The Bishop Report

Performance and Forecast of the World Connector Industry

Issue No. 380	2nd Quarter 2024	June 2024

Connector Bookings Continue to Remain Strong
May YTD Bookings up +8.3% and Sales up +2.7%

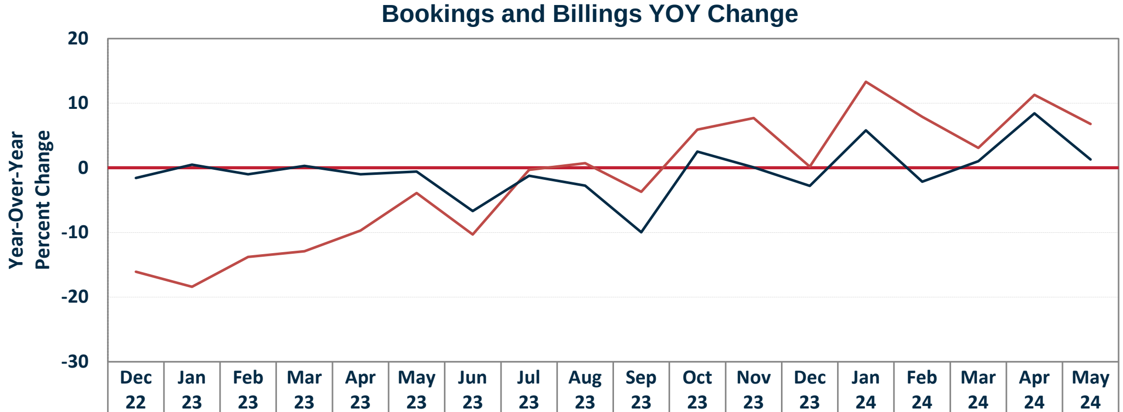
Regional Performance:
YTD, all regions except Japan are showing growth, with the greatest growth in Asia Pacific, where YTD billings have increased 9.5%, followed by China where sales increased 8.0%. Japan, the only region exhibiting a decline, has YTD billings of –21.9%. See page 5.

Industry Backlog:
May backlog was $22,059 million (14.4 weeks). See page 13.

2024 Currency Impact:
The industry registered a YOY decrease in sales in May 2024, of -0.1% in local currency and an increase in sales of +1.3% in USD.

May bookings increased +6.8% and billings increased +1.3% year-over-year. The backlog in May increased to 14.4 weeks.

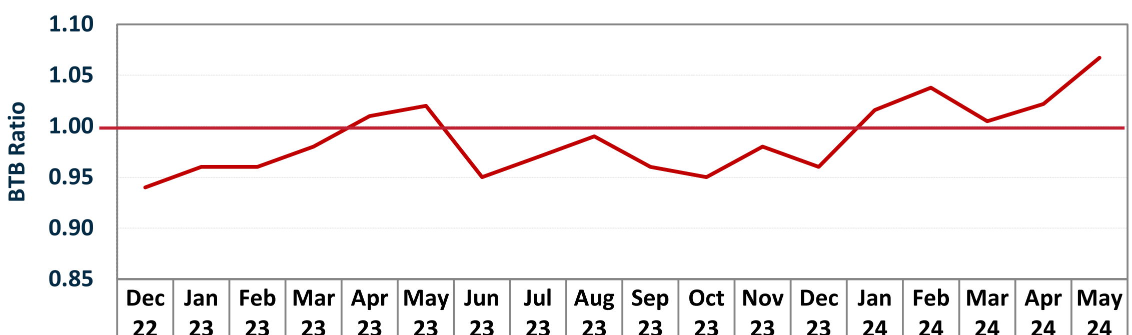
Bookings and Billings YOY Change



	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24
Bookings	-16.1	-18.4	-13.8	-12.9	-9.7	-3.9	-10.3	-0.3	0.7	-3.7	5.9	7.7	0.2	13.3	7.9	3.1	11.3	6.8
Billings	-1.6	0.5	-1.0	0.3	-1.0	-0.6	-6.7	-1.2	-2.8	-10.0	2.5	0.0	-2.8	5.8	-2.2	1.0	8.4	1.3

The book-to-bill ratio in May was 1.07, up from 1.02 in April.

Connector Industry Book-to-Bill



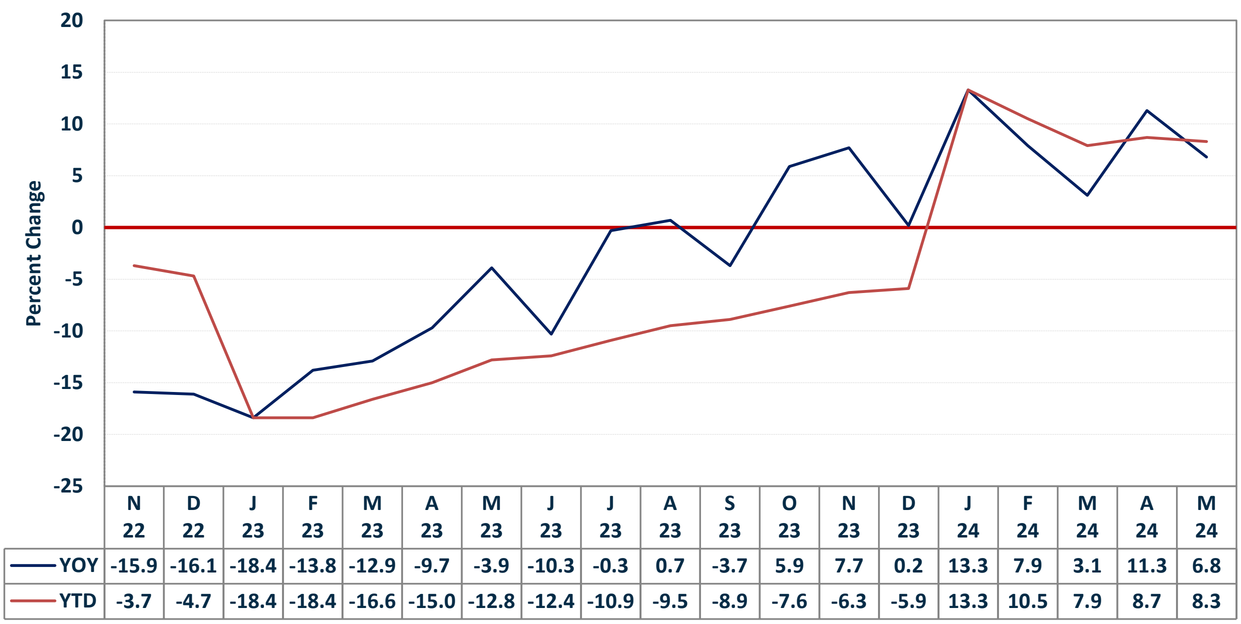
	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24
BtB	0.94	0.96	0.96	0.98	1.01	1.02	0.95	0.97	0.99	0.96	0.95	0.98	0.96	1.02	1.04	1.00	1.02	1.07

Booking Highlights and Conclusions

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

	Sequential			Year-Over-Year			Year-To-Date		
Month	2022	2023	2024	2022	2023	2024	2022	2023	2024
Jan	1.6%	-1.3%	14.1%	14.8%	-18.4%	13.3%	14.8%	-18.4%	13.3%
Feb	10.0%	10.1%	1.5%	7.3%	-13.8%	7.9%	10.8%	-18.4%	10.5%
Mar	-5.1%	1.2%	0.5%	7.1%	-12.9%	3.1%	9.1%	-16.6%	7.9%
Apr	-8.5%	-5.1%	-0.3%	-6.4%	-9.7%	11.3%	5.1%	-15.0%	8.7%
May	6.6%	13.5%	9.0%	-5.1%	-3.9%	6.8%	2.9%	-12.8%	8.3%
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

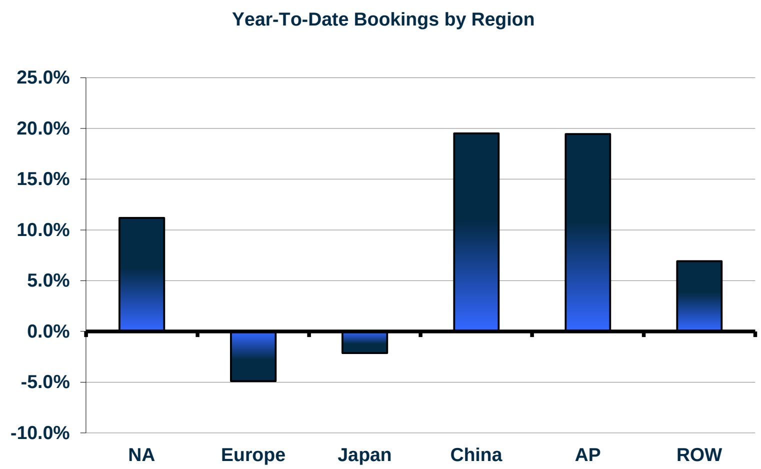


- May bookings increased +6.8% year-over-year.
- Orders increased +9.0% on a sequential basis in May.
- The book-to-bill ratio for May was 1.07. This is the fifth consecutive month of a book-to-bill ratio of 1.00 or greater.

Regional Performance: BOOKINGS

May 2024 Bookings

Region	Sequential	YOY	YTD
NA	18.2%	16.7%	11.2%
Europe	0.9%	-15.9%	-4.9%
Japan	2.9%	-0.7%	-2.1%
China	5.9%	14.1%	19.5%
AP	7.3%	28.2%	19.5%
ROW	12.1%	11.1%	6.9%
Total	9.0%	6.8%	8.3%



- May bookings increased by +6.8% compared to the previous year.

- Year-over-year orders in May rose in four of the six regions. North America, China, Asia Pacific, and the ROW region saw increases with Asia Pacific showing the most growth at +28.2%, followed by North America where bookings increased +11.1% YOY. Europe, and Japan showed a year-over-year decrease, declining -15.9% and -0.7% respectively.

