

The InoNet logo features the word "Ino" in dark blue and "Net" in red, both in a bold, sans-serif font. The "Net" is partially enclosed by a dark blue square.

A EUROTECH COMPANY

InoNet Automotive Solutions

**Scalable Computing Solutions
for Vehicle Development (ADAS & AD)**

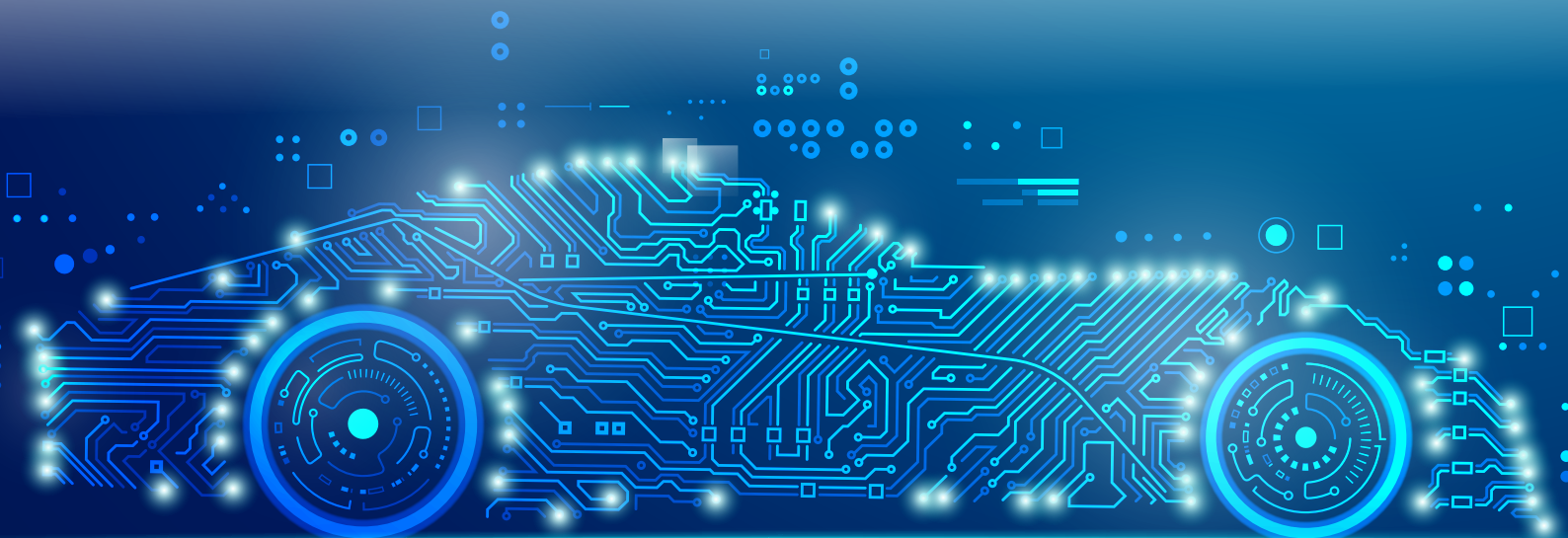
#High-Speed Data logging
up to 28 GByte/s & 736 TByte storage

