RAD-Gigalog

## Log Everything! 6+ Terabytes of Vehicle Data

Today's autonomous vehicles are capable of generating gigabytes of data per second. Testing and verifying these vehicles requires the ability to record large amounts of data at high speed.

For these applications, Intrepid Control Systems introduces the RAD-Gigalog, which allows you to record multi-gigabit data streams with up to 6 terabytes of history. This means video or radar streams can be recorded for hours, while traditional high-bandwidth CAN networks could be captured and preserved for years!

Features

- Ethernet Ports:
  - 1x 10GBASE-T
  - 2x 100/1000BASE-T or 10/100/1000
  - 2x 100BASE-T1
- Up to 4x high-speed SerDes (FPD Link III or GMSL)
- USB 3 for data offload and configuration via rugged USB-C connector
- 2x USB 2 host for neoVI MIC2 / RAD-Moon / RAD-SuperMoon accessories
- Programmable membrane label with LEDs to show network and storage status
- 8x ISO CAN FD channels
- 2x FlexRay receive-only channels
- 6+TB of storage
- Supercapacitor power failure protection
- Low power: 18W (1.5A @ 12V)
- Time synchronization with other Intrepid tools and autonomous logger systems (PTP)
- High-speed serial interface input and output supporting TI FPD-Link III or Maxim GMSL for direct camera or sensor connection, simulation and tapping
- Internal IMU and GPS
- Optional FPGA video compression
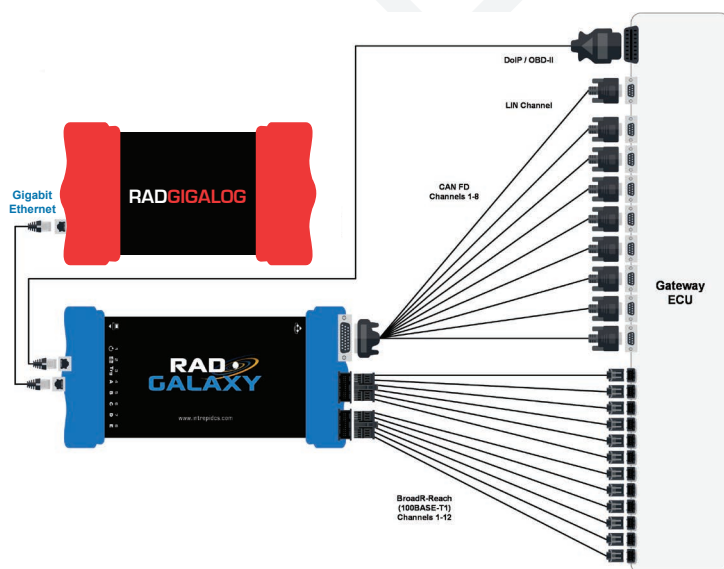
Applications - Log Everything!

- Ethernet logging
- CAN logging
- Long-term XCP logging
- Aurora trace logging
- Autonomous controller logging
- Machine learning data collection
- Camera/radar tapping

RAD-Gigalog

USB 3.1 Gen1 (5 Gb/s) provides high-speed offload, while a USB 2 high-speed host port allows the connection of Intrepid accessories, such as the RAD-Moon (100BASE-T1) or RAD-SuperMoon (1000BASE-T1) media converters or neoVI MIC2 GPS/trigger. FPD-Link III and GMSL input and output provide direct connections to cameras and radar sensors.

The device can be powered from either the barrel jack or DB 26 HD vehicle connector. The HD-26 interface carries the RAD-Gigalog's 8 ISO CAN FD channels and 2 FlexRay receive channels, while two RJ-45 jacks are provided for 10G/5G/2.5G and 10/100/1000 Ethernet.

