The Bishop Report
Performance and Forecast of the World Connector Industry

Issue No. 375 | 1st Quarter 2024 | January 2024

# Industry Ends the Year With a -2.7% Decline

**Regional Performance:**
YTD, only Europe and the ROW region show growth, increasing +3.8% and +0.9% respectively. All other regions decline. See page 5.

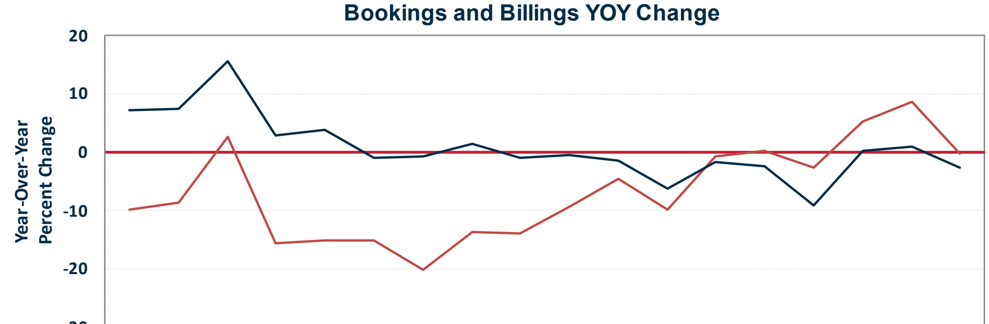
**Industry Backlog:**
December backlog was $21,017 million (13.4 weeks). This is down a full week from December 2022's backlog of $22,983 million (14.2 weeks). See page 13.

**2024 Outlook**
Bishop anticipates sales to grow to $85,319 million in 2024, an increase of +4.2% over 2023.

**2023 Currency Impact:**
The industry registered a slight uptick in sales in 2023, up 0.8%, versus -2.7% YTD in USD.


December bookings dipped slightly down –0.3% YOY. Billings declined -2.8% YOY. The backlog in December was unchanged at 13.4 weeks.

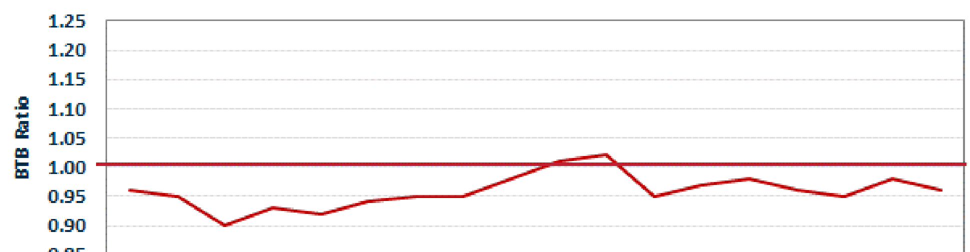
Bookings and Billings YOY Change




| | Jul 22 | Aug 22 | Sep 22 | Oct 22 | Nov 22 | Dec 22 | Jan 23 | Feb 23 | Mar 23 | Apr 23 | May 23 | Jun 23 | Jul 23 | Aug 23 | Sep 23 | Oct 23 | Nov 23 | Dec 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bookings | -9.9 | -8.8 | 2.6 | -15.6 | -15.2 | -15.1 | -20.1 | -13.8 | -14.0 | -9.3 | -4.6 | -9.8 | -0.8 | 0.2 | -2.8 | 5.2 | 8.5 | -0.3 |
| Billings | 7.1 | 7.3 | 15.5 | 2.8 | 3.9 | -0.9 | -0.8 | 1.40 | -0.9 | -0.6 | -1.4 | -6.2 | -1.7 | -2.5 | -9.2 | 0.3 | 0.9 | -2.8 |

The book-to-bill ratio in December was 0.96 and YTD was 0.98

Connector Industry Book-to-Bill

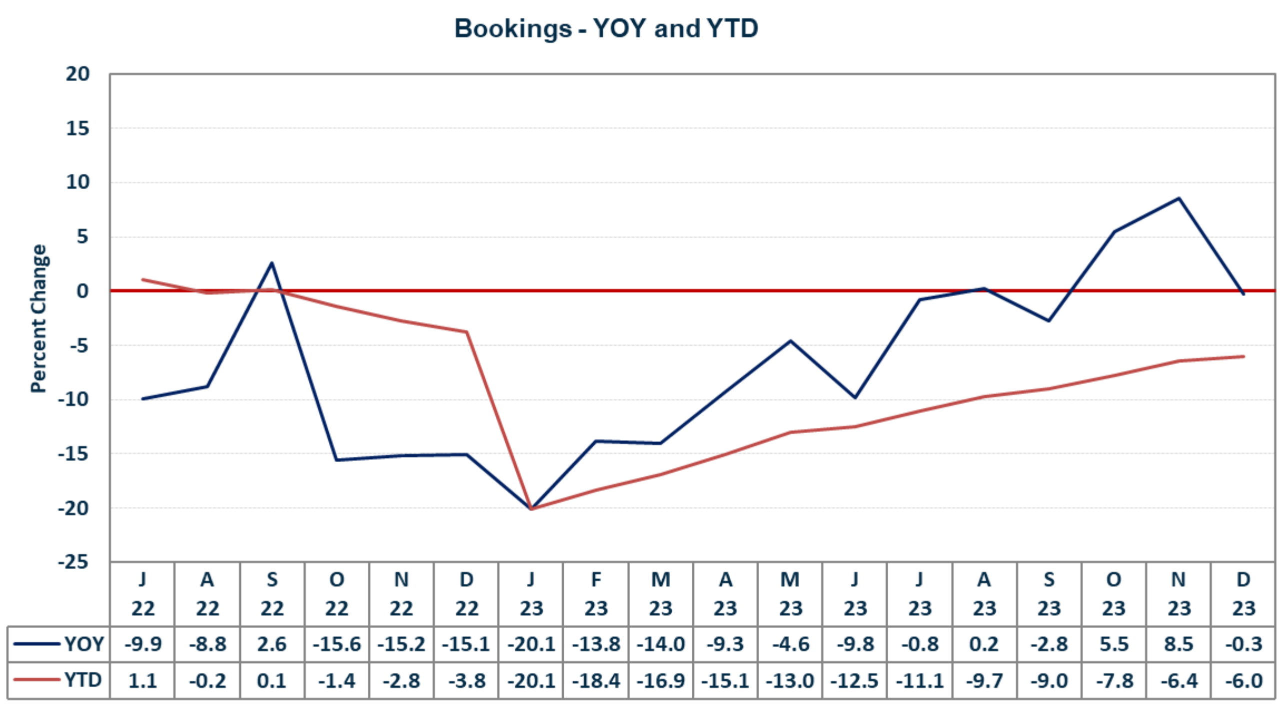



| | Jul 22 | Aug 22 | Sep 22 | Oct 22 | Nov 22 | Dec 22 | Jan 23 | Feb 23 | Mar 23 | Apr 23 | May 23 | Jun 23 | Jul 23 | Aug 23 | Sep 23 | Oct 23 | Nov 23 | Dec 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BtB | 0.96 | 0.95 | 0.90 | 0.93 | 0.92 | 0.94 | 0.95 | 0.95 | 0.98 | 1.01 | 1.02 | 0.95 | 0.97 | 0.98 | 0.96 | 0.95 | 0.98 | 0.96 |

