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Design Innovation.

5 Nov., 2008

MXC300-30 3G Mobile Platform Overview

PM103

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3G System Architecture

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Mobile eXtreme Convergence

- **3G Platforms**
  - Low-tier to high-tier portfolio
- Enable the **Lowest System Cost** for Open OS solutions
  - S60 / Symbian
  - UIQ / Symbian
  - Windows Mobile
  - Linux
- **Low Power** solutions from a Platform Perspective
- **Support and Tools** to reduce time to market and development costs

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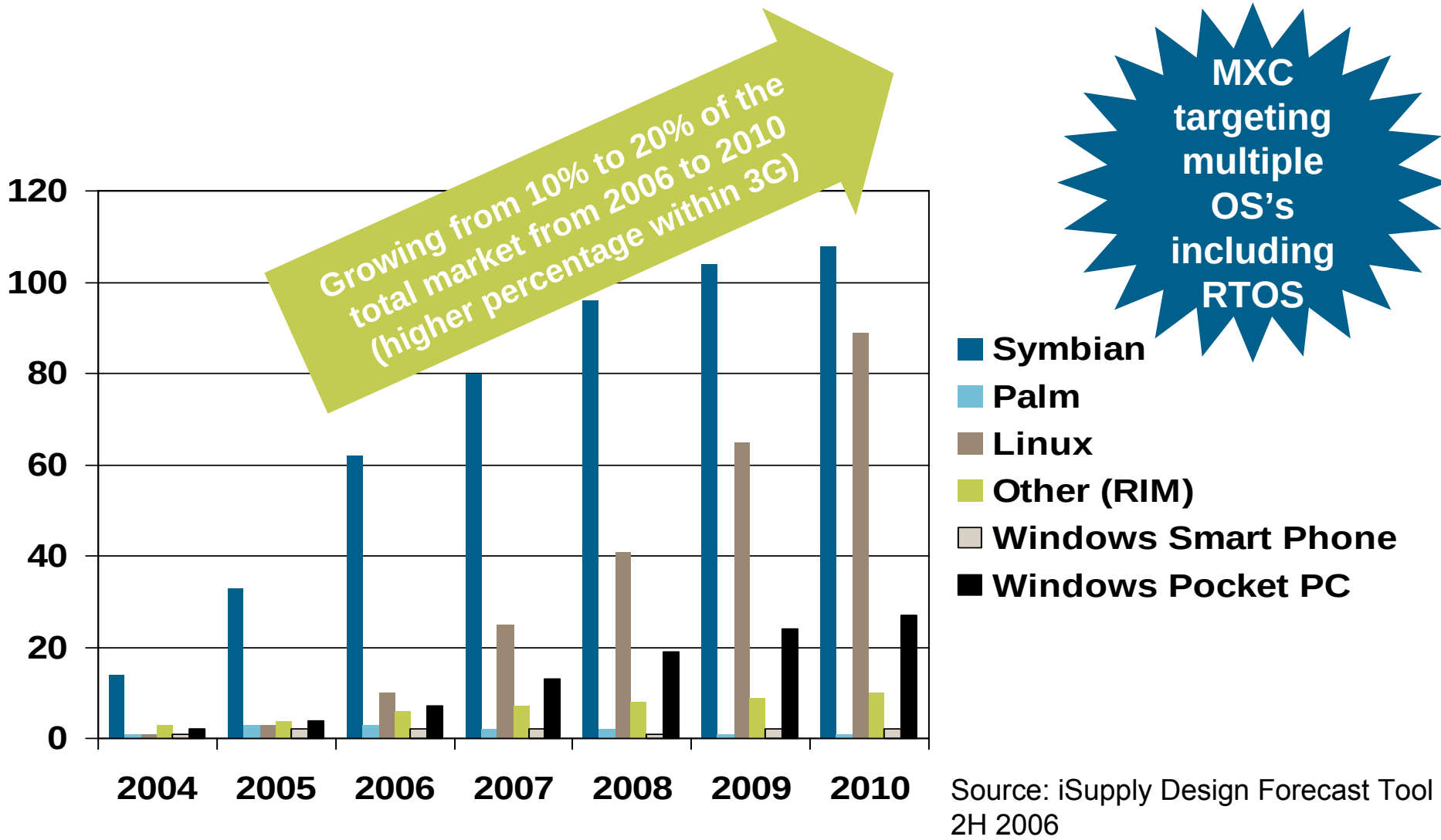
Mobile Phones OS Trends



