1. **Main IC descripti**

IC Block diagram：
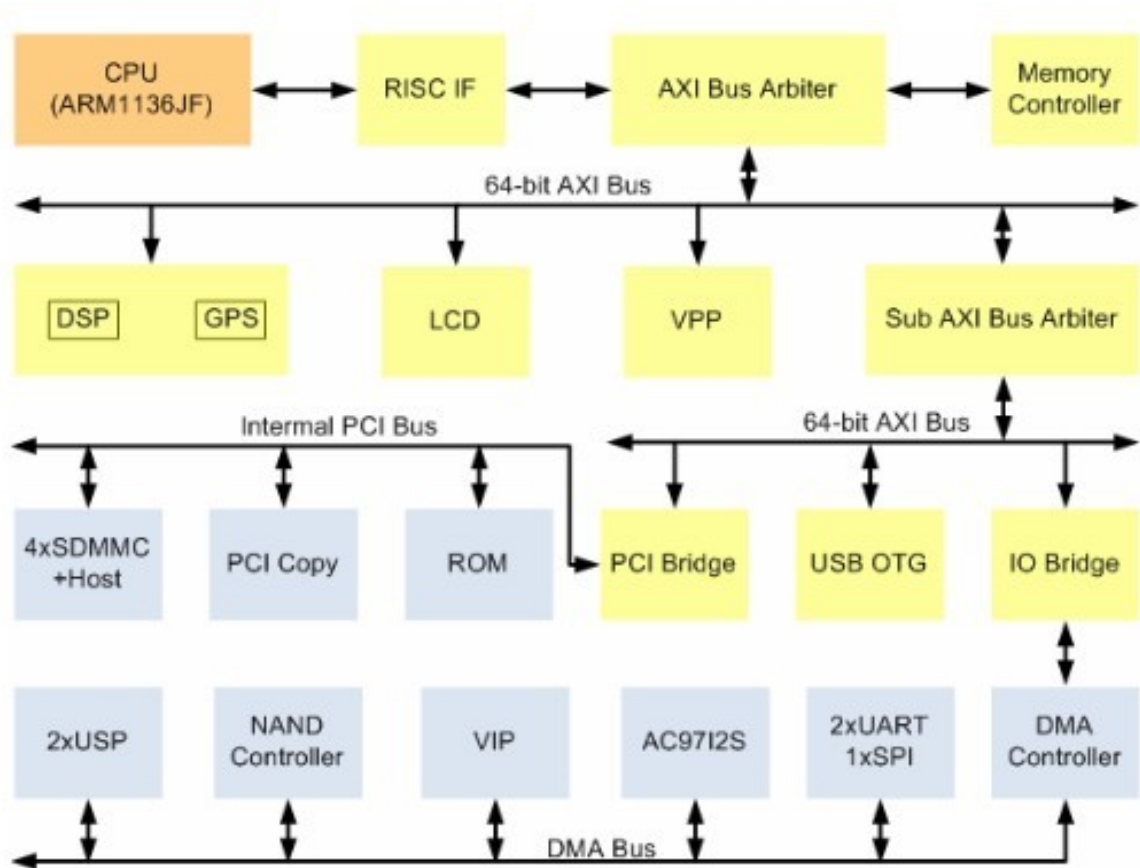

Figure 1: SiRFatlasIV Block Diagram

IC Basic function description ：

· **500MHz 32-bit RISC (ARM1136)**
  – **16KB I-Cache**
  – **16KB D-Cache**
  – **16KB D-TCM**
  – **16KB I-TCM**
  – **Low Power advanced 65nm process**

· **250MHz 16-bit DSP**
  – **With high performance hardware FFT**
  – **Hardware EPD (Energy Peak Detection)**
  – **Idle mode**
  – **12Kx24bit program memory**
  – **20Kx16bit data memory**

- **Memory controller support:**
  - **1.8V 333MHz Mobile-DDR support**
  - **2.5V 32-bit 400MHz DDR1 support**
  - **Support max to 128MB size**

- **64-channel GPS baseband with hardware match filter**

- **USB-2.0 hi-speed controller**
  - **USB 2.0 high-speed On-The-Go (OTG) controller serves as either a USB Host or a USB device controller with on-chip PHY**

- **8-bit SLC NAND Flash interface**
  - **8 bit BCH hardware ECC**
  - **Support boot from SLC or MLC NAND Flash directly**

- **8/16-bit Async-ROM interface for smartphone LCD**
  - **Support one address line**
  - **FIFO mode operation**

- **4-slot SD/SDIO/MMC+ controller**
  - **Supports direct boot from SD/MMC+ Managed NAND**
  - **4 SDHC/SD 2.0/MMC4.2 ports**
  - **SDIO support for WiFi, Bluetooth, and DVB-T/DVB-H/T-DMB/S-DMB**

- **8/16-bit LCD interface**

- **Video input port**
  - **8/10-bit**
  - **Raw RGB, RGB, YUV data format support**
  - **CCIR-601 support**
  - **CCIR-656 support**

- **Audio CODEC interface**
  - **AC97 V2.2 standard support**
  - **I2S master/slave mode support**

- **One SPI port**

- **Two Universal Serial Ports (USP)**

- **Two UART ports**

- **Two I2C ports**

· **Four PWM pins**

· **12mmx12mm, 0.65mm pitch, 292-pin TFBGA package**

2. ISDB-T Module

Supported standards: ISDB-T 1-Seg and ISDB-Tsb (3-Seg)

Supported bands: VHF III (174-240 MHz) UHF (470-862 MHz)

3. FM Transmitter

Professional Grade Performance: SNR ≥ 60 dB

Stereo Separation > 40 dB

Frequency reconcilable extension 88.1MHz~107.9MHz

Frequency step：50KHz

4. Power supply

```
┌──────────────┐                                      ┌──────────────────┐
│   Battery    │──────────────┐                    ┌─▶│   DC-DC 3.3V     │
└──────┬───────┘              │                    │  └──────────────────┘
       │                      ▼                    │  ┌──────────────────┐
       ▼                ┌──────────────┐           ├─▶│   DC-DC 1.3V     │
┌──────────────┐        │  DC Battery  │           │  └──────────────────┘
│ Battery      │        │              │───────────┤  ┌──────────────────┐
│ Charge       │        │   change     │           ├─▶│   LDO 3.3V       │
└──────┬───────┘        └──────┬───────┘           │  └──────────────────┘
       ▲                       ▲                    │  ┌──────────────────┐
       │                       │                    ├─▶│   LDO 2.5V       │
┌──────────────┐               │                    │  └──────────────────┘
│   5V 2A      │───────────────┘                    │  ┌──────────────────┐
└──────────────┘                                    └─▶│   LDO 1.2V       │
                                                       └──────────────────┘
```