## Booking Highlights and Conclusions

### Sequential, Year-Over-Year, and Year-To-Date Bookings Percentage Change – 2021/2022/2023

| | Sequential | | | Year-Over-Year | | | Year-To-Date | | |
|---|---|---|---|---|---|---|---|---|---|
| Month | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 |
| Jan | 2.3% | 2.6% | -3.2% | 24.7% | 15.9% | -20.1% | 24.7% | 15.9% | -20.1% |
| Feb | 17.7% | 10.4% | 14.4% | 38.9% | 8.7% | -13.8% | 32.0% | 12.0% | -18.4% |
| Mar | -3.5% | -5.3% | -1.8% | 34.5% | 7.1% | -14.0% | 32.8% | 10.3% | -16.9% |
| Apr | 3.2% | -8.5% | -3.5% | 81.9% | -5.5% | -9.3% | 42.9% | 6.2% | -15.1% |
| May | 5.1% | 7.0% | 12.1% | 86.4% | -3.9% | -4.6% | 50.5% | 4.5% | -13.0% |
| Jun | -8.3% | -6.7% | -11.6% | 59.7% | -2.1% | -9.8% | 51.9% | 3.0% | -12.5% |
| Jul | -1.9% | -9.6% | -0.6% | 36.4% | -9.9% | -0.8% | 49.6% | 1.1% | -11.1% |
| Aug | 6.6% | 8.0% | 9.3% | 32.5% | -8.8% | 0.2% | 47.1% | -0.2% | -9.7% |
| Sep | -11.9% | -1.0% | -4.1% | 19.1% | 2.6% | -2.8% | 43.7% | 0.1% | -9.0% |
| Oct | 6.8% | -12.1% | -4.5% | 22.1% | -15.6% | 5.5% | 41.2% | -1.4% | -7.8% |
| Nov | 9.3% | 9.8% | 13.2% | 15.3% | -15.2% | 8.5% | 38.2% | -2.8% | -6.4% |
| Dec | -7.0% | -6.8% | -14.8% | 15.5% | -15.1% | -0.3% | 36.0% | -3.8% | -6.0% |

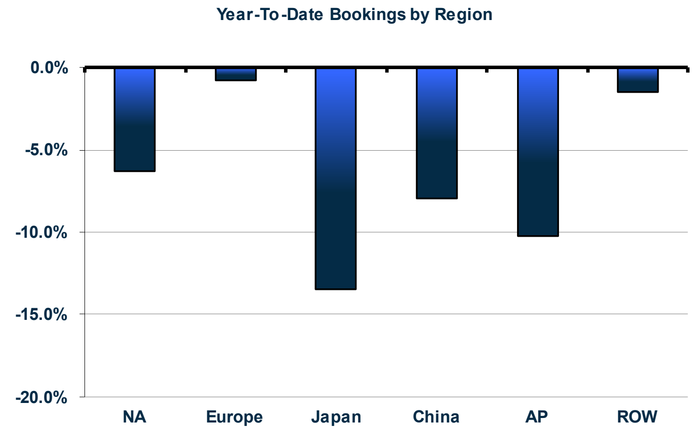



- December bookings decreased by -0.3% year-over-year, with the full year's orders declining by -6.0%.
- Orders fell by -14.8% on a sequential basis.
- The book-to-bill ratio for December stood at 0.96.

## Regional Performance: BOOKINGS

### December 2023 Bookings

| Region | Sequential | YOY | YTD |
|---|---|---|---|
| NA | -15.1% | -10.2% | -6.3% |
| Europe | -20.0% | -2.5% | -0.8% |
| Japan | -11.5% | -4.8% | -13.5% |
| China | -16.7% | 6.9% | -8.0% |
| AP | -3.6% | 10.5% | -10.3% |
| ROW | 10.3% | 27.0% | -1.5% |
| Total | -14.8% | -0.3% | -6.0% |

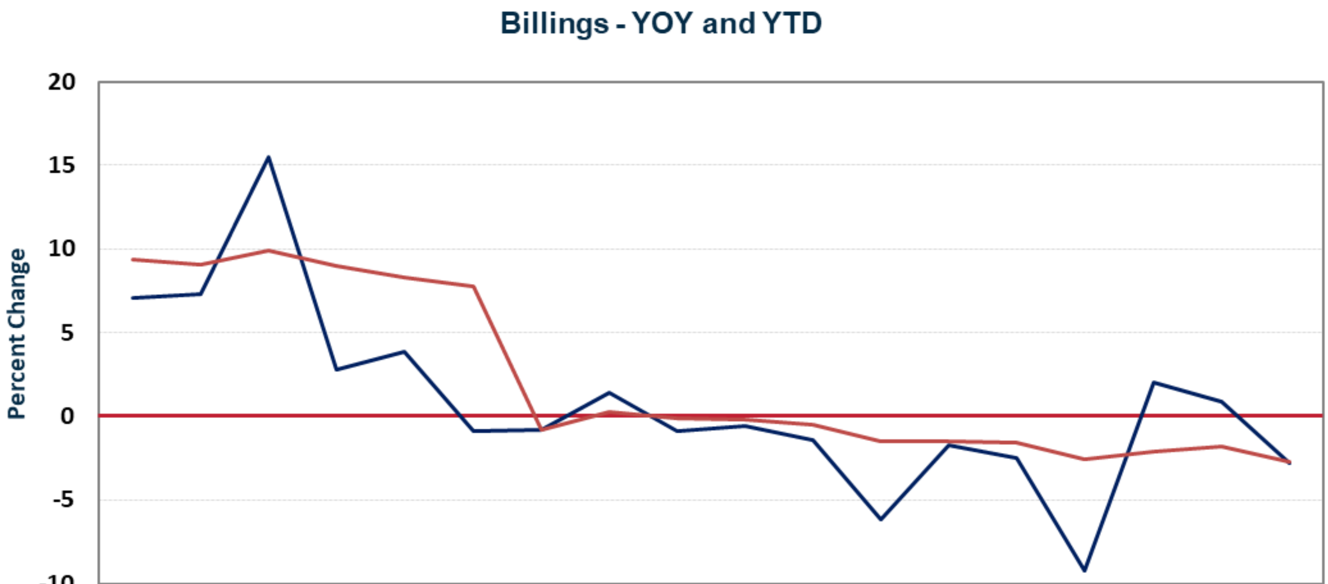



- December bookings decreased by -0.3% compared to the previous year.
- Year-over-year orders rose in half of the regions, with the Rest of the World (ROW) leading, showing a +27.0% increase.
- ROW was the sole region to exhibit growth from the previous month, while Europe experienced the most significant monthly decline, dropping -20.0%.
- YTD, all regions declined, with Japan showing the greatest decline at -13.5%.
- Bookings for the entire year of 2023 dropped -6.0%.