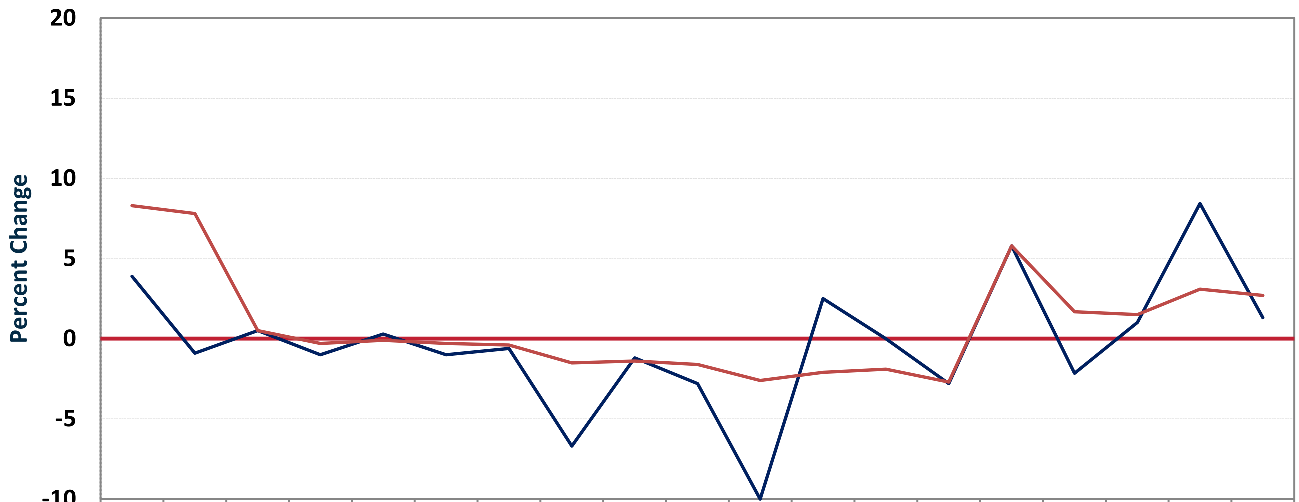
- YTD, all regions increased but Europe and Japan, where orders declined -4.9% and -2.1% respectively.

Note: Additional companies agreed to share their bookings with Bishop. As a result, the January through May 2024 monthly percentages may have changed slightly.

Billing Highlights and Conclusions

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

Billings - YOY and YTD



	N 22	D 22	J 23	F 23	M 23	A 23	M 23	J 23	J 23	A 23	S 23	O 23	N 23	D 23	J 24	F 24	M 24	A 24	M 24
YOY	3.9	-0.9	0.5	-1.0	0.3	-1.0	-0.6	-6.7	-1.2	-2.8	-10.	2.5	0.0	-2.8	5.8	-2.2	1.0	8.4	1.3
YTD	8.3	7.8	0.5	-0.3	-0.1	-0.3	-0.4	-1.5	-1.4	-1.6	-2.6	-2.1	-1.9	-2.7	5.8	1.7	1.5	3.1	2.7

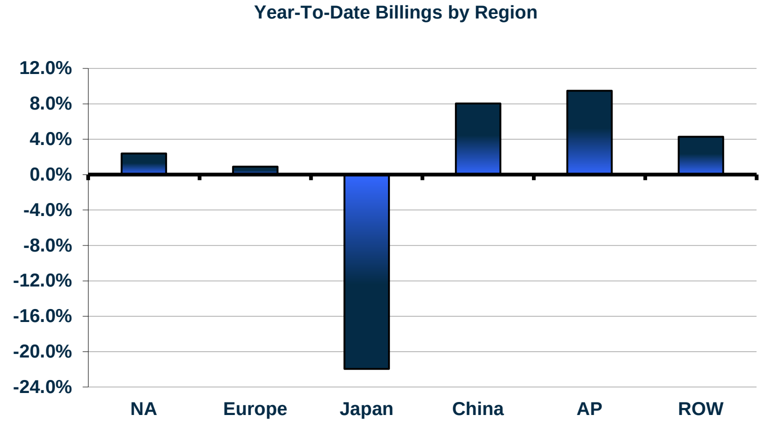
	Sequential			Year-Over-Year			Year-To-Date		
Month	2022	2023	2024	2022	2023	2024	2022	2023	2024
Jan	-5.1%	-3.1%	8.1%	11.4%	0.5%	5.8%	11.4%	0.5%	5.8%
Feb	11.4%	9.7%	-0.6%	10.2%	-1.0%	-2.2%	10.8%	-0.3%	1.7%
Mar	-2.2%	-0.9%	3.8%	9.1%	0.3%	1.0%	10.2%	-0.1%	1.5%
Apr	-6.7%	-7.9%	-2.0%	3.0%	-1.0%	8.4%	8.4%	-0.3%	3.1%
May	11.6%	12.1%	4.4%	7.4%	-0.6%	1.3%	8.2%	-0.4%	2.7%
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%	

- May billings grew +2.7% year-to-date and +1.3% year-over-year.
- Sequentially, May billings increased +4.4%.

Regional Performance: BILLINGS

May 2024 Billings

Region	Sequential	YOY	YTD
NA	3.6%	-6.1%	2.4%
Europe	4.3%	4.0%	0.9%
Japan	0.3%	-23.3%	-21.9%
China	5.0%	10.5%	8.0%
AP	6.3%	13.7%	9.5%
ROW	8.6%	5.2%	4.3%
Total	4.4%	1.3%	2.7%

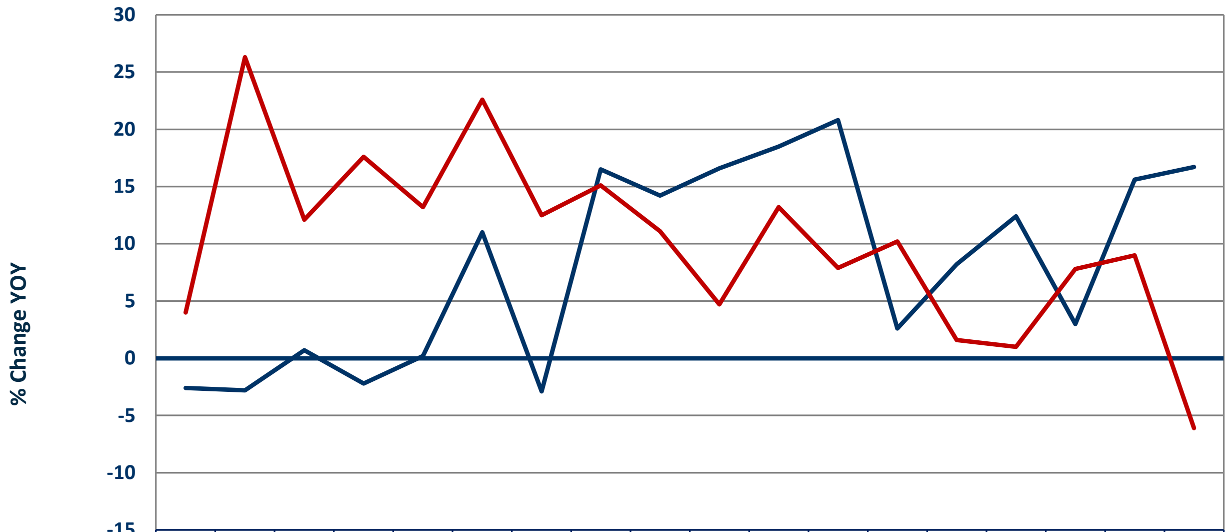


- May connector sales increased by +1.3% compared to the same period last year.
- All regions saw a sequential increase with the ROW region increasing the most at +8.6%, followed by the Asia Pacific region at 6.3% and China at 5.0%.
- Year-over-year, all regions but North America and Japan saw an increase. Asia Pacific had the greatest growth, increasing +13.7%, followed by China with YOY growth of +10.5% and the ROW region with growth of +5.2%. Japan had the greatest decline, decreasing -23.3% YOY, followed by North America, where sales declined -6.1%.
- YTD, all regions but Japan saw an increase, with Japan declining -21.9%. The greatest growth YTD was in the Asia Pacific region, where sales grew 9.5%, followed by China, where sales grew 8.0%.

Note: Additional companies agreed to share their billings with Bishop. As a result, the January through May 2024 monthly percentages may have changed slightly.

