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4,654,520 8,078,511
8,901,705 4,346,501
6,805,210 6,688,570



NOVUS 370

AUTONOMOUS DRIVING I9-10900TE
FANLESS COMPUTER



POWER AUTOMATION COMPUTER

- 10th Gen Core™ i9-10900TE Cometlake-S
- GTX1660S (NVIDIA CUDA 1408 Cores, GDDR6 6GB)
- 2x DDR4- 64GB
- 2x SSD – Support RAID 0/1
- TPM Security on Board
- Multi Display with DisplayPort, HDMI,
- 2 x COM, 2 x LAN, 4 x USB
- 12V DC-IN

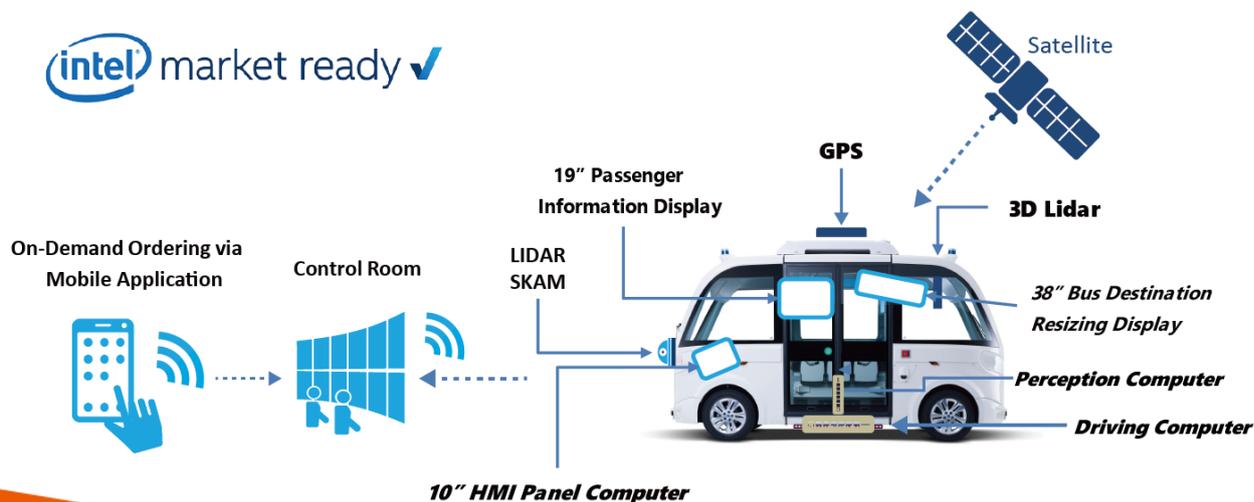
Introduction

To achieve Artificial Intelligence Security in Traffic field, high performance GPU/CPU structure is an essential element. HORUS340 plays a critical role in Sensor Fusion framework, which is fundamental of Traffic surveillance and management system. 3D LIDAR Enforcement, a gradually recognized and matured surveillance device, using LIDAR cameras technique to reach accurate and efficient traffic monitoring and detection. Moreover, the Sensor Fusion Capability makes HORUS340 can be widely used for different situations, UGV or Smart City.



How Autonomous Vehicle Works

Sensors are key components to make a vehicle driverless. Camera, radar, ultrasonic and LiDAR enable an autonomous vehicle to visualize its surroundings and detect objects. Cars today are fitted with a growing number of environmental sensors that perform a multitude of tasks. The control system integrated sensors for AV encompasses three parts: perception, decision and execution.



01. PERCEPTION LAYER

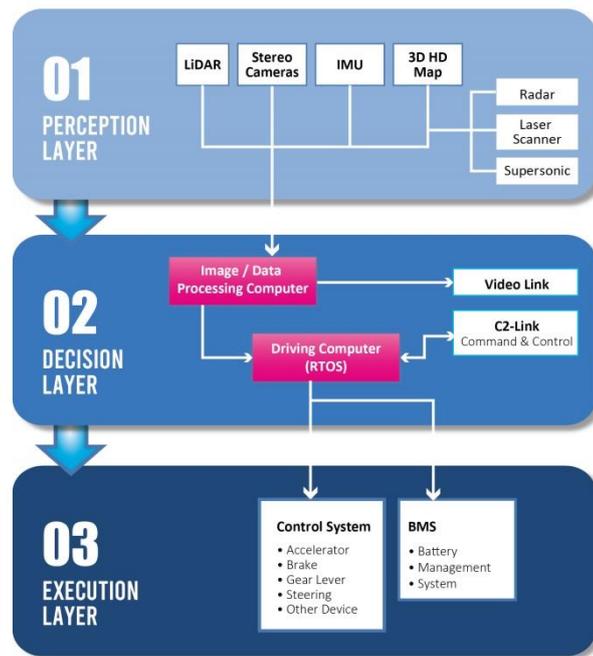
Perception enables sensors to not only detect objects, but also acquire and eventually classify and track objects surround.

02. DECISION LAYER

Decision-taking is one of the most challenging tasks that AVs must perform. It encompasses prediction, path planning, and obstacle avoidance. All of them performed on the basis of previous perceptions.