LED bar graphs on both sides of the case let you easily see how much storage space is left in the RAD-Gigalog

Ordering Information

Part Number				Description
RADGIGALOG	XX	FP	YY	Autonomous Vehicle Data Logger
RADGIGALOG	XX	GMSL	YY	

XX = 3TB, 6TB
YY = 2, 3, or 4 camera

* Based on commercial availability of 1TByte SD Cards

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1850 Research Drive
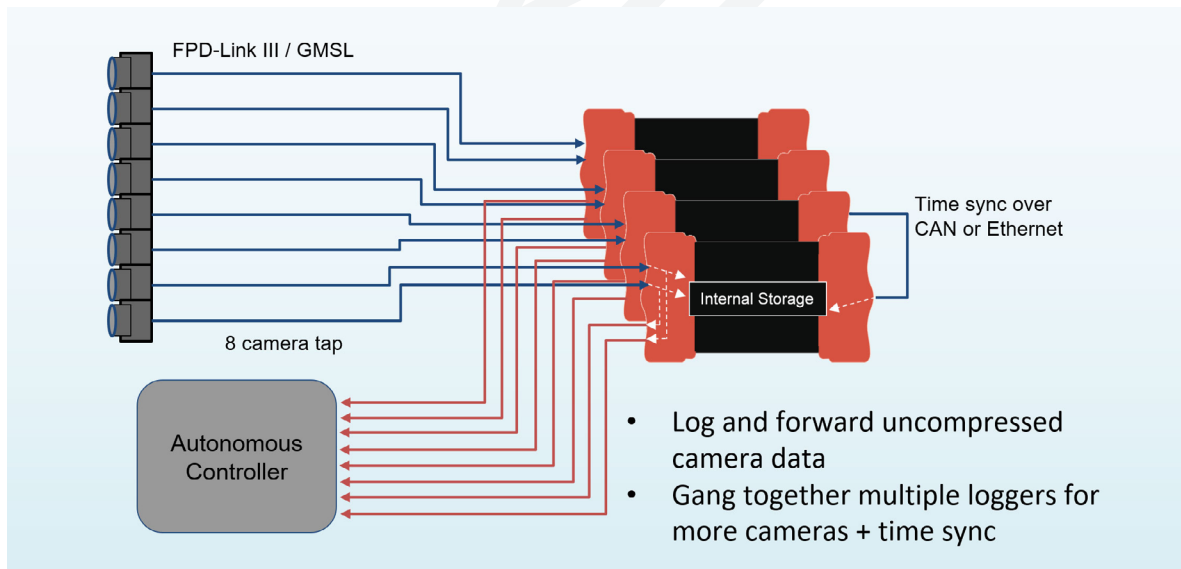Troy, MI 48083 USA
Phone: +1 (586) 731-7950
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RAD-Gigalog: Use Cases

1. High Speed Logging

- 2+ cameras
- LVDS camera tap
- CAN FD
- Autonomous Controller
- 10GBase-T
- Internal Storage
- 100BASE-T1
- ECU #1
- ECU #2
- ECU #3
- ECU #4
- ECU #5
- ECU #6
- ECU #7
- ECU #8
- ECU #9
- ECU #10

Logging at 6+ Gbps!

