



- **In-vehicle Deep Learning**
- **Shock & Vibe and E-Mark Certified**
- **Dual 14-core Intel Xeon**
- **NVIDIA GeForce® GTX GPUs**
- **Dual 40/56 Gigabit Ethernet**
- **Liquid Cooled**
- **Professional Services**

## Features

**In-vehicle Deep Learning Enabler** - In-vehicle supercomputing platform that allows both inference and training with TensorFlow, Caffe and other DL frameworks

**Automotive Certified** - E-Mark and Shock & Vibe certifications for reliable operation in Autonomous Driving and other rugged applications

**In-vehicle HPEC Platform** - The DynaCOR 50-35 is designed to sustain massive workloads thanks to dual 14-cores Intel Xeon CPUs and multiple high-performance accelerators, networking cards and storage modules

**Liquid Cooled** - The extremely compact, fanless and ventless unit dissipates up to 1kW with an integrated direct exchange technology that interfaces the vehicle liquid cooling system

**Professional Services** - The modular design allows further customization through Eurotech Professional Services, including the integration of user selected accelerators, storage and networking modules

## Description

The DynaCOR 50-35 is a compact, liquid-cooled, HPEC supercomputing platform, certified for automotive applications. The system features two Intel Xeon E5-2600 CPUs with up to 14 cores and 2.60GHz clock speed. It also mounts 64GB soldered-down ECC RAM, and multiple high-performance GPUs, Network Interface Controllers (NIC) and NVMe SSD cards.

The DynaCOR 50-35 is designed to withstand shocks and vibrations, and it is E-Mark certified for in-vehicle installations.

The system supports deep learning and high-performance numerical computation algorithms, such as TensorFlow and Caffe, providing an ideal platform for Autonomous Driving and Artificial Intelligence (AI) applications.

The internal architecture of the DynaCOR 50-35 features a dual CPU card and provides five internal bays for GPUs, NVMe and networking modules, connected with a 96 PCIe lanes switch.

Off-the-shelf configurations include the following PCIe expansion cards: two NVIDIA GTX 1070 Graphic Processing Unit, and several Network Interface Controller (NIC) cards that enable multiple 1/10/40/56 Gigabit Ethernet interfaces. Eurotech Professional Services allow for further personalization, including validation and integration of user-selected expansion modules.

The DynaCOR 50-35 supports loads of up to 1kW thanks to an innovative technology that interfaces with the vehicle liquid cooling system. The coolant circulates inside cold plates that are tightly coupled with the expansion boards, providing efficient heating dissipation.

### Expansion Modules Specifications

|                      |                |   |
|----------------------|----------------|---|
| <b>CPU Module</b>    | CPU            | Dual Xeon E5-2690v4 2.60GHz (3.50GHz), 14 Cores – Dual Xeon E5-2640v4 2.40GHz (3.40GHz), 10 Cores |
|                      | RAM            | 64GB DDR4-ECC High Reliability Soldered-down  |
|                      | Ethernet       | 2x 10/100/1000Mbps (RJ45), 4x 10/100/1000Mbps (RJ45)  |
|                      | USB            | 3x USB 2.0 (100mA, Type A), 1x USB 2.0 (500mA, Type A)  |
|                      | Serial         | 1x Configurable Serial (RS-232 Default, DB9)  |
|                      | Consumption    | 270W (Dual CPU TDP)   |
| <b>GPU</b>           | Model          | NVIDIA GeForce GTX 1070 Ti  |
|                      | RAM            | 8GB GDDR5-ECC   |
|                      | I/O Interfaces | 1x HDMI, 3x DisplayPort 1.4 – 7680x4320@60Hz Max Resolution                                       |
|                      | Consumption    | 180W Typ.   |
| <b>NVMe</b>          | Type           | High Performance NVMe (8 Lanes PCIe Gen 3, High Endurance)  |
|                      | Capacity       | 7.68TB (Max 6100MB/s Sequential Read, Max 2200MB/s Sequential Write)                              |
|                      | Consumption    | 25W Typ. (9W Idle)  |
| <b>40/56 GbE NIC</b> | I/O Interfaces | Dual 40/56 GbE QSFP28 (QSFP+ Compatible)  |
|                      | Consumption    | 25W Max   |
| <b>GbE NIC</b>       | I/O Interfaces | 4x 10/100/1000Mbps - RJ45   |
|                      | Consumption    | 5W Typ.   |

### Ordering code: DYCOR-50-35-XX

| <b>XX</b>         |                            | - 01                    | - 02 | - 03 | - 04                    | - 05 | - 06 |
|-------------------|----------------------------|-------------------------|------|------|-------------------------|------|------|
| <b>CPU Module</b> | Model                      | Dual Intel Xeon E5-2640 |      |      | Dual Intel Xeon E5-2690 |      |      |
| <b>GPU</b>        | NVIDIA GeForce GTX 1070 Ti | 1x                      | 2x   | 1x   | 1x                      | 2x   | 1x   |
| <b>NIC</b>        | Dual 40/56 GbE             | 1x                      | 1x   | 1x   | 1x                      | 1x   | 1x   |
|                   | GbE                        | 1x                      | 1x   | 1x   | 1x                      | 1x   | 1x   |
| <b>NVMe</b>       | High Performance NVMe      | -                       | -    | 1x   | -                       | -    | 1x   |

### Superset Specifications

|                       |                |   |
|-----------------------|----------------|---|
| <b>EXP MODULES</b>    | Format         | 5x Expansion Bays compatible with PCIe Gen 3 Expansion Cards – 1x PCIe Expansion slot (directly connected to CPU) |
| <b>MIDPLANE</b>       | PCIe Switch    | PCIe Switch Providing 96 PCIe Gen 3 Lanes   |
| <b>MANAGEMENT</b>     | Supervisor     | Independent Controller Board for System Level Environment Management  |
|                       | BMC            | Baseboard Management Controller for Out-of-band Management (IPMI Tool Support)                                    |
| <b>STORAGE</b>        | SATA           | 1x 512GB Slim SATA SSD  |
| <b>I/O INTERFACES</b> | Display        | 1x Display OLED (Integrated)  |
| <b>OTHER</b>          | LEDs           | 6x LED Indicators   |
| <b>POWER</b>          | Input          | 36-58VDC (48VDC Nominal)  |
|                       | Consumption    | 1kW Max   |
| <b>ENVIRONMENT</b>    | Operating Temp | 0 to +50°C (Factory Option: Wider Ranges)   |
|                       | Storage Temp   | - 20 to +70°C (Without Liquid Coolant, Depending on Configuration)  |
| <b>MECHANICAL</b>     | Dimensions     | 210 x 210 x 650 mm (H x W x D)  |
|                       | Weight         | < 20kg  |
|                       | Cooling        | Direct Hot Water Cooling (Car Cooling System or Independent Cooling Unit can be used)                             |

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