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Rugged Handheld Devices Market By Type, Growth, Trend and Overview - 2032 | MRFR

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Description:

Rugged Handheld Electronic Devices Market Overview

The Rugged Handheld Electronic Devices Market was valued at USD 1.486 billion in 2022 . The Rugged Handheld Electronic Devices Market Industry is projected to grow at USD 2.675 billion by 2032, exhibiting a compound annual growth rate (CAGR) of 6.7% during the forecast period (2024 - 2032).

Rugged handheld electronic devices are the devices which are designed under standard test such as MIL-STD, and Ingress Protection Scale, which includes drop and shock testing, liquid-resistance testing, vibration testing, sand & dust testing, humidity and temperature tests. The devices are made to withstand harsh environment such as extreme temperatures, strong vibrations, and wet or dusty conditions. There are different types of rugged handheld devices that are available including mobile computers, smartphones, scanners and others. These abilities of rugged handheld devices allow them to maintain the communication and connectivity during the unpredicted conditions.

Based on region, the global Rugged handheld electronic devices market is segmented into North America, Europe, Asia-Pacific, Middle East & Africa, and South America.

Covid-19 Analysis

COVID-19 had an influence on different industries around the world, resulting in travel prohibitions, global lockdown, and a delay in various enterprises' supply chains. Due to the uncertain location of digital gadgets, the semiconductor industry has also been severely impacted by the continuing unprecedented occurrence, with a dramatic drop in revenues. Despite the increasing uncertainty, semiconductor manufacturers, particularly chipmakers, are attempting to maintain operations and develop a long-term strategy. With persistent commercial stability, many semiconductor manufacturers collaborate with their partners and specific markets. For example, semiconductor makers make ongoing efforts for research, designs, and production methods while focusing on the health and safety of their personnel. The semiconductor industry has felt the need to continue operations for their end users, including medical and healthcare technologies such as artificial intelligence, Industry 4.0, and 5G, which are working to combat the COVID-19 pandemic. The semiconductor components being a major part of smart device manufacturing, the pandemic restrictions slowed down the adoption rate of the solutions.

Rugged Handheld Electronic Devices Market Dynamics

Rugged devices are used anywhere. Due to their constant exposure to several outdoor conditions, they are designed to be immune to shocks and drops. One of the key factors that widened the gap between rugged and consumer devices is their purchase price. Due to their unique design and protective features, rugged devices often cost more than their consumer counterparts, but the return on investment quickly pays off. Ruggedized devices have proven to be the real winner as they are reliable and durable. In addition, ruggedized handheld devices are used almost everywhere, by warehouse workers, healthcare professionals, delivery personnel, emergency responders, and most frontline workers

Rugged Handheld Electronic Devices Market Drivers

Digital Transformation

Digital transformation is the integration of digital technology into all areas of a business. As more and more industries take on digital transformation, the use of rugged handheld devices for various industrial end-users is increasing. Truck trailers guided by lasers sidle up to docks, where they are loaded and unloaded by a team of robots. Factories and various other manufacturing units are increasing the adoption of digital technologies such as automation which requires interaction with smart devices; such interactions require rugged handheld devices to withstand harsh environments such as extreme temperatures, water, and dust. The use of devices such as Radio-frequency Identification (RFID) scanners is abundant in the retail industry. The digital transformation in retail, led by Amazon Go and Skip stores would increase the adoption of rugged handheld devices in the forecast period. The average global supply chain digitization rate stands at 43%, where rugged handheld devices have played a major role. Using an industry-grade Toughbook laptop, tablet, or handheld device has allowed workers to run full-sized end-users from virtually anywhere over 4G or Wi-Fi networks. This keeps logistics companies connected to their drivers regardless of the chosen routes, with features to reduce fuel costs and delivery errors; track and report cargo status; and log driver time to ensure optimum resource utilization. The agricultural industry is also undergoing digital transformation. Soil sampling devices are being used for recording huge volumes of sampling data in the field including nutrient profiles, fertilizer data, soil type, cropping history, topography, and irrigation. Agricultural Geographic Information Systems (GIS) are also being used to map crop and soil profiles, climate analysis, crop stress, and crop health. These developments in digital transformation across industries are driving the rugged handheld devices market.

