ISP-MIC735-MEDA1

Ultra-low Latency IGX AI System for Real-time Medical Solution

Features

- Leverages AI platform based on the NVIDIA® IGX Orin™, delivers up to 248 TOPS with the latest IGX-r36v1.0.3 and above.
- Supports NVIDIA RTX 6000 Ada Generation GPUs by optinon, boosting AI performance up to 1705 TOPS, ideal for demanding medical imaging tasks.
- Features SDVoE video transceivers, NVIDIA Holoscan SDK, and 4K video output for real-time video overlay and AI integration.
- Extensive support for custom AI workflows, enabling rapid deployment and configuration of AI models tailored for specific medical imaging needs.
- Facilitating pre-trained models, real-time detection logic, and integration with video output for enhanced surgical precision and more effective clinical decision-making.

Description

The Integrated Solution Packages (ISP), built on NVIDIA® Jetson AGX Orin™, are available as complete demo boxes, specifically designed for medical edge AI applications. This all-in-one solution provides a pre-installed software environment, allowing for immediate setup without additional configuration. With its focus on medical applications, the system enables rapid deployment of AI-driven solutions in areas such as diagnostic imaging and surgical assistance. Users can quickly power on the device, fine-tune recognition accuracy for medical scenarios, and efficiently deliver to medical market.

Specifications

System Platform		ISP-MIC735-MEDA1
Processor System	CPU	12-core Arm® Cortex®-A78AE v8.2 CPU
	GPU	2,048-core NVIDIA Ampere architecture with 64 Tensor Cores
	Memory	64GB 256-bit LPDDR5 DRAM
I/O	Ethernet	2 x RJ-45 (up to 1 GbE), 2 x QSFP (up to 100 GbE per port)
	Display	1 x DisplayPort 1.4a
	PCIe Slots	2 x PCIe Gen5 (1 x PCIe x16 for NVIDIA RTX A6000, 1 x PCIe x8)
	USB	4 x USB 3.2 Gen 2, 2 x USB 2.0
Power	Mode	Medical grade 700W single PSU (AC to DC)
	Input Voltage	110~220 V_{AC}
Environment	Operating Temperature	0 ~ 45°C with 0.7 m/s air flow
Mechanical	Dimensions (W x D x H)	192 x 376.7 x 338.5 mm (7.56" x 14.83" x 13.33")
	Weight	11 kg (24.25 lb)
	Installation	Tower system
Certifications		Support customer to achieved by project base CB/UL/CE/FCC/BSMI/CCC related
BSP		IGX-r36v1.0.3 and above
Build-in SDK	Holoscan	A comprehensive platform optimized for real-time medical imaging and AI applications, offering tools for AI-driven lesion detection, segmentation, and classification
Demo Scenario		AI-Powered Endoscopy: Utilizing the MIC-735M-IO with NVIDIA IGX Orin, VEGA-1200 and VEGA-3003, this demo shows real-time lesion segmentation and classification during gastrointestinal endoscopy procedures. Surgical navigation technology supports minimally invasive surgery (MIS) by providing the relative positional relationships among medical images, surgical instruments, and lesions, utilizing the Advantech IGX Orin edge AI system, SDVoE video transceivers, NVIDIA GPUs, and the NVIDIA Holoscan SDK to achieve ultra-low latency with flexible configurations AI navigation for surgical systems.

Last updated: 8-Oct-2024

Specifications (Cont.)

Functions	Offered Capabilities	▪ Ultra-low Latency Video Integration, and Real-time AI Inference for Digital Operating Rooms: The MIC-735M-IO, built on the NVIDIA IGX Orin platform, delivers real-time AI inference for medical applications such as lesion detection, segmentation, and classification in endoscopic procedures. It creates an ultra-low latency video integration system, seamlessly connecting imaging devices, AI processors, and display systems in digital operating rooms, ensuring synchronized real-time video feeds and AI analysis to enhance surgical precision and decision-making. ▪ Image and Video Processing: With powerful NVIDIA RTX 6000 Ada support, the system enables advanced visual computing, processing high-resolution images and videos for real-time feedback during medical procedures such as robotic surgery and endoscopy. ▪ SDVoE for Extended Video Transmission: Equipped with SDVoE (Software Defined Video over Ethernet) technology by VEGA-1200+VEGA-3003, the system can transmit high-quality video with ultra-low latency over distances of 400 meters or more, making it ideal for large medical facilities where video data needs to be transferred reliably over extended distances without compromising quality.
Latest Version		Ver 1.0

Ordering Information

P/N	Description
ISP-MIC735-MEDA1	IGX system MIC-735M-IO6-A1 + Pre-build Holscan SDK

Optional orders (If not by full set)

P/N	Description
VEGA-1200-B4MSFM	4K SDVoE Hybrid Encoder/Recorder (As (C) in below scenario chart)
VEGA-3003-S0H0	FPGA-based 4K UHD SDVoE Video Capture Card (As (B) in below scenario chart)
MIC-735M-IO6-A1	NVIDIA IGX Platform for Medical Grade Edge AI Small Tower Chassis (As (A) in below scenario chart)
17US00000N201001BK	Cable, CAT6 Ethernet, 1ft
AOC-10G-SFP/SFP-1-03	3M 10G SFP AOC cable
1700025893-01	A cable DP 20P(M)/DP 20P(M) 25CM DP1.2b
17US000001410001CB	HDMI Male to HDMI Male Cable, Length=250mm

*if user order host separately or replace host by themselves, please check the availability of the SDK.
*If user would like to have full optional items of full set + ISP-MIC735-MEDA1 (Full DEMO box), please contact Advantech Product Manager for NRE quote.