#AI Performance
with Multi-GPUs

#Encryption

#Data Ingest up to
1 PetaByte

#Hybrid liquid cooling



InoNet Automotive Computing Ecosystem

The complete range of hardware solutions for vehicle development

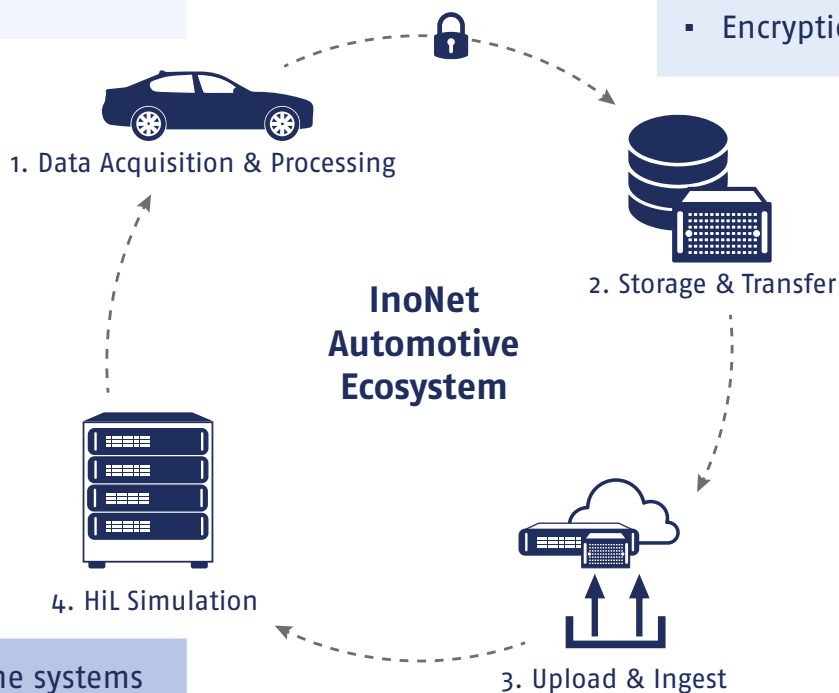
Change in ADAS and AD development

The use of data in the automotive industry is undergoing a transformation from pure data collection to the integrated use of data for the development and evaluation of new technologies. HiL testing plays a key role in improving the safety and reliability of vehicles and shaping tomorrow's mobility.

See here how InoNet is pursuing this change and creating solutions:

- High Speed Logging 28 GB/s*
- Data acquisition: Data encryption without loss of performance
- Hardware-configuration for all conditions

- Enhanced mating cycles
- Flexible choice of SSD
- Robust storage data carrier
- Hot-Plug
- Encryption



- Scalable real-time systems
- QuickTray®-v3 compatibility
- Universal field of application
- Scalability / Performance / Communication interfaces

- High-Performance Ingest with up to 1 PetaByte
- Easy integration in test environments
- Storage that can be used for different purposes

* Depending on the SSD type and manufacturer used, real measured with Iometer in continuous write mode



1. Data Acquisition & Processing

InoNet offers a wide range of data acquisition solutions that can collect sensor data from a variety of sources and save it in a standardised format. The solutions are flexible and scalable and can be tailored to meet individual customer requirements. Captured data includes speed, GPS position and temperature measurements, as well as video, radar and lidar data.

High write speeds of up to 28 GB/s*, delay-free data encryption and hardware configurations for all operating conditions complete the range.

Small-Data



Conception®-hXa-v3

For sensitive audio tests in the vehicle or measurements of individual modules (brakes/lights, etc.)

* Depending on the SSD type and manufacturer used, real measured with Iometer in continuous write mode

Big-Data / AI Performance



#736 TB
Storage

#28 GB/s*
Logging

Mayflower®-Q12aW

High-performance computer, especially for ADAS and AD developments in vehicles. Supported by AI.

2. Storage & Transfer: Mastering the flood of data

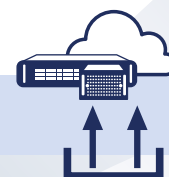


The growing amount of sensor data requires innovative storage solutions. Scalable and reliable systems are necessary to cope with the flood of data and ensure efficient access. Modern storage solutions offer robust data carriers, flexible SSD options, hot-plug capability and integrated data encryption. This enables companies to effectively master the challenges of sensor data storage and utilise the data obtained profitably.



QuickTray®-v3

3. Upload & Ingest



We develop solutions that enable the simple and efficient transfer of data from various sources to our data storage solutions. This includes solutions for transferring data from vehicles, test facilities and other sources. Our solutions support various transfer protocols and formats to ensure maximum flexibility.



InoGest™ Copy-Station tXf-v3-L

#Up to 1 PetaByte
Data Ingest

InoGest™ Copy-Server II



4. HiL Simulation: Data Evaluation / AI Performance



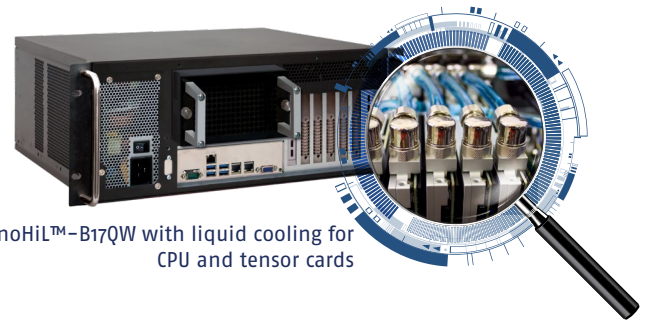
HiL (hardware-in-the-loop) simulation allows complex systems such as driver assistance systems (DAS) and autonomous driving functions to be tested in a virtual environment. Real sensor data is combined with simulated driving situations to evaluate system performance under realistic conditions. HiL testing helps to accelerate the development of safe and reliable vehicles.

