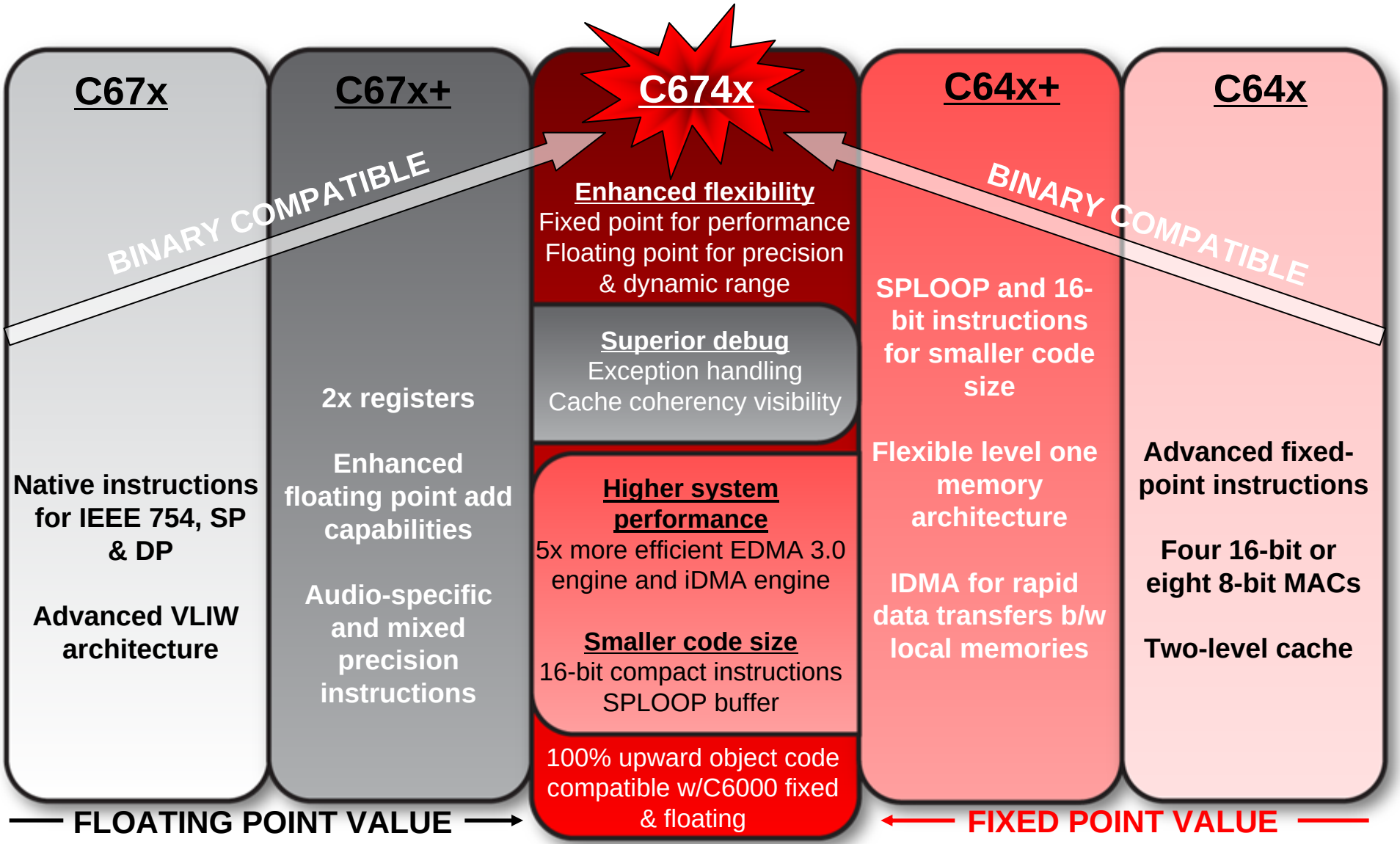
Sonar

设计需求

- 高度集成SoC
- 特有的外设互联
- 低功耗为便携设备 apps: 12mW – 465mW*
- 支持各种不同等级的操作系统

* For typical use case scenarios

C674x DSP 内核: 同时支持浮点定点运算



OMAP-L107 处理器(ARM9)—预计
时间表: TMX – Oct 09; TMS – 1Q10

CPU 内核
- ARM926E-JS™ up to 300 MHz

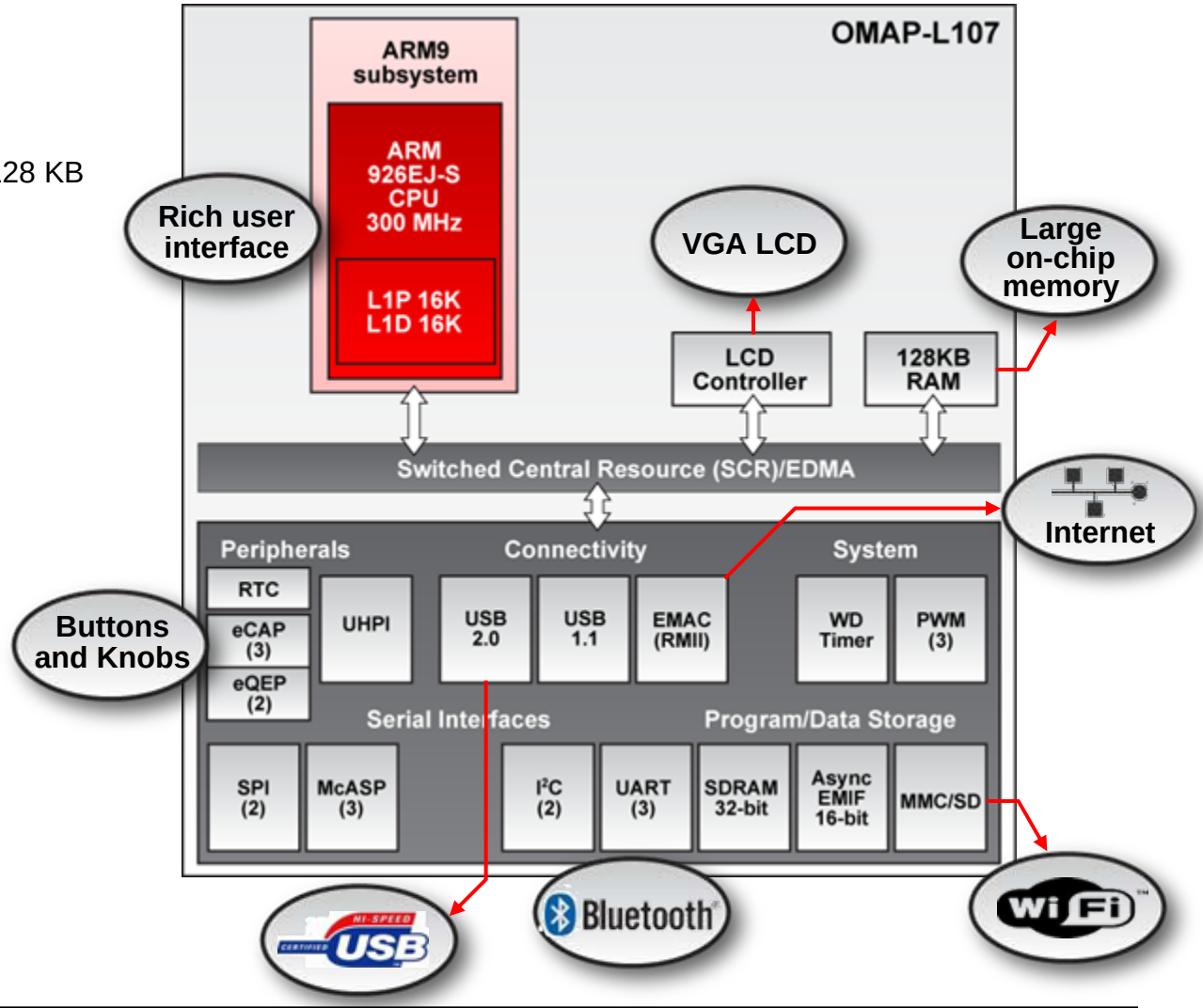
- **存储**
- ARM: 16K L1D, 16K L1P, 64K ROM, 128 KB L3 RAM

- **功耗(1.2V core, 1.8/3.3V IOs)**
- 活跃< 490 mW @ 300MHz/1.2V/70C
- 待机< 60 mW @ 300MHz/1.2V/25C

- **封装**
- 17 x17mm BGA (1.0mm pitch)
- 和 OMAP-L137, C6743/5/7管脚兼容

- **工作温度范围**
- 商用温度器件
  - 节点温度, TJ: 0 – 90 C
  - 周围温度, TA: 0 – 70 C
- 汽车温度器件
  - 节点温度, TJ: -40 – 125 C
  - 周围温度, TA: -40 – 105 C