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



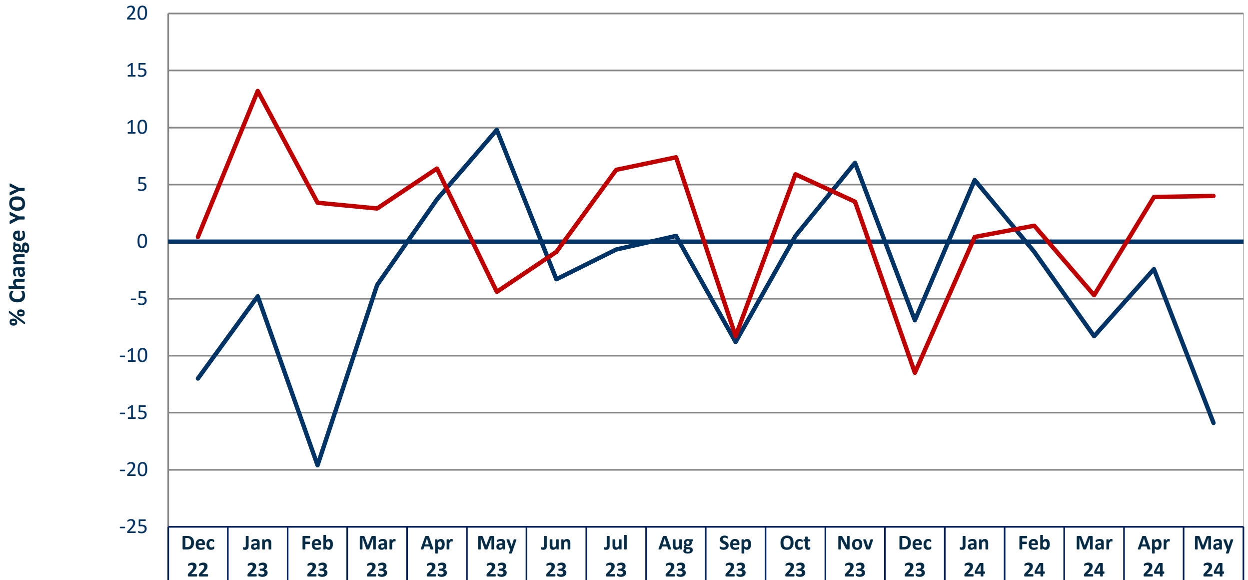
	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24
Bookings	-2.6	-2.8	0.7	-2.2	0.2	11.0	-2.9	16.5	14.2	16.6	18.5	20.8	2.6	8.2	12.4	3.0	15.6	16.7
Billings	4.0	26.3	12.1	17.6	13.2	22.6	12.5	15.1	11.1	4.7	13.2	7.9	10.2	1.6	1.0	7.8	9.0	-6.1
Billing SEQ	-7.9	12.7	5.6	0.1	-6.5	23.3	-13.9	-1.6	8.8	-4.7	-6.9	4.3	-5.9	6.3	3.1	9.6	-6.8	3.6
BTB	1.00	0.97	0.98	0.95	0.98	0.95	0.88	0.95	0.97	0.97	0.96	0.99	0.93	1.05	1.03	0.93	1.02	1.16

North America Performance

- Sales decreased -6.1% year-over-year in North America in May, while orders grew +16.7%. Sequentially, North American billings increased +3.6%. The book-to-bill ratio was 1.16.
- According to the US Bureau of Labor Statistics, the US inflation rate for May was 3.3%, a smaller increase than the 3.4% in April.
- Industrial production in the US rose 0.9% from a month earlier in May 2024, more than market expectations of a 0.3% increase and after showing no growth in April.
- Manufacturing PMI stood at 48.7 in May, after registering 49.2 in April and 50.3 in March.
- US unemployment increased slightly to 4.0% in May, after increasing from 3.8% to 3.9% in April.
- May retail trade sales were up 0.2% from April 2024, and up 2.0% above last year.
- According to MarkLines', "Light vehicle seasonally adjusted annualized sales (SAAR) for May 2024 was 16.08 million units versus 15.60 million units one year ago. General Motors monthly sales increased 8.0%, Ford sales increased 11.4%, but Stellantis sales dropped 19.1%."
- The Consumer Price Index for All Urban Consumers (CPI-U) was unchanged in May on a seasonally adjusted basis, after rising 0.3% in April, according to the U.S. 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 Bookings and Billings
Year-Over-Year Percentage Change
& Book-To-Bill Ratio



	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24
Bookings	-12.0	-4.8	-19.6	-3.8	3.7	9.8	-3.3	-0.7	0.5	-8.8	0.5	6.9	-6.9	5.4	-0.9	-8.3	-2.4	-15.9
Billings	0.4	13.2	3.4	2.9	6.4	-4.4	-0.9	6.3	7.4	-8.3	5.9	3.5	-11.5	0.4	1.4	-4.7	3.9	4.0
Billing SEQ	-10.7	7.7	11.4	-5.5	-7.1	4.1	0.7	-5.1	13.2	-3.1	-11.1	13.5	-23.6	24.3	9.8	-8.8	-0.7	4.3
BTB	0.99	0.99	0.96	1.06	1.07	1.21	0.99	0.96	0.90	0.86	0.91	1.00	1.04	1.04	0.96	1.02	1.00	0.97

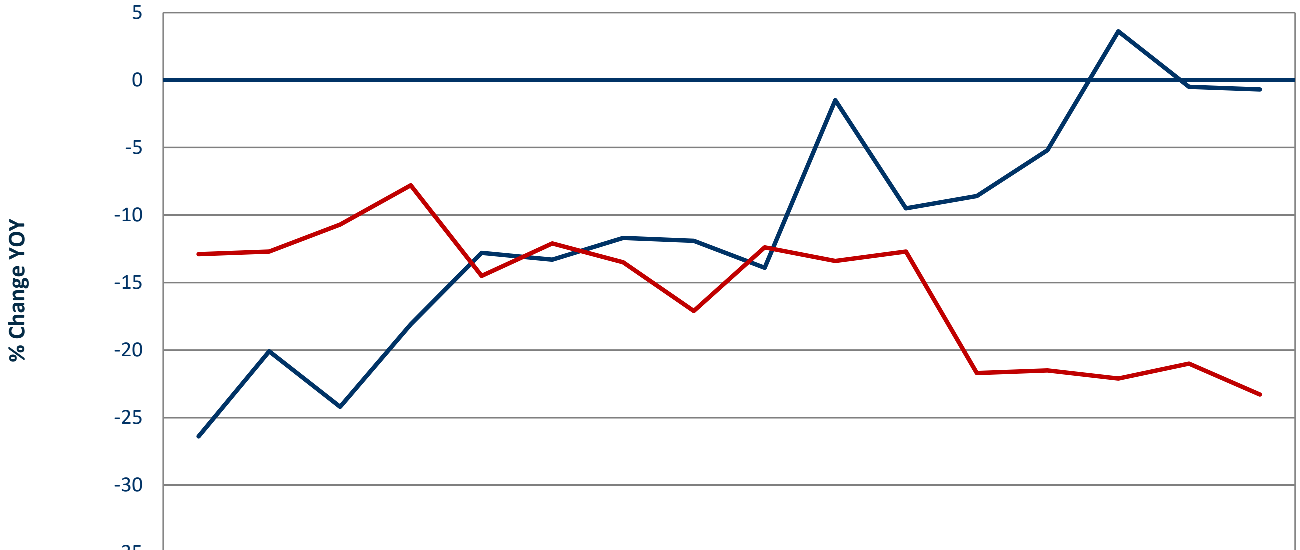
Europe Performance

- Bookings decreased -15.9% year-over-year in May, while billings increased +4.0%. Sequentially, sales increased +4.3%. The book-to-bill ratio was 0.97.
- Industrial output slid 0.1% month-on-month in seasonally adjusted terms in April* (March: +0.5% M-O-M). On an annual basis, industrial output fell 3.0% in April*, which was below March's 1.2% fall.
- The euro area annual inflation rate rose to 2.6% in May 2024, versus 2.4% in April 2024. The Eurozone manufacturing PMI dropped to 45.6 in June, hitting a six-month low.
- In April* 2024, compared with March 2024, the seasonally adjusted retail trade volume decreased by 0.5% in the euro area and by 0.6% in the EU, according to first estimates from Eurostat.
- The euro area's unemployment rate was 6.4% in April* and 6.0% in the EU. In the euro area, this is down from March's figure of 6.5%.
- DG ECFIN's flash estimate of the consumer confidence indicator edged up further, by 0.3 percentage points in both the EU and the euro area in June. At -12.9 (EU) and -14.0 (euro area) points, consumer confidence still falls slightly short of its long-term average.

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



	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24
Bookings	-26.4	-20.1	-24.2	-18.1	-12.8	-13.3	-11.7	-11.9	-13.9	-1.5	-9.5	-8.6	-5.2	3.6	-0.5	-0.7
Billings	-12.9	-12.7	-10.7	-7.8	-14.5	-12.1	-13.5	-17.1	-12.4	-13.4	-12.7	-21.7	-21.5	-22.1	-21.0	-23.3
Billing SEQ	12.0	-4.8	-2.1	3.1	-2.7	-7.1	-0.6	2.4	-2.7	6.8	-8.1	-16.6	10.9	-3.3	-1.1	0.3
BTB	0.94	0.99	0.93	0.93	1.01	1.01	1.01	1.02	0.98	1.06	1.02	0.90	0.95	1.27	1.16	1.20

