

**PRODUCTION FORECASTS FOR THE
GLOBAL ELECTRONICS AND
INFORMATION TECHNOLOGY INDUSTRIES**

December 15, 2022

JEITA

JAPAN ELECTRONICS AND INFORMATION TECHNOLOGY INDUSTRIES ASSOCIATION

FOREWORD

In 2022, some normality resumed as COVID-19 restrictions were lifted and people were finally able to leave the confines of their homes, but with inflation slowing consumption and investment, world economic growth remained weak. In its October 2022 World Economic Outlook, the IMF is forecasting a real economic growth rate of 3.2% for this year and 2.7% for 2023. In Japan, while rapid yen depreciation is causing raw material prices to surge, it should also improve our price competitiveness in the international arena.

Given the economic environment, in the annual industries survey conducted by JEITA, production by the global electronics and information technology industries is estimated to increase 1% year on year in 2022 to reach \$3,436.8 billion, and 3% year on year in 2023 to record \$3,526.6 billion. Positive growth is expected to continue on the back of growth in solution services and electronic components as countries around the world boost digitalization investment with the aim of using digital innovation to transform companies and industries and encourage economic growth.

Thanks to the normalization of remote IT and demand growth prompted by the transition to electric vehicles (EVs) and the growing percentage of electrical componentry used in vehicles, global production by Japanese electronics and IT companies is expected to grow 8% year on year in 2022 to ¥39,500 billion. Positive growth should continue in 2023—up 3% to ¥40,800 billion—due to the greater demand accompanying digital innovation as a new source of value creation, including the linkage and automation of various types of data and environmental technologies directed at decarbonization.

In this environment, as a digital industry association bringing together companies from a broad spectrum of industries that use digital technologies and services, JEITA will continue to connect industries and companies toward digital transformation, doing our utmost to build a sustainable and safe society that ensures its citizens' peace of mind. We will also continue to fulfil our responsibilities in terms of seeking to revitalize the Japanese economy.

In our thirteenth “Trends Survey of Focused Areas,” JEITA took up the theme of “Accelerating Digital Innovation in Society.” The survey identified seven technologies that will have a major impact in future and envisaged how and where these technologies will be deployed out in society so as to estimate the market scale. A demand forecast through to 2030 was drawn up, presenting a vision of the future that digital innovation will create.

In 2023 and beyond, JEITA will continue to enhance its activities by seeking out comments and opinions widely from both within and outside the electronics and IT industries. We will strive to contribute to the growth of these industries and better lifestyles for people everywhere. We will continue to report on our progress in the future in the sincere hope that information from JEITA proves to be a valuable resource.

December 2022
Takahito Tokita
Chairman

Japan Electronics and Information Technology Industries Association (JEITA)

PRODUCTION TRENDS IN THE GLOBAL ELECTRONICS AND INFORMATION TECHNOLOGY INDUSTRIES (IN DOLLAR TERMS)

Total global production by the electronics and IT industries is expected to rise a slight 1.0% year on year in 2022 to reach \$3,436.8 billion. More investment in digitalization boosted solution services, but some sectors experienced a downturn in the special demand created by the rapid spread of remote IT and stay-at-home shopping. In 2023, digitalization investment aimed at using digital technologies to transform companies and industries, as well as greater demand for environmental products that help to achieve decarbonization, should result in positive growth of 3% year on year to \$3,526.6 billion in 2022.

[Production by the Global Electronics and IT Industries (in dollar terms)]

