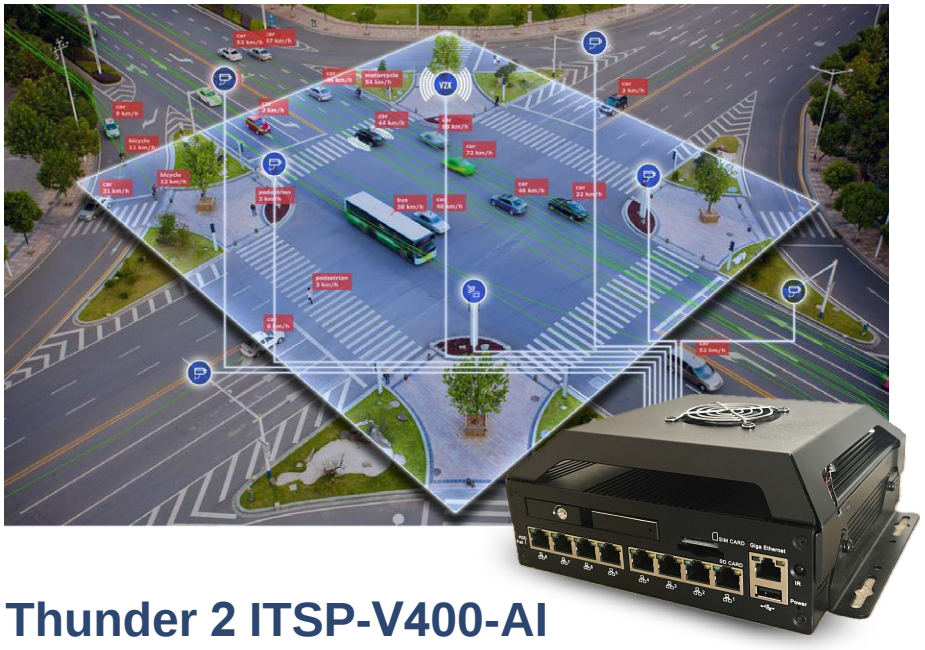
ITS PLUS INC.



Thunder 2 ITSP-V400-AI

ITS Plus Thunder 2 is a video AI based slide in card with SDLC processor designed for near perfect classification, vehicle detection, turning counts and so much more. The system generates years of stored count data you own. Thunder requires no subscription – ever.

Input can be your analog or digital camera. Thunder 2 has an industrial NVIDIA processor, the Jetson NX that runs the AI-based detection and tracking algorithm which turns any video stream into high quality trajectory data about each road user. The system is powerful enough to analyze data from up to 4 connected cameras in real-time with an operating range up to 900 feet. The highly optimized and fully configurable trajectory processing engine can evaluate dozens of detection tasks in each camera view in parallel.

The configuration of detection tasks is performed using the visual programming language called FLOW. This is done specifically by parallel or serial connection of spatial, temporal or attribution filters, or other operators. For example, the emulation of an inductive loop at any location in the camera view is a matter of just a few clicks. It is the same for more complex scenarios such as U-turn detection, blocking vehicle detection, queue detection, or average speed measuring. The system is fully interactive and responds to new setting configurations live.

The system is also able to provide statistical data about the events in different aggregation modes such as whole history, time blocks, floating window and defined time interval. This data can be visualized on a user defined dashboard using interactive widgets for heatmap data, tables, trajectories, statistical values etc. The historical data together with the real-time detected events are available via open APIs for 3rd parties or can be exported in various formats.

The unit has multiple connectivity options with traffic controllers including NTCIP, data communication (UDP/REST/webhook), relay or SDLC. The actions/outputs are scriptable and can react to any single detected event in the video or user-defined performance metrics. The system supports remote configuration.

ITS Plus Thunder 2 is a multifunction traffic analyzer prepared for the new era of dynamic traffic control.

