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Global Serial M.2 Card Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Serial M.2 Card market size is expected to reach $ 131 million by 2032, rising at a market growth of 5.2% CAGR during the forecast period (2026-2032).

In 2025, the global annual shipment volume of Serial M.2 Cards is projected to be approximately 1.24 million units. Industrial computing, embedded systems, and network security equipment are the main sources of demand, with the Asia-Pacific market accounting for over 45%. The average price of these products, depending on the number of channels, interface type, and industrial grade, ranges from $65 to $80 per unit. Models supporting multiple serial ports (RS-232/422/485), isolated designs, or wide temperature specifications can reach up to $140 per unit. In terms of device usage, a single industrial computer or network device typically uses one Serial M.2 Card for connecting legacy serial devices; in scenarios involving multiple devices, redundant communication, or protocol isolation (such as rail transit, energy, and avionics ground systems), configuring 2-3 cards is also common. These products are inexpensive but indispensable functional expansion modules in a system; their value lies not in computing power, but in their ability to 'extend the lifespan' of traditional industrial communication ecosystems. A Serial M.2 Card is a serial communication expansion module based on the M.2 Key B/Key M interface, primarily used in compact industrial motherboards, embedded computers, or specialized equipment to provide standard serial communication capabilities such as RS-232, RS-422, and RS-485. Its core function is not data processing, but rather acting as a protocol bridging node between the I/O expansion layer and industrial field devices. Compared to traditional PCIe/PCI serial cards, Serial M.2 Cards emphasize miniaturization, low power consumption, and platform compatibility, making them suitable for modern industrial computing architectures that lack standard expansion slots but still require extensive serial communication. As x86 and ARM industrial platforms continue to evolve towards high

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integration and slotless designs, M.2 has gradually become the mainstream physical form factor for serial I/O expansion.

Supply Chain Overview

The upstream supply chain for Serial M.2 Cards primarily includes: multi-port serial control chips (UART/PCIe-to-Serial Bridge), isolation and level shifting chips, crystal oscillators and clock devices, ESD/surge protection devices, high-speed connectors, and industrial-grade PCB materials. The serial control chips and isolation/protection circuits have a decisive impact on communication stability, anti-interference capabilities, and long-term operational reliability. The cost of these components and their related design typically accounts for 55%–65% of the total BOM (Bill of Materials) for the card. Typical upstream suppliers include: Texas Instruments, MaxLinear, NXP Semiconductors, Analog Devices, and Wurth Elektronik.

Manufacturer Characteristics

DFI: Focusing on its industrial motherboard platform, DFI continuously optimizes the BIOS compatibility and long-term supply capabilities of its M.2 serial modules in embedded systems, emphasizing platform-level stability. ASUS: ASUS integrates Serial M.2 Cards as part of its industrial and commercial embedded solutions, focusing on compatibility with its compact motherboards and edge computing devices. Innodisk: Innodisk strengthens wide temperature range, vibration resistance, and long-life cycle support in its collaborative design of industrial-grade storage and I/O expansion, serving rail transportation and energy customers. Delock: Delock has a significant advantage in covering multiple interfaces and specifications, meeting the rapid selection needs of system integrators. ACCES I/O: ACCES I/O emphasizes serial port isolation, surge protection, and industrial protocol stability, serving automation and defense-related applications for the long term.

Breakthrough Point

For Serial M.2 Card manufacturers, the true breakthrough direction is not simply increasing the number of serial ports, but rather redefining the engineering value of serial port expansion in the context of 'highly integrated computing platforms.' As industrial computing platforms increasingly move towards SoC (System-on-a-Chip) and slotless designs, the physical space and power consumption advantages of traditional PCIe/PCI serial cards are disappearing, while the serial devices themselves (PLCs, sensors, instruments, controllers) have not been phased out. Using Innodisk's platform

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strategy as a reference, they have not attempted to 'replace serial communication,' but rather, through the M.2 form factor, industrial-grade protection, and long supply cycles, they enable the continued existence of serial port capabilities with minimal system modification costs. This logic dictates that the competitive advantage of Serial M.2 Cards lies not in performance parameters, but in compatibility assurance, long-term supply commitments, and engineering stability. In the eyes of many industrial customers, 'being usable for 10 years without problems and without requiring software changes' is far more important than 'being faster.'

Applications

Serial M.2 Cards are primarily used in industrial automation equipment, rail transit control systems, energy and power monitoring equipment, network security and communication gateways, avionics, and defense ground systems, connecting PLCs, instruments, card readers, older controllers, and serial sensor devices. Typical downstream customers include: Siemens, Schneider Electric, Rockwell Automation, ABB, and Honeywell.

Technological Trends

From a technological evolution perspective, Serial M.2 Cards are evolving from 'simple serial port expansion modules' to 'platform-level I/O compatible components.' Taking DFI as an example, in its new generation of industrial motherboard designs, the M.2 serial port expansion is deeply integrated with the BIOS, drivers, and system verification processes, making it part of the motherboard ecosystem rather than an independent accessory. This trend has not weakened the demand for serial ports themselves, but rather changed their mode of existence: in new systems, serial ports no longer exist through large expansion cards, but are embedded in the platform design in a highly modular and customizable way. The future value of Serial M.2 Cards will be reflected more in system consistency and lifecycle management capabilities.

