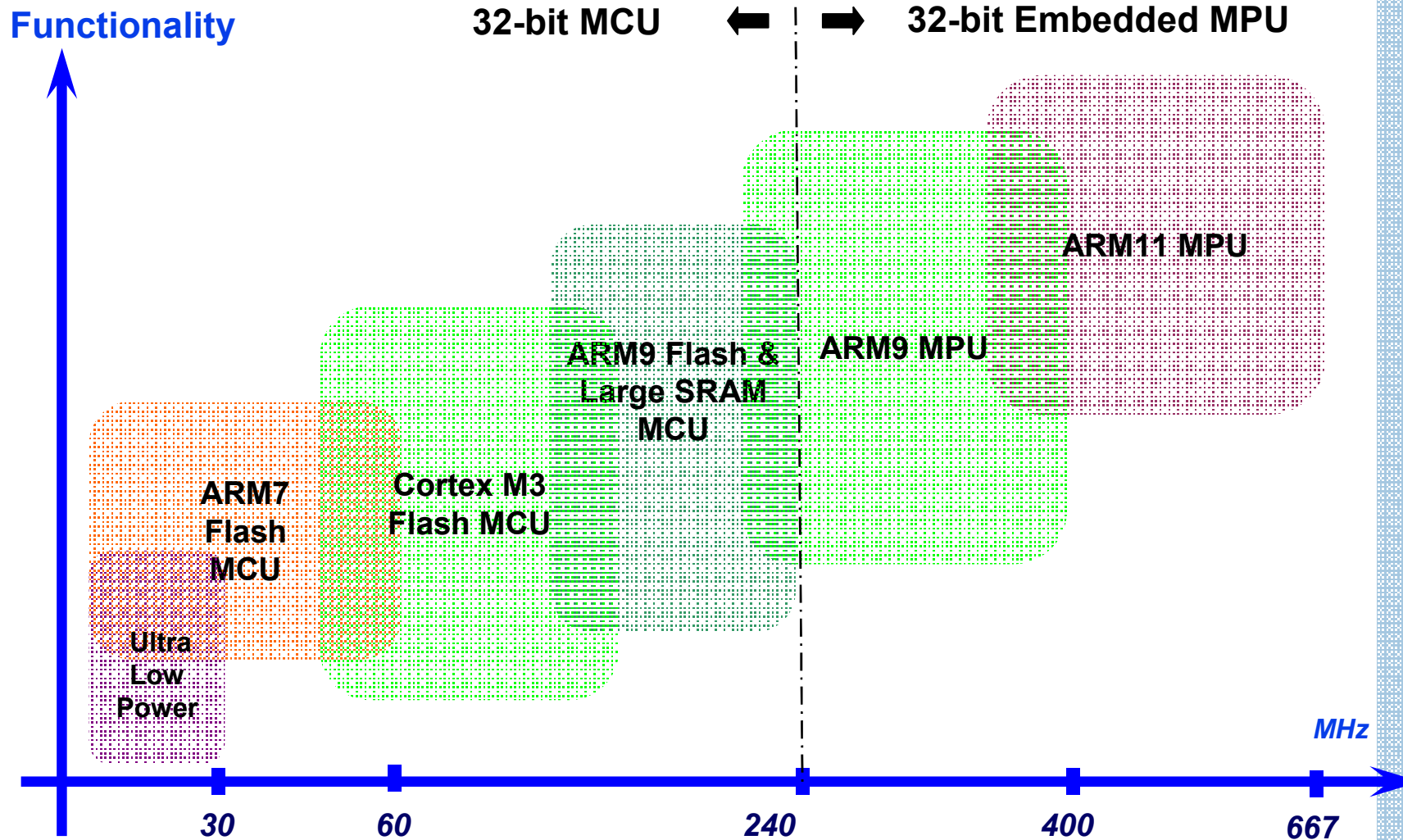


AT91SAM: ARM-based controllers

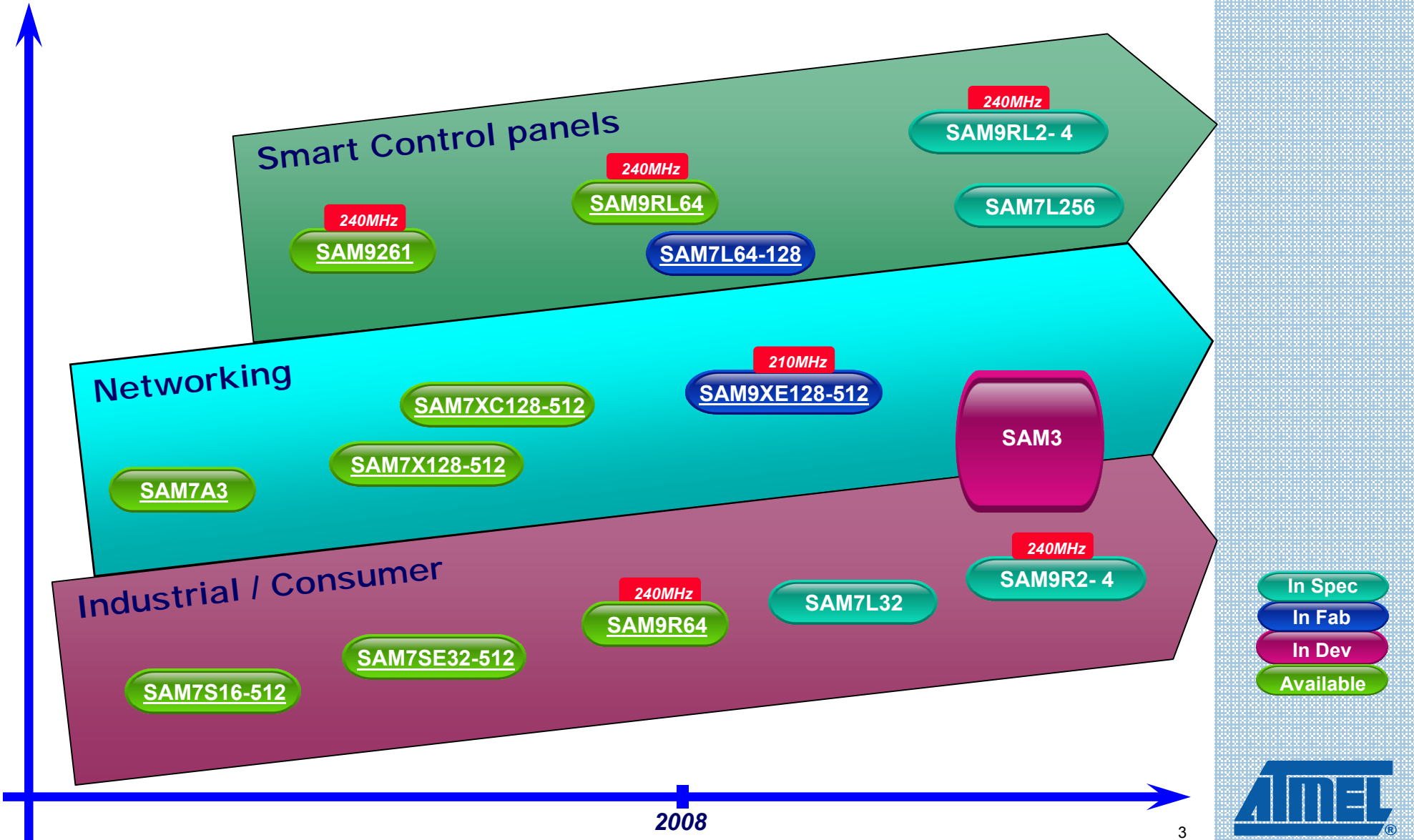
Roadmap and Block Diagrams



AT91SAM Overview



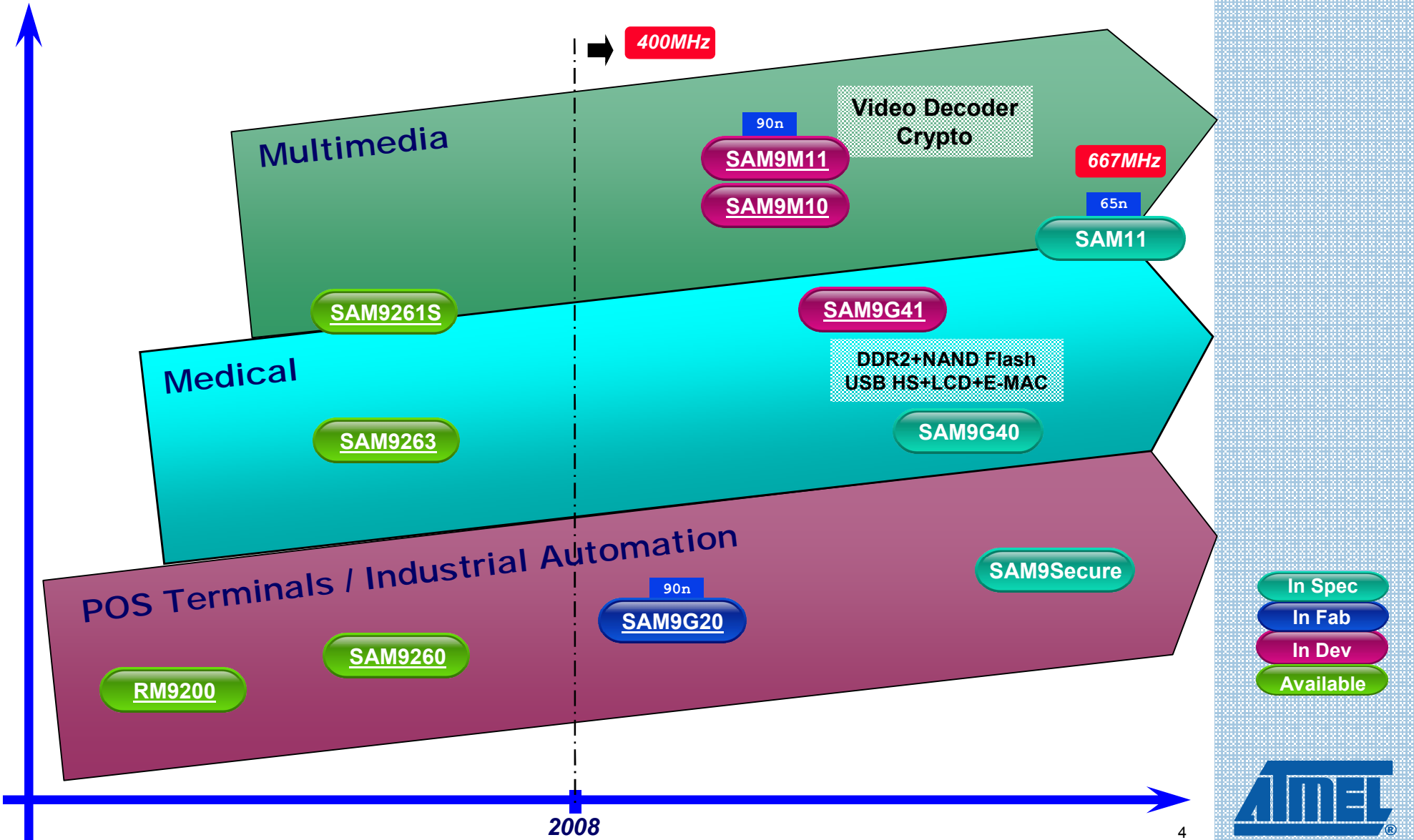
ARM-based Microcontrollers



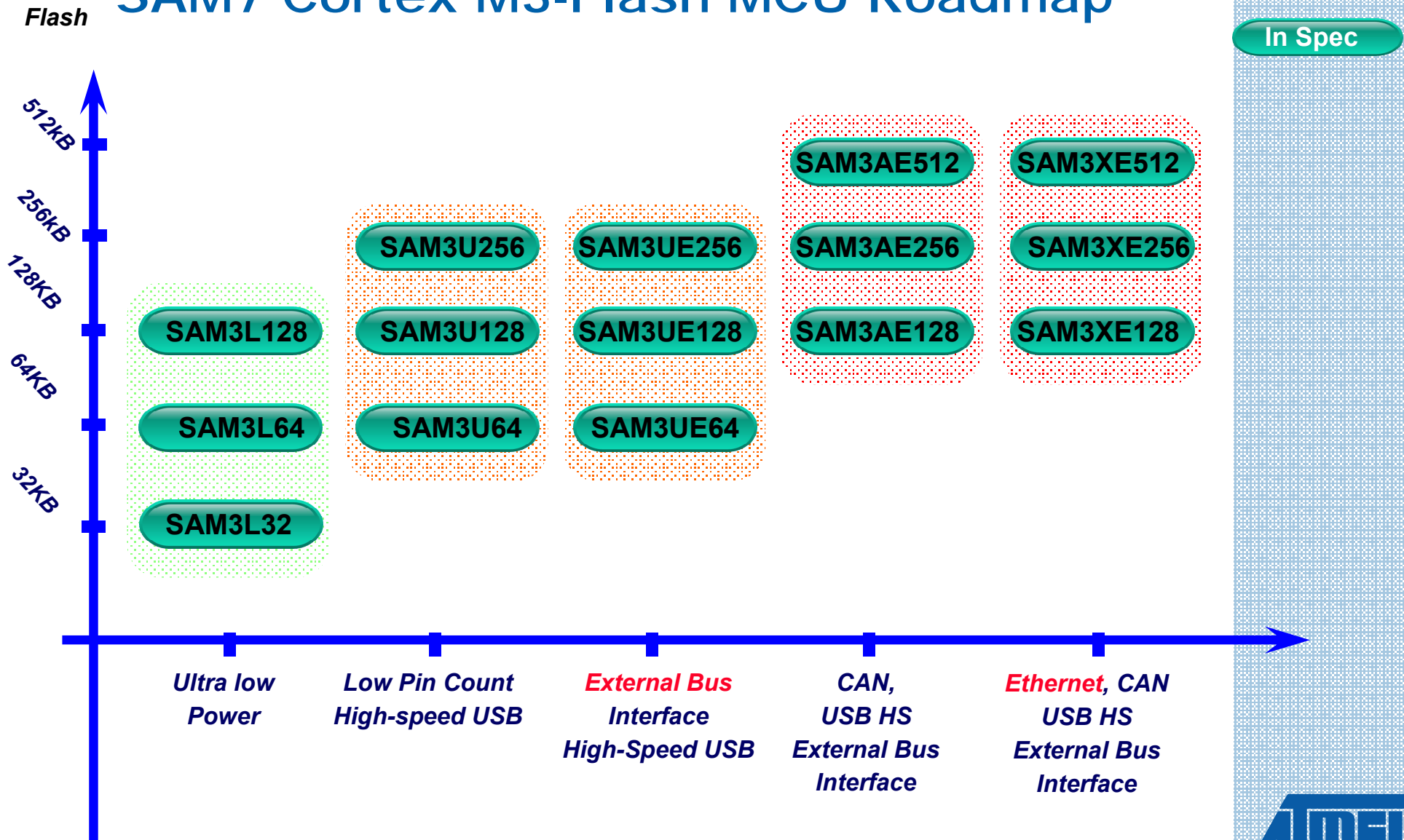
2008



ARM-based Embedded Processors



SAM7 Cortex M3-Flash MCU Roadmap



In Spec



Notes

n Bus Masters are represented in Green

n Bus Slaves are represented in Yellow

n User/System Peripherals are represented in Blue

n Backup part is represented in Light Pink

Bus Master

Bus Slave

Peripheral

Backup

n All clock frequencies are for a WC ind temp (85°C)

§ PCK – Maximum processor clock

§ MCK – Maximum Bus clock

n Disclaimer:

Information in this presentation is subject to change and for indicative purposes only.

Naming Convention

Below is the updated name list for SAM9 products

Actual	New
AT91SAM9R64	AT91SAM9R64
AT91SAM9R256	AT91SAM9R2
AT91SAM9R512	AT91SAM9R4
AT91SAM9RL64	AT91SAM9RL64
AT91SAM9RL256	AT91SAM9RL2
AT91SAM9RL512	AT91SAM9RL4

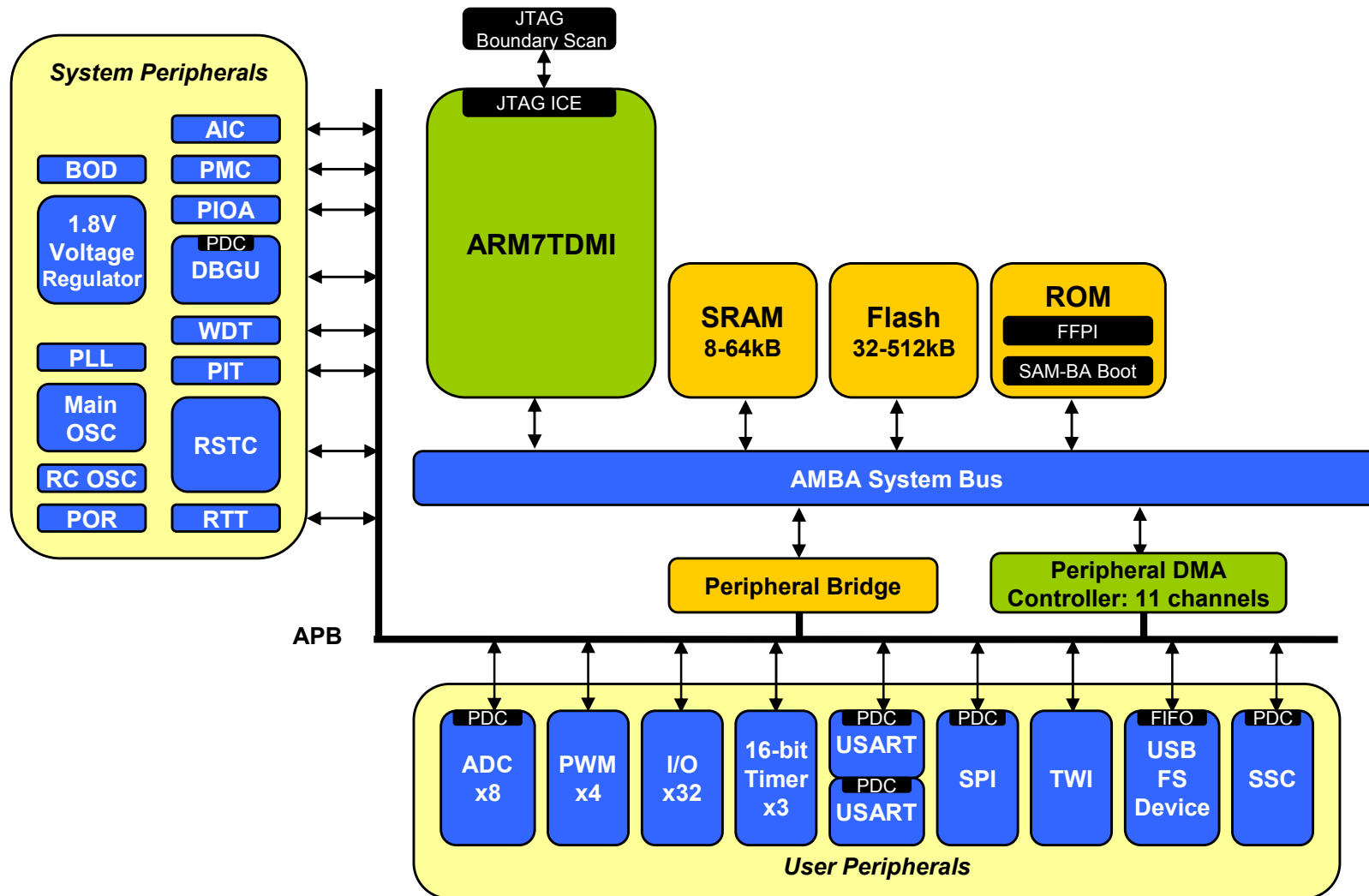
Actual	New
AT91SAM92C4	AT91SAM9M11
AT91SAM9264	AT91SAM9M10
AT91SAM9265	AT91SAM9G41
AT91SAM9266	AT91SAM9G40
AT91SAM9260A	AT91SAM9G20



Lexical

<u>PDC</u> :	Peripheral DMA Controller, transfers data between on-chip peripherals and the on and off-chip memories without CPU intervention.
