

Connector Demand is Gradually Improving March YTD Bookings up +7.1% and Sales up +2.8%

Regional Performance:

YTD, all regions except Japan are showing growth, with the greatest growth in Asia Pacific, where YTD billings have increased 6.3%, followed by North America where sales increased 5.7%. Japan, the only region exhibiting a decline, has YTD billings of -13.3%. See page 5.

Industry Backlog:

March backlog was \$23,555 million (13.9 weeks). This is up from 13.1 weeks in February, when backlog was \$21,244 million. See page 13.

2024 Currency Impact:

The industry registered a YOY increase in sales in March 2024, of +2.0% in local currency and +3.3% in USD.

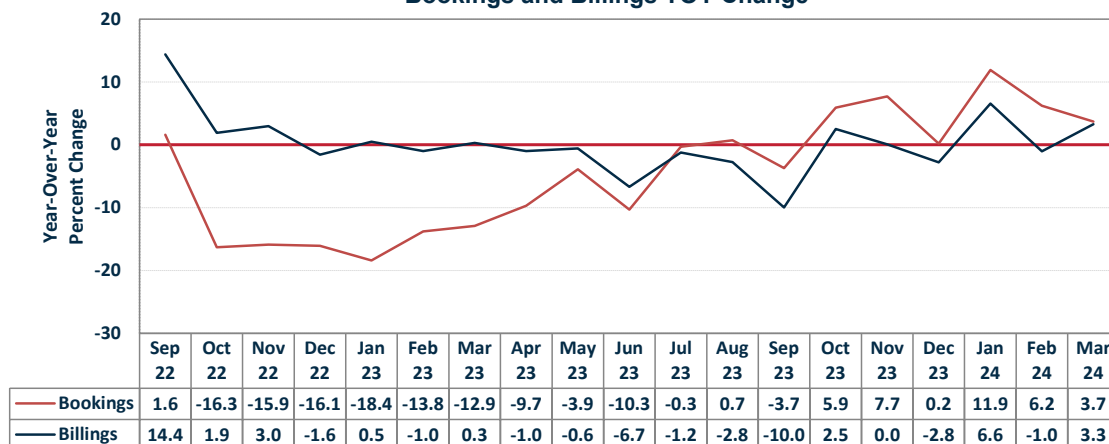
Bishop Launches New eCommerce Website
See page 25.

**NEW BISHOP
RESEARCH REPORT**

**Connector Market
Handbook
Research Report**

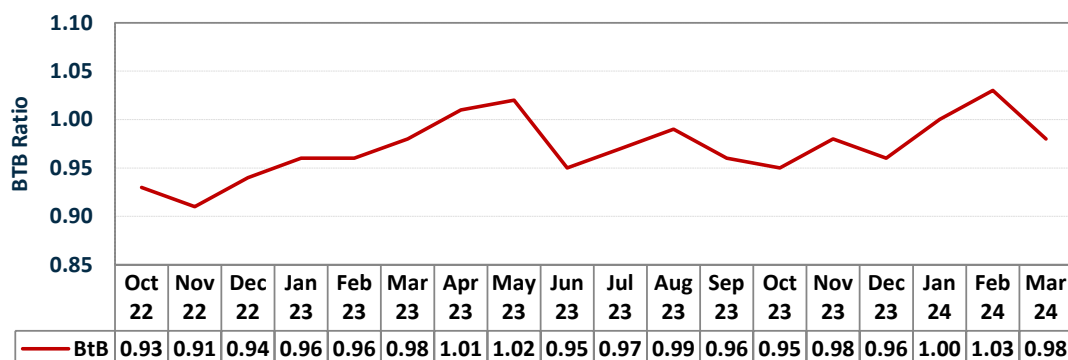
March bookings increased +3.7% and billings increased +3.3% year-over-year. The backlog in January increased to 13.9 weeks.

Bookings and Billings YOY Change



The book-to-bill ratio in March was 0.98, down from 1.03 in February.

Connector Industry Book-to-Bill

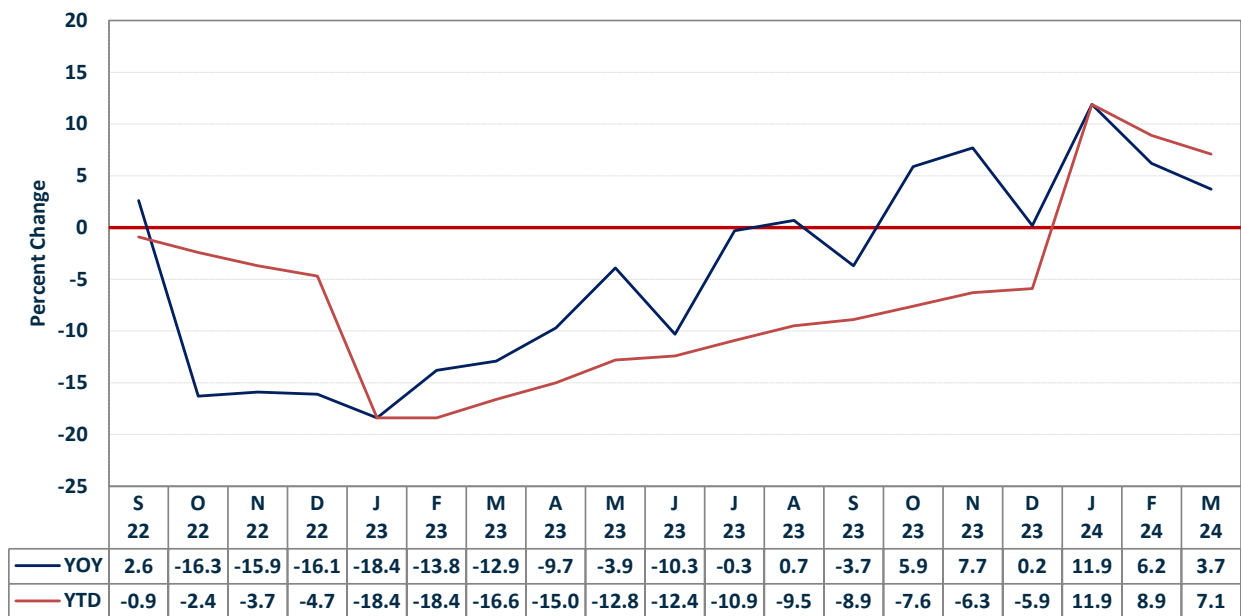


Booking Highlights and Conclusions

Sequential, Year-Over-Year, and Year-To-Date Bookings Percentage Change – 2022/2023/2024

Month	Sequential			Year-Over-Year			Year-To-Date		
	2022	2023	2024	2022	2023	2024	2022	2023	2024
Jan	1.6%	-1.3%	10.3%	14.8%	-18.4%	11.9%	14.8%	-18.4%	11.9%
Feb	10.0%	10.1%	4.5%	7.3%	-13.8%	6.2%	10.8%	-18.4%	8.9%
Mar	-5.1%	1.2%	-1.1%	7.1%	-12.9%	3.7%	9.1%	-16.6%	7.1%
Apr	-8.5%	-5.1%		-6.4%	-9.7%		5.1%	-15.0%	
May	6.6%	13.5%		-5.1%	-3.9%		2.9%	-12.8%	
Jun	-6.5%	-12.7%		-3.2%	-10.3%		1.9%	-12.4%	
Jul	-9.7%	0.3%		-9.9%	-0.3%		1.1%	-10.9%	
Aug	8.2%	9.2%		-9.6%	0.7%		-1.2%	-9.5%	
Sep	-1.1%	-5.4%		1.6%	-3.7%		-0.9%	-8.9%	
Oct	-12.0%	-3.2%		-16.3%	5.9%		-2.4%	-7.6%	
Nov	10.0%	11.8%		-15.9%	7.7%		-3.7%	-6.3%	
Dec	-7.2%	-13.7%		-16.1%	0.2%		-4.7%	-5.9%	

Bookings - YOY and YTD

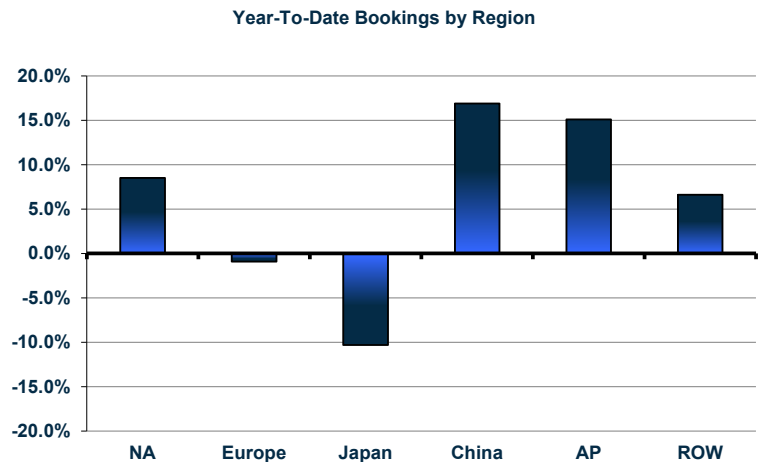


- Orders decreased -1.1% on a sequential basis.
- The book-to-bill ratio for March was .98, down from 1.03 in February.

Regional Performance: BOOKINGS

March 2024 Bookings

Region	Sequential	YOY	YTD
NA	-3.5%	7.6%	8.5%
Europe	-4.4%	-7.0%	-0.9%
Japan	9.5%	-3.5%	-10.3%
China	4.6%	11.7%	16.9%
AP	5.2%	12.9%	15.1%
ROW	-22.3%	-5.4%	6.6%
Total	-1.1%	3.7%	7.1%

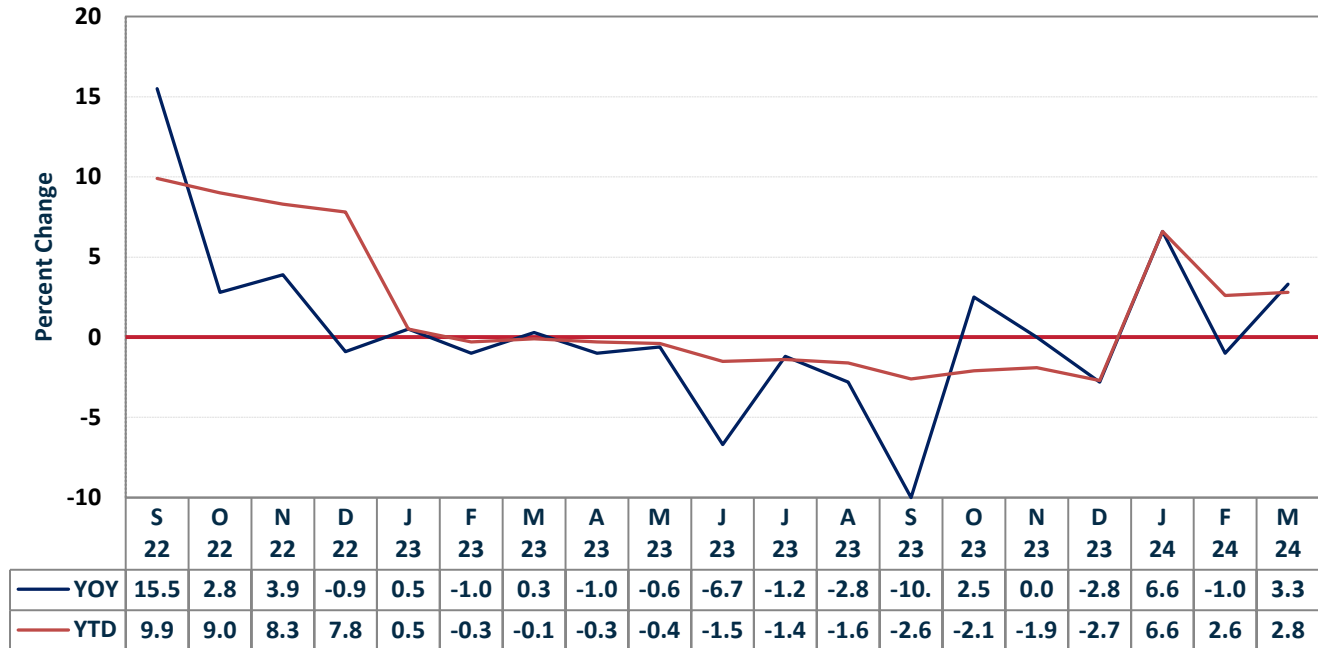


- March bookings increased by +3.7% compared to the previous year.
- Year-over-year orders in March rose in half of the regions and declined in the other half. North America, China, and the Asia Pacific region saw increases with Asia Pacific showing the most growth at +12.9%, followed closely by China where bookings increased +11.7% YOY. Europe, the ROW region, and Japan showed a year-over-year decrease, declining -7.0%, -5.4%, and -3.5% respectively. For the first quarter of 2024, the Japanese region declined every month.
- YTD, all regions increased but Japan and Europe, where orders declined -10.3 and -0.9% respectively.

