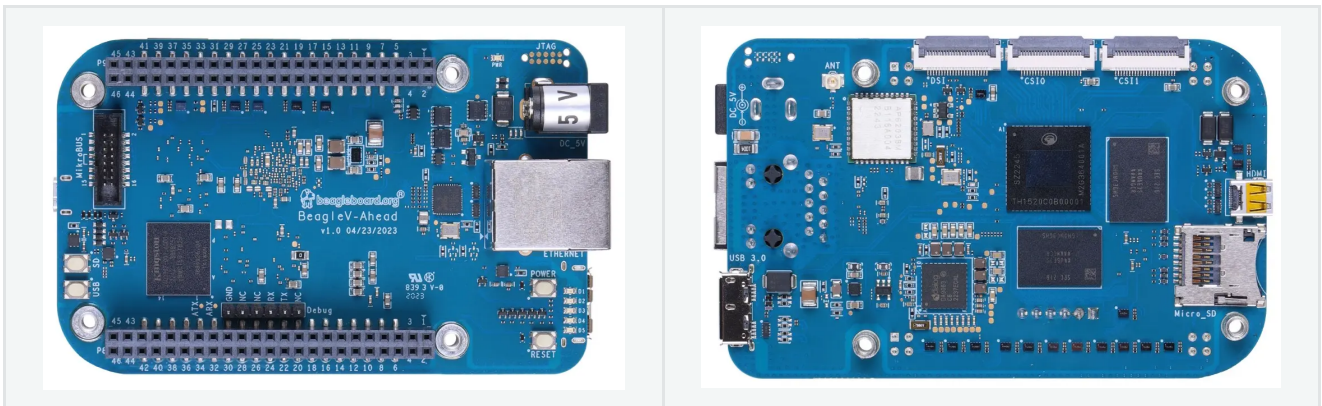


This is the latest (main) BeagleBoard documentation. If you are looking for stable releases, use the drop-down menu on the bottom-left and select the desired version.

Introduction

BeagleV Ahead is an open-source RISC-V Single Board Computer (SBC) in the form factor of BeagleBone Black. It has the same P8 & P9 cape header pins as BeagleBone Black allowing you to stack your favourite BeagleBone cape on top to expand it's capability. Featuring a powerful quad-core RISC-V processor BeagleV Ahead is designed as an affordable RISC-V enabled pocket-size computer for anybody who want's to dive deep into the new RISC-V ISA.



Pinout Diagrams

Choose the cape header to see respective pinout diagram.

[P8 cape header](#)

[P9 cape header](#)

BeagleV Ahead

P8 cape header pinout

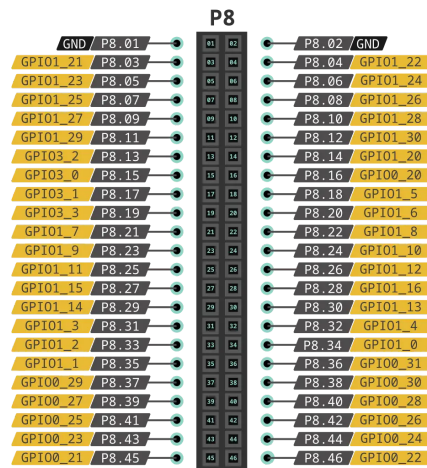
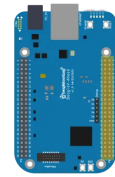


Fig. 178 BeagleV Ahead P8 cape header pinout

Detailed overview

BeagleV Ahead is build around T-Head TH1520 RISC-V SoC with quad-core Xuantie C910 processor clocked at 1.85GHz with a 4 TOPS NPU, support for 64-bit DDR, and audio processing using a single core C906.