<u>USART</u> :	Support for RS485, ISO7816, IrDA and modem control lines.
<u>DBGU</u> :	Debug Unit provides single entry to all debug capabilities as well as UART function.
<u>TWI</u> :	Two Wire Interface, interconnects components on a two-wire bus.
<u>SSC</u> :	Serial Synchronous Controller, supports many serial synchronous communications protocols used in audio and telecom applications such as I2S, short or long frame sync.
<u>MCI</u> :	Multimedia Card Interface, supports the MultiMediaCard (MMC) Specification V3.11, the SDIO Specification V1.1 and the SD Memory Card Specification V1.0.
<u>16-bit Timers</u> :	Capture/Compare, Waveform generation and PWM modes.
<u>LCD Controller</u> :	Supports STN and TFT Displays, resolution up to 2048x2048
<u>ISI Camera Int</u> :	Image Sensor Interface for CMOS-type image sensor, ITU-R BT. 601/656 External Interface, Programmable Frame Capture Rate, up to 12-bit Data Interface, SAV and EAV Synchronization, Preview Path with Scaler, YCbCr Format
<u>SMC</u> :	Static Memory Controller
<u>ECC</u> :	Error Corrected Code controller
<u>AIC</u> :	Vectored Interrupt Controller, 8 priority levels
<u>PMC</u> :	Power Management Controller
<u>RTT</u> :	Real Time Timer, 32-bit free running timer on Slow Clock
<u>PIT</u> :	Periodic Interval Timer, base timer for scheduler