Growth of Industry 4.0 and IoT devices

Currently, there are over 11.2 billion IoT devices present in the world with 10 billion traditional devices such as

smartphones and tablets. Android is the software of choice for rugged devices as its base is open source and developing specialized apps is easier. In the industrial space, the adoption of rugged handheld devices will facilitate communication between various machines and humans, effectively acting as a human-machine interface. For example, the DT301X-TR rugged tablet is a lightweight military-grade tablet that enhances the precision for bridge and construction inspections, 3D surveying, and mapping of underground utilities. It helps in complimenting and enhancing traditional measurement techniques.

Industry 4.0 relies on IoT, data, and devices to create a modern manufacturing unit. The growth of industry 4.0 is dependent upon rugged handheld devices with features such as damage-resistant screens, industrial strength frames, and shock- and vibration-resistant solid-state drives (SSDs), which can be used on the factory floor and field in extreme conditions. Water and dust-resistant rugged tablets with serial, LAN, 2D barcode reader, and near field communication (NFC) technologies can help boost this growth and increase the demand for rugged handheld devices.

Government Regulations

Military operations involve communication channels that are owned by the government. To manufacture devices that use these communication channels, government approval and contracts are mandatory. Devices need to meet certain standards of ruggedness to be certified as rugged devices. The US Department of Defense uses Test Method Standard for Environmental Engineering Considerations and Laboratory Tests to determine the ruggedness of handheld devices through two important methods: MIL-STD-810G and Ingress Protection (IP) rating system. These ratings and standards provide independent and objective criteria to grade specific characteristics of a rugged computer. MIL-STD-810G testing ensures that rugged devices can withstand drops, vibrations, crashes, extreme temperatures, differing altitudes, and natural elements such as wind, rain, sand, humidity, and dust. An IP65 rating determines how protected the device is against dust contact and ingress. It will also enable the device to withstand the impact of low-pressure water jets projected by a nozzle (6.3 mm) from any direction for at least 15 minutes. These certifications and standards are needed to be complied with for efficient operations in extreme conditions

RESTRAINTS

- **Inferior Performance and High Cost Compared to Consumer Electronics**

The hardware offered on rugged devices is often inferior compared to consumer models, which impacts performance. The discrepancy in price to performance makes rugged handheld devices unreliable for high-intensity tasks in military end-users such as mission-critical data transfer and specialized hardware performance such as scanners and lasers. The initial cost of rugged handheld devices is also a lot higher, i.e., two or three times higher than its contemporary counterpart. Such price differences are often a barrier for small businesses in the process of adopting rugged handheld devices for their operations. For example, a Samsung Galaxy S8 Active with all modern features and specifications and MIL-STD-810G compliance, costs USD 644, whereas a Honeywell Dolphin CT40 Mobile Computer, which has limited specifications and a basic RFID scanner, starts at USD 1,139 for the base model. Rugged handheld device manufacturers can overcome this problem by collaborating with the commercial handheld device manufacturers to learn methods of production cost reduction from them, or by improving their own production lines and supply chain to make their products more affordable.

Rugged Handheld Electronic Devices Market Opportunity

- **Technological Advancement in Healthcare and Defense Sectors**

The use of technology in healthcare is not a new concept. However, the use of rugged handheld devices is increasing for patient tracking, security records, laboratory, and asset tracking. Doctors can keep a personal record of each of their patients and their prescriptions and transfer the same to their patients digitally without involving any paperwork. These devices act as a bedside care interface between healthcare services and the patient. They are also used in pharmacy inventory management as they are faster to use and more mobile than traditional computers. With advances in healthcare technology, various opportunities for growth are present in this sector.

Rugged Handheld Electronic Devices Market Segmentation

The global Rugged handheld electronic devices market has been segmented based on product type, end-user, and region

By product type, the global Rugged handheld electronic devices market has been segmented into Smartphones and Tablets, Mobile Computers, Reader/Scanner and Others.