## Billing Highlights and Conclusions

### Sequential, Year-Over-Year, and Year-To-Date Billings Percentage Change – 2021/2022/2023

| | Sequential | | | Year-Over-Year | | | Year-To-Date | | |
|---|---|---|---|---|---|---|---|---|---|
| Month | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 | 2021 | 2022 | 2023 |
| Jan | -1.6% | -4.3% | -4.4% | 19.0% | 12.4% | -0.8% | 19.0% | 12.4% | -0.8% |
| Feb | 12.6% | 11.4% | 13.9% | 26.7% | 11.2% | 1.4% | 22.9% | 11.8% | 0.3% |
| Mar | -1.1% | -2.0% | -4.4% | 25.5% | 10.2% | -0.9% | 23.8% | 11.2% | -0.1% |
| Apr | -1.2% | -6.6% | -6.3% | 49.5% | 4.1% | -0.6% | 29.4% | 9.4% | -0.2% |
| May | 7.0% | 10.7% | 10.7% | 47.1% | 7.7% | -1.4% | 32.8% | 9.1% | -0.5% |
| Jun | -3.8% | 0.7% | -4.7% | 33.5% | 12.7% | -6.2% | 33.0% | 9.8% | -1.5% |
| Jul | -2.0% | -7.1% | -2.5% | 20.6% | 7.1% | -1.7% | 31.0% | 9.4% | -1.5% |
| Aug | 8.7% | 8.9% | 8.0% | 21.5% | 7.3% | -2.5% | 29.7% | 9.1% | -1.6% |
| Sep | -2.3% | 5.1% | -2.1% | 19.4% | 15.5% | -9.2% | 28.2% | 9.9% | -2.6% |
| Oct | -3.4% | -14.0% | -3.3% | 15.3% | 2.8% | 2.0% | 26.8% | 9.1% | -2.2% |
| Nov | 9.4% | 10.6% | 9.3% | 12.8% | 3.9% | 0.9% | 25.2% | 8.6% | -1.9% |
| Dec | -5.6% | -10.0% | -13.2% | 15.5% | -0.9% | -2.8% | 24.3% | 7.8% | -2.7% |



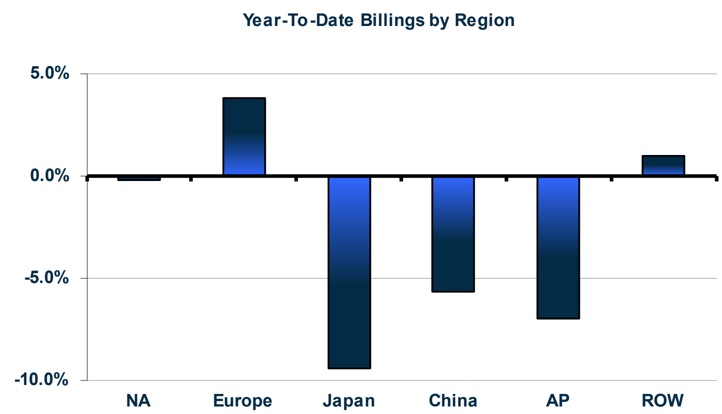

| | J 22 | A 22 | S 22 | O 22 | N 22 | D 22 | J 23 | F 23 | M 23 | A 23 | M 23 | J 23 | J 23 | A 23 | S 23 | O 23 | N 23 | D 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YOY | 7.1 | 7.3 | 15.5 | 2.8 | 3.9 | -0.9 | -0.8 | 1.40 | -0.9 | -0.6 | -1.4 | -6.2 | -1.7 | -2.5 | -9.2 | 2.0 | 0.9 | -2.8 |
| YTD | 9.4 | 9.1 | 9.9 | 9.0 | 8.3 | 7.8 | -0.8 | 0.3 | -0.1 | -0.2 | -0.5 | -1.5 | -1.5 | -1.6 | -2.6 | -2.1 | -1.8 | -2.7 |

- December billings fell -2.8% year-over-year.
- Year-to-date, sales declined -2.7%.
- Sequentially, December billings dropped -13.2%.

## Regional Performance: BILLINGS

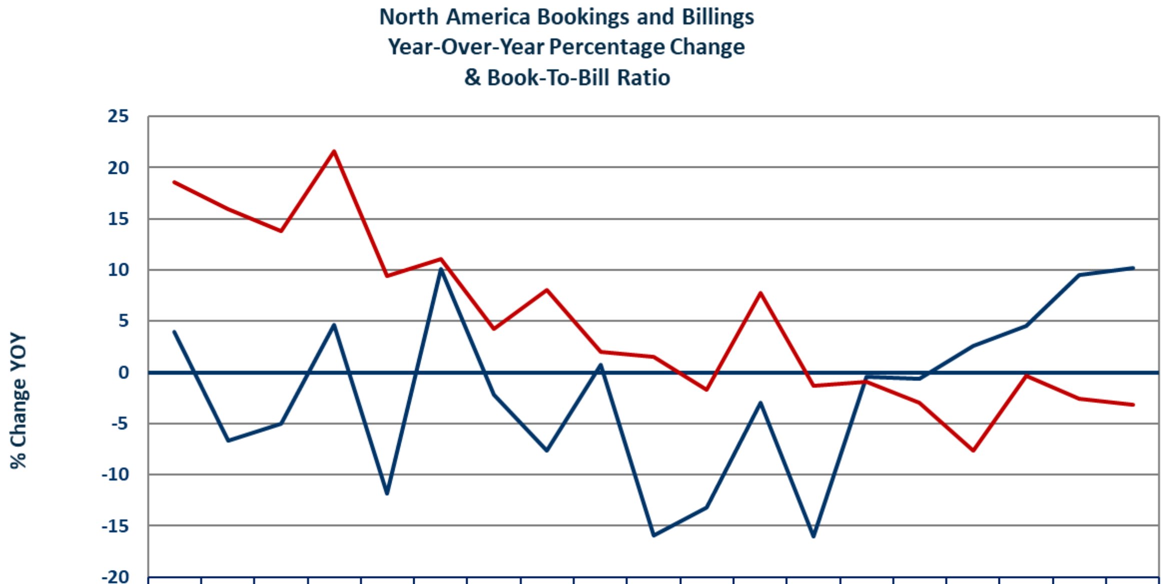
### December 2023 Billings

| Region | Sequential | YOY | YTD |
|---|---|---|---|
| NA | -8.4% | -3.2% | -0.3% |
| Europe | -23.4% | -6.9% | 3.8% |
| Japan | -8.0% | -7.9% | -9.4% |
| China | -11.3% | 2.8% | -5.7% |
| AP | -7.2% | -5.9% | -7.0% |
| ROW | -7.1% | 7.7% | 0.9% |
| Total | -13.2% | -2.8% | -2.7% |




- December connector sales decreased by -2.7% compared to the same period last year.
- In December, all regions saw a sequential decline from November, with Europe experiencing the largest month-over-month, declining -23.4%.
- Year-over-year, the Rest of the World (ROW) and China experienced growth, while other regions faced declines.
- For full year 2023, only Europe and ROW achieved growth, increasing +3.8% and +0.9% respectively.