Source: iSupply Design Forecast Tool 2H 2006

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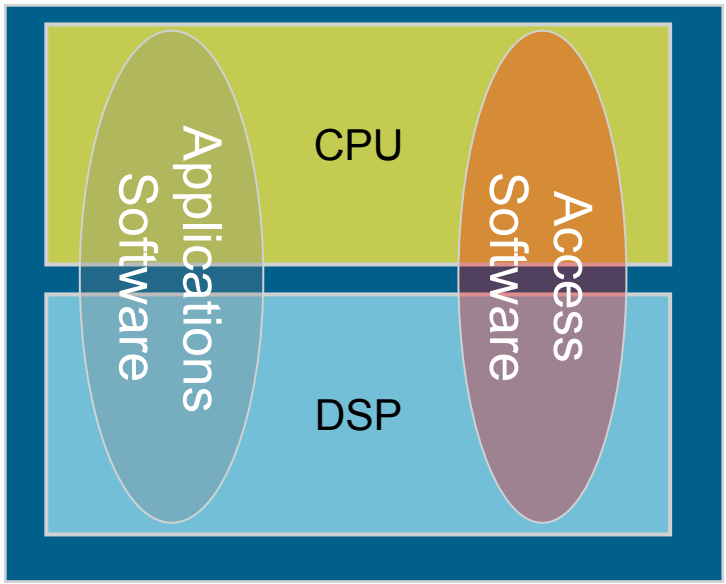
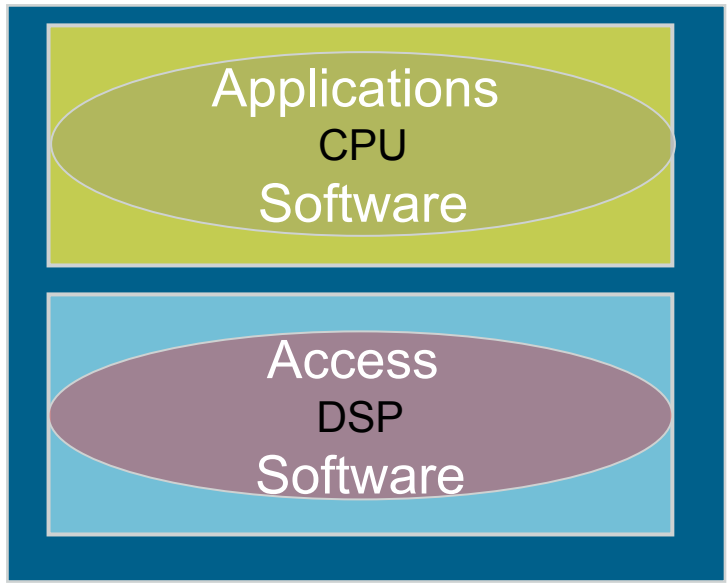
Value Proposition – Mobile eXtreme Convergence (MXC)

Traditional



- Shared resource conflicts
- Difficult integration of OS
- Difficult to scale
- Open OS can require extra processor and memory

Mobile eXtreme Convergence (MXC)



- Clean separation of domains
- Simpler integration of OS
- Easy to scale / tier
- More secure
- Enables separate modem / Apps

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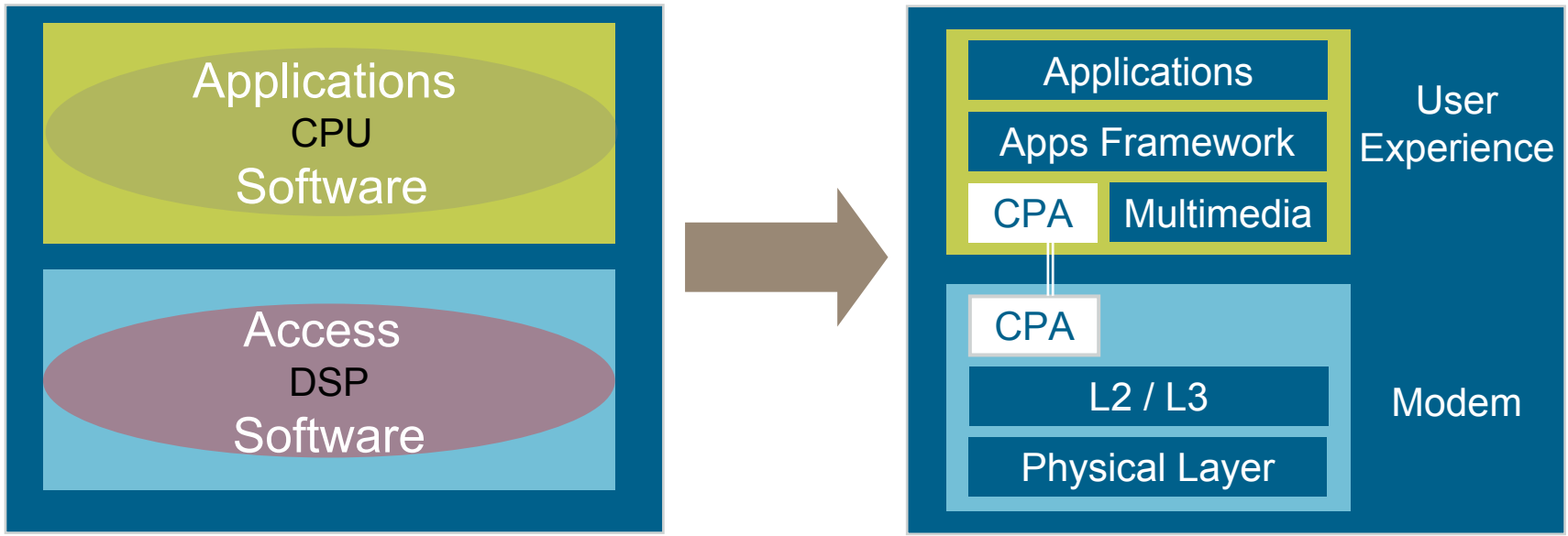
Cellular Platform Access (CPA) software decouples the Modem from the OS / Applications



