The Bishop Report
Performance and Forecast of the World Connector Industry

Issue No. 386 | 4th Quarter 2024 | December 2024

Connector Demand Improving
November Orders Up +8.7%, Sales up +6.4%

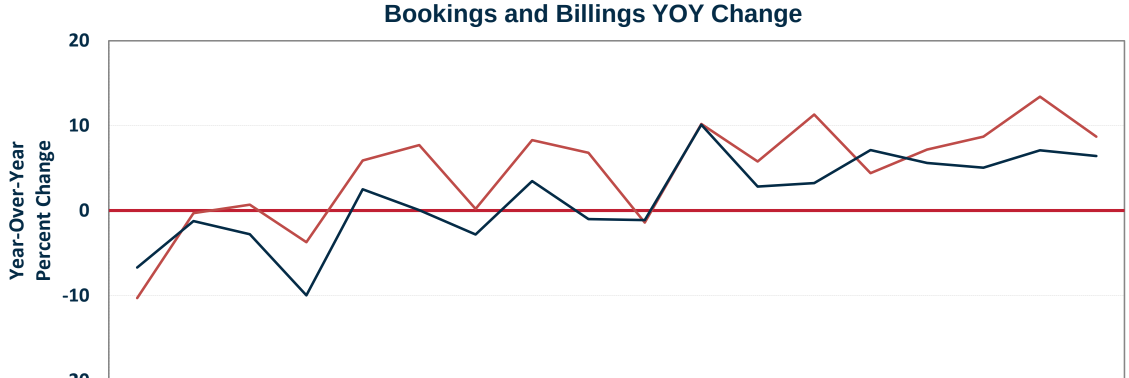
Regional Performance: YTD, all regions except Europe and Japan are showing growth, with the greatest growth in Asia Pacific, where YTD billings have increased +16.2%, followed by China where sales increased +10.7%. Japan and Europe, the only regions exhibiting a decline, have YTD billings of –14.5% and -3.4% respectively. See page 5.

Industry Backlog: November backlog was $21,399 million (11.3 weeks).

2024 Currency Impact: The industry registered a YOY increase in sales in November 2024, of +6.4% in USD and a decrease in sales of -0.6% in local currency.

November bookings increased +8.7% year-over-year and +7.5% year-to-date, while billings increased +6.4% year-over-year and +4.4% year-to-date.

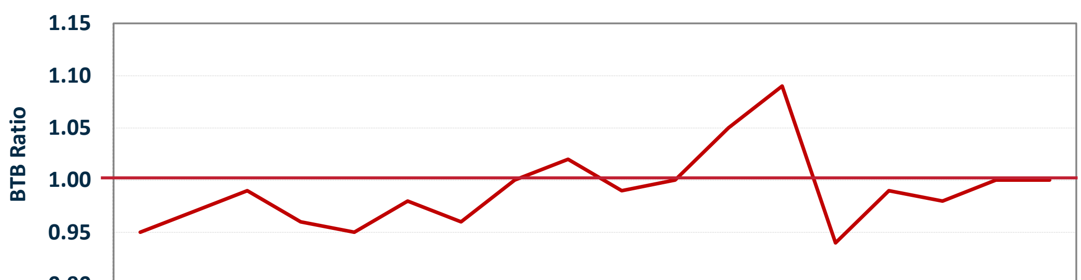
Bookings and Billings YOY Change



	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	July 24	Aug 24	Sep 24	Oct 24	Nov 24
Book	-10.3	-0.3	0.7	-3.7	5.9	7.7	0.2	8.3	6.8	-1.4	10.2	5.8	11.3	4.4	7.2	8.7	13.4	8.7
Bill	-6.7	-1.2	-2.8	-10.0	2.5	0.0	-2.8	3.5	-1.0	-1.1	10.1	2.8	3.3	7.1	5.6	5.1	7.1	6.4

The book-to-bill ratio in November was 1.00, same as October.

Connector Industry Book-to-Bill



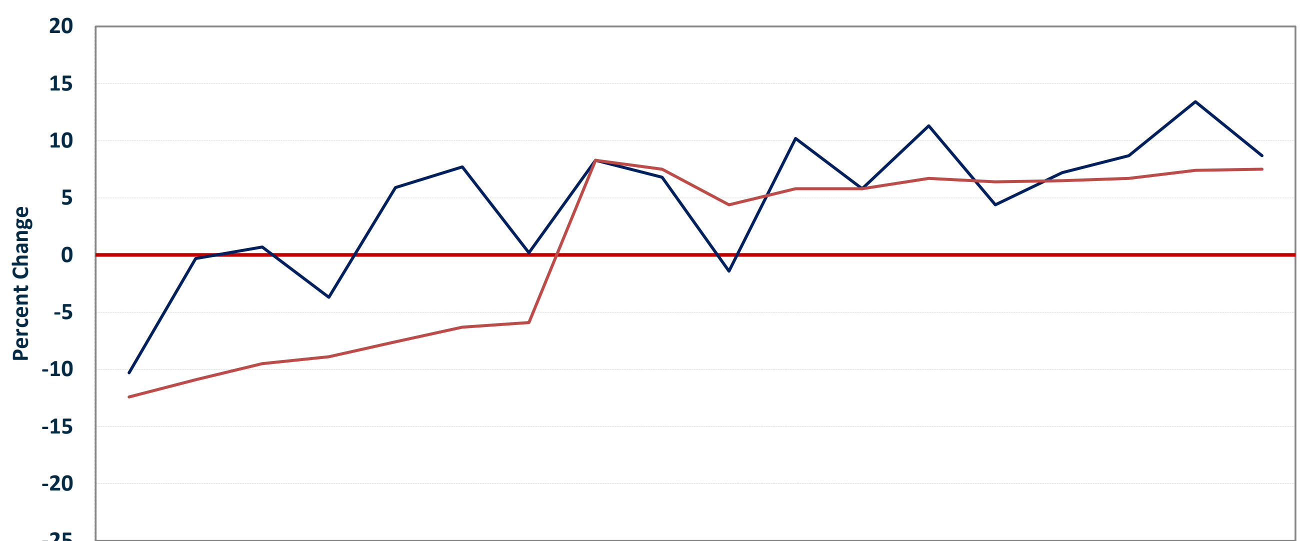
	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24
BtB	0.95	0.97	0.99	0.96	0.95	0.98	0.96	1.00	1.02	0.99	1.00	1.05	1.09	0.94	0.99	0.98	1.00	1.00

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%	9.6%	14.8%	-18.4%	8.3%	14.8%	-18.4%	8.3%
Feb	10.0%	10.1%	5.1%	7.3%	-13.8%	6.8%	10.8%	-18.4%	7.5%
Mar	-5.1%	1.2%	-2.9%	7.1%	-12.9%	-1.4%	9.1%	-16.6%	4.4%
Apr	-8.5%	-5.1%	3.2%	-6.4%	-9.7%	10.2%	5.1%	-15.0%	5.8%
May	6.6%	13.5%	9.1%	-5.1%	-3.9%	5.8%	2.9%	-12.8%	5.8%
Jun	-6.5%	-12.7%	-6.8%	-3.2%	-10.3%	11.3%	1.9%	-12.4%	6.7%
Jul	-9.7%	0.3%	-5.8%	-9.9%	-0.3%	4.4%	1.1%	-10.9%	6.4%
Aug	8.2%	9.2%	11.6%	-9.6%	0.7%	7.2%	-1.2%	-9.5%	6.5%
Sep	-1.1%	-5.4%	-5.0%	1.6%	-3.7%	8.7%	-0.9%	-8.9%	6.7%
Oct	-12.0%	-3.2%	2.9%	-16.3%	5.9%	13.4%	-2.4%	-7.6%	7.4%
Nov	10.0%	11.8%	5.2%	-15.9%	7.7%	8.7%	-3.7%	-6.3%	7.5%
Dec	-7.2%	-13.7%		-16.1%	0.2%		-4.7%	-5.9%	

