

RESEARCH BULLETIN

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Top-10 IC Growth Categories Target Emerging Applications in 2021

Memory, auto-specific, and embedded MPUs expected to outpace total IC market growth this year.

IC Insights recently released its 2021 edition of *The McClean Report*. The new analysis and forecast of the IC industry includes IC Insights' ranking of IC categories based on sales growth rate. The listing projects the market growth rate for each of the 33 IC product categories defined by the World Semiconductor Trade Statistics (WSTS) organization. The top-10 fastest growing IC segments forecast for this year are shown in Figure 1.

Each of the top-10 growing IC product categories is expected to see a double-digit increase in sales, but only the top-five segments are forecast to grow faster than the total IC market, which IC Insights projects will rise 12% this year.

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Top-Growing IC Markets 2019-2021F (\$)

Rank	2019		2020		2021F	
1	Industrial/Other—Spcl Purp Logic	37%	Wireless Comm—Spcl Purp Logic	28%	DRAM	18%
2	Standard Cell	17%	Computer and Periph—Spcl Purp Logic	26%	NAND Flash	17%
3	Auto—Spcl Purp Logic	16%	Cellphone Application MPUs	24%	Auto—App-Specific Analog	16%
4	Embedded MPUs	9%	NAND Flash	24%	Auto—Spcl Purp Logic	16%
5	Display Drivers	8%	Wired Comm—Spcl Purp Analog	18%	Embedded MPUs	15%
6	PLDs	5%	Display Drivers	10%	Display Drivers	11%
7	—	-	Industrial/Other—Spcl Purp Logic	10%	Wired Comm—App-Specific Analog	11%
8	—	-	Wired Comm—Spcl Purp Logic	10%	32-bit MCU	10%
9	—	-	Automotive—Spcl Purp Logic	9%	Computer and Periph—Spcl Purp Logic	10%
10	—	-	—	-	Wireless Comm—Spcl Purp Logic	10%

Source: IC Insights

Rankings apply to IC product categories with more than \$100M in annual sales.

Figure 1

DRAM and NAND flash are expected to be the two fastest-growing product segments in 2021 with 18% and 17% sales growth, respectively. Laying claim as the fastest growing IC product segment is familiar territory for the DRAM market. DRAM was also ranked as the fastest-growing IC segment in 2013, 2014, 2017, and 2018. On the other hand, due to its extreme cyclicity, DRAM has also been among the poorest performing categories. Collapsing prices resulted in the DRAM market falling -37% in 2019, which ranked it last among the 33 IC product categories that year.

An increase in laptop, tablet, and server system sales boosted NAND revenue 24% in 2020 as the Covid-19 pandemic forced a transformation in the way consumers, schools, businesses, and governments communicated and carried on with their business. The transition to 5G technology within many of these same computing applications and smartphones is forecast to boost NAND revenue growth 17% in 2021.

Two automotive specific IC product categories Automotive—Application-Specific Analog and Automotive—Special Purpose Logic are forecast to be among the fastest growing segments in 2021. New car sales took a hit during Covid-plagued 2020, which adversely impacted automotive IC sales. But demand for automobiles picked up in early 2021, leading to shortages of many automotive IC products. Additional electronic systems/features, onboard connectivity, advances in autonomous driving, and the expansion of electronic vehicle sales around the world are expected to help raise the average semiconductor content per new vehicle to more than \$550 in 2021.

With smartphone growth slowing in recent years, many system-on-chip MPU suppliers such as Qualcomm, Samsung, and MediaTek, have turned more of their attention to 64-bit embedded processors that integrate security features and machine-learning AI acceleration along with graphics and video capabilities for automated vehicles, self-flying drones, and IoT applications. A number of system trends are driving embedded processor growth including increased automation in vehicles, industrial equipment, and home products. Internet connections are also becoming pervasive in systems. In a growing number of applications, embedded processors are handling machine-learning AI capabilities for autonomous operations without the need of intervention or control by humans.

The 32-bit MCU market has expanded rapidly because of increasing demands for higher levels of precision in embedded systems and the rush to connect sensors along with nearly everything else to the Internet of Things. Many new 32-bit MCU designs support wireless connections and Internet protocol (IP) communications. In automobiles, 32-bit MCU demand is being driven by “intelligent” onboard systems and increases in real-time sensor functions that are serving a growing number of automated safety features like electronic stability control (ESC) and crash-avoidance capabilities. Meanwhile, a growing wave of 32-bit microcontrollers are being used in a wide range of consumer and industrial equipment applications as IC suppliers introduce powerful MCU designs that cost nearly the same as 8-bit and 16-bit devices in consumer electronics and other high-volume systems.

Report Details: *The 2021 McClean Report*

The 2021 edition of *The McClean Report—A Complete Analysis and Forecast of the Integrated Circuit Industry* was released in January 2021. A subscription to *The McClean Report* includes **free** monthly updates from March through November (including a 180+ page *Mid-Year Update*), and **free** access to subscriber-only pre-recorded webcasts through November. An individual user license to the 2021 edition of *The McClean Report* is available for \$5,390 and a multi-user worldwide corporate license is available for

\$8,590. The Internet access password and the information accessible to download will be available through November 2021.

<https://www.icinsights.com/services/mcclean-report/pricing-order-forms/>

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About IC Insights

IC Insights, Inc., based in Scottsdale, Arizona USA, is dedicated to providing high-quality, cost-effective market research for the semiconductor industry. Founded in 1997, IC Insights offers coverage of global economic trends, the semiconductor market forecast, capital spending and fab capacity trends, product market details, and technology trends, as well as complete IC company profiles and evaluations of end-use applications driving demand for ICs.

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