

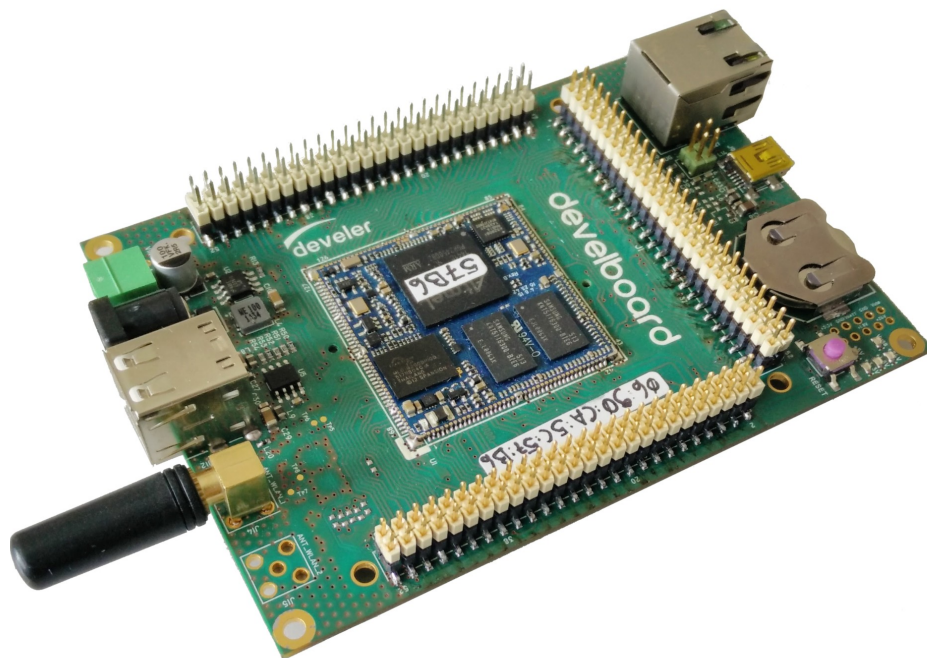


# DevelBoard EVA

## Evaluation Toolkit

### DRAFT

## USER MANUAL



## Introduction

EVA is the best way to get started with DevelBoard, a powerful Linux-based SoM designed for embedded system beginners as well as heavy-duty industrial applications. This evaluation toolkit helps you design and prototype a wide range of real-world applications, providing easy access to DevelBoard's debug interface and its most common peripherals (Ethernet, Wi-Fi etc.).

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# 1. Quick start

EVA is a easy-to-use evaluation board to quickly get started prototyping with DevelBoard.

For more information on DevelBoard, visit [www.develboard.com](http://www.develboard.com).

Documentation and user guides are also available at [docs.develboard.com](http://docs.develboard.com).

## 2. Features

EVA offers the following features:

- DevelBoard SoM, featuring an Atmel ATSAMA5D44 ARM® Cortex® A5 core @ 528 MHz
- Up to 512 MiB of DDR2 RAM
- Up to 512 MiB of NAND Flash
- On-board serial debugging interface, both using a 4-pin header and a USB mini-A connector
- Hardware reset push-button
- Board power supply: through USB bus or using an external power supply
- External application power supply: 1.8V, 3.3V, 5V, 24V
- CR2032 battery slot for RTC and backup registers
- Electrical test points for each voltage level on the board
- Five LEDs:  $V_{\text{USB}}$ , +1.8V, +3.3V, +5V, +24V
- Two USB 2.0 High speed host ports
- Micro-SD card slot
- Ethernet 10/100 shielded connector
- Two antennas for WLAN 2.4GHz MIMO channel access, with support for 5GHz Bluetooth LE
- Three 26x2 52-pin extension headers for access to I/O pins on DevelBoard:
  - Almost all 152 GPIO pins (except for Ethernet and SDIO)
  - USB OTG High speed with host / device support
  - 24-bit LCD/TFT display controller

## 3. Hardware and Layout

This section describes the hardware layout and component placement on EVA, and how the peripherals map to the physical connectors on the board.

### 3.1. Board overview

EVA is designed around DevelBoard to integrate multiple peripherals and connectors.

Figure 3.1 shows the component placement on the board.

Figure 3.2 shows the top layout of the board.

