



Fortem DroneHunter Uses Xilinx Zynq SoCs to Take Down Drones

Xilinx Technology Enables Real-Time Data Processing and Extends Power Use to Help DroneHunter Protect Public Infrastructure

AT A GLANCE:

Fortem Technologies offers an end-to-end counter UAS system that detects, monitors, assesses, and mitigates drone threats. The Fortem SkyDome® System detects and tracks drone threats using TrueView® Radar, assesses threats with SkyDome Manager®, and mitigates nefarious drones with DroneHunter®.

Industry: Aerospace & Defense
Headquarters: Pleasant Grove, UT
Established: 2016
Website: <https://www.fortemtech.com>



OVERVIEW:

Drone sales have skyrocketed over the past several years – some landing in the hands of criminals and other bad actors who, with simple modifications, can use drones as weapons that threaten both security and infrastructure. In the wrong hands, drones can be used to interrupt air travel, disrupt law enforcement and forest fire control efforts, carry contraband to prisons and across borders, sniff private networks, deliver chemical or explosive payloads, perform reconnaissance on troops, or attack oil or power plants.

While some drone makers have developed RF-based security systems that can disable drones and identify the operator location, many criminals circumvent these systems by operating in RF-silent mode or choosing drones that do not emit RF signals.

Built on Xilinx Zynq® SoCs, the Fortem SkyDome System detects, monitors, assesses, and mitigates drone threats in real-time, including RF-silent dark drones.

CHALLENGE:

Recently, Fortem Technologies was looking to build a radar-based, counter unmanned aerial system (C-UAS) that could mitigate threats from drones. Such radar-based systems can be heavy and draw a lot of power that reduces flying time. The company wanted to address these issues without compromising data processing speeds. It was also looking for a solution that could be easily upgraded in the field after product install. Xilinx's Zynq SoCs were able to tackle all these challenges and more.

SOLUTION:

Fortem TrueView radar actively scans the skies looking for incoming drones. The SkyDome System compiles this information in real-time, allowing users to decide whether to deploy one or more DroneHunters to safely capture and tow away drones.

The DroneHunter is a "dog-fighting" drone with onboard TrueView radar that tracks, pursues and targets unwelcome drones. Ultimately the DroneHunter captures the targeted drone by capturing it with its NetGun and towing it away to a safe place for forensics or disposal.

"By integrating our system processor and FPGA technology using Xilinx's Zynq device, we were able to save board space and power and enable our DroneHunter to stay up in the air longer," said Lyman Horne, FPGA engineer at Fortem.

The Zynq-7000 SoC family integrates the software programmability of an ARM®-based processor with the hardware programmability of an FPGA, enabling key analytics and hardware acceleration while integrating CPU, DSP, ASSP, and mixed-signal functionality on a single device.

RESULT:

"Xilinx technology allows us to do rapid processing of radar signals so we can track targets in real-time," Horne said. "If we had to wait to get radar data files off of the system to process them, the system would be much less effective."

Horne said that another advantage of Xilinx FPGAs is the ability to update products in the field. "If we had an ASIC-based product, it would be expensive, and we wouldn't be able to update it easily," he said. "With Xilinx, we can send out an update to change the contents of the DSP or timing and make our installed products even better."

"It's great to come to work knowing that I can be a part of helping other people by making their lives better and safer," Horne added. "Without Xilinx FPGAs, we wouldn't be able to perform our mission."

ADDITIONAL RESOURCES:

[Learn More about Xilinx's Zynq SoCs](#)

[Learn More About Fortem Technologies](#)

Corporate Headquarters
Xilinx, Inc.
2100 Logic Drive
San Jose, CA 95124
USA
Tel: 408-559-7778
www.xilinx.com

Xilinx Europe
One Logic Drive
Citywest Business Campus
Saggart, County Dublin
Ireland
Tel: +353-1-464-0311
www.xilinx.com

Japan
Xilinx K.K.
Art Village Osaki Central Tower 4F
1-2-2 Osaki, Shinagawa-ku
Tokyo 141-0032 Japan
Tel: +81-3-6744-7777
japan.xilinx.com

Asia Pacific Pte. Ltd.
Xilinx, Asia Pacific
5 Changi Business Park
Singapore 486040
Tel: +65-6407-3000
www.xilinx.com

India
Meenakshi Tech Park
Block A, B, C, 8th & 13th floors,
Meenakshi Tech Park, Survey No. 39
Gachibowli(V), Seri Lingampally (M),
Hyderabad -500 084
Tel: +91-40-6721-4747
www.xilinx.com