

Overview

Artificial Intelligence Radio Transceiver (AIR-T)

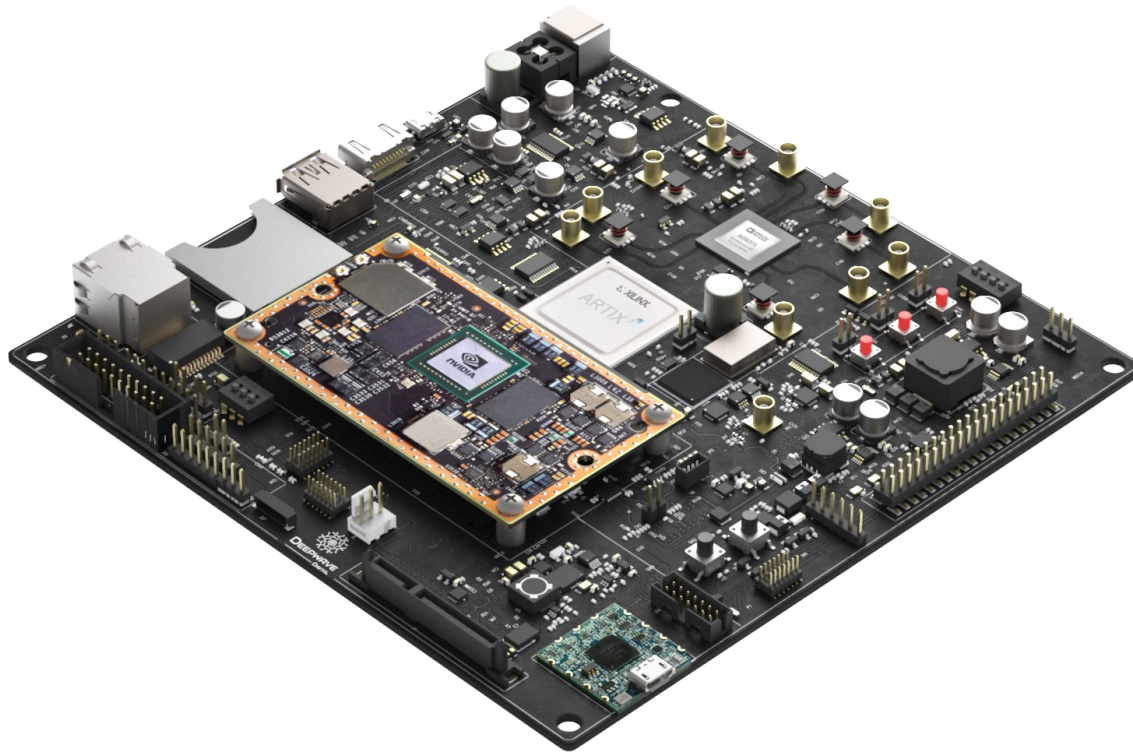


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Product Flyer

URL: <https://deepwavedigital.com/air7101-0101-004/>

Product Description

The Artificial Intelligence Radio Transceiver (AIR-T) is a high-performance software-defined radio (SDR) seamlessly integrated with state-of-the-art processing and deep learning inference hardware. The incorporation of an embedded graphics processing unit (GPU) enables real-time wideband digital signal processing (DSP) algorithms to be executed in software, without requiring specialized field programmable gate array (FPGA) firmware development. The GPU is the most utilized processor for machine learning, therefore the AIR-T significantly reduces the barrier for engineers to create autonomous signal identification, interference mitigation, and many other machine learning applications. By granting the deep learning algorithm full control over the transceiver system, the AIR-T allows for fully autonomous software defined and cognitive radio.



The Air-T enclosure is expertly constructed from aluminum to produce a polished, elegant, and sleek metallic silver finish. It measures 192 x 182 x 79 mm (7.5 x 7.2 3.1 inches) and the power button illuminates blue when the system is on. All RF ports are brought to the front of the enclosure for ease of use and all computer peripherals connections are brought to the rear.

Manufacturer Part Numbers

- Board Only: AIR7101-A
- Board w/ Enclosure: AIR7101-B

Product Technical Specifications

Subsystem	Parameter	Value
RF Transceiver		
	Manufacturer	Analog Devices 9371
	Number of Receive Channels	2
	Number of Transmit Channels	2
	Maximum Bandwidth	112.5 MHz
	Maximum Sample Rate	125 MSPS
	Frequency Tuning Range	300 MHz - 6 GHz
	Receiver Power Level Control	AGC or manual gain control
	Transmitter Power Level Control	TPC or manual gain control
	External Reference Input	Yes
	Built in Calibrations	Quadrature error correction, LO suppression, LO leakage correction
Processors		

Subsystem	Parameter	Value
	Manufacturer	NVIDIA Jetson TX2
	CPU 1	ARM A-57 (4-core)
	CPU 2	ARM Denver2 (2-core)
	GPU	Pascal (256-core)
	Memory	8 GBytes shared memory
	Storage	32 GBytes flash
FPGA		
	Manufacturer	Xilinx Artix-7
	LUTs	47.2k
	DSP Slices	180
	RAM	3.75 kbits
Networking		
	Ethernet	10/100/1000 BASE-T
	WLAN	802.11a/b/g/n/ac dual-band 2x2 MIMO
	Bluetooth	Version 4.1
Display		
	HDMI	3840 x 2160 (4k)
Peripheral Interfaces		
	SATA	Version 3.1
	SD Card	SD 3.0 or SD-XC cards up to 2 TB
	USB	USB 3.0 Super Speed mode (up to 5Gb/s), USB 2.0 High Speed mode (up to 480Mb/s), USB On-The-Go
	UART, GPIO, SPI, I2C, Audio	See NVIDIA Jetson TX2 datasheet for information
Power		
	Input	8-15 VDC
Mechanical		
	Board Form Factor	Mini-ITX
	Dimenstions	170 × 170 x 35 mm (6.7" × 6.7" x 1.4")
	Weight	285 Grams (0.63 pounds)
Software		
	Operating System	Ubuntu (Linux)

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