

August Bookings Up +4.7% in August and Sales up +3.4%

Regional Performance:

YTD, all regions except Europe and Japan are showing growth, with the greatest growth in Asia Pacific, where YTD billings have increased +14.7%, followed by China where sales increased +8.8%. Japan and Europe, the only regions exhibiting a decline, have YTD billings of -18.5% and -2.4% respectively. See page 5.

Industry Backlog:

August backlog was \$21,615 million (13.0 weeks). See page 13.

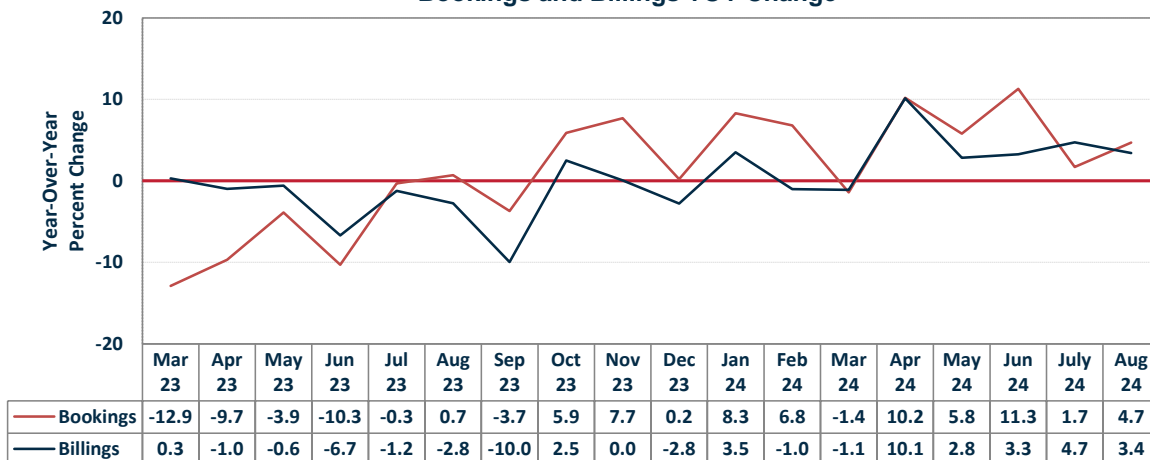
2024 Currency Impact:

The industry registered a YOY increase in sales in August 2024, of +2.8% in local currency and an increase in sales of +3.4% in USD.



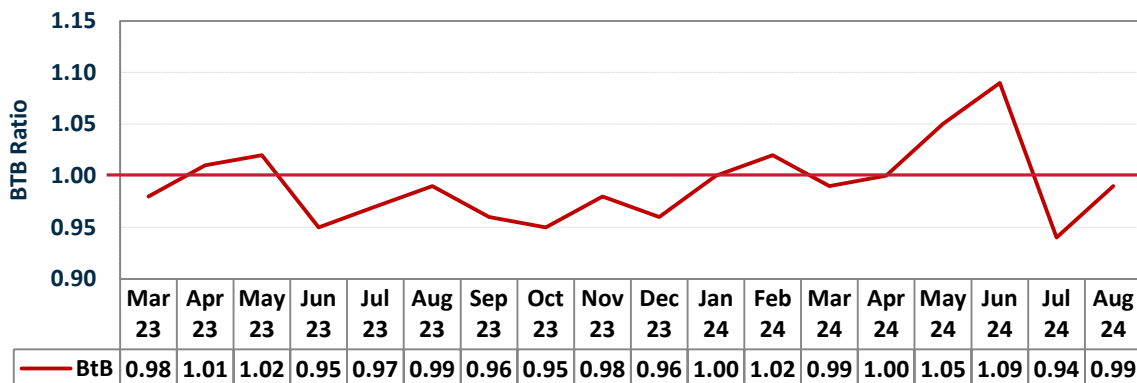
August bookings increased +4.7% year-over-year and +5.8% year-to-date, while billings increased +3.4% year-over-year and +3.1% year-to-date.

Bookings and Billings YOY Change



The book-to-bill ratio in August was 0.99, up from 0.94 in July.

Connector Industry Book-to-Bill

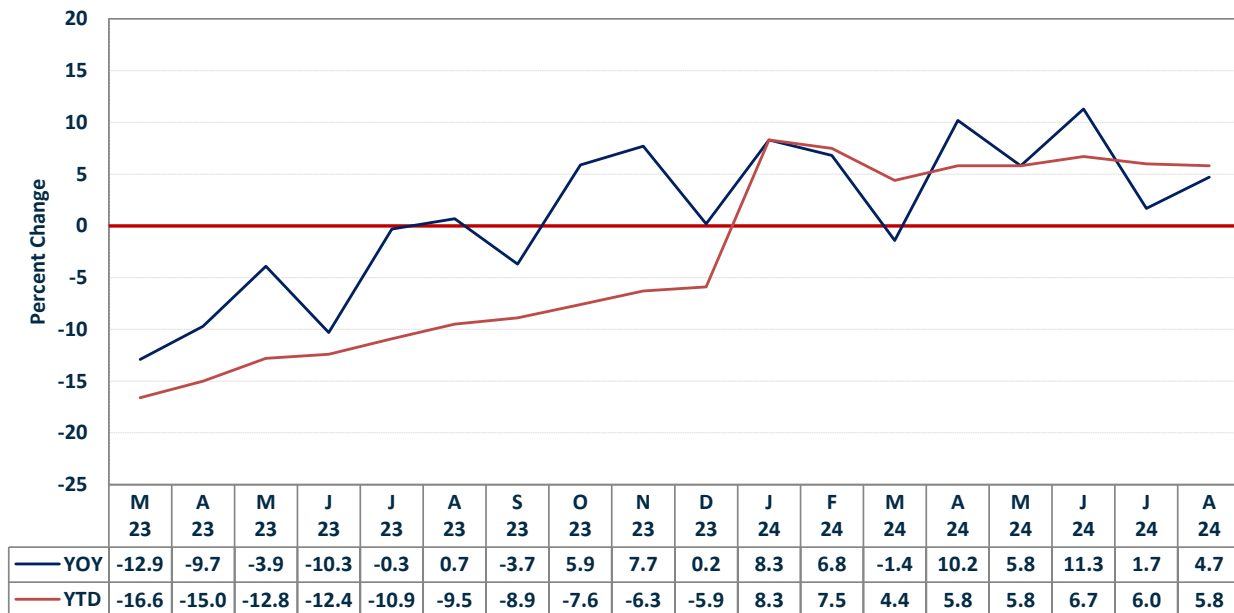


Booking Highlights and Conclusions

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

Month	Sequential			Year-Over-Year			Year-To-Date		
	2022	2023	2024	2022	2023	2024	2022	2023	2024
Jan	1.6%	-1.3%	9.6%	14.8%	-18.4%	8.8%	14.8%	-18.4%	8.8%
Feb	10.0%	10.1%	5.1%	7.3%	-13.8%	7.3%	10.8%	-18.4%	8.1%
Mar	-5.1%	1.2%	-2.9%	7.1%	-12.9%	-0.9%	9.1%	-16.6%	4.9%
Apr	-8.5%	-5.1%	3.2%	-6.4%	-9.7%	10.7%	5.1%	-15.0%	6.3%
May	6.6%	13.5%	9.1%	-5.1%	-3.9%	6.3%	2.9%	-12.8%	6.3%
Jun	-6.5%	-12.7%	-6.8%	-3.2%	-10.3%	11.3%	1.9%	-12.4%	6.7%
Jul	-9.7%	0.3%	-8.3%	-9.9%	-0.3%	1.7%	1.1%	-10.9%	6.0%
Aug	8.2%	9.2%	11.9%	-9.6%	0.7%	4.7%	-1.2%	-9.5%	5.8%
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

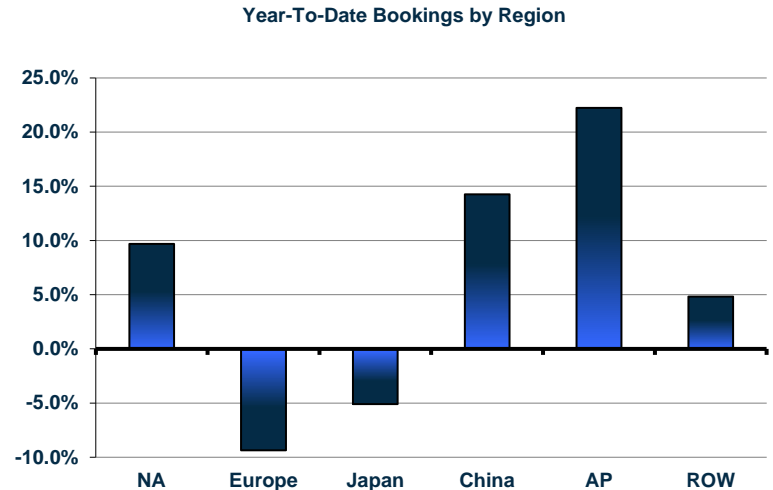


- August bookings increased +4.7% year-over-year.
- Orders increased +11.9% on a sequential basis in August.
- The book-to-bill ratio for August was 0.99. This is up from July's book-to-bill of 0.94.

