

A-10 Thunderbolt II Electronics and Software

Since the early 1980s, BAE Systems has worked with the A-10 community to identify and address critical mission needs and provide engineering solutions to enhance aircraft effectiveness and pilot safety. As a member of the A-10 Prime Team, BAE Systems today provides significant hardware and software in support of the U.S. Air Force A-10 mission.

The entire Thunderbolt fleet recently received a substantial performance upgrade through a new Integrated Flight and Fire Control Computer designed and built by BAE Systems. Accompanied by an updated software package, the new control significantly improves aircraft and weapon-system safety, accuracy, and maintainability.

Among the new computer's added capabilities:

- An automated, continuously computed weapon delivery function that improves accuracy and reduces pilot workload.
- A digital terrain system that uses terrain elevation data for ground collision avoidance and to aid in weapon delivery.
The system incorporates BAE Systems' TER-PROM® digital terrain software.
- Growth capability to support additional functions, including the Precision Engagement modification.
- Easier system maintenance and elimination of parts obsolescence issues associated with the previous-generation technology.

BAE Systems now is supplying an updated software suite in support of the A-10 Precision Engagement program currently under way. Through Precision Engagement, the Air Force is modifying the A-10 fleet, enabling use of advanced precision-guided weapons, including the Joint Direct Attack Munition guidance and the Wind Corrected Munitions Dispenser. The Precision Engagement modification allows aircrews to engage targets from a higher altitude, employing smart weapons.

BAE Systems also provides the Thunderbolt's throttle and stick assemblies and control units that manage the release of smart weapons and control the pilot's head-up display.

A major participant in the A-10 program

Member of A-10 Prime Team

Developed and built new Integrated Flight and Fire Control Computer

Supplying upgraded software through Precision Engagement program

Developing new capabilities to meet future needs



A-10 Thunderbolt II: Advanced System Integration Laboratory

Integral to BAE Systems' development programs is the company's System Integration Laboratory. The lab is used for real-time demonstrations to validate hardware and software prior to field deployment. Key to the validation is a simulation capability that puts the pilot in the loop to test product readiness and prescribe corrective actions.

The flight test simulator has 125 degrees of horizontal view and 34 degrees of vertical view. It has been in use for more than a decade to provide the U.S. Air Force with dependable fielded products.

To meet the Air Force's 21st-century needs, the A-10 Thunderbolt's low-altitude mission has evolved into a higher-altitude mission due to increasingly sophisticated threats and the evolution of tactics that require greater situational awareness and precision weapon capability.

BAE Systems has demonstrated significant improvements in fielded A-10 weapon systems while meeting contractual technical, cost, and schedule commitments. Improvements for the war fighter by have included:

Technology advances

- Integrated Flight and Fire Control Computer

- Suite 2
- Hands-off throttle and stick
- Suite 2 +
- Suite 3
- Suite 4
- Ported functionality

New capabilities

- COTS upgradeability, life-cycle cost reduction
- Constant weapon release control
- Reduced pilot workload
- Increased target acquisition via laser-guided munitions
- Precision Engagement capability
- Enhanced data capture
- Maintenance of domain knowledge
 - Precision altitude control
 - Ground collision avoidance
 - Continuous computed release and impact point

BAE Systems is committed to warfighter survivability and continues to invest in architecture to incorporate new multifunctional displays, data-link information on the multifunction and head-up displays, digital maps, and 1760 weapon delivery. These new capabilities will be tested and validated in the company's System Integration Laboratory prior to deployment.



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