FAAD C2

Forward Area Air Defense
Command and Control

Today and Tomorrow's Fight

Developed by Northrop Gruman, the Forward Area Air Defense Command and Control (FAAD C2) is a battle-proven system that simultaneously integrates short range air defense, Counter-Rocket, Artillery, Mortar (C-RAM), and Counter-Unmanned Aerial Systems (C-UAS) missions on a single pane of glass. It is the centerpiece of the U.S. Army's fixed site and maneuver forces and is actively employed worldwide by U.S. forces, allies, and international partners.

FAAD C2 is a cyber certified, real-time safety critical command and control software. It provides a single integrated air picture (SIAP), airspace coordination and deconfliction, and fire control to support multi-domain missions. By processing multiple, diverse local and external track sources real-time, it generates a SIAP of the battlespace. This enables early warning, provides decision tools and data to defeat incoming threats, warns affected personnel of RAM point of impact, and determines point of origin of threat to initiate counter fire missions.

Advanced Battle Manager

Today's battlespace is asymmetrical, highly contested, and congested. Complex attacks from aircraft, UASs, cruise missiles and indirect fires, target forces with simultaneous, multi-axis attacks intended to overwhelm defenses. To counter such attacks, Northrop Grumman developed our Advanced Battle Manager (ABM) for FAAD C2 that combines the results of battlespace availability, sensor and effector allocation, defensive doctrines, and fratricide mitigation. Our ABM performs Threat Evaluation and Weapon Allocation / Assignment (TEWA) by creating a single, coordinated, regional and efficient engagement plan that assigns and schedules guns, missiles, lasers, and associated sensors and communications systems to defeat hostile threats. As enemy offensive capabilities evolve, FAAD C2's ABM's scalable, adaptable architecture enables continuous development and testing to evolve with the threats.
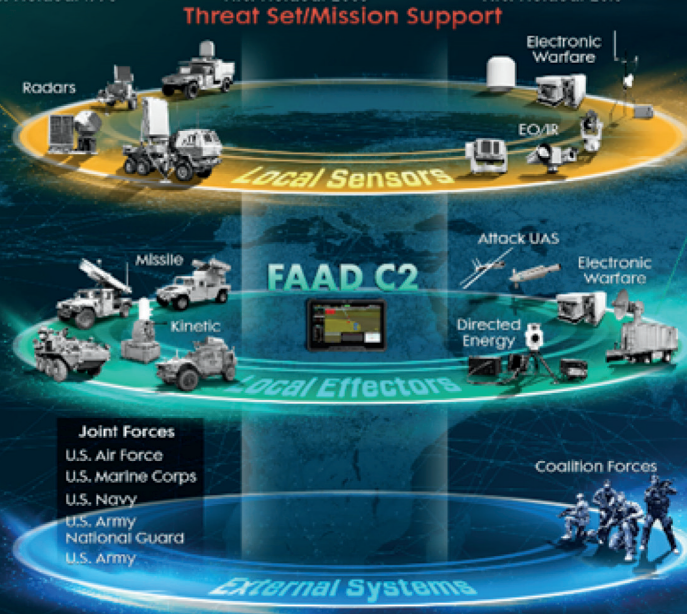
Benefits

- Operationally deployed worldwide, supporting fixed, maneuver, and dismounted forces

- High Confidence, 360° Single Integrated Air Picture (SIAP) includes all available assets in the battlespace

- Real-time airspace monitoring identifies friend and foe assets while making the right battle management decisions to enable safe, effective engagements in a dynamic airspace

- Uses an open, vendor-agnostic, non-proprietary architecture facilitating rapid and affordable integration with multiple, diverse sensors and effectors

- Cyber, Safety, and Joint Interoperability certified

- Available Direct Commercial Sale and Foreign Military Sales

NORTHROP GRUMMAN

Fixed/Rotary Wing Aircraft
Began Development: 1986
First Fielded: 1993

Rocket, Artillery, Mortar
Began Development: 2004
First Fielded: 2005

Unmanned Aircraft Systems
Began Development: 2016
First Fielded: 2018

Threat Set/Mission Support

FAAD C2 Integrated Sensors

- ALPS
- AN/MPQ-64 (Sentinel)
- AN/TPQ-36
- AN/TPQ-37
- AN/TPQ-49 (LCMR)
- AN/TPQ-50
- AN/TPQ-53
- AN/TPS-78
- Anduril
- Ascent Vision CM202U
- ATNAVICS
- CORIAN
- Giraffe 1X
- Giraffe AMB
- HAMMR
- JCREW/DRAKE
- KuRFS
- KuRFS 2
- Ku720
- MFRFS
- MHR/RPS-42
- MHR/RPS-62
- MHR/RPS-82
- Modi
- Night Hawk
- Ninja
- Titan EW
- WISP
- XBAEU