Bookings - YOY and YTD



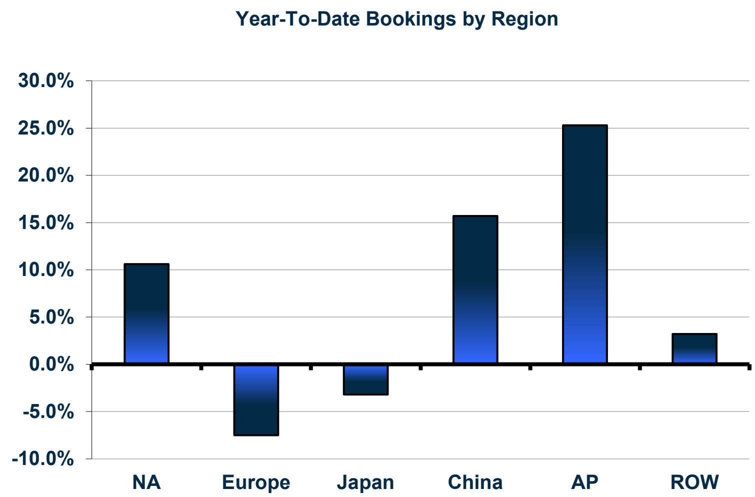
	J 23	J 23	A 23	S 23	O 23	N 23	D 23	J 24	F 24	M 24	A 24	M 24	J 24	J 24	A 24	S 24	O 24	N 24
YOY	-10.3	-0.3	0.7	-3.7	5.9	7.7	0.2	8.3	6.8	-1.4	10.2	5.8	11.3	4.4	7.2	8.7	13.4	8.7
YTD	-12.4	-10.9	-9.5	-8.9	-7.6	-6.3	-5.9	8.3	7.5	4.4	5.8	5.8	6.7	6.4	6.5	6.7	7.4	7.5

- November bookings increased +8.7% year-over-year.
- Orders increased +5.2% on a sequential basis in November.
- The book-to-bill ratio for November was 1.00, same as October.

Regional Performance: BOOKINGS

October 2024 Bookings

Region	Sequential	YOY	YTD
NA	1.8%	11.3%	10.6%
Europe	15.2%	-4.8%	-7.5%
Japan	1.8%	-4.8%	-3.2%
China	5.1%	12.3%	15.7%
AP	-0.9%	31.3%	25.3%
ROW	7.0%	11.7%	3.2%
Total	5.2%	8.7%	7.5%



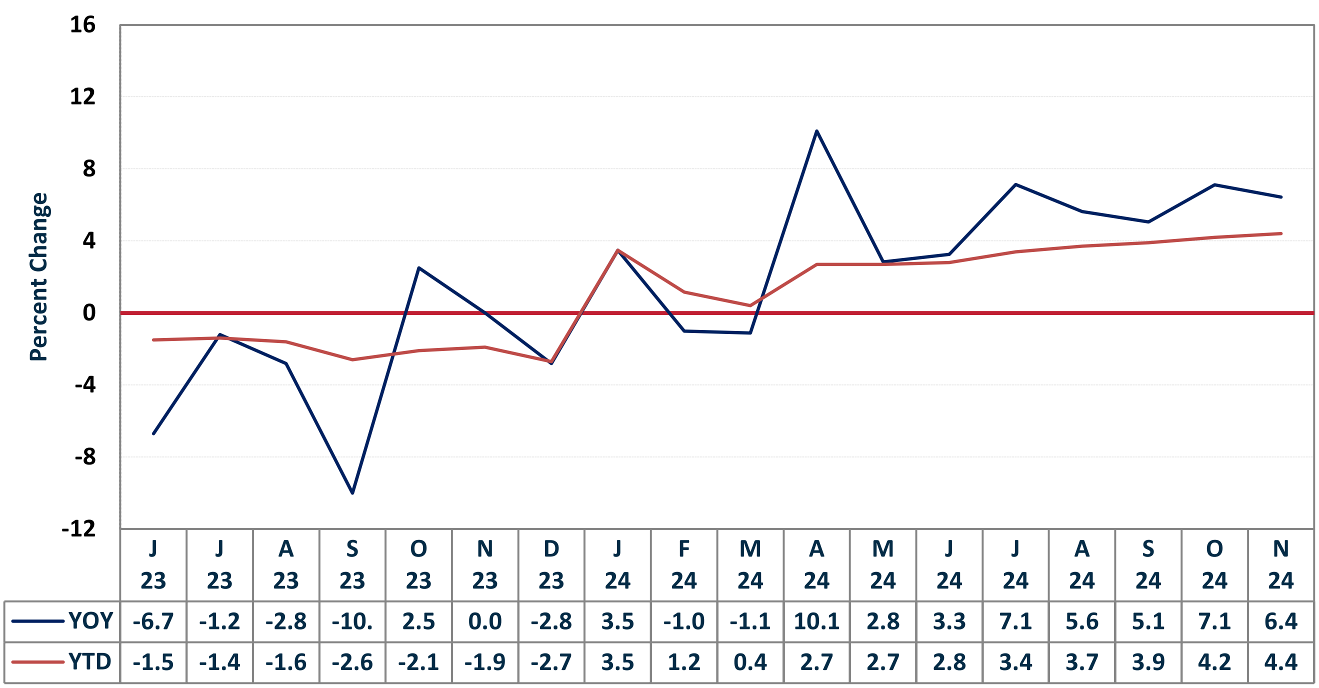
- Year-to-date, November bookings increased by +7.5%.
- Year-over-year orders in November rose in four of the six regions. North America, China, Asia Pacific, and ROW saw increases with Asia Pacific showing the most growth at +31.3%, followed by ROW where bookings increased +11.7% YOY. Europe and the ROW region saw decreases, both declining -4.8%.
- YTD, similiar to August, September, and October saw all regions increase but Europe and Japan, where orders declined -7.5% and -3.2% respectively.
- Order growth has now been positive for eight consecutive months.

Billing Highlights and Conclusions

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

	Sequential			Year-Over-Year			Year-To-Date		
Month	2022	2023	2024	2022	2023	2024	2022	2023	2024
Jan	-5.1%	-3.1%	5.8%	11.4%	0.5%	3.5%	11.4%	0.5%	3.5%
Feb	11.4%	9.7%	2.8%	10.2%	-1.0%	-1.0%	10.8%	-0.3%	1.2%
Mar	-2.2%	-0.9%	0.4%	9.1%	0.3%	-1.1%	10.2%	-0.1%	0.4%
Apr	-6.7%	-7.9%	1.7%	3.0%	-1.0%	10.1%	8.4%	-0.3%	2.7%
May	11.6%	12.1%	4.3%	7.4%	-0.6%	2.8%	8.2%	-0.4%	2.7%
Jun	0.2%	-6.0%	-4.9%	11.9%	-6.7%	3.3%	8.8%	-1.5%	2.8%
Jul	-7.1%	-1.7%	1.8%	6.1%	-1.2%	7.1%	8.4%	-1.4%	3.4%
Aug	8.9%	7.2%	5.8%	6.3%	-2.8%	5.6%	8.1%	-1.6%	3.7%
Sep	5.1%	-2.7%	-3.0%	14.4%	-10.0%	5.1%	8.9%	-2.6%	3.9%
Oct	-14.0%	-2.1%	0.2%	1.9%	2.5%	7.1%	8.2%	-2.1%	4.2%
Nov	10.6%	7.9%	5.3%	3.0%	0.0%	6.4%	7.6%	-1.9%	4.4%
Dec	-9.8%	-12.4%		-1.6%	-2.8%		7.8%	-2.7%	

Billings - YOY and YTD

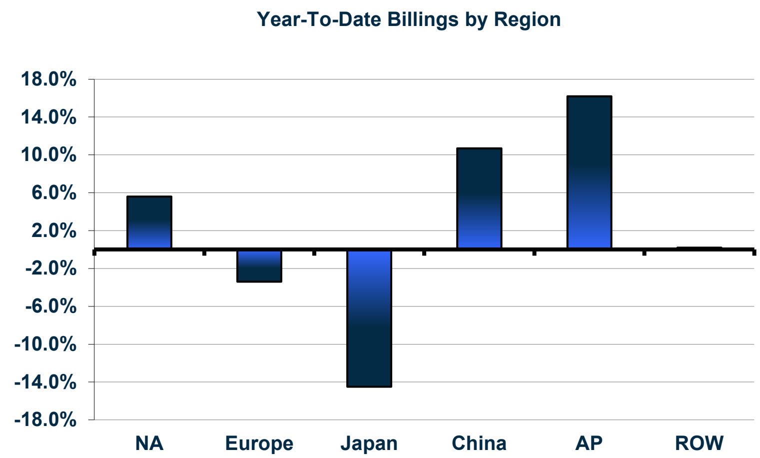


- November billings grew +4.4% year-to-date and +6.4% year-over-year.
- Sequentially, November billings increased +5.3%.
- Sales growth has now been positive for eight consecutive months.

