

NxGenComm Announces Phoenix Engine: Breakthrough Autonomous Battlefield AI with Intent-Based Execution for Operations

NxGenComm

MORRISVILLE, NC, UNITED STATES, September 9, 2025 /EINPresswire.com/ -- [NxGenComm](#) (NXG) today introduced its Phoenix Engine, a revolutionary artificial intelligence system integrated with NXG's proven M5NS-JCP (Joint Communications Platform) that transforms commander's intent into autonomous battlefield responses. This breakthrough technology enables military forces to execute complex multi-domain operations at machine speed while maintaining human-level tactical intelligence across contested environments.

NXG's Phoenix Engine represents a paradigm shift from traditional military AI optimization systems to autonomous intent execution, enabling commanders to provide high-level mission objectives that the system interprets and executes through coordinated multi-domain responses without requiring detailed human micromanagement.

Revolutionary AI Capabilities:

- **Intent-Based Execution:** Interprets commander's intent and autonomously executes appropriate tactical responses across multiple domains
- **Multi-Modal Sensor Fusion:** Real-time synthesis of RF signatures, video feeds, radar data, network traffic, environmental conditions, and position location information
- **Autonomous Asset Control:** Dynamic redirection of autonomous platforms, sensor orientation, and resource positioning based on evolving tactical situations
- **Sub-Second Response Cycles:** Machine-speed decision making from threat detection to coordinated multi-domain response execution
- **Real-Time Waveform Adaptation:** Autonomous modification and switching between communication protocols including 5G, MANET, CDL, SINCGARS based on mission requirements
- **Mode Hopping Architecture:** Seamless transitions between operational roles as private 5G network, EUD, relay, mesh point, jammer, decoy, or sensor

Advanced Battlefield Performance:

- **Enhanced Edge Performance:** Field testing demonstrates 50% improvement in edge performance compared to standard communications systems
- **Jamming Resilience:** 3X improvement in anti-jamming capabilities, enabling datalink function in previously impossible electromagnetic environments
- **Multi-Domain Coordination:** Simultaneous management across communications, electronic

warfare, kinetic, and intelligence domains

- Autonomous Threat Response: Complete mission execution from initial threat detection through coordinated tactical response
- RF Environment Mastery: Advanced signal classification using neural networks with high-resolution ADCs across wide frequency ranges
- Post-Quantum Security: ML-KEM 1024 encryption with hardware security module integration for quantum-resistant communications
- Environmental Durability: IP67 rating with -20°C to +55°C operational range in compact form factors from 3"×2" (5-15W) to 8"×8" (35-60W)
- Reduced COA Recommendation and Execution: COA lists are formulated with the option to execute at machine speed

Collectively, these integrated capabilities enable NXG's M5NS-JCP and its Phoenix Engine to deliver unprecedented tactical communications superiority in contested environments where traditional systems fail, providing military forces with autonomous battlefield intelligence that operate at machine speed while executing complex multi-domain operations through simple intent-based commands, fundamentally transforming the tempo and effectiveness of modern military operations.

Development Approach: NXG's Phoenix Engine leverages its software-defined platform architecture to enable real-time battlefield adaptation through reinforcement learning algorithms that continuously optimize performance based on mission outcomes. The system's modular design supports rapid technology insertion while maintaining compatibility with existing defense communication ecosystems and Next-Generation Combat Vehicle (NGC2) integration requirements.

"Phoenix Engine transforms how military forces operate in complex, contested environments," said David Gross, Director of Marketing at NXG. "By interpreting commander's intent and executing autonomous tactical responses at machine speed, we are enabling military operations that previously required minutes or hours, to execute in mere seconds. This isn't just an improvement in existing capabilities—it's a fundamental shift in how warfare can be conducted."

NXG is actively engaging with defense partners and military organizations to demonstrate Phoenix Engine's operational capabilities and support integration with existing and future battlefield systems. The platform's proven architecture and field-tested performance provide immediate deployment readiness for military forces requiring autonomous [battlefield AI](#) capabilities.

Operational Scenario Example: When a UAS equipped with Phoenix Engine receives the command "Locate jammers and neutralize EW threats," the system autonomously executes RF monitoring, detects hostile jamming signatures, adapts communication protocols in real-time, redirects flight paths, activates optical sensors for target identification, and coordinates tactical

responses—all within seconds and without further human intervention.

Availability and Contact NXG's Phoenix Engine integrated with its M5NS-JCP platform is available for immediate deployment and demonstration. For more information about operational capabilities, integration opportunities, and partnership programs, please contact info@nxgencomm.com or visit www.nxgencomm.com.

About NxGenComm Based in the Research Triangle Park area in Morrisville, North Carolina, NxGenComm designs and develops end-to-end multi-standard, frequency band agnostic, wireless network solutions for multiple verticals. NXG provides high-performance network infrastructure solutions for demanding use cases that require unique architectures, incorporating tiered levels of autonomous capability and intelligence from the device to the cloud.

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