Regional Performance: BOOKINGS

August 2024 Bookings

Region	Sequential	YOY	YTD
NA	14.1%	8.4%	9.7%
Europe	22.0%	-7.8%	-9.4%
Japan	2.8%	-1.4%	-5.1%
China	7.8%	7.3%	14.3%
AP	-1.4%	15.7%	22.2%
ROW	35.8%	24.2%	4.8%
Total	11.9%	4.7%	5.8%



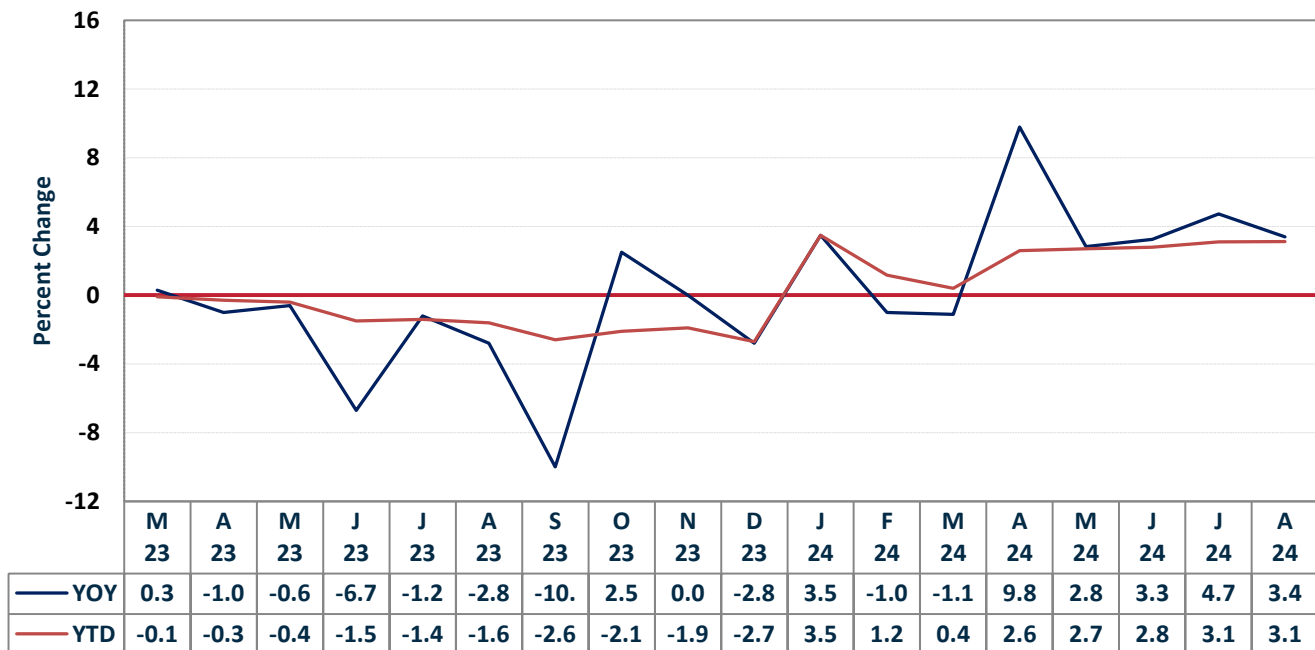
- Year-to-date, August bookings increased by +5.8%.
- Year-over-year orders in August rose in four of the six regions. North America, China, Asia Pacific, and ROW saw increases with ROW showing the most growth at +24.2%, followed by Asia Pacific where bookings increased +15.7 YOY. Europe and Japan showed a year-over-year decrease, with Europe declining the most at -7.8%, while Japanese order declined -1.4%.
- YTD, similar to July, all regions increased but Europe and Japan, where orders declined -9.4% and -5.1% respectively.

Billing Highlights and Conclusions

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

Month	Sequential			Year-Over-Year			Year-To-Date		
	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%	1.4%	3.0%	-1.0%	9.8%	8.4%	-0.3%	2.6%
May	11.6%	12.1%	4.4%	7.4%	-0.6%	2.6%	8.2%	-0.4%	2.6%
Jun	0.2%	-6.0%	-4.9%	11.9%	-6.7%	3.3%	8.8%	-1.5%	2.8%
Jul	-7.1%	-1.7%	-0.5%	6.1%	-1.2%	4.7%	8.4%	-1.4%	3.1%
Aug	8.9%	7.2%	6.0%	6.3%	-2.8%	3.4%	8.1%	-1.6%	3.1%
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%	

Billings - YOY and YTD

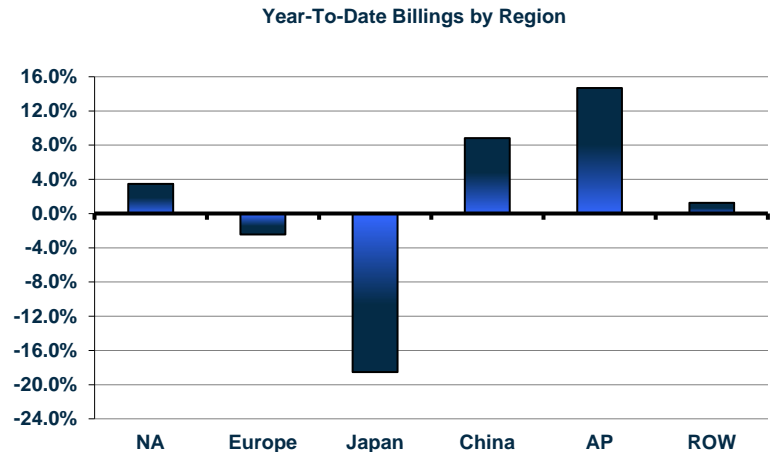


- August billings grew +3.4% year-to-date and +3.1% year-over-year.
- Sequentially, August billings increased +6.0%.

Regional Performance: BILLINGS

August 2024 Billings

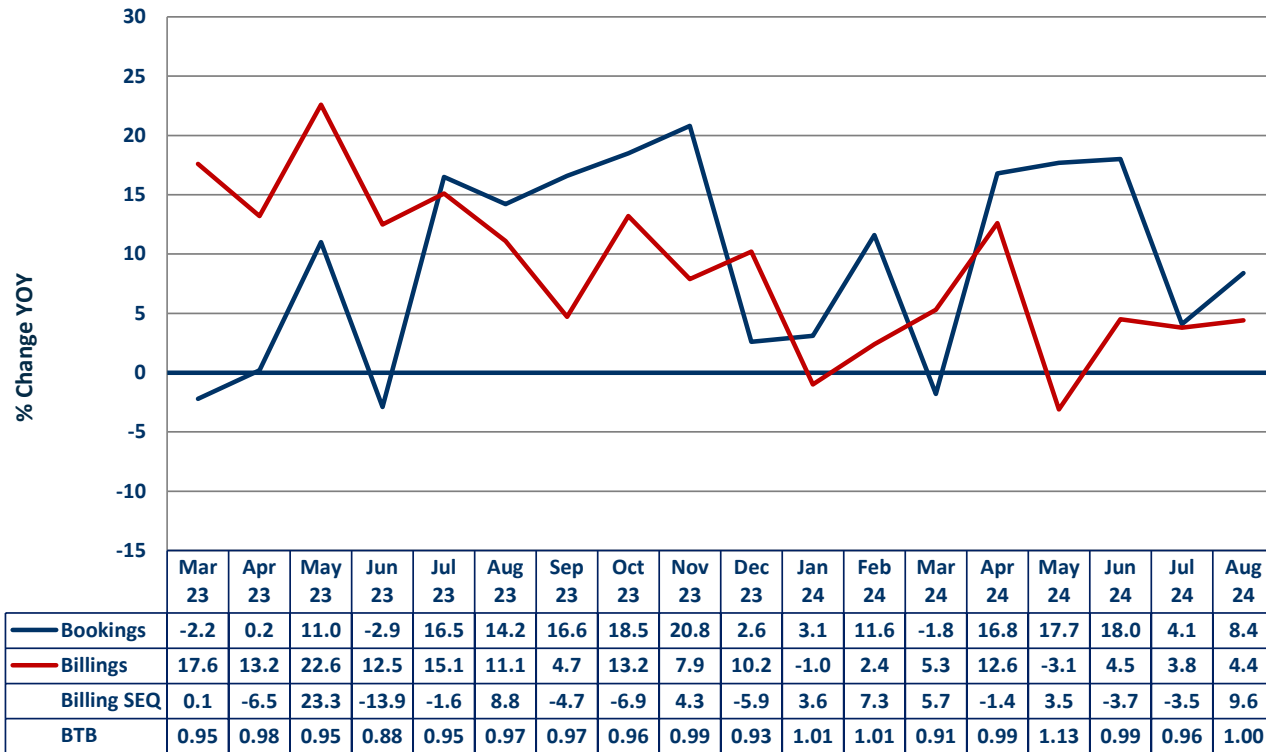
Region	Sequential	YOY	YTD
NA	9.6%	4.4%	3.5%
Europe	7.6%	-6.8%	-2.4%
Japan	5.5%	-7.2%	-18.5%
China	1.6%	7.3%	8.8%
AP	0.6%	22.7%	14.7%
ROW	10.4%	1.8%	1.2%
Total	6.0%	3.4%	3.1%



