

# ONYX-ET

## Embedded Training Engine



Embedded Training, which will be added to the range of educational simulators available to the Land Forces, is becoming reality. New Ground Vehicles will be equipped with on-board simulation in static mode. Static simulation by definition, means immobile vehicle and engine stopped. The vehicle then operates on entirely virtual terrain alongside friendly units and facing enemy units. The friendly units can be totally virtual, but can also include vehicles also running in-vehicle simulation for the tactical training of an entire platoon, for example. This is really a new concept. Embedded Training will revolutionize the training and training of crews. Thanks to the on-board simulation that will equip the vehicle, the crews of the units will be able to train and train in their garrison themselves, since with their craft they will have at the same time the teaching tool.

Thanks to its SWaP-C constraints, its three Graphic outputs managed by High Performance NVIDIA Quadro Pascal, offering up to 2048 CUDA Parallel Processor Cores, its ability to be clustered by 3-Blade Block, ONYX-ET will allow up to three crew members to go through «operational training» in the vehicle.

ONYX-ET will offer the whole spectrum of simulated training functions and provides crew members with the following on-board simulations: a tactical scenario (digital map with threats and targets); presence of realistic Computer-Generated Forces (friend and foe); on-board sensors; weapons, including specific symbology and delivery parameters.

### ► Applications

Embedded training - Embedded simulation - Ground vehicles - Land combat fight

> Intel® Xeon® E3-1505L/M v5 or E3-1505L/M v6

> NVIDIA® Quadro® P5000 / P3000

> Pascal®, 2048 CUDA Cores

> 3x DVI-D outputs

> 2x GigE

> 2x USB 2.0

> 1x USB 3.0 Field connector

> +28VDC @ 150Watts max

> MIL-STD-810/MIL-STD-461/MIL-STD-1275D

> Up to -40°C/+55°C with GTX 1050Ti and Forced Air cooled

> 30g@11ms operating

> Clustering by 3 (option)



**System specifications**

<b>Processor Module</b>	Intel® Xeon® E3-1505M V6 (« Kaby Lake » 7 <sup>th</sup> Gen, 4C/8T, x 3.0GHz / 4.0 GHz (Turbo), 8MB cache, TDP 45 W) Intel® Xeon™ E3-1505L V6 (« Kaby Lake » 7 <sup>th</sup> Gen, 4C/8T, 2.2 GHz / 3.0 GHz (Turbo), 8MB cache, TDP 25 W) Intel® Xeon® E3-1515M V5 (« Skylake » 6 <sup>th</sup> Gen, 4C/8T, 2.8GHz / 3.7 GHz (Turbo), 8MB cache, TDP 35W) Intel® Xeon™ E3-1505L V5 (« Skylake » 6 <sup>th</sup> Gen, 4C/8T, 2.0GHz / 2.8 GHz (Turbo), 8MB cache, TDP 25W)
<b>Memory</b>	32 GBytes of DDR4 memory with ECC
<b>GPGPU Node</b>	NVIDIA® Quadro® P5000 - (Pascal, 2048 CUDA Cores, 100W) NVIDIA® Quadro® P3000 - (Pascal, 1280 CUDA Cores, 75W) NVIDIA® Quadro® M3000 SE - (Maxwell, 1024 CUDA Cores, 75W) NVIDIA® GeForce® GTX 1050Ti - (Pascal, 768 CUDA Cores, 60W) <i>Power consumption of the GP-GPU limited to 60Watts</i>
<b>Video outputs</b>	Up to 4x DVI-D interfaces (3x DVI-D by default)
<b>Ethernet</b>	2 x 10/100/1000 Ethernet Ports
<b>USB 2.0</b>	Up to 6x USB 2.0 Ports (3x USB2.0 by default)
<b>USB 3.0</b>	Up to 4 USB 3.0 Ports (1x USB3.0 by default on 38999 USB Field connector)
<b>HD Audio</b>	1 stereo input, 1 stereo output
<b>Serial</b>	2x RS232 ports - 2x RS422 ports
<b>GPIO</b>	8-bits (Buffered 4in/4out, +3.3V or +5V selectable)
<b>Storage</b>	1x internal 2"5 SSD. MLC or SLC technology. 1x removable 2"5 SSD (on demand)
<b>Expansion slots</b>	2x miniPCIe
<b>Hardware monitoring</b>	Voltages, CPU, GPU, and carrier board temperatures
<b>Watchdog timer</b>	Programmable timer range to generate RESET
<b>Power supply</b>	
<b>Power Input</b>	+28VDC (+12VDC to +36VDC)
<b>Power consumption</b>	Limited to 150 Watts
<b>Physical characteristics</b>	
<b>Size (WxDxH)</b>	130.7 x 246.2 x 265.5 mm
<b>Weight</b>	6.1 Kg
<b>Cooling type</b>	Forced air flow (front to rear)
<b>Connectors</b>	Military circular locking connectors (MIL-DTL-38999) Front panel customizable for specific application
<b>Environmental</b>	
<b>Operating temperature</b>	Depends on the CPU and GPU configuration - Intel Xeon E3-1505L + NVIDIA GeForce GTX 1050Ti: -40°C to +55°C - Other CPU and GPU: 0°C to +45°C
<b>Shocks</b>	30G / 11ms
<b>EMI / EMC</b>	EMI filtering on power supply input according to MIL-STD-461

All interfaces are not available simultaneously

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