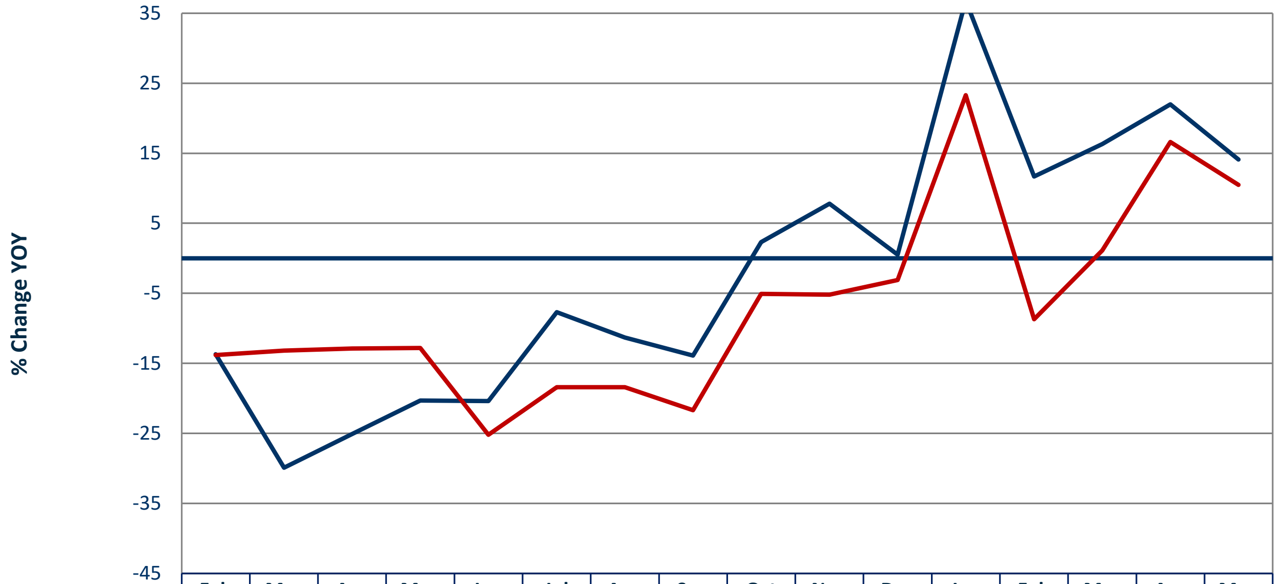
Japan Performance

- May, year-over-year bookings declined -0.7%, while sales dropped -23.3%. Sequentially, sales increased +0.3%. Japan's book-to-bill ratio was 1.20, the highest of all regions in May.
- In May 2024, the year-on-year growth rate of the core Consumer Price Index (CPI) in Tokyo Prefecture stood at 1.9%. The monthly core inflation in Tokyo increased from 1.6% in April 2024.
- Industrial production in Japan dropped 0.9% month-over-month in April* 2024, much worse than flash data of a 0.1% fall and after a 4.4% growth which was the steepest rise since June 2022. Yearly, industrial output dropped by 1.8% in April*, the sixth straight month of contraction. Manufacturing PMI in Japan decreased to 50.10 points in June from 50.40 points in May of 2024.
- The core consumer price index in Japan, which excludes fresh food but includes fuel cost, increased by 2.5% year-on-year in May 2024, picking up from April's 3-month low of 2.2% and marking the first rise since February. Core inflation figures have been at or above the Bank of Japan's 2% target for 26 months in a row.
- According to Japanese passenger car OEM data, April* 2024 production volumes in Japan decreased 10.3% year-over-year to 610,227 units.

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



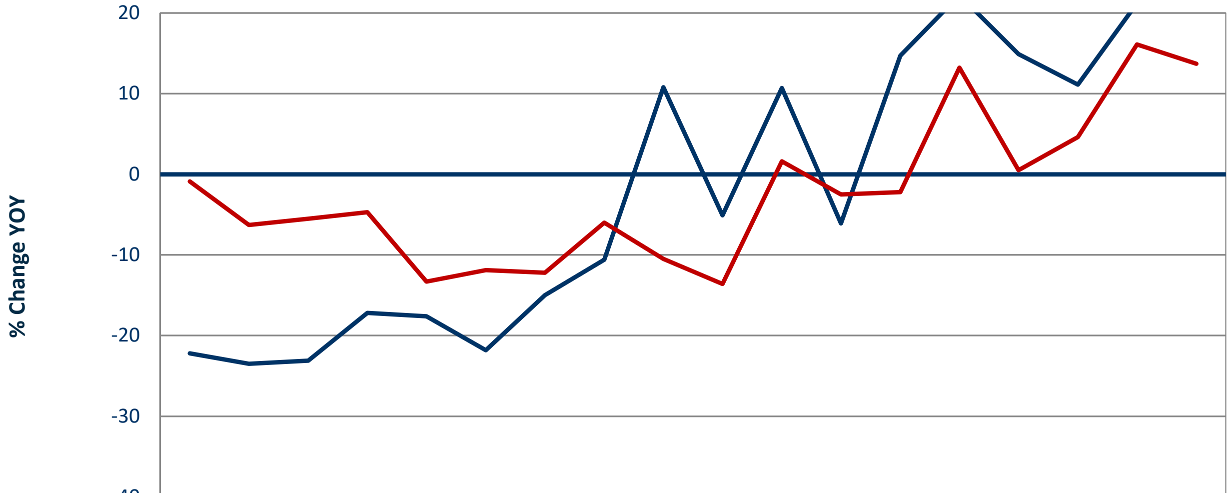
	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24
Bookings	-13.7	-29.9	-25.1	-20.3	-20.4	-7.7	-11.3	-13.9	2.3	7.8	0.5	36.8	11.7	16.3	22.0	14.1
Billings	-13.8	-13.2	-12.9	-12.8	-25.2	-18.4	-18.4	-21.7	-5.1	-5.2	-3.1	23.3	-8.7	1.1	16.6	10.5
Billing SEQ	14.5	3.7	-10.9	9.9	-3.6	2.0	5.2	-1.3	12.6	7.9	-10.8	-2.2	-16.7	13.8	2.7	5.0
BTB	0.93	0.92	0.97	0.98	1.00	1.06	1.08	1.06	0.95	0.97	0.91	1.21	1.13	1.06	1.02	1.02

China Performance

- China's May sales grew +10.5% on a year-over-year basis, while orders grew +14.1%. Sequentially, sales increased by +5.0%. The BTB remained at 1.02.
- According to CNBC, “Exports rose by 7.6% in May from a year ago”, “imports, however rose by 1.8% during that time, missing the Reuters’ forecast for 4.2% growth.”
- In May 2024, the monthly inflation rate in China ranged at 0.3% compared to the same month in the previous year. China’s consumer price index (CPI), a bellwether for inflation in the world’s second-largest economy, expanded in May by 0.3%, year-on-year, but continued to hover well below the government target.
- According to the National Bureau of Statistics, “total retail sales of consumer goods were up 3.7% year-on-year in May.” Industrial production in China increased 5.6% in May over the same month in the previous year. Surveyed unemployment rate remained at 5% in May.
- In May, vehicle production and sales volumes totaled 2.372 million units and 2.417 million units, up 1.7% YoY and 1.5% YoY, respectively. Year-to-date (YTD) production and sales volumes were 11.384 million units and 11.496 million units, up 6.5% YoY and 8.3% YoY, respectively.

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



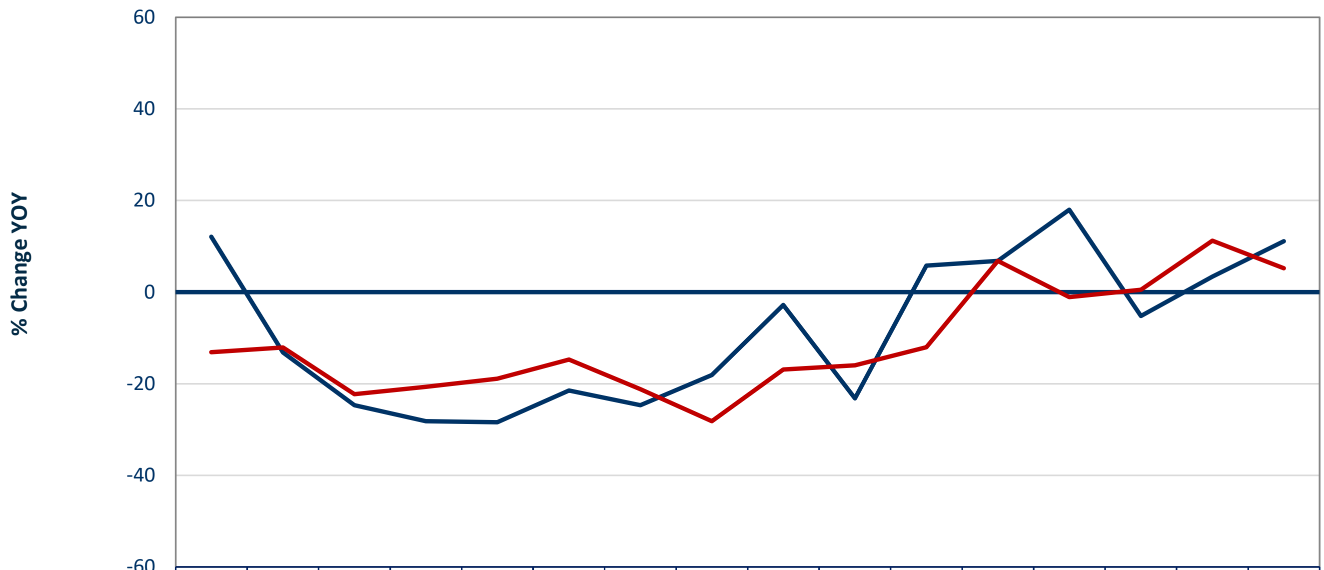
	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24
Bookings	-22.2	-23.5	-23.1	-17.2	-17.6	-21.8	-15.0	-10.6	10.8	-5.1	10.7	-6.1	14.7	22.2	14.9	11.1	21.2	28.2
Billings	-0.9	-6.3	-5.5	-4.7	-13.3	-11.9	-12.2	-6.0	-10.5	-13.6	1.6	-2.5	-2.2	13.2	0.5	4.6	16.1	13.7
Billing SEQ	-5.7	-8.8	6.3	1.5	-9.3	8.9	-3.2	1.2	-1.8	0.7	4.4	5.2	-5.5	12.3	-7.4	4.8	1.5	6.3
BTB	0.82	0.94	0.92	0.96	1.02	0.94	0.91	0.82	1.06	0.92	0.95	0.93	0.96	1.11	1.04	1.03	1.05	1.06

Asia Pacific Performance

- Year-over-year, May orders were up +13.7%, while billings increased +28.2%. Sequentially, sales increased +6.3%. The book-to-bill ratio was 1.06, up from 1.05 in April.
- According to Trading Economics "The HSBC India Manufacturing PMI increased to 58.5 in June 2024 from May's three-month low of 57.5, preliminary estimates showed. The latest reading indicated a faster expansion in the country's manufacturing sector due to stronger growth in output and new orders."
- India's retail inflation, measured by the Consumer Price Index (CPI), eased to 4.75% in May from 4.83% in April 2024, according to the latest Ministry of Statistics and Programme Implementation data. The CPI last hit the lowest at 4.25% in May 2023, according to Forbes.
- The Consumer Price Index in South Korea in May stood 2.7% higher than a year earlier, slower than a rise of 2.9% in April and a gain of 2.8% tipped in a Reuters survey of economists, the slowest increase since July 2023.
- The S&P Global South Korea Manufacturing PMI rose to 51.6 in May 2024, returning to growth after two consecutive periods of contraction, marking the highest reading since May of 2022. Consequently, production expanded at its sharpest pace in almost three years.