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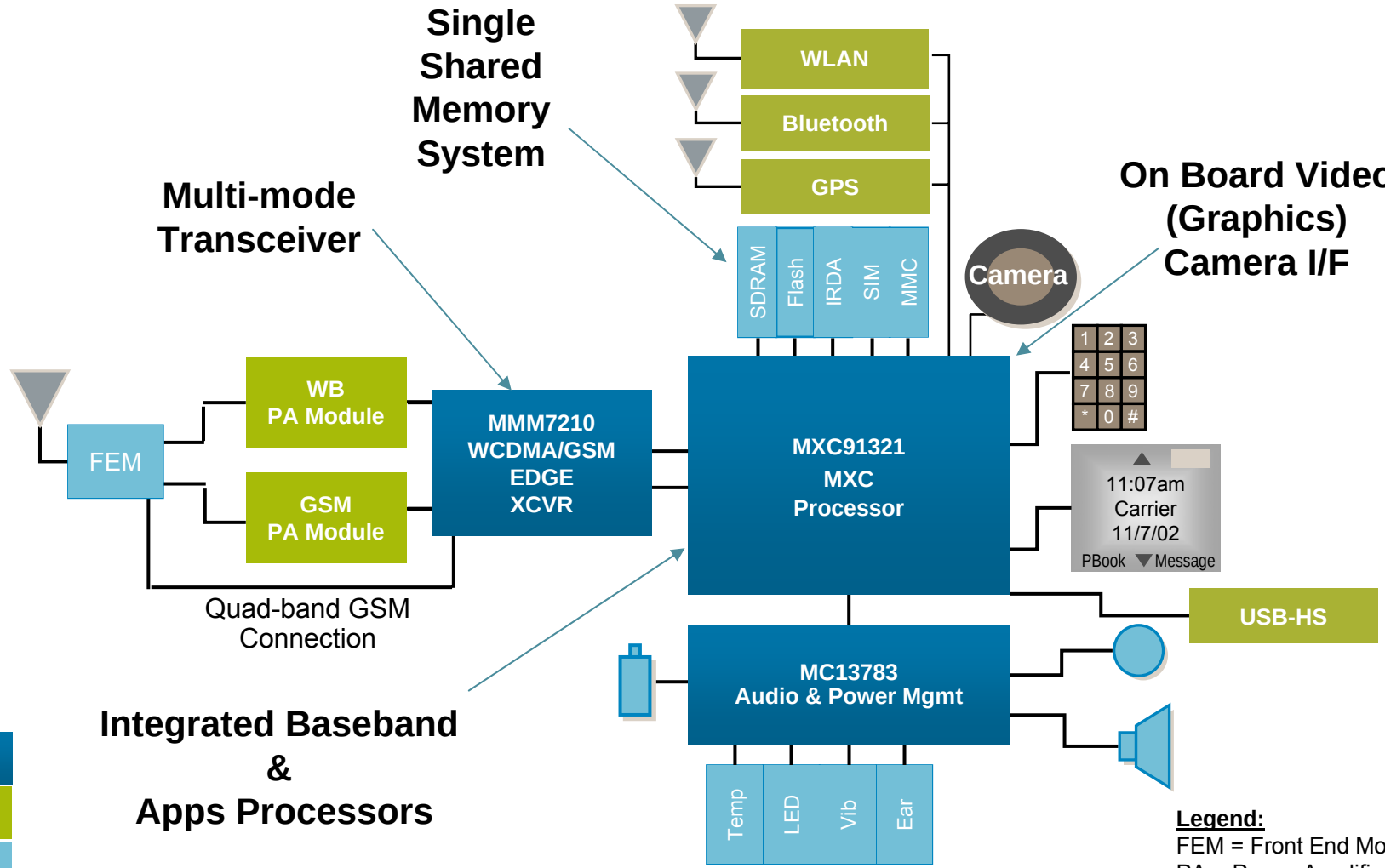
MXC300-30.2 Reference Design



