Section 5 Trends related to ICT equipment and devices in Japan and overseas

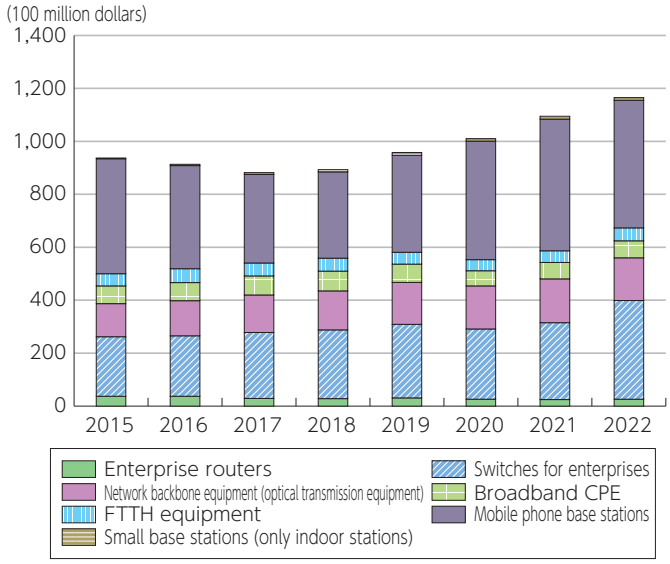
1. Trends in the ICT equipment market in Japan and overseas

(1) Market size

The value of global shipments of network equipment has been increasing since 2017 and reached 15.3287 trillion yen (up 27.6% from the previous year) in 2022 (**Figure 4-5-1-1**). Mobile phone base stations and switches for enterprises accounted for a major part of shipments.

Japan's production of network equipment had been decreasing from the first half of the 2000s, but it started to gradually increase in 2018, and then started to decrease again in 2021, and in 2022 it decreased to 660.7 billion yen (down 14.7% from the previous year). Looking at the breakdown, production of telephone application equipment[1] and exchangers decreased with the shift from fixed telephones to mobile and IP telephones, and today, wireless application devices[2] and other wireless communications equipment[3] are major segments. Production of base station communication equipment has fluctuated greatly. It stagnated from 2016 when investments in 4G came to an end, but increased in 2020, then decreased again in 2022. Production of network connection equipment used for IP communications[4] started to increase in 2019 but decreased from 2021. Production of conveyance equipment[5] increased mainly due to digital transmission equipment from 2019, but started to decrease from 2021.

Figure 4-5-1-1 Changes in the value of global network equipment shipments



(Source) Omdia

(2) Market change by equipment type

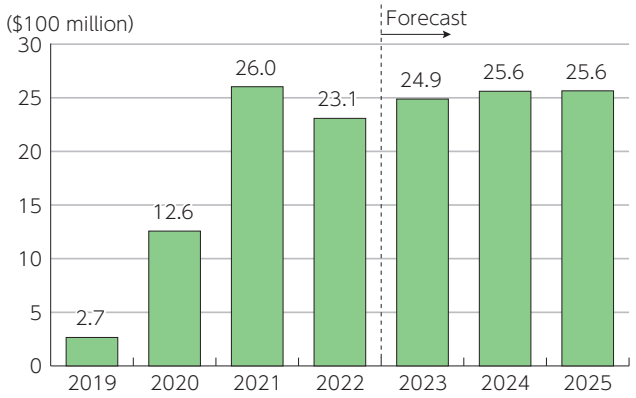
a 5G base stations

In 2022, the size (value of shipments) of the global market for 5G base stations (macrocells) was 3.9876 trillion yen (up 23.5% from the previous year), and 303.5 billion yen in Japan (up 6.2% from the previous year)[6] (**Figure 4-5-1-2**). Both markets are expected to peak moderately but remain high. Furthermore, in 2022, in terms of market share (value of shipments) of 5G base stations (macrocells), Huawei had the greatest share with 29.8%, followed by Ericsson with 25.1%, and Nokia with 15.3%. As such, major overseas companies accounted for a major share of the 5G base stations (macrocells) market (value of shipments), and the international competitiveness of Japanese companies is low.

However, as of 2021, Japanese companies are expected to account for 34% of the global market (in terms of sales) for electronic components embedded in cell phone base stations and smartphones, indicating that they have the potential to compete regarding Beyond 5G (**Figure 4-5-1-3**).