AT91SAM7S – 64pin



Microcontrollers

- AT91SAM7S161
- AT91SAM7S321
- AT91SAM7S64
- AT91SAM7S128
- AT91SAM7S256
- AT91SAM7S512

Package

- QFP64
- QFN64*

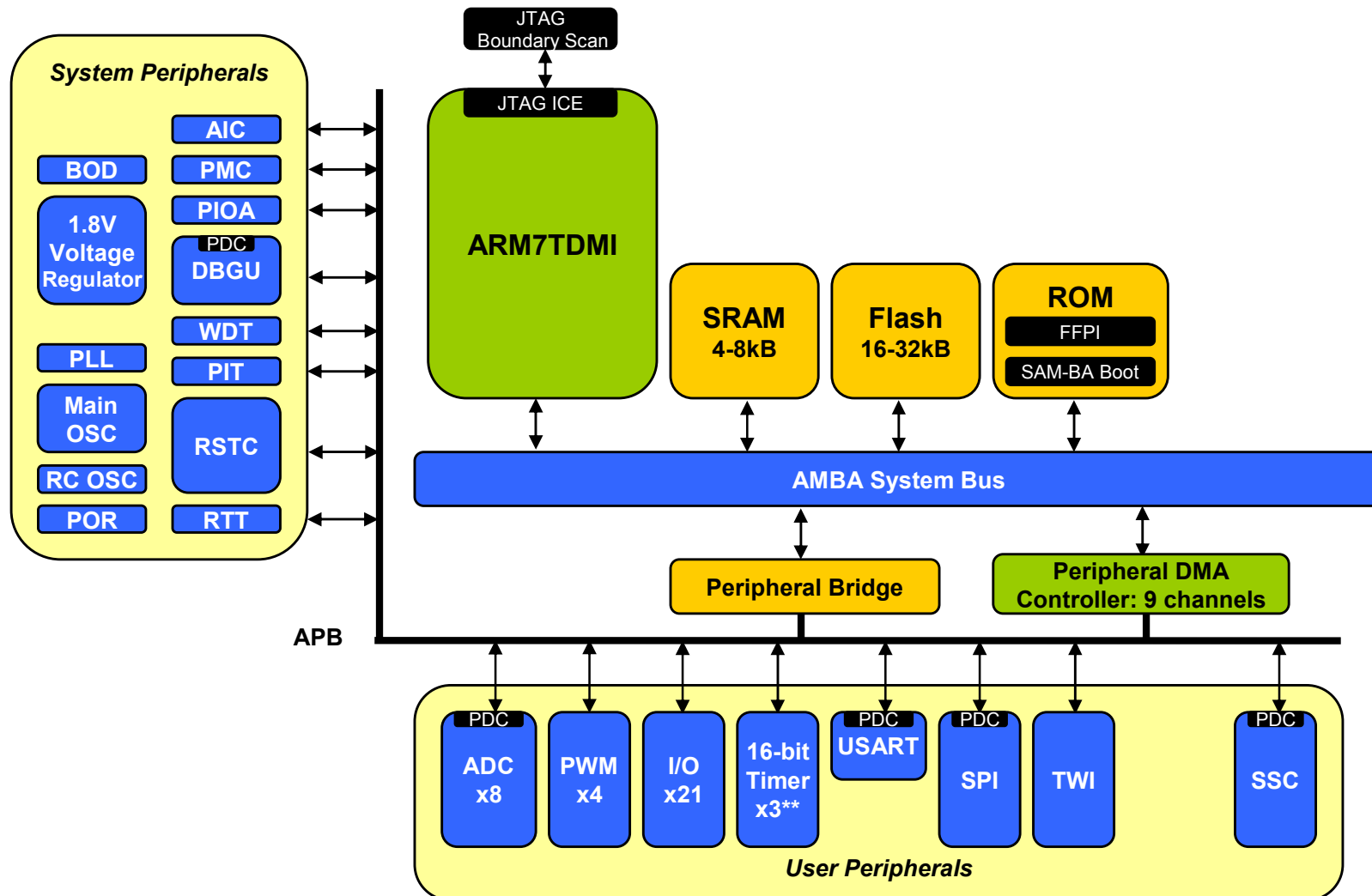
Key Features

- PCK-MCK 55MHz
- Single Supply
- Power On Reset
- Internal RC
- Brownout 1.8V
- 5V-tolerant I/O*
- I/O 1.8V or 3.3V
- High Drive Pads
- 512kB Dual Plane
- Security Bit



* AT91SAM7S161 : no QFN64 package, no 5V tolerant I/O

AT91SAM7S – 48pin



Microcontrollers

- AT91SAM7S16
- AT91SAM7S32

Package

- QFP48
- QFN48

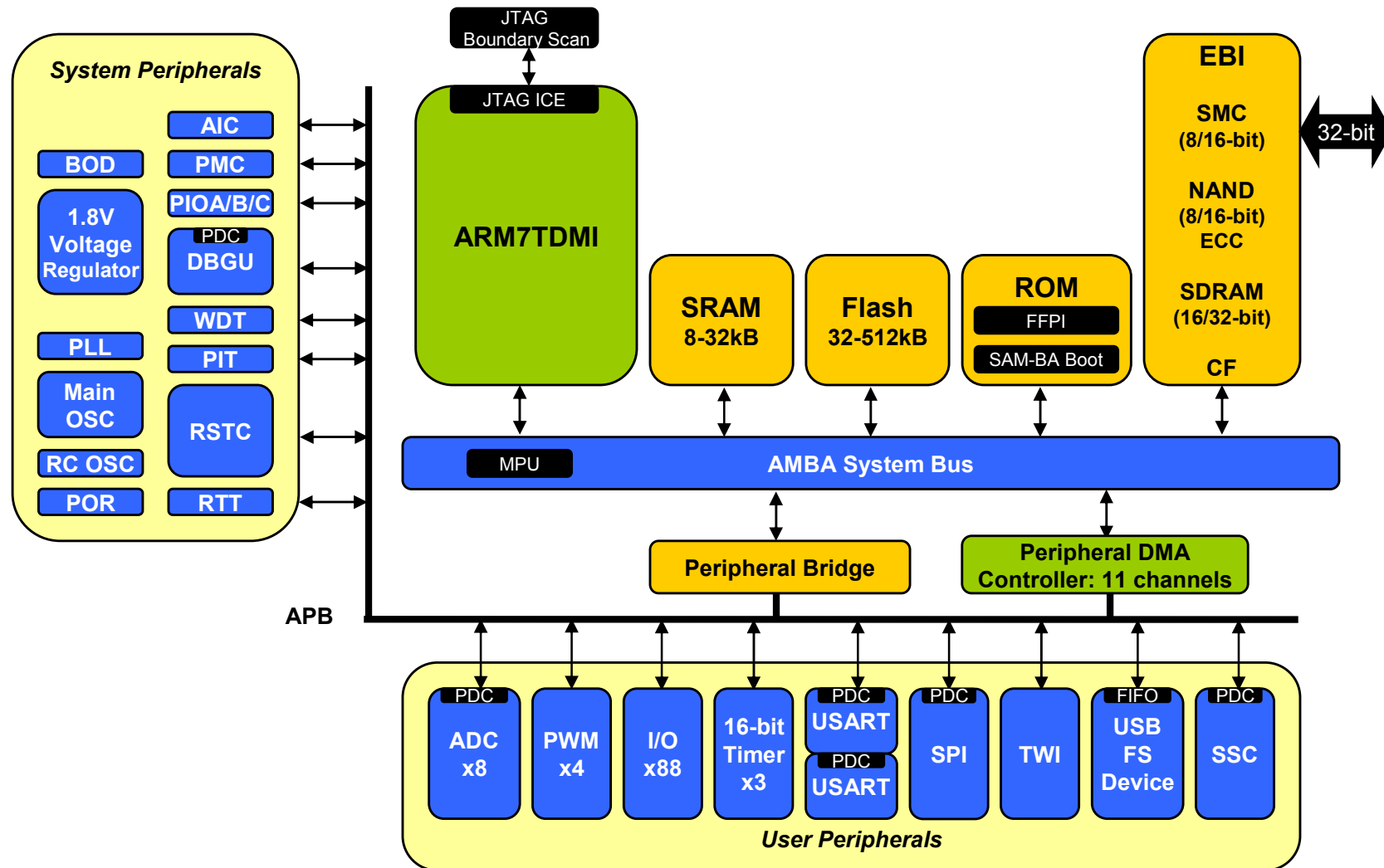
Key Features

- PCK-MCK 55MHz
- Single Supply
- Power On Reset
- Internal RC
- Brownout 1.8V
- 5V-tolerant I/O*
- I/O 1.8V or 3.3V
- High Drive Pads
- 512kB Dual Plane
- Security Bit

* AT91SAM7S16 : no 5V tolerant I/O
 ** Only 2 Timers connected to PIOs



AT91SAM7SE



Microcontrollers

- AT91SAM7SE32
- AT91SAM7SE256
- AT91SAM7SE512

Package

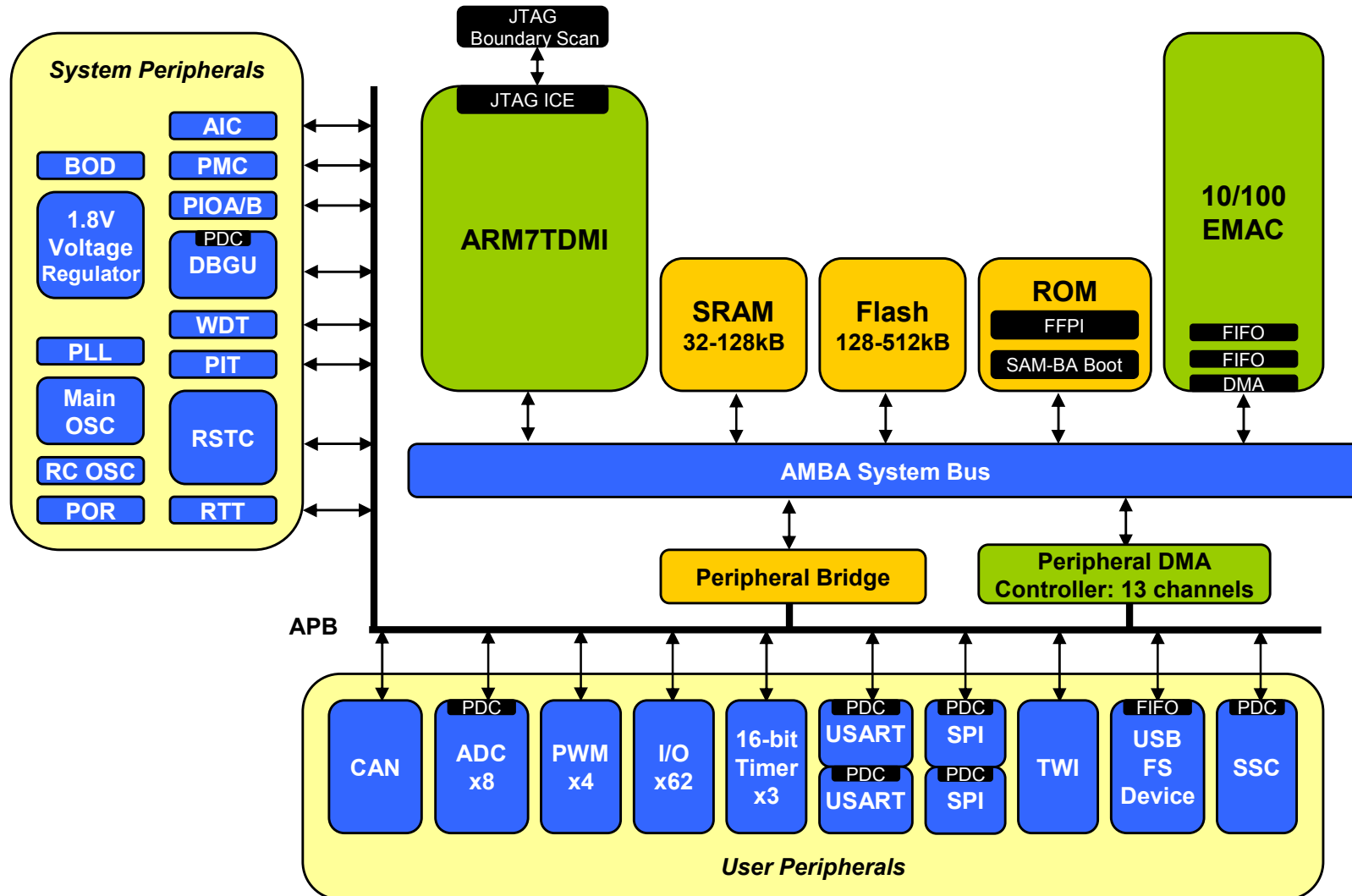
- QFP128
- BGA144

Key Features

- PCK-MCK 55MHz
- Single Supply
- Power On Reset
- Internal RC
- Brownout 1.8V and 3.3V
- I/O 1.8V or 3.3V
- Schmitt Trigger
- High Drive Pads
- 512kB Dual Plane
- Security Bit