Scripting available to filter data to be logged

USB2 — neoVI MIC2
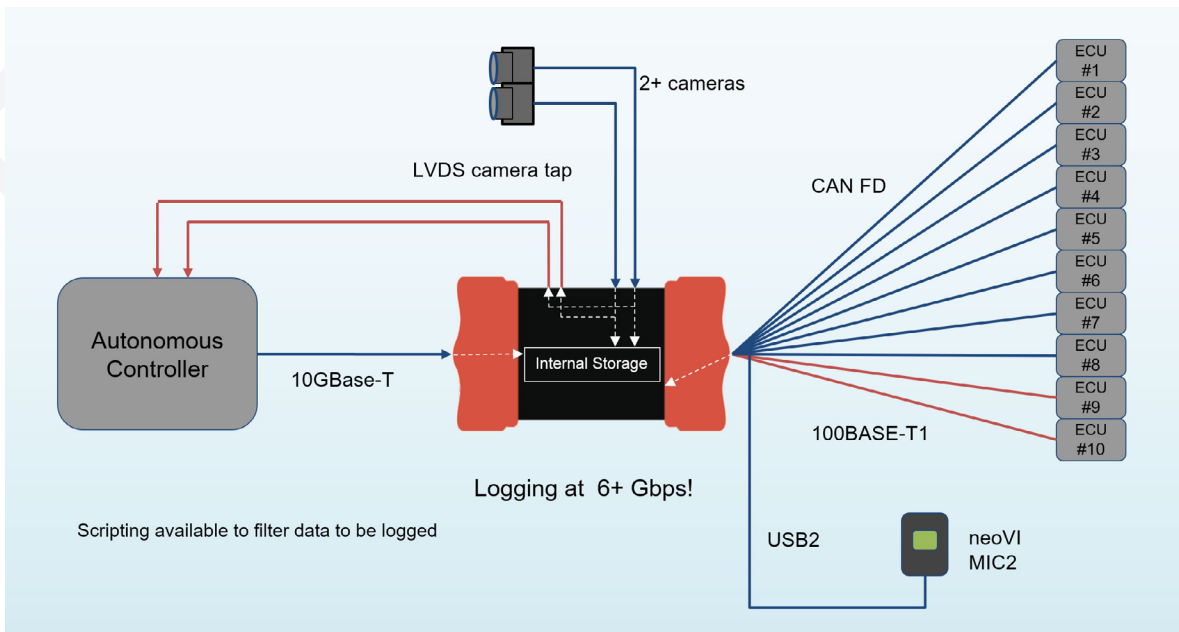
2. Autonomous Camera Tapping

- FPD-Link III / GMSL
- Time sync over CAN or Ethernet
- Internal Storage
- 8 camera tap
- Autonomous Controller

- Log and forward uncompressed camera data
- Gang together multiple loggers for more cameras + time sync

RAD-Gigalog: Use Cases

3. Link Multiple Loggers

4. Autonomous Camera to Ethernet Conversion

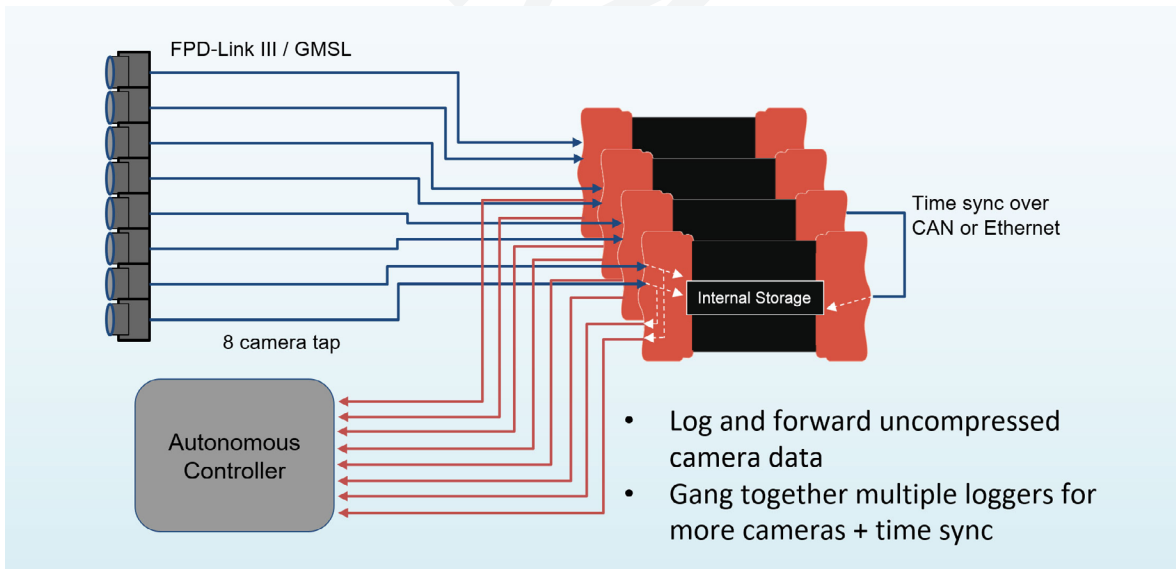- Log and forward uncompressed camera data over Ethernet