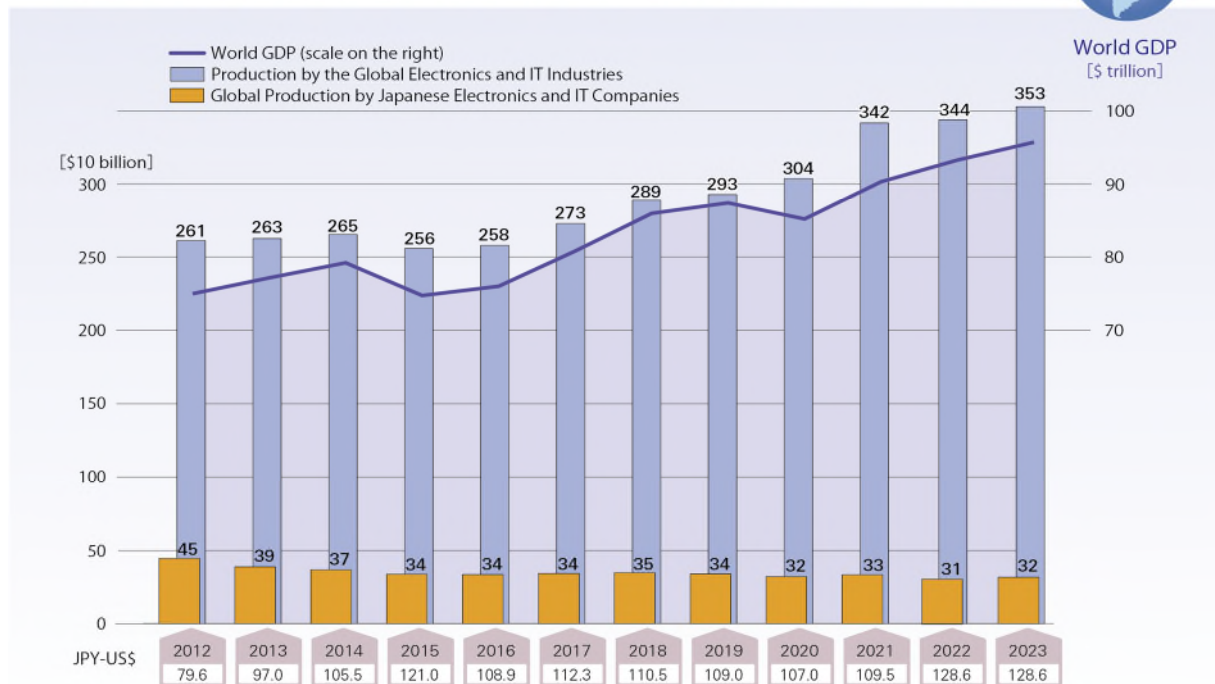
Production by the global electronics and IT industries is expected to inch up 1% year on year in 2022 to reach \$3,436.8 billion, with 2023 production lifting 3% to \$3,526.6 billion. While the slowdown in consumption and investment caused by inflation and other economic uncertainties is currently impacting production, digitalization investment continues unabated, and the process of digital transformation through more sophisticated data utilization and automation too should be ongoing. Looking ahead, we can expect countries around the world to pursue the use of new cutting-edge technologies to transform society, companies, and industries while also realizing economic growth, enhancing demand for solution services. Growth can also be expected for electronic components due to the EV transition and the growing percentage of electrical componentry in vehicles, as well as rising demand for eco-friendly products.

Looking at changes in the breakdown by area from 2012 to 2022 (estimate), production increased from \$422.1 billion to \$511.4 billion in the global growth area of telecommunications equipment, including smartphones and 5G and other telecommunications

infrastructure; from \$291.6 billion to \$580.1 billion in semiconductors; and from \$704.2 billion to \$1,190.7 billion in solution services. As a result, the proportions of these areas in the production of the global electronics and IT industries have fallen one percentage point in the case of telecommunications but risen 6 percentage points for semiconductors and 8 percentage points for solution services over the past 10 years.