- August connector sales increased by +3.4% compared to the same period last year.
- All regions saw a sequential increase, with the ROW region and North America seeing the greatest increase at +10.4% and +9.6% respectively. Although positive, Asia Pacific's increase of +0.6% was the smallest sequential increase.
- Year-over-year, four of the six regions saw an increase, with the greatest increase coming from the Asia Pacific region at +22.7%, followed by China with a +7.3% increase. Japan saw the greatest decrease, declining -7.2%, while Europe saw a decline of -6.8%. It is interesting to note that Japan has had a monthly year-over-year decrease in billings for all of 2024.
- YTD, all regions but Europe and Japan saw an increase, declining -2.4% and -18.5% respectively. Similar to last month, the greatest growth YTD was in the Asia Pacific region, where sales grew +14.7%, followed by China, where sales grew +8.8%.

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**

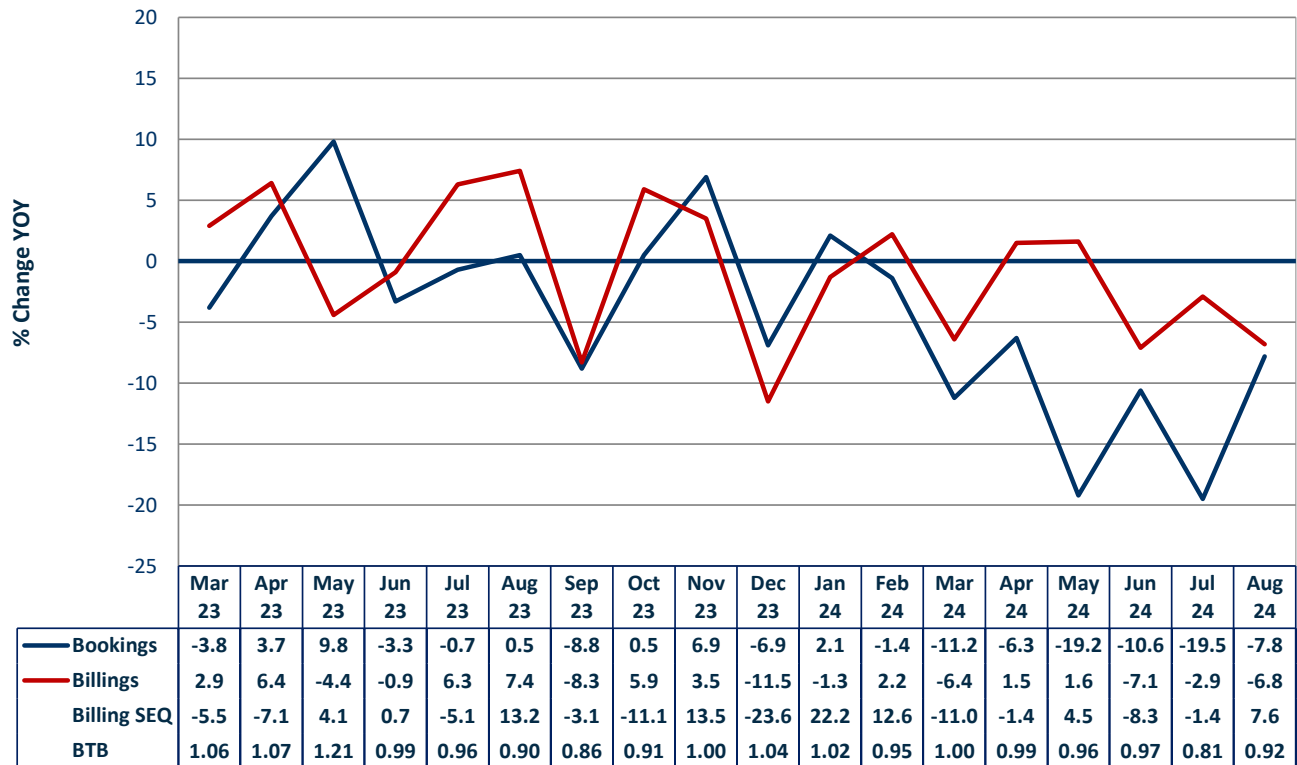


North America Performance

- Sales increased +4.4% year-over-year in North America in August, while orders grew +8.4%. Sequentially, North American billings increased +9.6%. The book-to-bill ratio was 1.00.
- According to the US Labor Department, the US inflation rate for August was 2.5%, down from the July rate of 2.9%. This was the lowest yearly growth rate since February of 2021.
- Industrial production in the United States increased 0.9% in August of 2024 after decreasing 0.7% in July.
- Manufacturing PMI decreased to 47.9 points in August from 49.6 points in July 2024 and 51.6 in June 2024.
- According to the US Bureau of Labor Statistics, the unemployment rate saw little change in August, coming in at 4.2%. August retail sales were up 0.1%.
- According to MarkLine, preliminary August new vehicles sales were up 6.0% over August 2023, contributed by five weekends including Labor Day, allowing for 28 business days, one day more than the same month last year.