- **价格: $7.85 @ 1Ku**



OMAP-L137 处理器(C674x DSP + ARM9)
时间表: TMX – Now; TMS – 1Q10

CPU 内核
- ARM926E-JS™ up to 300 MHz
- C674x DSP core up to 300 MHz

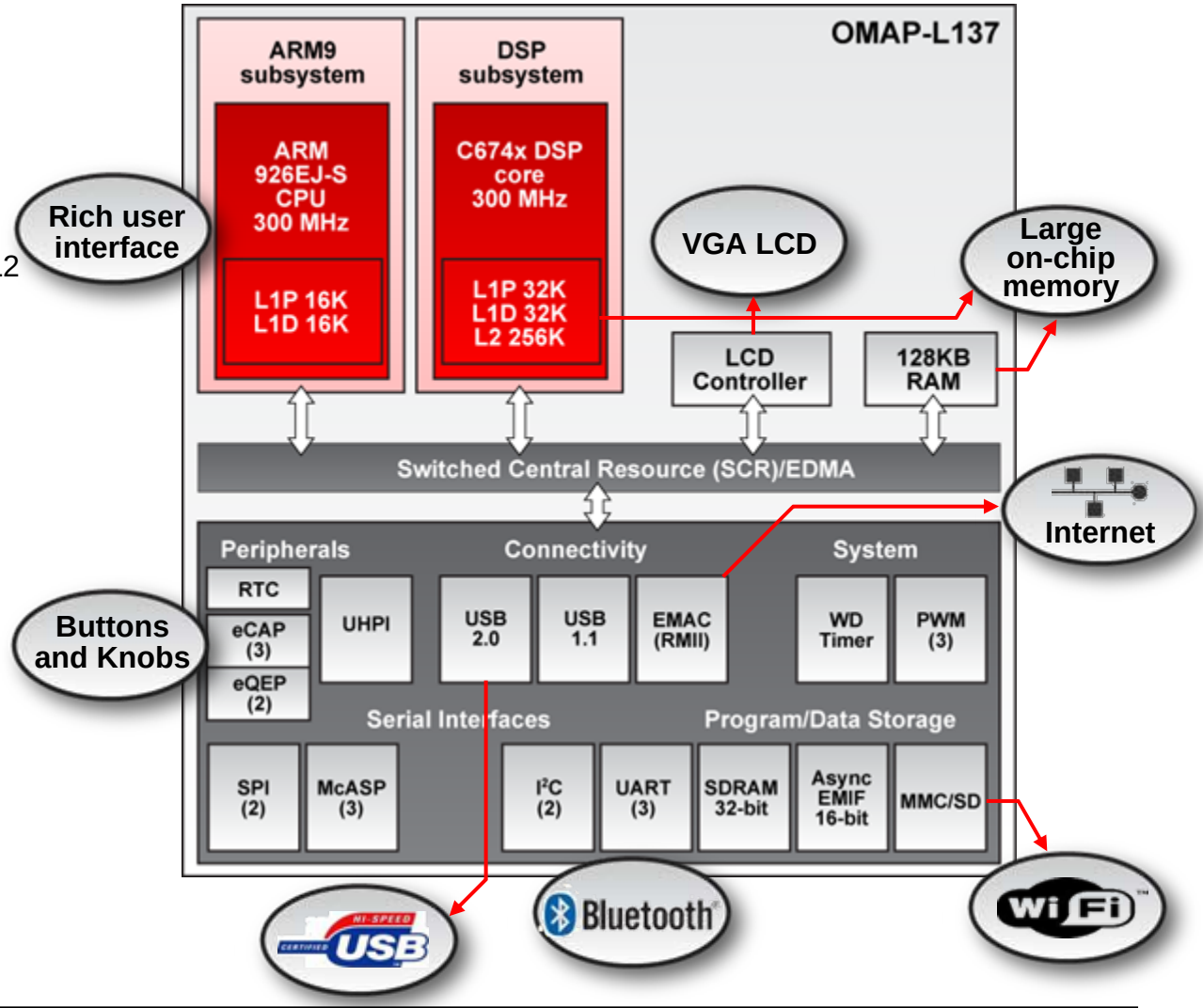
- **存储**
- ARM: 16K L1D, 16K L1P, 64K ROM
- DSP: 32 KB L1D, 32 KB L1P, 256 KB L2
- Shared: 128 KB RAM

- **功耗(1.2V core, 1.8/3.3V IOs)**
- 活跃< 465 mW @ 300MHz/1.2V/70C
- 待机< 60 mW @ 300MHz/1.2V/25C

- **封装**
- 17 x17mm BGA (1.0mm pitch)
- 和C6743/7管脚完全兼容

- **工作温度范围**
- 商用器件温度
  - 节点温度, TJ: 0 – 90 C
  - 周围温度, TA: 0 – 70 C
- 汽车级器件温度
  - 节点温度, TJ: -40 – 125 C
  - 周围温度, TA: -40 – 105 C

- **价格: $16.35 @ 1Ku**



OMAP-L108 处理器(ARM9)—预计
时间表: TMX – Oct 09; TMS – 1Q10

功耗
(1.0-1.2V Core, 1.8/3.3V IOs)