Billing Highlights and Conclusions

Sequential, Year-Over-Year, and Year-To-Date Billings Percentage Change – 2022/2023/2024

Billings - YOY and YTD



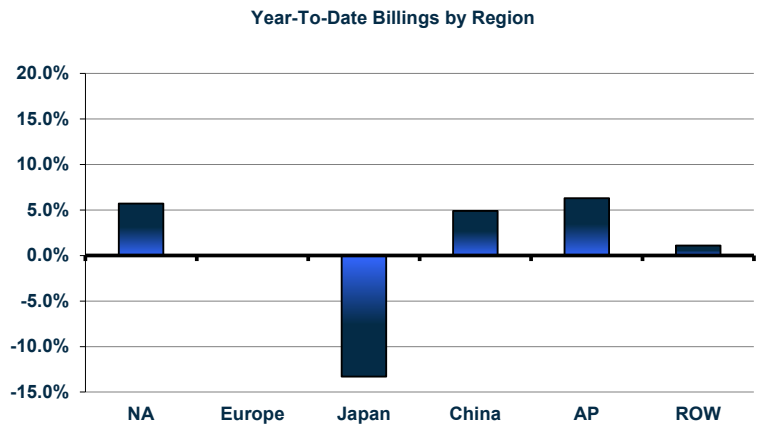
Month	Sequential			Year-Over-Year			Year-To-Date		
	2022	2023	2024	2022	2023	2024	2022	2023	2024
Jan	-5.1%	-3.1%	6.2%	11.4%	0.5%	6.6%	11.4%	0.5%	6.6%
Feb	11.4%	9.7%	1.9%	10.2%	-1.0%	-1.0%	10.8%	-0.3%	2.6%
Mar	-2.2%	-0.9%	3.4%	9.1%	0.3%	3.3%	10.2%	-0.1%	2.8%
Apr	-6.7%	-7.9%		3.0%	-1.0%		8.4%	-0.3%	
May	11.6%	12.1%		7.4%	-0.6%		8.2%	-0.4%	
Jun	0.2%	-6.0%		11.9%	-6.7%		8.8%	-1.5%	
Jul	-7.1%	-1.7%		6.1%	-1.2%		8.4%	-1.4%	
Aug	8.9%	7.2%		6.3%	-2.8%		8.1%	-1.6%	
Sep	5.1%	-2.7%		14.4%	-10.0%		8.9%	-2.6%	
Oct	-14.0%	-2.1%		1.9%	2.5%		8.2%	-2.1%	
Nov	10.6%	7.9%		3.0%	0.0%		7.6%	-1.9%	
Dec	-9.8%	-12.4%		-1.6%	-2.8%		7.8%	-2.7%	

- March billings grew +2.8% year-to-date and +3.3% year-over-year.
- Sequentially, March billings increased +3.4%.

Regional Performance: BILLINGS

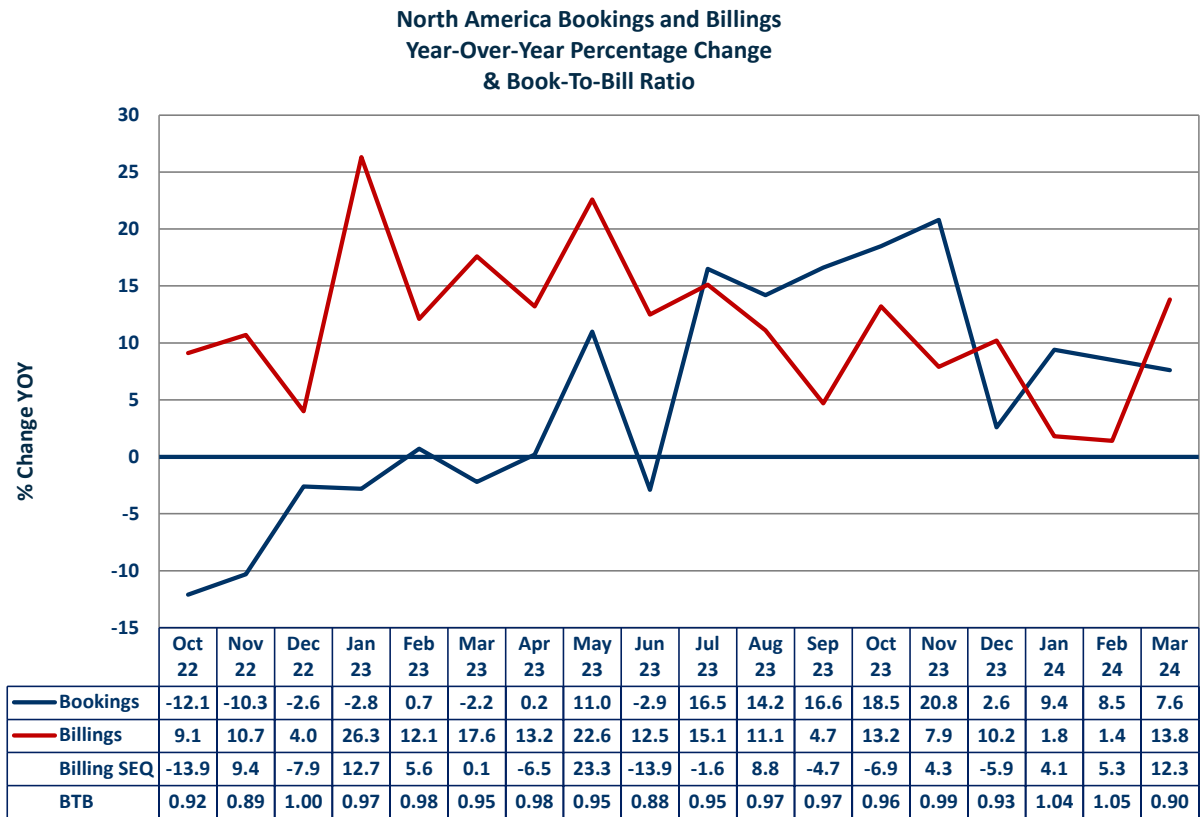
March 2024 Billings

Region	Sequential	YOY	YTD
NA	12.3%	13.8%	5.7%
Europe	-9.9%	-3.0%	0.0%
Japan	-4.1%	-12.7%	-13.3%
China	9.3%	-0.7%	4.9%
AP	7.5%	6.1%	6.3%
ROW	-0.7%	-0.3%	1.1%
Total	3.4%	3.3%	2.8%



- March connector sales increased by +3.3% compared to the same period last year.
- In March, three out of six regions saw a sequential decline from February, with Europe experiencing the largest decrease, declining -9.9%. North America witnessed the greatest sequential growth, increasing +12.3%.
- Year-over-year, North America, and the Asia Pacific region saw an increase, with North America experiencing the greatest growth at +13.8%. Japan once again had the greatest decline, decreasing -12.7% YOY. Year-to-date, while Europe remained flat, the only other region not experiencing growth was Japan, where sales decreased -13.3%.

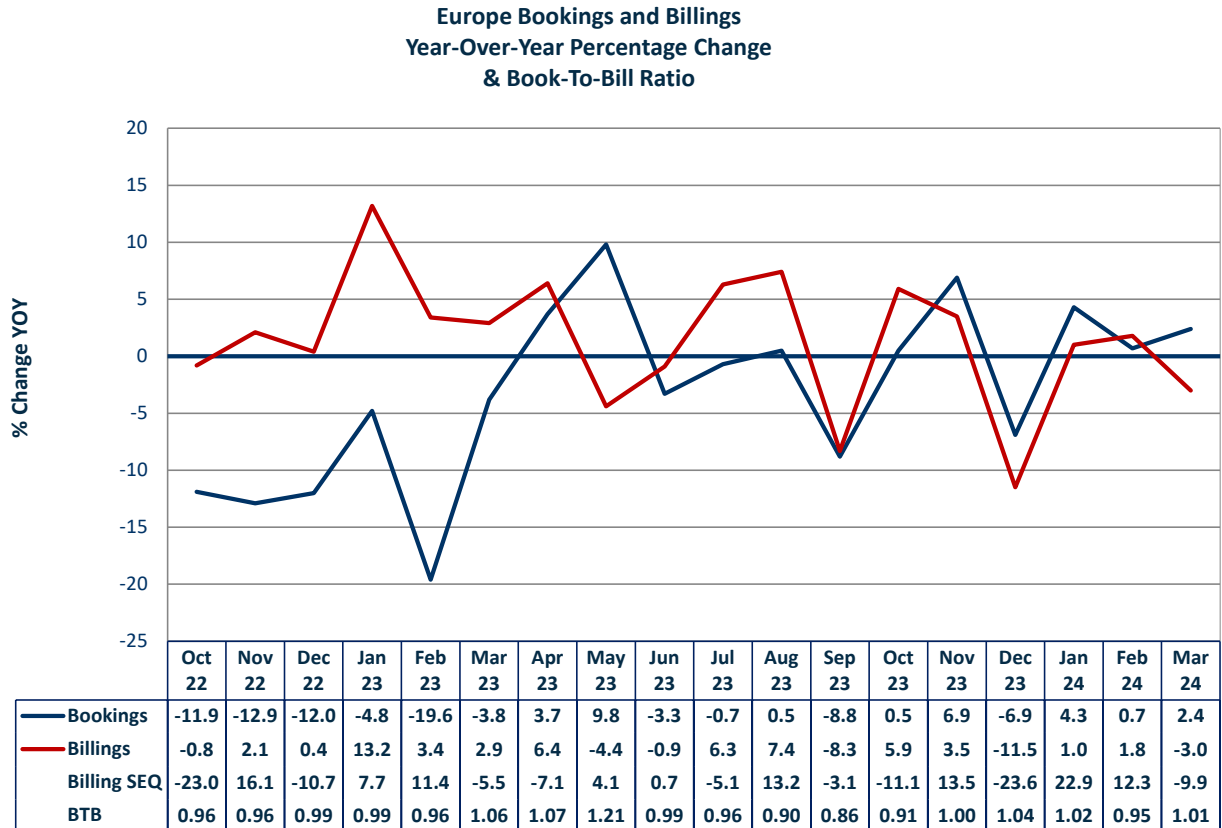
North America: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill (BTB) ratio is also displayed.



North America Performance

- In March, North America had a year-over-year sales increase of 13.8%, while orders grew +7.6%. Sequentially, North American billings increased +12.3%. The book-to-bill ratio was 0.90, the lowest BTB since June of 2023.
- According to the US Bureau of Labor Statistics, the US inflation rate for March was 3.5%, compared to 5.0% in March 2023.
- Industrial production rose 0.4% in March but declined at an annual rate of 1.8% in the first quarter.
- Manufacturing PMI registered a drop of 1.9 to 50.3 in March, after reaching 52.2 in February. This is even lower than January's 50.7.
- US unemployment dropped slightly to 3.8% in March, from 3.9% in February.
- March retail trade sales were up 0.8% ($\pm 0.5\%$) from February 2024, and up 3.6% ($\pm 0.5\%$) above last year.
- According to MarkLines', "light vehicle seasonally adjusted annualized sales (SAAR) for March 2024 was 15.56 million units versus 15.02 million units one year ago."
- In March, the Consumer Price Index for All Urban Consumers increased 0.4%, seasonally adjusted, the same increase as in February. Over the last 12 months, the all-items index increased 3.5% not seasonally adjusted, according to the Bureau of Labor Statistics.

