

neoVI FIRE 3 COMPUTE

Multi-Protocol Vehicle Interface, Gateway, and Data Logger with Embedded Edge Intelligence

The neoVI FIRE 3 COMPUTE redefines what a vehicle interface can do. We started with the world's most powerful vehicle network interface with 16x CAN FD, 8x LIN, and ethernet ports and integrated a Raspberry Pi 5 Compute Module (CM5) directly inside.

The result is a single, rugged device that doesn't just capture data. It processes, understands, and acts on it in real-time. Move your Python scripts, AI models, and custom logic off the laptop and into the vehicle for unparalleled power and flexibility.

Features

- 16x DW CAN / CAN FD channels with TJA1463 transceivers, supporting CAN SIC (ISO 11898-2:2024)
- 16x software enabled CAN termination
- 8x LIN channels
- 2x SW CAN*
- 2x LSFT CAN*
- 2x DoIP activation line
- 2x 1 Gb 10/100/1000BASE-T, 1x 10/100BASE-Tx for use with DoIP, XCPoE and more
- 2x Full-size SD card slots. SD 3.0 compatible and supporting up to 2 terabytes of total storage. Up to 800 Mbps logging performance. (1 x 64 GB SD card included standard)
- Onboard CM5 eMMC flash memory
- User replaceable M2 NVMe 2.0 SSD up to 4TB
- 4x 1000BASE-T with Generalized Precision Timing Protocol (gPTP) support
- 4x USB 3.0 ports
- 1x USB Type-A connector for accessories such as RAD-IO2 or neoVI MIC2 manual trigger
- Real Time Clock for hardware timestamping of all messages and backup at 25ns
- Internal dual-band 802.11a/b/g/n Wifi with software selectable internal or external antenna

*Two configurable channels can be configured to support a choice of DW CAN, SW CAN, LSFT CAN, LIN, or DoIP activation



- 10x Programmable tri-color LEDs show link, error, and activity status
- DIP switch to turn off front panel LEDs "night mode"
- Buttons built into device case can be programmed to trigger data logs or other events
- 6x GPIO for compute module supporting PWM and Audio
- 4x General Purpose MISC IO
- 6x MISC IO on iGrid header
- Instant wake on 2 CAN FD channels
- 9 DOF IMU (accelerometer, gyroscope and magnetometer)
- Internal extended temperature battery facilitates safe shutdowns
- High precision GPS with external GPS antenna
- Buzzer
- Intrepid Security Module provides hardware cybersecurity and embedded C Code capability
- HD video recording for head unit, display and instrument cluster monitoring, active safety testing, lane departure, adaptive cruise control, back up camera testing, etc. Supports AXIS P-Series and F-Series cameras at 720p and up to 30 FPS
- Device uses mTLS for secure communication with wireless neoVI cloud
- External modem support (RAD-4G)



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Use Case

- Run AI-driven filters on the Pi to log only critical events, not just raw data.
- Headless (no PC) test station that runs a full diagnostic test suite, control via SSH or simple web interface hosted on the Pi
- Vehicle Network Tool
- Standalone data logger
- Wireless data logger with auto-download via WiFi or Ethernet
- Standalone ECU or vehicle simulator
- In-Vehicle data acquisition system
- Captive test fleet data collection
- Fleet management
- Vehicle pass-through interface support with J2534 and RP1210 (GM DPS, GM SPS, Ford DET, DiagRA, Chrysler CDA, etc.)

Automotive Edge Computing, Logging, and Simulation

The neoVI FIRE 3 COMPUTE evolves the traditional standalone mode into a fully capable Edge Computing Station. By integrating a Raspberry Pi 5 Compute Module (CM5) directly alongside the vehicle interface, it allows you to run complex Linux applications, Python scripts, and AI models directly on the device—eliminating the need for a laptop in the vehicle.

High Performance Headless Operation

While traditional adapters only capture data, the neoVI FIRE 3 COMPUTE processes it. You can run real time scripts to simulate complex gateways, execute Restbus simulations for missing ECUs, or perform automated diagnostic sequences autonomously. The device supports headless (no PC) operation, allowing you to deploy it as a standalone test station or data logger that manages itself via SSH or a web interface hosted on the internal Pi.

Advanced Storage

Data logging capacity is significantly expanded. In addition to the two full size SD card slots (supporting up to 2 terabytes), the device includes an M.2 NVMe 2.0 SSD slot and 64GB of eMMC flash memory for high speed, massive storage of video, lidar, or CAN FD data.