AT91SAM7X



Microcontrollers

- AT91SAM7X128
- AT91SAM7X256
- AT91SAM7X512

Package

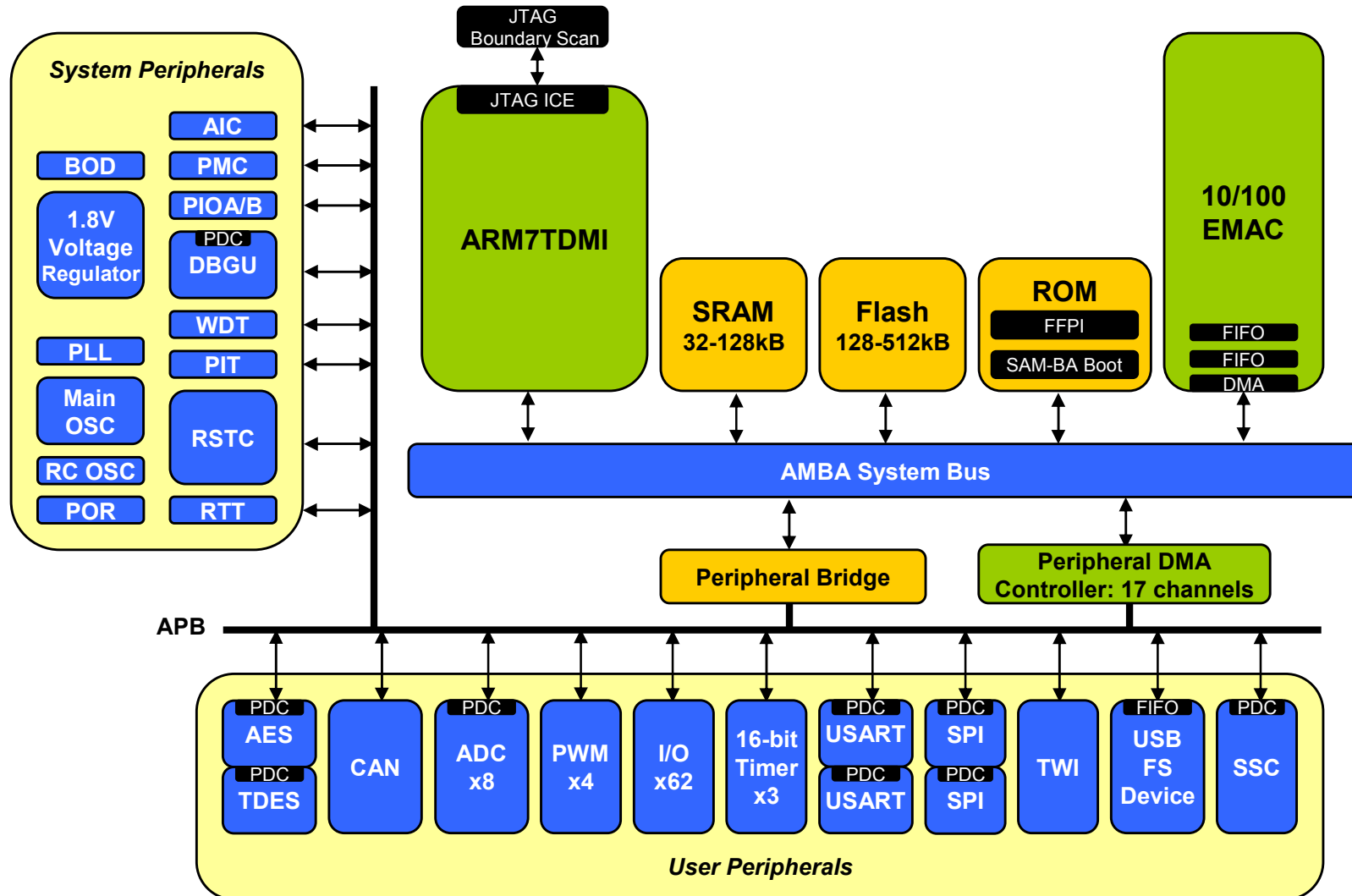
- QFP100
- BGA100

Key Features

- PCK-MCK 55MHz
- Single Supply
- Power On Reset
- Internal RC
- Brown Out 1.8V and 3.3V
- 5V-tolerant I/O
- I/O 3.3V
- High Drive Pads
- 512kB Dual Plane
- Security Bit



AT91SAM7XC



Microcontrollers

- AT91SAM7XC128
- AT91SAM7XC256
- AT91SAM7XC512

Package

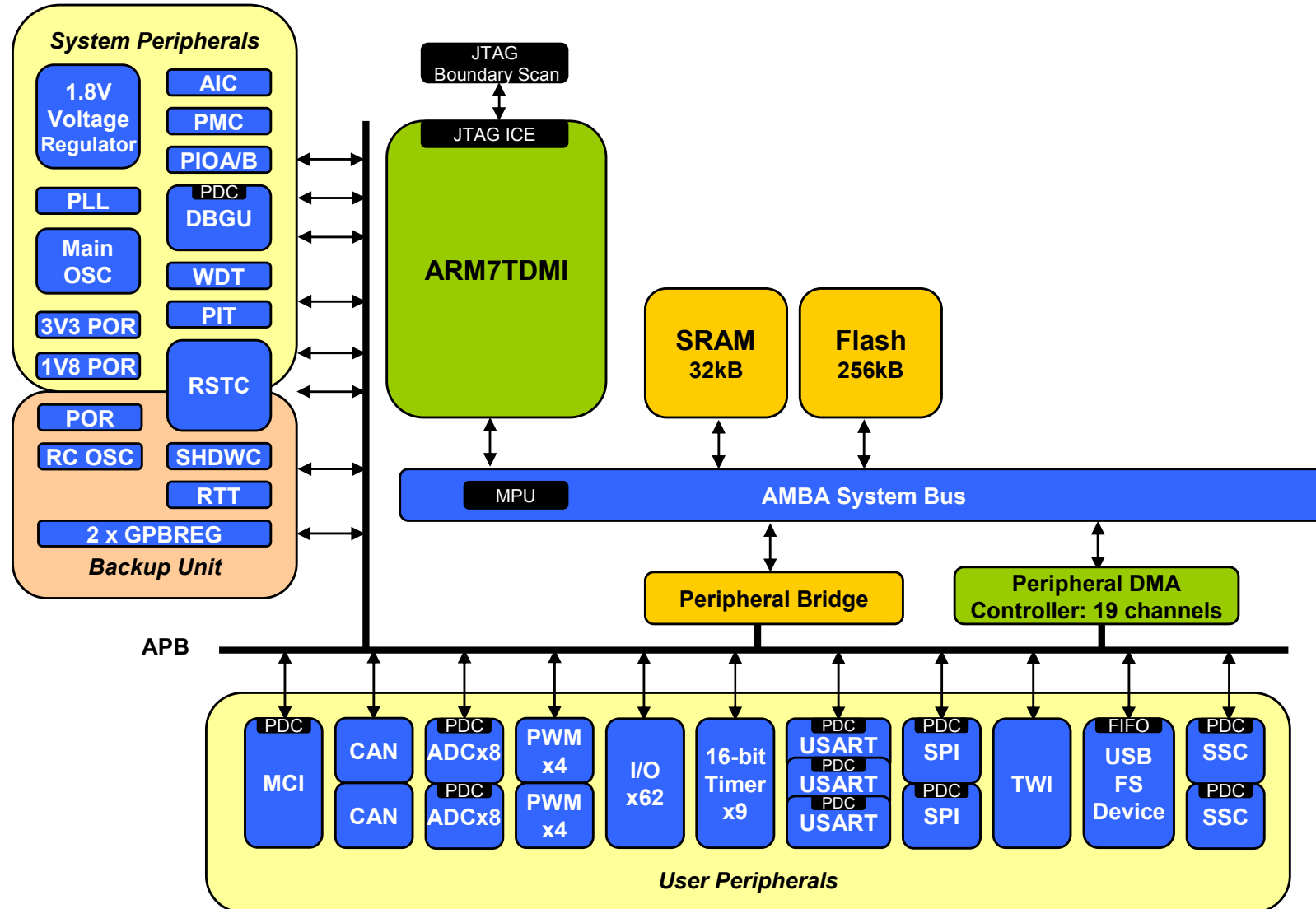
- QFP100
- BGA100

Key Features

- PCK-MCK 55MHz
- Single Supply
- Power On Reset
- Internal RC
- Brown Out 1.8V and 3.3V
- 5V-tolerant I/O
- I/O 3.3V
- High Drive Pads
- 512kB Dual Plane
- Security Bit



