

HYPERCORE

AI - Based Management System for Combat Vehicles

Smart Capabilities Enable More Missions of Greater Complexity with Reduced Crew

Meeting Multi-Domain Challenges with Proven Capabilities

Responding to the evolving challenges faced by combat vehicles, HYPERCORE seamlessly integrates RAFAEL's most powerful, fully mature capabilities – all tested or in use by the IDF and customers around the world. This holistic solution enables Manned-Unmanned Teaming (MUM-T) in conventional or asymmetric scenarios and connectivity between ground platforms – creating a networked battlefield.

Combat AI – the 3rd Crew Member

HYPERCORE enables the effective operation of a combat vehicle with just two fighters. The system's Combat AI acts as the 3rd crew member, providing autonomous mission management to meet the challenges of a growing number of tasks. While benefitting from decreased cognitive load and the ability to share additional tasks with the system, the crew maintains full control over the workload inside the vehicle.

360° Situational Awareness

HYPERCORE provides full Situational Awareness, enabled by: an array of sensors and cameras equipped with edge processing utilizing ATR to detect and identify threats; complete video management with low latency; and non-line-of-sight input delivered by drones and robotic platforms. This continuous stream of real-time data allows the crew the freedom to safely engage and maneuver while remaining fully protected inside a cabin with closed hatches.

Benefits

- Enables complex missions with smaller crew
- Integrates today's best-of-breed technologies and capabilities, with room for future growth
- Allows faster, smarter decision-making
- Delivers complete Situational Awareness
- Enables networked combat
- Allows closed-hatch cabin to protect crew
- Connects to any existing system in the platform using open architecture
- Modular and scalable system tailored to requirements

REVOLUTIONIZE YOUR PLATFORM

Pick & Choose from this Array of Capabilities

COMBAT AI

Route Update

Plans and updates the best route for the mission according to real-time data and ROE

Autonomous Scanning

Utilizes sights to create smart scan of surroundings including POIs & targets

Weapon Recommendation

Uses ATR recognition, distance, LOS to determine best weapon/target fit

Autonomous System Control & Communication

Hardware/software controls multiple unmanned platforms, plans autonomous missions while receiving active video recon

SITUATIONAL AWARENESS

Video Management

Manages all sensors while maintaining low latency and high efficiency

Low Latency Video Stitching

Performs sensor fusion and stitches all videos into coherent display

Smart Sensors with Edge AI

Camera suite with edge AI (ATR) provides 360° Situational Awareness

Augmented Battlefield

Matches pixels to accurate location, allowing common visual language

ATD/ATR

Detects, recognizes and tracks multiple types of targets using any type of sensor



ATR and Combat AI

ADDITIONAL CAPABILITIES

GPS-Denied Navigation

Fusion of multiple systems including Computer Vision to provide accurate location without deviation

Passive Obstacle Avoidance

Uses Computer Vision to avoid obstacles in manned/unmanned platforms

Embedded Training

Full training capability including mission rehearsal and AAR tools

FIRE WEAVER

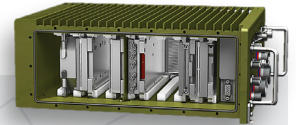
A networked sensor-to-shooter management system for the maneuvering forces

BNET

Advanced broadband IP SDR for on-the-move tactical operations

Open Architecture and Modularity

HYPERCORE's exceptional flexibility enables a high level of interoperability with other systems – as well as integration with any armored tracked or wheeled vehicle. The system is compatible with all relevant standards including MOSA, NGVA, SOSA, DDS, Victory, etc. Advanced architecture allows easy addition and replacement of systems from any vendor as well as integration with any existing systems on the platform.



Integration Options

All capabilities can be hosted in the customer's hardware as software solutions. When required, RAFAEL provides VPX-3U standard hardware which, as part of the open architecture design, allows switching between processing cards and adapts the hardware to any customer or requirement as well as allowing for future growth.



RAFAEL's Two Men Crew Concept



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