

New Product Update

Reduce system design efforts with BeagleBoard single-board computers and accessories

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Agenda



- Beagle introduction
 - What is Beagle?
 - Beagle = Easiest path to prototype
 - Hero **BeagleBone** products
- New BeagleBoard.org products
 - **BeaglePlay** featuring AM625
 - **BeagleConnect Freedom** featuring CC1352P7
 - **PREVIEW: PocketBeagle 2** featuring AM623

Beagle introduction

Overview and hero products

What is Beagle?



- Supported by Michigan, USA based non-profit BeagleBoard.org Foundation
- Focus on embedded, reliability, longevity, control and machine learning, not just cheap computers
- Approach is open and collaborative with open hardware, detailed documentation and fully open source software
- Entrepreneurial and open community of domain experts that share our passion and approach

Visit bbb.io/about to learn more



Beagle = Easiest path to prototype



Top 3 reasons to use Beagle for rapid prototyping:

1. Less effort
2. Increased visibility
3. Faster time to market

- Reference design used for over 200 million boards
>90% AM3x designs used BeagleBone Black as their reference
- Strong community with extended network of partners



Hero Beagle products



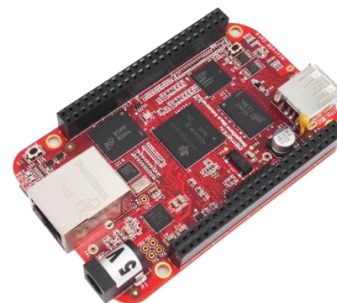
BeagleBone® AI-64 - TDA4VM

[BEAGL-BONE-AI-64 on ti.com](https://www.ti.com/lit/zip/beagl-bone-ai-64)



BeagleBone® Black - AM335

[BEAGL-BONE-BLACK on ti.com](https://www.ti.com/lit/zip/beagl-bone-black)



BeagleBone® Black Industrial - AM335

New BeagleBoard.org products

BeaglePlay + BeagleConnect Freedom

New Beagle boards



BeaglePlay[®] - AM625

[BEAGL-PLAY-SBC on ti.com](https://ti.com/BEAGL-PLAY-SBC)



BeagleConnect[™] Freedom - CC1352P7

What is BeaglePlay?



BeaglePlay® single-board computer from the BeagleBoard.org foundation based on AM62x