Europe: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.

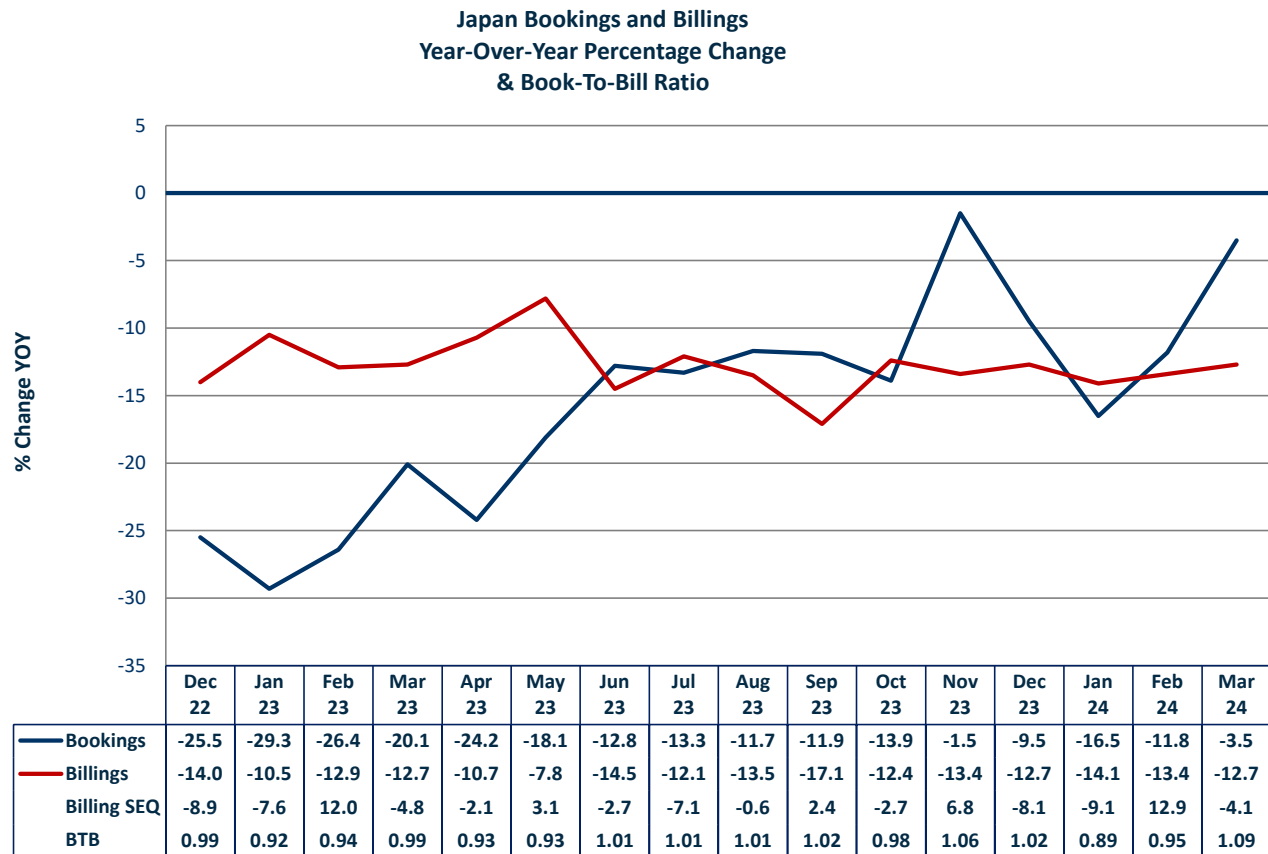


Europe Performance

- In March, year-over-year bookings decreased -3.0%, while billings increased +2.4%. Sequentially, sales decreased -9.9%. The book-to-bill ratio was 1.01.
- Industrial production decreased 6.4% in the euro area and 5.4% in the EU in February* 2024 when compared to February 2023. The Euro Area Manufacturing PMI was revised higher to 46.1 in March 2024 from a preliminary estimate of 45.7.
- The euro area annual inflation rate was 2.4% in March 2024, down from 2.6% in February.
- Retail Sales in European Union decreased 0.2% percent in February* of 2024 over the same month in the previous year.
- In February*, the euro area seasonally adjusted unemployment rate was 6.5%, up from 6.4% in January.
- The consumer confidence indicator in the Euro Area rose by 0.6 points from the previous month to -14.9 in March 2024.

**March readings not published at the time of this reporting.*

Japan: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.

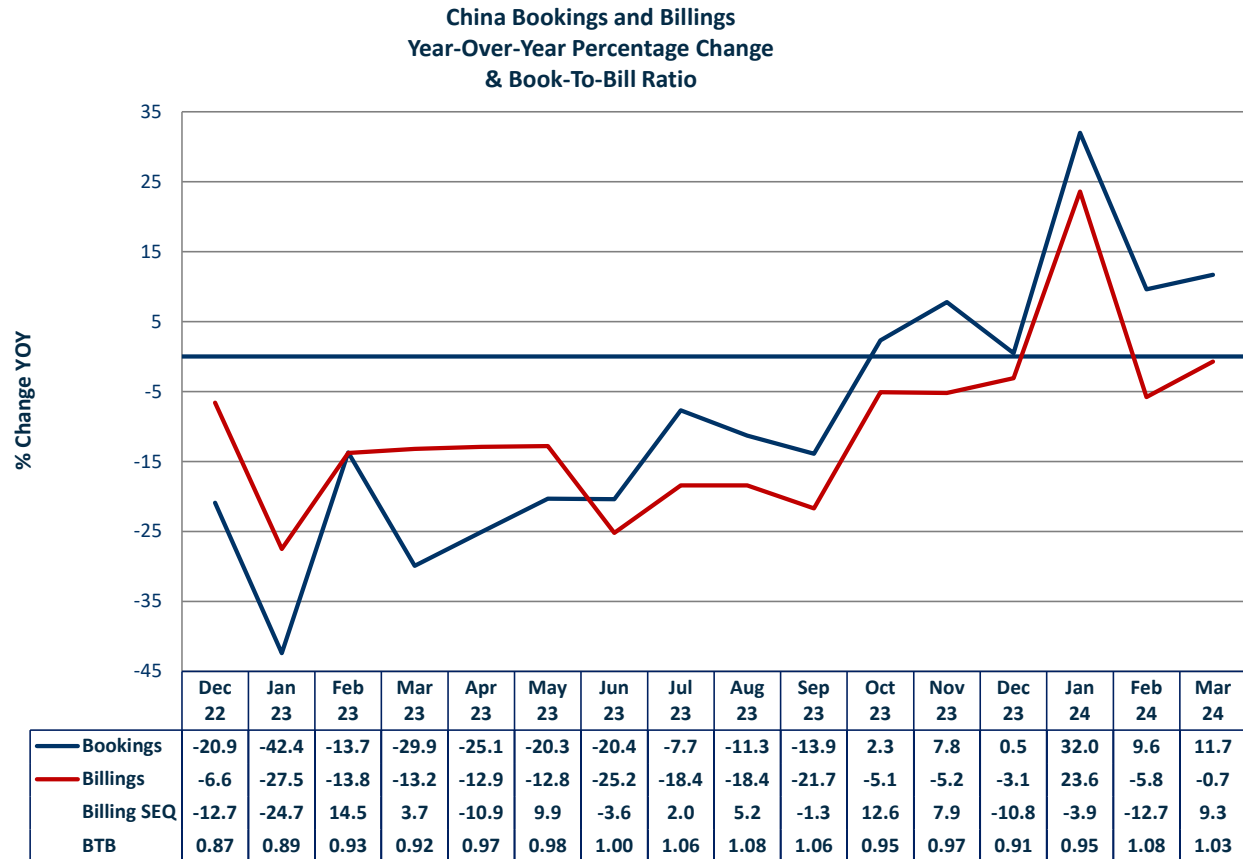


Japan Performance

- March, year-over-year bookings declined -3.5%, while sales dropped -12.7%. Sequentially sales declined -4.1%. Japan's book-to-bill ratio was 1.09.
- The core consumer price index in Japan, which excludes fresh food but includes fuel costs, rose 2.6% YOY in March 2024, slowing from a four-month high of 2.8% in February and coming in below forecasts of 2.7%.
- Industrial production growth in Japan fell 6.3% year-over-year in February* 2024, following a drop of 3.1% year-over-year in January 2024. Manufacturing PMI in Japan stood at 48.2 in March 2024, unrevised from a preliminary reading, and after a final 47.2 in February, which was the lowest figure since August 2020.
- Japanese retail sales rose 4.6% in February* from a year earlier, accelerating from a downwardly revised 2.1% gain in January and exceeding market expectations for 3% growth. It was also the 24th straight month of increase. Japan unemployment rate increased to 2.6% in February, from the previously reported figure of 2.4% in January 2024.
- Retail sales in Japan rose 4.6% year-on-year in February* 2024, accelerating from a downwardly revised 2.1% gain in January and exceeding market expectations for a 3% growth.

**March readings not published at the time of this reporting.*

China: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.

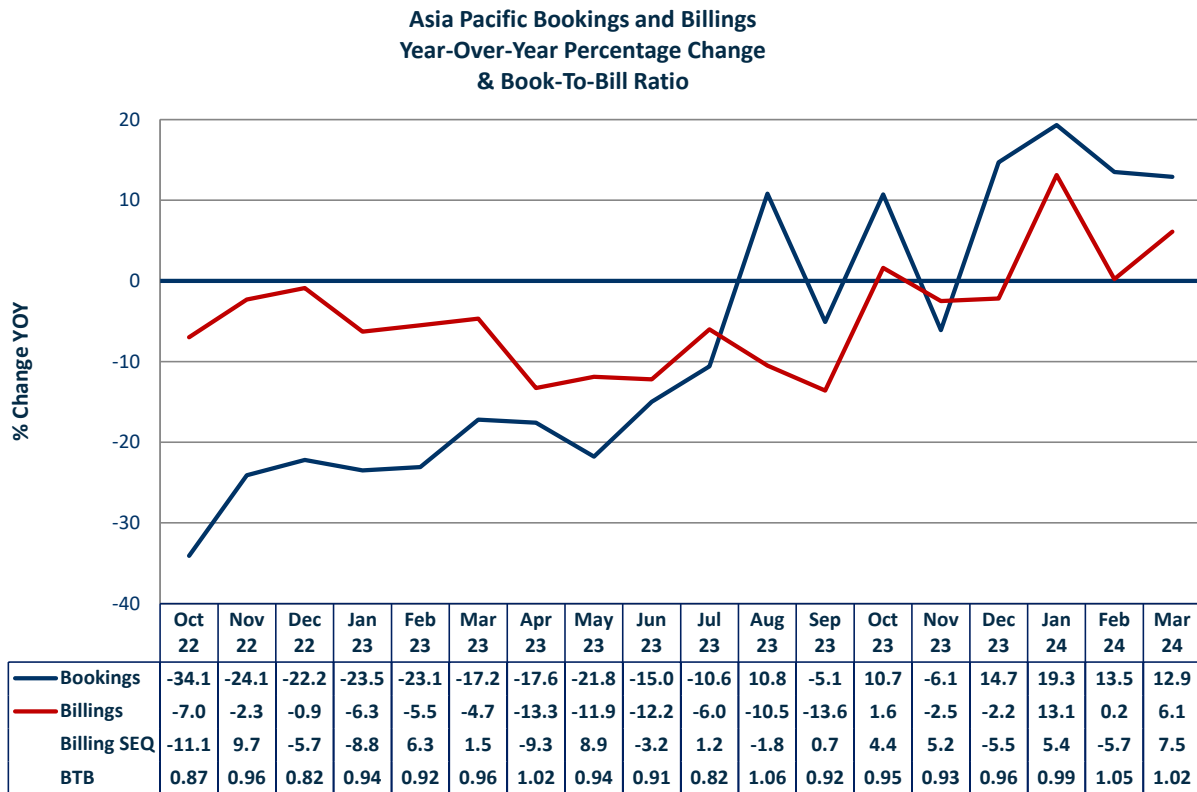


China Performance

- China's March sales declined -0.7% on a year-over-year basis, while orders grew +11.7%. Sequentially, sales increased +9.3%. The BTB was 1.03, down slightly from February's 1.08.
- According to AP News, China's exports contracted in March after growing in the first two months of the year, underscoring the uneven nature of the country's recovery from the pandemic. Customs data released Friday show exports declined 7.5% in March from a year earlier, while imports slipped 1.9%.
- China's Purchasing Managers' Index (PMI) nudged up to 50.8 from 49.1 in February* and 49.2 in January.
- The Consumer Price Index in China decreased 1% in March of 2024 over the previous month, the first fall in four months and a reversal from a 1.0% rise in February.
- According to The State Council Information Office the People's Republic of China, China's retail sales of consumers goods climbed 4.7% year-on-year in the 1st quarter of 2024. China's surveyed urban unemployment rate for 1st quarter 2024 was 5.2%.
- In March, vehicle production and sales volumes totaled 2.687 million units and 2.694 million units, up 4% YoY and 9.9% YoY respectively. Year-to-date production and sales volumes were 6.606 million and 6.72 million units, up 64% YoY and 10.6% YoY, respectively.

