The JetStream is a multi-channel video AI carrier board for Jetson™ modules. The JetStream provides dual HDMI and eight composite video inputs allowing multi-channel video AI applications to be rapidly developed and deployed. This SWaP optimized solution is ideal for demanding applications in Military, Communications, Transportation, Mining and Energy industries.

**AI Inference example: Object detection + monitoring**

The JetStream features dual HDMI/DVI inputs at up to 1080p60 and an 8 channel NTSC/PAL/RS-170 low latency video capture engine. All inputs can be simultaneously captured for processing by the Jetson Xavier NX module allowing vision-enabled AI applications to use a wide range of standard video sources. An optional MIPI expansion module provides expansion to other video interface types on request. The JetStream has a HDMI output for local display and Gigabit Ethernet for connectivity. An M.2 (Key M) slot is provided to allow connection of high-performance NVMe storage. Additional expansion is possible via the PCIe/104 OneBank™ bus connector.

The JetStream is a standard PCIe/104 form factor card and is powered from 9V-15V DC input. The JetStream is supported by a comprehensive board support package and a series of application notes designed to help rapid development of vision-enabled AI applications.
JetStream

AI video carrier board for NVIDIA® Jetson Xavier™ NX

AI Inference example: Object detection + ANPR

Applications

AI Inference - Object Recognition, ANPR, Pose detection
Device Edge computing
Unmanned vehicles (UAV, ROV)
All-round Real-Time Situational Awareness
Traffic Monitoring and Control
Video Acquisition and Analytics
Remote Video Surveillance
Rugged intelligent video recorders for marine, aviation
Border Security

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JetStream

AI video carrier board for NVIDIA® Jetson Xavier™ NX

Features

Support for NVIDIA® Jetson Xavier™ NX and Nano modules
2x HDMI video inputs at up to 1080p60
8x Composite PAL/NTSC/RS-170 video inputs
HDMI 2.0 Display at up to 4K resolution
Multi-channel AI Video Inference
H.264/H.265 Video Encoding and Streaming
Rugged, real-time video capture/analyze/stream solution
M.2 (Key M) NVMe storage
Gigabit Ethernet
PCIe/104 OneBank™ Expansion
Industry Standard PC/104 mechanical form factor
Jetson Module Support
NVIDIA® Jetson Xavier™ NX
- AI Performance: 21TOPS
- GPU: 384-core NVIDIA Volta™ GPU with 48 Tensor Cores
- CPU: 6-core NVIDIA Carmel ARM® v8.2 64bit
- Memory: 8GB 128-bitLPDDR4x
- Storage: 16GB eMMC 5.1
NVIDIA® Jetson Nano (option)

Digital Video Inputs
- Dual HDMI input at up to 1080p60 (SMPTE 292M, SMPTE 424M)
- 2x Dual-lane MIPI CSI Expansion ports (option)

Analog Video Inputs
- 8x Composite PAL/NTSC/RS-170 video inputs

Video Codec
- ITU-T H.264 (ISO/IEC 14496-10)
- ITU-T H.265 (ISO/IEC 23008-2)
- Encode all inputs at full frame rate

Display
- HDMI 2.0 up to 4K
- Audio output via HDMI

Network Interface
- Gigabit Ethernet for RTSP/RTP streaming and control

Data Storage
- M.2 (Key M) slot for NVMe
- microSD-Card

Expansion busses
- Stackable PCIe/104 OneBank™ connector
- 4x PCI Express x1 Lanes Gen 2.0
- M.2 (Key M) PCIe x4 Gen 4.0 (NVMe)

I/O Expansion
- 2x USB 2.0
- 1x RS232

Power
- 9V to 15V DC input

Environmental
- Operating temp: -40°C to +85°C (carrier board)

Mechanical
- Standard 4.55 x 3.775in PC/104 form factor
- Mechanical mounting for PC/104 stack

Software
- Support for Ubuntu Linux 18.04
- Board support package
- Application notes:
  - AI Video analytics
  - Video encoding and Streaming

Ordering Information
- JetStream-Xavier-EXT
- JetStream + NVIDIA® Jetson Xavier™ NX module
- JetStream-EXT
  - Base JetStream carrier board

JetStream Functional Diagram

*PRELIMINARY INFORMATION (Rev A.00)
Subject to change without notification

(1) Northern Border Remote Video Surveillance System
(NBRVSS) Source: www.cbp.gov Photo: Heath Stephens