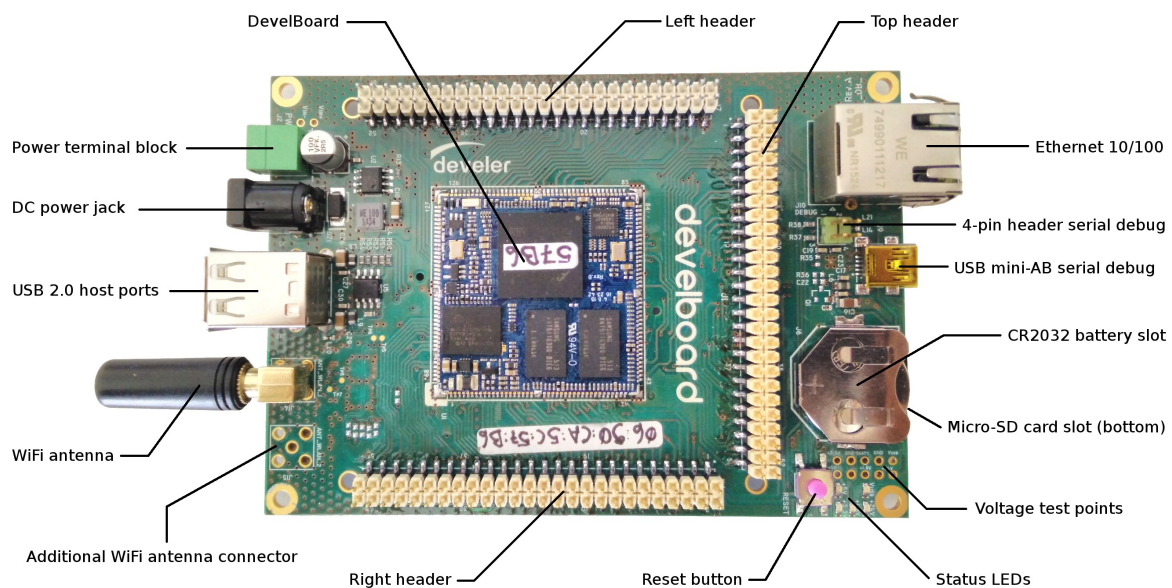
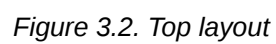


Figure 3.1. Component placement



## 3.2. Connectors

Table 3.1 describes the interface connectors on the board and the interface to which they are connected.

Identifier	Connector	Interfaces to
J2	3.5mm terminal block	Main power supply
J3	Power jack	Main power supply
J6	Battery slot	V <sub>bat</sub> for RTC and backup registers
J1, J7, J16	52-pin header	General purpose I/O pins
J9	USB Mini-B	Serial debug interface (RTX3)
J10	4-pin header	Serial debug interface (RTX3)
J11	Micro-SD slot	SDIO port (MCI1A)
J12	USB Type A Dual	USB 2.0 Host interface
J13	Shielded RJ45	Ethernet 10/100 Mbps (GMAC0)
J14, J15	WLAN Antenna	SDIO port (MCI0B)

Table 3.1. Connector list

## 4. Electrical specifications

DevelBoard is designed to operate at 3.3V. EVA provides several means to power up DevelBoard without damaging it, provided that the following guidelines are observed.

### 4.1. Power source

Several connectors are available to power up the EVA board.

It can be:

- USB-powered through the USB mini-A connector (J9)
- Powered using the 3.5mm terminal block (J2). The polarity of the plug is not relevant.
- Powered through a 2.1mm DC plug via the power jack connector (J3). The polarity of the plug is not relevant.

Table 4.1 specifies the electrical characteristics of the power supply in order to power up EVA.

Electrical Parameter	Min	Typ	Max	Unit
USB input voltage	-	5	-	V
USB current draw	-	-	500	mA
Terminal block input voltage	7	-	30	V
Power jack input voltage	7	-	30	V
V <sub>BATT</sub> input voltage	2.6	-	3.3	V

Table 4.1. Electrical parameters

### 4.2. Warnings

DevelBoard and EVA can be damaged by ESD. It is recommended that proper care is taken when handling electronic components. ESD damage can range from subtle performance degradation to complete device failure.



## 5. Mechanical drawings

## 6. Schematics