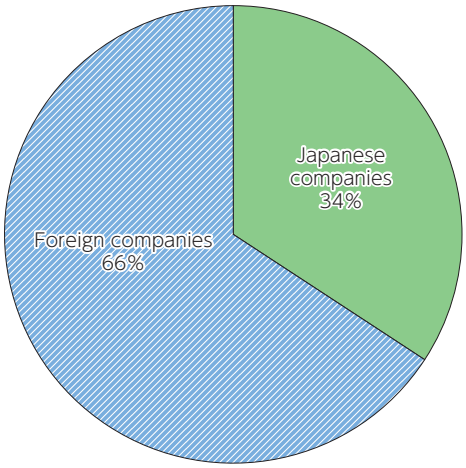
[1] Key telephone systems and interphones
[2] Maritime/aeronautical radars, wireless location measuring devices, telemeter/telecontrol apparatus, etc.
[3] Satellite/terrestrial fixed communications equipment, maritime/aeronautical communications equipment, transceivers, etc.
[4] Routers, hubs, gateways, etc.
[5] Digital transmission devices, power line carrier devices, CATV carrier devices, optical transmission devices, etc.
[6] In dollar terms, the market was down 11.3% from the previous year.

Figure 4-5-1-2 Size (value of shipments) of the Japanese 5G base stations (macrocells) market



(Source) Omdia

Figure 4-5-1-3 Share of global electronic components market (in terms of sales) (2021)



(Source) Omdia

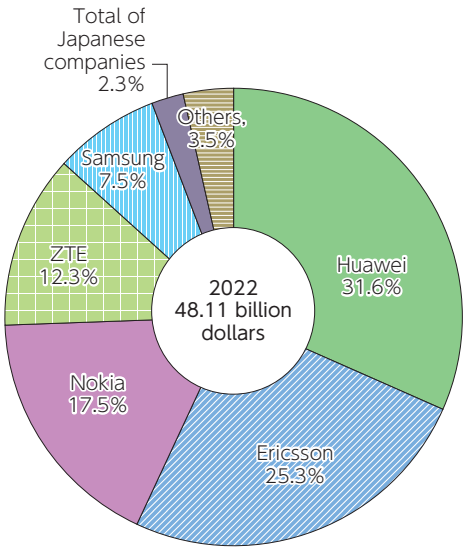
Figure (related data) Global 5G base stations (macrocells) market size (value of shipments)
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2023/data_collection.html#f00173
(Data collection)

Figure (related data) Global 5G base stations (macrocells) market share (value of shipments)
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2023/data_collection.html#f00175
(Data collection)

b Macrocell base stations (including 5G)

In terms of the value of shipments in the global market in 2022, Huawei led the market with 31.6%, followed by Ericsson with 25.3%, and Nokia with 17.5%, while Japanese companies accounted for a total of 2.3%. (**Figure 4-5-1-4**).

Figure 4-5-1-4 Share of the global macrocell base station market (value of shipments in 2022)



(Source) Omdia

c Enterprise routers

In terms of the value of shipments in the global market in 2022, Cisco led the market with 66.3%, followed by H3C with 9.0% and Huawei with 6.0%.

In terms of the value of shipments in the Japanese market in 2022, Cisco led the market with 35.1%, followed by NEC with 26.6%, and Yamaha with 23.3%.

Figure (related data) Global enterprise router market share
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2023/data_collection.html#f00178
(Data collection)

Figure (related data) Japanese enterprise router market share
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2023/data_collection.html#f00179
(Data collection)

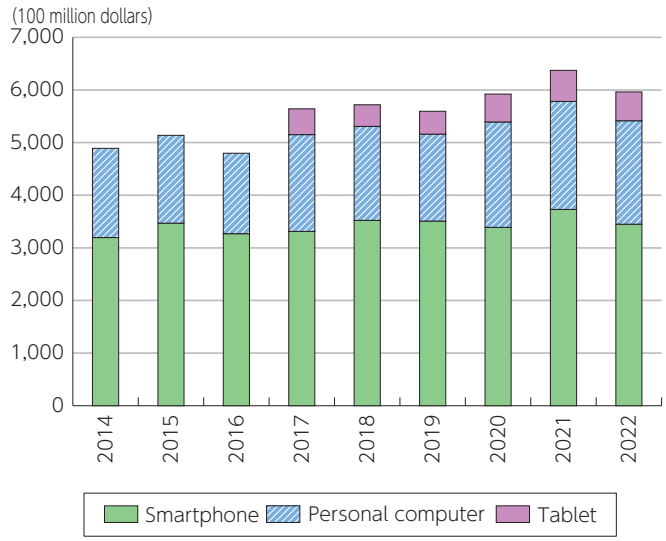
2. Trends in the ICT device market in Japan and overseas

(1) Market size

The value of global shipments of information devices has been increasing since 2016 and reached 92.2574 trillion yen (up 15.8% from the previous year) in 2022[7] (**Figure 4-5-2-1**). In breakdown, smartphones and personal computers account for a major part.

