Middle East & Africa Superconductor Market Forecast to 2028 - COVID-19 Impact and Regional Analysis - by Type (Low-Temperature Superconductors and High-Temperature Superconductors) and Application (Medical, Electronics, Defense & Military, and Others)

Market Report | 2022-09-20 | 123 pages | The Insight Partners

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Report description:

The superconductor market in Middle East & Africa is expected to grow from US$ 258.23 million in 2022 to US$344.51 million by 2028. It is estimated to grow at a CAGR of 4.9% from 2022 to 2028.

Superconducting processors may become an essential component of the next generation of supercomputers. They could, for starters, assist in overcoming the major issue of scaling up quantum computers. Second, they might significantly improve the performance of classic supercomputers while drastically reducing their power usage. A multidisciplinary research initiative will address one of the primary obstacles of this approach, data transport to and from low temperatures required for superconductivity. A quantum computer's processing power is based on superconducting qubits that operate at extremely low temperatures. At room temperature, qubits are commonly operated by conventional electronics connected by electrical lines. When the number of qubits reaches the needed level of hundreds of thousands, the number of control cables becomes incapable of scaling up to match the number of qubits without causing an unacceptable heat load, thereby jeopardizing the quantum processor's low temperature.

One solution is to control the quantum processor with a nearby classical processor. The single flux quantum (SFQ) technology, which follows classical computer logic but employs superconducting technology instead of semiconductors, is the most promising answer. Due to its low-temperature requirements, SFQ has only been employed in a few classical computers. This disadvantage becomes a benefit when utilized in conjunction with superconducting quantum computers. Additionally, the extremely high-power consumption of CPUs and GPUs due to energy dissipation in silicon chips is a major restriction of supercomputers. In GPUs,

replacing silicon chips with superconducting SFQ chips could significantly influence both performance and power consumption. Thus, the increase in superconducting chips to scale up quantum computers and supercomputers is driving the superconductors market.

With new features and technologies, vendors can attract new customers and expand their footprints in emerging markets. This factor is likely to drive the Middle East & Africa superconductor market at a substantial CAGR during the forecast period.

iddle East & Africa Superconductor Market Revenue and Forecast to 2028 (US$ Million)

Middle East & Africa Superconductor Market Segmentation

The Middle East & Africa superconductor market is segmented on the basis of type, application, and country. Based on type, the market is segmented into low-temperature superconductors and high-temperature superconductors. In 2022, the low-temperature superconductors segment held a larger market share. On the other hand, the high temperature superconductors are expected to register a higher CAGR during the forecast period.

Based on application, the market is segmented into medical, electronics, defense and military, and others. The medical segment held the largest market share in 2022 and is also expected to register the highest CAGR in the market during the forecast period.

Based on country, the market is segmented into South Africa, Saudi Arabia, the UAE, and the Rest of the MEA. In 2022, the UAE held a larger market share. On the other side, and Saudi Arabia is expected to register a higher CAGR during the forecast period.

American Superconductor; Bruker; FURUKAWA ELECTRIC CO., LTD.; Hitachi, Ltd.; Sumitomo Electric Industries, Ltd.; FUJI ELECTRIC CO., LTD.; Toshiba Corporation; and Cryomagnetics are among the leading companies in the Middle East & Africa superconductor market.

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