FPD-Link III / GMSL

Internal Storage

RADGIGALOG

10/100/1000
OR
10GBASE-T

Autonomous
Controller

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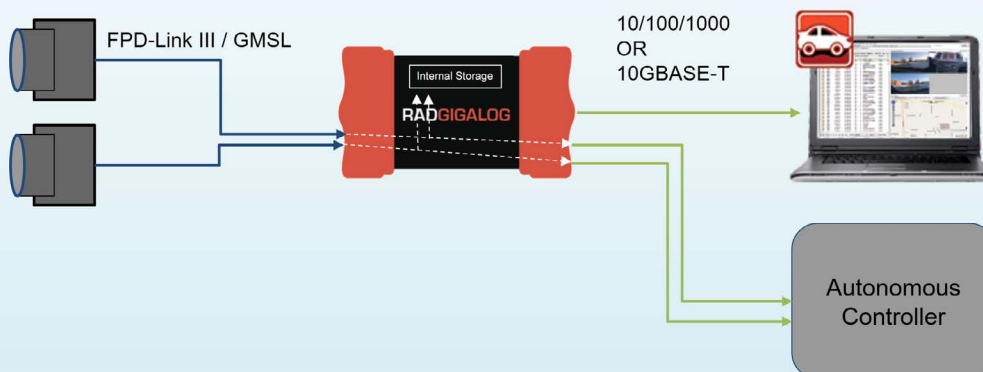
RAD-Gigalog: Use Cases

5. FPD-Link III / GMSL2 Conversion

- Translate between camera standards

FPD-Link III / GMSL

GMSL / FPD-Link III

Internal Storage
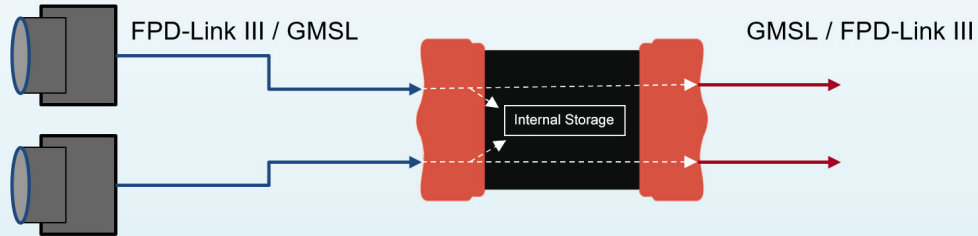
6. Storage NAS for Other Devices

FPD-Link III / GMSL

Time sync over CAN or Ethernet

Internal Storage

8 camera tap

Autonomous Controller

- Log and forward uncompressed camera data
- Gang together multiple loggers for more cameras + time sync