Regional Performance: BILLINGS

November 2024 Billings

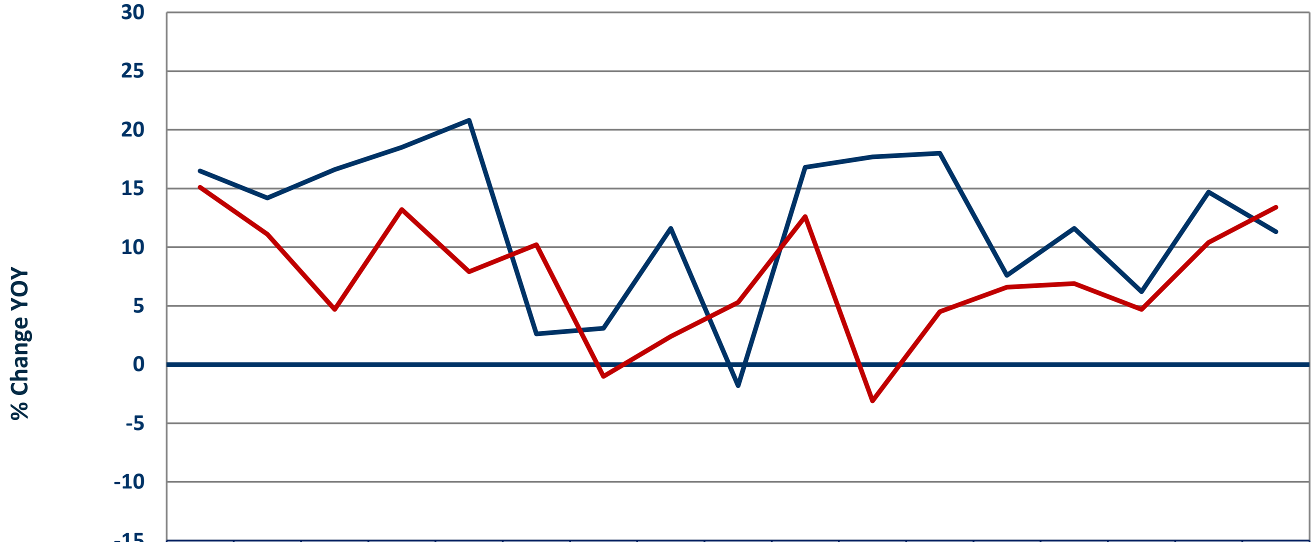
Region	Sequential	YOY	YTD
NA	4.1%	13.4%	5.6%
Europe	6.2%	-8.3%	-3.4%
Japan	1.7%	-5.0%	-14.5%
China	6.4%	10.6%	10.7%
AP	5.7%	18.7%	16.2%
ROW	4.3%	-6.7%	0.2%
Total	5.3%	6.4%	4.4%



- November connector sales increased by +6.4% compared to the same period last year.
- All regions saw a sequential increase, with the greatest increase in China at +6.4%, followed by Europe with an increase of +6.2%. Japan saw the smallest increase, rising only +1.7% sequentially.
- Year-over-year, three of the six regions saw an increase, with the greatest increase coming from the Asia Pacific region at +18.7%, followed by North America with a +13.4% increase. Europe saw the greatest decrease, declining -8.3%, while ROW saw a decline of -6.7%. Japan has now had a monthly year-over-year decrease in billings for all 11 months of 2024.
- Similar to previous months, YTD, all regions but Europe and Japan saw an increase, declining -3.4% and -14.5% respectively. Similiar to last month, the greatest growth YTD was in the Asia Pacific region, where sales grew +16.2%, followed by China, where sales grew +10.7%.

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



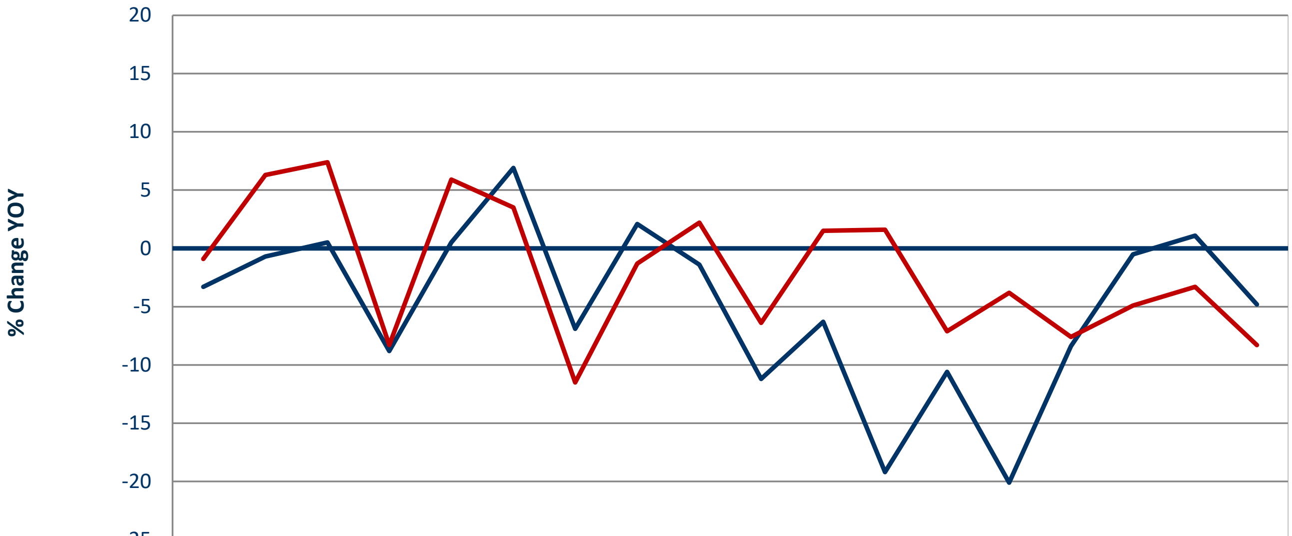
	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24
Bookings	16.5	14.2	16.6	18.5	20.8	2.6	3.1	11.6	-1.8	16.8	17.7	18.0	7.6	11.6	6.2	14.7	11.3
Billings	15.1	11.1	4.7	13.2	7.9	10.2	-1.0	2.4	5.3	12.6	-3.1	4.5	6.6	6.9	4.7	10.4	13.4
Billing SEQ	-1.6	8.8	-4.7	-6.9	4.3	-5.9	3.6	7.3	5.7	-1.4	3.5	-3.7	-0.9	9.4	-7.0	0.2	4.1
BTB	0.95	0.97	0.97	0.96	0.99	0.93	1.01	1.01	0.91	0.99	1.13	0.99	0.96	1.00	0.97	0.99	0.97

North America Performance

- Sales increased +13.4% year-over-year in North America in November, while orders grew +11.3%. Sequentially, North American billings increased +4.1%. The book-to-bill ratio was 0.97, down from 0.99.
- According to the US Labor Department data, “the annual inflation rate in the US was 2.7% for the 12 months ending November”, up from 2.6% in October.
- Industrial production (IP) decreased 0.3% in October after declining 0.5% in September.
- Manufacturing PMI decreased to 48.4 in November, down from 48.5 points in October. According to Reuters, “potential tariffs on Chinese imports worry manufacturers.”
- According to the US Bureau of Labor Statistics, “both the unemployment rate, at 4.2 percent, and the number of unemployed people, at 7.1 million, changed little in November. These measures are higher than a year earlier, when the jobless rate was 3.7%.”
- According to MarkLine, “the number of new vehicles sold in the US in November was 1,363,968 units, up 9.8% from the same month last year. Sales were led by improved product lineups and increased price discounts due to higher inventories.”