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**

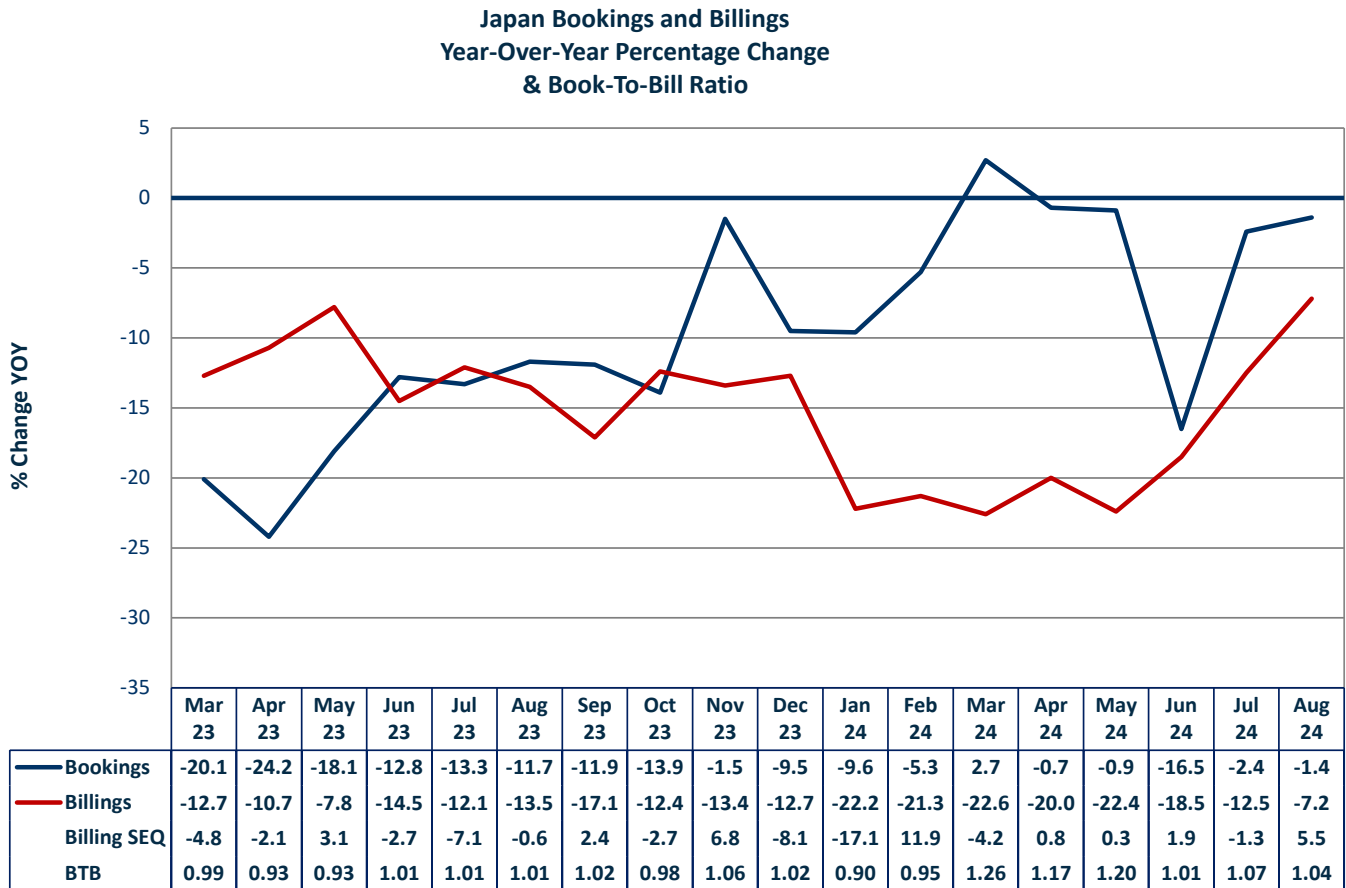


Europe Performance

- Bookings decreased -7.8% year-over-year in August, while billings decreased -6.8%. Sequentially, sales increased +7.6%. The book-to-bill ratio was 0.92, much better than the 0.81 in July.
- According to Eurostat, seasonally adjusted industrial production decreased by 0.3% in the euro area and by 0.1% in the EU when compared to July 2023. Production was also down by 2.2% in the euro area and 1.7% in the EU when compared with July 2023.
- The annual inflation rate in the euro area declined to 2.2% in August, down from 2.6% in June. CPI in the euro area increased 0.1% to 126.72 points. Trading Economics reported the Euro area PMI value remained at 45.8, the same as July and June 2024.
- In July 2024*, compared with June 2024, the seasonally adjusted retail trade volume decreased by 0.1% in the euro area and up by 0.4% in the EU, according to Eurostat.
- In July 2024, the eurozone unemployment rate was 6.4%, down from 6.5% in June and 6.6% in July 2023.
- In August 2024, the Economic Sentiment Indicator (ESI) edged up in both the EU (+0.4 points to 96.9) and the euro area (+0.6 points to 96.6).

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

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



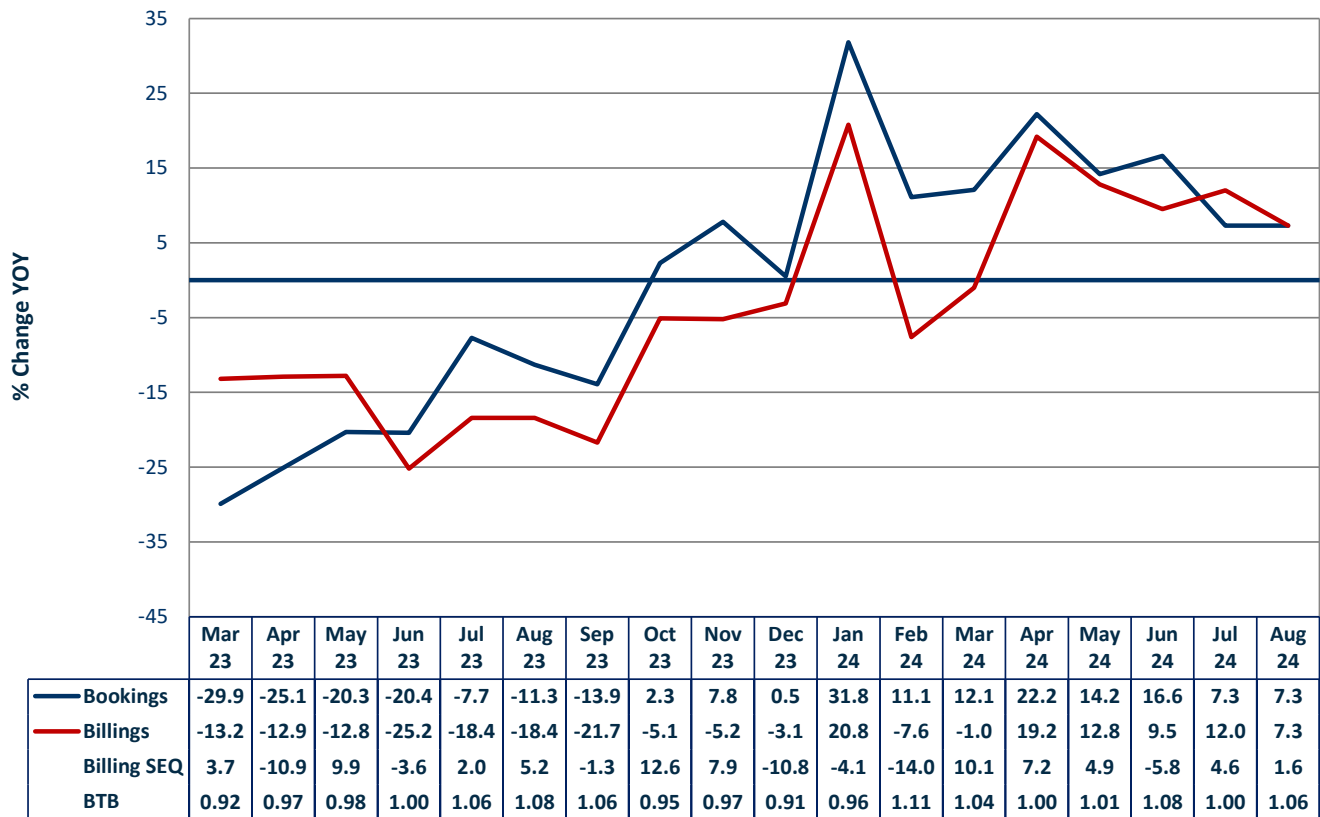
Japan Performance

- August, year-over-year bookings declined -1.4%, while sales dropped -7.2%. Sequentially, sales increased +5.5%. Japan's book-to-bill ratio was 1.04, down from 1.07 in July.
- In August 2024, the core consumer price index (CPI) in Tokyo, Japan increased 2.8% year-on-year, which was the highest reading since February and the fourth consecutive month of increase.
- Industrial production growth in Japan was revised upward to 3.1% month-over-month in July* 2024. Manufacturing PMI in Japan increased to 49.8 points in August from 49.1 points in July of 2024.
- According to Trading Economics, "the core consumer price index for the Ku-area of Tokyo in Japan rose 2.4% year-on-year in August 2024, accelerating for the fourth consecutive month and exceeding market expectations for a 2.2% rise."
- According to MarkLine, Japanese new vehicle sales in August decreased 3.5% year-over-year to 328,470 units.

**August 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

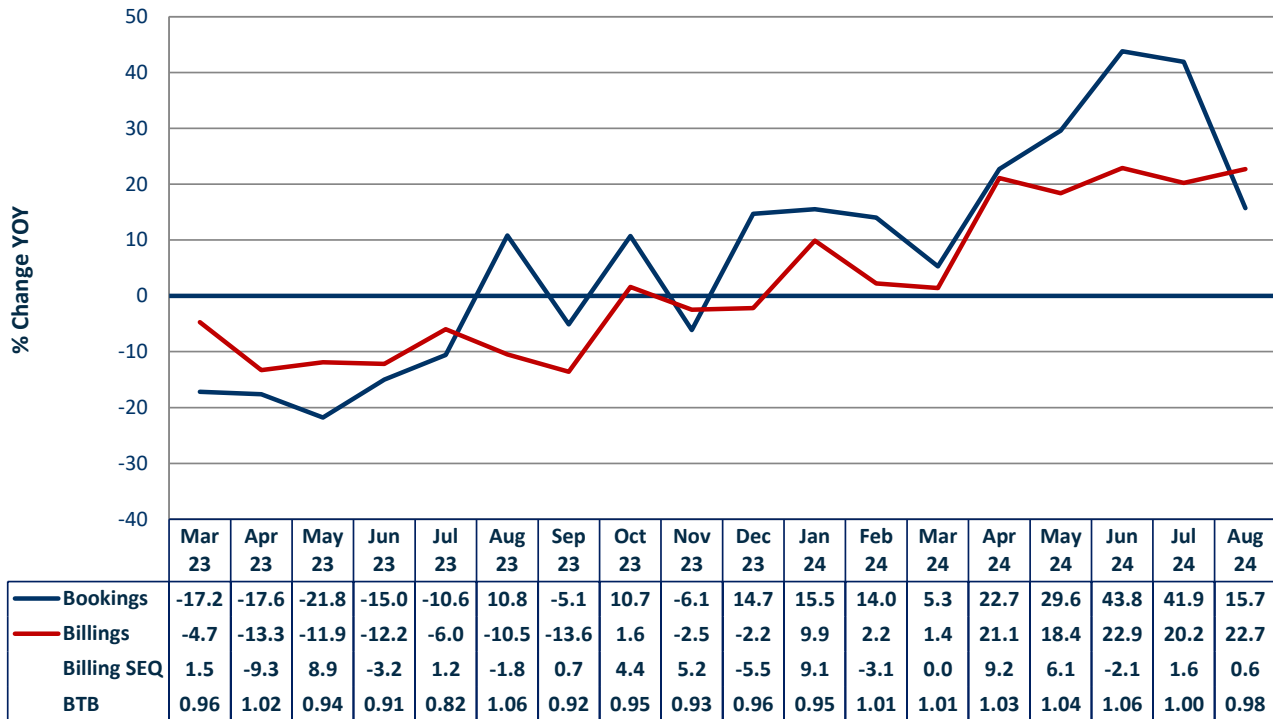


China Performance

- China's August sales and bookings grew +7.3% on a year-over-year basis. Sequentially, sales increased by +1.6%. The BTB increased to 1.06, after decreasing to 1.00 in July.
- According to CNBC "China's imports in August were up 0.5% y-o-y, less than expected, while exports were higher than forecasts at 8.7% in US dollars.
- In August 2024, the monthly inflation rate in China edged up to 0.6%, according to Trading Economics. This is the highest increase since February. In August 2024, the national consumer price index (CPI) increased by 0.6% year-over-year up from 0.5% month-on-month.
- According to Trading Economics, China's industrial production rose by 4.5% year-over-year in August, falling short of market forecasts of 4.8% and slowing from a 5.1% increase in July.
- According to MarkLines, "China's vehicle production and sales volumes in August 2024 were 2.492 and 2.453 million units, respectively, which is a 3.2% and 5.0% decrease YoY. However, YTD production and sales volumes were 18.674 and 18.766 million units, which is a 2.5% and 3.0% increase y/y, respectively."
- China's surveyed unemployment rate increased to 5.3% in August 2024, from 5.2% in July. This is the highest level since February, reflecting the impact of graduation season according to Trading Economics.

