

# **AIR7311**

# Artificial Intelligence Radio Transceiver (AIR-T) Embedded Series Product Family, AIR7311

Enhanced sensor inputs for the broadest set of RF use cases, coupled with deep learning.

# Product

Deepwave Digital's AI Radio Transceiver product line enables AI supercomputing at the edge in a compact and tightly integrated software-defined radio.

The AIR7311 integrates the NVIDIA<sup>®</sup> Jetson Orin<sup>™</sup> NX 16GB with the compute capability of the NVIDIA<sup>®</sup> Ampere architecture to enable the most recent deep learning methods, including generative AI at the edge.



# **Use Cases**

Provides ultra-low latency RF data intelligence at the edge to drive workflow automation and critical decision-making:

- Air, land, maritime, & space navigation
- Environmental and workplace safety
- Local network optimization
- Physical infrastructure monitoring
- Satellite communications

# **Highlights**

# **Purpose-Built**

Integrated RF, AI, and edge computing platform built on patented, best-in-breed technologies that address RF and AI computing bottlenecks.

# **Practical and Flexible**

Tuned for high-traffic RF spectrum covering high- and low-SNR signals while also supporting phase-coherent or independent channel operation.

# Simple Deployments

Small form factor, low-power, and modular unit that can be easily mounted to standard server racks (1U) or custom deployments. Just plug it in and go.

# **Developer Friendly**

Platform enabled by flexible, open-source software for managing hardware, software deployments, and real-time AI model inference.





# **AIR7311**



General Purpose Processor NVIDIA<sup>®</sup> 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<sup>®</sup> FPGA Artix™ 7 FPGA - XC7A200T-2FFG1156C

#### Networking

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

# **Key Specifications**

# Data Storage

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

### **Digital Connectivity**

Dual USB-A 3.2 HDMI 2.1 (Micro HDMI connector) Control of external RF systems (GPIO) On board sensor reporting

#### Power

PoE++ or 12 VDC (30 W Typ., 60 W Max)

#### Mechanical

18.7 x 23.0 x 4.4 cm (7.3 x 9.1 x 1.7 in) 1,65 kg (3.6 lbs)

#### Environmental

Commercial Grade (0 - 50°C) Convection Cooled

# **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

# GNSS / GPS Performance

5 ns (1-sigma) to UTC

### Signal Connectivity

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



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