The value of Japan's production of information devices was on the decrease up to 2017, then increased again 2018, but started to decrease again in 2020 and fell to 956.7 billion yen (down 7.7% from the previous year[8]) in 2022. In breakdown, PHS and mobile phones[9] accounted for the major part of the market up to the mid-2010s, but decreased thereafter, and currently desktop computers, laptop computers and information devices[10] form the major part of the market.

Figure 4-5-2-1 Changes in the value of global information device shipments



*Tablets have been counted since 2017

(Source) Omdia

(2) Change in the market by device type

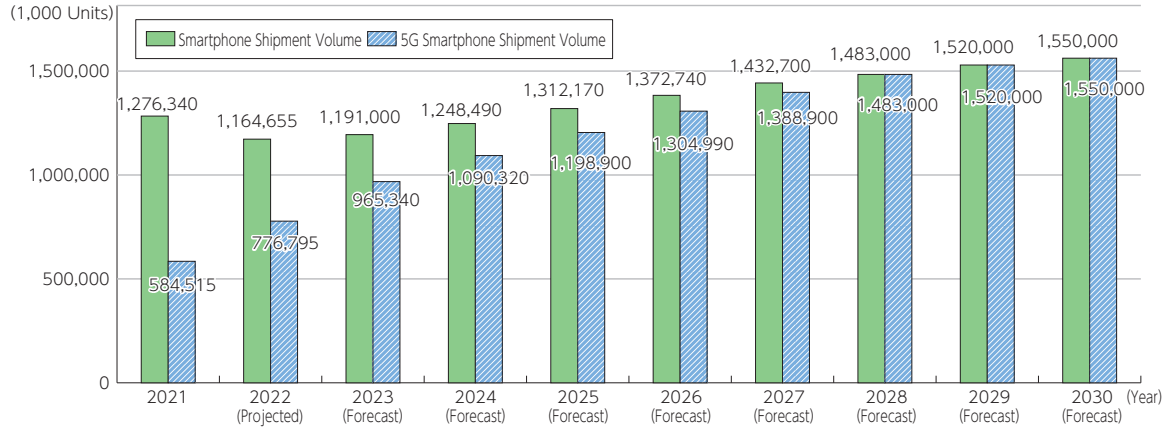
a Smartphones (5G)

Global shipments volume of 5G smartphones totaled 584.52 million units in 2021, accounting for 46% of all smartphones (1,276.34 million units). From 2028, 100% of smartphones is expected to support 5G, and the number of smartphones is forecasted to grow to 1.55 billion units by 2030 (**Figure 4-5-2-2**).

Shipments of 5G smartphones in Japan totaled 17.53 million units in 2021, up 67.7% from the previous year. From 2024, 100% of smartphones will support 5G, and the number of smartphones is forecasted to grow to 32.18 million by fiscal 2027 (**Figure 4-5-2-3**).

[7] In dollar terms, the market was down 3.3% from the previous year.
[8] This is affected by the fact that the value of PHS and mobile phones can no longer be calculated so is not recorded.
[9] Since fiscal 2019, the value of mobile phone and PHS production is no longer disclosed, so the values for radio communications equipment (including satellite communications equipment) are used after deducting the values of broadcasting equipment, fixed communications equipment (satellite and terrestrial), other terrestrial mobile communications equipment, maritime/aeronautical mobile communications equipment, base station communications equipment, other radio communications equipment and associated radio equipment.
[10] External memories, printers, monitors, etc. Information kiosk terminal devices are excluded because their production was not disclosed in some years.

