

Global 5G Chipset Market Size Worth USD 300.88 Billion by 2032 | Forecast & CAGR 31.8%

Global 5G chipset market is projected to grow from USD 43.87 billion in 2025 to USD 300.88 billion by 2032, registering a CAGR of 31.8%.

CA, UNITED STATES, September 15, 2025 /EINPresswire.com/ -- The 5G market covers a



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broad family of semiconductor components that enable 5G connectivity: modems (baseband), RF front-end components (RFIC, power amplifiers, transceivers), mmWave transceivers/antenna modules, system-on-chips (SoCs) that integrate application cores with 5G modems, and specialist ASICs/FPGAs for base station and infrastructure use. The market is populated by large

vertical integrators (Qualcomm, MediaTek, Samsung) who supply smartphone OEMs, and by RF and infrastructure specialists (Qorvo, Broadcom, NXP, Skyworks) that supply both handset and network equipment vendors.

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Market sizing differs between research houses depending on what's included. For example, one widely-cited forecast projects growth from roughly USD 43.87 billion in 2025 to about USD 300.88 billion by 2032 (an aggressive scenario that includes broad semiconductor categories and high adoption assumptions), while other reputable forecasts estimate more conservative long-range totals (mid-hundreds of billions by the early 2030s) with CAGRs between ~17% and ~31% depending on definitions and time horizons. These variations reflect whether analysts count only handset modems and RFICs, or a larger set including infrastructure-grade chipsets, mmWave modules, ASICs and specialty chips for verticals.

Geographically, Asia-Pacific dominates current volumes—driven by China, India, South Korea, Japan and major handset manufacturers—while North America and Europe lead in high-margin, high-value infrastructure, private networks and advanced device segments. As 5G matures into 5G-Advanced and Release-18 features, demand for next-generation chipsets (supporting enhanced spectral efficiency, AI at the edge, and new frequency bands) will add to the market

tailwinds.

5G Chipset Market Outlook 2024-2030

- SoC Consolidation & Integration of Modems, APs, AI Accelerators

Chipset makers are increasingly integrating modems, application processors, AI accelerators and RF subsystems into single platforms to improve power efficiency, lower BOM cost and simplify OEM design. This SoC consolidation trend raises per-unit value (premium SoCs for flagship phones) while improving margins. Qualcomm's Snapdragon modem-RF systems and MediaTek's Dimensity line illustrate this integration push.

- 3GPP Release-18 (5G-Advanced) & New Use Cases (Sidelink, NTN)

3GPP Release-18 (the 5G-Advanced baseline) introduces features that require more capable silicon: enhanced spectral efficiency, advanced MIMO, AI/ML in the RAN, and support for new use cases (sidelink, NTN convergence). Chipmakers who align early to these standards can unlock device and infrastructure upgrades, increasing chipset demand for both handsets and network equipment.

- mmWave & Sub-6 GHz Bands (Higher Frequencies > Sub-6 GHz)

While sub-6 GHz will remain volume-dominant (cheaper, broader coverage), mmWave and above-39 GHz bands are growing in high-value applications—fixed wireless access (FWA), ultra-dense urban hotspots, and enterprise private networks. mmWave RFICs and antenna modules command higher ASPs and are thus a valuable growth area for RF specialists and integrated vendors.

- 5G Expansion Beyond Smartphones (CPE, IoT, AR/VR)

5G is expanding beyond smartphones into CPE for home/enterprise broadband, industrial IoT, connected vehicles and AR/VR headsets. These verticals often require customized chipsets (e.g., automotive grade, extended temperature ranges, deterministic latency), increasing the diversity and value of the overall chipset market.

- Advanced Process Nodes (5nm to 3nm) & Packaging (SiP, Antenna-in-Package)

Chipmakers are chasing advanced process nodes (5nm to sub-3nm) and architectural optimizations to reduce power per bit—critical for mobile devices and edge equipment. Investments in packaging (SiP, advanced antenna-in-package) are also accelerating. Leading foundries and IDMs' capacity decisions will therefore shape supply and pricing dynamics.

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5G Chipset Market Outlook 2024-2030

- SoC Consolidation & Integration of Modems, APs, AI Accelerators

Analyst disagreement around what is within the “[5G chipset market](#)” creates interpretation risk for investors and OEMs. Some forecasts include infrastructure and mmWave modules; others focus only on handset modems and RFICs—this complicates benchmarking and strategy.

- **Advanced nodes & production bottlenecks**

Advanced nodes required by leading SoCs are produced by a handful of foundries. Capacity shortages, geopolitically driven export controls, and wafer supply constraints can increase lead times and pricing pressure—especially for cutting-edge flagship chipsets. This risk is amplified when demand spikes coincide with production bottlenecks

- **Rollout speed & enterprise adoption**

Rollout speed varies by country depending on spectrum auctions, policy, and operator CAPEX. Delays in spectrum allocation (especially for mmWave) slow enterprise cases and FWA adoption, directly affecting chipset volumes.

- **Connectivity fragmentation**

Private networks, Wi-Fi 7, low-earth orbit (LEO) satellite connectivity and regional regulatory fragmentation raise the risk that some use cases will rely on alternative connectivity, reducing some market segments’ growth. Vendors must therefore support hybrid connectivity and interoperability.

- **Security & lifecycle management**

As chipsets handle more sensitive workloads (AI inference, edge compute), security vulnerabilities and lifecycle patching become vital. OEMs and chipset firms must deliver secure update paths and timely patches—failures erode trust and create regulatory exposure. Recent vendor security bulletins underline this ongoing requirement.