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MXC91321 Implementation (Hardware)

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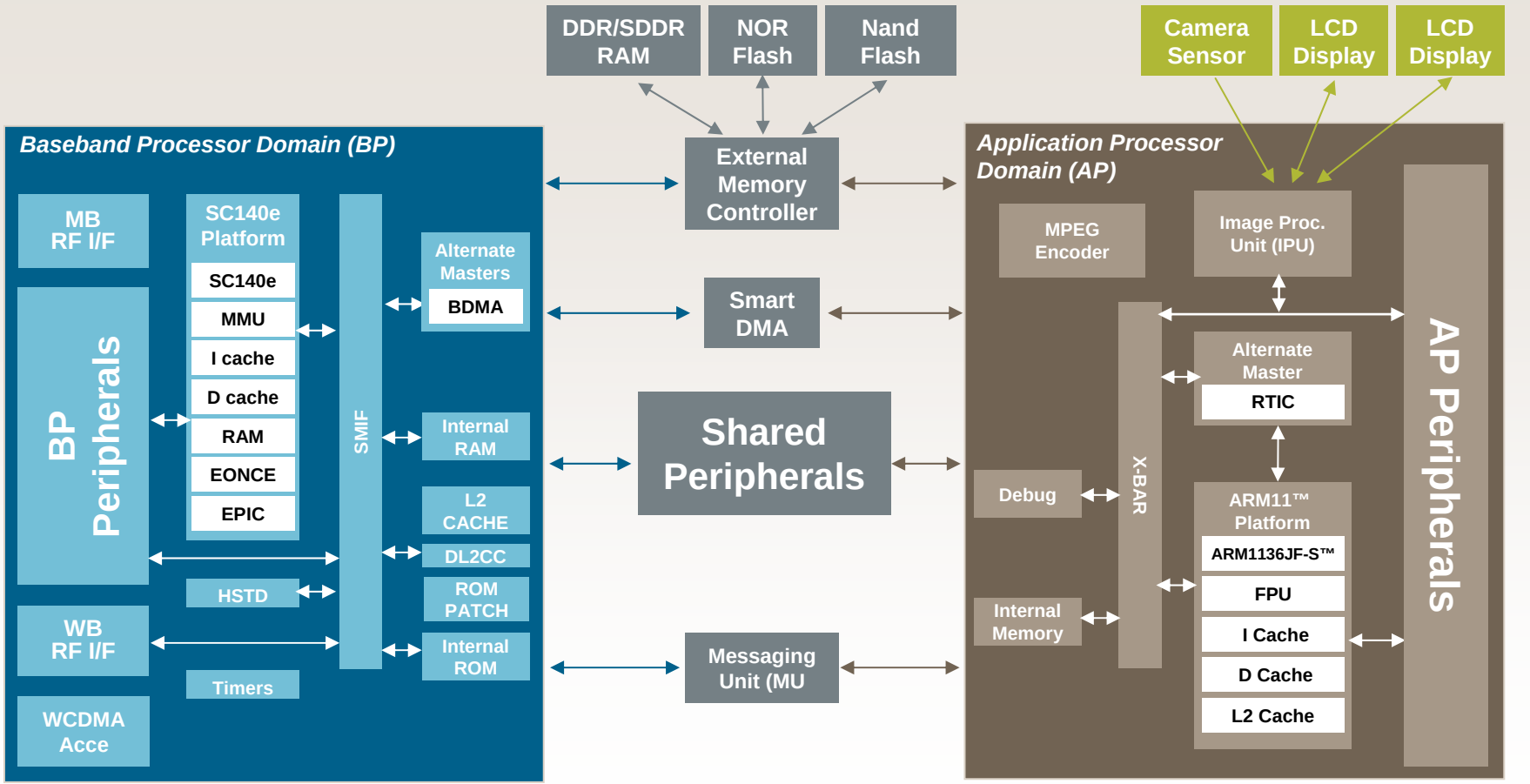
MXC91321 HSDPA Processor Architecture