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**

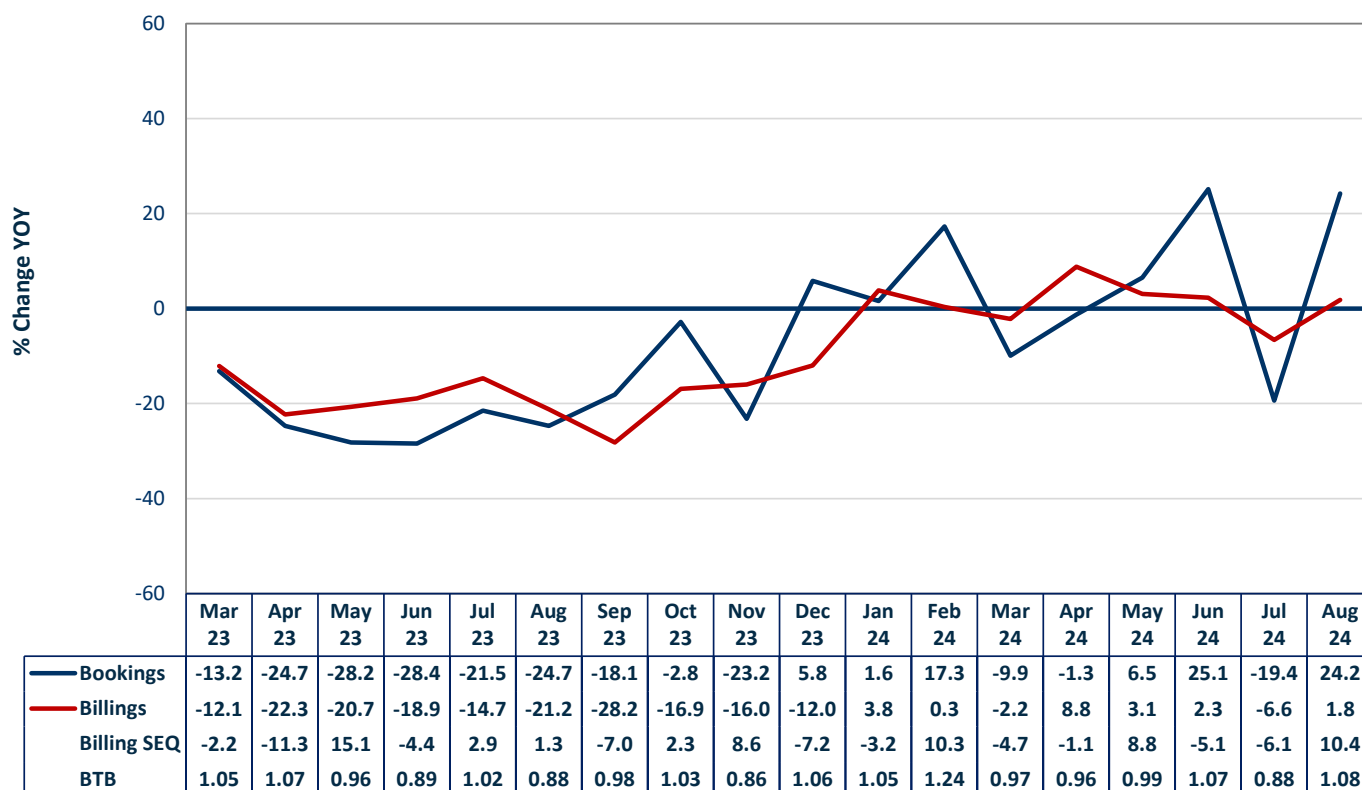


Asia Pacific Performance

- Year-over-year, August orders were up a solid +15.7%, while billings increased +22.7%. Sequentially, sales increased +0.6%. The book-to-bill ratio was 0.98, down from 1.00 in July.
- According to Trading Economics, “The HSBC India Manufacturing PMI declined to 56.7 in September 2024 from 57.5 in the previous month, preliminary estimates showed.”
- India’s retail inflation surged to 3.65% on an annual basis in August, according to The Economic Times.
- Annual inflation rate in India increased to 3.65% in August 2024 from an upwardly revised 3.6% in July, which was the lowest since August 2019, and above forecasts of 3.55%, according to Trading Economics.
- According to Trading Economics, the S&P Global South Korea Manufacturing PMI rose to 51.9 in August 2024 from 51.4 in July, signaling stronger improvement and expanding for the fourth consecutive month
- According to Reuters, South Korea's unemployment rate fell to a record low of 2.4% in August on a seasonally adjusted basis, from 2.5% in July.

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

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



Rest of World Performance

- Orders increased +24.2% after declining -19.4% in July, while billings increased +1.8% year-over-year. Sequentially, sales increased by +1.8%. The book-to-bill ratio was 1.08, up significantly from July when the book-to-bill hit a low of 0.88.
- According to Trading Economics, "Annual inflation rate in Brazil eased to 4.24% in August 2024 from 4.5% in July, below forecasts of 4.3%". Pricing eased for transportation and housing and increased for food and non-alcoholic beverages.
- According to Trading Economics, "The S&P Global Brazil Manufacturing PMI fell to 50.4 in August 2024 from 54.0 in July, marking the lowest reading of the year and indicating a significant slowdown in the sector's growth momentum."
- According to Trading Economics, "Unemployment rate in Brazil decreased to 6.8% in July from 6.9% in June of 2024. Unemployment rate in Brazil averaged 10.08% from 2012 until 2024, reaching an all-time high of 14.7% in March of 2021 and a record low of 6.2% in December of 2013.

**August 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% Growing	0.3% Growing	2.9% Growing	4.7% Steady	N/A	N/A
Industrial Production Growth	0.9% Up	-0.3% Down	3.1% Down	4.5% Down	N/A	N/A
Manufacturing PMI*	47.9 Down	45.8 Steady	49.8 Down	49.1 Down	N/A	N/A
Inflation Rate	2.5% Down	2.2% Down	2.8% Up	0.6% Up	N/A	N/A
Unemployment Rate	4.2% Up	6.4% Steady	2.7% Up	5.3% Up	N/A	N/A
Retail Sale Growth YOY	0.1% Up	-0.1% Down	0.2% Down	2.7% Up	N/A	N/A
August Connector Sales	4.4%	-6.8%	-7.2%	7.3%	22.7%	1.8%
YTD Connector Sales	3.5%	-2.4%	-18.5%	8.8%	14.7%	1.2%
August Connector Orders	8.4%	-7.8%	-1.4%	7.3%	15.7%	24.2%
YTD Connector Orders	9.7%	-9.4%	-5.1%	14.3%	22.2%	4.8%

* Purchasing Manager Index - Below 50 is contracting factory activity

The Industry Backlog Is 13.0 Weeks

The industry shipped \$1,663 million per week in August. As the table below displays, in August the ending backlog is \$21,615. Assuming the industry's weekly sales of \$1,663 million remain constant, the backlog represents 13.0 weeks of sales.