Case Study

In a rail transit signal and monitoring system upgrade project, DFI provided a Serial M.2 Card solution based on its industrial motherboard platform to the system integrator. Without replacing existing serial communication equipment and software protocols, the solution achieved a reduction in control cabinet size and system power consumption. The final solution used DFI's M.2 serial port module, significantly reducing motherboard size and wiring complexity while maintaining the original RS-485 network structure and

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meeting long-term supply and rail transit certification requirements, demonstrating the practical engineering value of this type of product in upgrading existing systems.

Market Influencing Factors

The core influencing factor in the Serial M.2 Card market is not the short-term fluctuations in industrial automation investment, but rather the structural characteristic of the industrial communication system's 'long-term non-obsolescence.' On the one hand, industrial computing platforms are continuously evolving towards higher integration and miniaturization, which objectively reduces the market space for traditional expansion cards; on the other hand, a large number of existing industrial equipment, control systems, and communication protocols still heavily rely on serial ports. This contradiction of 'new platforms + old interfaces' has persisted for a long time, forming a stable demand base for Serial M.2 Cards. It is worth noting that this market exhibits a clear concentration of Taiwanese manufacturers. Taiwanese companies represented by DFI, Innodisk, IEI, ASUS, and Cervoz have long been deeply involved in the industrial motherboard and embedded computing fields, possessing platform-level design capabilities, long-life cycle management experience, and global industrial customer channels, giving them a natural advantage in this 'non-core but critical' niche product segment. Compared to European and American manufacturers, who tend to focus on modular or project-based supply, Taiwanese manufacturers emphasize ecosystem consistency and continuous supply, which allows them to dominate markets sensitive to product life cycles, such as rail transportation, energy, and defense. This market does not have the logic of explosive growth, but it has a highly predictable demand curve and stable cash flow. The essence of the competition is a competition of engineering certainty and long-term reliability.

This report studies the global Serial M.2 Card production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Serial M.2 Card and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Serial M.2 Card that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Serial M.2 Card total production and demand, 2021-2032, (K Units)
Global Serial M.2 Card total production value, 2021-2032, (USD Million)

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Global Serial M.2 Card production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (K Units), (based on production site)
Global Serial M.2 Card consumption by region & country, CAGR, 2021-2032 & (K Units)
U.S. VS China: Serial M.2 Card domestic production, consumption, key domestic manufacturers and share
Global Serial M.2 Card production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (K Units)
Global Serial M.2 Card production by Type, production, value, CAGR, 2021-2032, (USD Million) & (K Units)
Global Serial M.2 Card production by Application, production, value, CAGR, 2021-2032, (USD Million) & (K Units)

This report profiles key players in the global Serial M.2 Card market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include DFI (Public, Taipei, China Taiwan), ASUS (Public, Taipei, China Taiwan), ACCES I/O (Private, San Diego, USA), Delock (Private, Berlin, Germany), Innodisk (Public, Taipei, China Taiwan), Brainboxes (Private, Liverpool, UK), StarTech (Private, Ontario, Canada), SYBA (Private, Chino, USA), Di-ARTs Technology (Private, Taipei, China Taiwan), Cervoz Technology (Private, Taipei, China Taiwan), etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Serial M.2 Card market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (K Units) and average price (US$/Unit) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Serial M.2 Card Market, By Region:

United States

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China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Serial M.2 Card Market, Segmentation by Type:

Single-Lane

2 Port

4 Port

Global Serial M.2 Card Market, Segmentation by Size:

2230

2242

2260

2280

Others

Global Serial M.2 Card Market, Segmentation by Interface Type:

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B Key

M Key

Global Serial M.2 Card Market, Segmentation by Application:

Industrial Automation Equipment

Rail Transit

Energy and Power

Cybersecurity and Communications

Others

Companies Profiled:

DFI (Public, Taipei, China Taiwan)

ASUS (Public, Taipei, China Taiwan)

ACCES I/O (Private, San Diego, USA)

Delock (Private, Berlin, Germany)

Innodisk (Public, Taipei, China Taiwan)

Brainboxes (Private, Liverpool, UK)

StarTech (Private, Ontario, Canada)

SYBA (Private, Chino, USA)

Di-ARTs Technology (Private, Taipei, China Taiwan)

Cervoz Technology (Private, Taipei, China Taiwan)

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Serial Cables (Private, Englewood, USA)

Shentek (Private, Taipei, China Taiwan)

Hilscher (Privat, Hattersheim, Germany)

T-Chip (Private, Zhongshan, China)

LEKUO (Privat, Shenzhen, China)

KALEA-INFORMATIQUE (Private, Provence, France)

EXSYS Vertriebs GmbH (Private, Steinbach, Germany)

DANBIT (Private, Koge, Denmark)

VersaLogic (Private, Tualatin, USA)

TKH (Public, Amsterdam, Netherlands)

IEI (Public, Taipei, China Taiwan)

Key Questions Answered:

1. How big is the global Serial M.2 Card market?
2. What is the demand of the global Serial M.2 Card market?
3. What is the year over year growth of the global Serial M.2 Card market?
4. What is the production and production value of the global Serial M.2 Card market?
5. Who are the key producers in the global Serial M.2 Card market?
6. What are the growth factors driving the market demand?

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