AT91SAM7A3



Microcontrollers

AT91SAM7A3

Package

QFP100

Key Features

PCK-MCK 60MHz

Single Supply

Power On Reset

Internal RC

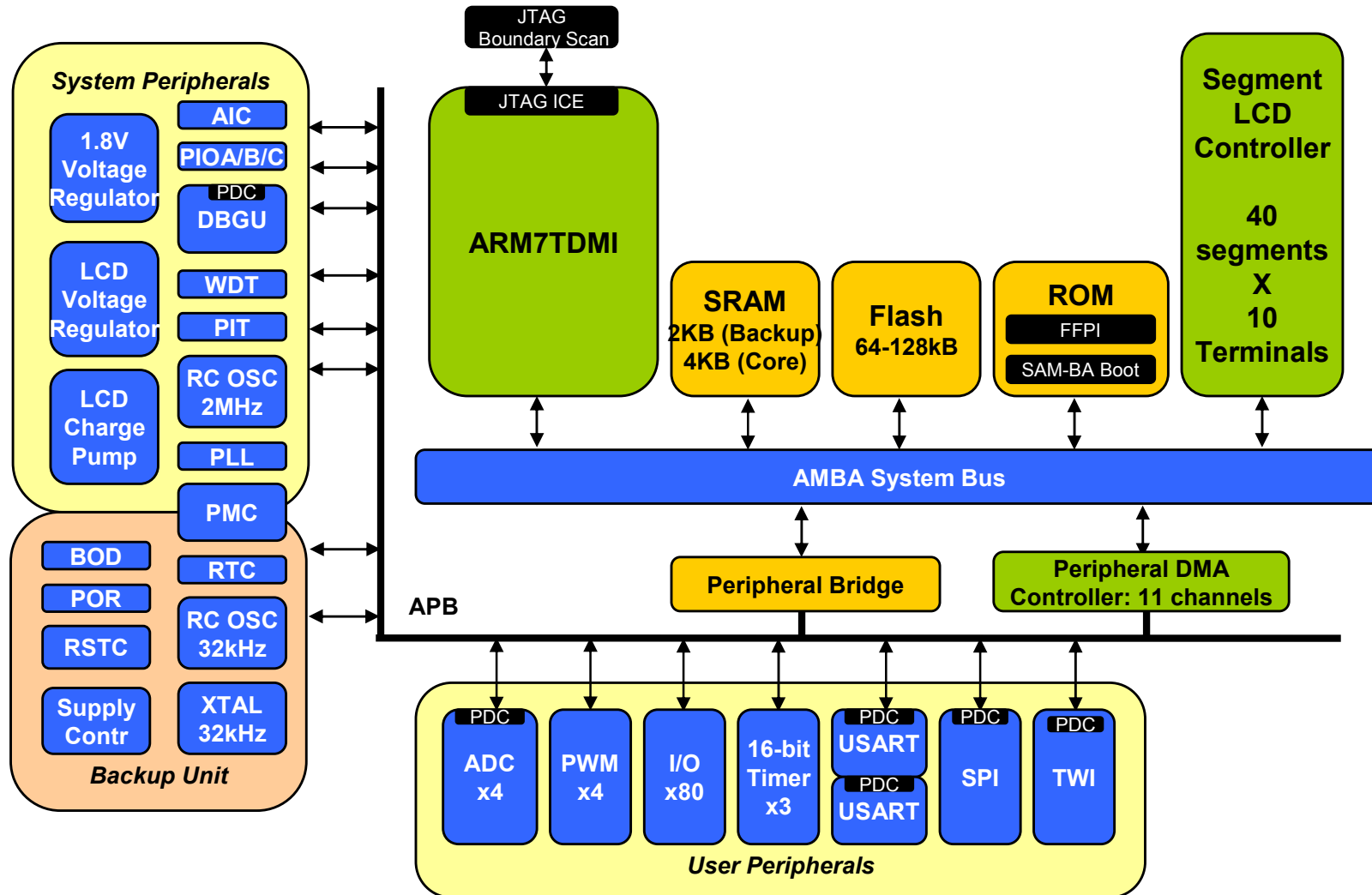
Backup Unit

5V-tolerant I/O

I/O 3.3V



AT91SAM7L



Microcontrollers

- AT91SAM7L64
- AT91SAM7L128

Package

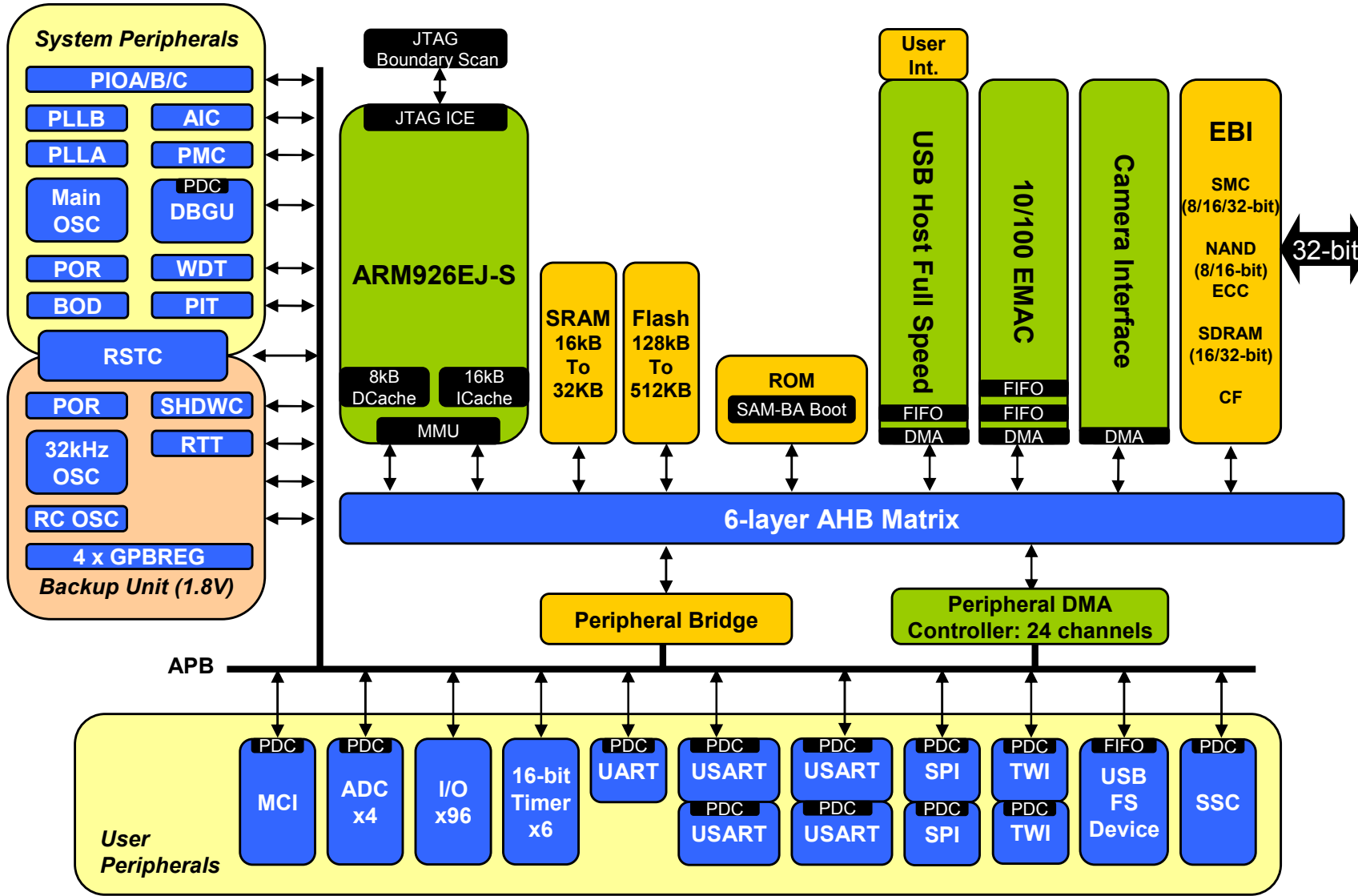
- QFP128
- BGA144

Key Features

- PCK-MCK 37MHz
- Single Supply
- Power On Reset
- Dual Internal RC
- Programmable Brownout
- I/O 1.8V or 3.3V
- High Drive Pads
- Security Bit



AT91SAM9XE



Microcontroller

- AT91SAM9XE128
- AT91SAM9XE256
- AT91SAM9XE512

Package

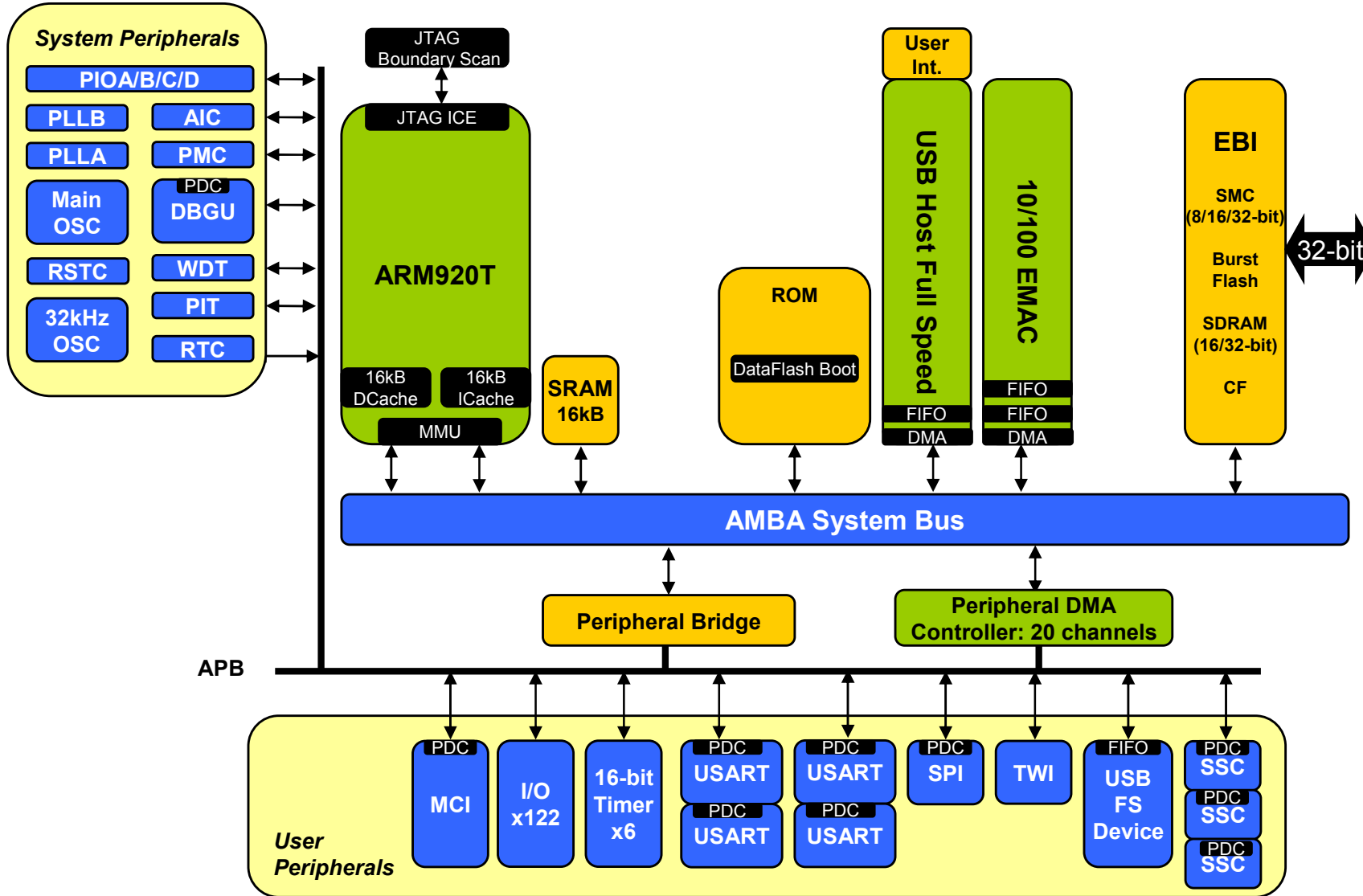
- QFP208
- BGA217

Electricals

- PCK 210 MHz
- MCK 105 MHz
- EBI I/O Lines 1.8V or 3.3V
- SDRAM Clock 100 MHz
- Brownout
- Security Bit



