



DEEPWAVE

AIR8311-B

Artificial Intelligence Radio Transceiver (AIR-T) Edge Series Product Family, AIR8311-B

*Highly configurable indoor, outdoor,
and mobile RF AI sensing system*

Product

Deepwave's AI Radio Transceiver (AIR-T) platform drives automated processes and informs critical decisions with low-latency RF intelligence at the edge.

The AIR8311 delivers the latest deep learning analysis and agentic workflow capabilities by integrating the NVIDIA® Jetson Orin™ NX 16GB and NVIDIA's AI native software stack into Deepwave's high performance compute platform.

Deepwave's AIR8311 delivers RF intelligence as a stand-alone node, or coordinated RF intelligence when combined with a network of AIR-Ts and managed by Deepwave's AirStack Edge software.



Use Cases

The ruggedized AIR8311 is a scalable, secure RF AI sensing system for indoor, outdoor, and mobile environments. This AIR-T is highly configurable for addressing a range of use cases.

- Signal identification and geolocation
- Unmanned surface vehicle deployment
- Communications network optimization

Highlights

Deployment Flexibility

Built to IP68 standards, and deployed for indoor, outdoor, land, maritime, and vehicle RF AI sensing.

Scalable RF Intelligence Systems

Operations teams can pair AIR-T sensors with AirStack Edge™ enabling remote command and control and autonomous RF intelligence.

Broad Use Case Coverage

Add on antenna and AI software enables expanded use cases such as direction finding and geolocation.

Secure

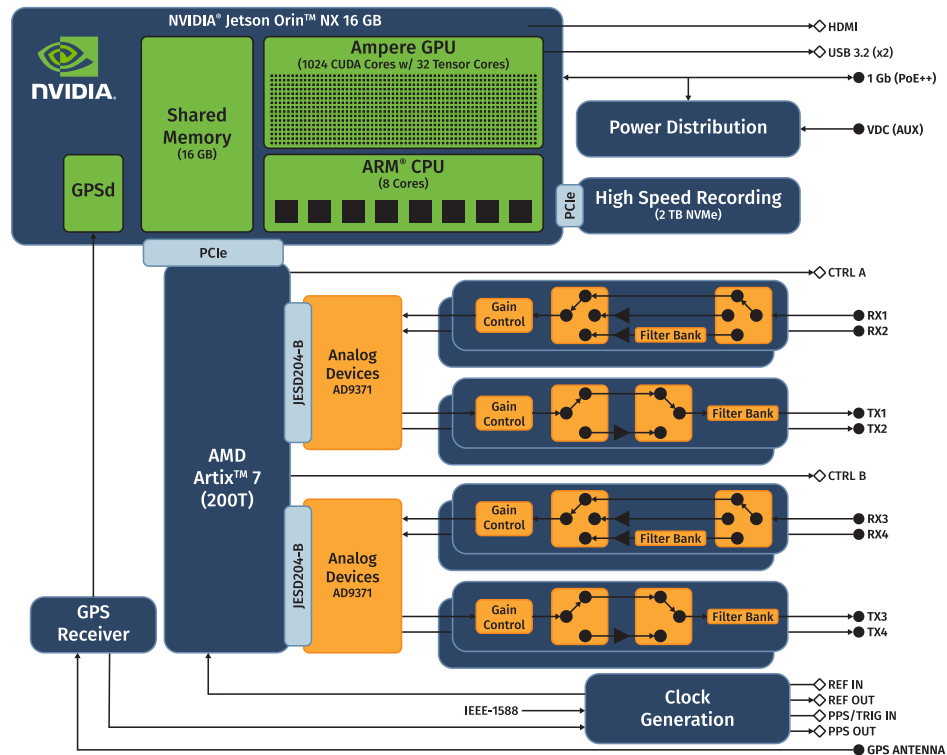
Field deployment requires only a single Ethernet cable for data and PoE. An integrated TPM enables full disk encryption to mitigate system tampering threats.



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Key Specifications

Environmental

IP68 Waterproof and Dustproof
Industrial Grade (-40 to +80°C)

Power

PoE++ (30 W Typ., 60 W Max)
12 VDC or 37 - 57 VDC Inputs

Mechanical

34.3 x 22.9 x 5 cm (13.5 x 9.5 x 2.0 in)
5.82 kg (12.8 lbs)

Encryption

Full Disk Encryption via TPM 2.0

Optional - Direction Finding Kit

Receive DF Bracket and MIMO brackets
8 Whip Antennas
GPS Bracket + Active Antenna
Outdoor Rated RF Cables

Optional - Mounting Kit

Pole Mount Configuration
Wall / Surface Mount Configuration

General Purpose Processor

NVIDIA® Jetson Orin™ NX 16 GB

Ampere GPU

1024 NVIDIA® CUDA® cores
32 Tensor cores

ARM CPU

8-core Cortex® v8.2 64-bit

Shared Memory

16 GB 128-bit LPDDR5 DRAM

AMD® FPGA

Artix™ 7 FPGA - XC7A200T

Networking

1 GbE RJ45 port
Precision Timing Protocol (IEEE-1588)

Data Storage

2TB NVMe storage (4 GB/s read/write)

RF Specifications

Dual transceiver daughtercards
4x4 MIMO or dual 2x2 MIMO
100 MHz IBW (125 MSPS)
300 MHz to 6 GHz
14 bit ADC, 16 bit DAC

Transceiver Performance

+35 dB receiver gain
3.0 dB receiver noise figure
+20 dBm max transmit output power

Digital Connectivity

Dual USB-A 3.2
HDMI 2.1 (Micro HDMI connector)

GNSS / GPS Performance

5 ns (1-sigma) to UTC

Signal Connectivity

10 MHz reference input/output
1PPS clock input/output Trigger input