InoNet develops systems for hardware-in-the-loop (HiL) simulation of electronic control units (ECUs) for the automotive industry. Our HiL configurations allow you to test ECUs in a simulated environment without the need for a real vehicle. This saves time and money and can improve the quality of your products.

HiL simulation is an efficient and cost-effective way to improve the development of driver assistance systems and autonomous vehicles. Our expertise in HiL technology helps you bring safe and reliable products to market faster.



Example of a HiL server cabinet with InoGest™ Copy-Server II and InoHiL™-B17QW



InoHiL™-B17QW with liquid cooling for CPU and tensor cards

Mounting and additional systems

Gateways

 **eurotech**
DynaGATE 10-14



An IoT gateway certified for road vehicles for public transport and road vehicles, enabling a rapid transition to ITxPT in both existing and new installations.

InoFix

You can also mount your systems flexibly and securely on the IsoFix rear seat mount. Can be used with any seat with an IsoFix mount. Quick and easy to fit. Various PCs can be securely screwed to the hard plastic plate to prevent wobbling. For prototype use only.



Product Overview Automotive Computing

Configuration examples from the InoNet Automotive Ecosystem

1. Data Acquisition & Processing

| | <i>Mayflower®-Q12aW</i> | <i>Concepcion®-tXfa-v3-L</i> | <i>Concepcion®-bXa-v3</i> | <i>Concepcion®-hXa-v3</i> |
|-----------------------|--|--|--|---|
| |  |  |  |  |
| CPU | AMD® EPYC™ 9004/97X4 | Intel® Core™ i 12 th /13 th /14 th Generation | Intel® Core™ i 12 th /13 th /14 th Generation | Intel® Core™ i 12 th /13 th /14 th Generation |
| RAM | up to 4 TB DDR5 | up to 64 GB DDR5 | up to 64 GB DDR5 | up to 64 GB DDR5 |
| Drives (internal) | 2x M.2 | 2x M.2 | 2x 2.5" / 1x M.2 | 1x M.2 |
| Drives (external) | 2x 5.25" QuickTray®-v3 | 2x 2.5" (Hot-Swap) Optional QuickTray®-v3 | 2x 2.5" (Hot-Swap) | 1x 2.5" |
| Expansion slots | 4x PCIe x16 (Gen 5) 2x PCIe x8 (Gen 5) Extension: 6x PCIe (Gen 5) | 2x PCIe x8 (Gen 4) (already used) | 2x PCIe x8 (Gen 4) | 1x PCIe x16 (Gen 5) low profile |
| GPU | Multi-GPU-Support | NVIDIA® L4 TENSOR CORE | onBoard | onBoard |
| AI ready | yes | yes | - | - |
| USB | 2x 3.2 | 6x 3.2 / 2x 2.0 | 4x 3.2 / 6x 2.0 | 4x 3.2 / 4x 2.0 |
| Communication | 1x GBit LAN, 2x 10 GBit LAN optional 4x 10 GBit LAN via slot | 2x 2.5 GBit LAN 2x 10 GBit LAN via slot (25 GBit LAN on request) optional with 5 antennas for Wi-Fi/BT/LTE/5G or GNSS | 1x GBit LAN, 1x 2.5 GBit LAN optional with 3 antennas for Wi-Fi/BT/LTE or GNSS | 1x GBit LAN, 1x 2.5 GBit LAN optional with 2 antennas for Wi-Fi/BT |
| Power | DC connectors | Neutrik (Ignition) | Neutrik (Ignition) | Neutrik (Ignition) |
| Max. consumption | up to 1100 Watt | 250 Watt | 95 Watt | 95 Watt |
| Electricity supply | 9 ~ 18 VDC optional 24/48 VDC or AC | 11 ~ 34 VDC | 11 ~ 32 VDC | 11 ~ 32 VDC |
| Bus-Systems | CAN, CAN-FD, FlexRay, LIN®, MOST, etc. (internal/external, expansion cards required) | | | |
| Mounting | InoFix (custom automotive mount designed by InoNet) | | | |
| Cooling | Active, 2x 120 mm fan Liquid cooling | Active, 2x 80 mm fan | Passive | Passive |
| Dimensions WxHxD | 430 x 279 x 401 mm | 215 x 131 x 303 mm | 250 x 145.5 x 262 mm | 309 x 90 x 243.5 mm |
| Operating temperature | -20° ~ 70° C | 0° ~ 55° C | -10° ~ 55° C | -10° ~ 55° C |

