

Sparrow-Strike™

USFF Edge Processor

EC2000 Lifecycle Stage: Active | Qualified Production
 EC2010 Lifecycle Stage: Active | Pre-Qualified Production

systelusa.com/sparrow-strike

Product Brief

Sparrow-Strike is an ultra-small-form-factor (USFF) MIL-SPEC rugged edge compute solution.

With a modular chassis and architecture design, integrating either the NVIDIA Jetson Orin NX edge AI system on module (SOM) or a SMARC Intel x86-based processor, Sparrow-Strike provides the performance and flexibility demanded by emerging autonomous and uncrewed missions, in an ultra-compact and lightweight form factor.

Sparrow-Strike is engineered to withstand austere environments and is SWaP-optimized for integration and deployment in highly space-constrained platforms.



Key Features

- Size: 6.7"W x 5.3"D x 3.0"H
- Weight: 3.0lbs (base system)
- EC2000 AI at the edge: NVIDIA Jetson Orin NX 16GB module
- EC2010 compute at the edge: Intel x86 Atom x6425RE CPU SMARC module
- Processing: NVIDIA Jetson Orin NX 16GB module or SMARC x86 Intel Atom CPU
- Power: integrated DC/DC power supply, 28VDC nominal
- Robust IO and configuration options including multiple USB 3.0, GbE (with TSN), serial, display, video capture, GPS, GPIO
- Embedded Function Board (EFB) connector for mission-specific expansion board options
- MIL-SPEC rugged and fully sealed
- Operating temperature up to -40C to +55C (passive cooled)
- Designed using a Modular Open Systems Approach (MOSA)



Sparrow-Strike Specifications

Model Numbers: EC2000, EC2010

Systel 3-Year Product Warranty
EOL and Configuration Management Included



General System Specs

Chassis

- Material: machined aluminum; alternative materials may be available for cost/weight reduction
- Finish: black anodized exterior, clear alodine interior
- Mounting: base mounting

Connectors

Rugged MightyMouse 805 / 2M805 for power and IO; HD-BNC or SMA for RF

Base System IO

- USB: (2) USB 3.0, (2) USB 2.0
- Ethernet: (2) GbE with time-sensitive networking (TSN). TSN operational on (1) port for EC2000 and (2) ports for EC2010
- CAN: (1) CAN 2.0
- Serial: (1) RS232/422/485, (1) RS232 debug
- Video Output: (1) HDMI
- (1) Power on, Reset, Recovery
- (16) expansion IO pins

SWAP (base model)

- Chassis Dimensions: 6.7"W x 5.3"D (excluding connectors) x 3.0"H
- Weight: 3.0lbs
- Power: 28VDC, base model max power ~38W; max system power up to 58W

Power Supply

Onboard DC/DC power supply; 12-36VDC, 28VDC nominal

System Expansion

Numerous options including video capture, GPS, GPIO, LTE/WiFi

- (1) m.2 m-key 2280
- (1) m.2 m-key 2242
- (1) full-size mini-PCIe
- Embedded Function Board (EFB) connector for customized IO options

Storage

- Internal m.2 NVME up to 4TB



Sparrow-Lite reduced-SWaP variants available. EC2200/2210 model shown here. Please contact a Systel sales representative for more information.

Sparrow-Strike Specifications

Model Numbers: EC2000, EC2010

Systel 3-Year Product Warranty
EOL and Configuration Management Included



EC2000 Performance Specs

Processing

- Integrated NVIDIA Jetson Orin NX (16GB)
- 100 TOPS
 - GPU: Ampere architecture, 1024 CUDA cores and 32 Tensor cores
 - CPU: 8-core ARM Cortex A78AE v.82
 - Memory: 16GB LPDDR5 onboard
 - Orin module is USA country of origin

OS

NVIDIA L4T based on Linux Ubuntu 20.04 with Systel board support package (BSP)

EC2010 Performance Specs

Processing

- CPU: Intel Atom x6425RE SMARC CPU module, 4-core, 1.9GHz
- Memory: 8GB LPDDR4 (onboard module)
- Storage: 32GB eMMC (onboard module)
- TPM 2.0 (onboard module)

OS

Supports Windows 10 and Windows 11; Linux with kernel 5.13+

Sparrow-Strike Specifications

Model Numbers: EC2000, EC2010

Systel 3-Year Product Warranty
EOL and Configuration Management Included



Environmental Specs*

Operating Temp	-40C to +55C (passive cooled) MIL-STD-810H, Method 501.7, Proc. II; Method 502.7, Proc. II <i>*EC2000: low temp boot at -28C</i>
Non-Operating Temp	Qualified to -40C to +85C MIL-STD-810H, Method 501.7, Proc. I; Method 502.7, Proc. II
Vibration	Qualified to MIL-STD-810H, Method 514.8, Proc. I, Cat. 4, C-V, Composite Two-Wheeled Trailer
Shock, Functional	Qualified to MIL-STD-810H, Method 516.8, Proc. I, 40g at 11ms, Ground
Shock, Crash Hazard	Qualified to MIL-STD-810H, Method 516.8, Proc. V 75g at 6ms, Ground
Altitude	Qualified to MIL-STD-810H, Method 500.6, Proc. II, 50k feet, Operational Low Pressure; Qualified to MIL-STD-810H Method 500.6, Proc. I, 55k feet, Storage Low Pressure
Humidity	Qualified to MIL-STD-810H, Method 507.6-7, Proc. II, RH 95%, 60C, Aggravated
Sand and Dust	Qualified to MIL-STD-810H, Method 510.7, Proc. I and II; IP6X: IEC60529:2013 Section 4.2.7
Fluid Ingress	Qualified to MIL-STD-810H, Method 506.6, Proc. II; IPx7: IEC60529:2013 Section 4.2.7
EMI/EMC	Qualified to MIL-STD-461G, CE101, CE102, CS101, CS115, CS116, RE101, RE102, RS101
Power	Tested to MIL-STD-1275E Section 5.1.3.1.2, Section 5.1.3.2.2; Qualified to MIL-HDBK-704-8 LDC101, LDC102, LDC105, LDC301

*EC2000 is qualified to/tested to the environmental specifications listed on this page. EC2010 is qualified by similarity for vibration, shock, altitude, humidity, sand and dust, and fluid ingress.

Unless otherwise noted, all environmental specifications are designed to meet with testing pending. "Qualified to" indicates that certified 3rd party testing has been successfully completed. "Tested to" indicates that Systel internal testing has been successfully completed. All testing completed on base model unit(s).



SYSTEL

Any **Mission.** Anywhere.

All specifications are configuration-dependent and subject to change. Please contact a Systel sales representative to discuss your configuration.

© 2024 Systel, Inc. All rights reserved. All trademarks are property of their respective owners. The information furnished herein is believed to be accurate and reliable at time of publication. Specifications are subject to change without notice. This document was last revised on 9/27/2024. SPEC00005 Rev F.

Systel, Inc. Data Sheet | [systemelusa.com](https://www.systemelusa.com) | sales@systemelusa.com