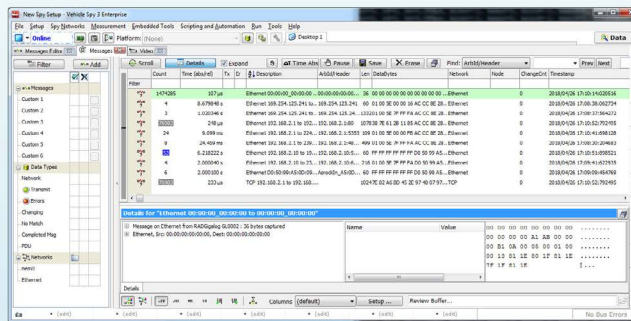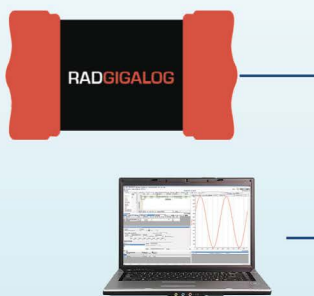7. Disk Configuration: Low-power or high-performance options available.
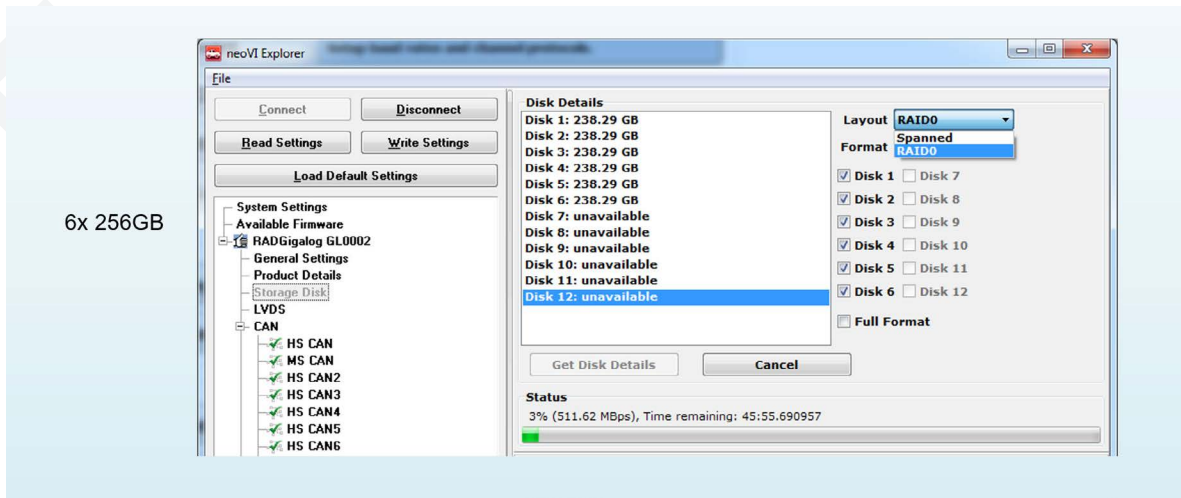
8. Data Analysis: Offload from USB3 or Ethernet OR playback logged data directly from RAD-Gigalog.
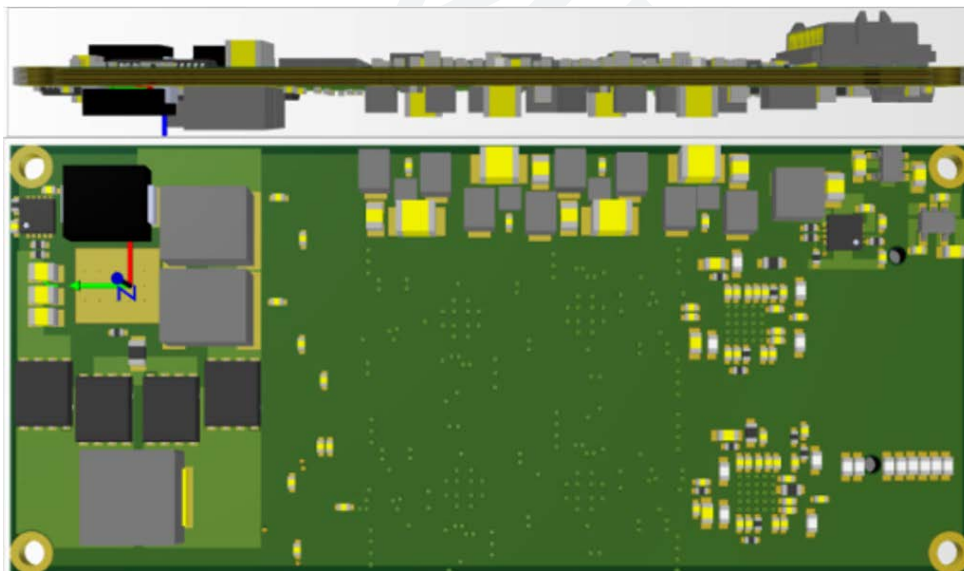
Offload from USB3 or Ethernet

OR

playback logged data directly from RADGigalog

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RAD-Gigalog: Camera Options

GMSL and FPD Link III SerDes Modules

- RAD-Gigalog options:
    - FPD-Link III Tap 4K x 2
    - FPD-Link III Tap 720p x 4
    - GMSL1 Tap 720p x 4
    - FPD-Link III x 2 PLUSGMSL1 x 2
    - GMSL2: Under Development

- Powers camera
- Configures camera or allows I2C Passthrough
- Can log I2C Passthrough
- Same SerDes module as RAD-Gigalog and RAD-Gigastar devices