By end-user, the Rugged handheld electronic devices market has been divided Manufacturing industries, Retail, Transportation and Logistics, Military & Defense, Government, and Others

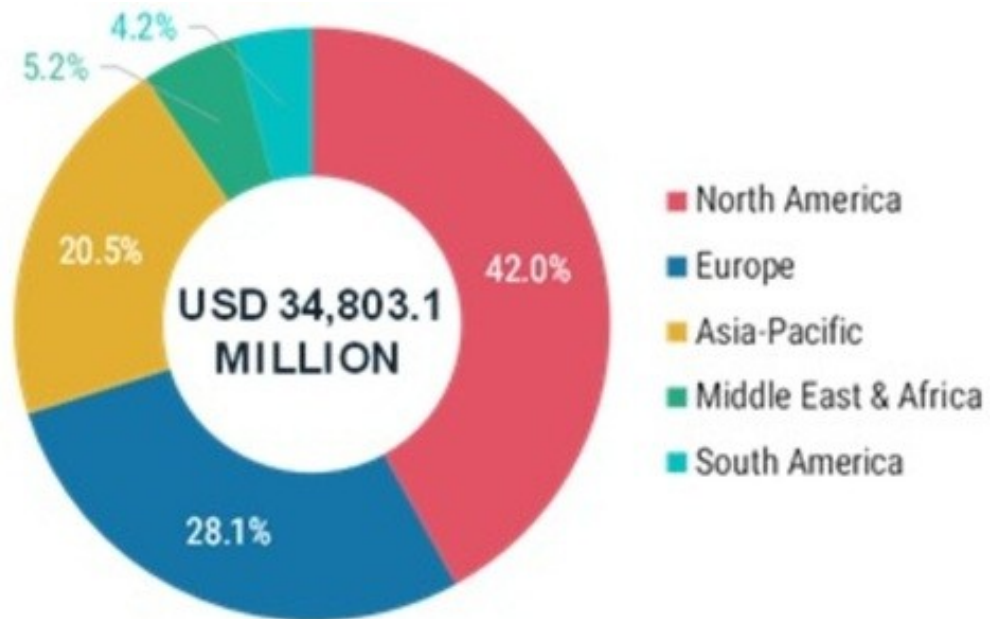
Rugged Handheld Electronic Devices Market Regional Analysis

Geographically, the global Rugged Handheld Electronic Devices Market has been segmented into North America, Europe, the Middle East & Africa, and South America.

North America accounts for the largest market for rugged handheld electronic devices globally, due to the presence of various key players in the region including Honeywell International Inc., Zebra Technologies Corporation, and Juniper Systems, Inc. The early adoption of the technology in the region has played a vital role in the growth of the market. In the US, the increasing development of technology and infrastructure in the American industrial space is increasing the requirement for rugged handheld devices, owing to their capability to enable superior communication among devices. The US government is using rugged handheld devices such as scanners, PDAs, mobile computers, and smartphones for health services, communication during an emergency, inventory management, and other applications. Additionally, these devices are used also used during mission-critical situations. These devices can remotely communicate with several devices without any interruption even in harsh and critical environments. Similarly, the increasing demand for IoT-based rugged handheld devices in the country is boosting the growth of the market. In Canada, technological advancement in Canada is playing a vital role in the growth of the GDP of the country. Additionally, the presence of various manufacturers such as automotive, electrical, mining, oil & gas, and others are contributing to the market growth of rugged handheld devices, as these devices collect the data and communicate with the machines in real-time; they also increase connectivity during extreme conditions such as disasters and fire. Moreover, the rugged nature of these handheld devices also prevents them from water, dust, extreme heat, and vibration conditions, enabling the adoption of these devices in the market. These devices are also used by law enforcement officials in the country. In Mexico, some of the major industries that play an essential role in

the growth of the Mexican economy are the automotive industry, electronics, oil, energy, and banking industries. Currently, Android-based rugged devices are used in industries to enhance the communication network between machines and enable the processing and transmission of data in real time, allowing the user to take prompt actions before and during an emergency. The rugged handheld devices are used in retail stores and warehouses to track and maintain inventory, allowing to keep proper track of the same

GLOBAL: RUGGED HANDHELD ELECTRONIC DEVICES MARKET, BY REGION, 2021 (% SHARE)



Source: Industry Expert, Secondary Research, and MRFR Analysis

Rugged Handheld Electronic Devices Market Competitive Landscape

The rugged handheld electronic devices market is characterized by the presence of many global, regional, and local players. The market is competitive, with all the players competing to gain maximum market share. Digital transformation, growth of Industry 4.0 And IoT devices, and government regulations are key factors that drive the market growth. Inferior Performance and High Cost Compared to Consumer Electronics restraints the growth of the rugged handheld electronic devices market. However, technological advancement in the healthcare and defense sectors will create opportunities for the Rugged Handheld Electronic Devices Market growth.