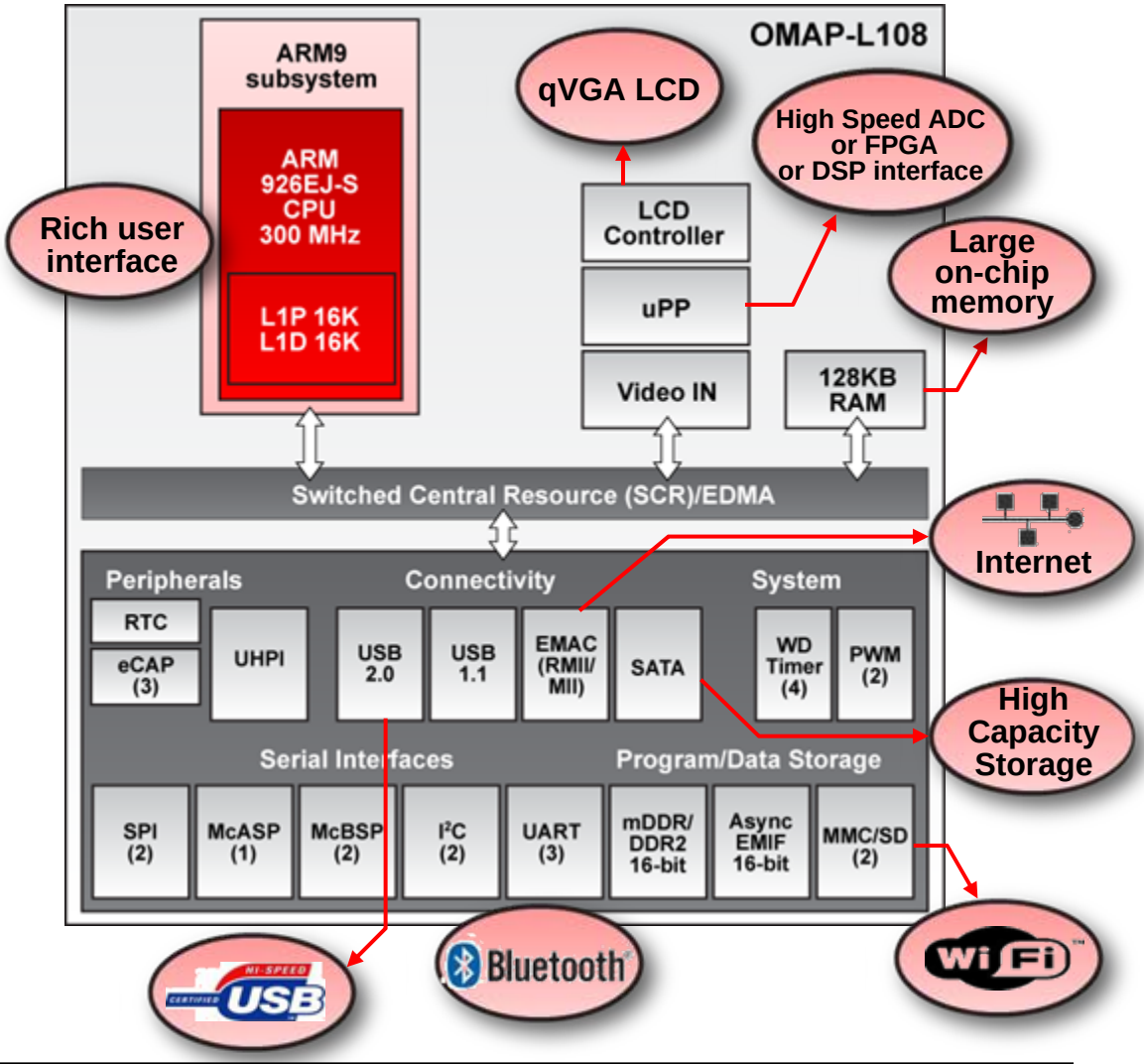
- 总功耗< 440 mW @ 300Mhz, 1.2V, 25C
- 待机功耗
  - < 15mW @ 1.0V/ 25C;
  - < 20mW @ 1.2V/25C

- **封装选择**
- 13 x13mm nFBGA (65nm)
- 16x16mm BGA (0.8mm)
- 和OMAP-L138,L118, C6748/6/2管脚完全兼容

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

- **工作温度范围**
- 商用器件温度
  - 节点温度, TJ: 0 – 90 C
  - 周围温度, TA: 0 – 70 C
- 汽车级器件温度
  - 节点温度, TJ: -40 – 125 C
  - 周围温度, TA: -40 – 105 C

- **价格: $9.00 @ 1Ku**



新的OMAP-L138 (ARM9 + C674x DSP)
时间表: TMX – Now; TMS – 1Q10

功耗
(1.0-1.2V Core, 1.8/3.3V IOs)

