

InoNet Automotive Solutions

Scalable Computing Solutions for Vehicle Development (ADAS & AD)

> Innovative hardware technologies 3000+ systems worldwide

Individual solutions for various applications 1000+ Specific configurations

Reliability you can count on 25+ years of experience

99% upgradeable systems

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:



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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 26 GB/s*, delay-free data encryption and hardware configurations for all operating conditions complete the range.

–Small–Data





[–] Concepion®–jXa–v4

Compact measuring system for various test applications – including suspension and brake light tests.

* Depending on the SSD type and manufacturer used, real measured with lometer in continuous write mode, per QuickTray®-v3

Big-Data / Al Performance



#736 TB Storage #26 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.

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



Mounting and additional systems

Gateways





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.



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Mayflower®-Q12aW

Configuration examples from the InoNet Automotive Ecosystem

1. Data Acquisition & Processing

Concepion[®]-tXfa-v3-L Concepion[®]-bXa-v3 Concepion[®]-jXa-v4

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СРИ	AMD® EPYC™ 9004/97×4	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	-		
Drives (external)	2x 5.25" QuickTray®–v3	2x 2.5" (Hot-Swap) Optional QuickTray®-v3	2x 2.5" (Hot-Swap)	2x 2.5" (Hot-Swap)		
Expansion slots	4x PCle x16 (Gen 5) 2x PCle x8 (Gen 5) Extension: 6x PCle (Gen 5)	2x PCIe x8 (Gen 4) (already used)	2x PCIe x8 (Gen 4)	-		
GPU	Multi-GPU-Support	NVIDIA® L4 TENSOR CORE	onBoard	onBoard		
Al ready	yes	yes	-	-		
USB	2X 3.2	6x 3.2 / 2x 2.0	4x 3.2 / 6x 2.0	4x 3.2 / 6x 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, 3x 2.5 GBit LAN Wi-Fi, Bluetooth GNSS, LTE		
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	200 x 126 x 206 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)

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3x QuickTray®-v3

installed in the Mayflower®-Q12aW

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Configuration examples from the InoNet Automotive Ecosystem

	3. Upload & Ingest		4. HiL Simulation	
	InoGest™ Copy–Station tXf-v3-L	InoGest™Copy-Server II	InoHiL™−II−Q	InoHiL™-B17QW
СРИ	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 QuickT- ray®-v3
Expansion slots	2x PCIe x8 (Gen 4) (already used)	7x PCle 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
Al 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