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



	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24
Bookings	12.1	-13.2	-24.7	-28.2	-28.4	-21.5	-24.7	-18.1	-2.8	-23.2	5.8	6.8	18.0	-5.2	3.4	11.1
Billings	-13.1	-12.1	-22.3	-20.7	-18.9	-14.7	-21.2	-28.2	-16.9	-16.0	-12.0	6.8	-1.1	0.5	11.2	5.2
Billing SEQ	14.3	-2.2	-11.3	15.1	-4.4	2.9	1.3	-7.0	2.3	8.6	-7.2	-0.4	5.7	-0.7	-1.7	8.6
BTB	1.06	1.05	1.07	0.96	0.89	1.02	0.88	0.98	1.03	0.86	1.06	1.14	1.26	0.99	0.98	1.01

Rest of World Performance

- Orders increased +11.1% while billings increased +5.2% year-over-year in May. Sequentially, sales grew by +8.6%. The book-to-bill ratio was 1.01, up from 0.98 in April.
- According to Trading Economics, “The annual inflation rate in Brazil rose to 3.93% in May of 2024, picking up from the 3.69% jump in the prior month, and above market expectation of 3.89% to mark the first acceleration in Brazilian consumer prices since September of 2023.”
- Brazil’s Industrial production rose 2.0 % YoY in April* 2024, following an increase of 2.2 % YoY in the previous month.
- “The S&P Global Brazil Manufacturing PMI rose to 52.1 in May of 2024, marking a fifth consecutive month of expansion but a softer one compared to April’s 55.9%, due to severe floods in Rio Grande do Sul, which lead to business closures and a drop in sales growth and production“, according to Trading Economics.

**May 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	1.3% Growing	0.3% Growing	-0.2% Declining	5.3% Steady	N/A	N/A
Industrial Production Growth	0.9% Up	-0.1% Down	-0.9% Down	5.6% Up	N/A	N/A
Manufacturing PMI*	48.7 Down	45.6 Down	50.1 Down	49.5 Down	N/A	N/A
Inflation Rate	3.3% Steady	2.6% Up	2.5% Up	0.3% Steady	N/A	N/A
Unemployment Rate	4.0% Up	6.4% Steady	2.6% Flat	5.0% Steady	N/A	N/A
Retail Sale Growth YOY	0.2% Up	-0.5% Down	2.4% Up	3.7% Up	N/A	N/A
May Connector Sales	-6.1%	4.0%	-23.3%	10.5%	13.7%	5.2%
YTD Connector Sales	2.4%	0.9%	-21.9%	8.0%	9.5%	4.3%
May Connector Orders	16.7%	-15.9%	-0.7%	14.1%	28.2%	11.1%
YTD Connector Orders	11.2%	-4.9%	-2.1%	19.5%	19.5%	6.9%

* Purchasing Manager Index - Below 50 is contracting factory activity

The Industry Backlog Is 14.4 Weeks

The industry shipped $1,536 million per week in May. As the table below displays, in May the ending backlog is $22,059. Assuming the industry's weekly sales of $1,536 million remain constant, the backlog represents 14.4 weeks of sales.

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

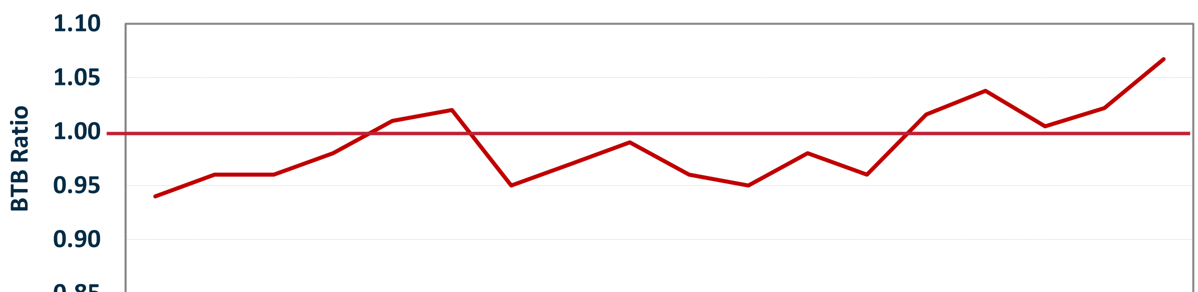
Industry Backlog

	2023	May 2024
BtB Ratio	0.98	1.07
Beginning Backlog	$22,983.0	$21,017.0
Bookings	$79,888.0	$36,511.0
Billings	$81,854.0	$35,469.0
Ending Backlog	$21,017.0	$22,059.0
Backlog in Weeks	13.4	14.4

$ Millions

The book-to-bill ratio in May was 1.07. The following displays the trend of BTB ratios since December of 2022.

Connector Industry Book-to-Bill



	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24
BtB	0.94	0.96	0.96	0.98	1.01	1.02	0.95	0.97	0.99	0.96	0.95	0.98	0.96	1.02	1.04	1.00	1.02	1.07

The May 2024 ending backlog of $22,059 million is $1,042 million from the 2023 ending backlog of $21,017 million.

Change in Backlog

2023 Ending Backlog	$21,017
2024 May Ending Backlong	$22,059
Backlog Growth	$1,042

$ Millions

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 May 2023 versus May 2024 and shows results for these three currencies.

Local Currency to One USD
2023 YTD versus 2024 YTD

Currency	2023	2024	% Change
Euro	0.9188	0.9253	-0.7%
Yuan	6.9803	7.2327	-3.5%
Yen	137.1532	155.7729	-12.0%

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 April YOY performance by region in US dollars and local currencies.

Industry Sales Performance
May 2024
USD-vs-Local Currencies

Region	U.S.$	Local Currency
North America	-6.1%	-6.1%
Europe	4.0%	3.2%
Japan	-23.3%	-32.5%
China	10.5%	6.6%
Asia Pacific	13.7%	13.7%
ROW	5.2%	5.2%
World	**1.3%**	**-0.1%**

Connector sales in May of 2024 decreased -0.1% when measured in local currencies, versus +1.3% in US dollars.

2024 Outlook: A Historical Perspective

Over the past decade, year-to-date (YTD) May sales represented, on average, 40.6% of full year sales. The most May represented was 42.7% of full year sales and the least was 38.0%.

Year-to-date May 2024 sales are $35,469 million. Using historical averages, we can calculate a range of possible outcomes for 2024.

2024 Historical Analysis

	Historical Percentage	Sales YTD May	2024 Forecast	Percent Growth
Low	38.0%	$35,469	$93,339	14.0%
Medium	40.6%	$35,469	$87,322	6.7%
High	42.6%	$35,469	$83,066	1.5%

$ Millions

Industry sales were $81,854 million in 2023, which translates to a forecast range of +14.0% to +1.5%.

Forecast Range

	2024 Forecast	2023 Actual	Percent Growth
Low	$93,339	$81,854	14.0%
Medium	$87,322	$81,854	6.7%
Bishop	$86,602	$81,854	5.8%
High	$83,066	$81,854	1.5%

$ Millions

Our 2024 forecast of $86,602 million achieves growth of +5.8%. The reason for our optimism is year-to-date order growth of +8.3% and year-over-year order growth of 6.8%.

The following table provides our 2024 forecast by geographic region.

2024 Bishop Forecast

Region	2023	2024F	Percent Change
North America	$18,840.8	$20,313.5	7.8%
Europe	$17,992.7	$18,582.6	3.3%
Japan	$4,683.7	$4,822.2	3.0%
China	$24,977.1	$26,606.2	6.5%
Asia-Pacific	$11,310.0	$12,113.2	7.1%
ROW	$4,049.8	$4,164.1	2.8%
Total World	**$81,854.1**	**$86,601.8**	**5.8%**

$ Millions

You will notice we project North America to achieve better growth than China or Asia.

Significant Events

May 2024 News

Industry News

North American PCB Industry Sales Down 6.8 Percent in May

IPC announced the May 2024 findings from its North American Printed Circuit Board (PCB) Statistical Program. The book-to-bill ratio stands at 0.95.

Total North American PCB shipments in May 2024 were down 6.8 percent compared to the same month last year. Compared to the preceding month, May shipments were down 16.5 percent.

PCB bookings in May were down 6.4 percent compared to the same month last year. May bookings were down 2.7 percent compared to the preceding month.

North American EMS Industry Up 5.0 Percent in May

IPC announced the May 2024 findings from its North American Electronics Manufacturing Services (EMS) Statistical Program. The book-to-bill ratio stands at 1.36.

Total North American EMS shipments in May 2024 were up 5.0 percent compared to the same month last year. Compared to the preceding month, May shipments increased 3.7 percent.

EMS bookings in May increased 2.6 percent year-over-year and decreased 16.2 percent from the previous month.

“The North American EMS industry continues to show resiliency,” said Shawn DuBravac, IPC’s chief economist. “Shipments and orders moved higher in May, but lower order growth compared to a year ago speaks to the headwinds facing the sector today.”

Worldwide Shipments of Wearable Devices Grew 8.8% Year Over Year in Q1 2024

The wearables market began 2024 with a growth spurt as global shipments of wearable devices grew 8.8% year over year in the first quarter (1Q24) to 113.1 million units, according to new data from the International Data Corporation (IDC) Worldwide Quarterly Wearable Device Tracker. Despite the shipment growth, average selling prices (ASPs) declined for the fifth quarter in a row, dropping 11% in 1Q24 as emerging markets gained traction and as the economy put downward pressure on consumer spending.

Company Highlights

Apple maintained the top position although it was held back by poor macroeconomic conditions, a temporary ban on certain watch models, and the lack of newer AirPods. Overall, Apple Watch shipments declined 19.1% year over year while hearables including AirPods and Beats declined 18.8% during the quarter.