**March readings not published at the time of this reporting.*

Asia Pacific: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.



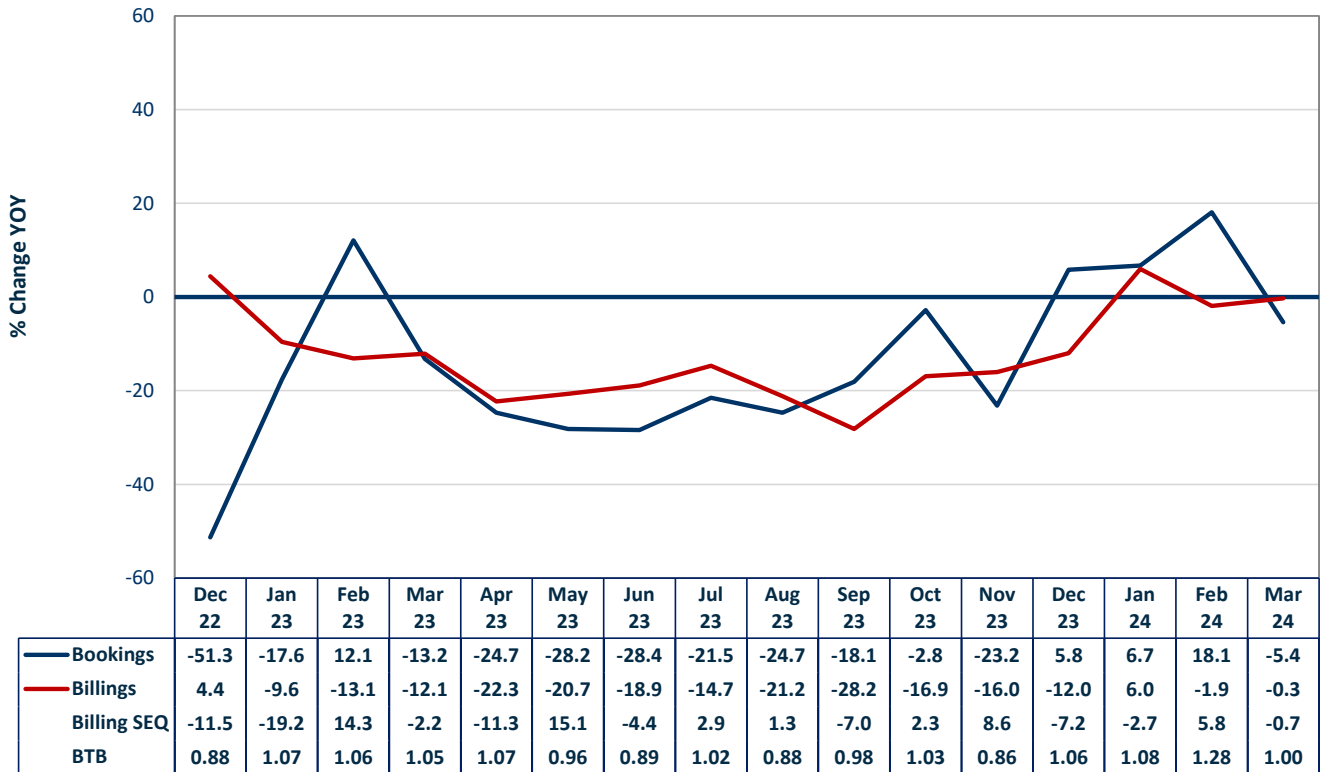
Asia Pacific Performance

- Year-over-year, March orders were up +12.9%, while billings increased 6.1%. Sequentially, sales increased 7.5%. The book-to-bill ratio was 1.02, a slight decline from February's 1.05.
- India's purchasing managers index (PMI) was 59.1 in March, up from 56.9 in February and the highest PMI in 16 years. The country reported a robust 12% annualized growth in merchandise exports at \$41.4 billion in the month of February*. Industrial output in India rose by 5.7% on an annual basis in February* of 2024, missing market expectations of a 6% expansion, but still pointing to the sharpest increase since October 2023. Annual retail inflation in India fell to 4.85% in March 2024, the lowest since May 2023, from 5.09 in February and compared to forecasts of 4.91%.
- On a monthly basis, consumer prices in South Korea increased by approximately 3.1% compared to same month last year and flat when compared to last month.
- Purchasing managers index (PMI) for manufacturers in South Korea, stood at 49.8 in March on a seasonally adjusted basis, down from 50.7 in February. Manufacturing Production in South Korea increased 5.13% in February* of 2024 over the same month the previous year. Industrial production in South Korea was 4.8% in February*, slowing from a 12.9% jump in January and falling short of market expectations.

**March readings not published at the time of this reporting*

Rest of World: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.

ROW Bookings and Billings
Year-Over-Year Percentage Change
& Book-To-Bill Ratio



Rest of World Performance

- Orders declined -5.4% while billings declined -0.3% year-over-year in March. Sequentially, sales declined -0.7%. The book-to-bill ratio was a solid 1.00.
- According to Trading Economics, “The central bank of Brazil reduced its key Selic rate by 50 bps to 10.75% in its March meeting, in line with expectations. Although headline consumer inflation shows a disinflation trend, underlying inflation measures exceeded the target in recent releases. Copom (Monetary Policy Committee) projects 3.5% and 3.2% inflation for 2024-25. They [Copom] cut the interest rate to aid convergence to target inflation and stabilize economic activity.
- Brazil’s Industrial production went down by 0.3% month-over-month in February* 2024, following a revised 1.5% fall the prior month and against market forecasts of a 0.3% rise. That marks the second consecutive month of downturn in industrial activity resulting in a cumulative decline of 1.8%.
- Brazil’s manufacturing PMI was 53.6 in March, after reaching a 19-month high of 54.6 in February. This is consistent with a strong rate of expansion presently underway in the country.

**March readings not published at the time of this reporting.*

Regional Summary Snapshot

The following table shows a snapshot of the performance of each region. The table displays the latest metric available, and the trend of the metric compared to prior months/quarters.

	North America	Europe	Japan	China	Asia Pacific	ROW
GDP Growth YOY	>1.0% Slowing	0.3% Growing	0.6% Growing	4.6% Slowing	N/A	N/A
Industrial Production Growth	0.4% Up	-6.4% Down	-6.3% Down	4.5% Up	N/A	N/A
Manufacturing PMI*	50.3 Down	46.1 Up	48.2 Steady	50.8 Up	N/A	N/A
Inflation Rate	3.5% Steady	2.4% Slowing	2.8% Up	0.1% Down	N/A	N/A
Unemployment Rate	3.8% Steady	6.5% Up	2.6% Up	5.2% Steady	N/A	N/A
Retail Sale Growth YOY	0.8% Up	.0.2% Down	4.6% Up	4.7% Up	N/A	N/A
March Connector Sales	13.8%	-3.0%	-12.7%	-0.7%	6.1%	-0.3%
YTD Connector Sales	5.7%	0.0%	-13.3%	4.9%	6.3%	1.1%
March Connector Orders	7.6%	-7.0%	-3.5%	11.7%	12.9%	-5.4%
YTD Connector Orders	8.5%	-0.9%	-10.3%	16.9%	15.1%	6.6%

* Purchasing Manager Index - Below 50 is contracting factory activity

Industry Backlog Is 13.9 Weeks

The industry shipped \$1,700 million per week YTD March. The ending March backlog is \$23,555 million which represents 13.9 weeks, assuming weekly sales remain constant.

The following table shows the world connector backlog of orders ending March 2024.

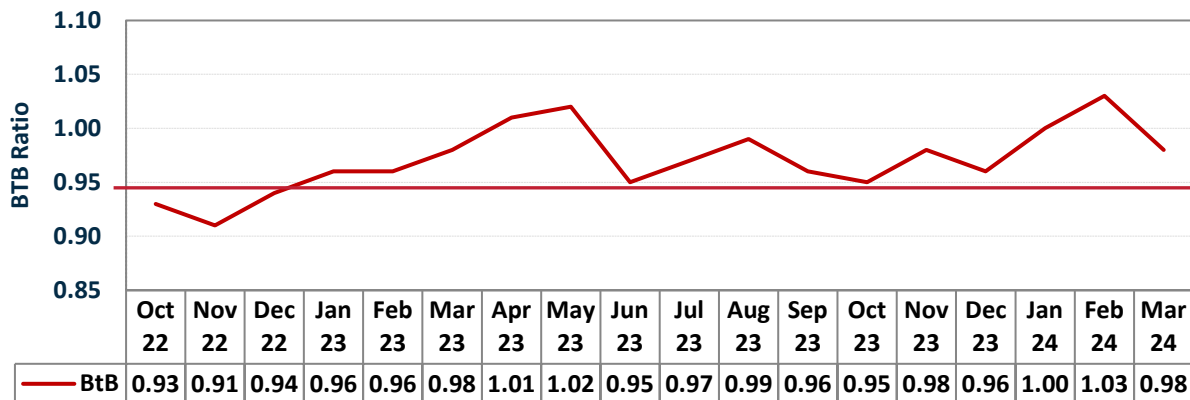
Industry Backlog

	2023	March 2024
BtB Ratio	0.98	1.01
Beginning Backlog	\$22,983.0	\$23,213.0
Bookings	\$79,888.0	\$22,111.0
Billings	\$81,854.0	\$21,769.0
Ending Backlog	\$21,017.0	\$23,555.0
Backlog in Weeks	13.4	13.9

\$ Millions

The book-to-bill ratio in March was 0.98. The following displays the trend of BTB ratios since October of 2022.

Connector Industry Book-to-Bill



The March 2024 backlog was \$23,555, up \$572 million from the 2023 ending backlog. This is a good sign that connector demand is showing some strength. The following table tracks industry backlog since May 2022, which was the highest backlog in industry history.

Ending Backlog Since May 2022

Month	Ending Backlog	BTB Ratio
May 2022	\$26,373	1.07
June 2022	\$26,302	0.99
July 2022	\$26,036	0.96
August 2022	\$25,673	0.95
September 2022	\$24,846	0.90
October 2022	\$24,396	0.93
November 2022	\$21,828	0.92
December 2022	\$22,983	0.94
January 2023	\$22,725	0.95
February 2023	\$21,422	0.95
March 2023	\$22,233	0.98
April 2023	\$22,170	1.01
May 2023	\$22,033	1.02
June 2023	\$22,102	0.95
July 2023	\$21,974	0.97
August 2023	\$21,770	0.98
September 2023	\$21,465	0.96
October 2023	\$21,224	0.96
November 2023	\$21,203	1.00
December 2023	\$21,017	0.96
January 2024	\$20,970	1.00
February 2024	\$21,244	1.03
March 2024	\$23,555	0.98

\$ Millions

The backlog is now 13.9 weeks, the highest since October 2022.