**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.

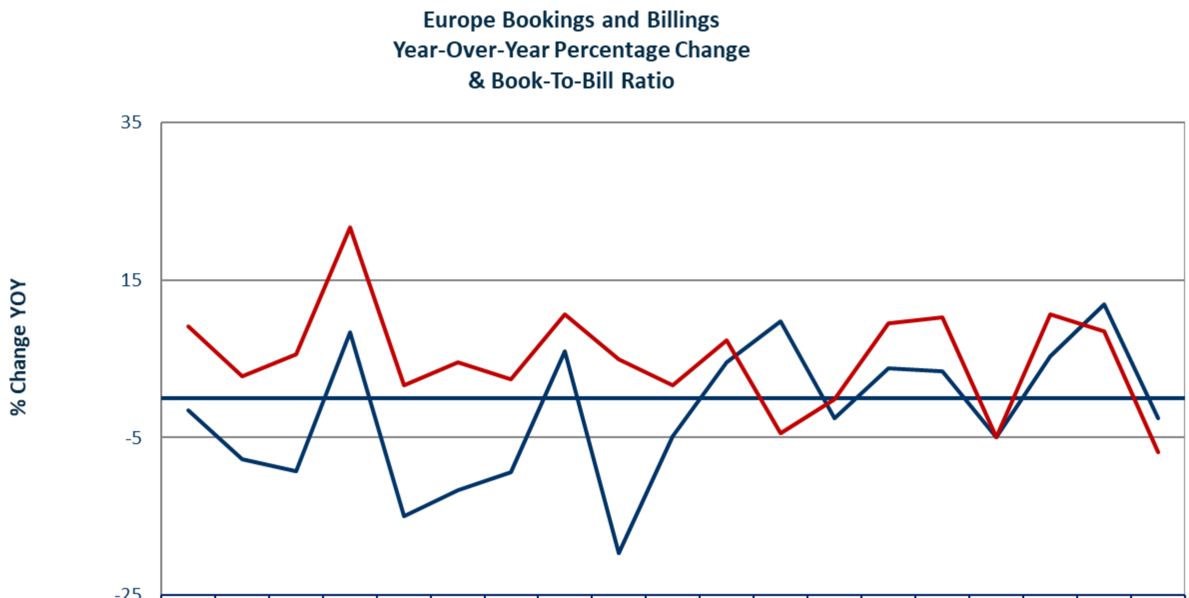



| | Jun 22 | Jul 22 | Aug 22 | Sep 22 | Oct 22 | Nov 22 | Dec 22 | Jan 23 | Feb 23 | Mar 23 | Apr 23 | May 23 | Jun 23 | Jul 23 | Aug 23 | Sep 23 | Oct 23 | Nov 23 | Dec 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bookings | 4.0 | -6.7 | -5.0 | 4.6 | -11.8 | 10.1 | -2.2 | -7.6 | 0.7 | -15.9 | -13.2 | -3.0 | -16.0 | -0.4 | -0.6 | 2.6 | 4.5 | 9.5 | 10.2 |
| Billings | 18.6 | 15.9 | 13.8 | 21.6 | 9.4 | 11.1 | 4.2 | 8.0 | 2.0 | 1.5 | -1.7 | 7.8 | -1.3 | -0.9 | -3.0 | -7.6 | -0.3 | -2.6 | -3.2 |
| Billing SEQ | -6.6 | -3.9 | 12.7 | 1.2 | -13.9 | 9.4 | -8.0 | -3.6 | 12.4 | -5.1 | -5.9 | 24.9 | -14.1 | -3.4 | 10.3 | -3.7 | -7.1 | 6.8 | -8.4 |
| BTB | 1.04 | 0.94 | 0.95 | 0.87 | 0.94 | 0.91 | 1.00 | 0.96 | 0.98 | 0.95 | 0.95 | 0.94 | 0.87 | 0.94 | 0.97 | 0.97 | 0.96 | 1.00 | 0.93 |

### North America Performance

- December saw a -3.2% decline in North America's year-over-year sales, while orders increased by +10.2%. Sequentially, North American billings decreased -8.4%. The book-to-bill ratio was 0.93, marking the lowest value since June 2023.
- The US GDP estimate for the fourth quarter 2023 was 3.3%. 3Q23, real GDP rose 4.9%.
- In December 2023, the United States' inflation rate was 3.7% compared to 6.5% in December 2022.
- Industrial production moved up 0.1% in December and declined 3.1% annually in the fourth quarter. Manufacturing output on a year-on-year basis fell by 0.5% in December.
- Manufacturing PMI registered a 47.9 reading in December 2023 (47.4 December 2022).
- US unemployment remained steady at 3.7% in December, but slightly higher than last year's rate of 3.5%.
- Retail sales were up 5.6% YOY in December and up 0.6% from the previous month.
- December US new vehicle sales rose 3.2% when compared to the prior month. Sales grew 13.0% YOY.
- The Consumer Price Index for All Urban Consumers (CPI-U) increased 0.3% in December on a seasonally adjusted basis, after rising 0.1% in November.