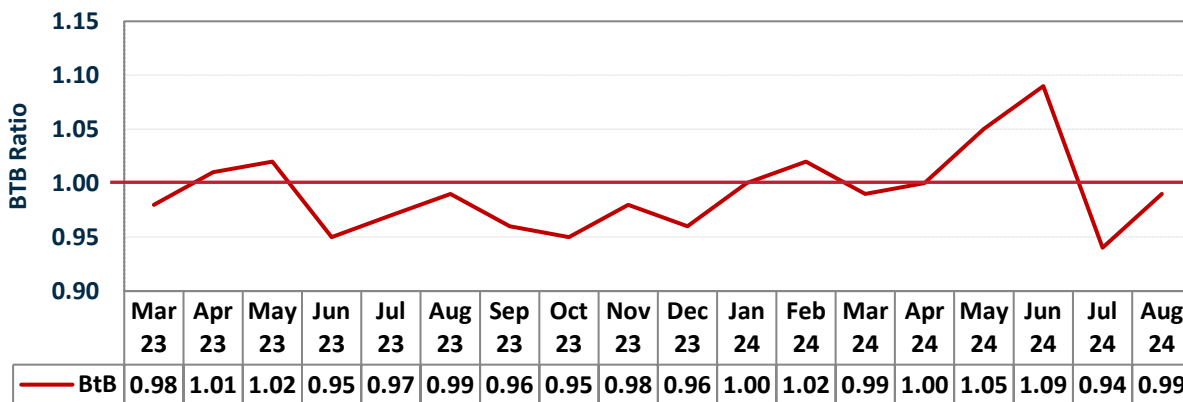
The following table shows the world connector backlog of orders ending August 2024.

Industry Backlog		
	2023	August 2024
BtB Ratio	0.98	0.99
Beginning Backlog	\$22,983	\$21,017
YTD Bookings	\$79,888	\$57,024
YTD Billings	\$81,854	\$56,425
Ending Backlog	\$21,017	\$21,615
Backlog in Weeks	13.4	13.0

\$ Millions

The book-to-bill ratio in August was 0.99. The following displays the trend of BTB ratios since March of 2023.

Connector Industry Book-to-Bill



The August 2024 ending backlog of \$21,615 million is \$598 million more than the 2023 ending backlog of \$21,017 million.

Change in Backlog

2023 Ending Backlog	\$21,017
2024 August Ending Backlong	\$21,615
Backlog Growth	\$598

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

Local Currency to One USD 2023 YTD versus 2024 YTD

Currency	2023	2024	% Change
Euro	0.9162	0.9079	0.9%
Yuan	7.2328	7.1515	1.1%
Yen	144.6968	146.3335	-1.1%

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

Industry Sales Performance August 2024 USD-vs-Local Currencies

Region	U.S.\$	Local Currency
North America	4.4%	4.4%
Europe	0.8%	8.6%
Japan	-12.3%	4.3%
China	19.5%	2.8%
Asia Pacific	22.7%	22.7%
ROW	1.8%	1.8%
World	3.4%	2.8%

Connector sales in August of 2024 increased +2.8% when measured in local currencies, versus an increase of +3.4% in US dollars.

2024 Outlook: YTD August

Over the past decade, year-to-date sales in August averaged 65.8% of full year sales. Our global connector sales through August are \$56,426 million. Historically, on average, 2024 full year connector sales will be \$85,754 million (\$56,426 divided by 65.8%).

Since we shipped \$81,854 million in 2023, sales growth will be +4.8% (\$85,754 divided by \$81,854) in 2024.

Using the historical forecasting methodology, we can estimate a range of possible outcomes for connector sales in 2024.

2024 Historical Analysis Through August 2024

	Historical Percentage	Sales YTD August	2024 Forecast
Low	61.8%	\$56,426	\$91,304
Medium	65.8%	\$56,426	\$85,754
High	68.5%	\$56,426	\$82,374

\$ Millions

The following table shows the range of possible outcomes using this methodology. Note, we also include the Bishop forecast in this table.

2024 Forecast Range

	2024 Forecast	2023 Actual	Percent Growth
Low	\$91,304	\$81,854	11.5%
Bishop	\$86,602	\$81,854	5.8%
Medium	\$85,754	\$81,854	4.8%
High	\$82,374	\$81,854	0.6%

\$ Millions

The Bishop forecast of 5.8% is slightly higher than the historical average. We will maintain this forecast for now. However, July and August bookings were not particularly strong, up +1.7% and +4.7 respectively. This is historically typical for these summer months, still we are concerned that connector demand is not strong. We will continue to monitor connector performance and report monthly.

The following table provides Bishop & Associates' 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

Sales have been growing, but only in the single digits, over the last three months (June +3.3%, July +4.7%, and August +3.4%). Frankly, we were expecting more improvements in sales.

We believe September will be very informative on the remainder of 2024. First summer vacations are over, and Europeans return to work. Second, September is historically a good month for connector sales, accounting for nearly 9.0% of full year sales. Note, a normal month accounts for only 8.3% of full year sales.

If September sales results are below average, we will take that information as a slowdown in connector demand.

Significant Events

September 2024 News

Industry News

North American EMS Industry Up 1.9 Percent in July

IPC announced the July 2024 findings from its North American Electronics Manufacturing Services (EMS) Statistical Program. The book-to-bill ratio stands at 1.21.

Total North American EMS shipments in July 2024 were up 1.9 percent compared to the same month last year. Compared to the preceding month, July shipments increased 1.9 percent. EMS bookings in July increased 0.2 percent year-over-year and increased 0.1 percent from the previous month.

North American PCB Industry Sales Down 21.2 Percent in July

IPC July 2024 findings from its North American Printed Circuit Board (PCB) Statistical Program show a book-to-bill ratio stands of 0.99.

Total North American PCB shipments in July 2024 were down 21.2 percent compared to the same month last year. Compared to the preceding month, July shipments were down 14.0 percent.

PCB bookings in July were down 25.4 percent compared to the same month last year. July bookings were down 17.3 percent compared to the preceding month.

U.S. Manufacturing Activity Remains Subdued

The Institute for Supply Management's manufacturing index, the PMI, increased by 0.4 percent in August, but at a level of 47.2 remained below the index's growth threshold of 50.0.

Demand slipped further into contraction, declining by 2.8 percent to 44.6, and manufacturers paid more for their materials last month. The ISM prices index grew by 1.1 percent to 54.0. At the same time, production decreased by 1.1 percent to 44.8, signaling manufacturers' adjustments to soft demand. This is the PMI's fifth month of contraction.

Nevertheless, two industries expanded last month, including computers and electronics.

But the ISM does not expect manufacturing will move all that much in the next several months. Uncertainty regarding the Fed's plan for interest rates and the U.S. presidential election has ground a lot of activity to a halt.

Manufacturers' inventories grew by 5.8 percent to 50.3 in August. Customers' inventories registered 48.4 percent in August, up 2.6 percentage points compared with 45.8 percent reported in July.

New export orders declined by 0.4 percent to a level of 48.6.

Output (measured by the production and employment indexes) continued in moderate contraction with production sagging further, while employment contracted slower as compared to July. Panelists' companies reduced production levels month-over-month as head-count reductions continued in August. Inputs — defined

as supplier deliveries, inventories, prices and imports — generally continued to accommodate future demand growth, with inventory growth attributed to a supply demand timing mismatch, Fiore added.

China Manufacturing Data Contract for Fourth Month

Chinese manufacturing contracted for a fourth consecutive month last month a worse-than-expected result reflecting the world's second-largest economy's struggle to recover.

The purchasing managers' index — a key barometer of industrial output — stood at 49.1 points last month, China's National Bureau of Statistics said.

This represents a stronger contraction than in July (49.4 points) for the index, which is based in part on company order books.

China's post-pandemic recovery has been brief and less robust than expected.

While some sectors have largely regained their strength — including tourism and the auto industry — others are struggling, particularly real estate, a key growth driver.

In mid-August, China released a series of economic indicators deemed disappointing despite recent government measures aimed at boosting growth.

The nation's residential slump deepened last month, as expectations of a further drop in new-home prices hampered the country's efforts to cushion the downturn.

The value of new-home sales from the 100 biggest real estate companies fell about 26.8 percent from a year earlier to 251 billion yuan (US\$35.4 billion), more than the 19.7 percent decline in July, according to preliminary data released by China Real Estate Information Corp on Saturday.

The accelerating slide shows the waning impact of the latest rescue package unveiled in May. The sector continues to be a drag on China's economy, which needs more stimulus to meet the government's 5 percent growth target this year, Bloomberg Economics said.

China has been considering a new funding option for local governments to buy unsold homes to prop up the market, people familiar with the matter said last month. The latest proposal would allow local governments to fund their home purchases via so-called special bonds, they said.

Global PC Monitor Market Delivers Third Consecutive Quarter of Growth in Q2 2024

The global PC monitor market ended the second quarter of 2024 with 5.9% growth in unit shipments compared to the same quarter a year ago. This marked the third consecutive quarter where year-over-year growth was positive, indicating a recovery of the market after declining in 2022 and 2023, according to the International Data Corporation (IDC) Worldwide Quarterly PC Monitor Tracker.

Several drivers affected the stronger than expected performance during the April to June quarter. First, the increased volume can be partly attributed to inventory restocking, mostly on the consumer side. Second, there was a notable effort to address anticipated cost escalations, which occurred due to panel cost increases beginning in April and led to pull-in volume earlier than expected. Third, many vendors continue to aggressively revamp models with 60 Hz refresh rate panels into 100 Hz as the faster panel costs have reached parity. Finally, continued expansion and competition in the consumer and gaming market also led to the growth in the second quarter.