Xiaomi ranked second with 43.4% year over year growth thanks to an easy comparison over a 16% decline in the first quarter of 2023. The company's value-oriented products resonated with users and the recent re-entry into Wear OS watches has helped the company become the third largest vendor within the Google ecosystem and grow its overall smartwatch average selling prices.

Huawei captured the third spot, surpassing Samsung, thanks to the return of its smartphone business, which had a positive impact on wearables due to bundling. However, the company's sales are heavily concentrated in China with about three quarters coming from the region.

Samsung slipped into fourth place. The launch of the Galaxy Fit 3 as well as success with lower-priced hearables helped the company achieve market beating growth although its core smartwatch volume declined 5.1% during the quarter.

Imagine Marketing (boAt) rounded out the top five. The Indian brand known for its extreme value-oriented products managed to grow its hearables volume by 17.5% but its smartwatches saw a tremendous decline of 61.3% due to extreme competition within the home country.

Next 5 Years Set to Further Boost India’s Domestic Electronics Manufacturing

India, on its way to becoming the global electronics manufacturing hub, has doubled down on the local manufacturing of multiple products -- mobile phones and their components, televisions, semiconductors and other devices -- and the momentum is only going to grow in the next five years riding on the production-linked incentive (PLI) scheme, according to industry experts.

Reports claim that India's electronic manufacturing is projected to reach $250 billion in the next five years -- from $105 billion (around 3 percent of the GDP) in FY23. The country aims to reach $300 billion in electronics manufacturing by 2030.

In April, electronic goods exports were recorded at $2.65 billion compared to $2.10 billion during April last year, registering a growth of 25.80 percent, according to the Invest India data.

As per the India Cellular and Electronics Association (ICEA) data, mobile phone production surged from Rs 18, 900 crore in 2014-15 to an estimated Rs 4.10 lakh crore in FY24, registering an increase of a massive 2, 000 percent, driven by the PLI scheme.

Apple has been a shining story of the country’s local manufacturing dream. The iPhone maker exported iPhones worth more than Rs 16, 500 crore in the first two months of the current financial year -- accounting for more than 80 percent of the country's total production/assembly of iPhones.
Foxconn, the key Apple supplier, led total exports at about 65 percent.

For FY 24, Apple saw a total iPhone production of around $14 billion. The company has increased iPhone production and one out of seven iPhones in the world is now being manufactured in the country, according to Prime Minister Narendra Modi.

The global chipmaking industry is also looking to establish operations in India, as the country emerges as a promising alternative to China amid tensions between Beijing and the West.

Smartphone Shipments Forecast to Recover with 4.0% Growth in 2024

Worldwide smartphone shipments are forecast to grow 4.0% year over year in 2024 to 1.21 billion units, according to the International Data Corporation (IDC) Worldwide Quarterly Mobile Phone Tracker. The growth in 2024 adds momentum to the overall recovery IDC expects throughout the forecast as consumer demand slowly rebounds from the dismal past few years. The recovery will continue in 2025 with 2.3% growth expected, followed by low single-digit growth for the rest of the forecast period, resulting in a five-year compound annual growth rate of 2.3%.

Arm CEO: 50% of Windows PCs Will be Powered by Arm Chips by 2029

Microsoft announced the Copilot+ AI PCs packing Qualcomm's Arm-based Snapdragon X Elite and Snapdragon X Plus SoCs. Microsoft says the Snapdragon X Elite-powered latest Surface laptop is up to 58% faster than Apple's M3 MacBook Air while offering excellent battery life, and early tests appear to confirm this – though they were paid for by Microsoft.

Windows-on-Arm PCs have been around for a while now, but the latest Snapdragon chips, which are comparable to high-end x86 CPUs, are getting plenty of attention.

The Arm-based Copilot+ PCs from Microsoft and other vendors are focused on consumer laptops, though Qualcomm is offering a Windows Snapdragon X dev kit in the form of a NUC-like mini desktop. Furthermore, Qualcomm CEO Cristiano Amon said at Computex that the Snapdragon X Elite and X Plus chips were coming to all form factors, suggesting future desktops powered by the SoCs. It seems Haas' prediction likely covers both laptop and desktop Windows PCs.

The new wave of Arm-based PCs is exciting, and Microsoft has gained the support of big manufacturers such as Dell, HP, Acer, Asus, Samsung, and Lenovo, but seeing x86 PCs fall below a 50% market share in just five years seems like a very optimistic forecast.

Canalys analyst Kieren Jessop told The Register that just 8 – 10% of quarterly PC shipments today are Arm-based, and almost all of those are Apple Silicon. The analyst predicts 30% of the PC market will be Arm-based by 2026, and the only way that number would be higher in a five-year time frame would be in the unlikely event of Intel introducing its own Arm chip.

Intel and AMD have just announced their AI-focused Lunar Lake and Ryzen AI 300 CPUs, respectively, as the two big x86 players try to take the spotlight off the Snapdragon chips, offering what they claim is similar or better performance than Qualcomm's offerings.

Worldwide Spending on Digital Transformation is Forecast to Reach Almost $4 Trillion by 2027

Worldwide spending on Digital Transformation (DX) is forecast to reach almost $4 trillion in 2027, according to the latest update to the International Data Corporation (IDC) Worldwide Digital Transformation Spending Guide. With artificial intelligence (AI) and Generative AI pushing investments, the DX market is forecast to grow with a compound annual growth rate (CAGR) of 16.2% over the 2022-2027 period. As organizations continue to prioritize digitalization, DX investments are projected to grow substantially, potentially reaching or even surpassing two thirds of all Information and Communication Technology (ICT) spending by 2027.

The financial services industry is growing at a very fast pace with a five-year CAGR of 20.5% and three use cases that are growing well above the average rate. Robotic Process Automation-Based Claims Processing is the fastest growing use case with a CAGR of 35.1%, followed by Real-time Financial Advice (29.5%) and Digital Banking Experience (29.3%). These use cases have something in common: all three are highly data intensive and rely heavily on AI, generative AI, and data and analytics technologies. The huge advances that financial institutions are employing are transforming their organizations into more effective, more customer-centric organizations that can respond more rapidly to changing customer demand and to a fast-moving macro-economic environment.

The industry that will see the largest DX investments over the 2022-2027 forecast period is Discrete Manufacturing with worldwide spending of almost half a trillion dollars in 2024. This spending will grow to more than $700 billion dollars in 2027 with Omni-Experience Engagement and Sustainability being the strategic priorities that are growing at the fastest pace among discrete manufacturing companies.

The fastest growing regions are Latin America and China, which will have five-year CAGRs of 17.9% and 17.4%, respectively.

Foxconn Eyes 40 Percent Global AI Server Market Share

Foxconn—known officially as Hon Hai Precision Industry—is the world's biggest contract electronics maker and builds devices for several global brands, most notably Apple's iPhone.

It has also moved to diversify beyond electronics assembly, pushing into areas ranging from electric vehicles to semiconductors and servers.

Chairman Young Liu said at an annual shareholders' meeting in Taipei that the company was "the leading manufacturer" in AI servers.

"It is estimated that our market share (for AI servers) this year will reach 40 percent, which is the same level for all of our servers," he said, adding that would be an increase from 30 percent last year.

"We also believe that the AI industry is still in its early stages of rapid growth... it will also be one of the main driving forces for our future growth."

Liu added that AI server revenue will grow more than 40 percent this year, and it will also account for more than 40 percent of overall server revenue to "soon become Foxconn's next-trillion revenue product".

The firm reported a 72 percent jump in net profit in the first quarter of 2024 thanks to robust demand for AI technology.

It said at an earnings call earlier this month that revenue from AI servers in the first three months grew "nearly 200 percent" on-year, and is expected to improve.

The company has also invested significantly to be part of the AI technology market in the hopes of transitioning into a "comprehensive situations platform provider".

U.S. PMI Falls for Second Consecutive Month in May

Flat. Stable. Sluggish, stalled and stagnant. The U.S. Federal Reserve's inactivity on interest rates suppressed the U.S. manufacturing PMI in May, which moved down 0.5 percent from April to 48.7. This is the second month of contraction in a row after the Institute for Supply Management's PMI broke the 50 percent growth threshold in March, reaching 50.3.

New export orders edged back into marginal expansion, up 1.9 percent to 50.6 percent. Backlog of orders regressed lower into contraction territory, by 3 percent to 42.4. ISM's customers' inventories were at the "just right" level – 48. 3 — neutral for future production.

Inputs — defined as supplier deliveries, inventories, prices and imports — continued to support future demand growth. Supplier deliveries were stable and inventories slightly lower. The prices index eased — at 57 percent, it was down 3.9 percent from April — but remained in strong expansion territory, as most commodity driven costs continue to climb but at weaker rates. Imports continued to grow.

GM's Cruise Self-Driving Cars Stage a Comeback in Texas

General Motors's self-driving car subsidiary officially resumed manual driving of its vehicles in Dallas, Texas, which will allow it to create maps and gather road information. Collecting that data will help train Cruise's driverless systems and allow it to return to autonomous driving.

It follows Cruise's earlier return to Phoenix in April. After roughly a month of manual testing, Cruise announced the return of supervised autonomous driving, meaning its cars will drive themselves with a driver ready and able to take the wheel if necessary.

Cruise was forced to suspend operations last October after one of its driverless cars dragged a pedestrian for roughly 20 feet after a separate — human-operated — car hit them. The incident led to the revocation of its license to operate in California, a recall of its fleet, layoffs, and the departure of several executives.

Testing in Dallas had been in its final testing phase for an autonomous launch before the incident. Now, after about eight months, Cruise is back.

Texas has become a major state for autonomous startups, playing host to at least 15 companies as of November. The state has also partnered with Cavnue to pilot the U.S.'s first autonomous freight corridor on a stretch of Texas State Highway 130 north of Austin.

Cruise's operating loss totaled $3.48 billion in 2023. GM is planning to reduce the subsidiary's expenses by about $1 billion to "slow the cash burn and align with a narrower focus in 2024," it said in January. Before the October incident, CEO Mary Barra said Cruise could generate $50 billion annually by 2030.