**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.



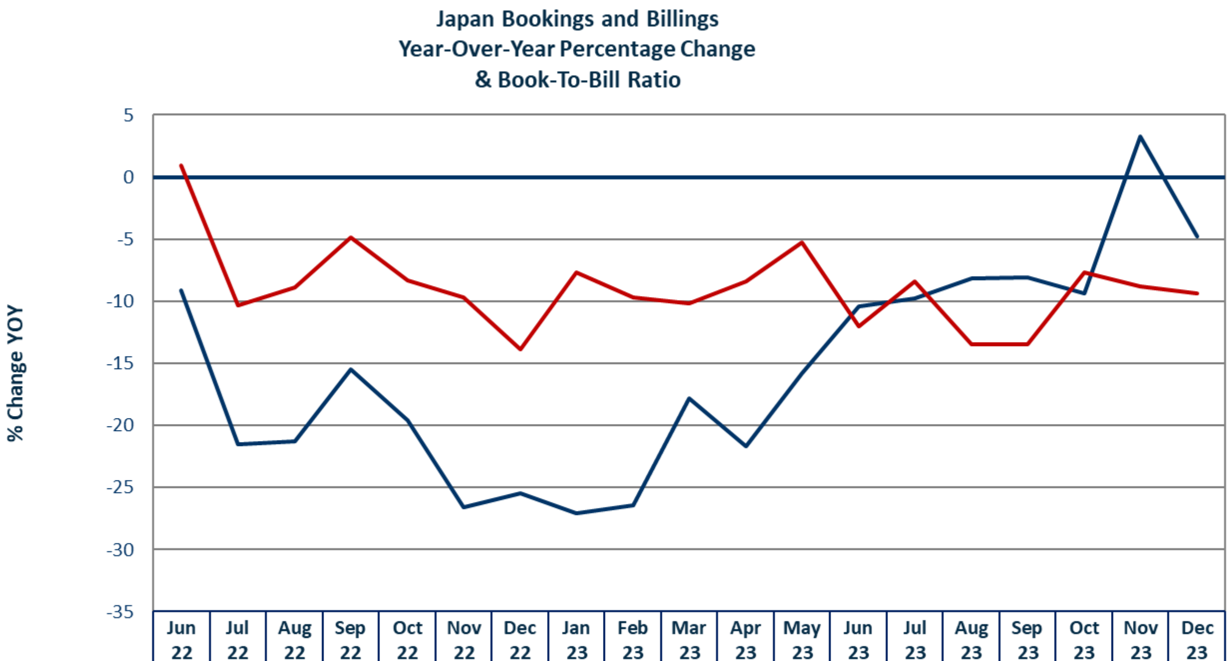

| | Jun 22 | Jul 22 | Aug 22 | Sep 22 | Oct 22 | Nov 22 | Dec 22 | Jan 23 | Feb 23 | Mar 23 | Apr 23 | May 23 | Jun 23 | Jul 23 | Aug 23 | Sep 23 | Oct 23 | Nov 23 | Dec 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bookings | -1.5 | -7.7 | -9.3 | 8.3 | -15.0 | -11.7 | -9.4 | 6.0 | -19.6 | -4.8 | 4.6 | 9.8 | -2.5 | 3.8 | 3.4 | -5.0 | 5.3 | 11.9 | -2.5 |
| Billings | 9.1 | 2.8 | 5.6 | 21.7 | 1.6 | 4.5 | 2.4 | 10.7 | 5.0 | 1.7 | 7.4 | -4.4 | -0.1 | 9.5 | 10.3 | -5.0 | 10.7 | 8.5 | -6.9 |
| Billing SEQ | -2.9 | -11.3 | 11.9 | 13.1 | -22.8 | 16.0 | -10.9 | 5.6 | 14.5 | -8.0 | -5.1 | 3.1 | 1.5 | -3.1 | 12.8 | -2.3 | -10.3 | 13.8 | -23.4 |
| BTB | 1.02 | 1.02 | 0.96 | 0.87 | 0.97 | 0.97 | 1.00 | 0.99 | 0.96 | 1.06 | 1.07 | 1.21 | 0.99 | 0.97 | 0.90 | 0.86 | 0.91 | 0.99 | 1.04 |

### Europe Performance

- December year-over-year bookings and billings decreased, bookings -2.5% and billings -6.9%. Sequentially, sales fell -23.4%. The book-to-bill ratio was 1.04.
- Euro area fourth quarter 2023 GDP is estimated to grow by 0.6% on an annual basis.
- Euro area industrial production fell 6.4% YOY in November*.
- The Eurozone Manufacturing PMI registered a 44.4 reading in December 2023 compared to a 44.2 reading in November.
- The euro area annual inflation rate was 3.4% in December 2023, down from last December's reading of 10.4%.
- November* euro retail sales growth rate was -0.5%.
- The unemployment rate remained at 6.4% in November*. This is lower than the long-term average of 9.1% and slightly lower than last November's reading of 6.5%.
- The consumer confidence indicator in the euro area dropped by 1 point from the previous month to -16.1 in January 2024.

**December 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.



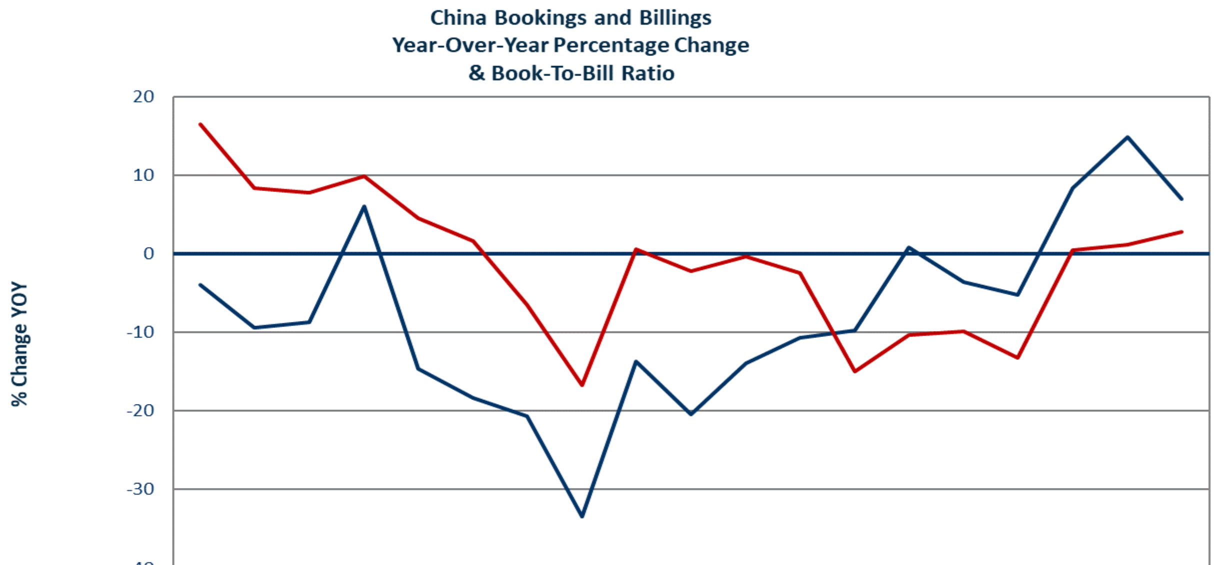

| | Jun 22 | Jul 22 | Aug 22 | Sep 22 | Oct 22 | Nov 22 | Dec 22 | Jan 23 | Feb 23 | Mar 23 | Apr 23 | May 23 | Jun 23 | Jul 23 | Aug 23 | Sep 23 | Oct 23 | Nov 23 | Dec 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bookings | -9.1 | -21.5 | -21.3 | -15.5 | -19.6 | -26.6 | -25.5 | -27.1 | -26.4 | -17.8 | -21.7 | -15.8 | -10.4 | -9.8 | -8.2 | -8.1 | -9.4 | 3.3 | -4.8 |
| Billings | 0.9 | -10.3 | -8.9 | -4.9 | -8.3 | -9.7 | -13.9 | -7.7 | -9.7 | -10.2 | -8.4 | -5.3 | -12.0 | -8.4 | -13.5 | -13.5 | -7.7 | -8.8 | -9.4 |
| Billing SEQ | 4.9 | -9.7 | 7.0 | 0.9 | -7.2 | 8.1 | -8.9 | -4.7 | 12.6 | -5.5 | -2.5 | 2.7 | -2.4 | -6.1 | 1.0 | 1.0 | -1.8 | 6.7 | -8.0 |
| BTB | 0.99 | 1.02 | 0.95 | 0.96 | 1.01 | 0.94 | 0.99 | 0.92 | 0.94 | 0.99 | 0.93 | 0.93 | 1.01 | 1.01 | 1.01 | 1.02 | 0.98 | 1.06 | 1.02 |

## Japan Performance

- December, year-over-year bookings declined -4.8%, while sales dropped -9.4%. Sequentially sales declined -8.0%. Japan's book-to-bill ratio was 1.02.
- Japan latest GDP forecast is for a 1.52% increase.
- The inflation rate in December recorded a 2.6% reading compared to last year's 4.0%.
- The initial December industrial production reading in Japan rose 2.4% on a yearly basis followed by a 0.9% decline in November. Consumer confidence index in Japan increased to 37.2 in December from 36.1 in November
- Retail sales in Japan rose 5.3% year-on-year in November* 2023, accelerating for the first time in three months following a downwardly revised 4.1% gain in October. Unemployment remained unchanged at 2.5% in November* (2.5% November 2022).
- In December 2023, compared with December 2022, goods exported fell by $568 million (8.7%), to $5.9 billion. Imports fell by $896 million (13%), to $6.3 billion. The monthly trade balance was a deficit of $323 million. Japan's manufacturing PMI declined to 47.7 in December 2023 from 48.3 in the previous month, pointing to the seventh straight month of contraction in factory activity amid weak demand and price pressures. January 2024 reading improved slightly at 48.0.