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



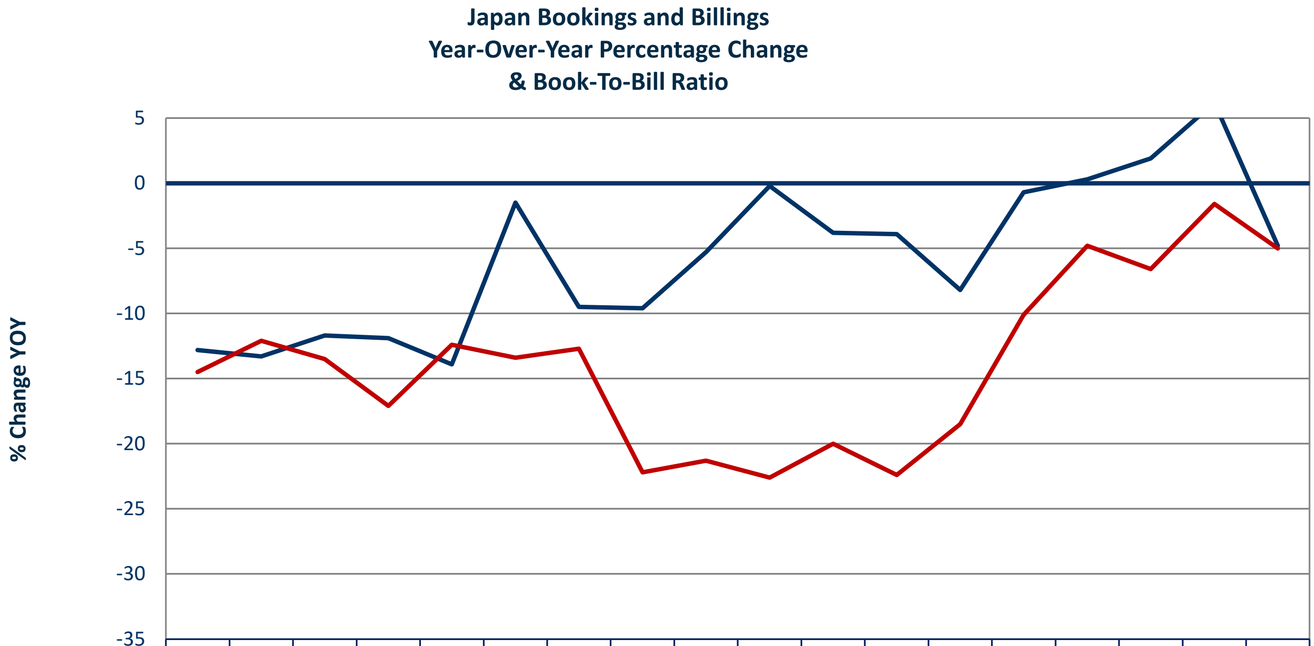
	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24
Bookings	-3.3	-0.7	0.5	-8.8	0.5	6.9	-6.9	2.1	-1.4	-11.2	-6.3	-19.2	-10.6	-20.1	-8.4	-0.5	1.1	-4.8
Billings	-0.9	6.3	7.4	-8.3	5.9	3.5	-11.5	-1.3	2.2	-6.4	1.5	1.6	-7.1	-3.8	-7.6	-4.9	-3.3	-8.3
Billing SEQ	0.7	-5.1	13.2	-3.1	-11.1	13.5	-23.6	22.2	12.6	-11.0	-1.4	4.5	-8.3	-2.3	7.7	1.6	-9.1	6.2
BTB	0.99	0.96	0.90	0.86	0.91	1.00	1.04	1.02	0.95	1.00	0.99	0.96	0.97	0.81	0.92	0.92	0.96	1.04

Europe Performance

- Bookings decreased +4.8% year-over-year in November, while billings decreased -8.3%. Sequentially, sales increased by +6.2%. The book-to-bill ratio was 1.04, up from 0.96 in October.
- According to Eurostat, in October* 2024, compared with September 2024, seasonally adjusted industrial production remained stable in the euro area and increased by 0.3% the EU.
- The annual inflation rate in the euro area is expected to be 2.3% in November 2024, up from 2.0% in October according to a flash estimate from Eurostat." Trading Economics reported that the Euro Area's manufacturing sector deteriorated further in November, with the HCOB Eurozone Manufacturing PMI dropping to 45.2, indicating sharper contractions in production, new orders, purchasing, and inventories.
- "In October* 2024, compared with September 2024, seasonally adjusted retail trade volume decreased by 0.5% in the euro area and 0.3% in the EU, according to initial estimates by Eurostat. "
- Compared to October 2023's reading of 6.6%, in October 2024*, the euro area seasonally-adjusted unemployment rate was 6.3%.
- In November 2024, the Economic Sentiment Indicator (ESI) remained broadly stable in both the EU (+0.2 points to 96.5) and the euro area (+0.1 points to 95.8) according to the European Commission.

**November 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.



	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24
Bookings	-12.8	-13.3	-11.7	-11.9	-13.9	-1.5	-9.5	-9.6	-5.3	-0.2	-3.8	-3.9	-8.2	-0.7	0.3	1.9	6.2	-4.8
Billings	-14.5	-12.1	-13.5	-17.1	-12.4	-13.4	-12.7	-22.2	-21.3	-22.6	-20.0	-22.4	-18.5	-10.1	-4.8	-6.6	-1.6	-5.0
Billing SEQ	-2.7	-7.1	-0.6	2.4	-2.7	6.8	-8.1	-17.1	11.9	-4.2	0.8	0.3	1.9	1.3	5.3	-0.5	2.1	1.7
BTB	1.01	1.01	1.01	1.02	0.98	1.06	1.02	0.90	0.95	1.26	1.17	1.20	1.01	1.07	1.04	1.08	1.07	1.07

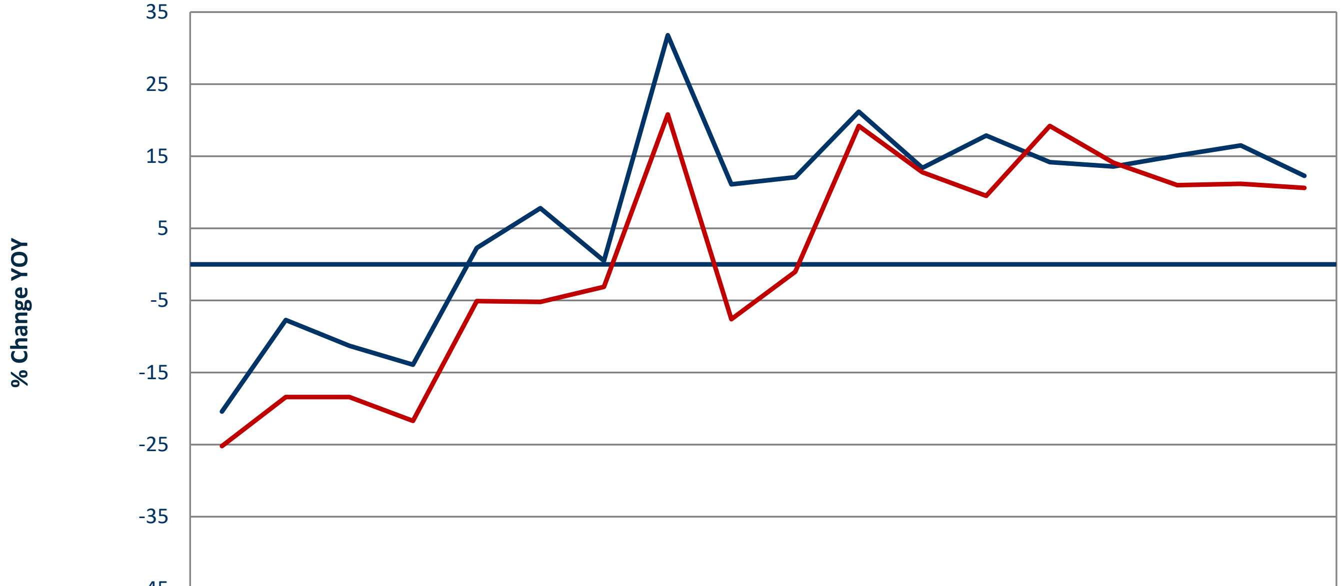
Japan Performance

- November, year-over-year bookings decreased -4.8%, while sales dropped -5.0%. Sequentially, sales increased +1.7%. Japan's book-to-bill ratio was 1.07, same as in October.
- In November 2024, Japan's core consumer price index (CPI) rose 2.2% year-on-year, which was higher than the expected 2.1% increase an marked the highest inflation reading in three months.
- In November 2024, Composite PMI in Japan increased to 50.10 points from 49.60 points in October. “Composite PMI in Japan is expected to be 50.20 points by the end of this quarter, according to Trading Economics global macro models and analysts’ expectations.”
- According to MarkLine, Japanese new vehicle sales in November decreased 5.2% year-over-year to 389.5K units.
- Japan's unemployment rate in November remained at 2.5%, while their inflation rate dropped to 2.2%, after increasing in October to 2.3%.
- Exports from Japan rose by 3.1% YOY to a 3-month peak of JPY 9,426.67 billion in October* 2024 topping market forecasts of 2.2% while shifting from a 1.7% fall in the prior month,“ according to Trading Economics.