Mixed and Extended Reality Headsets to Drive Strong Growth Through 2028

The decline in worldwide shipments of augmented reality and virtual reality (AR/VR) headsets continued during the second quarter of 2024 (2Q24) as volumes contracted 28.1% year over year to 1.1 million units, according to new data from the International Data Corporation (IDC) Worldwide Quarterly Augmented and Virtual Reality Headset Tracker. The decline is expected to carry forward as full year shipments are forecast to fall 1.5% in 2024 before the market soars to 41.4% growth in 2025 thanks to new tech and more affordable devices.

The first quarter of 2024 was marred by a weak economy, upward momentum of average selling prices (ASPs), and excess inventory in the case a major player; Sony. During the second quarter, many of these issues were alleviated though prices remained elevated. Meta led the pack with 60.5% share during the quarter, followed by Sony, Apple, ByteDance, and XREAL.

Extended reality (ER) headsets are also forecast to grow thanks to the inclusion of artificial intelligence (AI) and consumer-friendly designs. "Similar to the early days of this industry, we're seeing a slew of new startups and next generation products from established brands targeting the 'smart glasses' space. What's different this time around is the inclusion of AI along with thinner and lighter designs catering to consumers," added Ubrani.

Augmented reality devices are also expected to drive growth although shipment volumes will remain low as the tech has proven to be quite difficult to produce at scale while also overcoming barriers such as price, fidelity, battery life, thermals, and optics. Existing AR champions such as the HoloLens are also expected to give way to mixed reality devices in the future as some of the use cases can be fulfilled by this new class of headsets which will also be more affordable.

In total, IDC expects the industry to grow from 6.7 million units in 2024 to 22.9 million in 2028 with a compound annual growth rate (CAGR) of 36.3%. Benefitting from the confluence of both AR and VR, MR devices are expected to lead, representing over 70% of the volume in 2028. Meanwhile, ER devices, with a simple heads-up display or content mirroring, will capture over a quarter of the market.

Global Wrist-Worn Device Market Ships Almost 44 million Units in 2Q 2024, Led by China's 10.9% YoY Growth

According to the latest International Data Corporation (IDC) Worldwide Quarterly Wearable Device Tracker data, the global wrist-worn device market shipped 43.7 million units in the second quarter of 2024 (2Q24), a year-over-year (YoY) decrease of 0.7%. China significantly outpaced the global wrist-worn device market with 15.5 million units shipped, a YoY increase of 10.9%.

The wrist-worn device market includes smartwatches and wristbands. The global smartwatch market shipped 34.7 million units in 2Q2024, a YoY decrease of 3.2%, while China shipped 11.1 million units, a YoY increase of 18.7%. The global wristband market shipped 9.0 million units in 2Q24, a YoY increase of 10.6%, while China shipped 4.4 million units, a YoY decrease of 4.8%.

The growth of the Chinese wrist-worn market is not only exceeding the global market, in the first half of 2024 Chinese manufacturers also maintained a rapid growth rate and a strong market position in the global wrist-worn market.

Worldwide Spending on Edge Computing Forecast to Reach \$378 Billion in 2028

According to the International Data Corporation (IDC) Worldwide Edge Spending Guide, global spending on edge computing is estimated to reach \$228 billion in 2024, marking a 14% increase from 2023. This includes combined enterprise and service provider spending on hardware, software, professional services, and provisioned services for edge solutions. The forecast anticipates sustained strong growth through 2028, with spending expected to be near \$378 billion, growing at a solid double-digit CAGR.

According to IDC, the edge encompasses the technology-related actions outside of centralized data centers, serving as an intermediary between connected endpoints and the core IT environment.

Edge is a crucial technology infrastructure that extends and innovates on the capabilities found in core datacenters, whether enterprise- or service-provider-oriented. The edge ecosystem comprises various technologies and services, including computing infrastructure (such as servers, storage, and networking equipment), diverse software (such as system infrastructure, security, and application development and deployment), as well as professional implementation and management services and provisioned services delivering cloud-based technologies.

Optimism Grows for Q4 Component Sales

Although supply chain stakeholders have tempered their growth expectations for the year, sentiment around component sales remains in positive territory through Q4. The ECIA's Electronic Component Sales Trends (ECST) index exceeded its baseline of 100.0 in August to reach 108.4, with a September outlook for 107.9.

The ECIA noted that in June, the index fell below 100, prompting concerns about the market's health. While expectations often exceed actual results in the ECST, ECIA Chief Analyst Dale Ford said a positive outlook augurs well for Q4. "Any level of continued upward improvement in the market is a valuable indicator of continued positive market momentum," he said in a release. "This month-to-month positive market trend is projected to continue through the fourth quarter and the end of the year based on the results measured in the Q3 ECST survey."

The IPC saw similar results in its August economic survey. Sentiment in the electronics industry showed a modest uptick in August, though it remained below the peak observed in April 2024. The improvement was driven by stronger demand and reduced costs. The IPC's demand index increased 3.3 percent in August. This rise was fueled by better, albeit still contracting, backlog, capacity utilization that shifted to expansion, and heightened order sentiment.

The ECIA's semiconductor sales trends improved by 5.5 points to reach 111.8 in August and electromechanical devices saw a 2.8-point improvement to 108.6. Passives grew by 6.5 points to 104.7.

Semiconductor market expectations for September slip from the August results but still sustain an overall positive market expectation at 103.0. Every product sub-category achieves a score of 100 or above in both August and the September forecast.

Why Foxconn Returned: China's Manufacturing and Business Advantages

Recently, Foxconn announced the relocation of some of its production lines from India and Vietnam back to China, along with increased investment in Zhengzhou. This move has garnered widespread attention, especially against the backdrop of global economic uncertainty and supply chain restructuring. Foxconn's decision not only reflects its operational considerations but also profoundly reveals the advantages of Chinese manufacturing, the importance of the supply chain, and the superiority of China's business environment.

Chinese manufacturing enjoys a high level of global reputation, particularly in sectors like electronics and consumer goods. As the world's largest contract electronics manufacturer, Foxconn's production efficiency and product quality are industry benchmarks. In India, despite relatively low labor costs, Foxconn's production efficiency has been hindered by the lower skills and work attitudes of the workforce. This highlights the misconception that "cheap labor" equates to "efficient production."

The advantages of China's manufacturing sector are not only reflected in its mature industrial base and strong technological accumulation but also in its well-established training systems and highly skilled workforce. China has a large number of professionally trained workers whose practical skills and professionalism stand out on a global scale. This is one of the key factors attracting Foxconn and other foreign enterprises to return to China.

Foxconn's decision to relocate production lines from India and Vietnam back to China reflects the significance of Chinese manufacturing in the global economic landscape. China not only has advantages in technology and production efficiency but also provides excellent conditions for foreign enterprises through its well-established supply chains, continuously optimizing business environment, abundant and highly skilled human resources, as well as the enormous domestic market.

Indian PC Market Grew 7.1% YoY with 3.39 million Units Shipped in 2Q2024

India's traditional PC market (inclusive of desktops, notebooks, and workstations) shipped 3.39 million units in 2Q2024, up 7.1% year-over-year (YoY), according to recent data from the International Data Corporation. Worldwide Quarterly Personal Computing Device Tracker. All 3 categories - desktop, notebook, and workstation - grew by 5.9% YoY, 7.4% YoY and 12.4% YoY respectively.

In 2Q2024, the consumer segment surged by 11.2% YoY as both online and offline channels saw good demand. The e-tail channel grew by a healthy 22.4% YoY. The commercial segment grew by 3.5% YoY fueled by an increased demand in the SMB and LB segments which grew by 12.4% YoY and 33.1% YoY, respectively.

The top 5 companies, in order of sales volume, are HP, Lenovo, Dell, Acer, and Asus.

Worldwide Smartphone Market Forecast to Grow Nearly 6% in 2024

Worldwide smartphone shipments are forecast to grow 5.8% year over year in 2024 to 1.23 billion units, according to the International Data Corporation (IDC) Worldwide Quarterly Mobile Phone Tracker. The 12% growth in the first quarter, followed by 9% growth last quarter, has brought improved optimism about how 2024 will play out in the second half of the year. Affordable Android smartphones continue to grow rapidly in emerging markets coming off a difficult two years while premium markets are starting to embrace GenAI smartphones, generating excitement and renewed interest in the industry.

China is Spending More on Chipmaking Machines Than Anyone Else in the World

US-backed sanctions against China are upending the technology industry. While the most advanced Western nations are investing billions in the latest chipmaking equipment, China is being forced to settle for older technology – often at a high cost.

China spent \$25 billion on chip manufacturing tools in the first six months of 2024 and plans to spend an additional \$25 billion by the end of the year. According to a new report by Nikkei Asia, China is now outspending South Korea, Taiwan, and the US combined on chipmaking machines in a clear effort to bolster its local manufacturing industry.