Currency Fluctuations Reduce Performance between USD and Local Currency

The dollar has been fluctuating against the euro, the yen, and the yuan. The following table measures the impact for March 2023 versus March 2024 and shows results for these three currencies.

Local Currency to One USD 2023 YTD versus 2024 YTD

Currency	2023	2024	% Change
Euro	0.9336	0.9199	1.5%
Yuan	6.8357	7.2018	-5.1%
Yen	132.9753	149.7225	-11.2%

Europe, China, and Japan account for approximately 60% of world connector sales. Currency fluctuation against the US dollar can have a significant impact on our reporting of sales performance in US dollars.

The following table shows March YOY performance by region in US dollars and local currencies.

Industry Sales Performance March 2024 USD-vs-Local Currencies

Region	U.S.\$	Local Currency
North America	13.8%	13.8%
Europe	-3.0%	-1.5%
Japan	-12.7%	-22.4%
China	-0.7%	-5.7%
Asia Pacific	6.1%	6.1%
ROW	-0.3%	-0.3%
World	3.3%	2.0%

Connector sales in March of 2024 increased +2.0% when measured in local currencies, versus +3.3% in US dollars.

2024 Outlook: A Historical Perspective

Over the past decade, first quarter sales averaged 24.1% of full year sales. Since we had first quarter 2024 connector sales of \$21,769 million, 2024 sales would be \$90,328 million, +10.4% growth over the \$81,854 million shipped in 2023 ($\$21,769 / .241 = \$90,328$).

A forecast range can be calculated when historical sales are considered. For example, the least first quarter sales were as a percentage of the full year was 23.1%, the most was 25.5%. The following table uses this historical industry sales performance to forecast a range of possible outcomes for 2024 sales.

2024 Historical Analysis

	Historical Percentage	Sales 1Q24	2024 Forecast	Percent Growth
Low	23.1%	\$21,769	\$94,238	15.1%
Medium	24.1%	\$21,769	\$90,328	10.4%
High	25.5%	\$21,769	\$85,369	4.3%

\$ Millions

In 2023, industry sales were \$81,854 million. So, from a sales history perspective, 2024 industry sales will be up over 2023. However, year-to-date March sales are up only +2.8%, so it is unlikely the industry will achieve the high-end of this range.

Significant Events

March 2024 News

ODU Announces Management Changes



Photo from the left: Dr. Josef Leitner, Dr. Henner Spelsberg,
Dr.-Ing Kurt Woelfl, Robert Klemisch

ODU has appointed Dr. Henner Spelsberg as its new Managing Director and Spokesman of the Management Board, effective April 15. He will assume the responsibilities of his predecessor, Dr.-Ing. Kurt Woelfl.

Dr. Spelsberg has significant experience in a variety of management positions. Before joining ODU, he was a member of the Management Board of TIB Chemicals AG and a member of the Advisory Board of Günther Spelsberg GmbH & Co. KG. Throughout his career, he has held positions in corporate development, commercial management and as a management consultant. An industrial engineer by training, Dr. Spelsberg brings to the task extensive know-how and valuable experience.

In his new role, Dr. Spelsberg will be responsible for worldwide Sales, Portfolio Management, Corporate Communications & Marketing as well as Automotive. Together with Managing Directors Robert Klemisch and Dr. Josef Leitner, he will guide the company's future development according to this principle: The management team will actively shape the future of ODU with creativity, inventiveness, and innovative strength, and thereby continue to focus on upholding these values for employees, customers and partners.

In the context of these changes, Dr.-Ing. Kurt Woelfl will join the ODU Supervisory Board, replacing Dr. Christoph Endrös. "ODU has done extremely well under his leadership – from a turnover of about 70 million euros in 2007 to 300 million euros today. His strategic decisions have enabled the company to establish a strong position in the medical, military and test and measurement markets, including the automotive sector, in Europe, North America and Asia. ODU now has five production sites and twelve sales offices worldwide," says Dr. Christoph Endrös.

Dr. Christoph Endrös is retiring from the Supervisory Board after serving for many years as its chairman. He will now chair the in 2024 newly created Shareholder's Committee. Dr. Stefan Gilch will take over as Chairman of the Supervisory Board. Dr. Ralph Lässig, who has been a member since January 2023, continues to serve as member of the Supervisory Board.

Foxconn Confirms Rotating CEO System

Following rumors indicating that Foxconn is considering adopting a rotational CEO system, Young Liu, chairman of Foxconn, when attending the Autotronics Taipei on April 17, disclosed that an internal plan for the system has been initiated since April without elaborating on the details regarding rotation timing and candidates.

Liu revealed that the rotational CEO system started as an internal staff training initiative before it became public. He noted that the group already uses similar practices in various roles. They are now expanding this rotation system to include CEOs.

Liu explained that the rotational system allows CEOs to understand various business groups better. A CEO's role differs from that of a business group leader, with CEOs having broader responsibilities and considerations. By rotating CEOs, they can get to know the operations of different business groups across the conglomerate.

Global PC Shipments Return to Growth and Pre-Pandemic Volumes in the First Quarter of 2024

After two years of decline, the worldwide traditional PC market returned to growth during the first quarter of 2024 (1Q24) with 59.8 million shipments, growing 1.5% year over year, according to preliminary results from the International Data Corporation (IDC) Worldwide Quarterly Personal Computing Device Tracker. Growth was largely achieved due to easy year-over-year comparisons as the market declined 28.7% during the first quarter of 2023, which was the lowest point in PC history. In addition, global PC shipments finally returned to pre-pandemic levels as 1Q24 volumes rivaled those seen in 1Q19 when 60.5 million units were shipped.

With inflation numbers trending down, PC shipments have begun to recover in most regions, leading to growth in the Americas as well as Europe, the Middle East, and Africa (EMEA). However, the deflationary pressures in China directly impacted the global PC market. As the largest consumer of desktop PCs, weak demand in China led to yet another quarter of declines for global desktop shipments, which already faced pressure from notebooks as the preferred form factor.

Hon Hai Posts Revenue Decline

Hon Hai Precision Industry Co, a major iPhone assembler and supplier of artificial intelligence (AI) servers powered by Nvidia Corp's chips, posted an annual decline in revenue of 9.6 percent for last quarter due to lower smartphone shipments, matching a company estimate last month.

Revenue dropped to NT\$1.32 trillion (US\$41.18 billion) last quarter, compared with NT\$1.46 trillion in the first three months of last year. On a quarterly basis, revenue plunged about 28.65 percent in the traditionally slack season.

The company attributed the declines to a higher base in the prior year as smartphone production and shipments were postponed to the first quarter of last year from the final quarter of 2022 after a surge of COVID-19 cases in China temporarily halted operation of its Zhengzhou factory, an iPhone manufacturing hub of Hon Hai.

From China to Mexico: Foxconn is Leading an AI Technology Manufacturing Shift

A new report by the Wall Street Journal highlights the seismic change the electronics manufacturing world is undergoing right now. Foxconn and other major Taiwanese corporations have been asked by Western clients (mostly the US) to move a big portion of their production outside China – and Mexico is likely to have a major role in this new geopolitical play.

Thanks to the U.S.-Mexico-Canada Agreement (USMCA) signed in 2020, billions of dollars are being invested to fuel development of new manufacturing plants in the country. According to James Huang, chairman of the Taiwan External Trade Development Council, this "nearshoring" process is accelerating because the US and Canada hope to replace product imports from Asia "as much as possible."

Mexico will likely become the most important manufacturing hub for the USMCA countries, Huang revealed, and Foxconn is an important element in this unprecedented industrial development.

The Taiwanese conglomerate invested around \$690 million in Mexico over the past four years, and it has now spent an additional \$27 million to purchase land in the Mexican state of Jalisco.

Powerful AI servers and other AI accelerator equipment are a major focus for today's electronics industry, and Foxconn is just one of the companies being forced to move their business from China to Mexico. The company is part of a group known as the "six brothers of electronics" of Taiwan, which also includes Pegatron, Wistron, Quanta, Compal, and Inventec.

Samsung Receives \$6.4 billion in CHIPS Grants, Will Boost Production in Texas

The deal will result in over \$40 billion in investment from Samsung, cementing Texas' role in the advanced semiconductor industry and creating at least 21,500 jobs. There will also be up to \$40 million in CHIPS funding used to train and develop the local workforce. Commerce Secretary Gina Raimondo said Samsung's CHIPS money will help support two new chip production facilities, a research center and a packaging facility for 2.5D packaging at its new site in Taylor, Texas. The first of the new fabs will start making 2nm chips in 2026, according to a senior US official. The second fab will also make chips based on 2nm and 4nm process nodes.

The money will also allow Samsung to expand its semiconductor facility in Austin, Texas, about 20 miles from the Taylor site.

The tech giant is expected to invest around \$45 billion in constructing and expanding its facilities in Texas by the end of the decade, according to senior administration officials.

China Manufacturing Expands After Lull

Manufacturing in China expanded last month after contracting for five consecutive months, an official survey of factory managers released yesterday showed, suggesting a rebound in industrial activities following the Lunar New Year holiday. The official purchasing managers' index (PMI) rose from 49.1 in February to 50.8 last month. The index is on a scale up to 100, where 50 marks the cutoff between expansion and contraction. The monthly manufacturing PMI has mostly been less than 50 over the past 12 months: Other than this month, factory activities only recorded an expansion in September last year.

The Chinese Communist Party's target is to grow the economy by about 5 percent this year, an ambition that economists say might be hard to attain.

Graphics Card Prices on the Rise in China as demand Surpasses Supply, Could Impact Global Markets

China has seen its high-end Nvidia RTX 4080 and RTX 4090 D prices increase recently, writes IT Home. Citing reports in the Taiwanese media, it adds that this trend has now spread to other products further down Nvidia's card hierarchy, with add-in board partners set to raise prices by around 10% on average.

The publication uses the RTX 4060 Ti as an example of the price increases. It claims that Nvidia has been limiting supply of the mid-range card to keep the prices high as the previous market inventory has been depleted. Demand is outstripping supply – a condition that leads to products becoming more expensive, as we saw a few years ago.

Three years ago, massive demand fueled by the lockdowns combined with global chip shortages and skyrocketing crypto led to an enormous spike in graphics card prices. In May of 2021, Nvidia cards sold for over 200% their MSRP, and that was only if you could find one in stores. There was always the option of paying scalpers several thousand dollars on eBay.

Apple Doubles India iPhone Production to \$14 billion as it Shifts from China

Apple produced \$14 billion worth of iPhones in India over the last fiscal year, a sign of the company's continued effort to manufacture more devices outside of China, a report from Bloomberg said Wednesday.

As relations between the U.S. and China have soured, Apple has worked to diversify its supply chain by expanding production in countries like Vietnam and India. It's a big shift for the iPhone maker, which has historically relied on China for manufacturing.

Apple now makes around 1 in 7, or 14%, of its iPhones in India, twice the amount it produced there last year, the report said. The manufacturer Pegatron assembled around 17% of those iPhones, while Foxconn produced around 67%, according to the report. Wistron built the rest.

Humanoid Robots are Finally on the Way

Over the past three years, there has been an explosion of companies racing to integrate the hardware and software that will constitute a viable humanoid robot. The new proliferation of innovators is exactly what a futurist would expect to see based on analogies to the launch of automobiles, airplanes, and personal computers. For example, GTP-4 creator OpenAI is investing in this sector.

As indicated by the most recent Gartner Hype Cycle for Mobile Robots & Drones (shown in the printable issue) other types of robots including delivery drones, non-humanoid warehouse robots, and even autonomous vehicles are expected to see commercialization by 2033. However, humanoid robots will only realize their potential once many factors related to cost, functionality, and user acceptance are resolved. And this may take up to 20 years.

Second, adoption of humanoid robots will depend primarily on cost, functionality, and reliability. Late in 2022, Goldman-Sachs created four possible scenarios for humanoid robot adoption over the next 13 years largely targeted at factory & warehouse applications in the United States, as well as elder-care applications, globally. Their "base case" involved introducing a functional humanoid robot in 2025 at \$250,000 per copy. That estimate was based on the general characteristics of Tesla's Optimus robot prototype unveiled in September 2022.

