

NEWSPACE MARKET · COMPANY PROFILE



Miles Space / RocketStar

United States · founded 2014 · rocketstar.nyc

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PRODUCTS

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WITH DATASHEETS

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as of 20 August 2026

Miles Space / RocketStar

RocketStar, Inc. was founded in 2014 by Christopher Craddock to bring low-cost, reusable single-stage-to-orbit (SSTO) launch to the space industry using a patent-pending 3D-printed aerospike engine that produces 25-35% more thrust than conventional bell-cone rocket engines without additional fuel, while enabling thrust vectoring without heavy gimbals. The company's developmental Cowbell rocket is a 12-meter aerospike-powered suborbital test vehicle intended to fly from Launch Complex 48 at Cape Canaveral, Florida. In January 2024, RocketStar acquired Miles Space, Inc., a Tampa, Florida-based spacecraft propulsion and communications company founded by Wes Faler, whose team won NASA's CubeQuest Challenge and flew the Team Miles 6U CubeSat on the Artemis I mission. Miles Space's water-fueled pulsed plasma thruster technology became RocketStar's FireStar Foundation Drive, and its digital signal processing IP was rebranded as the Phoenix Eye software suite. Following the acquisition, RocketStar is developing the FireStar Fusion Drive, described as the world's first electric thruster enhanced by aneutronic (boron) nuclear fusion, expected to deliver roughly 50% more thrust than the base FireStar Foundation Drive. RocketStar's product lines now span in-space electric propulsion (FireStar Foundation and Fusion Drives), reusable launch propulsion (Aerospike engine and Cowbell test vehicle), and the Phoenix Eye DSP software suite (SignalBoost, SignalPrint, SyncWave, OmniPNT, WhisperHunter) for low-probability-of-intercept communications, RF fingerprinting, electronically scanned antenna processing, GPS-denied navigation, and signal detection. The company has flight heritage and manifested payloads including FireStar Foundation units flying on D-Orbit's ION Satellite Carrier via

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Product catalogue



MILES SPACE / ROCKETSTAR

Cowbell Suborbital Test Rocket

12-meter aerospike-powered developmental suborbital test rocket intended to fly from Cape Canaveral's Launch Complex 48.

Length	12 meters
Target test altitude	~21,000 meters (suborbital)
Propulsion	RocketStar Aerospike Engine
Launch site	Launch Complex 48, Cape Canaveral, Florida
Vehicle class	Single-stage-to-orbit (SSTO) developmental test rocket

price on request



MILES SPACE / ROCKETSTAR

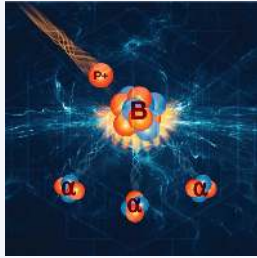
FireStar Foundation Drive

Water-fueled pulsed plasma electric thruster in a 1U form factor for smallsat orbit raising, phasing, de-orbit and attitude control.

Propellant	H2O (filled as liquid; liquid or solid during storage/use)
Envelope	95 x 95 x 95 mm (1U with 5mm margin)
Wet Mass	980 grams
Propellant Load	250 grams of liquid, pure water
System Power	6 Watts (typical, all thrusters active)
Max System Power	18 Watts (maximum, all thrusters active)
Thermal Draw	11.5 Watts (heater on, no thrusters active)

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MILES SPACE / ROCKETSTAR

FireStar Fusion Drive

Fusion-enhanced evolution of the FireStar water-fueled pulsed plasma thruster, delivering roughly 50% more thrust via aneutronic boron fusion.

Base thruster	FireStar Foundation Drive (water-fueled pulsed plasma)
Fusion fuel additive	Boron (aneutronic fusion in exhaust)
Thrust improvement	~50% higher than FireStar Foundation Drive
Development origin	AFWERX SBIR
Planned flight demo	Rogue Space Systems Barry-2 spacecraft, in-space testing

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MILES SPACE / ROCKETSTAR

Phoenix Eye OmniPNT

GPS-denied Alternative Positioning, Navigation and Timing (APNT) software that determines location using celestial radio sources.

Capability	GPS-denied Alternative Positioning, Navigation & Timing (APNT)
Signal sources	Sun, moon, planets, pulsars, satellites, signals of opportunity
Hardware integration	Luneburg lens systems (best results); ESAs with known sideline measurements
Form factors	Small form-factor antenna available for manpack applications

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MILES SPACE / ROCKETSTAR

Phoenix Eye SignalPrint

RF transmitter fingerprinting software that uniquely identifies individual radios even when hardware, firmware and crypto are identical.

Capability	Unique RF transmitter fingerprinting / identification
Use case	Detect spoofed/cloned transmitters despite identical hardware and crypto
Software type	Proprietary COTS DSP software

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MILES SPACE / ROCKETSTAR

Phoenix Eye SyncWave

DSP software that removes grating lobes from electronically scanned antenna receivers, enabling coherent combination of any digitized signal.

Grating lobe removal	Continuous elimination of carrier phase differences on baseband data
Signal source compatibility	Any digitized signal with synchronized sampling clocks (dishes, arrays)
Input channels	Unlimited (limited by computing capability)
Doppler handling	Preserves Doppler shift for trajectory/tracking
Protocol support	PSK, QAM, OFDM, encrypted signals

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MILES SPACE / ROCKETSTAR

Phoenix Eye WhisperHunter

ISR-focused signal detection software addressing grating-lobe limitations in Electronically Scanned Antenna receivers.

Target application	Intelligence, Surveillance & Reconnaissance (ISR)
Problem addressed	Grating lobes from carrier phase differences in ESA receivers
Benefit	Antenna design freedom, hybrid multi-device meshes, higher signal sensitivity

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MILES SPACE / ROCKETSTAR

Phoenix Eye™ Digital Signal Processing Software Suite

A suite of proprietary COTS digital signal processing software modules for secure, low-probability-of-intercept communications, transmitter identification, electronically scanned a

SignalBoost - Function	Low Probability of Intercept/Detect (LPI/D) capability for tactical radio communications;
SignalBoost - Origin	Proprietary COTS software developed for deep space comms, adapted for tactical radio
SignalPrint - Function	Unique identification ('fingerprinting') of specific transmitters, even if identical in de
SyncWave - Function	Digital signal processing software addressing grating lobes from carrier phase differences
OmniPNT - Function	Alternative Positioning, Navigation & Timing (APNT); GPS-denied location (latitude, longit p
OmniPNT - Type	Commercial Off-the-Shelf (COTS) software solution
WhisperHunter - Function	Addresses ESA receiver signal-gathering limitations caused by grating lobes from carrier p

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MILES SPACE / ROCKETSTAR

RocketStar Aerospike Engine

Patent-pending 3D-printed aerospike rocket engine producing 25-35% more thrust than conventional bell-cone engines with built-in thrust vectoring.

Thrust gain vs. bell-cone	25-35% more thrust, no extra fuel
Performance gain	~20% better than conventional rocket engines
Thrust vectoring	Individually controlled combustion chambers; no gimbals/actuators needed
Altitude compensation	Adjusts to changing atmospheric pressure at any altitude
Manufacturing	3D-printed, patent-pending design
Reusability	Target turnaround ~2 weeks between flights

price on request

Contact Miles Space / RocketStar

Open the company profile on NewSpace Market to see full specifications and datasheets, and to send a request for quotation that reaches the manufacturer directly.

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