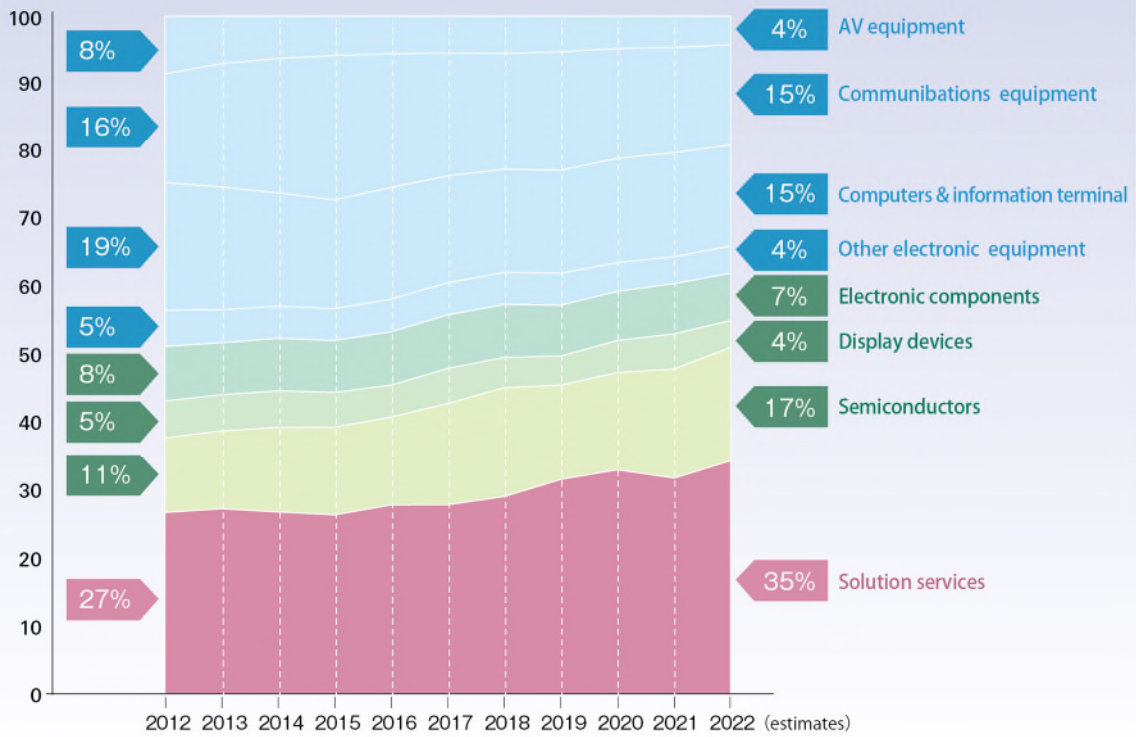
Global production by Japanese electronics and IT companies has continued to decrease since the \$446.4 billion recorded in 2012, with the \$307 billion figure for 2022 representing only around 70% of the 2012 level. Looking at changes in share during this period, where Japanese electronics and IT companies enjoyed a 17% share of total world production in 2012, in 2022 that share is expected to sit at 9%. Factors behind the drop include intensified competition with foreign companies, shrinkage in the AV market itself due to the widespread uptake of Internet streaming services, and the limited growth of Japanese companies in the global high-growth areas of telecommunications equipment and solution services.

Production by the Global Electronics and IT Industries (IN DOLLAR TERMS)



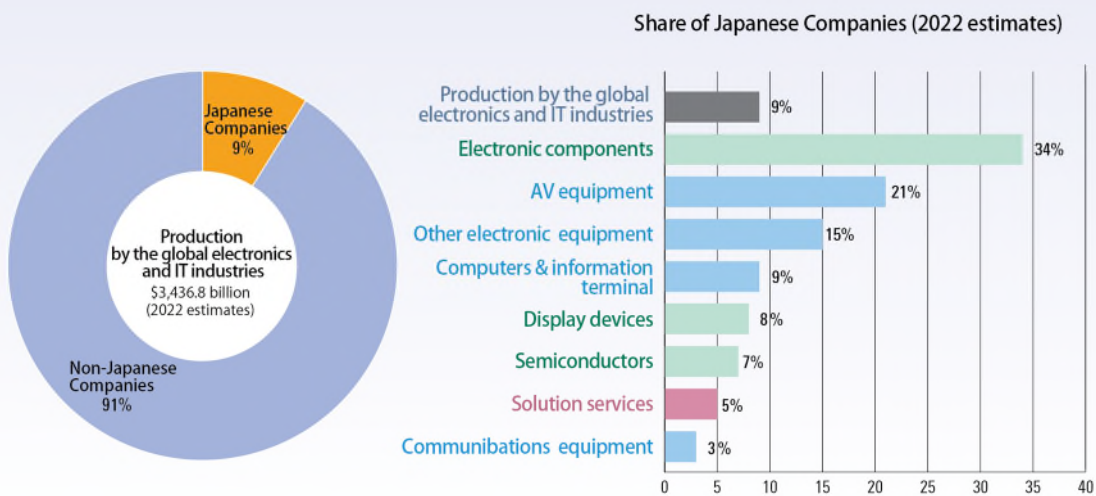
*Average exchange rate of the yen to the dollar for 2023 is viewed as the same as 2022.
*World GDP is from IMF data

Production by the Global Electronics and IT Industries
Composition Ratio by Field (2012→2022estimates)



※The total may not match the included number due to rounding to the nearest unit.