BP = SCM Baseband Processor

AP = Applications Processor

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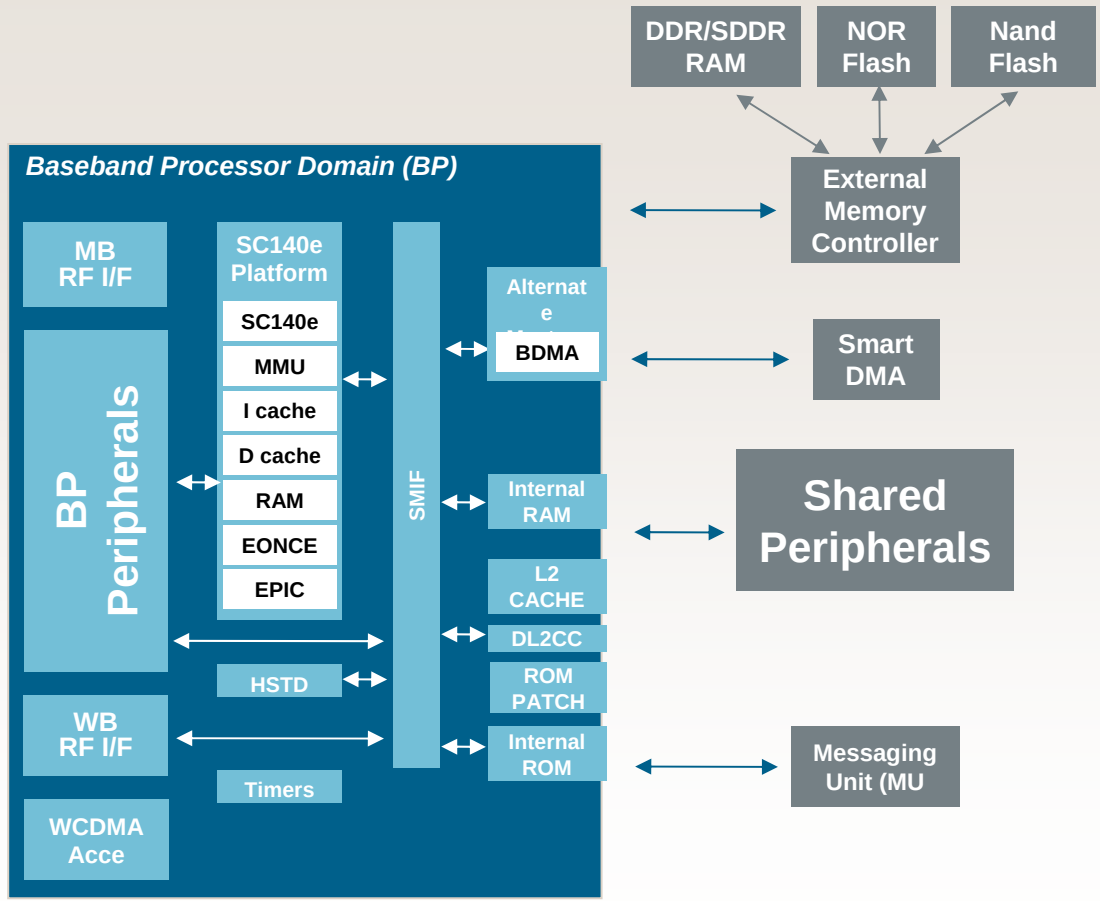
MXC91321 HSDPA Processor Modem Domain

MXC Baseband Processor (BP) Single Core Modem

- StarCore SC140e
  - 250 MHz Max Frequency 1.8 HSDPA
  - Upgrade to 312Mhz for 3.6 mbps
  - L1 caches: 16KB I, 32KB D
  - L2 cache: 128KB
- 4 ALU VLIW Architecture
  - 6 Instructions fetched/cycle
  - Variable Length Execution Set
  - 1000 MMAC @ 250MHz
  - 1500 MIP @ 250MHz
- MMU, task protection, security
- Modem Hardware Accelerators
  - WCDMA: Searcher, Demodulator, Transmitter, Turbo Decoder
  - Ciphering
- Advanced Power Mgmt
  - DVFS, Well biasing, clock gating



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MXC91321 ARM11 Processor Domain