Top Trends in Robotics for 2024

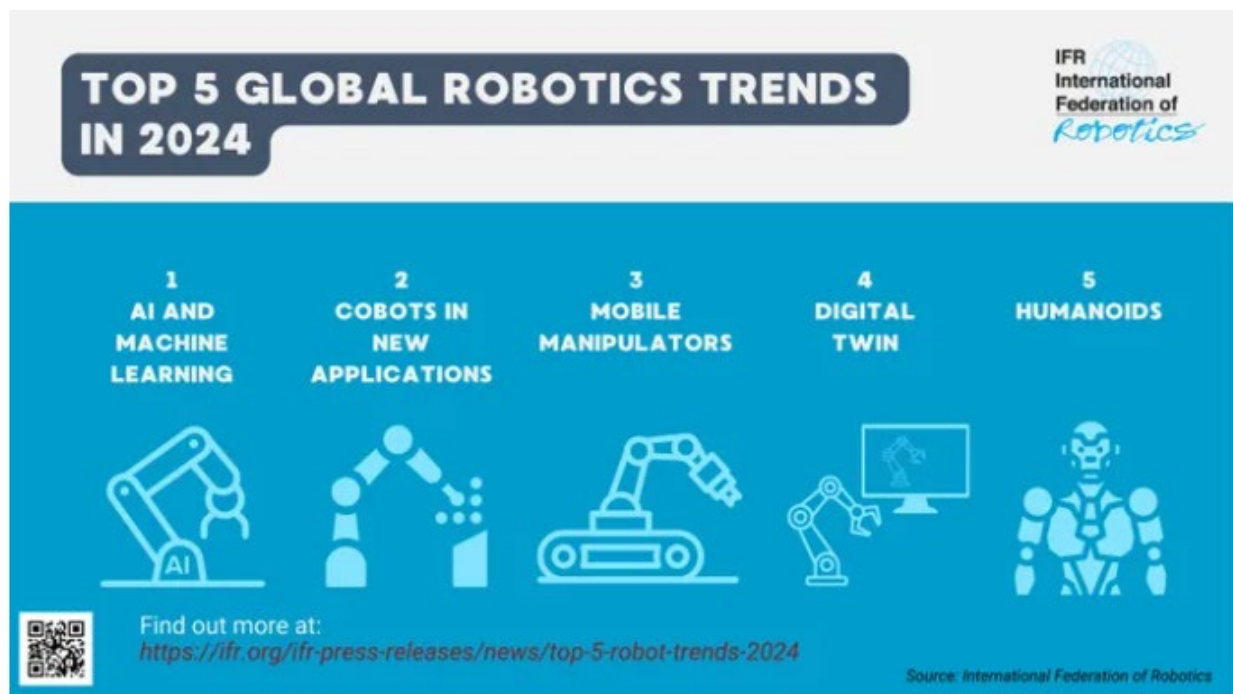


Image courtesy of the International Federation of Robotics.

Global Top-5 Notebook Brands see February Shipments Rise Over 10% Monthly and Yearly

DIGITIMES Research's study on the global top-5 notebook brands, not including Apple, and the top-3 ODMs' shipments in February 2024 (shipment volumes do not include detachable models) showed their combined shipments enjoyed a 10% month-on-month increase and a 13% year-on-year increase.

The shipment increases can be accredited to the rising shipments of brand vendors' new notebooks powered by Intel's latest CPUs. The shipment increases are also due to strong demand from Europe and emerging markets, according to DIGITIMES Research's newest update on global notebook shipments.

Among the top-5 notebook brands in February, Lenovo, the leading brand, performed the best with a 36% month-on-month increase in shipments, driven by a push to meet its annual targets. Hewlett-Packard (HP) saw a 10% on-month increase due to volume shipments of its new models. Dell's growth was modest at 6% due to conservative attitudes among enterprise customers.

US Manufacturing Expands After 16-Month Slump

The US manufacturing sector in March expanded for the first time in 16 months, with the Institute for Supply Management's leading index, the PMI, breaking the 50.0 threshold between growth and contraction. The PMI registered 50.3, up 2.5 percentage points from February's 47.8.

New orders also exceeded 50.0, at 51.4, and production grew 6.2 percent to 54.0.

Google Agrees to Destroy Browsing Data Collected in Incognito Mode

Google agreed to destroy or de-identify billions of records of web browsing data collected when users were in its private browsing "Incognito mode," according to a proposed class action settlement filed Monday.

The proposed settlement in *Brown v. Google* will also mandate greater disclosure from the company about how it collects information in Incognito mode and put limits on future data collection. If approved by a California federal judge, the settlement could apply to 136 million Google users. The 2020 lawsuit was brought by Google account holders who accused the company of illegally tracking their behavior through the private browsing feature.

The proposal is valued at \$5 billion, calculated by determining the value of data Google has stored and would be forced to destroy and the data it would be prevented from collecting. Google would need to address data collected in private browsing mode in December 2023 and earlier. Any data that is not outright deleted must be de-identified.

Samsung Beats Apple to Regain Top Spot as World's Leading Smartphone Seller

Samsung Electronics regained the leading position in global smartphone sales just five months after ceding it to Apple. The comeback is credited to the robust performance of its new AI-powered Galaxy S24 smartphones, according to industry officials and data.

Samsung ceded the No. 1 position to Apple in September last year, but the Galaxy 24, which features a range of AI functions, has seen a positive response in the market since its debut in January.

In February, Samsung sold 19.69 million smartphones, capturing a 20 percent market share, beating Apple, which sold 17.41 million phones for an 18 percent share, according to data from market researcher Counterpoint Research.

Analysts attributed Samsung's return to the No. 1 spot to robust sales in the United States and European markets.

"It is encouraging that Samsung regained the top spot by achieving a 20 percent global share with a positive response to the Galaxy S24 series in the U.S. and Europe," Kim Rok-ho, a researcher at Hana Securities, said.

The manufacturer of the Galaxy series of smartphones maintained its top spot in the European market with a 34 percent share. Additionally, it experienced a notable surge in its share of the U.S. market, traditionally dominated by Apple products, rising to 36 percent from 20 percent in January. Apple's share of the U.S. market fell from 64 percent to 48 percent over the same period.

Apple Lays off Over 600 California Employees After Shuttering Car Project

Apple is laying off 614 workers in California, according to a new state filing, the company's first significant round of job cuts since the Covid pandemic.

The affected Apple employees worked at eight different facilities in Santa Clara, according to the WARN notice posted by California. The workers were officially informed of the cuts on March 28 and the changes are effective May 27, the filing said.

4 New Smart Home Products Apple is Rumored to be Developing

Apple TV with a camera: After introducing the FaceTime app with tvOS 17, Gurman suggests Apple has “discussed automating household functions and offering a revamped Apple TV set-top box with a built-in camera for FaceTime videoconferencing and gesture-based controls.” Still, I’m unsure if Apple would add a camera to the Apple TV for privacy reasons.

Smart display: This low-end iPad could be “shuttled from room to room as needed and hooked into charging hubs stationed around the house.” This rumored Apple smart home device could be a great competitor for the Amazon Echo Show. Although one could argue that an entry-level iPad could already do all that, it would be interesting if Apple added a specific device with StandBy mode, a better Home app, and other simpler features.

Personal robot: Gurman suggests that Apple could get into humanoid technology for household chores. This project would need at least ten years, but it might have been just a brainstorming session in a meeting and not an actual project the company would pursue.

Table-top product with a robotic arm: Similar to the smart display, this one could be “used to mimic a human on the other side of a FaceTime call, shifting the screen to recreate a nod or a shake of the head.” However, whether Apple’s executive team will support this idea is also unclear.

US Offers TSMC Up to \$6.6 billion for Arizona Factories as Biden Pushes for Chip Security

TSMC’s Arizona subsidiary is set to receive up to \$6.6 billion in U.S. government funding under a preliminary agreement announced by the Biden administration.

The funding, under the US CHIPS and Science Act, will support Taiwan Semiconductor Manufacturing Co.’s more than \$65 billion investment in three cutting-edge fabrication plants in Phoenix, according to the nonbinding agreement.

The Taiwanese multinational semiconductor company is also eligible for around \$5 billion in proposed loans under the CHIPS Act.

US Secretary of Commerce Gina Raimondo said at a press briefing that the agreement was “huge,” adding that the partnership with TSMC will bring “the manufacturing of the world’s most advanced chips to American soil.

According to Raimondo, the funds will include \$50 million to train and develop local talent in Arizona, with TSMC Arizona having already created more than 25,000 jobs and attracted 14 semiconductor suppliers for the state.

Intel Unveils Latest AI Chip as Nvidia Competition Heats Up

Intel unveiled its latest artificial intelligence chip, called Gaudi 3, as chipmakers rush to produce semiconductors that can train and deploy big AI models, such as the one underpinning OpenAI’s ChatGPT.

Intel says the new Gaudi 3 chip is over twice as power-efficient as and can run AI models one-and-a-half times faster than Nvidia's H100 GPU. It also comes in different configurations like a bundle of eight Gaudi 3 chips on one motherboard or a card that can slot into existing systems.

Intel tested the chip on models like Meta's open-source Llama and the Abu Dhabi-backed Falcon. It said Gaudi 3 can help train or deploy models, including Stable Diffusion or OpenAI's Whisper model for speech recognition.

Intel says its chips use less power than Nvidia's.

Nvidia has an estimated 80% of the AI chip market with its graphics processors, known as GPUs, which have been the high-end chip of choice for AI builders over the past year.

This Futuristic Wearable Smartphone Alternative Projects a Screen on Your Palm — And It's Now Widely Available



Humane's Ai Pin is now available for purchase throughout the US. It costs \$699 or \$799 depending on the color and requires a \$24 per month service plan through Humane, in partnership with T-Mobile's 4G network.

Is this the beginning of a screenless future?

The futuristic wearable fastens magnetically onto clothing and becomes a voice-activated AI assistant, like a faster Siri or Alexa, that can make calls, send texts, take notes, and find answers to complex questions.

Humane's husband-wife co-founders, Imran Chaudhri and Bethany Bongiorno said the Ai Pin is the first step to a screenless future.

It's powered by technology from ChatGPT-creator OpenAI and backed by Microsoft's cloud computing services. Instead of a screen, the Ai Pin beams a Laser Ink projection on a user's palm, which they can then control with a series of hand gestures.

Google Announces Huge Company Shakeup to Ensure it Remains at Forefront of AI Development

Google LLC is reorganizing some key parts of its company, and it's no surprise to learn that the changes are being driven by its ambitions to become a major player in artificial intelligence.

Sundar Pichai, chief executive of Google and parent Alphabet Inc., announced through a blog post that he's consolidating the teams that focus on building AI models across its Research and DeepMind units into a single organization. With the move, Google's Responsible AI team, which focuses on AI safety, will shift from its Research organization to the DeepMind unit, so those experts can collaborate more effectively with the teams responsible for designing, building, and training its Gemini generative AI models.

In addition, the company is merging its platform and hardware teams into a single Platform and Devices unit, effectively unifying its Android, Chrome and ChromeOS platform development teams with hardware projects such as its Pixel devices.

According to Pichai, the changes will help to “simplify decisions” at the company and enable the respective teams to move much faster.

Apple Bought a Startup That Could Help Make iPhone AI Even More Powerful

Early reports suggest iOS 18 is going to be packed with AI features, and Apple is continuously hinting at that. We’ve seen published papers, CEO Tim Cook talking about how we’re going to hear more about AI this year, and now Apple has bought another startup that specializes in making large language models work in smartphones.

According to Challenges (via iPhoneSoft), Apple bought a French startup called Datakalab in December 2023. The company specializes in algorithm compression and embedded artificial intelligence, two important features that Apple needs to stand out from the competition with built-in AI instead of cloud-based features.

Bishop & Associates Launches New eCommerce Website



Bishop & Associates has launched a new eCommerce website at <https://bishop-research.com>.

All research reports published by Bishop & Associates are available for purchase on this site.

In addition, subscriptions to ***The Bishop Report*** monthly newsletter covering the global connector industry and ***The World's Connector Companies*** annual subscription are also available from the site.

For more information on our two latest reports click below.