Production by the Global Electronics and IT Industries (2022estimates)



PRODUCTION FORECASTS FOR THE GLOBAL ELECTRONICS AND INFORMATION TECHNOLOGY INDUSTRIES (IN DOLLAR TERMS)

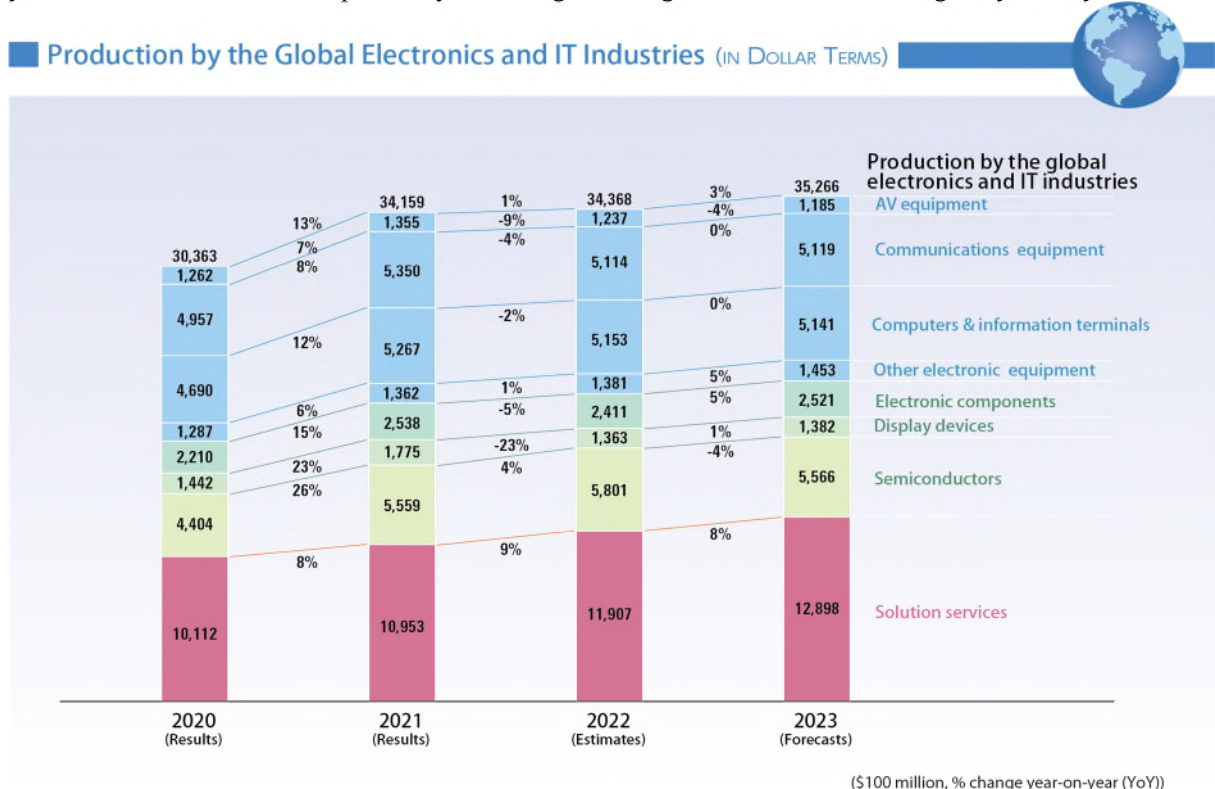
Overall production by the global electronics and IT industries (in dollar terms) is expected to increase only slightly in 2022 as robust solution services responding to the advance of digitalization and the upgrading and automation of data utilization are counterbalanced by negative growth for televisions, smartphones, and computers amidst the downturn in stay-at-home demand, as well as shrinking electronic component and device production caused by the recent sudden slowdown in consumption. With countries continuing to seek to harness digital innovation to transform society, companies, and industries, the strong performance of solution services should generate positive growth in 2023.