**December 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.

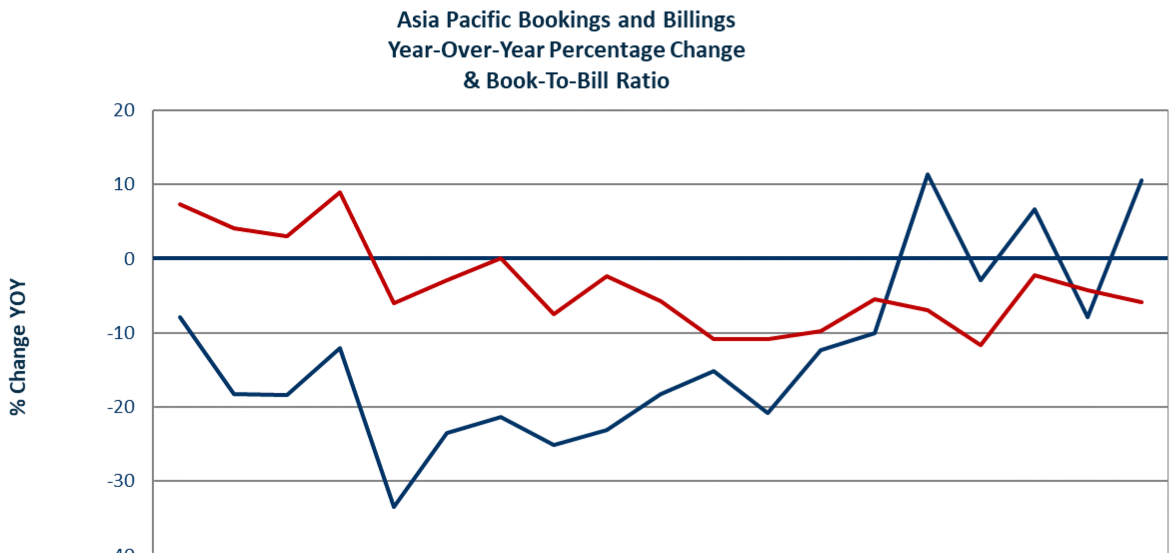



| | Jun 22 | Jul 22 | Aug 22 | Sep 22 | Oct 22 | Nov 22 | Dec 22 | Jan 23 | Feb 23 | Mar 23 | Apr 23 | May 23 | Jun 23 | Jul 23 | Aug 23 | Sep 23 | Oct 23 | Nov 23 | Dec 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bookings | -4.0 | -9.4 | -8.7 | 6.0 | -14.6 | -18.4 | -20.7 | -33.5 | -13.7 | -20.5 | -14.0 | -10.7 | -9.8 | 0.8 | -3.6 | -5.2 | 8.3 | 14.8 | 6.9 |
| Billings | 16.5 | 8.3 | 7.8 | 9.9 | 4.5 | 1.6 | -6.5 | -16.7 | 0.6 | -2.2 | -0.4 | -2.5 | -15.0 | -10.3 | -9.9 | -13.2 | 0.4 | 1.1 | 2.8 |
| Billing SEQ | 12.5 | -6.6 | 5.2 | 2.9 | -7.2 | 8.1 | -12.7 | -13.4 | 16.1 | 0.1 | -9.5 | 7.5 | -1.9 | -1.3 | 5.7 | -0.9 | 7.5 | 8.7 | -11.3 |
| BTB | 0.94 | 0.94 | 1.00 | 0.97 | 0.90 | 0.87 | 0.88 | 0.89 | 0.93 | 0.92 | 0.97 | 0.98 | 1.00 | 1.05 | 1.06 | 1.06 | 0.95 | 0.97 | 0.91 |

## China Performance

- China's December sales grew +2.8% on a year-over-year basis, while orders grew +6.9%. Sequentially, sales dropped -11.3%. The BTB was 0.91, the most pessimistic reading since January 2023.
- China's fourth quarter GDP reading was 5.2%.
- Industrial production advanced 6.8% YOY in December.
- China's Purchasing Managers' Index (PMI) decreased slightly from 49.9 in November to 49.0 in December.
- China's December inflation rate was -0.3%. This was the same as December 2022.
- In December 2023, China's retail sales increased 7.4% YOY.
- December exports rose 2.3% year-over-year but fell unexpectedly for the full year, down 4.6%.
- China's vehicle sales continued to climb, up 23% YOY in December 2023, marking the fifth consecutive month of growth.
- China's surveyed urban unemployment rate remained at 5.1% in December 2023.