[World Connector Market Handbook 2023-2029](#)

[2024 World Cable Assembly Market](#)

World Connector Market Handbook

WORLD CONNECTOR STATISTICS REGIONS – PRODUCTS – MARKET SECTORS 2014 – 2024F and 2029 FORECAST



Bishop & Associates has just released the 2024 edition of the World Connector Market Handbook. This comprehensive seven-chapter, 229-page report analyzes all aspects of the world electronic connector market. This report provides detailed connector statistics by equipment sector and product category for North America, Europe, Japan, China, Asia Pacific, and the ROW region. Included is a complete chapter on worldwide connector industry results by region, equipment sector, and product category. Data is provided for the years 2014 – 2023, and projections for 2024 and 2029 (including five-year CAGRs).

ANALYSIS OF THE WORLD ELECTRONIC CONNECTOR MARKET

Decreasing over \$2.2 billion in US dollars, connector industry sales decreased -2.7% from 2022 to 2023. All regions except Europe and ROW experienced a decrease in sales, with Japan showing the greatest decrease, declining -9.5% followed by the Asia Pacific region where sales declined -7.3%. Europe, which had the greatest increase, saw sales grow +3.8%, while sales in the ROW region increased 0.9%.

World Connector Market by Region 2022 to 2023 with Percent Change

Region	2022	2023	Percent Change
North America	\$18,889.0	\$18,840.8	-0.3%
Europe	\$17,328.5	\$17,992.7	3.8%
Japan	\$5,172.8	\$4,683.7	-9.5%
China	\$26,494.3	\$24,977.1	-5.7%
Asia-Pacific	\$12,194.7	\$11,310.0	-7.3%
ROW	\$4,011.7	\$4,049.8	0.9%
Total	\$84,091.0	\$81,854.1	-2.7%

\$ Millions

World Connector Market Handbook

Regional Summary

As the tables below indicate, the mixed results based on region of the world in 2023, created a variety of changes to the five, 10-, and 20-year compounded annual growth rates (CAGR). Comparing 2023 to 2024F with 2022 to 2023, you see that the total world CAGR dropped for each period, but individual regions saw their CAGR's increase based on their growth. For example, Europe who had growth in 2023, saw their five, 10- and 20-year CAGR increase while, in China, where sales declined in 2023, the CAGR during those same periods declined. In regions where the growth or decline was under 1.0%, in many instances, the CAGR remained unchanged or fluctuated very little.

Regional Growth Rates 2023 – 2024F

Region	2023	2024F	% Change	Past 5 Year CAGR	Past 10 Year CAGR	Past 20 Year CAGR
North America	\$18,840.8	\$XX,XXX.X	X.X%	X.X%	Y.Y%	Z.Z%
Europe	\$17,992.7	\$XX,XXX.X	X.X%	X.X%	Y.Y%	Z.Z%
Japan	\$4,683.7	\$X,XXX.X	X.X%	X.X%	Y.Y%	Z.Z%
China	\$24,977.1	\$XX,XXX.X	X.X%	X.X%	Y.Y%	ZZ.Z%
Asia-Pacific	\$11,310.0	\$XX,XXX.X	X.X%	X.X%	Y.Y%	Z.Z%
ROW	\$4,049.8	\$4,102.5	1.3%	X.X%	Y.Y%	Z.Z%
Total	\$81,854.1	\$XX,XXX.X	X.X%	X.X%	Y.Y%	Z.Z%

\$ Millions

Regional Growth Rates 2022 – 2023

Region	2022	2023	% Change	Past 5 Year CAGR	Past 10 Year CAGR	Past 20 Year CAGR
North America	\$18,889.0	\$18,840.8	-0.3%	10.2%	6.7%	3.1%
Europe	\$17,328.5	\$17,992.7	3.8%	10.3%	4.5%	4.4%
Japan	\$5,172.8	\$4,683.7	-9.5%	1.3%	-2.8%	0.7%
China	\$26,494.3	\$24,977.1	-5.7%	8.7%	6.8%	12.4%
Asia-Pacific	\$12,194.7	\$11,310.0	-7.3%	6.4%	4.2%	6.7%
ROW	\$4,011.7	\$4,049.8	0.9%	10.9%	2.8%	4.7%
Total	\$84,091.0	\$81,854.1	-2.7%	8.6%	4.8%	5.3%

\$ Millions

World Connector Market Handbook

End-Use Equipment Sectors

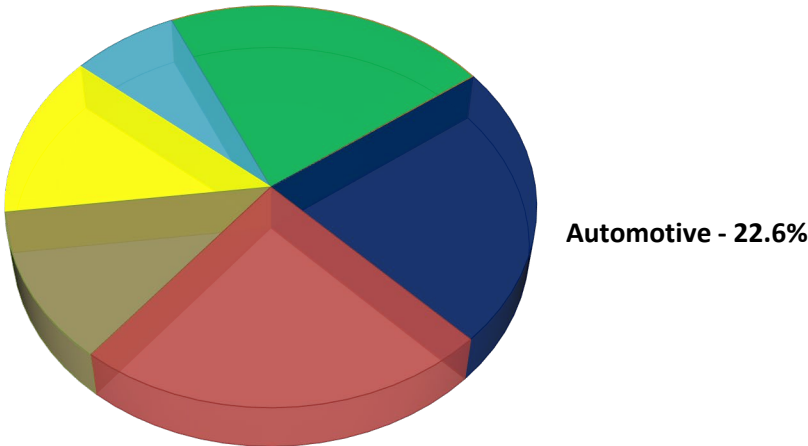
Telecom/datacom was the largest end-use equipment sector for electronic connector products with 2023 shipments of \$1X,XX1.4 million. Telecom/datacom was followed by automotive, where 2023 sales grew X.X% to \$1X,XXX.7 million. It is anticipated in 2024 that telecom/datacom will remain the largest end-use equipment sector, once again followed by automotive. Business/office equipment showed the smallest growth in 2023 and sales declined to \$XXX.X million, a decrease of -Y.Y%, from 2022.

World Connector Market by Equipment Sector

Sector	2023	2024F	Percent Change
Computers & Peripherals	\$X,XXX.X	\$X,XXX.X	Y.Y%
Business/Office Equipment	\$875.4	\$X,XXX.X	Y.Y%
Instrumentation	\$2,364.8	\$X,XXX.X	Y.Y%
Medical Equipment	\$X,XXX.X	\$X,XXX.X	Y.Y%
Industrial	\$XX,XXX.X	\$X,XXX.X	Y.Y%
Automotive	\$XX,XXX.X	\$XX,XXX.X	Y.Y%
Transportation (non-auto)	\$5,857.4	\$X,XXX.X	Y.Y%
Military/Aerospace	\$X,XXX.X	\$X,XXX.X	Y.Y%
Telecom/Datacom	\$XX,XXX.X	\$XX,XXX.X	Y.Y%
Consumer	\$X,XXX.X	\$X,XXX.X	Y.Y%
Other	\$3,043.8	\$X,XXX.X	Y.Y%
Total	\$81,854.1	\$X,XXX.X	Y.Y%

\$ Millions

World Connector Market - Top Five Equipment Sectors – 2023



World Connector Market Handbook

The following table of contents shows the detail provided in this new report.

Table of Contents

Chapter 1 - Analysis of the World Electronic Connector Market

World Connector Market by Region
World Connector Market Year-to-Year Growth 1981 – 2024F
What Happened in 2023 by Region?
North America
North American Market Year-to-Year Growth 1981-2024F
Europe
European Market Year-to-Year Growth 1981-2024F
Japan
Japanese Market Year-to-Year Growth 1981-2024F
China
Chinese Market Year-to-Year Growth 1981-2024F
Asia Pacific
Asia Pacific Market Year-to-Year Growth 1981-2024F
ROW
ROW Market Year-to-Year Growth 1981-2024F
Regional Summary
Regional Growth Rates
Worldwide Connector Market by Region 2014-2024F
Worldwide Connector Market by Region - 2029 Forecast & Five Year CAGR
2024F/2029F Connector Five-Year CAGR
Worldwide Connector Market by Region - Percent of Total by Year & Region
World Connector Market - Geographic Regions - Percent of Total Sales
2023 and 2024F Connector Sales by Region
2024F and 2029F Connector Sales by Region
End-Use Equipment Sectors
World Connector Market by Equipment Sector
World Connector Market - Top Five Equipment Sectors - 2023
Worldwide Connector Market by End-Use Equipment 2014 – 2024F
Worldwide Connector Market by End-Use Equipment - 2029 Forecast & Five Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Growth
Worldwide Connector Market by End-Use Equipment - Percent of Total by Year & Equip. Sector
World Connector Market - Top Five End-Use Equipment Sectors - Percent of Total Sales
2014 Worldwide Connector Market by End-Use Equipment
2015 Worldwide Connector Market by End-Use Equipment
2016 Worldwide Connector Market by End-Use Equipment
2017 Worldwide Connector Market by End-Use Equipment
2018 Worldwide Connector Market by End-Use Equipment
2019 Worldwide Connector Market by End-Use Equipment
2020 Worldwide Connector Market by End-Use Equipment
2021 Worldwide Connector Market by End-Use Equipment
2022 Worldwide Connector Market by End-Use Equipment
2023 Worldwide Connector Market by End-Use Equipment
2024F Worldwide Connector Market by End-Use Equipment
2029F Worldwide Connector Market by End-Use Equipment
Product Categories
World Connector Market by Product Category
World Connector Market - Top Five Product Categories - 2023
Worldwide Connector Market by Product Category 2014 - 2024F
Worldwide Connector Market by Product Category - 2029 Forecast & Five Year CAGR

Chapter 1 - Analysis of the World Electronic Connector Market (continued)

2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
Worldwide Connector Market by Product Category - Percent of Total by Year & Product Category
World Connector Market - Top Five Product Categories - Percent of Total Sales
2014 Worldwide Connector Market by Product Category
2015 Worldwide Connector Market by Product Category
2016 Worldwide Connector Market by Product Category
2017 Worldwide Connector Market by Product Category
2018 Worldwide Connector Market by Product Category
2019 Worldwide Connector Market by Product Category
2020 Worldwide Connector Market by Product Category
2021 Worldwide Connector Market by Product Category
2022 Worldwide Connector Market by Product Category
2023 Worldwide Connector Market by Product Category
2024F Worldwide Connector Market by Product Category
2029F Worldwide Connector Market by Product Category
2014 Worldwide Connector Market - Product Category / End-Use Equipment Matrix
2015 Worldwide Connector Market - Product Category / End-Use Equipment Matrix
2016 Worldwide Connector Market - Product Category / End-Use Equipment Matrix
2017 Worldwide Connector Market - Product Category / End-Use Equipment Matrix
2018 Worldwide Connector Market - Product Category / End-Use Equipment Matrix
2019 Worldwide Connector Market - Product Category / End-Use Equipment Matrix
2020 Worldwide Connector Market – Product Category/ End-Use Equipment Matrix
2021 Worldwide Connector Market – Product Category/ End-Use Equipment Matrix
2022 Worldwide Connector Market – Product Category/ End-Use Equipment Matrix
2023 Worldwide Connector Market – Product Category/ End-Use Equipment Matrix
2024F Worldwide Connector Market - Product Category / End-Use Equipment Matrix
2029F Worldwide Connector Market - Product Category / End-Use Equipment Matrix

Chapter 2 - Analysis of the North American Electronic Connector Market

North American Market Year-to-Year Growth 1981-2024F
North America as Percent of Total Connector Market – 2023
End-Use Equipment Sectors
North American Connector Market by End-Use Equipment Sector
2023 North American Connector Market - Top Five Equipment Sectors - Percent of Total Market
North American Connector Market by Equipment Sector 2014 - 2024F
North American Connector Market by Equipment Sector 2029 Forecast & Five-Year CAGR

World Connector Market Handbook

Chapter 2 - Analysis of the North American Electronic Connector Market (continued)