Malaysia Plots US$5.3 billion Roadmap to Build Advanced Chip Ecosystem

Malaysian Prime Minister Anwar Ibrahim announced the National Semiconductor Strategy (NSS), with the government allocating MYR25 billion (US$5.3 billion) to foster industry development.

According to reports from Bernama and The Edge Malaysia, the National Semiconductor Strategy will be implemented in three phases: expanding on the established foundation, building an advanced chip supply chain, and attracting top international customers.

In the first phase, Malaysia aims to bolster the semiconductor industry by modernizing outsourced semiconductor assembly and test (OSAT) facilities, expanding fabrication plants, and cultivating local IC design champions. The government will incentivize local companies to invest in IC design, particularly mature node chips like PMICs, advanced packaging, and chipmaking equipment while actively attracting foreign investments in wafer fabs and chipmaking equipment to further enhance the country's semiconductor capabilities.

In the second phase, Malaysia will focus on advancing chip design, fabrication, and testing, integrating local champions into the ecosystem of cutting-edge fabrication companies. This approach aims to elevate Malaysia's position in the global semiconductor industry by nurturing homegrown talent and expertise while fostering collaboration with leading international firms.

In this phase, the Malaysian government will support at least ten companies in the IC design and advanced packaging sectors to help them achieve an annual revenue of MYR 1-4.7 billion (US$210 million to US$1 billion). In addition, Malaysia plans to incubate 100 chip firms, nurturing them to reach an expected revenue of MYR 1 billion each and strengthening the nation's semiconductor industry.

The final phase aims to develop world-class Malaysian firms in IC design, advanced packaging, and manufacturing equipment. In addition, it seeks to attract major international firms, such as Apple and Huawei, to place orders with Malaysian firms.

Google to Invest $2 billion in Malaysia and Build Data Center to Capture Rising AI Demand

Google said it will invest $2 billion in Malaysia, with part of the funds going toward building its first data center and cloud region in the country, as the demand for AI and cloud services rises.

"This investment builds on our partnership with the Government of Malaysia to advance its 'Cloud First Policy,' including best-in-class cybersecurity standards," Ruth Porat, president, CFO, and CIO at Alphabet and Google, said in a statement.

Porat added that the investment will be Google's largest yet in Malaysia in its 13 years of operation there.

The data center will power Google's digital services, such as Search, Maps, and Workspace, while the cloud region will provide services to companies and organizations in the public and private sectors. Google also launched two AI literacy programs in the country for students and educators.

These investments and programs are expected to contribute more than $3.2 billion to Malaysia's GDP and support 26,500 jobs by 2030.

The Malaysia cloud region is the latest addition to Google's network of 40 regions and 121 zones in the world, the U.S. tech giant said.

This comes after Microsoft said earlier this month it will invest $2.2 billion in Malaysia to advance new cloud and AI infrastructure. It also announced investments in Indonesia and Thailand this year.

Tech giants like Google and Microsoft have pledged billions of dollars to Southeast Asia to capitalize on the rising demand for AI and cloud computing services.

The AI boom has boosted demand for cloud computing services and data centers, as large amounts of data are required to train AI models and the cloud provides access to vast datasets. Data centers are facilities that contain servers and other infrastructure needed to store data and run applications or services.

Apple to Give Siri a Major AI Revamp with iOS 18

The report comes from Mark Gurman, who claims that the new AI-powered Siri will enable iPhone users to control specific app features with their voice. Initially, the feature will be available for Apple's in-house apps only, and the voice assistant will respond to only one command at a time. However, Apple is working to eventually support multiple commands simultaneously.

As an example of how the feature could work, Gurman says that users will be able to tell Siri to capture a photo or summarize a meeting and then send it to a contact. Other tasks Siri will be able to perform include opening documents, moving notes between folders, sending or deleting emails, opening websites in a browser, displaying specific publications in Apple News, and sending links and multimedia files to contacts.

In addition to the revamped Siri, Apple is also working on other AI features such as voice memo transcriptions, automated replies to messages and emails, advanced photo editing, and the ability to summarize website content.

The update is expected to be rolled out in 2025, but not all AI features may be available at launch. It is also unclear whether the AI-powered Siri functionality will be extended to third-party apps in the future.

Nvidia Passes Apple in Market Cap as Second-Most Valuable Public U.S. Company

Nvidia passed Apple in market cap as investors continue betting on the chipmaker behind the artificial intelligence boom. It is now the second-most valuable public company, behind Microsoft.

Nvidia also hit a $3 trillion market cap milestone on Wednesday after shares rose over 5%. At market close, Nvidia had a market value of $3.019 trillion, versus Apple’s, which stood at $2.99 trillion. Microsoft is the most valuable publicly traded company, with a market cap of $3.15 trillion, as of Wednesday.

Nvidia shares have risen more than 24% since the company reported first-quarter earnings in May and have been on a tear since last year. The company has an estimated 80% market share in AI chips for data centers, which are attracting billions of dollars in spending from big cloud vendors.

Investors are also becoming more comfortable that Nvidia’s huge growth in sales to a handful of cloud companies can persist. For the most recent quarter, revenue in its data center business, which includes its GPU sales, rose 427% from a year earlier to $22.6 billion, about 86% of the company’s overall sales.

Meanwhile, Apple shares are up only about 5% this year, as the iPhone maker’s sales growth has stalled in recent months. In its most recent quarterly earnings report, Apple said overall sales dropped 4% and iPhone sales fell 10% from the year-ago period. Apple faces strategic questions and issues about demand in China, manufacturing and mixed reactions to its new virtual reality headset, Vision Pro.

Apple was the first company to reach a $1 trillion and $2 trillion market cap. It long held the title of most valuable U.S. company but was passed by Microsoft earlier this year. Microsoft has also benefited from investor demand for AI infrastructure.

Nvidia has been more volatile as a stock than Apple. Founded in 1991, the company was primarily targeting gaming, selling hardware to play 3D computer games. More recently, it sold cryptocurrency mining chips and cloud subscription services.

Nvidia shares have gone parabolic as its AI business has developed, rising more than 3,290% over the past five years. The company announced a 10-for-1 stock split in May.

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Report No.: F-2024-01
June 2024

Bishop & Associates has just released the 2024 ***Connector Industry Forecast*** update. This eight-chapter report provides an in-depth, and detailed forecast of the worldwide connector industry. In addition to the detailed forecasts for each region of the world (North America, Europe, Japan, China, Asia Pacific, and ROW), an industry overview is included which provides current market trends, currency fluctuation effects, and industry sales performance, as well as an outlook narrative.

Worldwide and each regional forecast includes:

Computers & Peripherals
- Mobile Computers
- Desktops
- Servers
- Storage Equipment
- Input/Output Equipment
- Communication LAN Devices
- Other Computer Equipment

Business/Office Equipment
- Retail/POS Equipment
- Imaging Systems
- Other Business/Office Equipment

Instrumentation
- Automatic Test Equipment
- Analytical/Scientific Instruments
- Other Instrumentation

Medical Equipment
- Diagnostic & Imaging Equipment
- Therapeutic Equipment
- Other Medical Equipment

Industrial
- Factory Automation and Machinery
- Construction and Civil Engineering
- Energy Markets
- Other Industrial Equipment

Automotive
- Body Wiring & Power Distribution
- Powertrain
- Comfort, Convenience & Entertainment
- Navigation & Instrumentation
- Safety & Security

Transportation (non-auto)
- Commercial Vehicles
- RVs & Power Sports
- Commercial Air
- Marine
- Rail
- Construction
- Farm & Garden

Military/Aerospace

Telecom/Datacom
- Carrier Network
- Enterprise Network
- Wireless Infrastructure
- Subscriber Equipment
- Other Telecommunications

Consumer
- Personal/Portable Consumer
- Home Video Equipment
- Home Audio Equipment
- Consumer White Goods
- Other Consumer

2024 – Climbing Our Way Back to the Top!

After a year of strong single-digit growth, no one seemed surprised that the industry would decline in 2023. With industry sales performance based strongly on location and market sector, the European region grew 3.8%, while the Asia Pacific and Chinese regions declined, -7.3% and -5.7% respectively, 2023 offered several surprises. Considering that year-over-year bookings did not turn positive until the fourth quarter and year-to-date bookings remained negative throughout all of 2023, it is remarkable that the industry performed as well as it did overall.

2023 was a year marked by national, regional, and local conflicts and disasters. Even as material, overhead and labor prices rose, the industry managed to push on, showing remarkable resilience. Raging wildfires, drought, cyclones, storms, earthquakes, and massive flooding marked just a few of the natural disasters the world contended with.

Industry Sales Performance by Region

As indicated by the charts on the following page, growth and decline were not equal across all regions in 2023, nor will they be in 2024. The European region saw the greatest growth in 2023, growing +3.8%. With growth of +0.9%, the ROW region followed Europe. All other regions declined in 2023, with the greatest decline in Japan, where sales in US dollars decreased -9.5%, followed by Asia-Pacific with a decline of -7.3%. China, the largest region for electronic connector sales decreased -5.7%, while North America, the second largest region experienced a sales decline of -0.3%.