Figure 4-5-2-2 Transition and Forecast of Global Shipment Volume of Smartphones & 5G Smartphones



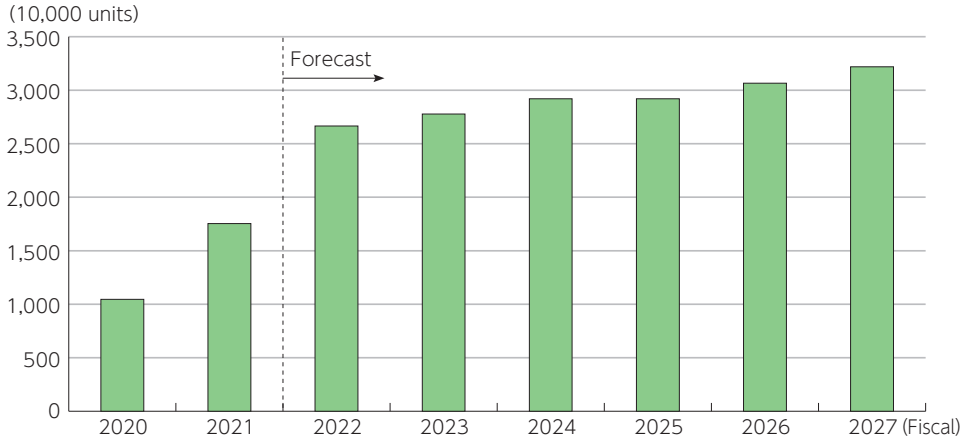
*1 Based on the shipment volume at manufacturers.

*2 The values for 2022 are those projected, and the values after 2023 are those forecasted.

*3 Number of 5G smartphones are included in the number of smartphones.

(Source) Yano Research Institute Ltd., "Global Market of Mobile Phone Subscriptions and Shipment Volume: Key Research Findings 2022", February 7, 2023

Figure 4-5-2-3 Shipments of 5G smartphones in Japan



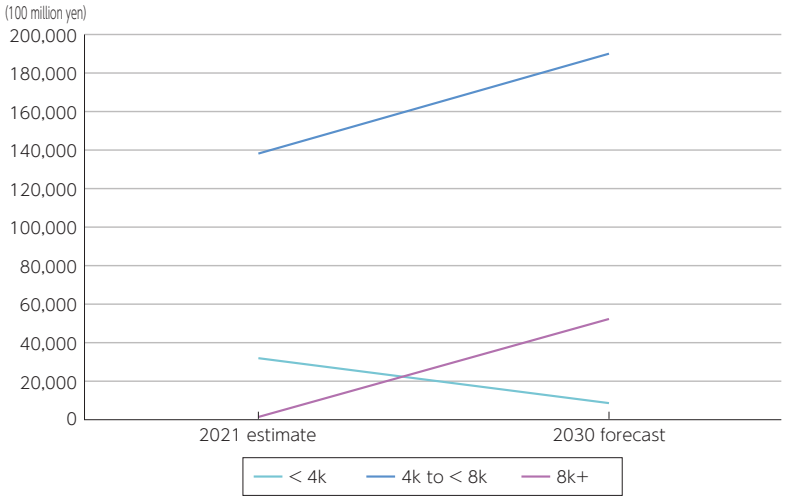
(Source) CIAJ "Medium-Term Demand Forecast for Communications Devices [Fiscal 2022 to Fiscal 2027]"

b 4K and 8K televisions

Regarding the value of global shipments of 4K and 8K televisions, in 2021 it is expected to be a large 13.9 trillion yen for televisions that are 4K or higher but less than 8K, and this is forecasted to increase to 19 trillion yen by 2030. For televisions that are less than 4K, it is expected to be 3.17 trillion yen in 2021, and is forecasted to shrink to 770 billion yen in 2030. In comparison, for televisions that are 8K or higher, it is expected to be a small 140 billion yen in 2021, but is forecasted to increase to 5.2 trillion yen in 2030 **(Figure 4-5-2-4)**.

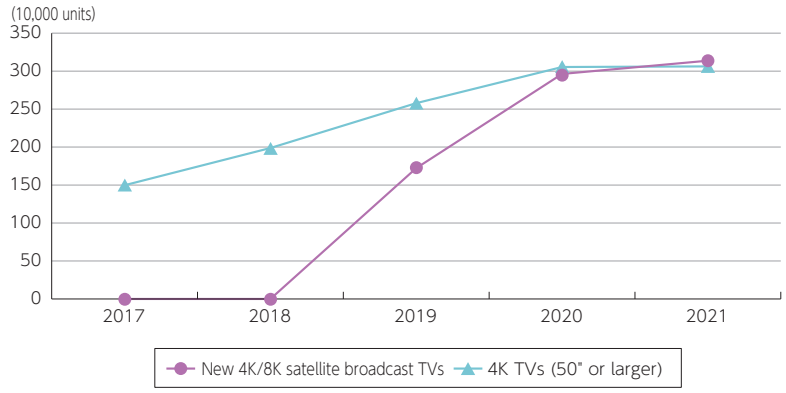
In 2021 in Japan, the number of 4K televisions (50-inch or larger) shipped was 3.06 million units (up 0.3% year on year), and the number of new 4K and 8K satellite broadcast televisions shipped was 3.14 million units (up 5.9% year on year), with growth decelerating for both types in 2021 (**Figure 4-5-2-5**).