- 总功耗< 440 mW @ 300Mhz, 1.2V, 25C
- 待机功耗
  - < 12mW @ 1.0V/ 25C;
  - < 20mW @ 1.2V/25C

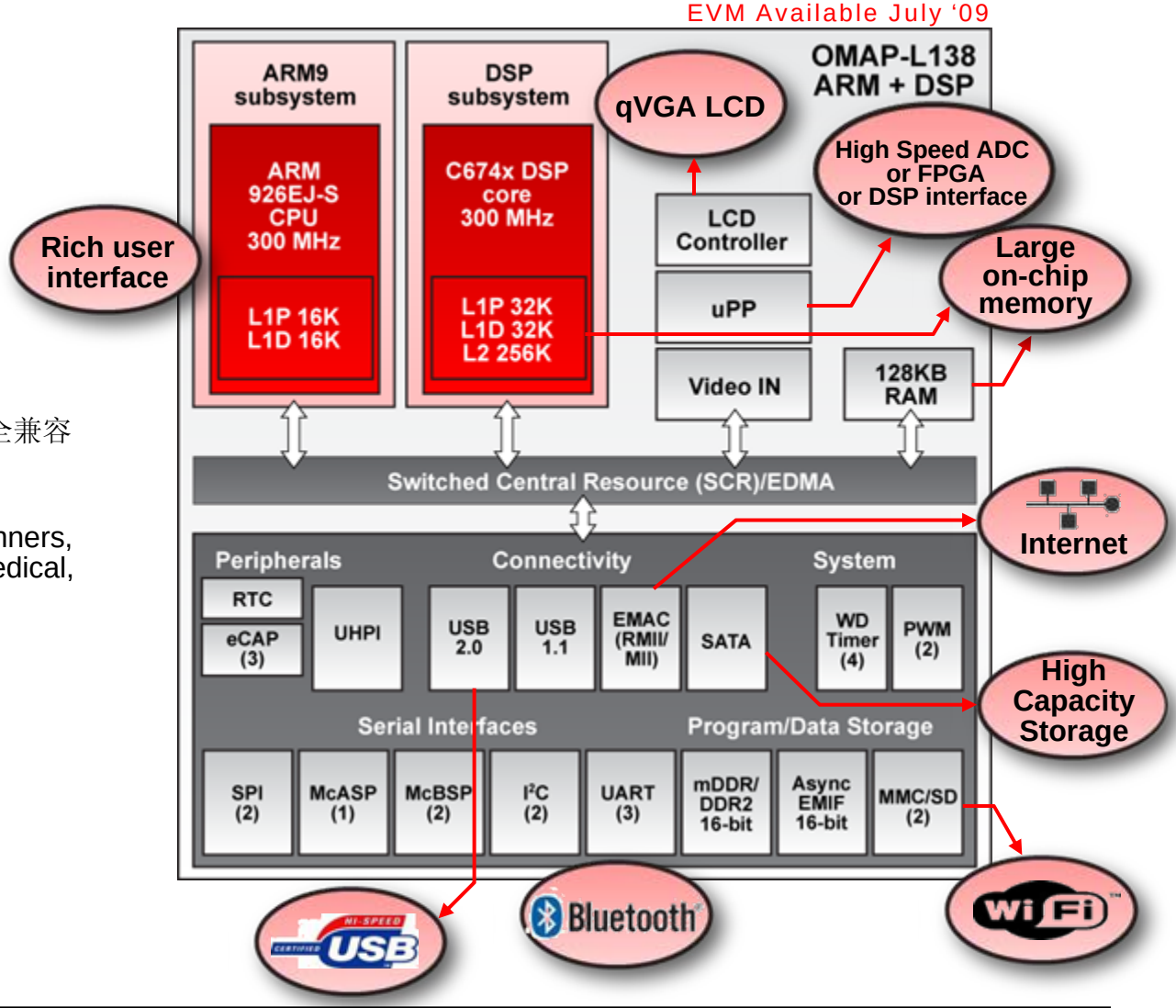
- **封装选择**
- 13 x13mm nFBGA (65nm)
- 16x16mm BGA (0.8mm)
- 和OMAP-L118/108, C6748/6/2管脚完全兼容

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

- **工作温度范围**
- 商用器件温度
  - 节点温度, TJ: 0 – 90 C
  - 周围温度, TA: 0 – 70 C
- 汽车级器件温度
  - 节点温度, TJ: -40 – 125 C
  - 周围温度, TA: -40 – 105 C