According to MRFR analysis, the growth of the rugged handheld electronic devices market is dependent on market conditions. The key vendors in the market are Handheld Group, Panasonic Corporation, Datalogic SPA, Zebra Technologies, Honeywell International Inc., Advantech Co., Ltd, Getac Technology Corp., Juniper System Inc., TouchStar PLC, CHIPERLABS CO., ACEECA, Adlink Technology Inc., Artesyn Embedded Technologies (Advanced Energy Industries, Ltd), Samsung Electronics, and Aaeon Technology Inc.

These companies are focusing on enhancing their products with the integration of improved technologies. Moreover, these companies are prominent providers of rugged handheld electronic devices and compete in the rugged handheld electronic devices market to increase their geographic presence, expand their customer base, and form strategic partnerships.

The top 5 players in Rugged Handheld Electronic Devices Industry are Panasonic Corporation, Honeywell International Inc., Zebra Technologies, Getac Technology Corporation, and Advantech Co. Ltd.

Recent Developments

- Dec 2021, Handheld Group upgraded its software system for its Nautiz X2 Rugged Android Handheld device to Android 11. The product is specially designed for logistics warehousing and supply chain applications. The device has an 8-core processor with 4 GB RAM and 64 GB storage.
- It offers a slim and compact design while delivering the latest 2D bar code imaging technology for high-performance scanning.
- Jan 2018, Datalogic SpA launched the Gryphon 4500 series of wireless scanners, a premium level of 2D handheld readers for general purpose applications that offers both wireless communications and new wireless battery charging models.
- March 2018, Zebra Technologies launched TC20, a mobile computer in India. TC20 is a lightweight, durable and long-lasting mobile device developed for indoor use by retail and hospitality.
- Feb 2018, Zebra Technologies launched TC25—a new rugged smartphone specifically designed for small- and medium-sized businesses (SMBs). The TC25 empowers field mobility workers to scan barcodes on parts, manage routes, and complete invoices on the spot.
- July 2021, Honeywell International Inc. launched a line of rugged mobile computer series for retail workers in the e-commerce industry. The company launched CT45 and CT45XP mobile computers for the retail supply chain, including logistics, warehousing, in-store retail, and last-mile delivery.

- Aug 2021, Advantech Co., Ltd launched the AMiS-22 Telehealth suitcase for mobile healthcare. The new handheld system is ideal for emergency response applications and remote or extreme environments, such as oil rigs, mining fields, marine hospitals, and mobile/pop-up clinics with limited space.
- June 2022, Getec Technology Corp launched its getec F110 rugged tablet for use in robotic maintenance in the chemical industry.
- March 2021, Getec Technology Corp launched the next-gen of the K120 fully rugged tablet series with superior performance for optimal productivity. The new tablet is specifically tailored to the need for public safety, manufacturing, utilities, defense, transportation, natural resources, and oil & gas application.
- Sep 2018, Getac Technology Corp. launched a fully rugged, high-performance tablet that offers multi-mode usage via a detachable keyboard dock. The K120 can be used as a tablet or attached with a keyboard dock allowing it to be used as a full-function laptop.
- May 2022, Juniper Systems Inc. has launched Android 11 update for its MESA 3 series rugged tablets. The update will have performance enhancement and additional security features.

Report Overview

This study estimates revenue growth at global, regional, and country levels and offers an overview of the latest developments in each of the sub-sectors from 2018 to 2030. For this analysis, MRFR segmented the global Rugged Handheld Electronic Devices Market has been segmented based on product type, end-user, and industry vertical.

By Product type

- Smartphones and Tablets
- Mobile Computers
- Reader/Scanner
- Others

By End-user

- Manufacturing Industries
- Retail
- Transportation and Logistics
- Military & Defense
- Government
- Others

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LIST OF ABBREVIATION

Abbreviation	Full Form
US	United States
UK	United Kingdom

ME&A Middle East & Africa
RoW Rest of the World
CAGR Compound Annual Growth Rate

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