Figure 4-5-2-4 Value of global shipments of 4K and 8K televisions



(Source) Fuji Chimera Research Institute, Inc. "5G/8K business future outlook survey 2022"

Figure 4-5-2-5 Number of 4K and 8K televisions shipped in Japan



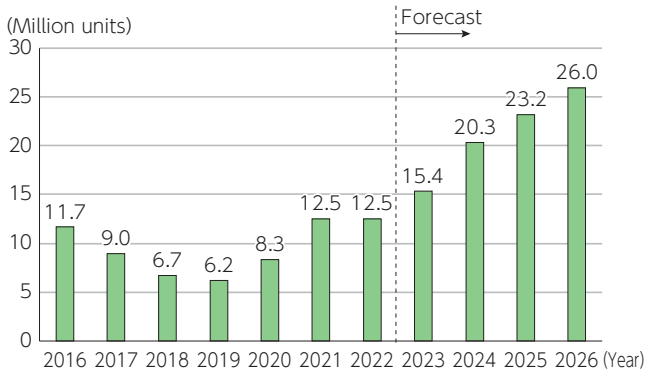
(Source) JEITA "Domestic Shipments of Consumer Electronic Devices"

c VR•AR

Global shipments of VR headsets have continued to increase since 2020, reaching 12.53 million units in 2022 (up 0.3% year on year), and are forecasted to grow 4.2x to 25.98 million units in 2026 compared to 2019 (**Figure 4-5-2-6**).

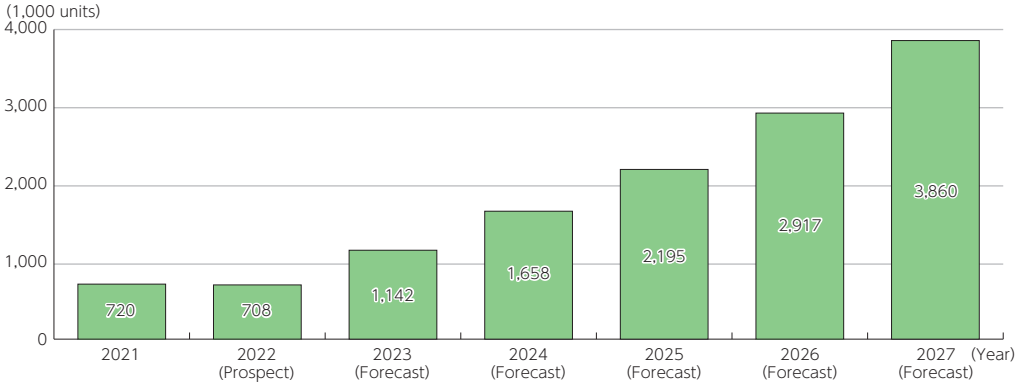
In Japan, the number of XR (Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR)) and 360° video-compatible head-mounted display (HMD) units shipped in Japan was 720,000 in 2021, and is forecasted to reach 3.86 million in 2027 (**Figure 4-5-2-7**).

Figure 4-5-2-6 Changes and forecast in global VR headset shipments



(Source) Omdia

Figure 4-5-2-7 Forecast on Domestic Shipment Volume of HMDs for XR (VR/AR/MR) & 360-Degree Videos



*1 Based on the shipment volume at manufacturers.