**November 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



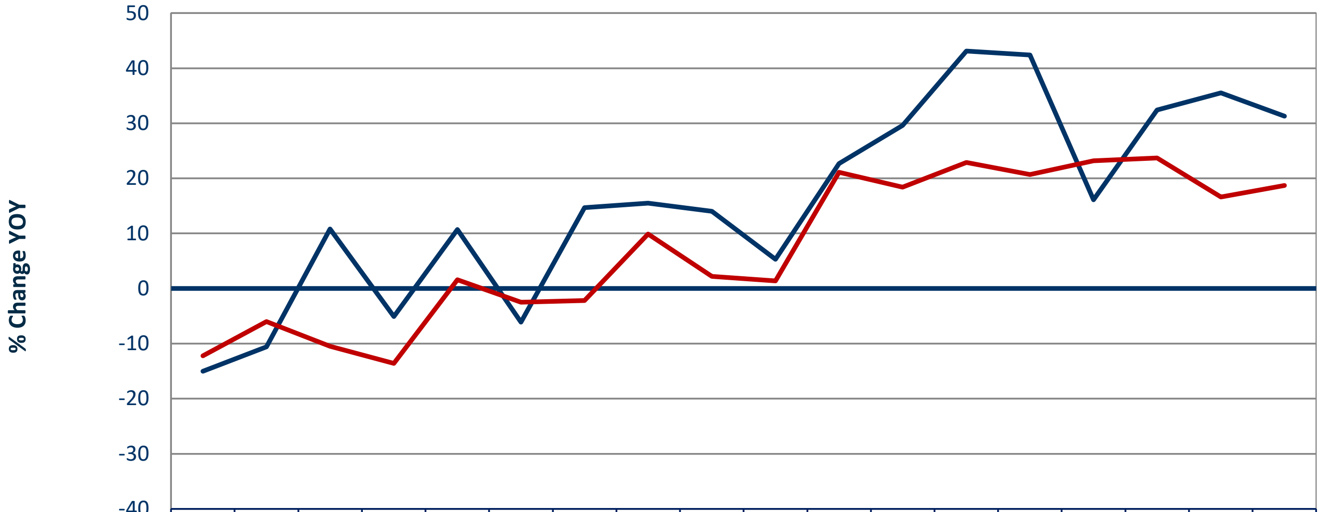
	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24
Bookings	-20.4	-7.7	-11.3	-13.9	2.3	7.8	0.5	31.8	11.1	12.1	21.2	13.4	17.9	14.2	13.6	15.1	16.5	12.3
Billings	-25.2	-18.4	-18.4	-21.7	-5.1	-5.2	-3.1	20.8	-7.6	-1.0	19.2	12.8	9.5	19.2	14.1	11.0	11.2	10.6
Billing SEQ	-3.6	2.0	5.2	-1.3	12.6	7.9	-10.8	-4.1	-14.0	10.1	7.2	4.9	-5.8	11.4	1.5	-3.7	10.9	6.4
BTB	1.00	1.06	1.08	1.06	0.95	0.97	0.91	0.96	1.11	1.04	1.00	1.01	1.08	1.00	1.06	1.08	1.00	0.98

China Performance

- China's November sales grew +10.6% on a year-over-year basis, while bookings increased +12.3%. Sequentially, sales increased by +6.4%. The BTB decreased to 0.98, from 1.00 in October.
- According to CNBC, “China’s exports rose 6.7% in U.S. dollar terms from year ago, sharply lower than the 12.7% growth in the previous month and missing the forecast 8.5% increase.” “Import data surprised with a decline of 3.9%, marking the sharpest fall since September 2023, missing analysts’ expectation of a 0.3% growth.”
- On a month-on-month basis, China's CPI rose 0.2% in November, below expectations.
- According to Trading Economics, “China's industrial production in November 2024 showed a slight expansion, with the Manufacturing Purchasing Managers' Index (PMI) registering at around 50.3%, indicating a second consecutive month of growth in factory activity.”
- According to MarkLines, China's November vehicle production and sales volumes total 3.437 million and 3.316 million, up 11.1% and 11.7% year-over-year, respectively. Year-to-date production and sales volumes were 27.903 million and 27.94 million, up 2.9% and 3.7% year-over-year respectively.
- According to the National Bureau of Statistics, China's surveyed urban unemployment rate was 5.0% in November 2024.

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



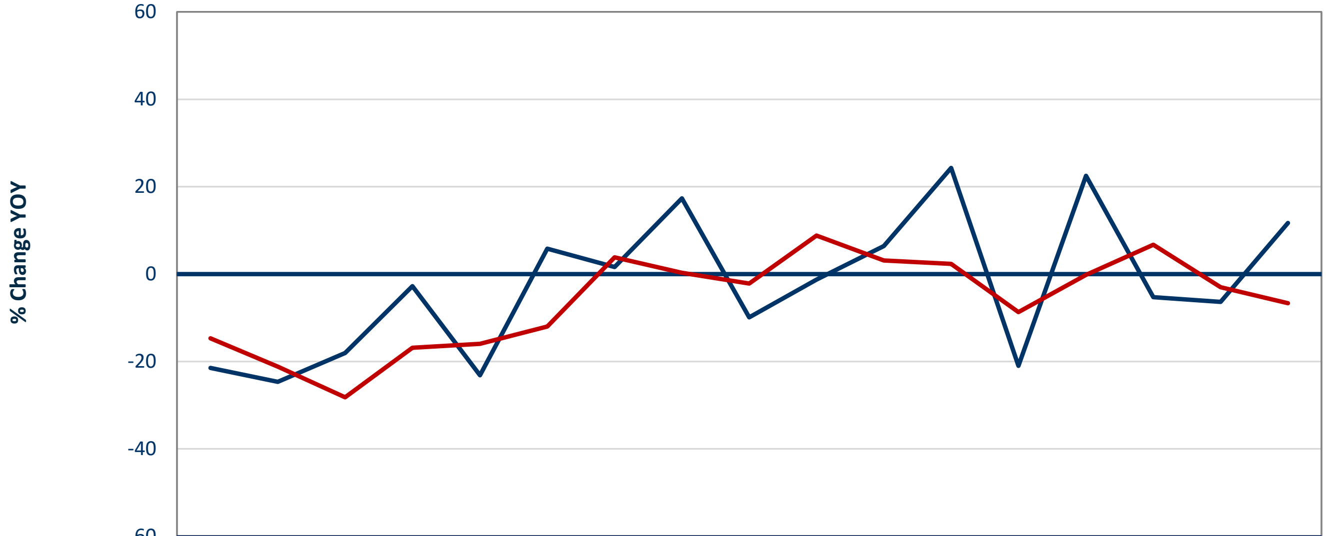
	Jun 23	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24
Bookings	-15.0	-10.6	10.8	-5.1	10.7	-6.1	14.7	15.5	14.0	5.3	22.7	29.6	43.1	42.4	16.1	32.4	35.5	31.3
Billings	-12.2	-6.0	-10.5	-13.6	1.6	-2.5	-2.2	9.9	2.2	1.4	21.1	18.4	22.9	20.7	23.2	23.7	16.6	18.7
Billing SEQ	-3.2	1.2	-1.8	0.7	4.4	5.2	-5.5	9.1	-3.1	0.0	9.2	6.1	-2.1	2.0	0.6	-0.4	-0.6	5.7
BTB	0.91	0.82	1.06	0.92	0.95	0.93	0.96	0.95	1.01	1.01	1.03	1.04	1.06	1.00	0.98	0.91	1.11	1.04

Asia Pacific Performance

- Year-over-year, November orders were up a strong +31.3%, while billings increased +18.7%. Sequentially, sales increased +5.7%. The book-to-bill ratio was 1.04, down from 1.11 in October.
- The HSBC India Manufacturing PMI fell to 56.5 in November 2024, revised down from the initial estimate of 57.3 and lower than October's 57.5.
- According to Economic Times, “India's retail inflation eased to 5.48% in November, down from 6.21% in October, driven by moderating vegetable prices and stabilized edible oil costs.” South Korea's retail inflation in November 2024 stood at 1.5% year-on-year, marking a slight increase from the previous month but still remaining below the central bank's 2% target.
- South Korea's Manufacturing PMI, compiled by S&P Global, surged to 50.6 in November 2024, up from 48.3 in October, signaling a return to growth for the first time in three months—albeit marginally, according to Trading Economics.
- The unemployment rate in India decreased to 8.0% in November from 8.7% percent in October of 2024. While South Korea's seasonally adjusted unemployment rate remained unchanged at 2.7% in November 2024, the same level as October, which marked the highest rate since June.

