BROADCOM®

Product Brief

BCM6719

Dual 4x4 Dual-Band Wi-Fi 8 (802.11bn) MAC/PHY/Radio for Residential Access Points
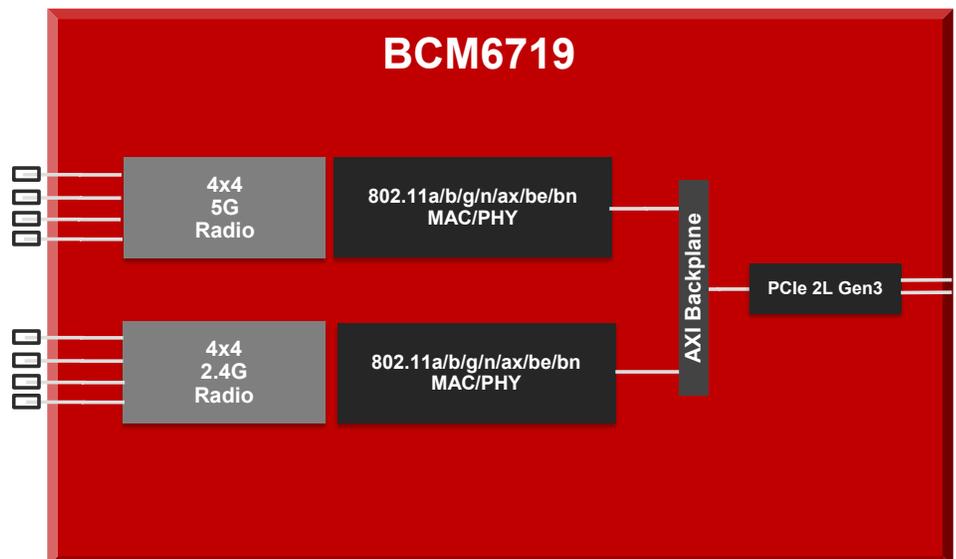
Overview

The Broadcom® BCM6719 is a fully optimized dual-radio, dual-band (2.4 GHz, 5 GHz) Wi-Fi 8 MAC/PHY/Radio solution, designed to deliver unparalleled performance, efficiency, and reliability for the new generation of 802.11bn (UHR) access points, routers, and extenders.

Engineered to meet the burgeoning demands of the AI era, the BCM6719 combines the full complement of Wi-Fi 8 features with advanced silicon integration and proprietary Broadcom technologies, ensuring superior Quality-of-Experience (QoE) across diverse devices and bandwidth-intensive applications. Furthermore, the integrated hardware-assisted telemetry engine provides real-time network insights and analytics as input to edge-AI models for QoE measurement, enhanced security, and reduced operational cost.
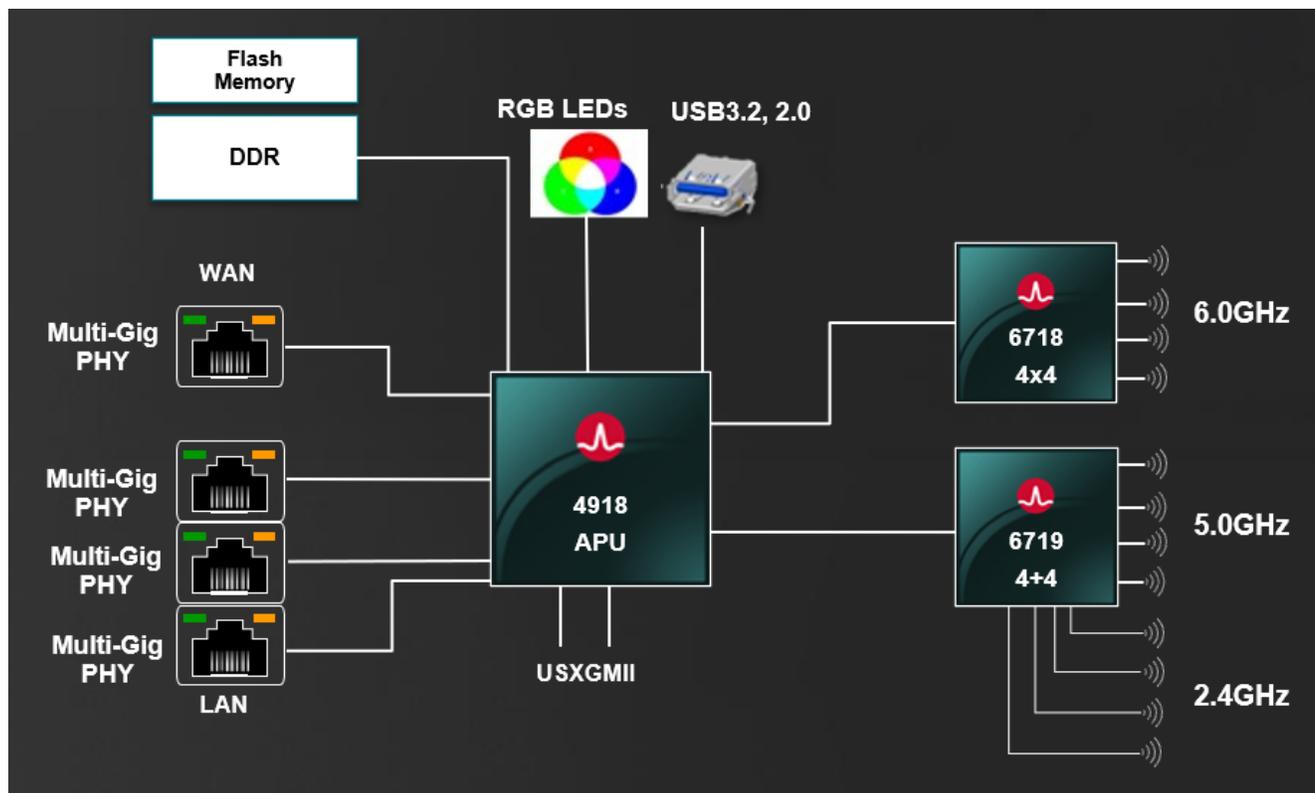
With integrated multi-chain 2.4 GHz and 5 GHz radio functionality supporting a total of 8 spatial streams, and featuring on-chip 2.4 GHz power amplifiers, the BCM6719 simplifies system design and lowers PCB footprint. This high level of integration, combined with improved receive sensitivity, third-generation digital pre-distortion, advanced eco-modes, and power optimization for ultra-low energy consumption establishes a new benchmark for power efficiency in high-performance networking devices.