Estimates of China's "frantic" push toward chipmaking localization were provided by the global chip industry association Semi. Clark Tseng, Semi's senior director of market intelligence, highlighted how China continues to buy all the manufacturing equipment it can to improve its chipmaking capabilities, particularly for mature processor nodes.

Due to sanctions, Beijing has little chance of acquiring the most advanced chipmaking devices currently on the market. Dutch company ASML, the world's leading supplier of extreme ultraviolet (EUV) lithography equipment, is selling most of its newer technology to Intel, TSMC, and other foundry customers outside China.

China's communist government is concerned about further US efforts to control the export of chipmaking machines, Tseng said. As a result, Beijing authorities have pushed companies to acquire more specialized equipment in advance. The purchasing spree involves both large chipmakers like Semiconductor Manufacturing International Corp. and smaller ventures seeking growth opportunities in the chip industry.

Canada Imposes a 100% Tariff on Imports of Chinese-made Electric Vehicles, Matching the US

Canada announced it is launching a 100% tariff on imports of Chinese-made electric vehicles, matching U.S. tariffs imposed over what Western governments say are China's subsidies that give its industry an unfair advantage.

The announcement came after encouragement by U.S. national security advisor Jake Sullivan during a meeting with Canadian Prime Minister Justin Trudeau and Cabinet ministers Sunday. Sullivan is making his first visit to Beijing on Tuesday.

Trudeau said Canada also will impose a 25% tariff on Chinese steel and aluminum. "Actors like China have chosen to give themselves an unfair advantage in the global marketplace," he said.

One of the Chinese-made EVs imported into Canada is from Tesla, made at the company's Shanghai factory, though the U.S. company could avoid the tariff by switching to supplying Canada from factories in the U.S. or Germany.

How China Became the Leading Car Supplier to Mexico and What it Means for the US

Blocked from the US by tariffs, Chinese electric vehicle makers have looked elsewhere to sell their high-tech cars. But as Mexico has emerged as a hot spot for Chinese EVs, Washington officials worry the country may be used as a "backdoor" to the U.S. market.

Last year, China was the leading car supplier to Mexico, exporting \$4.6 billion worth of vehicles to the country, according to the Mexican Ministry of Economy. Even customers wary of EVs have been won over by affordable price tags. Tesla rival BYD sells its Dolphin Mini in Mexico for around 398,800 pesos, or about \$21,300, a little over half the price of the cheapest Tesla.

Some Chinese EV makers, including BYD, have been looking for a further foothold in North America by exploring factory sites in the Mexican states of Durango, Jalisco and Nuevo Leon. The foreign investment would be an economic boost for Mexico. BYD has claimed that a plant there would create around 10,000 jobs.

But U.S. officials worry this could be a part of a larger strategy by Chinese automakers to skirt trade restrictions and enter the American market.

“Mexico is an attractive production platform, not only for Chinese companies, but for other companies as well, in part because of that free trade access that it has to the American market,” said Scott Paul, president of the Alliance for American Manufacturing. “And it can do something that in trade terms is called circumvention.”

That free trade access is part of the United States-Mexico-Canada Agreement (USMCA), a revised iteration of the North American Free Trade Agreement (NAFTA) that removed tariffs on many goods traded between the North American countries starting in 2018. Under the agreement, if a foreign auto company manufactures in either Canada or Mexico and can prove that the building materials are sourced locally, the goods can be exported to the U.S. virtually duty-free.

“We’ve seen China do this in other types of manufacturing as well, from appliances to auto parts to steel,” said Paul. “For more than a decade now, China, the United States have been playing a high-stakes game of whack-a-mole when it comes to trade policy tariffs.”

While meeting the USMCA requirements is difficult, the potential scenario terrifies U.S. lawmakers and auto companies.

Ford is Making Major Changes to its Electric Vehicle Strategy

Ford acknowledged America’s electric vehicle market just isn’t what the automaker expected it to be: Customers are increasingly price-conscious and range-anxious. So, Ford is making big changes to its EV plans, focusing on hybrids and affordability.

The company announced Wednesday that it is adjusting its roadmap for North American vehicles to include a broader range of electrification options, including lower prices — and longer ranges.

Ford ditched plans for its next lineup of all-electric SUVs, replacing them with hybrid models, which typically offer shorter battery range but longer overall range when combined with a gasoline engine.

That plan alone will cost the company at least \$400 million because it needs to write down the manufacturing equipment it had put in place to build the EV SUVs it no longer plans to build. Ford said the change in plans could ultimately cost it upwards of \$1.5 billion.

But the company also said it would improve its battery sourcing and increase manufacturing efficiency to save on costs. And just 30% of the company’s annual capital expenditures will be dedicated to pure electric vehicles in the future — down from 40%.

Ford trails Tesla in EV production in America, but its EV business is growing. Its Ford F-150 Lightning is the best-selling electric truck in the United States. Still, vehicles with hybrid technology are becoming increasingly popular in the United States, so Ford decided to meet customers where they are today.

Ford will continue to make EVs but at a slower pace. Ford’s next entry into its EV lineup will be an electric commercial van coming in 2026. That could help it compete with Rivian, which has a deal with Amazon that has made its electric vans ubiquitous across America.

Next, Ford will develop what it calls a “groundbreaking” electric truck, which it has codenamed “Project T3.” It plans to introduce the truck, which will feature bi-directional charging (it can charge your home in a blackout) and improved aerodynamics, in the second half of 2027. That’s a later date than it had initially planned, but Ford said the improvements it plans to make on battery manufacturing will help lower the cost of its truck by then.

Electronica 2024 Paves the Way for the All-Electric Society

As an established industry event, electronica has been bringing the international electronics industry together for 60 years. In this anniversary year, the world's leading trade show and conference is focusing on the all-electric society. Event officials recently shared details about electronica 2024, which will run from Nov. 12–15 at the Trade Fair Center in Munich.

With exhibitors from a total of more than 50 countries and all electronics sectors, electronica will bring the entire industry together at the technology hub of Munich. Companies ranging from key players to startups will showcase innovations that are helping to pave the way for an all-electric society. The exhibition area will feature several new or expanded offerings: the EMS Pavilion, bringing together manufacturing service providers for electronic components; the Printed Electronics Pavilion, where suppliers of flexible and printed electronics will present their technologies; and the Sensor Pavilion.

TOP 100 CONNECTOR MANUFACTURERS



Bishop & Associates has just released a new ten-chapter research report providing a comprehensive analysis of the world's Top 100 Electronic Connector Manufacturers. This new report furnishes detailed statistics that benchmark the leading connector manufacturers by 2022/2023 total sales, sales by end-use equipment market, sales by product category, and sales by region. All manufacturers are exhibited by 2023 sales and are ranked by region of the world with percent year-to-year change. This report provides all the key data needed to analyze the sales performance of each of the top 100 worldwide electronic connector suppliers.

The world's top 100 connector manufacturers recorded 2023 shipments of \$67.465 billion. This represented 82.4% of the worldwide connector market, down from 83.3% in 2022. The balance of the connector industry had 2023 shipments of \$14.389 billion and represented 17.6% of the total market.

Over the last decade, we have identified more than 750 connector manufacturers, many of which have been acquired by larger companies or consolidated to form new connector companies. In fact, if you were to review the list of top 100 connector companies in 2000 with the list of the top 100 connector companies in 2023, you would see that approximately 49% of the companies listed in 2000 were acquired by other companies. In fact, in just the last several years, names like ERNI, Positronic, Genesis Connector Technology, and Winchester, all at one time top 100 place holders have been acquired. And it doesn't appear this consolidation will end. Already two companies on the 2023 top 100 connector manufacturer's list, Carlisle Interconnect (#24) and CommScope (#26) will not return in 2024, as they too have been acquired.

These changes are allowing new companies to appear on Bishop's list of top 100 connector manufacturers. Companies like Qnnect, a portfolio company comprised of connector manufacturers such as Cristek, Fil-Con, Connectronics, and Meritec/Joy Signal, are now listed as the 28th largest connector manufacturer. In addition to this, many connector companies offer highly focused product offerings, or support niche markets or specific regions. We continue to discover additional connector companies, especially in China and other developing countries, as well as non-connector companies who are expanding their current product offering to include interconnect, or who are developing application specific connectors to support their other products.

TOP 100 CONNECTOR MANUFACTURERS

The table below shows a sample table for percent of sales for the top 100 connector manufacturers, and all other connector manufacturers by geographic region.

Top 100 by Geographic Region - 2023 Sales

Region	1 - 100 Sales	All Other Sales	Total World
North America	XX.X%	X.X%	XX.X%
Europe	XX.X%	X.X%	XX.X%
Japan	X.X%	X.X%	X.X%
China	XX.X%	X.X%	XX.X%
Asia Pacific	XX.X%	X.X%	XX.X%
ROW	X.X%	X.X%	X.X%
Total World	82.4%	17.6%	100.0%

\$ Millions

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Top 100 Connector Manufacturers – Percent Market Share by Region



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