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



	Jul 23	Aug 23	Sep 23	Oct 23	Nov 23	Dec 23	Jan 24	Feb 24	Mar 24	Apr 24	May 24	Jun 24	Jul 24	Aug 24	Sep 24	Oct 24	Nov 24
Bookings	-21.5	-24.7	-18.1	-2.8	-23.2	5.8	1.6	17.3	-9.9	-1.3	6.4	24.3	-21.0	22.5	-5.3	-6.4	11.7
Billings	-14.7	-21.2	-28.2	-16.9	-16.0	-12.0	3.8	0.3	-2.2	8.8	3.1	2.3	-8.7	-0.2	6.7	-3.0	-6.7
Billing SEQ	2.9	1.3	-7.0	2.3	8.6	-7.2	-3.2	10.3	-4.7	-1.1	8.8	-5.1	-8.2	10.6	-0.5	-7.0	4.3
BTB	1.02	0.88	0.98	1.03	0.86	1.06	1.05	1.24	0.97	0.96	0.99	1.07	0.88	1.08	0.87	0.99	1.02

Rest of World Performance

- Orders increased +11.7%, while billings decreased -6.7% year-over-year. Sequentially, sales increased by +4.3, after declining to -7.0% in October. The book-to-bill ratio was 1.02, up from October's book-to-bill of 0.99.

- The annual inflation rate in Brazil rose to 4.87% in November of 2024 from 4.76% in the previous month, marginally ahead of market expectations of 4.85% to mark the highest inflation rate in 14 months, according to Trading Economics.

- According to S&P Global, "despite falling from 52.9 in October to 52.3 in November, the the S&P Global Brazil Manufacturing PMI remained above the neutral mark of 50.0. This rate of expansion was the slowest in three months but remained above its long-run average."

- According to Trading Economics, "The unemployment rate in Brazil fell to 6.2% in the three months to October* 2024, the lowest level on record, compared to 6.4% in the previous period and matching forecasts.

**November 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	2.8% Steady	0.9% Steady	0.3% Down	4.8% Growing	N/A	N/A
Industrial Production Growth	-0.3% Down	0.3% Steady	3.0% Up	5.3% Steady	N/A	N/A
Manufacturing PMI*	48.4 Up	48.3 Up	50.1 Up	50.3 Up	N/A	N/A
Inflation Rate	2.7% Up	2.3% Up	2.2 Steady	0.2% Down	N/A	N/A
Unemployment Rate	4.2% Steady	6.3% Steady	2.5% Up	5.0% Steady	N/A	N/A
Retail Sales Growth YOY	2.1% Up	2.5% Up	1.6% Up	4.8% Up	N/A	N/A
Nov. Connector Sales	13.4%	-8.3%	-5.0%	10.6%	18.7%	-6.7%
YTD Connector Sales	5.6%	-3.4%	-14.5%	10.7%	16.2%	0.2%
Nov. Connector Orders	11.3%	-4.8%	-4.8%	12.3%	31.3%	11.7%
YTD Connector Orders	10.6%	-7.5%	-3.2%	15.7%	25.3%	3.2%

* Purchasing Manager Index - Below 50 is contracting factory activity

Key Take Aways:

- Inflation is low.
- Unemployment at acceptable levels.
- Connector demand is improving.

The Industry Backlog Is 11.3 Weeks

The industry shipped $1,890 million per week in November. As the table below shows, in November the ending backlog is $21,399. Assuming the industry's weekly sales of $1,890 million remain constant, the backlog represents 11.3 weeks of sales.

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

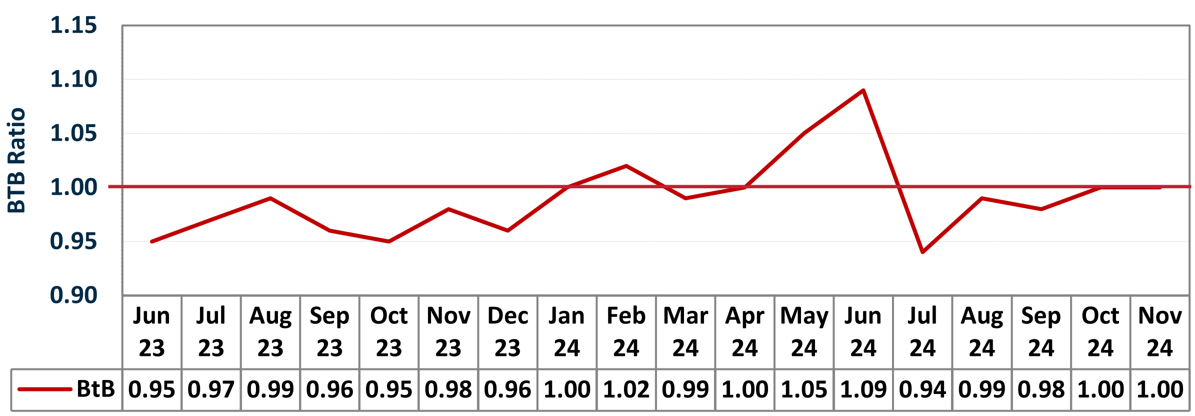
Industry Backlog

	2023	November 2024
BtB Ratio	1.00	1.00
Beginning Backlog	$22,983	$21,017
YTD Bookings	$79,888	$79,537
YTD Billings	$81,854	$79,155
Ending Backlog	$21,017	$21,399
Backlog in Weeks	13.4	11.3

$ Millions

The book-to-bill ratio in November was 1.0. The following displays the trend of BtB ratios since June of 2023.

Connector Industry Book-to-Bill



The November 2024 ending backlog of $21,399 million is $382 million more than the 2023 ending backlog of $21,017 million.

Change in Backlog

2023 Ending Backlog	$21,017
2024 September Ending Backlog	$21,399
Backlog Growth	$382

$ 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 November 2023 versus November 2024 and shows results for these three currencies.

Local Currency to One USD
2023 YTD versus 2024 YTD

Currency	2023	2024	% Change
Euro	0.9252	0.9402	-1.6%
Yuan	7.1734	7.2016	-0.4%
Yen	149.9143	153.5005	-2.3%

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

Industry Sales Performance
November 2024
USD-vs-Local Currencies

Region	U.S.$	Local Currency
North America	13.4%	13.4%
Europe	-8.3%	-1.6%
Japan	-5.0%	-2.3%
China	10.6%	-0.4%
Asia Pacific	18.7%	18.7%
ROW	-6.7%	-6.7%
World	**6.4%**	**-0.6%**

Connector sales in November of 2024 decreased -0.6% when measured in local currencies, versus an increase of +6.4% in US dollars.

2024 Outlook: YTD November

World connector orders year-to-date through November 2024 are up +7.5%, with the greatest growth in the Asia Pacific region at +25.3%, followed by China with year-to-date growth of +15.7%. The following table shows year-to-date order growth through November.

Connector Orders
YTD November 2024 by Region

Region	Percent Change
North America	10.6%
Europe	-7.5%
Japan	-3.2%
China	15.7%
Asia Pacific	25.3%
ROW	3.2%
Total World	**7.5%**

Reflective not only in order intake, but also in sales, connector demand is strong! Year-to-date, total world orders and sales have been positive for all 11 months of 2024, leading us to believe that December will also be a strong month. The following table provides year-to-date sales growth by geographic region.