Dynamic control

- Vehicle presence
- Speed data, level of service
- Queue length & occupancy
- Distances - time & space

Traffic violations

- U-turn detection
- Wrong-way detection
- Illegal lane change
- Red-light violation
- Bus lane violation
- Stopped vehicle

Vulnerable road user protection

- Pedestrian/cyclist presence
- Conflict detections
- Jaywalking

Powered by FLOW, the most powerful traffic framework

FLOW is a fully interactive video analytical traffic framework designed for real-time driven applications. It is the fastest and the most efficient way to transform any video stream into a stream of actionable insights. The first tool ever which visualizes traffic data and communicates with the other parts of your smart infrastructure using open APIs. FLOW is built for all imaginable traffic scenarios thanks to the powerful AI- based image processing.

Video detection features

FLOW is powered by a proprietary developed and globally trusted video analytical engine utilizing deep learning. This engine can detect and track hundreds of objects in multi-camera environments simultaneously.

Interactive data visualization

FLOW visualizes, extracts, and analyzes information using interactive widgets on customizable dashboards.

Traffic analysis functions

FLOW supports various traffic analytic functions and operators that can be combined into a comprehensive traffic analysis running in real-time. Thanks to the unique visual traffic programming language, you will be a designer of a monitoring solution tailored to your specific needs.

Data interfaces

FLOW provides integration with other parts of smart infrastructure. Extracted traffic insights can be continuously delivered to 3rd party systems using an open API.

FLOW INSIGHTS

Model

Thunder 2 ITSP-V400-AI

Description

Unit for installation into the traffic control cabinet.

General properties	
Processor	NVIDIA Jetson NX
Memory	8 GB 128-bit LPDDR4x, 16 GB eMMC 5.1
Ethernet	GbE port x1, PoE ports (10/100 MbE, total 75W): SKU1 x 4 PoE / 802.3 at and af
Video output	1x HDMI 2.0 a/b maximum 3840 x 2160; VGA x 1 (optional)
Power supply and consumption	DC 9 - 36 V, max 60 W (includes PoE devices)
Gross weight	1.8 kg
Operating / storage temperature	-40 °C ~ +74 °C
Storage humidity	95% @ 40 °C
Certification	MIL-STD-810G, CE, FCC, E-Mark, EN50155, MIL-STD-810G
Designed for installation	traffic control cabinet / card rack

Video analytics	
Video analytic engine	exact object traces, 7 categories, in-built ALPR for LP with alphanumeric characters, traffic light state recognition, dynamic and static anonymization, geo-registration, detection masks
Processing power in FPS (B/B+A/B+LP/B+LP+A)	@544x320: 151/112/64/58; @704x419: 100/83/53/48 (B = basic detection, A = add-ons img. processing modules, LP = license plate recognition)
Camera support	IP cameras with H.264 or H.265 codec and RTSP or ONVIF cameras / capable of processing at least 4 cameras in the real time / supporting narrow and wide-angle cameras and cameras with motorized lens / detection range of almost 900 feet

Traffic analytics	
Multifunctional engine	fully configurable trajectory processing pipeline via visual programming language FLOW / ability to evaluate multiple detection tasks in parallel (100+)
Available filters	zone, gate, movement, duration, time of occurrence, class, LP, color (without a limit on the number)
Other operators	level or services, union, intersection, complement, volume
Data statistics	incremental / whole history, time blocks, floating window, fixed interval
Outputs	events, actions / commands, statistics, tables, histograms, images
Possible tasks	presence detection, u-turn detection, blocking vehicle detection, red light violation, average speed, detection of specific traffic events, OD matrix, conflict detection, traffic data collection

Interfaces	
Data interfaces	NTCIP, UDP, REST, WEBHOOK, MJPEG, XProtect (VMS-Milestone), MJPEG
HW interfaces	support for IO expanders (relay outputs), V2X RSUs
Visual	fully configurable dashboards with interactive widgets

Accessories

- IO expander - 4/8/16 relays

Other features

- NTP time synchronization
- User management - admin, analyst, viewer
- Optical remote updates - over-the-air
- Data reduction profiles for remote configuration