- **价格: $18.60 @ 1Ku**

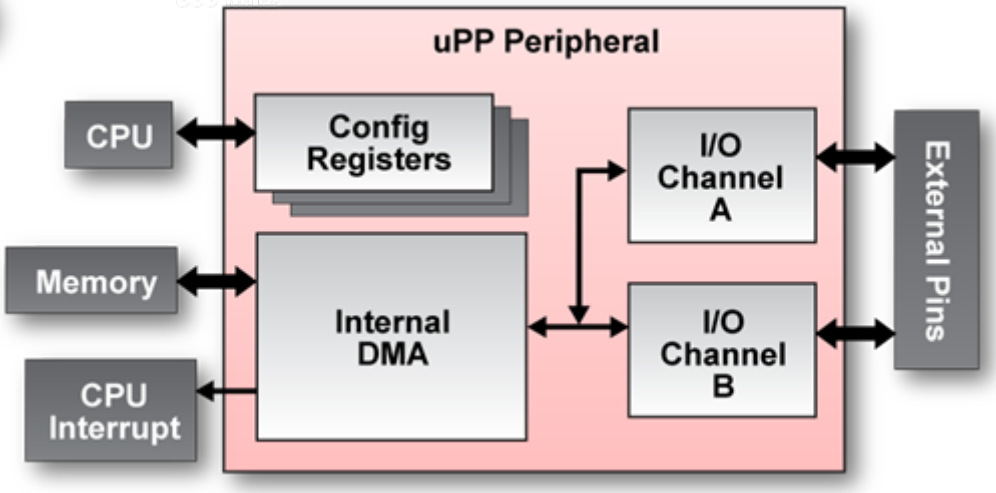
EVM Available July '09



通用并行端口 (uPP) 扩展系统互联选项

什么是 uPP?

- 高速并行数据端口
- 两个双向的和独立的16位通道
- 内部DMA使得数据I/O效率更高
- 简单的I/O协议



uPP有什么用?

- 高效的DSP+FPGA 系统被高速数据I/O使能
- 使能多DSP系统可以设计成各种不同的拓扑结构
- 与高速ADCs 和DACs高速互联

配置	流量(MB/s)
1 Ch, 16-bit	120
2 Ch, 1 Way, 8-bit	120
2 Ch, 1 Way, 16-bit	160
2 Ch, 2 Way, 16-bit	240
HPI (16-bit)	50

OMAP-L137/TMS320C6747 浮点开发套件

用来在以下器件的开发: OMAP-L137, OMAP-L107, C6747, C6745 & C6743

MCU Day
减价$50

SPECTRUM DIGITAL INCORPORATED

Available Now: ~~$399~~ $349

Part Number: TMDXOSKL137BET

Hardware

- OMAP-L137 – ARM9 + C674x DSP
- 24-bit stereo CODEC
- Four 3.5 millimeter audio jacks
- 64Mb SPI Flash memory
- 512Mb SDRAM
- ETH MAC, USB 2.0, USB 1.1, MMC/SD, LCDc
- HPI, McASP & I2C interface header emulation
- On-board standard JTAG interface
- Embedded JTAG support via USB
- +5V universal power supply
- Expansion ports for plug-in modules

Software

- Code Composer StudioTM IDE
- Simulator included
- DSP/BIOSTM RTOS, eXpressDSP, and Monta Vista Linux Pro 5.0 Software support
- Fast run-time library available on the web
- MATLAB/Simulink Support (FUTURE)
- LabVIEW for Embedded Applications Support (FUTURE)
- Quick Start Guide and technical reference

Texas Instruments

OMAP-L138: 满足不同客户需求的工具

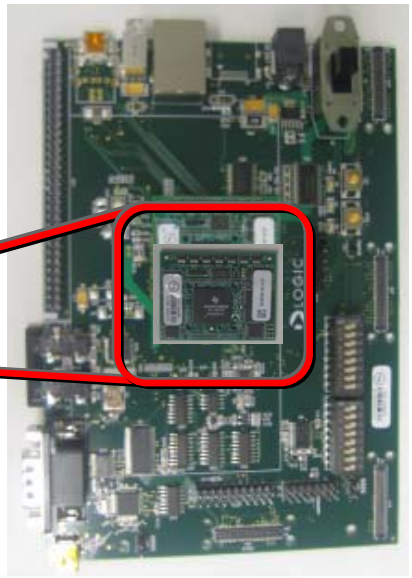
用来在以下器件的开发: OMAP-L138, OMAP-L118, OMAP-L108, C6748, C6746 & C6742

独立的系统单元

- OMAP-L138 processor
- 64 or 128MB mDDR
- Ethernet PHY

**Available from Logic for ~$99*

Small FF Confirmed mDDR design



PN: SOMOMAPL138-10-1602AHCR
for 128MB mDDR support
PN: SOMOMAPL138-10-1502AHCR
For 64MB mDDR support

+

实验板

Only $149

- OMAP-L138 SOM
- 64MB mDDR
- **Access to key peripherals:**
  - **SATA, USB, EMAC, Audio**
- TPS65070 power management
- DSP/BIOS™ peripheral drivers
- CCStudio™ 3.3
- **Community supported**
- **Available from TI & Logic for ~~$149~~, $99*

