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Global Chip Irradiation Processing Market 2026 by Company, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Chip Irradiation Processing market size was valued at US$ 293 million in 2025 and is forecast to a readjusted size of US$ 557 million by 2032 with a CAGR of 8.5% during review period.

Chip irradiation processing refers to the industrial or R&D processing of semiconductor chips using high-energy electron beams (E-beams). The research targets include power semiconductor devices (such as IGBTs, MOSFETs, SiC, GaN), logic/analog chips, mixed-signal chips, and other specialty chips. Industrial processing primarily uses electron beams for crystal defect control, performance optimization, reliability enhancement, and material modification. This can include single-sided or double-sided irradiation, with electron beam energies typically ranging from 2.5 to 10 MeV, adaptable to devices with varying package thicknesses and power ratings. In R&D or reliability testing scenarios, X-rays or gamma rays can be used for chip irradiation and radiation hardening experiments, but the industrial processing market remains centered on electron beams. Chip irradiation processing is widely used in automotive electronics, industrial electronics, aerospace and defense, consumer electronics, and semiconductor R&D and testing laboratories, aiming to improve device switching performance, thermoelectric characteristics, and reliability. The global gross margin for chip irradiation processing is projected to be approximately 36%-66.51% in 2025.

The global chip irradiation processing market continues to expand due to growing demand from new energy vehicles, industrial automation, power electronic inverters, and high-power modules in aerospace. Industrial processing services are primarily E-beam, while X-ray and gamma-ray processing are mainly used for R&D and reliability testing.

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Power semiconductors are at the heart of the market, with logic/analog chips and mixed-signal chips primarily used for R&D and small-batch, high-value projects. Core, officially listed companies dominate the market, while smaller companies supplement regional demand.

Technologically, single-sided/double-sided processes and adjustable electron beam energy (2.5–10 MeV) meet the needs of devices with different package thicknesses and power levels. Rising demand for high-end customized processing is driving further specialization and refinement in the market.

Market growth is driven by downstream demand but constrained by high equipment investment, limited capacity, and stringent quality control. Policy support, new product launches, capacity expansion investments, and regional supply chain relocation have a positive impact on market growth.

This report is a detailed and comprehensive analysis for global Chip Irradiation Processing market. Both quantitative and qualitative analyses are presented by company, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Chip Irradiation Processing market size and forecasts, in consumption value ($ Million), 2021-2032

Global Chip Irradiation Processing market size and forecasts by region and country, in consumption value ($ Million), 2021-2032

Global Chip Irradiation Processing market size and forecasts, by Type and by Application, in consumption value ($ Million), 2021-2032

Global Chip Irradiation Processing market shares of main players, in revenue ($ Million), 2021-2026

The Primary Objectives in This Report Are:

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To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Chip Irradiation Processing

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Chip Irradiation Processing market based on the following parameters - company overview, revenue, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Sterigenics?Nordion?, E-BEAM Services, BGS Beta-Gamma-Service, NHV Corporation, EB Tech Co., Ltd., ANSTO, BBF Sterilisationsservice GmbH, VPT Components, Steris, CGN Nuclear Technology Development Co., Ltd., etc.

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

Market segmentation

Chip Irradiation Processing market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for Consumption Value by Type and by Application. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

0?~?2?MeV Electron Beam

2?~?5?MeV Electron Beam

5?~?10?MeV Electron Beam

>10?MeV Electron Beam

Market segment by Device Type

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Power Semiconductor (IGBT, MOSFET, SiC, GaN)

Logic / Analog ICs

Mixed-signal IC

Other

Market segment by Irradiation Method

Single-side Irradiation

Double-side Irradiation

Market segment by Application

Automotive Electronics

Industrial Electronics

Aerospace & Defense

Consumer Electronics

Semiconductor R&D / Testing Labs

Other

Market segment by players, this report covers

Sterigenics?Nordion?

E-BEAM Services

BGS Beta-Gamma-Service

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NHV Corporation

EB Tech Co., Ltd.

ANSTO

BBF Sterilisationsservice GmbH

VPT Components

Steris

CGN Nuclear Technology Development Co., Ltd.

Zhongjin Irradiation Incorporated Company

CNNC

Shandong Lanfu High Energy Physics Technology Corporation Ltd.

Henan Tongwei Xinda Electron Beam Technology Co., Ltd.

Fangyuan Group

zsfzjs

Wuxi EL Pont Group

Shanghai Shuneng Irradiation Technology Co., Ltd.

Market segment by regions, regional analysis covers

North America (United States, Canada and Mexico)

Europe (Germany, France, UK, Russia, Italy and Rest of Europe)

Asia-Pacific (China, Japan, South Korea, India, Southeast Asia and Rest of Asia-Pacific)

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South America (Brazil, Rest of South America)

Middle East & Africa (Turkey, Saudi Arabia, UAE, Rest of Middle East & Africa)

The content of the study subjects, includes a total of 13 chapters:

Chapter 1, to describe Chip Irradiation Processing product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top players of Chip Irradiation Processing, with revenue, gross margin, and global market share of Chip Irradiation Processing from 2021 to 2026.

Chapter 3, the Chip Irradiation Processing competitive situation, revenue, and global market share of top players are analyzed emphatically by landscape contrast.

Chapter 4 and 5, to segment the market size by Type and by Application, with consumption value and growth rate by Type, by Application, from 2021 to 2032.

Chapter 6, 7, 8, 9, and 10, to break the market size data at the country level, with revenue and market share for key countries in the world, from 2021 to 2026.and Chip Irradiation Processing market forecast, by regions, by Type and by Application, with consumption value, from 2027 to 2032.

Chapter 11, market dynamics, drivers, restraints, trends, Porters Five Forces analysis.

Chapter 12, the key raw materials and key suppliers, and industry chain of Chip Irradiation Processing.

Chapter 13, to describe Chip Irradiation Processing research findings and conclusion.

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Contents

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2 COMPANY PROFILES

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List Of Tables

LIST OF TABLES

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List Of Figures

LIST OF FIGURES

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