Connector Sales
YTD November 2024 by Region

Region	Percent Change
North America	5.6%
Europe	-3.4%
Japan	-14.5%
China	10.7%
Asia Pacific	16.2%
ROW	0.2%
Total World	**4.4%**

As already noted, connector order demand has been strong in 2024. As a result, we are optimistic about 2025, believing sales could potentially exceed 2024 results.

Significant Events

December 2024 News

Industry News

PCs and Tablets Expected to Grow in 2024, but AI Isn't the Main Driver

The global market for personal computing devices, including PCs and tablets, is set to grow 3.8% in 2024, reaching 403.5 million units, according to the latest forecast from the International Data Corporation (IDC) Worldwide Quarterly Personal Computing Device Tracker. While PCs have dominated the discussion, driven primarily by AI PC marketing combined with the approaching end of support for Windows 10, tablets are leading the charge with nearly double-digit growth projected for the year.

Worldwide tablet shipments are expected to grow 9.8% this year, outpacing the 0.8% growth in PCs. However, 2025 is expected to be a year of recovery for PCs, with growth anticipated at 4.3%, driven by commercial upgrades from Windows 10 to Windows 11.

The buzz around Artificial Intelligence (AI) has dominated tech news in the last couple years, most recently focused around on-device AI capabilities. However, many corporate budgets are constrained due to the overall macro environment, and companies are continuing to evaluate the need for AI PCs/Tablets, which often come at a higher cost.

"There seems to be a big disconnect between supply and demand as PC and platform makers are gearing up for AI PCs and tablets to be the next big thing, but the lack of clear use cases and a bump in average selling prices has buyers questioning the utility." said Jitesh Ubrani, research manager with IDC's Worldwide Mobile Device Trackers. "It's now up to Microsoft, Apple, and Google to prove the need for locally processed AI to avoid a backlash from hardware makers and end users."

Beyond AI, in the near term the PC and Tablet markets have some tailwinds, most notably the end of support for Windows 10. This, combined with improvements in the global economy, are helping shine light on the PC and tablet outlook. As a result, the commercial segment is expected to be a bright spot within the personal computing device categories with forecast growth of 5.1% in 2025.

Worldwide Smartphone Market Forecast to Grow 6.2% in 2024, Fueled by Robust Growth for Android in Emerging Markets and China

Worldwide smartphone shipments are forecast to grow 6.2% year-over-year in 2024 to 1.24 billion units, according to the latest International Data Corporation (IDC) Worldwide Quarterly Mobile Phone Tracker. This strong growth follows two years of steep declines and is fueled by pent-up demand for device upgrades. While 2024 marks a strong rebound, growth is expected to slow to low single digits from 2025 onward, with a 2.6% CAGR (2023-2028). Contributing factors include increasing smartphone penetration, lengthening refresh cycles, and headwinds from rapidly growing used smartphone market.

Pace of U.S. Manufacturing Contraction Slows

The U.S. manufacturing industry contracted at a moderate pace in November as orders grew for the first time in eight months and prices for factory inputs declined.

The Institute for Supply Management's measure of factory activity, the PMI, increased by 1.9 percent in November to reach a level of 48.4 – a five-month high. Any reading above 50 percent indicates industry expansion.

New orders reached 50.4 last month, an increase of 3.3 percent. The ISM prices index declined 4.5 percent to a reading of 50.3.

"U.S. manufacturing activity contracted again in November, but at a slower rate compared to last month," said Tim Fiore, chair of the ISM's manufacturing business survey committee. "Demand continues to be weak but may be moderating, output declined again, and inputs stayed accommodative."

Additional positive signs for increased demand included the new export orders index increasing moderately (up 3.2 percentage points but still in contraction territory) and order backlogs dipping further into strong contraction territory. Customer inventories measured just above "too low" in November at 48.4.

Computers and electronics were one of three industries that grew in November. "Backlog is rising precipitously after 18 months of troughing," one tech executive told the ISM. "The long-awaited pent-up buying has started. Competition for qualified technical labor is a constraint on operational throughput."

Although manufacturing employment again contracted in November, it was at a slower pace, with its index increasing by 3.3 percent to 48.1. Production, while still in contraction, also decreased at a slower pace.

India PC Market on Recovery Path Despite Slight Shipment Growth in 3Q24

PC shipments experienced slight growth despite a weak consumer market. Acer achieved double-digit growth, driven by strong demand from the education sector and other industries.

According to IDC's India PC market tracker, shipments of traditional PC, including desktops, notebooks, and workstations) grew by 0.1% year-over-year in the third quarter, reaching 4.49 million units. Desktop PC shipments declined by 8.1%, and notebooks and workstations increased by 2.8% and 2.4% year-on-year, respectively, over the past quarter.

Premium notebooks priced over US$1,000 saw a 7.6% increase in demand, driven by sales during online shopping festivals. In the third quarter of 2024, the consumer segment fell by 2.9% year-over-year despite aggressive discounts on e-tail platforms. The demand was more organic compared to the previous year, with vendors avoiding overstocking, which resulted in a slight decline. Meanwhile, the commercial segment grew by 4.4%, and the enterprise segment observed significant growth of 9.6% year-over-year.

HP maintained a commanding lead in the market with a 29% share, followed by Lenovo at 17.3%. Acer recorded a 26.2% year-over-year shipment growth in the past quarter, driven by the partial fulfillment of education projects and key enterprise orders, making it the top brand in the commercial segment. Meanwhile, Asus, the second-largest player in the consumer market after HP, faced a 22.3% year-over-year decline due to leaner inventory levels.

Foxconn Pays NT$1 billion for Land in Texas

Foxconn said that its subsidiary Foxconn Assembly has invested NT$1.07 billion (US$33.03 million) to acquire land and facilities in Harris County, Texas.

The electronics manufacturer said it purchased 478,036 square feet of land and 200,200 square feet of facilities, per CNA.

At a tech summit on Wednesday, Foxconn Chair Young Liu said the company is increasing land and facility investments in Texas primarily to expand AI server production capacity for customers, including Nvidia.

Liu added that Foxconn will continue its investment in Mexico. He noted that Mexico has a population of over 100 million and is a major market in Central and South America.

Foxconn will have a strategy for its operations in the US after Trump's inauguration in January when policies become clearer, he said.

In August, Foxconn said its subsidiary Cloud Network Technology USA had invested US$253 million to acquire shares in Foxconn Assembly.

Foxconn Reportedly Secures Land in Tamil Nadu for New Battery Plant

Foxconn has reportedly secured 200 acres of land in Tamil Nadu for a battery manufacturing plant, aligning with the company's strategic focus on AI and EV as growth engines.

The Tamil Nadu government has allocated approximately 200 acres to Foxconn, India's largest contract manufacturer, for its proposed battery energy storage system (BESS) unit. If realized, this facility would become Foxconn's second BESS unit globally.

According to sources familiar with the matter cited by the *Economic Times*, the Tamil Nadu government has included an incentive package with the land offer. While Foxconn has not finalized the deal, negotiations are in their final stages, and the project is likely to proceed at the designated location, as indicated by Chairman Young Liu during his India visit.

The company announced an investment of NT$15.9 billion (US$490 million) in a flagship headquarters in Kaohsiung. The headquarters is intended to connect with Foxconn's existing Kaohsiung facilities, including its software R&D center, electric bus factory, battery plant, and the Kaohsiung Software Park.

This expansion follows Foxconn's initiation of construction on its battery cell plant in Kaohsiung, where the company aims to establish a comprehensive battery supply chain ecosystem. Liu has indicated this will serve as a crucial base for the company's global EV expansion.

After identifying growth opportunities in AI and EV in June, Foxconn achieved a milestone with its subsidiary Foxtron Vehicle Technologies going public in November 2023. Looking ahead to 2024, the company plans to begin Model C EV deliveries and prepare for Model B mass production by the fourth quarter of 2024. The company's roadmap includes expanding its electric vehicle portfolio into overseas markets by 2025.

In terms of EV components, Foxconn's battery center, which began mass production in June, is projected to reach an annual capacity of 1.2 million kilowatt-hours by the third quarter of 2025, with an additional battery plant scheduled to commence mass production in 2025. The company has also entered the powertrain chassis system market by acquiring a 50% stake in ZF Chassis Modules GmbH, marking its first venture into this segment.