Open source Linux peripheral drivers

TI PN: TMDXL138LOGIGEXP-B
Logic PN: SDK-OMAPL138-10-6408R

MCU Day 减价$50

OMAP-L138/C6748 EVM

2x the memory w/128MB

- **Full peripheral access:** SATA, uPP, EMAC, USB 2.0/1.1 and MMC/SD, VPIF, LCDC
- Software included
- TI supported
- LCD display option

Additional C6748 SOM

**Available from TI for ~~$849~~ $799*

TI PN: TMDXOSKL138BET

Texas Instruments

OMAP-L1x: 无可比拟的互联选项和高性能的ARM9 和可选择的C674x DSP内核

灵活的系统接口&网络互联

- SATA, uPP, EMAC, USB PHY
- System cost savings in the range of 15%

在性能和功耗上最优化你的系统

- Industry’s lowest power floating-point DSP
- Power management software
- Dynamic voltage frequency scaling

开发变得更加容易

- Fixed- & floating-point with C674x core
- C67x+ & C64x+ code reuse
- Pin-to-pin compatibility

备注

TI's C674x 低功耗浮点DSPs 为以下应用而定制:

应用如下：

Fingerprint identification

Test and measurement

Robotics

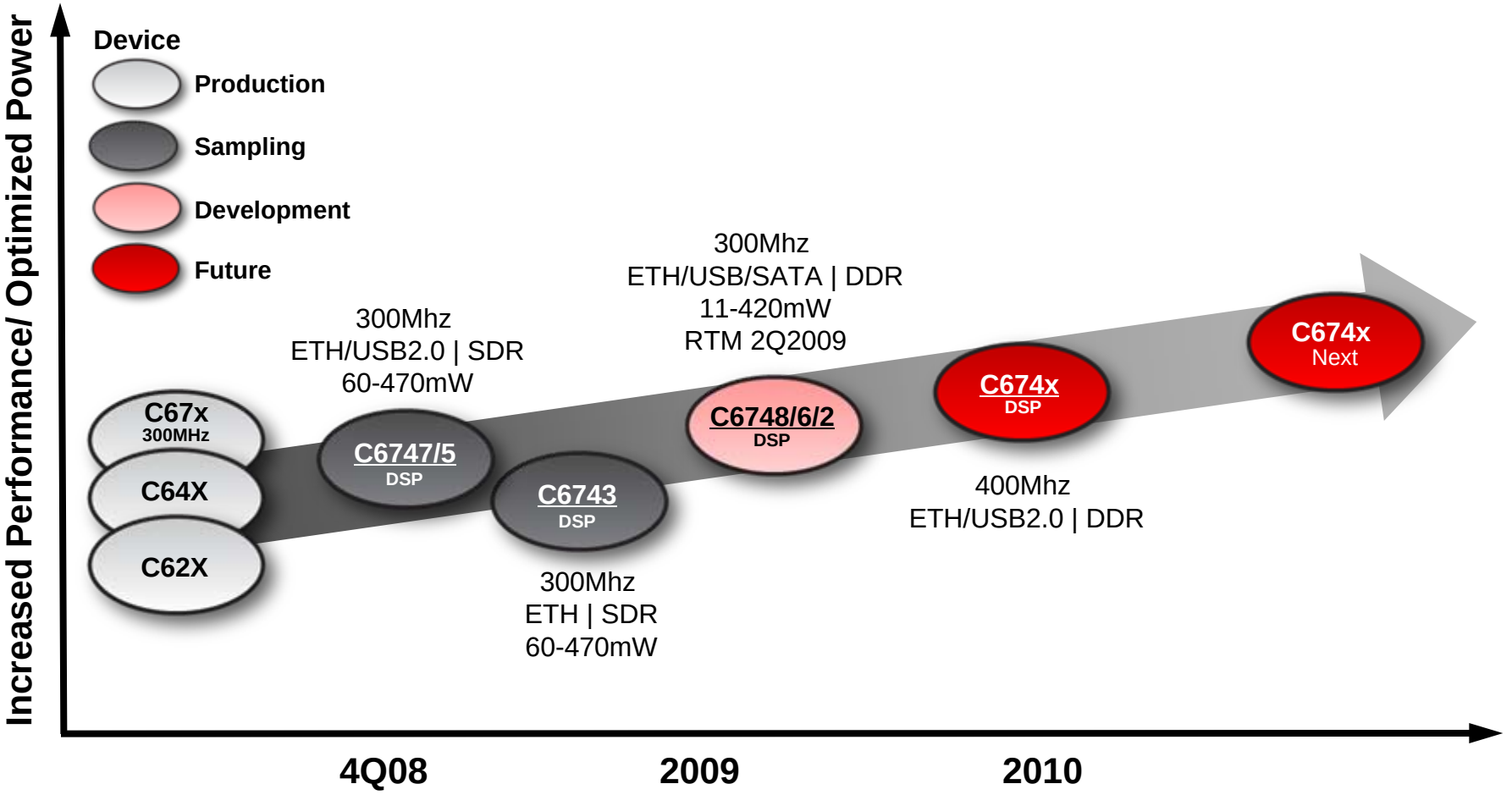
Audio Effects

Audio applications

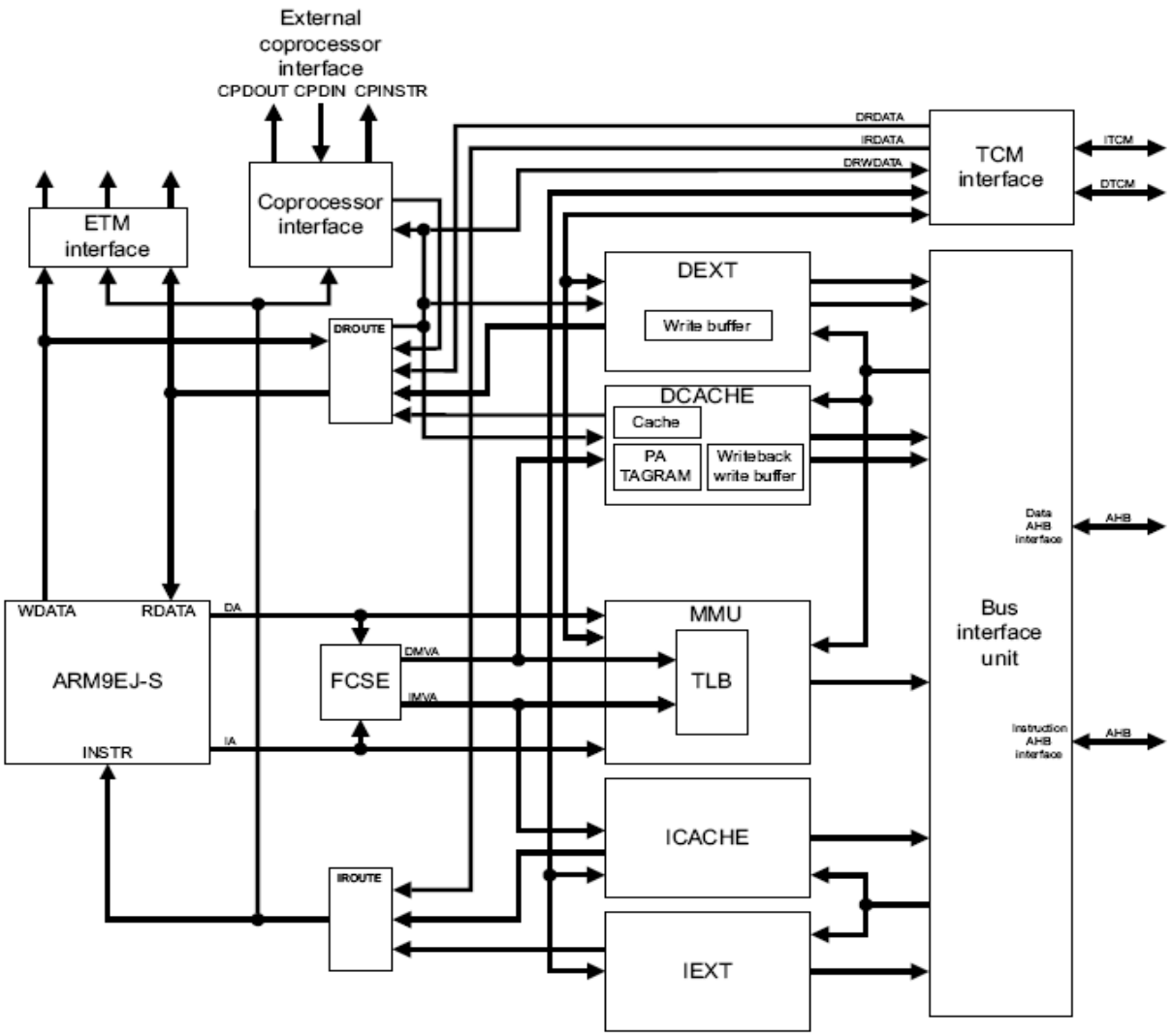
设计需求：

- Performance up to 2400MMACs
- Low active power
- Low standby power
- High precision
- Floating & fixed-point in a single core
- Code reuse

低功耗C674x浮点DSP roadmap



ARM926EJ-S 结构图



TMS320C674x DSP 内核