2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
North American Connector Market by End-Use Equip. - Percent of Total by Year & Equip. Sector
North American Connector Market - Top Five End-Use Equipment Sectors - Percent of Total Sales
2024F and 2029F Connector Sales by End-Use Equipment Sector
Product Categories
North American Connector Market by Product Category
2023 North American Connector Market - Top Five Product Categories - Percent of Total Market
North American Connector Market by Product Category - 2014 - 2024F
North American Connector Market by Product Category - 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
North American Connector Market by Product Category - Percent of Total by Year & Prod. Category
North American Connector Market - Top Five Product Categories - Percent of Total Sales
2014 North American Connector Market - Product Line / End-Use Sector Matrix
2015 North American Connector Market - Product Line / End-Use Sector Matrix
2016 North American Connector Market - Product Line / End-Use Sector Matrix
2017 North American Connector Market - Product Line / End-Use Sector Matrix
2018 North American Connector Market - Product Line / End-Use Sector Matrix
2019 North American Connector Market - Product Line / End-Use Sector Matrix
2020 North American Connector Market – Product Line/ End-Use Sector Matrix
2021 North American Connector Market - Product Line / End-Use Sector Matrix
2022 North American Connector Market - Product Line / End-Use Sector Matrix
2023 North American Connector Market - Product Line / End-Use Sector Matrix
2024F North American Connector Market - Product Line / End-Use Sector Matrix
2029F North American Connector Market - Product Line / End-Use Sector Matrix

Chapter 3 - Analysis of the European Electronic Connector Market

European Market Year-to-Year Growth 1981-2024F
Europe as Percent of Total Connector Market – 2023
End-Use Equipment Sectors
European Connector Market by End-Use Equipment Sector
2023 European Connector Market - Top Five Equipment Sectors - Percent of Total Market
European Connector Market by Equipment Sector 2014 - 2024F
European Connector Market by Equipment Sector 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth

Chapter 3 - Analysis of the European Electronic Connector Market (continued)

European Connector Market by End-Use Equipment - Percent of Total by Year & Equipment Sector
European Connector Market - Top Five End-Use Equipment Sectors - Percent of Total Sales
2024F and 2029F Connector Sales by End-Use Equipment Sector
Product Categories
European Connector Market by Product Category
2023 European Connector Market - Top Five Product Categories - Percent of Total Market
European Connector Market by Product Category - 2014 - 2024F
European Connector Market by Product Category - 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
European Connector Market by Product Category - Percent of Total by Year & Product Category
European Connector Market - Top Five Product Categories - Percent of Total Sales
2014 European Connector Market - Product Line / End-Use Sector Matrix
2015 European Connector Market - Product Line / End-Use Sector Matrix
2016 European Connector Market - Product Line / End-Use Sector Matrix
2017 European Connector Market - Product Line / End-Use Sector Matrix
2018 European Connector Market - Product Line / End-Use Sector Matrix
2019 European Connector Market - Product Line / End-Use Sector Matrix
2020 European Connector Market – Product Line/ End-Use Sector Matrix
2021 European Connector Market - Product Line / End-Use Sector Matrix
2022 European Connector Market - Product Line / End-Use Sector Matrix
2023 European Connector Market - Product Line / End-Use Sector Matrix
2024F European Connector Market - Product Line / End-Use Sector Matrix
2029F European Connector Market - Product Line / End-Use Sector Matrix

Chapter 4 - Analysis of the Japanese Electronic Connector Market

Japanese Market Year-to-Year Growth 1981-2024F
Japan as Percent of Total Connector Market – 2023
End-Use Equipment Sectors
Japanese Connector Market by End-Use Equipment Sector
2023 Japanese Connector Market - Top Five Equipment Sectors - Percent of Total Market
Japanese Connector Market by Equipment Sector 2014 - 2024F
Japanese Connector Market by Equipment Sector 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
Japanese Connector Market by End-Use Equip. - Percent of Total by Year & Equip. Sector

World Connector Market Handbook

Chapter 4 - Analysis of the Japanese Electronic Connector Market (continued)

Japanese Connector Market - Top Five End-Use Equipment Sectors - Percent of Total Sales
2024F and 2029F Connector Sales by End-Use Equipment Sector
Product Categories
Japanese Connector Market by Product Category
2023 Japanese Connector Market - Top Five Product Categories - Percent of Total Market
Japanese Connector Market by Product Category - 2014 - 2024F
Japanese Connector Market by Product Category - 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
Japanese Connector Market by Product Category - Percent of Total by Year & Prod. Category
Japanese Connector Market - Top Five Product Categories - Percent of Total Sales
2014 Japanese Connector Market - Product Line / End-Use Sector Matrix
2015 Japanese Connector Market - Product Line / End-Use Sector Matrix
2016 Japanese Connector Market - Product Line / End-Use Sector Matrix
2017 Japanese Connector Market - Product Line / End-Use Sector Matrix
2018 Japanese Connector Market - Product Line / End-Use Sector Matrix
2019 Japanese Connector Market - Product Line / End-Use Sector Matrix
2020 Japanese Connector Market - Product Line / End-Use Sector Matrix
2021 Japanese Connector Market - Product Line / End-Use Sector Matrix
2022 Japanese Connector Market - Product Line / End-Use Sector Matrix
2023 Japanese Connector Market - Product Line / End-Use Sector Matrix
2024F Japanese Connector Market - Product Line / End-Use Sector Matrix
2029F Japanese Connector Market - Product Line / End-Use Sector Matrix

Chapter 5 - Analysis of the Chinese Electronic Connector Market

Chinese Market Year-to-Year Growth 1981-2024F
End-Use Equipment Sectors
Chinese Connector Market by End-Use Equipment Sector
2023 Chinese Connector Market - Top Five Equipment Sectors - Percent of Total Market
Chinese Connector Market by Equipment Sector 2014 - 2024F
Chinese Connector Market by Equipment Sector 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
Chinese Connector Market by End-Use Equip. - Percent of Total by Year & Equip. Sector
Chinese Connector Market - Top Five End-Use Equipment Sectors - Percent of Total Sales
2024F and 2029F Connector Sales by End-Use Equipment Sector

Chapter 5 - Analysis of the Chinese Electronic Connector Market (continued)

Product Categories
Chinese Connector Market by Product Category
2023 Chinese Connector Market - Top Five Product Categories - Percent of Total Market
Chinese Connector Market by Product Category - 2014 - 2024F
Chinese Connector Market by Product Category - 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
Chinese Connector Market by Product Category - Percent of Total by Year & Prod. Category
Chinese Connector Market - Top Five Product Categories - Percent of Total Sales
Chinese Connector Market by Product Category - 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
Chinese Connector Market by Product Category - Percent of Total by Year & Prod. Category
Chinese Connector Market - Top Five Product Categories - Percent of Total Sales
2014 Chinese Connector Market - Product Line / End-Use Sector Matrix
2015 Chinese Connector Market - Product Line / End-Use Sector Matrix
2016 Chinese Connector Market - Product Line / End-Use Sector Matrix
2017 Chinese Connector Market - Product Line / End-Use Sector Matrix
2018 Chinese Connector Market - Product Line / End-Use Sector Matrix
2019 Chinese Connector Market - Product Line / End-Use Sector Matrix
2020 Chinese Connector Market - Product Line / End-Use Sector Matrix
2021 Chinese Connector Market - Product Line / End-Use Sector Matrix
2022 Chinese Connector Market - Product Line / End-Use Sector Matrix
2023 Chinese Connector Market - Product Line / End-Use Sector Matrix
2024F Chinese Connector Market - Product Line / End-Use Sector Matrix
2029F Chinese Connector Market - Product Line / End-Use Sector Matrix

Chapter 6 - Analysis of the Asia Pacific Electronic Connector Market

Asia Pacific Market Year-to-Year Growth 1981-2024F
Asia Pacific as a Percent of Total Connector Market - 2023
End-Use Equipment Sectors
Asia Pacific Connector Market by End-Use Equipment Sector
2023 Asia Pacific Connector Market - Top Five Equipment Sectors - Percent of Total Market
Asia Pacific Connector Market by Equipment Sector 2014 - 2024F
Asia Pacific Connector Market by Equipment Sector 2029 Forecast & Five-Year CAGR
Asia Pacific Connector Market by End-Use Equipment - Percent of Total by Year & Equipment Sector

World Connector Market Handbook

Chapter 6 - Analysis of the Asia Pacific Electronic Connector Market (continued)

Asia Pacific Connector Market - Top Five End-Use Equipment Sectors - Percent of Total Sales
2024F and 2029F Connector Sales by End-Use Equipment Sector
Product Categories
Asia Pacific Connector Market by Product Category
2023 Asia Pacific Connector Market - Top Five Product Categories - Percent of Total Market
Asia Pacific Connector Market by Product Category - 2014 - 2024F
Asia Pacific Connector Market by Product Category - 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
Asia Pacific Connector Market by Product Category - Percent of Total by Year & Prod. Category
Asia Pacific Connector Market - Top Five Product Categories - Percent of Total Sales
Asia Pacific Connector Market by Country – 2023 – 2024F
2023 Asia Pacific Connector Market – Top Five Countries – Percent of Total Market
Asia Pacific Connector Market by Country 2024F and 2029F Forecast & Five-Year CAGR
2029F Asia Pacific Connector Market – Top Five Countries – Percent of Total Market
2014 Asia Pacific Connector Market - Product Line / End-Use Sector Matrix
2015 Asia Pacific Connector Market - Product Line / End-Use Sector Matrix
2016 Asia Pacific Connector Market - Product Line / End-Use Sector Matrix
2017 Asia Pacific Connector Market - Product Line / End-Use Sector Matrix
2018 Asia Pacific Connector Market - Product Line / End-Use Sector Matrix
2019 Asia Pacific Connector Market - Product Line / End-Use Sector Matrix
2020 Asia Pacific Connector Market – Product Line/ End-Use Sector Matrix
2021 Asia Pacific Connector Market - Product Line / End-Use Sector Matrix
2022 Asia Pacific Connector Market - Product Line / End-Use Sector Matrix
2023 Asia Pacific Connector Market - Product Line / End-Use Sector Matrix
2024F Asia Pacific Connector Market - Product Line / End-Use Sector Matrix
2029F Asia Pacific Connector Market - Product Line / End-Use Sector Matrix

Chapter 7 - Analysis of the ROW Electronic Connector Market

ROW Market Year-to-Year Growth 1981-2024F
Rest of the World as Percent of Total Connector Market – 2023
End-Use Equipment Sectors
ROW Connector Market by End-Use Equipment Sector
2023 ROW Connector Market - Top Five Equipment Sectors - Percent of Total Market
ROW Connector Market by Equipment Sector 2014 - 2024F

Chapter 7 - Analysis of the ROW Electronic Connector Market

ROW Connector Market by Equipment Sector 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
ROW Connector Market by End-Use Equip. - Percent of Total by Year & Equip. Sector
ROW Connector Market - Top Five End-Use Equipment Sectors - Percent of Total Sales
2024F and 2029F Connector Sales by End-Use Equipment Sector
Product Categories
ROW Connector Market by Product Category
2023 ROW Connector Market - Top Five Product Categories - Percent of Total Market
ROW Connector Market by Product Category - 2014 - 2024F
ROW Connector Market by Product Category - 2029 Forecast & Five-Year CAGR
2024F/2029F Connector Five-Year CAGR - Ranked by Percent Growth
ROW Connector Market by Product Category - Percent of Total by Year & Prod. Category
ROW Connector Market - Top Five Product Categories - Percent of Total Sales
2014 ROW Connector Market - Product Line / End-Use Sector Matrix
2015 ROW Connector Market - Product Line / End-Use Sector Matrix
2016 ROW Connector Market - Product Line / End-Use Sector Matrix
2017 ROW Connector Market - Product Line / End-Use Sector Matrix
2018 ROW Connector Market - Product Line / End-Use Sector Matrix
2019 ROW Connector Market - Product Line / End-Use Sector Matrix
2020 ROW Connector Market – Product Line/ End-Use Sector Matrix
2021 ROW Connector Market - Product Line / End-Use Sector Matrix
2022 ROW Connector Market - Product Line / End-Use Sector Matrix
2023 ROW Connector Market - Product Line / End-Use Sector Matrix
2024F ROW Connector Market - Product Line / End-Use Sector Matrix
2029F ROW Connector Market - Product Line / End-Use Sector Matrix

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