Applications processor

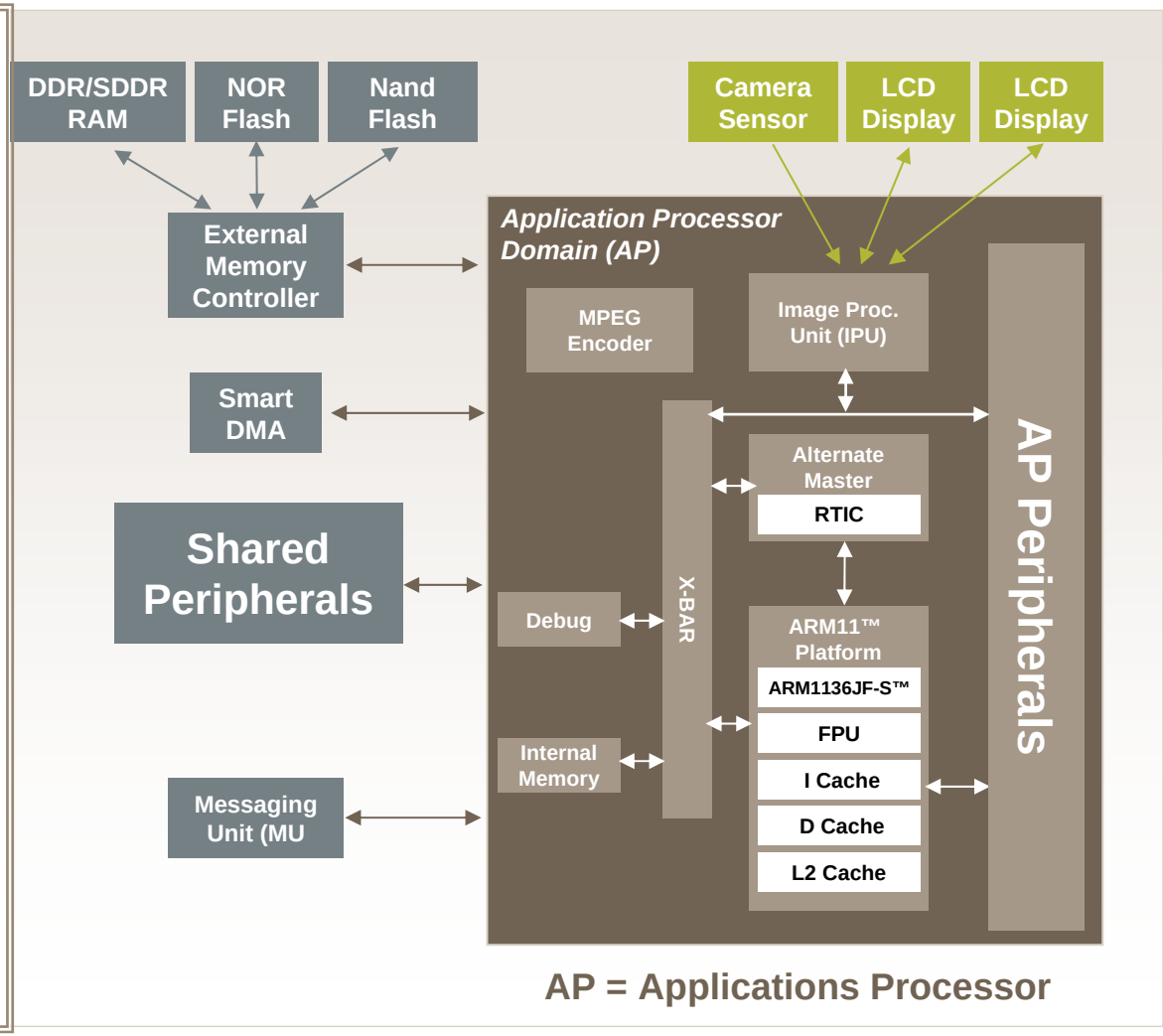
- ARM1136™ 8-stage pipeline
- Branch Prediction
- MMU task protection, security
- Floating Point, Java™ HW support
- L1, L2 caches
- 400MHz (nom.), 532 MHz (Turbo)
- Advanced Power Mgmt

Imaging/Video subsystem

- Image Processing Unit (IPU)
  - Camera & Display Interfaces
  - Display Buffer
  - Rotation, Scaling, Pre/Post
- MPEG4 Encoder

Shared subsystem

- Shared Memory Interface
- Smart DMA Engine
- Messaging Unit



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MXC91321 Single-Core Modem Implementation (Software)