In 2022, soaring energy and raw material prices triggered inflation growth around the world, with ongoing interest rate hikes aimed at constraining the inflation causing consumption and investment to slow and drawing growth to a standstill. While production is gradually recovering from the impact of supply delays for some parts and materials due to the Shanghai lockdown, the recovery in consumption has been limited. In its October World Economic Outlook, the IMF forecast a real GDP growth rate of 3.2% for 2022.

In 2022, the electronics and IT industries saw negative production growth for electronic equipment, components, and devices due to a consumption slowdown along with a downturn in the special demand enjoyed in 2021 (the shift to remote IT driving up demand for 5G smartphones and network enhancement, consumers stuck at home replacing their televisions with large-screen 4K models, and the beefing up of data centers to deal with spiking data volumes). Despite this, the 2022 global production of the electronics and IT industries (the total of the electronics industry and IT solution services) maintained a slight increase of 1% year on year to \$3,436.8 billion, underpinned by the strong

performance of solution services due to more automated and increasingly sophisticated data utilization, as well as the advance of digitalization particularly in the automobile and industry sectors. Of this total, global production by the electronics industry (hardware, including electronic equipment, components, and devices) is forecast to drop 3% year on year to \$2,246.1 billion.

In 2023, while uncertainty remains around the Ukraine crisis and how long the Chinese government will hold to its zero COVID policy, if inflation calms down around the world, economic stimulus measures should generate stable economic growth. Ongoing efforts to transform society, companies, and industries and resolve social problems through digitalization are projected to boost solution services demand. Strong growth can also be expected for electronic components thanks to the transition to EVs and the growing percentage of electrical componentry in automobiles used for enhanced safety performance, as well as demand for eco-friendly products with reduced carbon emissions. Production by the global electronics and IT industries should consequently record positive growth in 2023, increasing 3% year on year.



FORECASTS OF GLOBAL PRODUCTION BY JAPANESE COMPANIES (IN YEN TERMS)

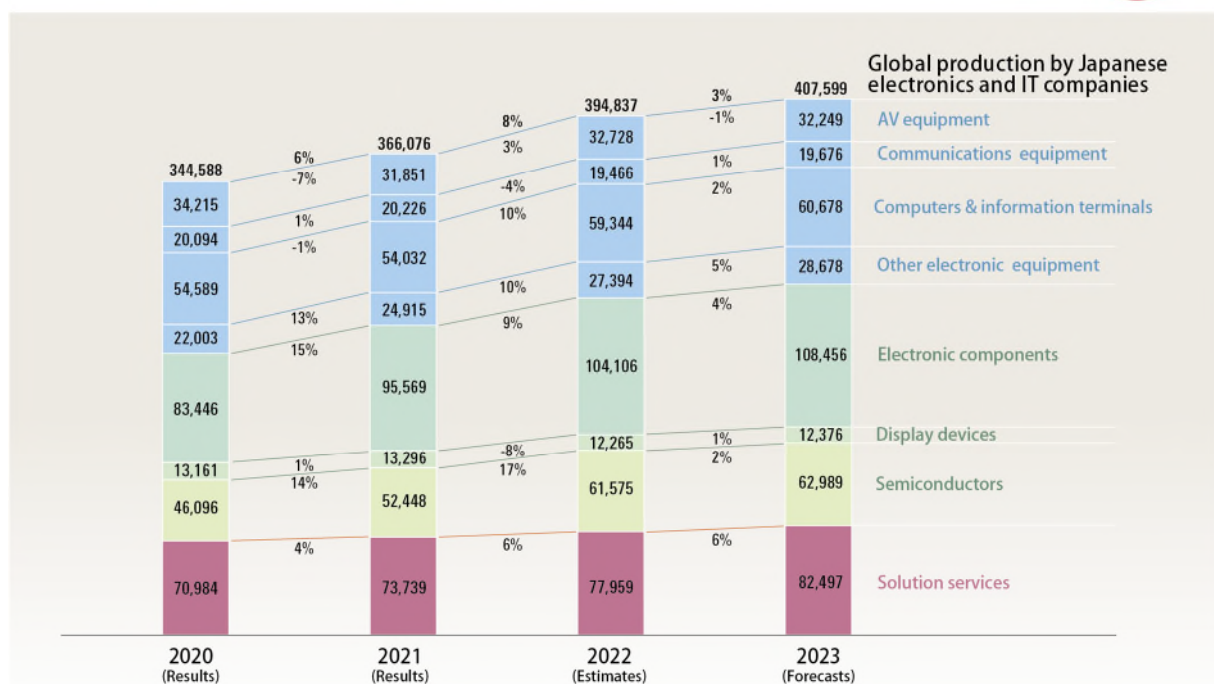
In 2022, global production by Japanese electronics and IT companies (including offshore production), is projected to increase 8% year on year to ¥39,483.7 billion as the weak yen bolstered the performance particularly of electronic components and devices and propped up digital cameras, printers, and electric measuring instruments thanks to their greater price competitiveness overseas. Looking ahead, digital transformation as a source of both new value and economic growth should also boost demand for solution services and push up production 3% year on year in 2023.