AT91RM9200



Microcontroller

AT91RM9200

Package

QFP208

BGA256

Electricals

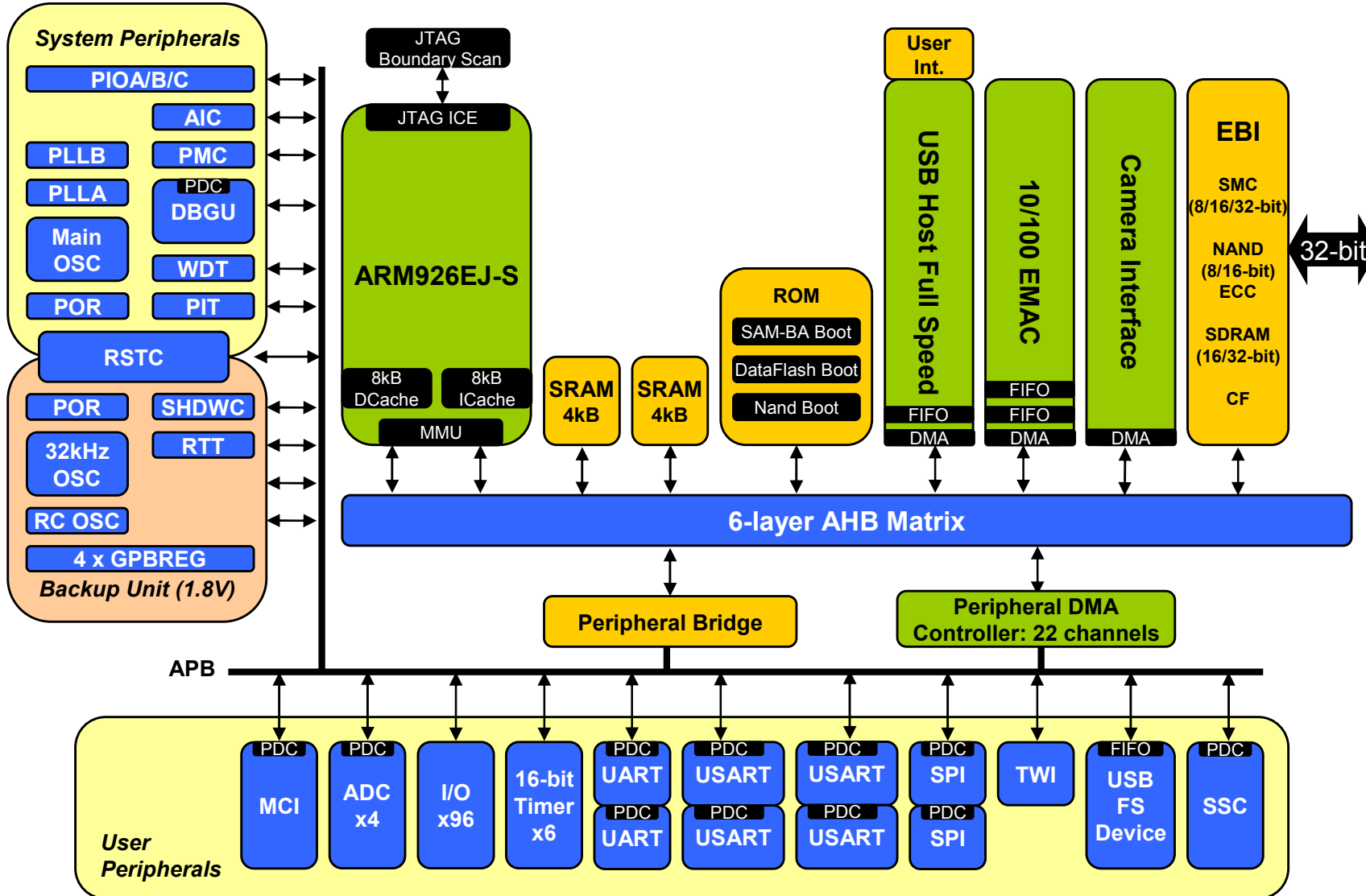
PCK 210 MHz
MCK 80 MHz

EBI I/O Lines
1.8V or 3.3V

SDRAM Clock
80 MHz



AT91SAM9260



Microcontroller

AT91SAM9260

Package

QFP208

BGA217

BGA247

Electricals

PCK 210 MHz

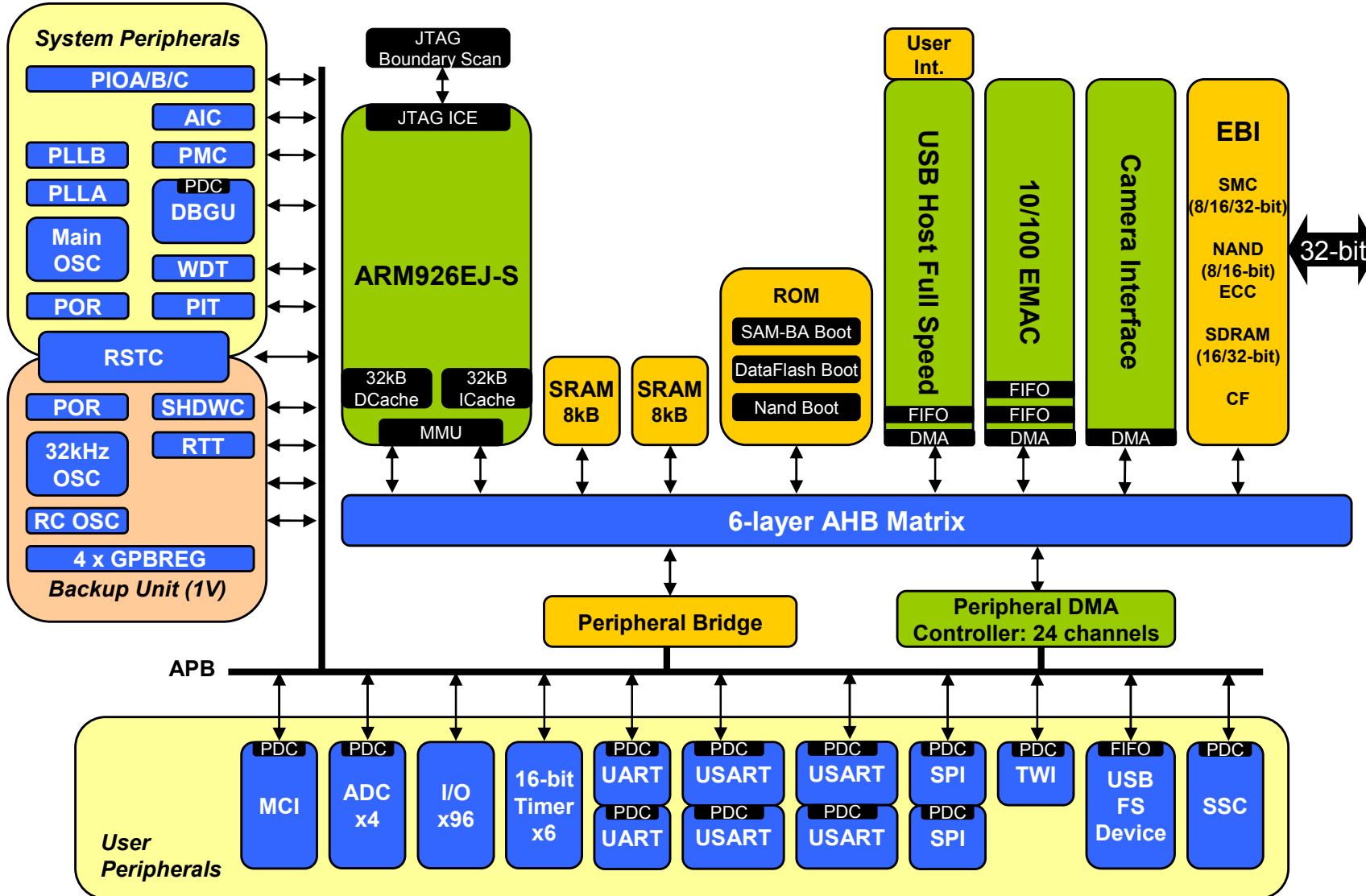
MCK 105 MHz

EBI I/O Lines
1.8V or 3.3V

SDRAM Clock
100 MHz



AT91SAM9G20



Microcontroller

AT91SAM9G20

Package

BGA217

BGA247

Electricals

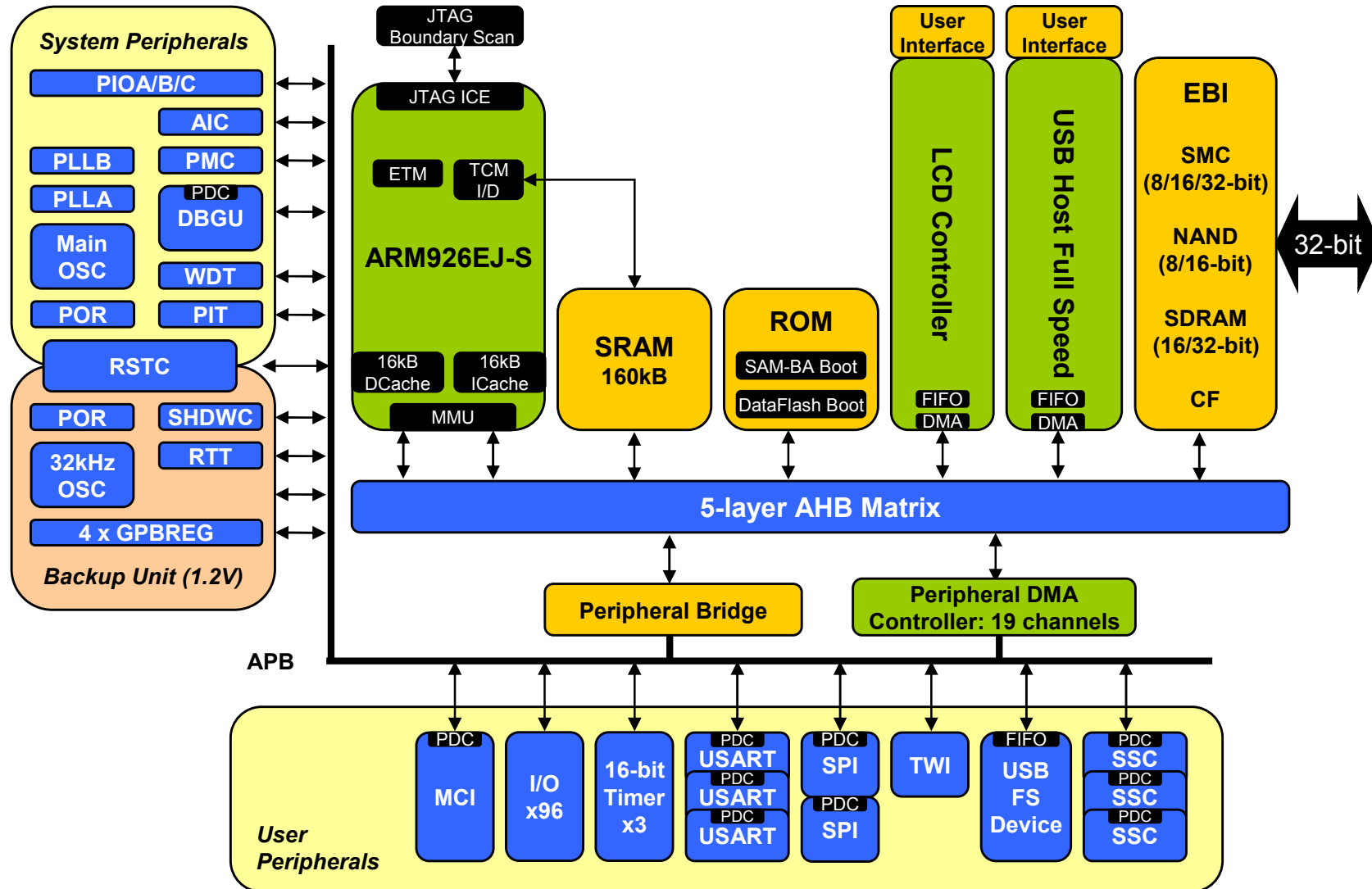
PCK 400 MHz
MCK 133 MHz

EBI I/O Lines