2022 and 2023 Connector Industry Sale by Region
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 World	**$84,091.0**	**$81,854.1**	**-2.7%**

$ Millions

2022 and 2023F Connector Sales by Market Sector
With Percent Change

Equipment Sector	2022	2023	YOY Change
Computers & Peripherals	$10,758.2	$9,979.5	-7.2%
Business/Office Equipment	$922.3	$875.4	-5.1%
Instrumentation	$2,424.8	$2,364.8	-2.5%
Medical	$2,690.7	$2,659.7	-1.2%
Industrial	$10,788.1	$10,742.3	-0.4%
Automotive	$18,435.4	$18,502.7	0.4%
Transportation	$5,873.4	$5,857.4	-0.3%
Military/Aerospace	$5,050.0	$5,092.7	0.8%
Telecom/Datacom	$20,022.8	$18,991.4	-5.2%
Consumer	$3,967.0	$3,744.4	-5.6%
Other Equipment	$3,158.3	$3,043.8	-3.6%
Total World	**$84,091.0**	**$81,854.1**	**-2.7%**

$ Millions

2024 and Beyond Outlook

With industry backlog remaining strong, Bishop is forecasting 2024 sales to increase +Y.Y% to $XX,XX2 million. We anticipate the greatest percentage increase will occur in North America, where sales will increase +Y.Y%, followed by the Asia Pacific region where sales are anticipated to increase +Y.Y%. When looking at growth in US dollars, although not the greatest increase percentage wise, the largest increase in sales will be seen in the Chinese region, where connector sales will increase by $X,XXX.X million. This will be only approximately $XXX million more than sales in 2022. The Chinese region will be followed by the North American region, where sales in US dollars will increase $X,XXX.X million.

2024F Connector Forecast by Geographic Region
With Percent Change

Region	2023	2024F	Percent Change
North America	$18,840.8	$XX,XXX.X	Y.Y%
Europe	$17,992.7	$XX,XXX.X	Y.Y%
Japan	$4,683.7	$XX,XXX.X	Y.Y%
China	$24,977.1	$XX,XXX.X	Y.Y%
Asia-Pacific	$11,310.0	$XX,XXX.X	Y.Y%
ROW	$4,049.8	$XX,XXX.X	Y.Y%
Total World	**$81,854.1**	**$XX,XXX.X**	**Y.Y%**

$ Millions

2023 and 2024F Connector Forecast by Market Sector
With Percent Change

Equipment Sector	2023F	2024F	Percent Change
Computers & Peripherals	$9,979.5	$XX,XXX.X	Y.Y%
Business/Office Equipment	$875.4	$89X.X	Y.Y%
Instrumentation	$2,364.8	$X,X45.X	Y.Y%
Medical	$2,659.7	$X,76X.X	Y.Y%
Industrial	$10,742.3	$X1,X0X.X	Y.Y%
Automotive	$18,502.7	$XX,XXX.X	Y.Y%
Transportation	$5,857.4	$X,XXX.X	Y.Y%
Military/Aerospace	$5,092.7	$X,XXX.X	Y.Y%
Telecom/Datacom	$18,991.4	$2X,XXX.X	Y.Y%
Consumer	$3,744.4	$X,X4X.X	Y.Y%
Other Equipment	$3,043.8	$3,XXX.X	Y.Y%
Total World	**$81,854.1**	**$XX,XXX.X**	**Y.Y%**

$ Millions

Forecast Assumptions

Forecasting is always difficult, especially during times of financial and geopolitical uncertainty. Projecting future business conditions in this environment is almost impossible. Consider the following economic headwinds, political challenges, and uncertainties.

- Although still considered unstable, the economy has shown it is amazingly resilient. Driven by surprisingly strong, steady growth, many countries have seen inflation slowing, almost as quickly as it came upon us. According to the International Monetary Fund, “The baseline forecast is for the world economy to continue growing at 3.2 percent during 2024 and 2025, at the same pace as in 2023. A slight acceleration for advanced economies—where growth is expected to rise from 1.6 percent in 2023 to 1.7 percent in 2024 and 1.8 percent in 2025—will be offset by a modest slowdown in emerging market and developing economies from 4.3 percent in 2023 to 4.2 percent in both 2024 and 2025.”

- Highly unlikely that the Federal Reserve will cut interest rates anytime soon. According to Thomson Reuters, “the US Federal Reserve signaled it is still leaning toward eventual reductions in borrowing costs, but that cuts could be delayed as recent inflation numbers have strayed further from its two percent target.” “Investors are now betting that the U.S. central bank will start cutting rates in November and that it will deliver at least one reduction in borrowing costs this year.”

- Although global supply chain issues have improved drastically, as quoted by Border States, “Ocean freight rates are on the rise based on strong demand and longer sailings driven by environmental and geopolitical issues in the Panama and Suez Canals.” This, coupled with volatile fuel rates because of instability in OPEC+ countries, has affected shipping rates. Other issues like the collapse of the Francis Scott Key bridge (Baltimore, Maryland, US) in March has had some impact on the US supply chain, although near normal operations” resumed in late May.

- Prompted by geopolitical worries and supply constraints, the price of gasoline has continued to rise and may potentially hinder efforts to tame inflation. After declining earlier in the year, oil prices have climbed in recent weeks, spurred by concerns over supplies and geopolitical risks, including wars in Ukraine and the Middle East. It is also important to remember that higher oil prices drive up not only transportation and production costs, but eventually pass through to the prices of other core products like food and energy.

- A shortage of labor, in particular skilled laborers, such as electricians, plumbers, carpenters, machinists, welders, pipefitters, and steelworkers, even doctors, nurses, and pharmacists. A number of reasons are sited for this shortage including a decline in apprenticeship programs and shop classes, an increase in employees retiring, particularly Baby Boomers (generally classified by those born between 1946 and 1964 – according to Annuity.org, from 2021 to 2019, he number of retired workers increased from 45.1 million to 69.8 million) and not being replaced by younger workers, and a major shift in workers expectations, covering pay, hours, working location, and flexibility. In the US alone, according to the U.S. Chamber of Commerce, “right now we have 8.5 million job openings in the U.S. but only 6.5 million unemployed workers.”

- Increasing and prolonged political tensions: Israeli-Palestinian conflict over land and who controls it, a war between Russia and Ukraine that has gone on for two years, with no end in sight and that has increased already high tensions between NATO and Russia, heightened friction between China and Taiwan with the US bound by law to provide Taiwan with defensive weapons and US President Joe Biden announcing the US would defend Taiwan militarily - breaking with a stance known as strategic ambiguity and a major humanitarian crisis in Haiti as gangs have cut off relief efforts from the rest of the world, making it impossible to reach thousands of people suffering from malnutrition. China’s continued military buildup, which includes rapid development of its nuclear, space and cyberspace capabilities. According to Heritage.org, “over the last 12 months, China built 100 new nuclear weapons—making it the fastest growing nuclear power on the planet. Beijing is on track to numerically match the U.S. nuclear arsenal by 2032.”

- Increased commodity prices. While most commodity prices remained flat, rising only 0.8% in 2023, versus 12.1% in 2021 and 4.8% in 2022, the prices for oil and copper are on the rise in 2024. In April of 2024, copper prices had increased 8.92% from the previous year and 7.44% from one year ago. Like copper, oil is up 5.35% from last month and 6.73% from one year ago.

- Lack of affordable housing. As detailed by the Migration Policy Institute, “an estimated 1.6 billion people—one-fifth of humanity—lack access to adequate housing and basic services…and this number could rise to 3 billion by 2030. Over the last decade, housing prices have grown faster than incomes in most countries according to the Organization for Economic Cooperation and Development (OECD).” Although there are several reasons for the shortage, one of the most basic is the inability of the housing market to keep up with the growing population. The growth of profit-seeking investors, who purchase large numbers of houses and apartments, higher interests, and other factors such as material delays, shortages and increased material and labor costs, also impact the shortage.

There are also some interesting projections as to why we will see connector growth in 2024 and beyond, and what that growth will be. This report details the markets where Bishop anticipates growth, and which subsectors will drive that growth. This report provides projections over the next five years. Will the industry continue to grow, and which years may not be as strong as others? These answers and more are revealed in the June 2024 ***Connector Industry Forecast***.

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

Table of Contents

Chapter 1 – 2024 – Climbing Our Way Back to the Top (continued)

Chapter 1 – 2024 – Climbing Our Way Back to the Top (continued)

Chapter 2 – World Connector Forecast

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Research Report F-2024-01, ***Connector Industry Forecast*** is available for $5,285. If you would like additional information about this report, or would like to place an order, please complete the following information, and e-mail, or mail it to Bishop & Associates, Inc. To place your order on our website: **https://bishop-research.com**.

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What's New ?

Bishop & Associates has recently completed several new research reports about the worldwide connector industry. A table of contents for each report can be found at **https://bishop-research.com**.

- ☐ **Report F-2024-01** **Connector Industry Forecast (June 2024) NEW**
- ☐ **Report C-122-24** **Connector Industry Yearbook (June 2024) NEW**
- ☐ **Report M-700-24** **World Connector Market Handbook (March 2024) NEW**
- ☐ **Report P-799-24** **World Cable Assembly Market (February 2024) NEW**
- ☐ **Report P-606-23** **Connector Types and Technologies Poised for Growth (October 2023) NEW**
- ☐ **Report M-121-23** **2023 Top 100 Connector Manufacturers (August 2023) NEW**
- ☐ **Report M-720-23** **European Connector Market 2021, 2022, 2023F and 2028F (June 2023) NEW**
- ☐ **Report C-122-23** **2023 Connector Industry Yearbook (June 2023) NEW**
- ☐ **Report P-430-23** **World Circular Connector Market 2023 (May 2023)**
- ☐ **Report P-780-23** **World RF Coax Connector Market (January 2023)**
- ☐ **Report M-1200-22** **Military Ground Vehicle Market for Connectors (October 2022)**
- ☐ **Report P-675-22** **Copper and Fiber Connectivity in the Data Center (July 2022)**
- ☐ **Report T-800-22** **2022 North American Cable Assembly Manufacturers (May 2022)**
- ☐ **Report M-1010-22** **World Automotive Connector Market (April 2022)**
- ☐ **Report P-420-22** **IC Sockets – Systems & Connector Forecast 2020-2030 (January 2022)**
- ☐ **Report P-520-21** **The World I/O Rectangular Connector Market 2021 (October 2021)**
- ☐ **Report M-310-21** **Instrumentation Market for Connectors (June 2021)**
- ☐ **Report P-410-21** **Computer Server Market Trends and Connector Use 2020 – 2030 (May 2021)**

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