In Japan, skyrocketing oil and raw material prices and rapid yen depreciation are pushing up commodity prices, but with the relaxation of COVID-19 restrictions on movement and consumption recovering, the economy too is experiencing a moderate recovery. As corporate profits improve, the manufacturing industry in particular continues to focus its capital investment in digital technologies and decarbonization. For the electronics and IT industries, the downturn in stay-at-home demand has been offset by the positive impact of the weak yen on the international price competitiveness of printers, digital cameras, and electric measuring instruments, keeping them on the plus side of the ledger. The growing number of on-board electronic components and devices due to the spread of advanced driver-assistance systems (ADAS) and the transition to eco-friendly EVs is helping to boost semiconductor and electronic component production. The weak yen has been buoying up exports, which grew strongly again this year. Production by Japanese electronics and IT companies (including offshore production) is

therefore estimated to rise 8% year on year in 2022 to ¥39,483.7 billion, within which electronics production is also expected to grow 8% year on year to ¥31,687.8 billion.

Looking ahead, efforts will step up to create new value by introducing environmental technologies directed at decarbonization, embedding telework, automating factories, and visualizing supply chain transactions from production through sales. Digital innovation as a source of new value creation (data linkage, AI-based data analysis, sophisticated authentication, and the utilization of robotics, etc.) will expand demand for IoT equipment and solution services as means of responding to the ongoing drive for growth and a safe and secure society. A recovery in automobile production, the transition to eco-friendly EVs, and the growing percentage of on-board electronic components as ADAS systems become increasingly standard should boost semiconductor and electronic component production. Global production by Japanese electronics and IT companies should accordingly record positive growth of 3% year on year in 2023.

■ Global Production by Japanese Electronics and IT Companies (IN YEN TERMS)



(¥100 million, % change (YoY))