Features

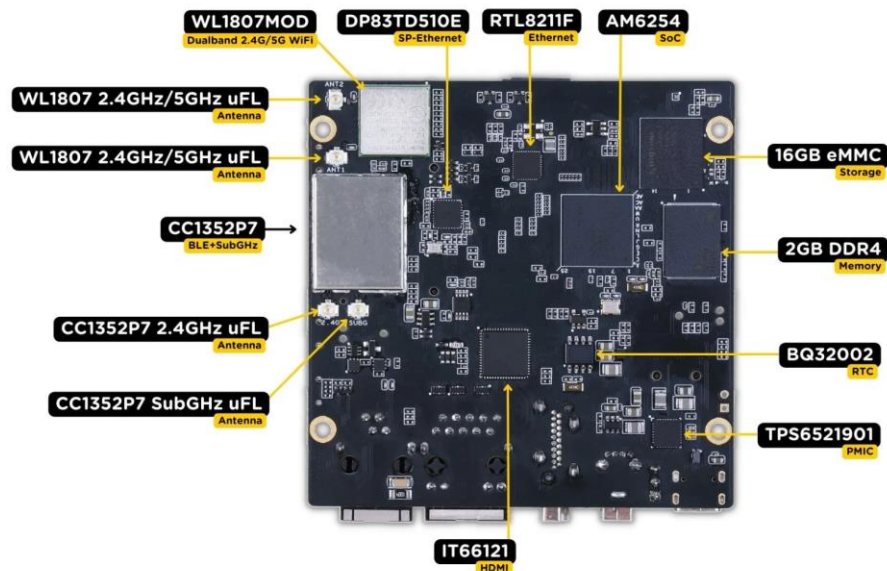
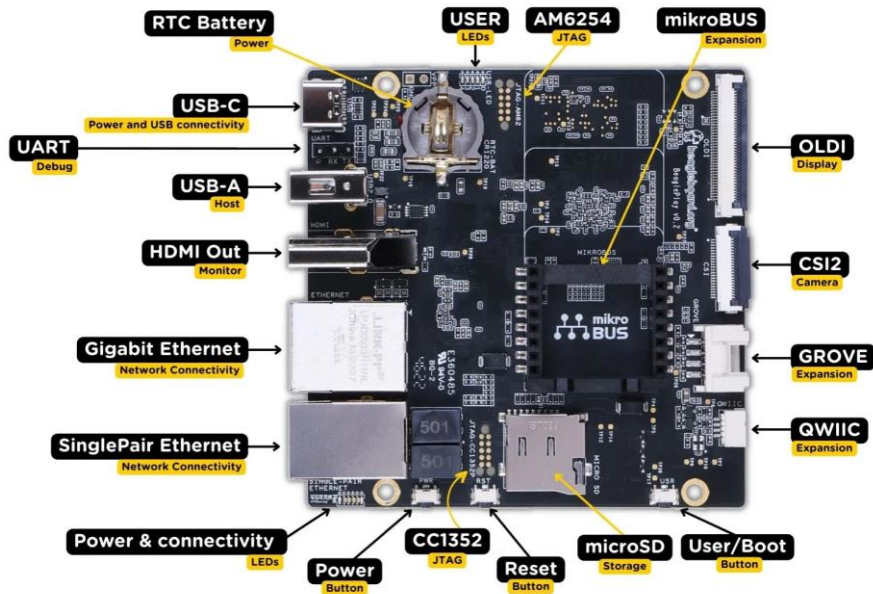
- *Small form-factor: 8 cm x 8 cm*
- *Memory:* 2GB DDR4, 16GB eMMC flash / microSD socket
- *Display:* HDMI (1080P, 24-bit), LVDS FFC connector for touchscreen displays
- *Wireless Networking:* 2.4/5GHz MIMO Wi-Fi, 2.4GHz BLE, Sub-1GHz
 - Zigbee, Wi-SUN, Amazon Sidewalk protocols
- *Wired Networking:* Gb Ethernet (RJ45), single-pair Ethernet with 5V PoDL (RJ11)
- *Expansion:* mikroBUS, Seeed Grove, Sparkfun QWIIC
- *Other:* Camera FFC connector, RTC with battery back-up, JTAG debug connection

Featured TI Components: AM625, TPS65219, DP83TD510E, WL1807MOD, CC1352P7

Applications: Home automation, building automation, factory automation, smart grid



BeaglePlay board tour



BeaglePlay software features



```
02sensors > code > i2cTemp.py
1 #!/usr/bin/env python
2 # =====
3 # // i2cTemp.py
4 # // Read a TMP101 sensor on i2c bus 2, address 0x49
5 # // Wiring: Attach to i2c as shown in text.
6 # // Setup: echo tmp101 0x49 > /sys/class/i2c-adapter/i2c-2/new_device
7 # // See:
8 # =====
9 import time
10
11 ms = 1000 # Read time in ms
12 bus = '2'
13 addr = '49'
14 I2CPATH="/sys/class/i2c-adapter/i2c-'+bus+'/'+'+bus+'-00'+addr+'/'+'hwmon/hwmon'+bus+'-00'+addr+'/'+'i2c-sensor'
15
16 f = open(I2CPATH+"/temp1_input", "r")
17
18 while True:
19     f.seek(0)
20     data = f.read()[:-1] # returns milli-degrees C
21     print("data (C) = " + str(int(data)/1000))
22     time.sleep(ms/1000)
```

Features

- Customized Beagle Debian image
- Zero install boot to desktop
- Remote development via web browser
- USB cable connection to PC/laptop
- WiFi access point with captive portal
- BeagleConnect gateway function
- Drivers for 100s of mikroBUS add-ons
- Configuration tool: bb-config
- PRU tool: simpPRU
- Learn more at docs.beagleboard.org

What is BeagleConnect Freedom?