Dual Layer Intelligence: CoreMini and Compute

The system offers two layers of scripting power to fit your unique needs:

- **CoreMini:** Handling the micro second critical tasks, the hardware level scripting environment ensures real time network interaction and 25ns hardware timestamping.
- **Compute Module:** For complex logic, proprietary protocol decoding, or AI driven data filtering, you can utilize the full power of the Raspberry Pi 5 ecosystem.

Remote Connectivity and Fleet Management

The device features internal dual band 802.11a/b/g/n WiFi (with options for external antennas) and Gigabit Ethernet ports for local connections. To extend connectivity further, the optional RAD 4G modem accessory adds external cellular capability. This connectivity ecosystem is designed to work seamlessly with Wireless neoVI, allowing for server based fleet management, remote software updates, and automatic data upload without any driver interaction. A high precision GPS provides accurate location correlation for your test data within wireless-neoVI, while the internal buzzer and programmable LEDs provide immediate feedback to drivers during test runs.



neoVI FIRE 3 COMPUTE

HD26 Pinout

1 MISC 01
2 DW CAN 04 L
3 DW CAN 05 L
4 DW CAN 01 L
5 DW CAN 08 L
6 DW CAN 02 L
7 DW CAN 03 L
8 DW CAN 06 L
9 MISC 02
10 GND
11 MISC 03
12 DW CAN 04 H
13 DW CAN 05 H
14 DW CAN 01 H
15 DW CAN 08 H
16 DW CAN 02 H
17 DW CAN 03 H
18 DW CAN 06 H
19 VBAT
20 MISC 04
21 DW CAN 07 L
22 LIN 01 / ISO K 01
23 LIN 02
24 EXT WAKE
25 ETH ACTIVATE
26 DW CAN 07 H

HD26-2

1 ETH 03 TX+
2 DW CAN 12 L
3 DW CAN 13 L
4 DW CAN 09 L
5 DW CAN 16 L
6 DW CAN 10 L
7 DW CAN 11 L
8 DW CAN 14 L/
LSFT CAN 01L
9 ETH 03 TX-
10 GND
11 ETH 03 RX+
12 DW CAN 12 H
13 DW CAN 13 H
14 DW CAN 09 H
15 DW CAN 16 H
16 DW CAN 10 H
17 DW CAN 11 H
18 DW CAN 14 H/
LSFT CAN 01H/
SW CAN 02/ LIN 08
19 VBAT
20 ETH 03 RX-
21 DW CAN 15 L/
LSFT CAN 02 L
22 LIN 03 / ISO K 02
23 LIN 04
24 LIN 05
25 ETH ACTIVATE/LIN 06
26 DW CAN 15 H/ LSFT
CAN 02 H/ SW
CAN 01/ LIN 07

Misc I/O Connector

1 MISC 05
2 GPIO 12
3 MISC 06
4 GPIO 13
5 GND
6 GND
7 MISC 07
8 GPIO 14
9 MISC 08
10 GPIO 15
11 GND
12 GND
13 MISC 09
14 GPIO 20
15 MISC 10
16 GPIO 21

Power Connector

1 GND
2 VBAT
3 GND
4 VBAT

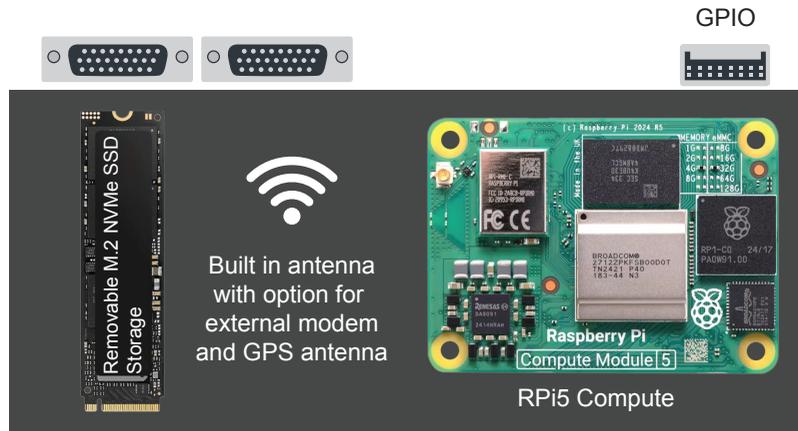
RAD-4G

1 Reserved
2 N/C
3 GND
4 VBAT Out





Up to 16x CAN FD
8x LIN
Automotive power supply (5-60V)



USB-A
For neoVI C
Trigger and
RAD-IO2 Support

4x USB-A
for RPi

4x Ethernet

Ordering Information

Part Number	Description
neoVI-FIRE3-C	Multi-Protocol Vehicle Interface, Gateway, and Data Logger with Embedded Edge Intelligence

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