

# Wi-Fi 6/6E Router Market

Forecasted to grow from \$5.9B in 2023 to \$32B by 2030. A CAGR of 27.4% year-on-year.



## Description

- Wi-Fi 6/6E routers provide wireless internet connectivity over short distances for our connected devices and equipment such as Smart Phones, laptops, and game consoles.
- Wi-Fi 6E is the latest technology for this connectivity, building on from Wi-Fi 5 and Wi-Fi 6 still operating at frequency bands 2.4GHz and 5GHz but adds a 6GHz band, to support existing devices.
- They typically consist of several components:
  - **Input/Output Ports** usually an Ethernet port used as the WAN port for the internet source and Local Area Network (LAN) ports for wired connections. The LAN ports might support Power Over Ethernet (POE) to provide power to wire connected devices.
  - **Antennas** for wireless connectivity between the Wi-Fi router and Wi-Fi connected devices. Multiple antennas can be used to cover the frequency bands 2.4GHz, 5GHz, and 6GHz.
  - **Power Supply** ensures that the router receives the correct voltage and current.
  - **Central Processing Unit (CPU)** could be a System-on-Chip (SoC) processor. It is used to process data packets, manage the network protocols, and execute router functions.
  - **Wireless Chipsets** manage the wireless transceiver for receiving and transmitting Wi-Fi signals.
  - **Network Interface Controller (NIC)** also known as an Ethernet Card enables the Wi-Fi router to connect to the network.
  - **Other components** A 5G cellular connection can provide a dual-source connection.

## Drivers

- Increasing demand for higher data transfer speeds and lower latency.
- Increases in multiple connected devices and remote working is driving the need for MIMO technologies in Wi-Fi Router design.

## Customer Challenges and Opportunities

- Maintaining a controlled impedance and signal integrity in the PCB design.
- Abracon's high Q RF inductors are ideal for achieving a highly efficient RF Front End design.

# Abracon Series to Consider for Wi-Fi 6/6E Routers

Description & Requirements	Frequency Control & Timing	RF & Antenna	Power & Magnetics
Wi-Fi 6E - Antennas	N/A	AFB4506A-0100II	RF Inductor <a href="#">AIMC</a> (Ceramic Multilayer) <a href="#">ATFC</a> (Thin Film Multilayer) <a href="#">AISC</a> (RF Wirewound)
5G Antennas	N/A	5G Antenna <a href="#">ACR4006X</a> (Chip) <a href="#">AEBC1101X-S</a> (Whip) <a href="#">AECB1102X</a> (Blade) <a href="#">AFAC120050-U6G</a> (Flexible)	RF Inductor <a href="#">AIMC</a> (Ceramic Multilayer) <a href="#">ATFC</a> (Thin Film Multilayer) <a href="#">AISC</a> (RF Wirewound)
Timing for Wi-Fi 6E routers	TCXOs (Continuous Voltage) <a href="#">ATX-H11 (3.2 x 2.5mm)</a> <a href="#">ATX-H12 (2.5 x 2.0mm)</a> <a href="#">ATX-H13 (2.0 x 1.6mm)</a>  VCTCXO <a href="#">AVTX-11 (3.2 x 2.5mm)</a> <a href="#">AVTX-12 (2.5 x 2.0mm)</a> <a href="#">AVTX-13 (2.0 x 1.6mm)</a>  MHz Crystal <a href="#">ABM8 (3.2 x 2.5mm)</a>  32.768kHz Crystals <a href="#">ABS05 (1610, MHz)</a> <a href="#">ABS06 (2012, MHz)</a> <a href="#">ABS07 (3215, MHz)</a>	N/A	N/A
Input/output Ports	N/A	N/A	RJ45 Connectors  <a href="#">ARJM11</a> (Single RJ45 with magnetics) <a href="#">ARJM14</a> (1x4 multi-Port 10/100/1G) <a href="#">ARJM24</a> (1x8 multi-Port 10/100/1G/2.5G/5G) <a href="#">ARJM26</a> (1x12 multi-Port 10/100/1000/2.5G/5G)  LAN Transformers <a href="#">ALANC</a> (10/100/1G) <a href="#">ALAN</a> (LAN Transformer)  Common Mode Chokes (CMCs) <a href="#">ACMS</a> (Signal Line SMD)
Power Supply	N/A	N/A	Mid-High Power <a href="#">AMDLA</a> (Molded Round Wire) <a href="#">AMPLA</a> (Molded Round Wire) <a href="#">ASPIAIG-F</a> (Molded Flat Wire) <a href="#">ASPIAIG-S</a> (Wirewound Resin Shield)