2. Storage & Transfer

InoNet QuickTray®-v3

| | |
|-----------------------|--|
| Drives | 4x SSD (NVMe or SATA) up to 15 mm height |
| Bandwidth | PCIe x4 (Gen 4) connection per SSD (for NVMe) |
| RAID-Type | Software / Hardware |
| RAID-Level | 0 / 1 / 5 |
| Interface internal | Power and data connection via host |
| Interface external | PCIe x16 (Gen 4) / Thunderbolt 3 (USB) on request |
| Dimensions WxHxD | 148.3 x 84 x 140 mm |
| Cooling | Active |
| Operating temperature | -20° ~ 70° C (depending on the drives installed and the area of application) |







3x QuickTray®-v3 installed in the Mayflower®-Q12aW

QuickTray®-v3



Product Overview Automotive Computing

Configuration examples from the InoNet Automotive Ecosystem

| | 3. Upload & Ingest | | 4. HiL Simulation | |
|-----------------------|---|---|--|---|
| | <i>InoGest™ Copy-Station tXf-v3-L</i> | <i>InoGest™ Copy-Server II</i> | <i>InoHiL™-II-Q</i> | <i>InoHiL™-B17QW</i> |
| |  |  |  |  |
| CPU | Intel® Core™ i 12 th /13 th /14 th Generation | AMD® EPYC™ 7003/7002 | Intel® Xeon™ Scalable (2 nd Generation) | AMD® EPYC™ 7003/7002 |
| RAM | up to 64 GB DDR5 | up to 1 TB | up to 768 GB | up to 1 TB |
| Drives (internal) | 2x M.2 | 1x 2.5" (U.2) / 2x M.2 | 1x M.2 | 1x 2.5" (U.2) / 2x M.2 |
| Drives (external) | 2x 2.5" QuickTray®-v3 | up to 4x QuickTray®-v3 | 2x 2.5", 1x 5.25" QuickTray®-v3 | 1x QuickTray®-v3 Optional up to 3x QuickTray®-v3 |
| Expansion slots | 2x PCIe x8 (Gen 4) (already used) | 7x PCIe x16 (Gen 4) (6x already used) | 1x PCIe x16 or 2x PCIe x8 1x PCIe x8, 1x PCIe x4, 1x PCIe x1 all Gen 3 | 7x PCIe x16 (Gen 4) |
| GPU | onBoard | onBoard | onBoard | up to 5x GPU/Tensor cards |
| AI ready | - | yes | yes | yes |
| USB | 6x 3.2 / 2x 2.0 | 3x 3.2 | 4x 3.0 / 2x 2.0 | 3x 3.2 |
| Communication | 2x 2.5 GBit LAN 2x 25 GBit LAN via slot optional 4x 1 GBit LAN with PoE | 2x 10 GBit LAN, 1x IPMI 4x 100 GBit LAN | 2x 1 GBit LAN | 2x 10 GBit LAN, 1x IPMI optional 2x 100 GBit LAN via slot |
| Power | Neutrik | IEC socket | IEC socket | IEC socket |
| Max. consumption | 500 Watt | 1200 Watt | 500 Watt | 1200 Watt |
| Electricity supply | 12 ~ 48 VDC | 230 VAC | 230 VAC | 230 VAC |
| Bus-Systems | - | Expansion through CAN, CAN-FD, FlexRay, LIN®, MOST, etc. | Expansion through CAN, CAN-FD, FlexRay, LIN®, MOST, etc. | Expansion through CAN, CAN-FD, FlexRay, LIN®, MOST, etc. |
| Mounting | - | 19" Rack, Angles and Handles | 19" Rack, Angles and Handles | 19" Rack, Angles and Handles |
| Cooling | Active, 2x 80 mm fan | Active, 3x 120 mm fan | Active, 1x 120 mm fan | Active, 2x 120 mm fan Liquid cooling |
| Dimensions WxHxD | 215 x 224 x 303 mm | 483 x 177 x 571 mm | 483 x 177 x 510 mm | 430 x 175 x 400 mm |
| Operating temperature | 0° ~ 55° C | 0° ~ 35° C | 0° ~ 35° C | 0° ~ 55° C |

Supplementary services and accessories for the automotive industry

- Action button (remote control) for various applications and functions (e.g. reset, recording, etc.) for convenient operation during test drives from the driver's seat
- InoFix bracket for securely attaching the systems to the rear seat of the vehicle
- Integration of special automotive data bus solutions for the desired application
- Integration of FPGA cards
- Uninterruptible power supply (UPS) for bridging faults in the power grid partner network to realise your individual requirements and wishes