**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.



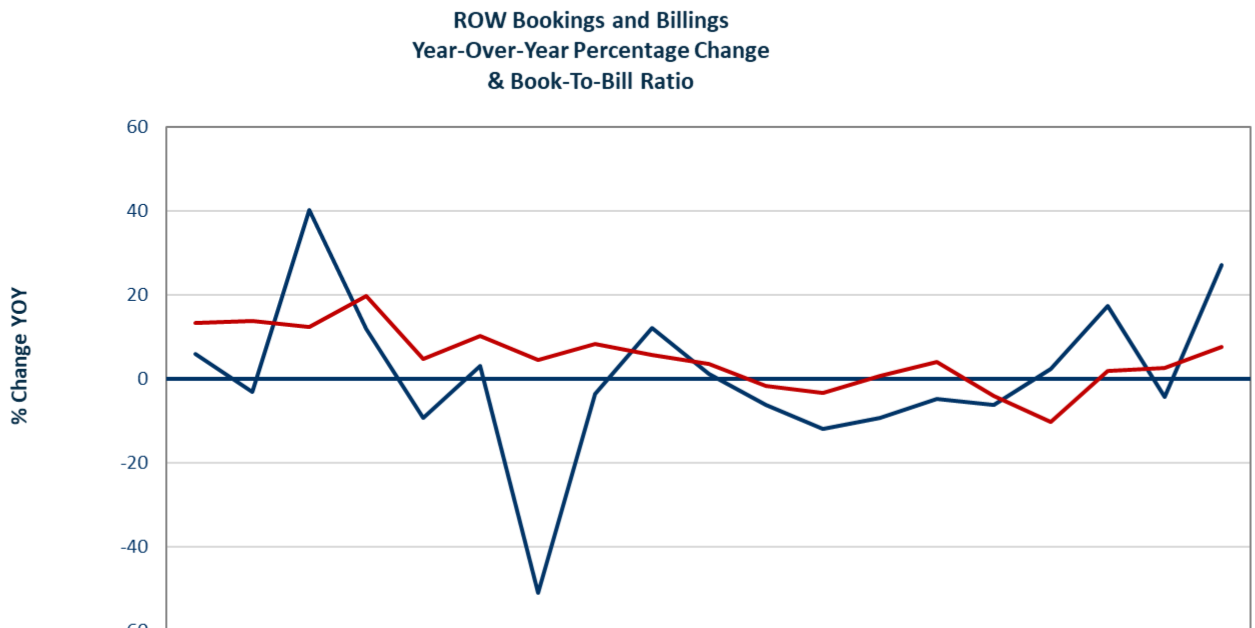

| | Jun 22 | Jul 22 | Aug 22 | Sep 22 | Oct 22 | Nov 22 | Dec 22 | Jan 23 | Feb 23 | Mar 23 | Apr 23 | May 23 | Jun 23 | Jul 23 | Aug 23 | Sep 23 | Oct 23 | Nov 23 | Dec 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bookings | -7.9 | -18.2 | -18.4 | -12.1 | -33.4 | -23.5 | -21.3 | -25.1 | -23.1 | -18.2 | -15.2 | -20.8 | -12.3 | -10.0 | 11.4 | -2.9 | 6.6 | -7.9 | 10.5 |
| Billings | 7.3 | 4.1 | 3.0 | 9.0 | -6.0 | -2.9 | 0.0 | -7.5 | -2.3 | -5.7 | -10.8 | -10.8 | -9.7 | -5.5 | -7.0 | -11.7 | -2.2 | -4.3 | -5.9 |
| Billing SEQ | -2.9 | -5.7 | 3.3 | 10.8 | -11.2 | 9.9 | -6.0 | -9.9 | 11.3 | -2.9 | -5.6 | 7.1 | -1.7 | -1.0 | 1.5 | -1.0 | -1.6 | 7.3 | -7.2 |
| BTB | 0.94 | 0.86 | 0.96 | 0.84 | 0.89 | 0.97 | 0.82 | 0.93 | 0.92 | 0.96 | 1.02 | 0.94 | 0.91 | 0.82 | 1.02 | 0.92 | 0.95 | 0.97 | 0.91 |

## Asia Pacific Performance

- Year-over-year, December orders grew +10.5% while sales declined -5.9%. Sequentially, sales fell -7.2%. The book-to-bill ratio continued to trend downward to 0.91.
- India's fourth quarter 2023 GDP recorded a 6.1% rise.
- India's industrial production grew in November*, recording a 2.4% increase. India's exports grew 0.96% in December to $38.1 billion, electronic goods registered an increase of 14.4%. The manufacturing PMI dipped slightly to 54.9 in December, up from 56.0 in November. Annual retail price inflation in India continued to rise, up 5.69% in December compared to 5.55% in November.
- South Korea's fourth quarter 2023 GDP grew at a 6.1% rate.
- Industrial production in South Korea increased 5.3% YOY in November* (fastest gain since May 2022). This is the third month of increase in industrial output, after 10 consecutive months of decline. Exports are projected to rise 6.6% YOY in December driven by demand for semiconductors. South Korea's manufacturing PMI dipped slightly to 49.9 in December from 50 in November. Inflation fell to 3.2% in December.

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

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




| | Jun 22 | Jul 22 | Aug 22 | Sep 22 | Oct 22 | Nov 22 | Dec 22 | Jan 23 | Feb 23 | Mar 23 | Apr 23 | May 23 | Jun 23 | Jul 23 | Aug 23 | Sep 23 | Oct 23 | Nov 23 | Dec 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bookings | 5.9 | -3.1 | 40.1 | 11.8 | -9.3 | 3.0 | -50.9 | -3.5 | 12.1 | 1.1 | -6.2 | -11.9 | -9.2 | -4.7 | -6.3 | 2.3 | 17.4 | -4.4 | 27.0 |
| Billings | 13.3 | 13.7 | 12.4 | 19.7 | 4.7 | 10.2 | 4.4 | 8.3 | 5.6 | 3.5 | -1.7 | -3.4 | 0.7 | 4.1 | -4.1 | -10.3 | 1.8 | 2.6 | 7.7 |
| Billing SEQ | -8.2 | -2.2 | 9.6 | 2.0 | -11.5 | 7.3 | -12.0 | -3.1 | 15.9 | -5.2 | -4.7 | 10.8 | -2.6 | 1.1 | 1.1 | -4.6 | 1.8 | 8.3 | -7.1 |
| BTB | 1.02 | 1.10 | 0.92 | 0.86 | 0.90 | 0.97 | 0.89 | 1.04 | 1.04 | 1.04 | 1.06 | 0.97 | 0.91 | 1.01 | 0.90 | 0.98 | 1.04 | 0.88 | 1.01 |

## Rest of World Performance

- Orders surged +27.0% while sales rose 7.7% % YOY in December. Sequentially, sales in the region fell -7.1%. The book-to-bill ratio registered 1.01.
- Brazil is expected to show growth of +3% year-over-year in the fourth quarter of 2023.
- Industrial production in Brazil increased 1.2% in November*. The annual inflation rate in Brazil fell to 4.62% in December. Brazil manufacturing PMI recorded a reading of 48.4 in December, down from 49.4 in November. The unemployment rate ticked up 0.1% to 7.6% in November*. Exports in Brazil increased to $28,839.1 USD million in December from $27,878.7 USD million in November.

**December 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 | 3.3% Slowing | 0.6% Growing | 1.5% Growing | 5.2% Growing | N/A | N/A |
| Industrial Production Growth | 0.1% Up | 6.4% Down | 2.4% Up | 6.8% Up | N/A | N/A |
| Manufacturing PMI* | 47.9 Up | 44.4 Up | 48.0 Up | 49.9 Up | N/A | N/A |
| Inflation Rate | 3.7% Steady | 3.4% Increasing | 2.6% Slowing | -0.3% Steady | N/A | N/A |
| Unemployment Rate | 3.7% Steady | 6.4% Steady | 2.5% Steady | 5.1% Steady | N/A | N/A |
| Retail Sale Growth YOY | +0.3% Slowing | -0.5% Down | 5.3% Growing | 7.4% Steady | N/A | N/A |
| December Sales | -3.2% | -6.9% | -7.9% | 2.8% | -5.9% | 7.7% |
| YTD Sales | -0.3% | 3.8% | -9.4% | -5.7% | -7.0% | 0.9% |
| December Orders | -10.2% | -2.5% | -4.8% | 6.9% | 10.5% | 27.0% |
| YTD Orders | -6.3% | -0.8% | -13.5% | -8.0% | -10.3% | -1.5% |

* Purchasing Manager Index - Below 50 is contracting factory activity

**Industry Backlog Is 13.4 Weeks**

The industry has shipped $1,574 million on average per week since January of 2023. The December ending backlog is $21,017 million which equates to 13.4 weeks of backlog.

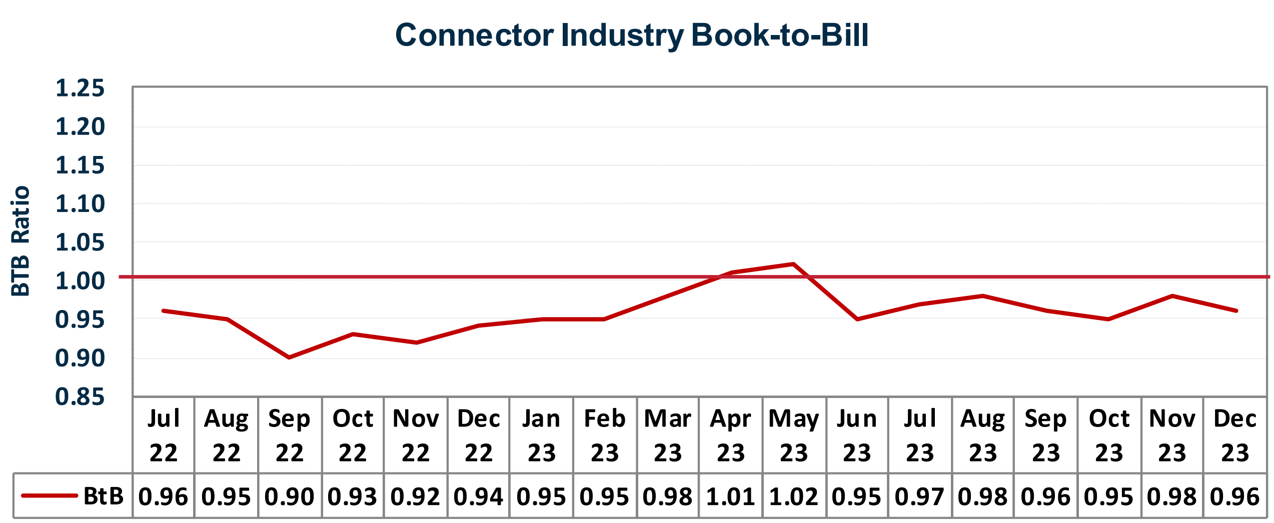
The following table compares 2022 industry backlog to the current backlog.