Table 64 BeagleV Ahead features

Feature	Description
Processor	T-Head TH1520 (quad-core Xuantie C910 processor)
PMIC	DA9063
Memory	4GB LPDDR4
Storage	16GB eMMC

Feature	Description
WiFi/Bluetooth	<ul style="list-style-type: none"> PHY: AP6203BM Antennas: 2.4GHz & 5GHz
Ethernet	<ul style="list-style-type: none"> PHY: Realtek RTL8211F-VD-CG Gigabit Ethernet phy Connector: integrated magnetics RJ-45
microUSB 3.0	<ul style="list-style-type: none"> Connectivity: USB OTG, Flash support Power: Input: 5V @ <To-Do>, Output: 5V @ <To-Do>
HDMI	<ul style="list-style-type: none"> Transmitter: TH1520 Video out system Connector: Mini HDMI
Other connectors	<ul style="list-style-type: none"> microSD mikroBUS shuttle connector (I2C/UART/SPI/ADC/PWM/GPIO) 2 x CSI connector compatible with BeagleBone AI-64, Raspberry Pi Zero / CM4 (22-pin) DSI connector

Board components location

This section describes the key components on the board, their location and function.

Front components location

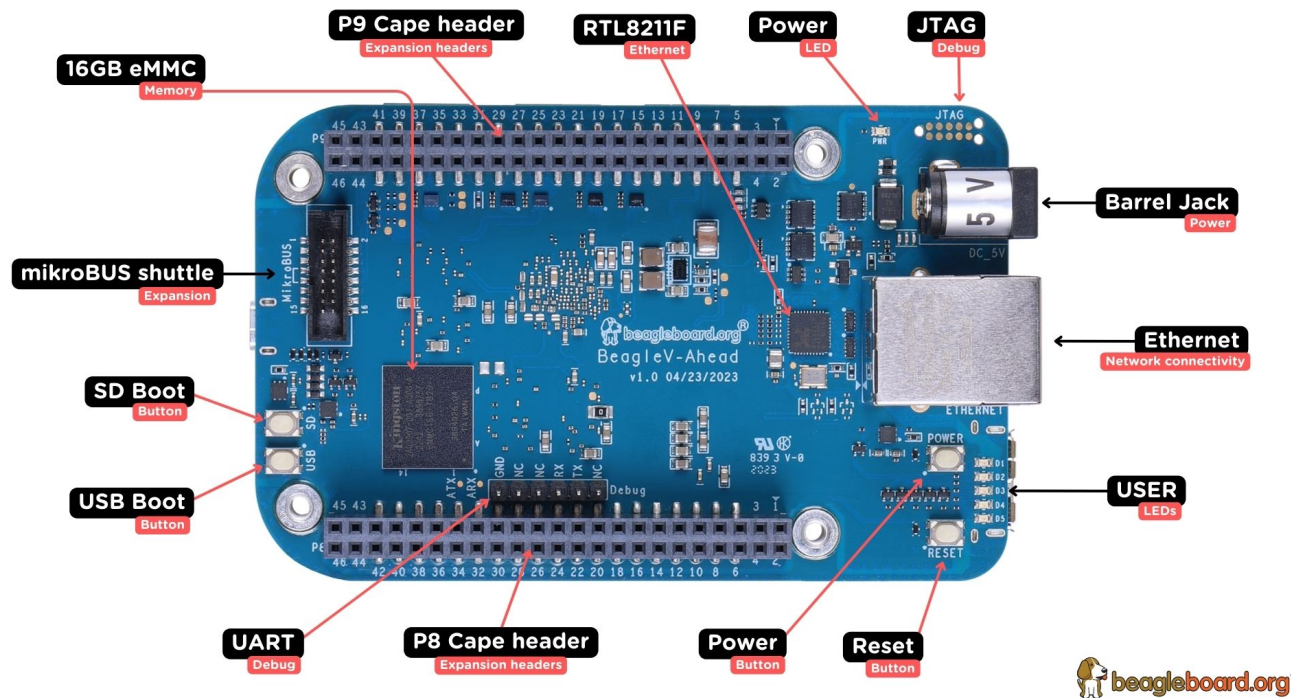


Fig. 180 BeagleV Ahead board front components location

Table 65 BeagleV Ahead board front components location

Feature	Description
Power LED	Power (Board ON) indicator
JTAG (TH1520)	TH1520 SoC JTAG debug port
Barrel jack	Power input
GigaBit Ethernet	1Gb/s Wired internet connectivity
User LEDs	Five user LEDs, Power and boot section provides more details. These LEDs are connect to the TH1520 SoC
Reset button	Press to reset BeagleV Ahead board (TH1520 SoC)
Power button	Press to shut-down (OFF), hold down to boot (ON)
P8 & P9 cape header	Expansion headers for BeagleBone capes.
UART debug header	6 pin UART debug header
USB boot button	Hold and reset board (power cycle) to flash eMMC via USB port
SD boot button	Hold and reset board (power cycle) to boot from SD Card