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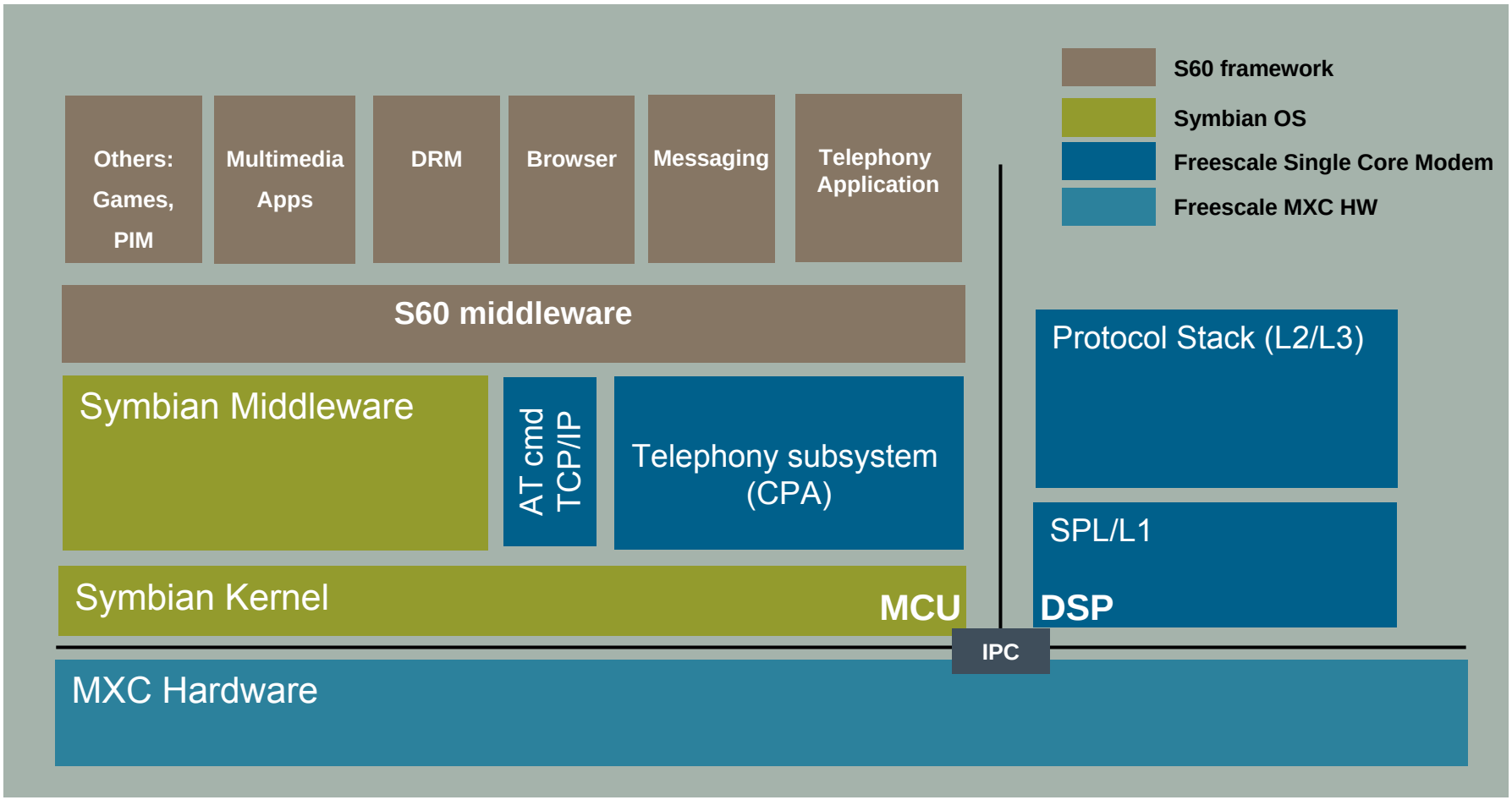
MXC300-30 Software Overview