1.8V or 3.3V

SDRAM Clock
100 MHz



AT91SAM9261



Microcontroller
AT91SAM9261

Package
BGA217

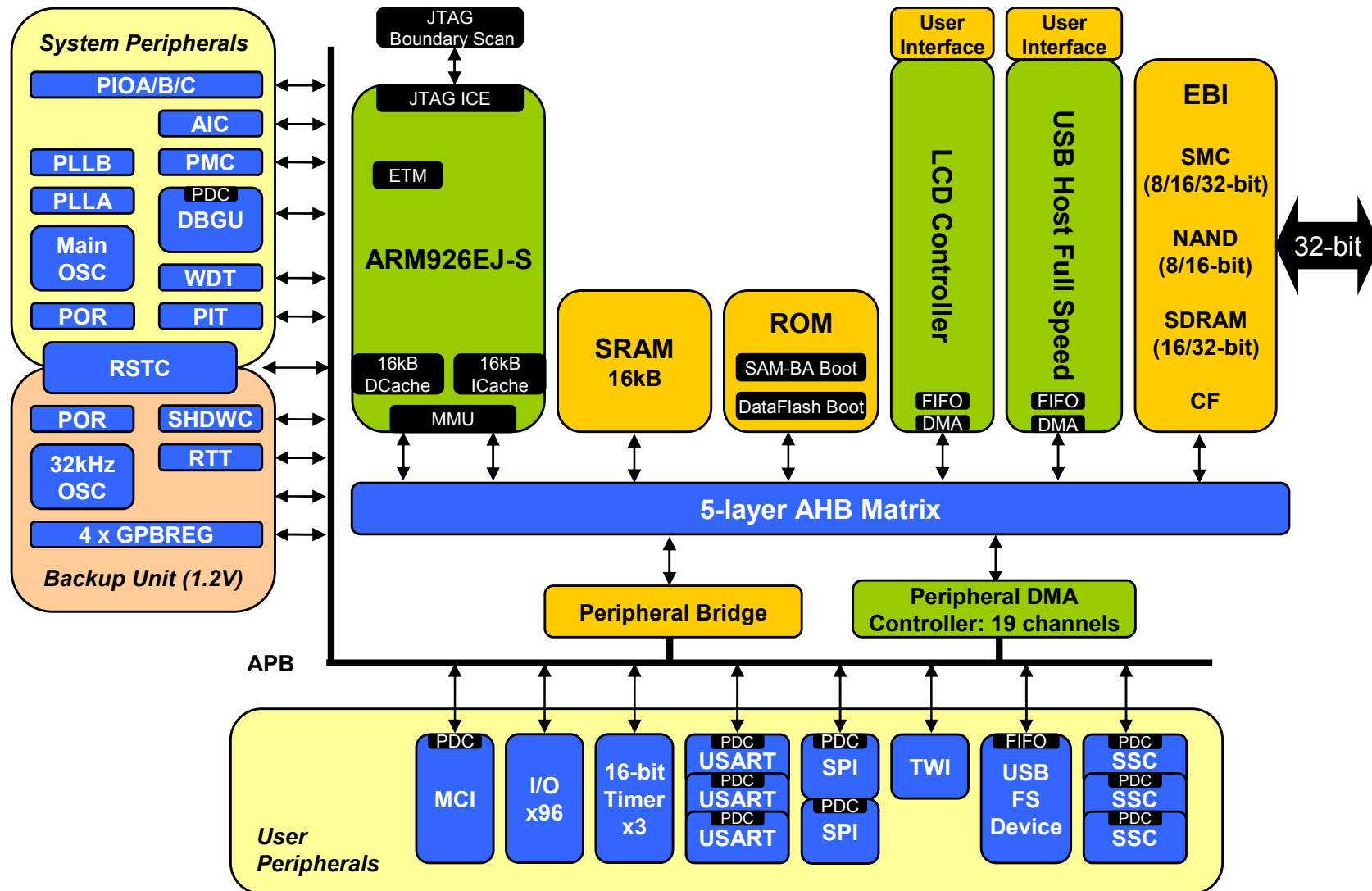
Electricals
PCK 240 MHz
MCK 120 MHz

EBI I/O Lines
1.8V or 3.3V

SDRAM Clock
100 MHz



AT91SAM9261S



Microcontroller
AT91SAM9261S

Package
BGA217

Electricals

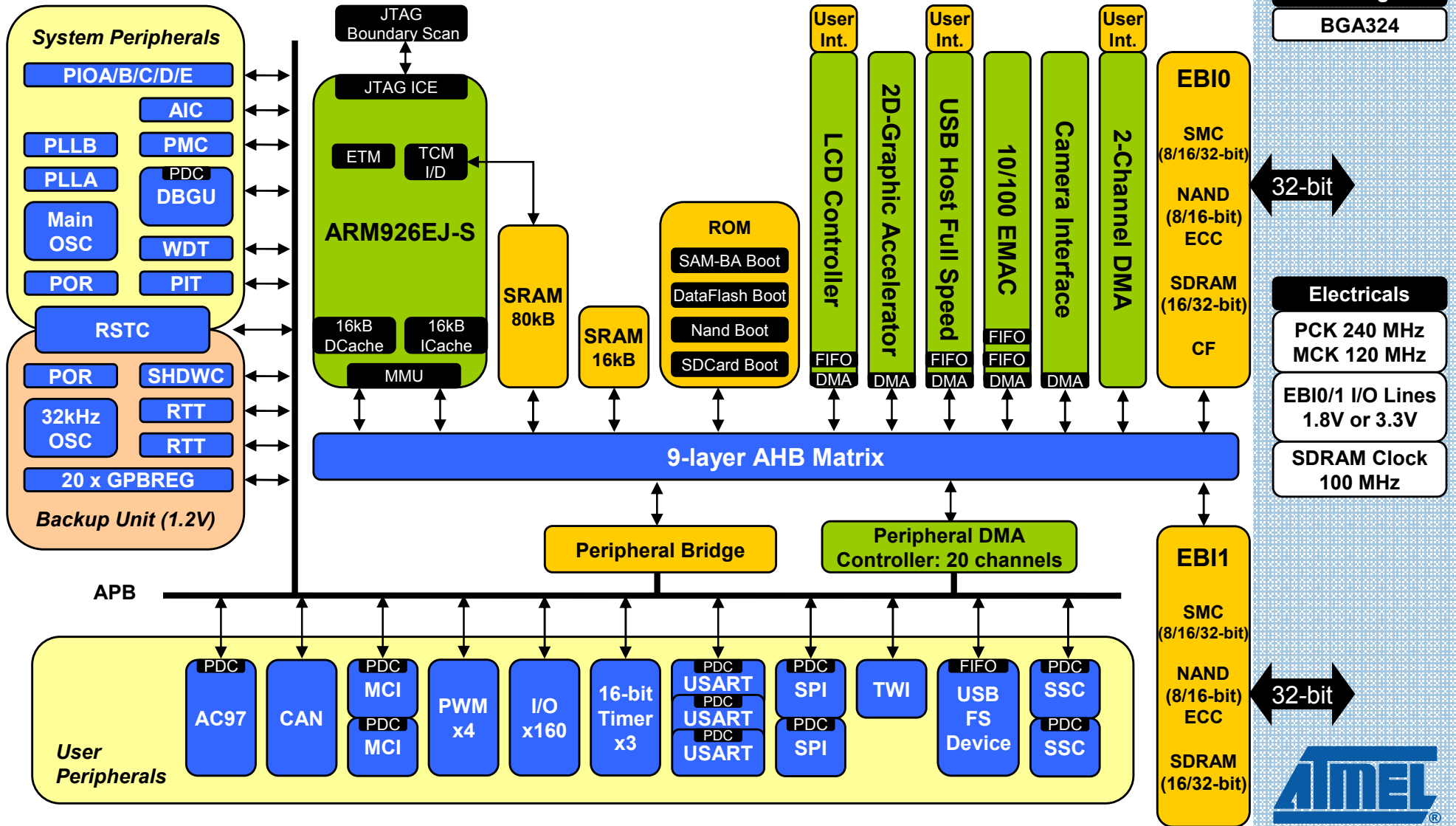
PCK 240 MHz
MCK 120 MHz

EBI I/O Lines
1.8V or 3.3V

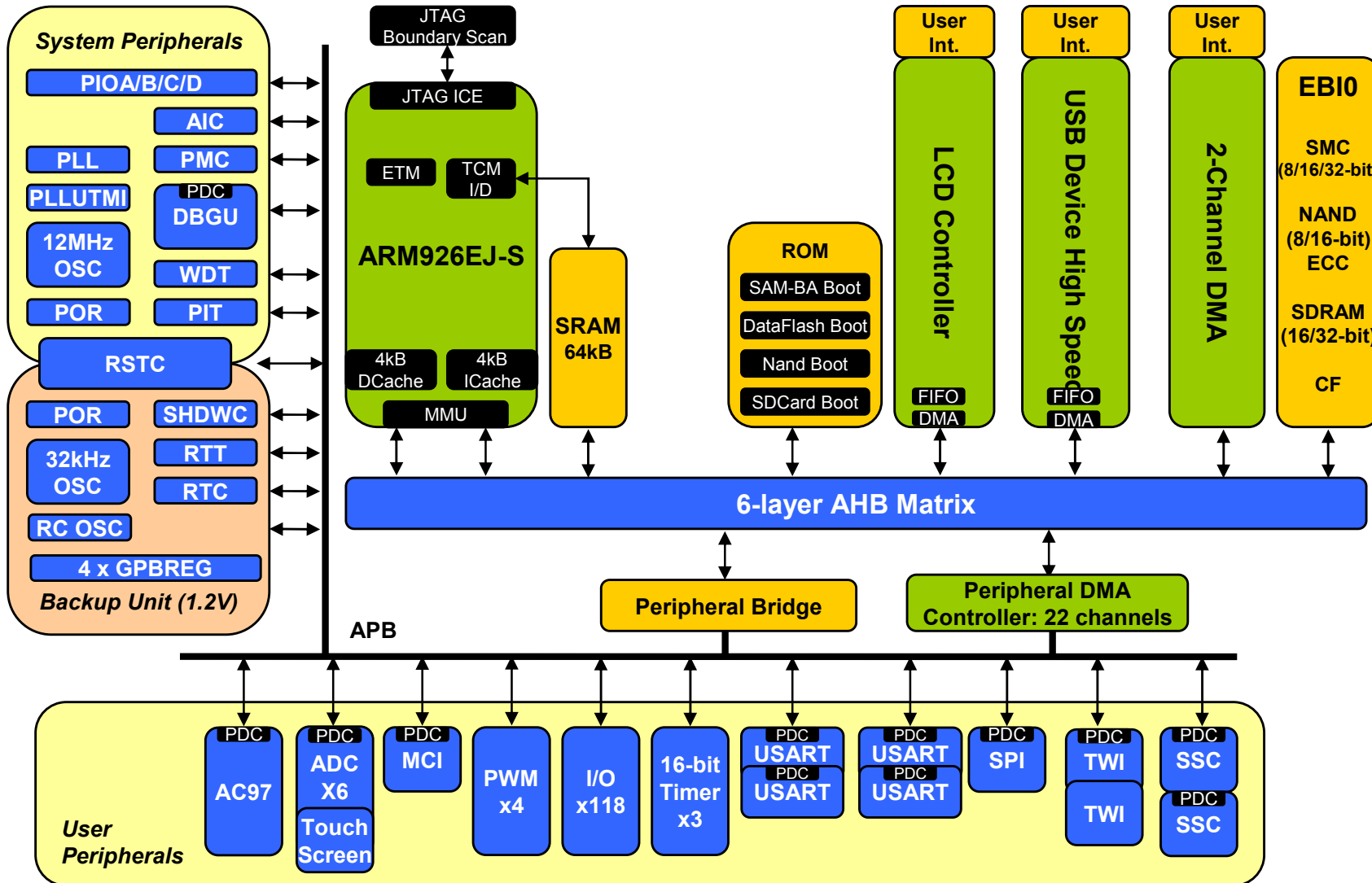
SDRAM Clock
100 MHz



AT91SAM9263



AT91SAM9RL64



Microcontroller
AT91SAM9RL64

Package
BGA217

32-bit

Electricals