Feature	Description
mikroBUS shuttle	16pin mikroBUS shuttle connector for interfacing mikroE click boards
16GB eMMC	Flash storage
RTL8211F	Gigabit IEEE 802.11 Ethernet PHY

Back components location

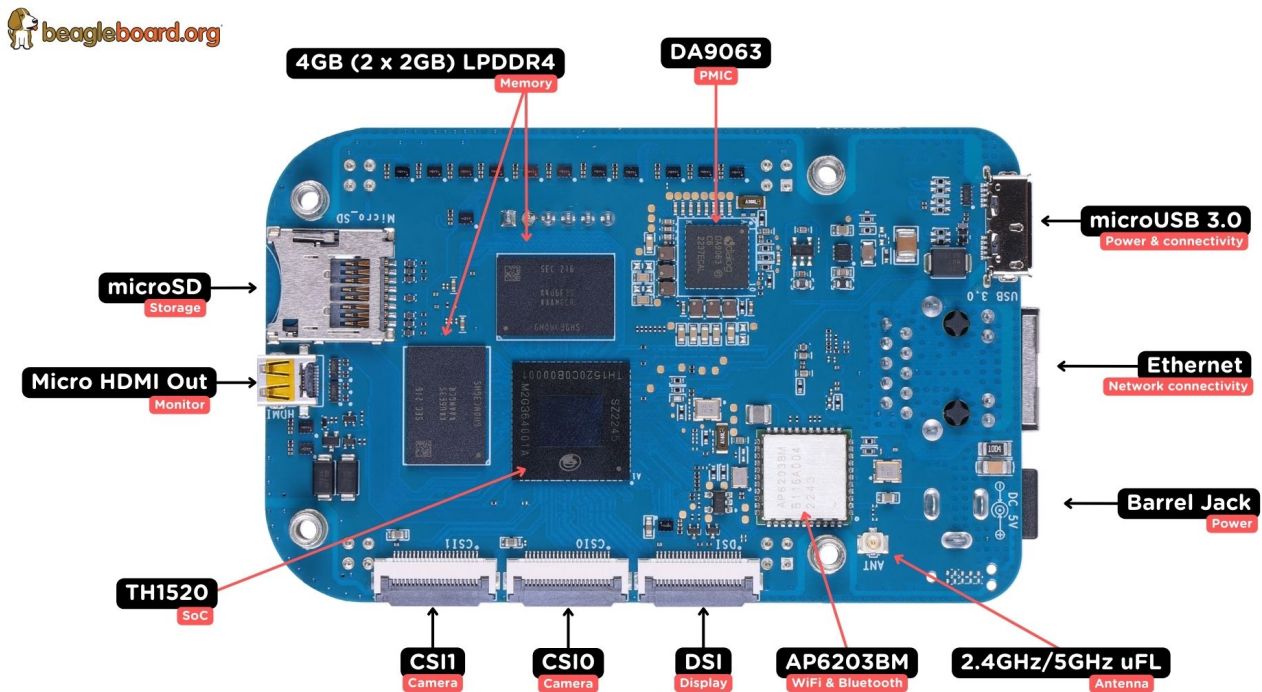


Fig. 181 BeagleV Ahead board back components location

Table 66 BeagleV Ahead board back components location

Feature	Description
DA9063	Dialog semi Power Management Integrated Circuit (PMIC)
microUSB 3.0	Power & USB connectivity as client or Host (OTG)
Antenna connector	2.4GHz/5GHz uFL connector
AP6203BM	Ampak WiFi & BlueTooth combo
DSI	MIPI Display connector
CSIO & CSI1	MIPI Camera connectors

Feature	Description
TH1520	T-Head quad-core C910 RISC-V SoC
Mini HDMI	HDMI connector
microSD	SDCard holder
4GB RAM	2 x 2GB LPDDR4 RAM