ClairBox-B

Traffic AI Edge Computing Microserver

Overview

The ClairBox microserver series is designed specifically for AI processing applications in traffic video and image analysis. These microservers offer high performance, low power consumption, and excellent adaptability to various environmental conditions. By leveraging a diverse range of deep learning algorithms, they have the capability to handle up to 4/8/16 channels of 1080P video simultaneously. This enables them to provide real-time traffic data collection, including metrics like volume, occupancy, speed, headway, and vehicle attributes, thereby empowering edge AI capabilities.

Ultra-high-performance computing capability

- Support 10.6/17.6/32TOPS INT8 peak computational capability
- Support up to 2.2T FP32 high-accuracy computational capability

Superior encoding and decoding capability

- Support full processing of 4/8/16 channels 1080P high-definition video
- Image decoding capability reaches 240/480/600fps @1080P

Rich interfaces

- Support USB3.0 interface
- Support HDMI high resolution interface
- Support RS485/232 and I/O interface

Flexible deployment

- -20°C to 60/70 °C wide range operating temperature
- Support IP30/40 protection class and fan less heat dissipation
- Optional SATA storage and LTE wireless communication

High reliability

- High-capacity eMMC can be developed to support primary and backup partitions
- Support fault alarm and protection mechanisms for exceptional class failures
- Support programmable encryption chips for privacy information protection

High usability

- BMNNSDK2 all-in-one deep learning development toolkit
- Support mainstream frameworks Caffe/TF/PyTorch/MXNet/Paddle
- Support mainstream network models and custom operator development
- Supports Docker containerization for rapid algorithm application deployment

Traffic AI algorithm

- Traffic data collection including volume, occupancy, speed, headway, vehicle attributes, etc.

Specification

Model		ClairBox-B4/B4A	ClairBox-B8/B8A	ClairBox-B16/B16A
CPU		8 cores ARM A53 @2.3GHz	8 cores ARM A53 @2.3GHz	8 cores ARM A53 @2.3GHz
AI computing power	INT8	10.6 TOPS	17.6 TOPS	32 TOPS
	FP32	1.3 TFLOPS	2.2 TFLOPS	2 TFLOPS
Video/image encoding/ decoding	Video decoding capability	H.264: 1080P @240fps H.265: 1080P @240fps	H.264: 1080P @960fps H.265: 1080P @960fps	H.264&H.265 32*1080P@25fps, 8*4K@ 25fps
	Video decoding resolution	8192 * 8192 / 8K / 4K / 1080P / 720P / D1 / CIF	8192 * 8192 / 8K / 4K / 1080P / 720P / D1 / CIF	8192 * 8192 / 8K / 4K / 1080P / 720P / D 1 / CIF
	Video encoding capability	H.264: 1080P @25fps H.265: 1080P @25fps	H.264: 1080P @50fps H.265: 1080P @50fps	H.264&H.265: 12*1080P@25fps, 3*4K@25fps
	Video encoding resolution	4K / 1080P / 720P / D1 / CIF	4K / 1080P / 720P / D1 / CIF	8K / 4K / 1080P / 720P / D1 / CIF
	Image decoding capability (JPEG)	240fps @1080P	480fps @1080P	600fps @1080P
	Maximum image decoding resolution	32768 * 32768	32768 * 32768	32768 * 32768
Memory	Standard configuration	6GB	12GB	16GB
eMMC	Standard configuration	32GB	32GB	64GB, extendable SSD(M.2 2242 SATA3.0)
Wireless		None	None	WiFi 802.11a/b/g/ n/ac 2.4GHz/5GHz, BT5.0, Optional 4G(mini PCIe interface) , 5G (M.2 interface)
Interface	Network interface	10/100/1000Mbps * 2	10/100/1000Mbps * 2	10/100/1000Mbps * 2
	External interface	USB3.0 *2 / HDMI *1 / TF *1 / RS 485 *2 / IO *1 / Alarm input *2 / Audio *1	USB*2 / HDMI / SATA / RS232 / RS 485 / TF / LTE	USB3.0 *2 / USB2.0 *2 / HDMI *1 / TF *1 / RS 232 *1(DB9) / RS 485 *1(DB9)
Power supply		AC220V	DC12V	DC12V
Operating temperature	Temperature range	-20°C to 70°C	-20°C to 60°C	-20°C to 60°C (active cooling)
Power consumption	Typical value	18W	20W	20W
IP Class		IP40	IP30	IP40
Dimension	L*W*H	185 * 170 * 43.6 (mm)	188 * 148 * 44.5 (mm)	210 * 130 * 44.5 (mm)

Ordering Information

Model	QTY of supported 1080P video channels	With traffic AI algorithm software	Without software, customer may load its own.
ClairBox-B4	4		√
ClairBox-B4A	4	√	
ClairBox-B8	8		√
ClairBox-B8A	8	√	
ClairBox-B16	16		√
ClairBox-B16A	16	√	