

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 spaceconstrained 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

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



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

Connectors

Base System IO

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

- 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

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-PCle
- Embedded Function Board (EFB) connector for customized IO options

Storage

 Internal m.2 NVME up to 4TB



Sparrow-Strike Specifications

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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

*EC2000: low temp boot at -28C

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

Qualified to MIL-STD-810H, Method 507.6-7, Proc. II, RH 95%, 60C, Aggravated **Humidity**

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

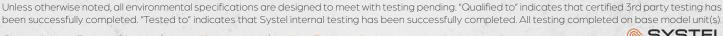
EMI/EMC Qualified to MIL-STD-461G, CE101, CE102, CS101, CS115, CS116, RE101, RE102,

RS101

Tested to MIL-STD-1275E Section 5.1.3.1.2, Section 5.1.3.2.2; Qualified to MIL-**Power**

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.







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

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