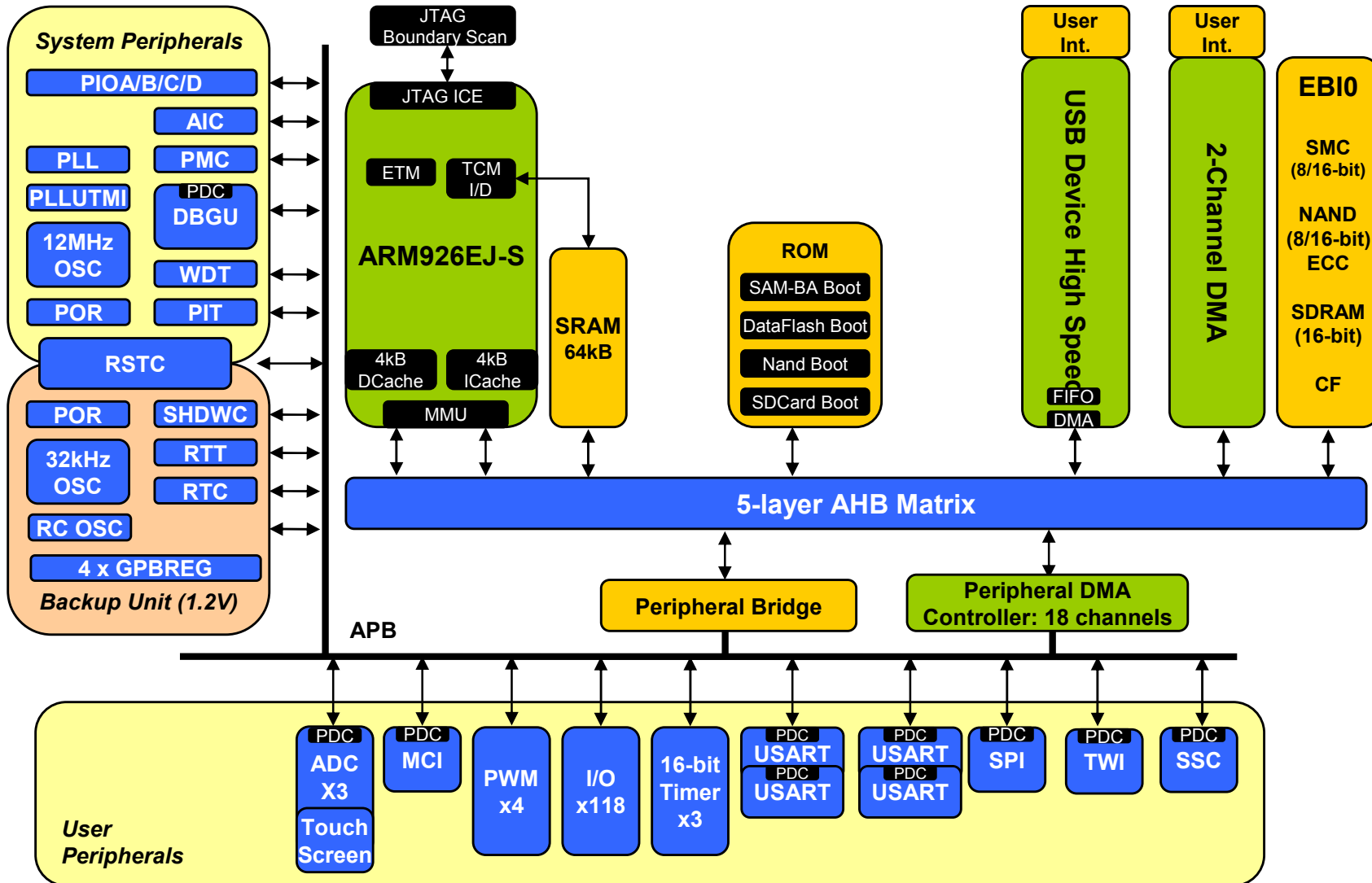
PCK 240 MHz
MCK 120 MHz

EBI I/O Lines
1.8V or 3.3V

SDRAM Clock
100 MHz



AT91SAM9R64



Microcontroller
AT91SAM9R64

Package
BGA144

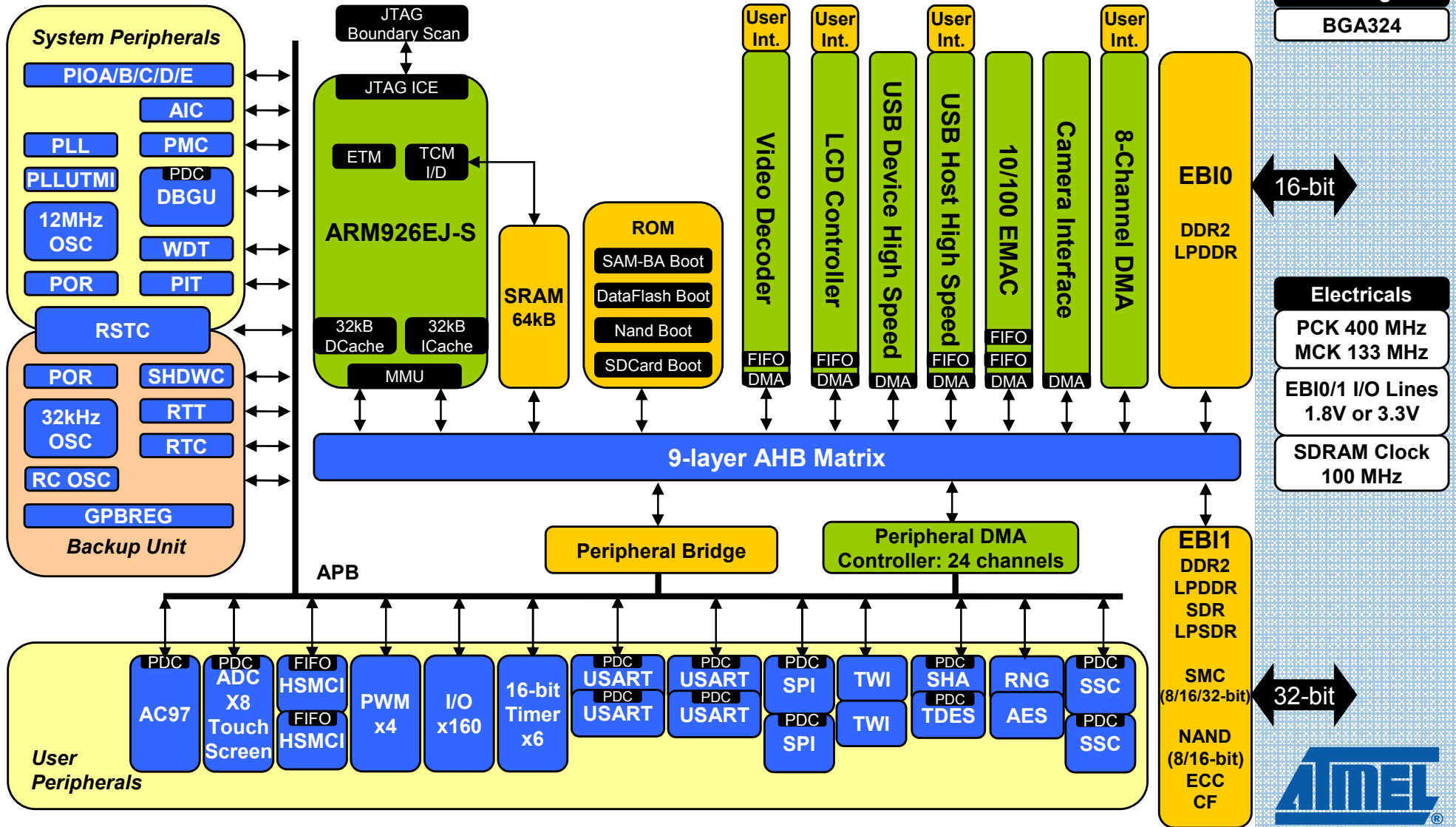
Electricals
PCK 240 MHz
MCK 120 MHz

EBI I/O Lines
1.8V or 3.3V

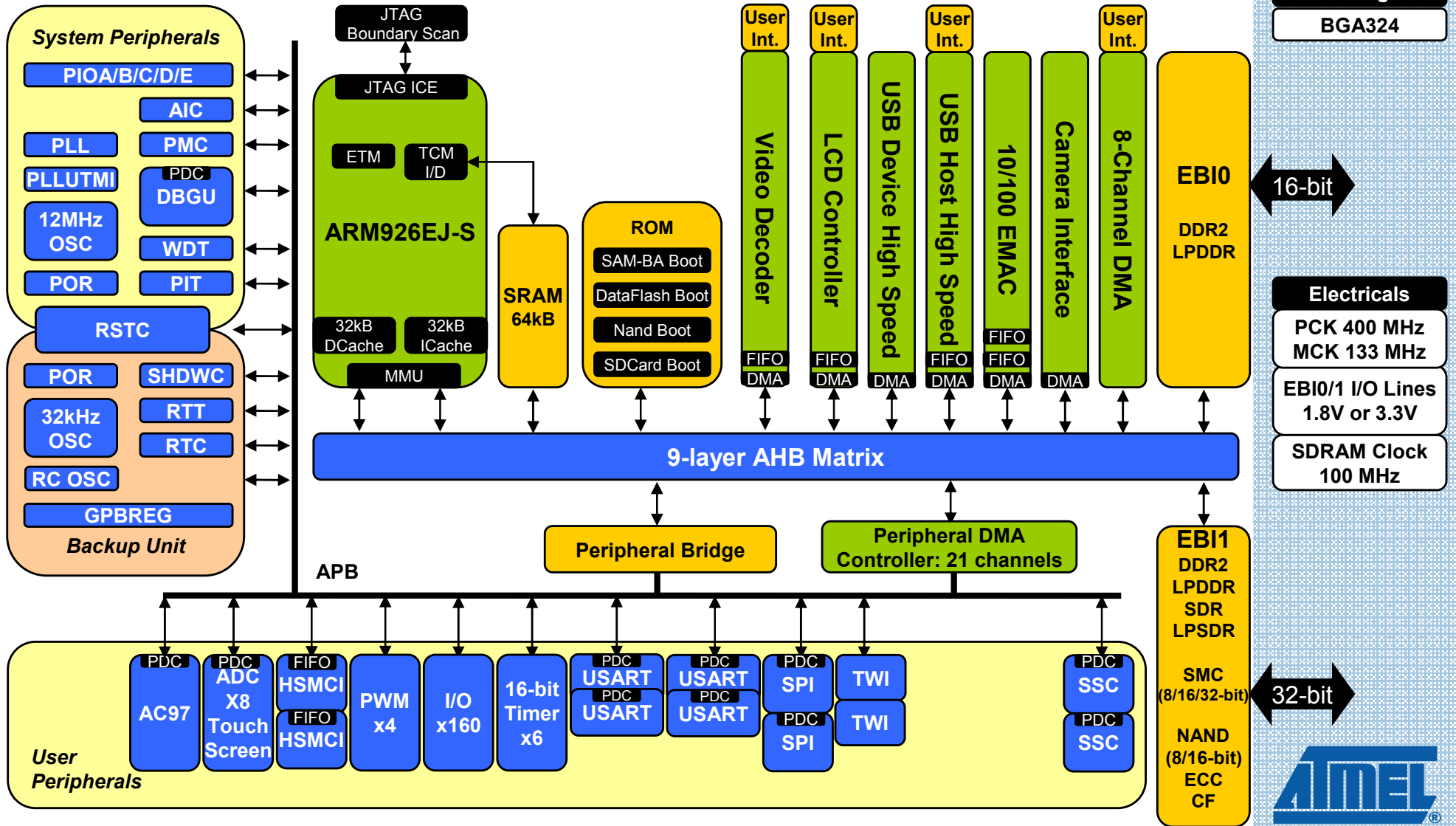
SDRAM Clock
100 MHz



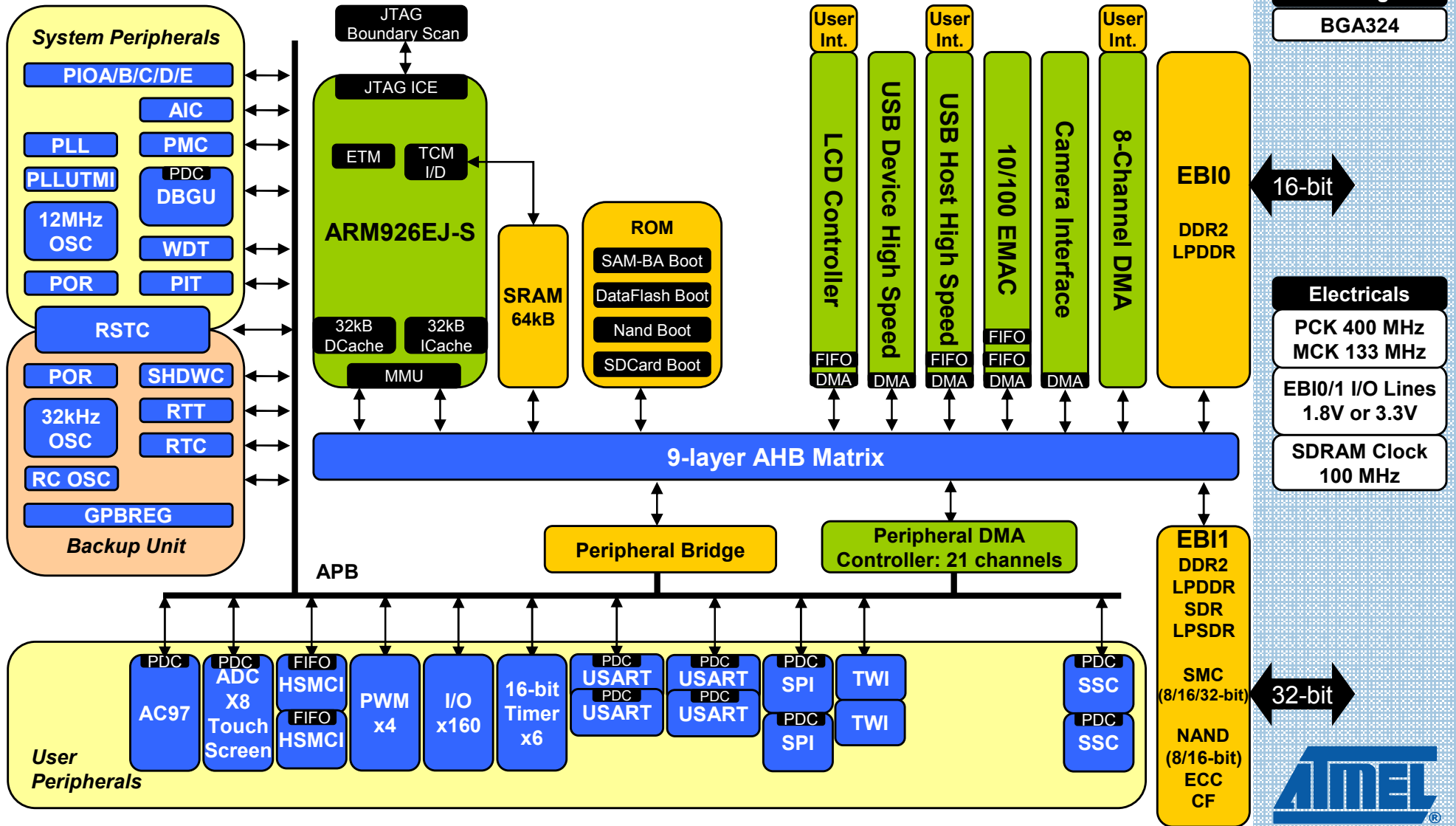
AT91SAM9M11



AT91SAM9M10



AT91SAM9G41



Microcontroller
AT91SAM9G41

Package
BGA324

Electricals
PCK 400 MHz
MCK 133 MHz
EBIO/1 I/O Lines 1.8V or 3.3V
SDRAM Clock 100 MHz