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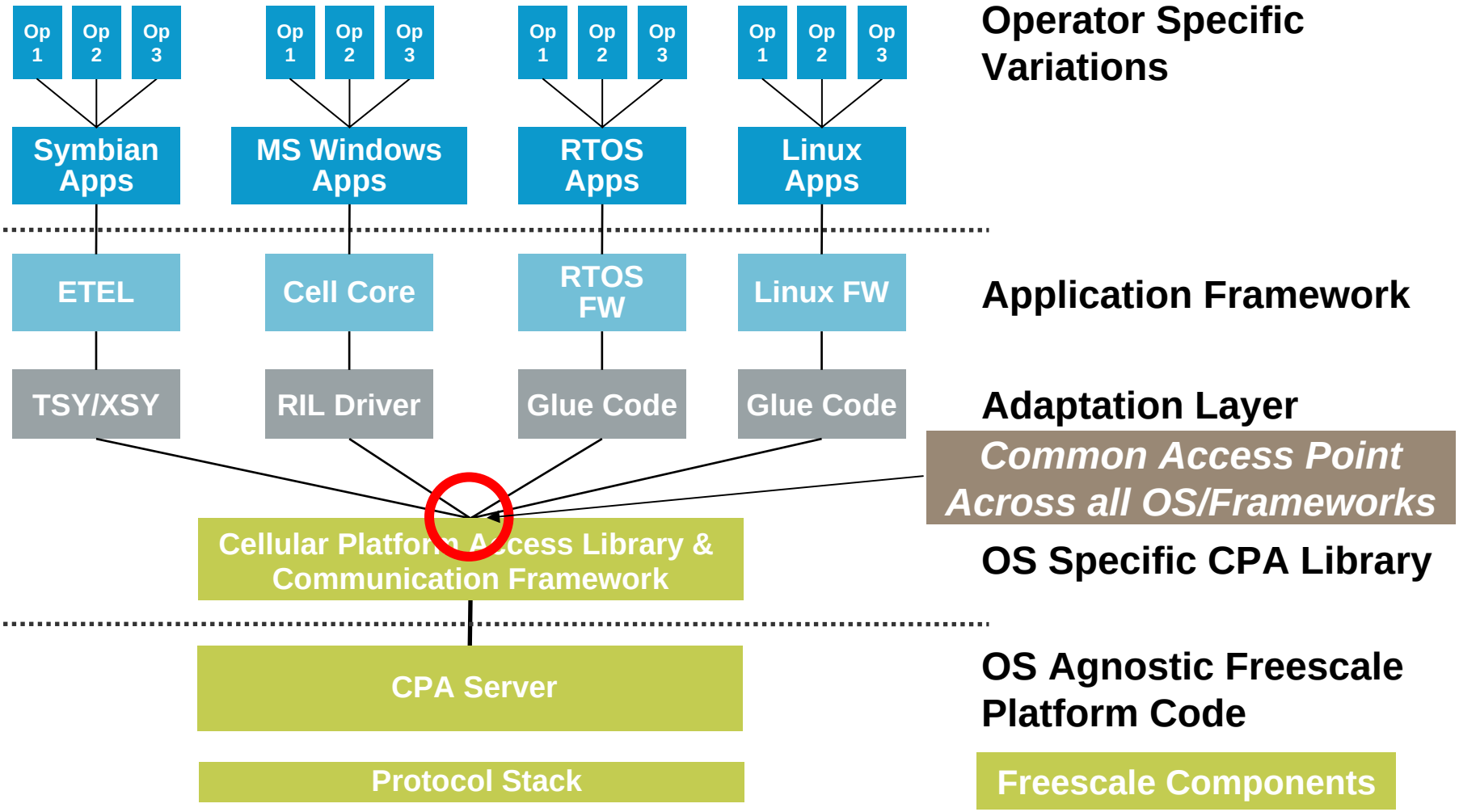
Cellular Platform Access (CPA)



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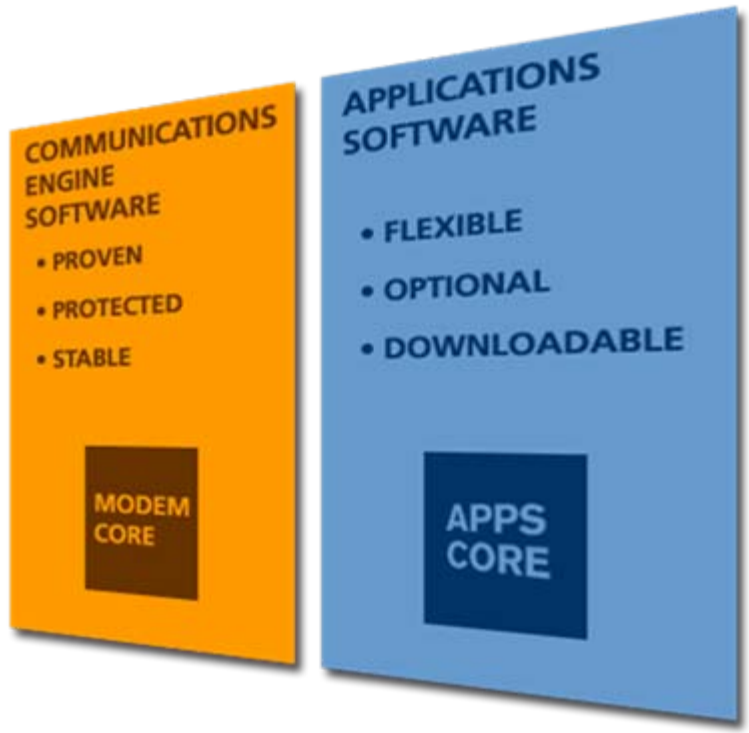
Advantage of MXC SW Architecture

Key Benefits MXC SW Architecture

- **Drives system size/cost reduction**
  - Modem & Application Processors in a single chip
  - Single platform memory system
  - Integrated video/graphics processing
  - Built upon a proven, stable 3G protocol stack
- **Facilitates Open OS Integration**
  - Independent application and modem environments suited for Open OS
  - Standardized CPA interface among MXC platforms allows portability among Freescale platforms
  - Most efficient use of memory and components
- **SW Reuse on Future MXC Platforms**
  - Architecture will be carried forward in next-generation MXC platform nodes allowing customers to reuse their investments

Clean Separation



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