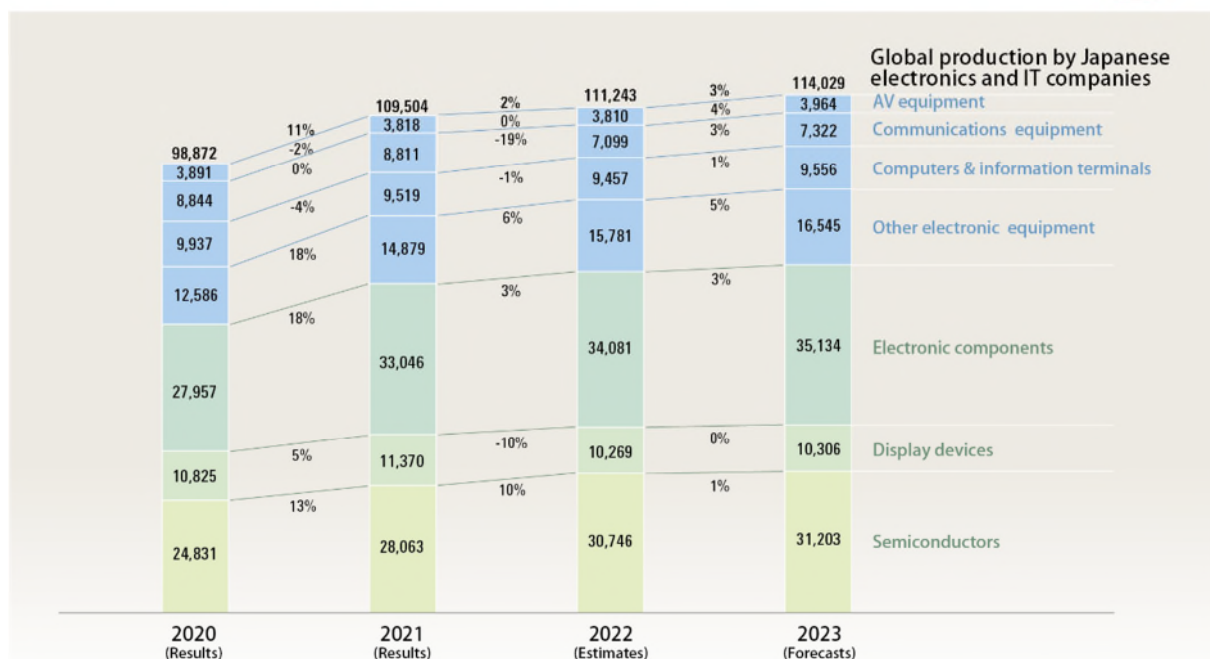
FORECASTS OF DOMESTIC PRODUCTION BY THE JAPANESE ELECTRONICS INDUSTRY (IN YEN TERMS)

In 2022, domestic production by the Japanese electronics industry is expected to rise 2% year on year to ¥11,124.3 billion thanks to the strong export performance of electronic components and devices accompanying the growing percentage of electronic components in vehicles and the impact of increasing demand for 5G measurement on electric measuring instruments. Looking ahead to 2023, electronic component and semiconductor production should expand on the back of more investment in digitalization, factory automation, and environmental measures, leading domestic production to rise 3% year on year to ¥11,402.9 billion.

With restrictions on movement relaxing, 2022 placed the domestic economy on a services-led recovery trajectory. As corporate profits pick up, companies continue to invest in environmental measures along with digital investment geared to rapid changes in work styles such as working from home and the embedding of telework. Companies are also planning to increase their capital investment to maintain and update their factories, boost productivity through energy conservation, and pursue decarbonization. In the electronics industry, production growth is expected for electric measuring instruments for EV production facilities, printers, and digital cameras. The electronic components and devices which account for around 70% of domestic production are expected to grow thanks to the weak yen propping up exports, as well as the use of more semiconductors and electronic components in vehicles due to the spread of advanced driver-assistance systems (ADAS) and the transition to eco-friendly EVs. As a result, domestic production in the electronics industry in 2022 is estimated to lift 2% year on year, recovering to ¥11 trillion level.

In 2023, a sustained recovery for the Japanese economy is on the cards as long as the relaxation of movement restrictions continues. In addition to increased production of medical electronic equipment and electric measuring instruments, growing international interest in energy conservation and other environmental measures should see robust demand for power semiconductors and other semiconductor products. Demand for equipment for the purpose of boosting production and more investment in factory automation and digitalization will lift production and exports of semiconductors and electronic components contributing to greater functionality, slimmer dimensions, and energy conservation. Domestic output in 2023 is consequently expected to rise 3% year on year, while domestic production is set to account for 35% of the total global production by Japanese companies. In particular, the ratio of domestic production should remain strong in areas requiring high reliability and quality, such as display devices (83% manufactured in Japan), electric measuring instruments (69%), electronic medical equipment (67%), server/storage equipment (57%), and semiconductors (50%).

Domestic Production by the Japanese Electronics Industry (IN YEN TERMS)



(¥100 million, % change (YoY))