BeagleBone® AI-64, the first 64-bit open hardware single board computer broadly available from BeagleBoard.org®

BeagleBone® AI-64 brings a complete system for developing artificial intelligence (AI) and machine learning solutions with the convenience and expandability of the BeagleBone® platform and the peripherals on board to get started right away learning and building applications. With locally hosted, ready-to-use, open-source focused tool chains and development environment, a simple web browser, power source and network connection are all that need to be added to start building performance-optimized embedded applications. Industry-leading expansion possibilities are enabled through familiar BeagleBone® cape headers, with hundreds of open-source hardware examples and dozens of readily available embedded expansion options available off-the-shelf.

Leveraging over a decade of success in open hardware single board Linux computers, the BeagleBone® AI-64 puts a massive amount of computing power in an easy to use platform to build every sort of intelligent automation application, from robots to entire buildings and more. As a fully open hardware reference, engineers and hobbyists alike are enabled to fully validate solutions for themselves, eliminating barriers from prototype to production.

The BeagleBoard.org® Foundation announces the world-wide distribution availability of BeagleBone® AI-64, the most powerful AI open-source platform available. Built on our proven open source Linux approach, BeagleBone AI-64 brings a massive amount of computing power to the hands of developers in an easy to use single board computer. Leveraging the Texas Instruments™ TDA4VM SoC with dual Arm® Cortex®-A72 cores, a programmable C7x DSP core, and deep learning, vision and multimedia accelerators, developers have access to faster analytics, more data storage options, more high-speed interfaces including all the connectors you'll need on board to build applications such as:

- Computer Vision
- Machine Learning
- Vision Analytics
- Video Analytics
- Machine Vision
- Autonomous Robots and Drones
- AI-BOX and AIoT Gateways
- Media Servers
- Home Security
- Smart Buildings
- Retail Automation

BeagleBone®AI-64 has a feature set that includes:

Expandability

- BeagleBone® cape header compatibility for expansion with existing add-on boards
- ikroBUS™ Shuttle header giving access to hundreds of existing Click™ sensors and actuators

Memory

- 4GB LPDDR4
- 16GB eMMC flash with high-speed interface
- MicroSD card slot

High Speed Interfaces

- M.2 E-key PCIe connector to interface with WiFi/Bluetooth adapters
- USB 3.0 Type-C SuperSpeed interface for power input and data
- 2* USB 3.0 Type-A SuperSpeed interface
- Gigabit Ethernet

Camera and Display Connectors

- Mini DisplayPort interface
- 2* 4-Lane CSI connector for popular camera options
- 4-Lane DSI connector for popular display options

User Interfaces

- 1* Boot button, 1* Reset Button, 1* Power button
- 1* Power indication LED, 5* User LEDs
- 5V DC input power
- 2* UART debug
- JTAG 10pin Tag-Connect™ for debug

TDA4VM Dual 64-bit Arm® Cortex®-A72, 2.0GHz processor feature:

- C7x floating point, vector DSP, up to 1.0 GHz, 80 GFLOPS, 256 GOPS
- Deep-learning matrix multiply accelerator (MMA), up to 8 TOPS (8b) at 1.0 GHz
- Vision Processing Accelerators (VPAC) with Image Signal Processor (ISP) and multiple vision assist accelerators
- Depth and Motion Processing Accelerators (DMPAC)
- Dual 64-bit Arm Cortex-A72 microprocessor subsystem at up to 2.0 GHz
    - 1MB shared L2 cache per dual-core Cortex-A72 cluster
    - 32KB L1 DCache and 48KB L1 ICache per Cortex-A72 core
- Six Arm Cortex-R5F MCUs at up to 1.0 GHz
- Two C66x floating point DSP, up to 1.35 GHz, 40 GFLOPS, 160 GOPS
- 3D GPU PowerVR® Rogue™ 8XE GE8430, up to 750 MHz, 96 GFLOPS, 6 Gpix/sec
- Memory subsystem with up to 8MB of on-chip L3 RAM with ECC and coherency
- Twelve Multichannel Audio Serial Port (MCASP) modules

Learn more at https://beaglebone.ai/64

"We believe this board will capture the imaginations of designers and empower them to build complete and powerful AI systems" stated Christine Long, CEO of the BeagleBoard.org® Foundation. *"At an extremely competitive price point, we are excited about the new applications that BeagleBone® AI-64 will enable for new and experienced users."*

"BeagleBone® AI-64 represents a major milestone for BeagleBoard.org, satisfying some of the most requested features from our developer community," stated Jason Kridner, BeagleBoard.org® Foundation board president "including 64-bit support and inclusion of PCIe on an expansion header. With multiple SuperSpeed USB ports, familiar BeagleBone cape expansion headers, and desktop-capable performance, the general-purpose embedded applications for this board are endless, with 8 TOPS neural-network performance accessible through familiar Python libraries to boot!"

For information about BeagleBoard.org® Foundation, contact Christine Long, CEO, at **christi@beagleboard.org**