

# IoT Solution: Smart Router

powered by OpenWRT (Linux-based)



## Highlights

- **Dual LAN**
- **WiFi IEEE® 802.11 b/g/n**
- **USB Host, Device**
- **FPGA Altera MAX10**
- **Ultra low power consumption**



## Overview

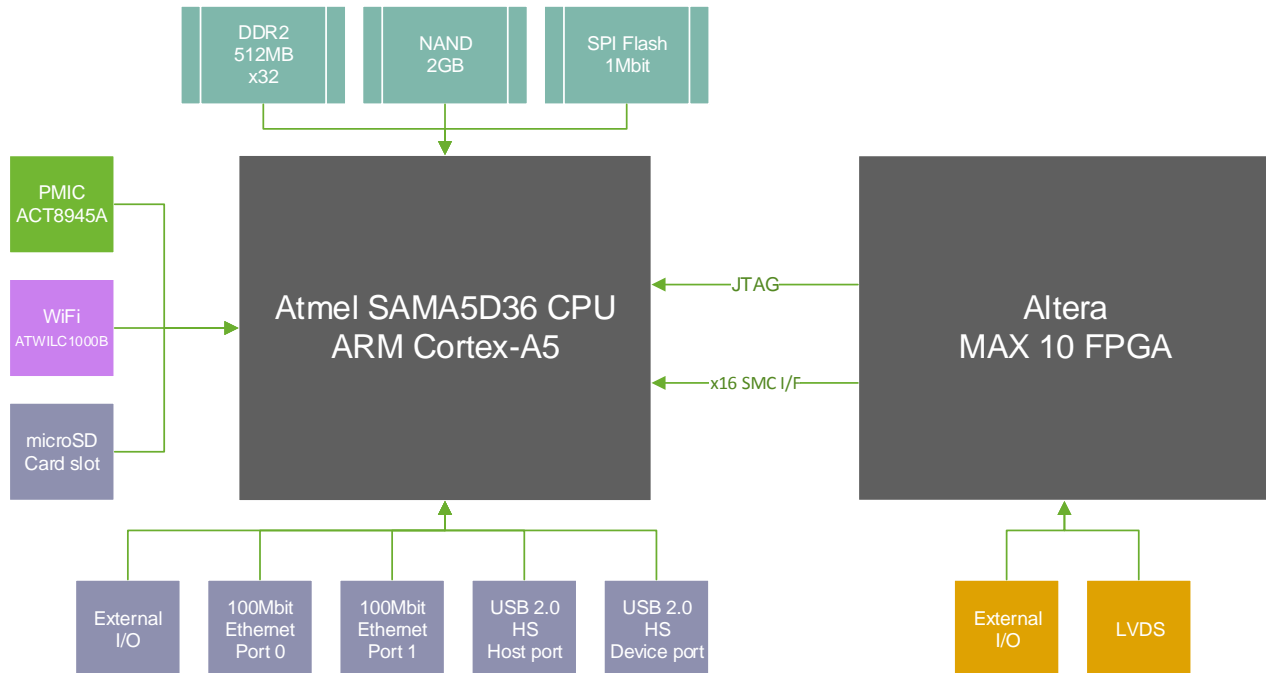
DAB-OWRT-SAM5 Smart Router was designed by DAB-Embedded BVBA for collecting and processing data from different wired and wireless interfaces. This router has ability to interconnect a lot of general and specific wireless interfaces like WiFi, ZigBee, Z-Wave and more, with wired interfaces like Ethernet, USB, CAN 2.0A/B, RS232, KNX and more. All data from such interfaces can be processed or stored in microSD card or in NAND Flash.

Heart of the DAB-OWRT-SAM5 Smart Router is Atmel SAMA5D36 processor with 536MHz ARM Cortex-A5 core (with Floating-Point Unit). Well known processor gives an unlimited opportunity to customize free OpenWRT Linux firmware for achieving any client request.

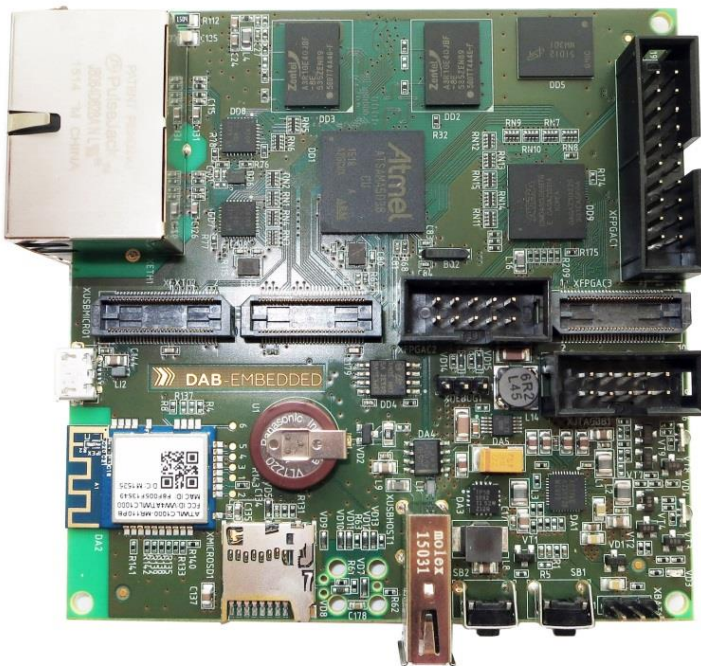
## Key features

- CPU: Atmel SAMA5D36 (ARM Cortex-A5, 536MHz, FPU)
- FPGA: Altera MAX 10 FPGA with integrated ADC
- Memory: Up to 512MB DDR2, Up to 2GB NAND Flash
- External storage: MicroSD card slot
- 2x 100Mbit/s LAN ports
- USB 2.0 HS Host
- USB 2.0 HS Device
- WiFi IEEE® 802.11 b/g/n (Wi-Fi Direct, station mode and Soft-AP support)
- Power supply: (External +5V AC/DC power supply, External Li+ battery)
- Expansion connector for:
  - Wired interfaces: RS232, CAN 2.0 A/B, KNX, RS-485/422 and more
  - Wireless: ZigBee, Z-Wave, KNX RF, and more

## Block diagram



## DAB-OWT-53 Top view



- ✓ External I/O (SAMA5D36):
  - / LCD (24-bit)
  - / UART/USART
  - / SPI
  - / ADC/Analog touch
  - / SSP/Audio
  - / ISI/Camera
  - / Timers/PWM
  - / CAN 2.0 A/B
  - / USB Host
- ✓ External I/O (FPGA MAX10):
  - / LVDS I/O (diff pair)
  - / FPGA I/O
  - / ADC inputs
- ✓ External Li+ battery (+3.7V) support
- ✓ External +5V DC power supply
- ✓ Board dimensions: 90x90 mm

## Software

- ✓ Linux Kernel 4.1 and BSP
- ✓ OpenWRT firmware
- ✓ NIOS II example (MAX 10)
- ✓ Windows Embedded Compact 7