China's Semiconductor Industry Makes Significant Strides, Putting Pressure on South Korean Firms

China's largest foundry operator, SMIC, surpassed the US$2 billion revenue mark for the first time in the third quarter of 2024. Meanwhile, companies like CXMT and JHICC are aggressively lowering DDR4 prices, making their products up to 50% cheaper than those from Samsung Electronics and SK Hynix.

According to reports from South Korean media including *Maeil Business Newspaper*, a decade ago, China had almost no noteworthy semiconductor companies. However, the likes of SMIC, YMTC, CXMT, HiSilicon, and Unisoc have quickly emerged, leveraging a vast domestic market and government support to challenge the semiconductor markets dominated by the US, Taiwan, and South Korea. Whether they can replicate the success formula seen with LCD panels remains to be seen.

Recently, the South Korean industry has been concerned about talent poaching, as SMIC recruits semiconductor professionals from Taiwan and South Korea. Consequently, there is a belief that TSMC should now be more worried about SMIC rather than Samsung. In 2023, SMIC successfully developed a 7nm process technology, which South Korean scholars believe resembles TSMC's first-generation 7nm technology from 2018-2019.

Despite being affected by US export controls, SMIC has made significant progress in process development through talent acquisition. Although still lagging behind Taiwan and South Korea in advanced processes, its advancements are quite remarkable for a company that was established only some 20 years ago.

Experts in South Korea predict that within the next ten years, China's foundry operations will at least double or triple their current market share in technologies above 10nm and mid-range processes. If SMIC continues to profit and secures substantial government investment, it could catch up to TSMC within a decade.

Google Announces Quantum Computing Chip Breakthrough

Google showed off a new quantum computing chip that it said was a breakthrough that could bring practical quantum computing closer to reality.

A custom chip called “Willow” does in minutes what it would take leading supercomputers 10 septillion years to complete, according to Google Quantum AI founder Hartmut Neven.

Neven’s team of about 300 people at Google is on a mission to build quantum computing capable of handling otherwise unsolvable problems like safe fusion power and stopping climate change.

“We see Willow as an important step in our journey to build a useful quantum computer with practical applications in areas like drug discovery, fusion energy, battery design and more,” said Google CEO Sundar Pichai on X.

A quantum computer that can tackle these challenges is still years away, but Willow marks a significant step in that direction, according to Neven and members of his team.

Crucially, Google’s chip showed the ability to reduce computational errors exponentially as it scales up – a feat that has eluded researchers for nearly 30 years.

GM Exits Robotaxi Market, Will Bring Cruise Operations in House

After spending more than $10 billion on its robotaxi unit, General Motors is abandoning its Cruise driverless ride-hailing service.

The Detroit automaker said it will no longer fund its Cruise division's robotaxi development and will instead fold the unit into its broader tech team. GM shares rose 2.3% in extended trading.

"Cruise was well on its way to a robotaxi business — but when you look at the fact you're deploying a fleet, there's a whole operations piece of doing that," GM CEO Mary Barra said on a call Tuesday. Barra said GM would instead focus on the development of autonomous systems for use in personal vehicles.

GM cited the increasingly competitive robotaxi market, capital allocation priorities and the considerable time and resources necessary to grow the business as reasons for its decision.

GM acquired Cruise in 2016. The automaker currently owns about 90% of Cruise and has agreements with other shareholders that will raise its ownership to more than 97%, GM said in a statement. GM anticipates it will complete the acquisition of remaining Cruise shares from outside shareholders by early 2025, CFO Paul Jacobson said.

History of M & A in the Connector Industry

Shrinking Footprints: Consolidation in the Connector Industry

Bishop and Associates has just released an updated version of their research report analyzing the history of mergers and acquisitions in the connector, cable, and cable assembly market. This research report, which looks at acquisitions by year, by acquiring type (manufacturer, distributor, or private equity firm), and by manufacturer, examines how mergers and acquisitions have changed the landscape of the connector, cable and cable assembly industry.

Since their founding in 1985, Bishop & Associates has tracked acquisitions in the connector industry. These include acquisitions by manufacturers of connectors or cable and wire, manufacturers who produce cable assemblies or wire harnesses, distributors that focus on connectors as part of their product offering, and private equity companies. During this period, more than 850 acquisitions of these types have been recorded.

Since the beginning of the 21st century, many of these acquisitions, particularly those of traditional connector manufacturers, have ventured outside of the standard connector arena. Connector manufacturers over that time have acquired companies that focused on sensors, antennas, complex medical equipment, raw materials, software, and vehicle-to-vehicle and vehicle-to-infrastructure applications. Others have focused on specific product types, such as fiber optics or ruggedized connector and cable assemblies.

This report also looks at the history of individual acquirers. Of the more than 850 acquisitions recorded, over 600 or 77% were initiated by manufacturers. These acquisitions, which represent over 190 different manufacturers, include many companies who later become targets of acquisitions themselves. It also examines the individual acquisition history of these manufacturers, providing the total number of acquisitions during the period and how these totals compare with other manufacturers' acquisition habits.

Total Acquisitions by Year and Type

Year	Manufacturer	Distributor	Private Equity	Total Acquisitions
Prior to 2000	1XX	26	X	XX
2000	XX	2	X	XX
2001	X2	1	X	XX
2023	X	X	X	X
9 Mths 2024	X	X	X	X
Total	**6XX**	**XXX**	**XX.X%**	**8XX**
Percent of Total	**XX.X%**	**XX.X%**	**XX.X%**	**100.0%**

Amphenol Acquisitions by Year

Type	Company	Year	Acquisition Number
M	Amphenol acquires Carlisle Interconnect Technology	2024	XX
M	Amphenol acquired Lutze US	2024	XX
M	Amphenol acquired Times Fibers (from LPL)	1992	4
M	Amphenol acquired Socapex SA	1985	3
M	Amphenol acquired Advanced Circuit Technology	1998	2
M	Amphenol acquired AMP's Matrix Science line	1997	1

History of M & A in the Connector Industry

Shrinking Footprints: Consolidation in the Connector Industry

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

Table of Contents

Chapter 5 – Manufacturer Acquisitions by Manufacturer (continued)

Chapter 6 – All Acquisitions by Year and Type

To Order the Updated Version of History of M & A in the Connector Industry - 2024

Shrinking Footprints: Consolidation in the Connector Industry

Research Report C-150-24, ***M&A in the Connector Industry - 2024*** 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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History of M & A in the Connector Industry 2024

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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 C-150-24** **History of M&A in the Connector Industry 1950s-2024 (October 2024) NEW**
- ☐ **Report M-121-24** **2024 Top 100 Connector Manufacturers (August 2024) NEW**
- ☐ **Report P-520-24** **The Rectangular Input/Output Connector Market 2024 (July 2024) NEW**
- ☐ **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**
- ☐ **Report M-720-23** **European Connector Market 2021, 2022, 2023F and 2028F**
- ☐ **Report P-430-23** **World Circular Connector Market**
- ☐ **Report P-780-23** **World RF Coax Connector Market**
- ☐ **Report M-1200-22** **Military Ground Vehicle Market for Connectors**
- ☐ **Report P-675-22** **Copper and Fiber Connectivity in the Data Center**
- ☐ **Report T-800-22** **North American Cable Assembly Manufacturers**
- ☐ **Report M-1010-22** **World Automotive Connector Market**
- ☐ **Report P-420-22** **IC Sockets – Systems & Connector Forecast 2020-2030**
- ☐ **Report M-310-21** **Instrumentation Market for Connectors**
- ☐ **Report P-410-21** **Computer Server Market Trends and Connector Use 2020 – 2030**

THE BISHOP REPORT - CONNECTOR INDUSTRY YEARBOOK

An annual corporate subscription to *THE BISHOP REPORT* (12 issues) is available for $2,950, which includes an unlimited number of subscribers and one PDF version of the ***Connector Industry Yearbook*** report (normally $1,500). ***The Bishop Report*** subscription includes access, through ***Bishopinc.com***, to prior issues of The Bishop Report, 30-40 yearly News Briefs, Industry Financial Benchmarks, and various connector industry indices.

Click here to view the expanded report description, and complete table of contents, for all Bishop & Associates' research reports.

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