5G chipset market overview

Key players and trends

- **Qualcomm** – Market leader in high-end modem and RF systems for flagship devices. Qualcomm’s Snapdragon X-series and modem-RF platforms position it well for premium smartphone OEMs, FWA devices and certain enterprise applications. Their roadmap targeting 5G-Advanced readiness and RF-modem integration keeps them central to OEM design wins.

- **MediaTek** – Aggressively expanding share in mid-range and flagship segments via Dimensity SoCs that combine powerful application cores with integrated 5G modems. MediaTek’s strategy emphasizes aggressive price/performance and partnerships with high-volume OEMs, enabling strong growth in emerging markets. Recent Dimensity releases aim to add AI and LLM inference capabilities on-device, which further increases SoC value.

- **Samsung LSI** – Supplies Exynos SoCs and RF subsystems, and is a strategic supplier to

Samsung's device lines. Samsung's vertical integration across device and fab assets provides resilience; however, regional OEM choices (Exynos vs Snapdragon) remain critical for market share.

RF & infrastructure semiconductor players

- Qorvo, Broadcom, Skyworks, NXP, Infineon – These suppliers provide RF front-end modules, power amplifiers, filters and infrastructure semiconductors. As RF complexity rises (multi-band support, mmWave modules), RF suppliers with strong packaging and antenna-module capabilities stand to capture value.

Emerging & regional players

- UNISOC, HiSilicon (subject to sanction/regulatory constraints), Chinese fabless firms – These players capture regional volumes and niche verticals (e.g., low-cost smartphones, CPE). Their growth depends on access to advanced process nodes and IP (e.g., modem IP, licensed spectrum implementations).

OEM & operator influence

OEMs (Apple, Samsung, Xiaomi, Oppo, Vivo, Realme, etc.) and operators' network strategies (standalone vs non-standalone, private network pushes) drive chipset requirements. Operator CAPEX and preferred feature sets (e.g., carrier aggregation, mmWave support) influence which chipsets get design wins.

Strategic themes: integration (SoC+modem+RF), AI/ML on-chip, energy efficiency, vertical specialization (automotive/industrial), and partnerships with foundries and packaging houses.

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5G semiconductor market trends

- Qualcomm's Snapdragon X-series evolution — Qualcomm has been public about advancing its modem/RF systems toward 5G-Advanced readiness; new Snapdragon modem-RF platforms (X75 and successors) focus on spectrum flexibility, mmWave and support for fixed wireless access (FWA) use cases. These announcements help OEMs roadmap for flagship phones and CPE.

- MediaTek Dimensity upgrades & AI focus (2024–2025) — MediaTek continues to expand its Dimensity flagship family, adding AI acceleration and more power-efficient designs (Dimensity 9400+ announced in 2025). This strengthens MediaTek's competitiveness in flagship segments and raises ASPs for premium mid-range devices.

- Supply & report data shifts — Recent market research releases show variance in base values and CAGRs; some market trackers updated 2024/2025 base numbers (USD ~30–47B depending on scope) and published 2025-2030/2034 forecasts with differing growth assumptions—this reflects rapid market change plus methodological differences across firms.

- Operator & device launches — New handset launches across regions (e.g., Snapdragon-powered Galaxy variants, new MediaTek-powered models) continue to show OEMs' flexibility in choosing chip partners and the role of regional SKUs in driving chipset shipments. These product rollouts feed near-term volume and affect supplier revenue mix.

5G Chipset Market Segments by Component

Core Connectivity & RF Front-End

- Modem/Baseband (integrated & discrete): Core connectivity logic. High volumes due to smartphones and CPE; heavy R&D investment by integrated SoC vendors.
- RF front-end (RFIC, PA, filters, switches): Expected to hold the largest share by revenue in many market studies because of the proliferation of multi-band devices and costly mmWave modules. RF suppliers with advanced packaging capability win premium ASPs.
- mmWave modules & antenna systems: Smaller volume today but higher ASP and fastest value CAGR as mmWave use cases (FWA, hotspots) expand.
- ASICs / FPGAs for RAN or private networks: Smaller in unit volume but high value where industrial/private deployments or vendor-specific acceleration is needed.

System-on-Chip (SoC) & End-Use Applications

- Smartphones & tablets: Largest volume driver—both sub-6 and mmWave support—continues to dominate chipset unit shipments.
- Broadband access gateways (CPE/FWA): High-value market for integrated modem+RF designs, particularly where fixed wireless substitutes wired broadband.
- Connected vehicles & automotive: Growing demand for automotive-grade 5G modules (safety, telematics, OTA updates). Certification and longer lifecycle requirements change the chipset design and revenue model.
- Industrial IoT & private networks: Lower volume but specialized, often higher price and long lifecycle (private 5G equipment, enterprise gateways).
- Other (AR/VR, wearables, smart sensors): Emerging consumers of specialized low-latency, high-bandwidth chipsets.

5G Frequency Bands & Deployment Scenarios

- Sub-6 GHz: Volume leader—good coverage and lower infrastructure cost.
- Mid-band (e.g., 3.5 GHz): Workhorse for urban throughput.
- Above 24/39 GHz (mmWave): Premium value in dense/indoor/hotspot/FWA deployments; requires specialized RF front ends and antenna arrays.

Regional Market Outlook

- Asia-Pacific: Largest unit volumes and a significant share of value due to OEM concentration and rapid adoption.
- North America & Europe: High ASP devices, infrastructure upgrades and private 5G spending.
- India, SEA, LATAM, MEA: Fast growth potential as device penetration increases and operators expand networks—price sensitivity favors MediaTek and regional vendors in many segments.

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