Improving Embedded Linux Development with BeagleBoard.org

Jason Kridner, BeagleBoard.org Foundation, JK Embedded @jadon

Drew Fustini, BeagleBoard.org Foundation, BayLibre @pdp7

Kathy Giori, BeagleBoard.org Foundation, MicroBlocks @kgiori
BeagleBoard.org exists exclusively as a non-profit seeking to improve the state of embedded Linux (and Zephyr) development. Come join to learn about the latest developments from the BeagleBoard.org organization and how you can get involved to shape the project's direction.
BeagleBoard.org Foundation Leadership

Christine Long  
CEO

Jason Kridner  
Board Member  
JK Embedded

Robert Nelson  
Board Member  
DigiKey

Mark Yoder  
Board Member  
Rose-Hulman Institute of Technology

Drew Fustini  
Board Member  
BayLibre

Kathy Giori  
Board Member  
MicroBlocks
What makes Beagle special? bbb.io/about

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

To deep ocean
Dozens of books
Hundreds of cape add-on boards
Thousands given hands-on professional training courses

Used in Linux Foundation embedded Linux training
Tens of thousands of projects

Piloted beneath the arctic ice!
World’s first cheeseburger robot!
Uses BeagleBone & Linux

Over a hundred thousand collaborative innovators
Even safety critical applications

Over 6 million boards
BeagleBone® AI-64

Expansion headers compatible with many BeagleBone® cape add-on boards

M.2 E-key connector with PCIe, USB, and SDIO for WiFi/Bluetooth and expansion

Boot button
Power button
Reset button

16-pin microcontroller header

Gigabit Ethernet

Dual USB super-speed (5Gbps) Type-A host ports

Mini-DisplayPort

5V input power

5 user LEDs and 1 power LED

Wake-up domain serial port
Main domain serial port

USB super-speed (5Gbps) Type-C port with power input (5V@3A)

Bottom-side:
- Texas Instruments TDA4VM system-on-chip with dual Arm® Cortex®-A72, C7x DSP, and deeplearning, vision and multimedia accelerators
- 4GB DDR4 RAM
- 16GB on-board eMMC flash storage
- Micro-SD slot
- Dual CSI-2 camera connectors
BeaglePlay
BeagleBoard.org

BeaglePlay

- WL1807 2.4GHz/5GHz uFL
- WL1807MOD
- DP83TD510E
- RTL8211F
- AM6254
- CC1352P7 BLE/SubGHz
- CC1352P7 2.4GHz uFL
- CC1352P7 SubGHz uFL
- IT66121 HDMI
- 16GB eMMC Storage
- 2GB DDR4 Memory
- BQ32002 RTC
- TPS6521901 PMIC
beagleconnect
freedom

CC1352P
BeagleConnect Freedom
Rev C7

P2.0
RESET

BOOT
P4.7
DIO_15

PWR

3V3
GND

P1.6
DIO_10
SCK
P1.4
DIO_11
MISO
P1.5
DIO_09
MOSI

3V3
GND

OPT3001
0x44

LED1
P6.2

LED2
P6.3

900M
P6.1

2.4G
DIO_18

HDC2010
0x41

PWM
DIO_17
INT
DIO_16
RX
DIO_12
TX
DIO_13
SCL
DIO_25
P4.2
SDA
DIO_26
P4.1

+5V
GND

Front
Rev C7
beagleconnect
freedom

LiPo Battery

PWM DIO_19
INT DIO_20
RX DIO_21
TX DIO_22
SCL DIO_25
SDA DIO_26
P4.2
P4.1

P.16
DIO_10
SCK
P1.4
DIO_11
MISO
P1.5
DIO_09
MOSI
3V3
GND

Buzz pin P4.3

Back

Rev C7
RISC-V
mikroBUS
AI
Greybus
SubGHz RF
Single Pair Ethernet
Round Table