BeagleConnect Freedom® from BeagleBoard.org foundation based on CC1352P7 SimpleLink Sub-1G and 2.4GHz wireless transceiver with integrated M4F MCU



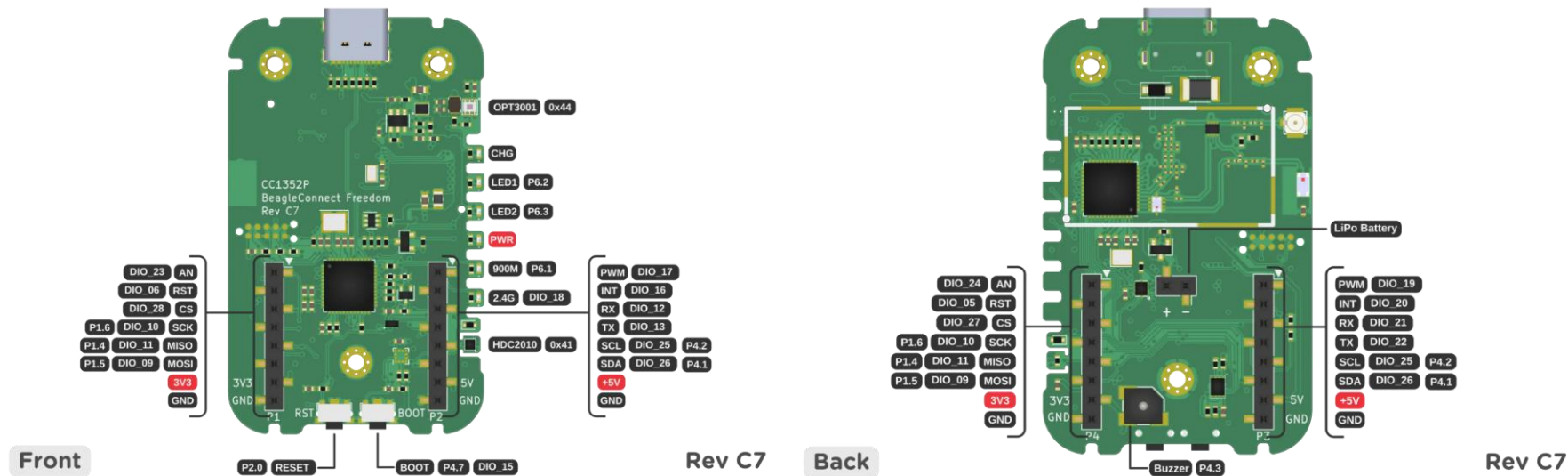
Features

- BeaglePlay + BeagleConnect Freedom + mikroBUS = tightly integrated HW/SW ecosystem
- Network access via BeaglePlay (Linux gateway)
- Long-range, low-power wireless communication
- Thousands of sensor and actuator options via mikroBUS
- No software development required to grab sensor data
- High-level and low-level software support with long-range networking

Featured TI Components: CC1352P7, HDC2010, OPT3001, BQ2104, MSP430F5503

Applications: IoT sensors/actuators for home automation, building automation, factory automation

BeagleConnect Freedom board tour



Preview PocketBeagle 2

PocketBeagle 2® from BeagleBoard.org foundation based on AM6232

Features

64-bit PocketBeagle form factor with USB Type-C

Expansion

- Pre-populated 2x 36-pin headers
- MSPM0-based 8-channel 3.3V ADC
- uSD card cage

Memory

- 512MB DDR
- 4GB eMMC

Other

- JTAG
- Battery charger (1-cell LiPo)
- Power via USB, header ("AC"), or battery via header



Getting Started



Content Type	Content Title	Link
Company Profile	<i>BeagleBoard.org</i> partner page on ti.com	https://www.ti.com/partner/BEAGLE
Tool Folder	<i>BeaglePlay</i> product page on ti.com	https://www.ti.com/tool/BEAGL-PLAY-SBC
User Guide	<i>BeaglePlay</i> system reference manual	https://docs.beagleboard.org/latest/boards/beagleplay/index.html
Design Files	<i>BeaglePlay</i> design files	https://git.beagleboard.org/beagleplay/beagleplay
Product Page	BeagleConnect Freedom product page	https://beagleconnect.org/
All BeagleBoard.org product documentation		https://docs.beagleboard.org
BeagleBoard.org community forum		https://forum.beagleboard.org

Visit www.ti.com/npu

For more information on the New Product Update series, calendar and archived recordings



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