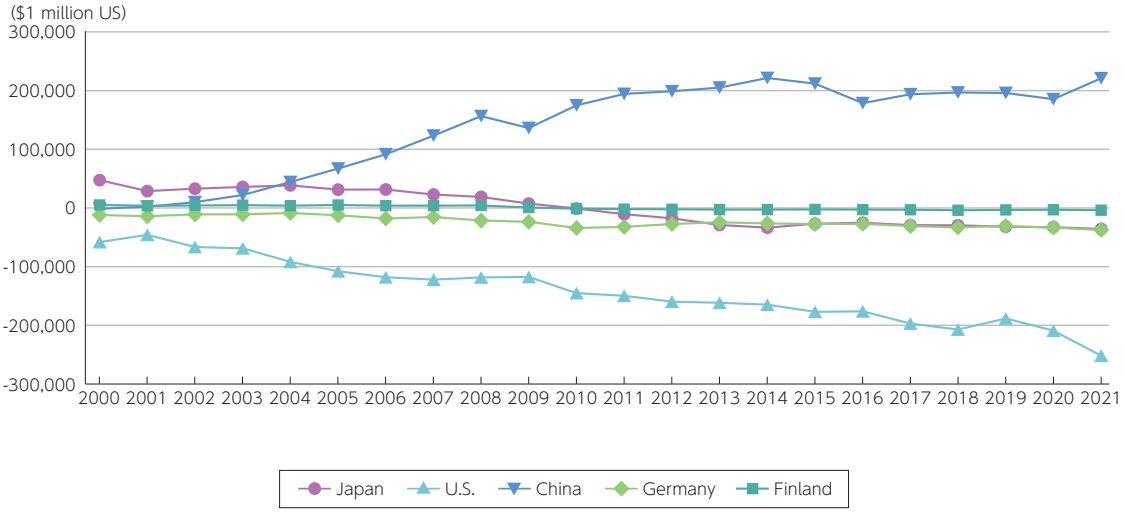
*2 The value in 2022 was the prospect, and the values in and after 2023 are the forecasts.

(Source) Yano Research Institute Ltd., "The Market of HMDs (Head Mounted Displays) for XR (VR/AR/MR) and 360-Degree Videos: Key Research Findings 2021" , May 11, 2022

3. Trends in the import and export of ICT equipment and devices by country

Japan has had an import surplus since 2010, and while the value of Japan's exports of ICT equipment and devices[11] increased to 7.1562 trillion yen (up 17.6% from the previous year) in 2021 due to the progress of the shift to digitalization resulting from the spread of COVID-19 globally, the value of imports was 11.0829 trillion yen (up 15.7% increase the previous year), resulting in an import surplus of 3.9267 trillion yen (up 12.4% from the previous year). In addition, in 2021 the U.S. had an import surplus of 27.6249 trillion yen (up 23.8% from the previous year), while the China had an export surplus of 24.2585 trillion yen (up 22.6% from the previous year) **(Figure 4-5-3-1)**.

Figure 4-5-3-1 Changes in the value of the export surplus of ICT equipment and devices by country



(Source) UNCTAD "UNCTAD STAT"[12]

Figure (related data) Changes in the value of exports of ICT equipment and devices by country
(Source) UNCTAD "UNCTAD STAT"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2023/data_collection.html#f00189
(Data collection)

Figure (related data) Changes in the value of imports of ICT equipment and devices by country
(Source) UNCTAD "UNCTAD STAT"
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2023/data_collection.html#f00190
(Data collection)

[11] Computers, communications equipment, consumer electronics, electronic components, etc.
[12] https://unctadstat.unctad.org/EN/Index.html

4. Trends in the semiconductor[13] market

The global semiconductor market (value of shipments) has been on an upward trend since 2015, reaching 12.5493 trillion yen in 2022 (up 32.1% from the previous year). Looking at the breakdown, discrete semiconductors account for the largest share. Imaging sensors and MCUs have experienced significant growth in recent years, with a Japanese company (Sony Semiconductor Solutions) accounting for 48.3% of the market share.

The Japanese semiconductor market (value of shipments) had been decreasing since 2018, but it started to increase in 2021, and in 2022 it increased to 1.0145 trillion yen (up 36.9% from the previous year). Looking at the breakdown, as per the global market, discrete semiconductors account for the largest share of the market.

Figure (related data) Changes in global semiconductor market (value of shipments)
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2023/data_collection.html#f00191
(Data collection)

Figure (related data) Changes in Global imaging sensor market share (value of shipments in 2022)
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2023/data_collection.html#f00192
(Data collection)

Figure (related data) Changes in Japan's semiconductor market (value of shipments)
Source: Omdia
URL: https://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2023/data_collection.html#f00193
(Data collection)

[13] In this section, this means the discrete semiconductors used for the imaging sensors, MCUs, MEMS sensors and indispensable power sources that are positioned as key devices in the electronic equipment implementing IoT and AI, which are being introduced as part of the digital transformation (DX).