

Traffic Controllers for CV Applications

Connected Vehicle CoProcessor (CVCP) Module

What, exactly, is the CVCP Module?

The Econolite Connected Vehicle Co-Processor (CVCP) is a hardened, advanced CPU module that runs current Linux distributions. The module plugs into the communications slot of an ATC controller, providing an interface to Dedicated Short-Range Communications (DSRC)-based, Road Side Units (RSU), and other sensors. The CVCP includes three Power over Ethernet (PoE) ports capable of directly driving RSUs, SB1 & SB2 Serial Motherboard interfaces, one micro-SD card slot and an EIA-232 Linux console port.

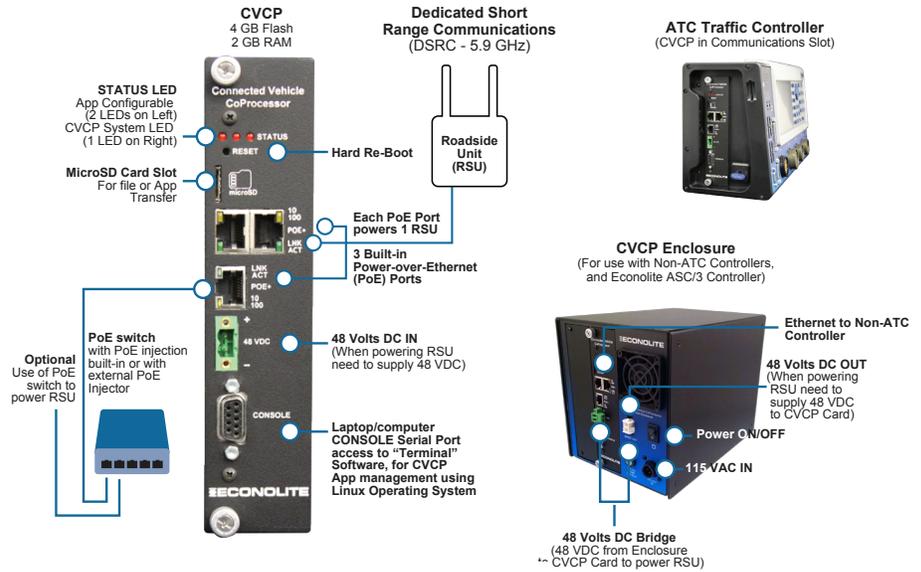
Why do agencies use it?

The Econolite CVCP module provides an enhanced, high-power, processing platform that supports connections between the controller and multiple DSRC devices. It is designed to run third-party, processor-intensive applications in parallel with traffic controller applications running on the ATC Engine Board, including Econolite's 2070 and Cobalt Series of ATC controllers. The CVCP can also be used in its stand-alone enclosure, making it an ideal tool for connected vehicle R&D.

How does it benefit the driving public?

Econolite's CVCP provides a critical Vehicle-to-Infrastructure (V2I) communications capability using the DSRC protocol, giving drivers and the vehicles real-time information about the state of the intersection via Signal Phase and Timing (SPaT), MAP (intersection geometry), and Traveler Information Messages (TIM), etc. DSRC will help enable new levels of roadway efficiencies, enhancing safer and more efficient travel, which will reduce commute times and traffic congestion.





Specifications Overview

System on Module (SOM) socket

- Supports Boundary Devices Nitrogen6X-SOM
- iMX6 Quad Core Processor - 1GHz - 2GB DDR3 DRAM

SOM Peripheral Support

- ARM Cortex-M3 Microcontroller operating at 100MHz
- Supercapacitor backed Real Time Clock with SRAM
- Three front panel LEDs; two are user-programmable

Serial Communications

- Two internal, EIA-485, serial ports (SP1 and SP2) supporting asynchronous rates of: 1200, 2400, 4800, 9600, 19.2k, 38.4k, 57.6k, and 115.2k bps
 - SP1 provides serial communications between Host Board microcontroller and the ATC Engine Board
 - SP2 provides communications between SOM and the ATC Engine Board
- One external, EIA-232, 9-pin asynchronous serial console port located on front panel
 - Provides configuration communications to SOM
 - Default rate of 115200 bps, 8 bits data, no parity, 1 stop bit

Environmental Specifications

- ATC/TEES-Compliant (-37°C to +74°C)



Ethernet Communications

- Integrated 5-port 10/100 managed Ethernet switch
 - Three front panel mounted 10/100, 802.3 at Type-1, Ports Capable of Power-over-Ethernet on front panel
 - One 10/100 port to backplane DIN connector for communications with ATC switch
 - One 10/100 port to SOM

Power

- Internal: 5VDC @ 0.5A
- External: 48VDC @ 1.05A
- Recommended 48VDC power supplies:
 - Internal/development use: SL Power CENB1080A4803F01
 - Field use: TDK-Lambda DPP120481

Mechanical Specifications

- Product Dimensions (L x W x D) – 8.66in x 6.97in x 1.59in
- Standard Model 2070 communications slot mechanical form factor

Software Specifications

- Linux 3.x SDK

Optional

- Stand alone enclosure and power supply