Radars
Electronic Warfare
EO/IR
Local Sensors
FAAD C2
Missile
Kinetic
Attack UAS
Electronic Warfare
Directed Energy
Local Effectors
Joint Forces
U.S. Air Force
U.S. Marine Corps
U.S. Navy
U.S. Army National Guard
U.S. Army
Coalition Forces
External Systems

FAAD C2 Integrated Effectors

- AI3
- AIM-9
- AIM-120
- Athena
- Avenger
- BLADE
- Chaparral (FMS)
- CLaWS
- CORIAN
- Coyote Block 1
- Coyote Block 2
- Coyote Block 2E
- Coyote Block 3 NK
- DE M-SHORAD
- DroneHunter
- FS-LIDS
- E-LIDS
- HELMTT
- HELWS
- IM-SHORAD
- Iron Dome
- JCREW/DRAKE
- L-MADIS
- LOCUST
- Longbow/Hellfire
- LPWS
- M-ACE/AGT
- MEHEL
- M-LIDS
- Modi
- MORFIUS
- Ninja
- Phaser
- PHEL
- Resolve
- RIwP
- Sabre Fury (Duke)
- Stinger
- Titan EW
- THOR

FAAD C2 Integrated External Systems

- ADS-B
- AMDWS
- ASTERIX Radars
- Blue Force Tracking
- Cursor on Target (CoT)
- LLAPI
- MIL-STD-3011 A/B/C
- MIL-STD-6011 (Link-11B)
- MIL-STD-6016 (Link-16)
- MIL-STD-6020 (3011C Fwd)
- PDRS
- RAM Warn
- UAT/Mode 5 Squitter
- UC2

Air Track Avoidence Enhancements

Northrop Grumman continually enhances FAAD C2 capabilities to engage emerging UAS threat technologies in congested air spaces. Air Track Avoidance (ATA) was added to take into account the relative positions at the time the engagement is ordered and the potential positions of nearby tracks throughout the timeframe of the entire engagement.

FAAD C2 incorporates Identification Friend-Foe (IFF) via equipped sensors, fratricide mitigation, and ATA by monitoring the airspace in real-time. For effectors with adjustable flight path capabilities utilizing in-flight updates to include interceptors (missile and attack/capture UAS), FAAD C2 uses its ATA to enable safe interception by providing tactical updates to "fly" the effector through the dynamic, complex airspace while avoiding friendly assets to successfully engage threats. As new threats emerge, Northrop Grumman enhances algorithms to keep pace with them.

Maximum Flexibility

FAAD C2's Modular Open Systems Approach (MOSA) allows for rapid, easy, cost-effective implementation of new sensors, effectors, and warning systems while remaining backward compatible and vendor neutral. FAAD C2's scalability and backwards compatibility allows deployment flexibility of past, current, and future sensors and effectors. This provides maximum flexibility in an ever-changing multi-domain battlespace.

To further enhance flexibility, FAAD C2 was developed with warfighters and refined with operator feedback to ensure its usability even in the toughest conditions. Its simple interface is optimized for laptops or tablets, allowing for vehicle or dismounted employment.

Summary

FAAD C2 is providing Allied and Coalition Forces interoperability today and tomorrow by enabling coordinated protection across the joint force with rapid, real-time defense against complex, maneuvering threats.

First to Successfully...

- Perform Muli-Domain Operations in Combat performing Defensive Fires and providing Point of Origin for Offensive Fires

- Implement Interoperable C2 and Information Sharing among U.S. Forces, Multinational, and Interagency Mission Partners

- Engage with Avenger/Stinger Missile in Combat

- Destroy UAS's in Combat with multiple effector types

- Conduct Air Defense Operations On-the-Move

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