03. EXECUTION LAYER

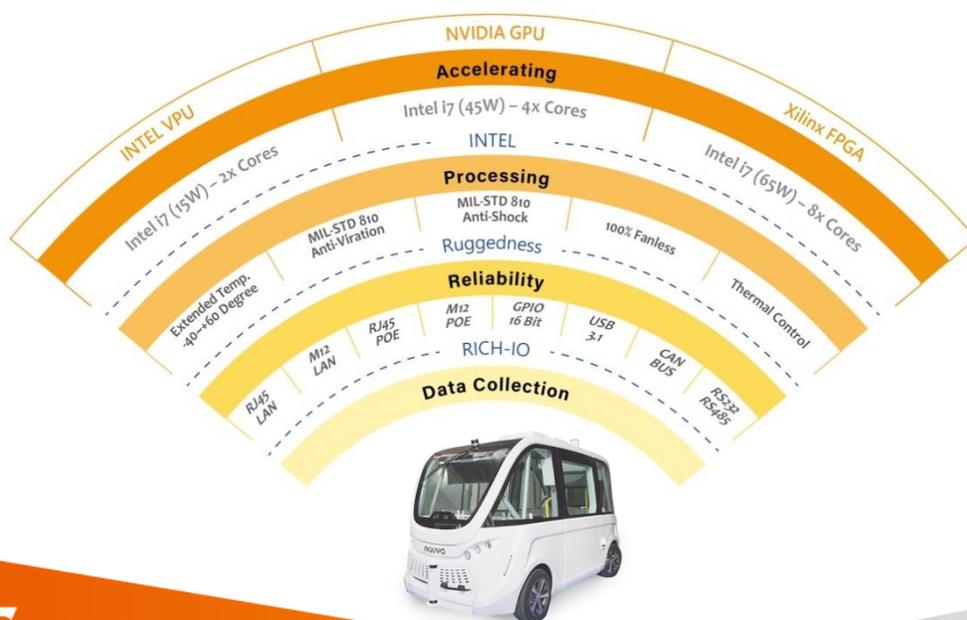
Execution layer consists of interconnection between accelerator, brakes, gearbox and so forth. Driven by Real-Time Operating System (RTOS), all these devices can carry out commands issued by Driving Computer.



Required High Performance Computing Power

In response to an exponential increase in the usage of the autonomous vehicles across the globe, Perfectron continuously develops suitable products for self-driving cars. Perfectron’s GPGPU AI Fusion computers provide complete structure for image processing and driving with remarkable durability for various unpredictable conditions and perfect adaptation for multi-usage. It can process variant vision sensor data synchronously, and offer a high-performance solution for automated driving that supports all relevant sensor interfaces, buses, and networks.

Depending on environmental condition and application, AV requires different facility composition and system organization. In recent innovating and examining process, AV is commonly used in three main fields: Load lifter, Shuttle bus, and Battle MUTT. To learn more details about the operation, please check out the highlight solutions below.



Specifications

SYSTEM

CPU	Intel® 10th Gen Core™ i9-10900TE (Cometlake-S) Processors,
Memory type	Up to 64GB DDR4 RAM
Chipset	Q470

DISPLAY

GPU	Intel® UHD Graphics
Display Port	DisplayPort 1.4, DP++ Max resolution up to 4096x2160@60Hz
HDMI	HDMI 2.0a, Max resolution up to 4096x2160@60Hz

STORAGE

Storage Device	1 x PCIe x 16 (Gen3, Support riser card x8/x8, x8/x4/x4) 1 x M.2 (Key E, 2230) with PCIe x1 and shared USB 2.0 for Wireless 1 x M.2 (Key E, 3042) with shared USB 2.0 and SIM for 4G 1 x M.2 (Key E, 2280) with PCIE x 4 and SATA3 for SSD 1 x SIM socket connected to M.2 key B
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ETHERNET

Ethernet	1 x Intel Gigabit Ethernet LAN Interfaces (10/100/1000 Mbps) 1 x Intel Gigabit Ethernet LAN Interfaces (10/100/1000/2500 Mbps)
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FRONT I/O

Display Port	2 x DP 1.4
HDMI	1 x HDMI 2.0a
Ethernet	1 x 1 Gigabit Ethernet LAN, 1 x 2.5 Gigabit Ethernet LAN
USB	4 x USB3.2 Gen2 standard-A connectors
Serial Port	2 x COM (RS-232/422/485)
Audio Port	1 x Line-Out, 1 x MIC-In connector
DC-IN	4P Rugged Terminal connector, 12V DC-IN
Operating System	Windows 10 64bit Ubuntu16.04, Ubuntu18.04, Fedora 28

PHYSICAL

Dimension	362(L) x 250(D) x 70(H) mm
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Weight	TBC
Chassis	Aluminum Alloy, Corrosion Resistant.
Finish	Anodic aluminum oxide (Color Blue Silver)
Cooling	Natural Passive Convection/Conduction. No Moving Parts
Connectors	DC-IN : PHOENIX CONTACT 1776715 RJ45 Ethernet : RTB-19GB9J1A COM: FEN YING SM10-09P HDMI + DP : JKCR Display and HDMI Female
Ingress Protection	Dust Proof (Similar to IP50)

ENVIRONMENTAL

Low Temperature	Method 502.5 Procedure 2	-20°C, 4 hours, ±3°C
High Temperature	Method 501.5 Procedure 2	+55°C, 4 hours, , ±3°C
Humidity	Method 507.5	85%-95% RH without condensation, 24 hours/ cycle, conduct 10 cycles.
Vibration	Method 514.6	5-500Hz, Vertical 2.20Grms, 40mins x 3axis.
Shock	Method 516.6	20 Grms, 11ms, 3 axes.
Storage Temp.	-40 to 85°C	
Operating Temp.	-20 to 60°C	
EMC	CE and FCC compliance	

Ordering Information

HORUS340

Intel Q740 MIL-STD Fanless Rugged System with Intel 10th Gen (Cometlake-S) i9-10900TE processor, GTX1660S GPU, Extended range of Temperature -20°C ~ 60°C

Drawing and Dimension