The device supports 160 MHz channels in the 5 GHz band and 40 MHz in the 2.4 GHz band.

Wi-Fi 8 Solution
- 8-stream, dual 4x4 802.11bn UHR
- 4x4 2.4 GHz (40 MHz) + 4x4 5 GHz (160 MHz)
- Integrated 2.4 GHz power amplifiers

Increased Capacity
- Dynamic Sub-band Operation (DSO)
- Multi-AP Coordination (MAPC)
- Inter-AP Coordination (Co-BF)
- Dynamic Bandwidth Expansion (DBE)

Higher Throughput & Range
- New UHR MCS rates (MCS17/19/20/23)
- Advanced LDPC codes (2x LDPC)
- Unequal Modulation (UEQM)
- Extended Long Range (ELR)
- RangeBoost Technology

Optimized Reliability & QoS
- Multi-Link Operation (MLO)
- Continuous CSI capture
- Zero Wait DFS

BCM6719 Block Diagram

BCM6719 Block Diagram: 4x4 5G Radio → 802.11a/b/g/n/ax/be/bn MAC/PHY; 4x4 2.4G Radio → 802.11a/b/g/n/ax/be/bn MAC/PHY; both connecting via AXI Backplane to PCIe 2L Gen3.

Optimized Dual Band Wi-Fi 8 Solution

Typical Wi-Fi 8 Ethernet Router Platform with AI Diagram

BCM6719 Specifications	
Parameter	Details
Wi-Fi Standards	IEEE 802.11bn (Wi-Fi 8) Release 1.0 compliant IEEE 802.11be (Wi-Fi 7) Release 1.0 compliant IEEE 802.11 a/b/g/n/ac/ax (Wi-Fi 6/6E)
Spatial Streams	Dual-Radio: 4x4 (2.4 GHz) + 4x4 (5 GHz). Total 8 streams
Spectral Bands	2.4 GHz, 5 GHz
Highest Modulation Rate	4K-QAM
Channel Bandwidths	20/40 MHz (2.4 GHz), 20/40/80/160 MHz (5 GHz)
Highest Modulation Rate	4096-QAM (for UHR/Wi-Fi 8 operation)
Multi-Link Operation (MLO)	Supported on all bands
OFDMA and MU-MIMO	Supported in both uplink and downlink direction
Wireless Security	WPA, WPA2, WPA3 (with 192-bit Suite B encryption), AES encryption/decryption, TKIP and IEEE 802.1X support
Operating Temperature	0°C to 70°C (commercial temperature)

Ordering Information	
Part Number	Description
BCM6719A0KEFBG	4x4 2.4 GHz + 4x4 5 GHz Wi-Fi 8 (802.11bn) Up to 40 MHz (2.4 GHz) and 160 MHz (5 GHz) bandwidth