**Industry Backlog**

| | YTD December | |
|---|---|---|
| | **2022** | **2023** |
| BtB Ratio | 1.01 | 0.98 |
| Beginning Backlog | $21,499 | $22,983 |
| Bookings | $85,575 | $79,888 |
| Billings | $84,091 | $81,854 |
| Ending Backlog | $22,983 | $21,017 |
| Backlog in Weeks | 14.2 | 13.4 |

$ Millions

The book-to-bill ratio was 0.96 in December and 0.98 for the full year 2023.



The industry shipped $1,966 million more in 2023 than orders booked. The 2023 beginning backlog was $22,983 million and the ending backlog was $21,017 million.

The book-to-bill ratio was above 1.0 only three times in 2023. The following table tracks industry backlog since May 2022, which was the highest backlog in industry history. To put this in perspective, today's backlog is -20.6% below the May 2022 all-time high.

**Ending Backlog Since May 2022**

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

$ Millions

The industry shipped $81,854 million in 2023. This equates to $1,574 million in sales per week.

**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 December 2022 versus December 2023 and shows results for these three currencies.

**Local Currency to One USD**
**2022 YTD versus 2023 YTD**

| Currency | 2022 | 2023 | % Change |
|---|---|---|---|
| Euro | 0.9026 | 0.9244 | 2.4% |
| Yuan | 6.6028 | 7.0719 | 7.1% |
| Yen | 132.1118 | 140.4595 | 6.3% |

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

**Industry Sales Performance**
**Full-Year 2023**
**USD-vs-Local Currencies**

| Region | U.S.$ | Local Currency |
|---|---|---|
| North America | -0.3% | -0.3% |
| Europe | 3.8% | 6.3% |
| Japan | -9.5% | -3.8% |
| China | -5.7% | 1.0% |
| Asia Pacific | -7.3% | -7.3% |
| ROW | 0.9% | 0.9% |
| **World** | **-2.7%** | **0.8%** |

Connector sales in 2023 grew 0.8% when measured in local currencies, (versus -2.7% in US dollars).

## 2023 Performance and 2024 Outlook

As industry backlog declined steadily in 2023, so did sales. After a strong 2022, with connector industry sales of $84,091 million, sales declined by -2.7% in 2023, finishing the year out at $81,854 million. As the following chart shows, from a quarterly perspective, sales were the greatest in Q1, at $21,179 million, and the least in Q4, at $19,581 million. From a year-over-year percentage change perspective, all quarters saw a reduction in sales, with Q3 witnessing the greatest decline at -4.7%.

**2021, 2022 and 2023 Connector Industry Sales by Quarter**
**With Year-over-Year Change**

| Quarter | 2021 Actual | 2022 Actual | YOY Change | 2023 Actual | YOY Change |
|---|---|---|---|---|---|
| 1Q | $19,061 | $21,200 | 11.2% | $21,179 | -0.1% |
| 2Q | $19,000 | $20,560 | 8.2% | $19,985 | -2.8% |
| 3Q | $20,150 | $22,160 | 10.0% | $21,109 | -4.7% |
| 4Q | $19,780 | $20,171 | 2.0% | $19,581 | -2.9% |
| **Total** | **$77,991** | **$84,091** | **7.8%** | **$81,854** | **-2.7%** |

$ Millions

Examining 2023 from a regional standpoint, the strongest region from a growth perspective was Europe, where sales grew a strong +3.8%. Europe was followed by ROW, where sales grew a mere +0.9%. The region exhibiting the lowest growth was Japan, where sales were affected by not only declining demand, but also currency fluctuations. Japan was followed by the Asia Pacific region where sales declined -7.3%. If we look at decline in sales from a dollar perspective, although ranked fourth in percent change, China’s decline of -5.7% far exceeded all other regions, accounting for a loss of $1,517.2 million in US dollars!

**2022 and 2023 Connector Sales by Geographic Region**
**With Percent Change**

| Region | 2022 | Change | 2023 | Change |
|---|---|---|---|---|
| North America | $18,889.0 | 14.6% | $18,840.8 | -0.3% |
| Europe | $17,328.5 | 6.5% | $17,992.7 | 3.8% |
| Japan | $5,172.8 | -2.0% | $4,683.7 | -9.5% |
| China | $26,494.3 | 6.1% | $24,977.1 | -5.7% |
| Asia Pacific | $12,194.7 | 7.1% | $11,310.0 | -7.3% |
| ROW | $4,011.7 | 11.7% | $4,049.8 | 0.9% |
| **Total World** | **$84,091.0** | **7.8%** | **$81,854.1** | **-2.7%** |

$ Millions

As the following table shows, we anticipate the connector industry to grow +4.2% in 2024. This will move sales over the 2022 total of $84,091 million. The greatest growth will be seen in North America, where sales will grow +5.1%, reaching $19,809.9 million. North America will be followed by Asia Pacific, where sales are anticipated to grow 4.7% to $11,843.2 million. This will still be below the 2022 high of $12,194.7 million. The smallest growth is anticipated in ROW, where sales will only grow +2.8%, reaching $4,164.1 million. It is anticipated that the yen, which has lost an approximate 20% when measured against the dollar since 2021, will continue to rebound, allowing for growth of +3.6% in Japan in 2024.

**2023 and 2024F Connector Forecast by Geographic Region**
**With Percent Change**

| Region | 2023 Actual | 2024 Forecast | Percent Change |
|---|---|---|---|
| North America | $18,840.8 | $19,809.9 | 5.1% |
| Europe | $17,992.7 | $18,583.6 | 3.3% |
| Japan | $4,683.7 | $4,852.2 | 3.6% |
| China | $24,977.1 | $26,066.2 | 4.4% |
| Asia Pacific | $11,310.0 | $11,843.2 | 4.7% |
| ROW | $4,049.8 | $4,164.1 | 2.8% |
| **Total World** | **$81,854.1** | **$85,319.2** | **4.2%** |

$ Millions

As the following chart indicates, although the industry showed a decline of -2.7% in 2023, not all markets declined, nor did the markets decline at the same rate. The automotive market and the military/aerospace markets both showed an increase in 2023, although very modest. The automotive market grew 0.4% and the military/aerospace market grew 0.8%. It has been many years since the military/aerospace market out did the other market sectors.

The market sector showing the greatest decline was the computers & peripherals market, where sales declined -7.2%. This was primarily a result of harder comparison to 2021 and 2022, when the trend of officing at home was driving the sale of additional computer equipment. Now, with more and more of the workforce being mandated to return to the office, sales in this sector have dropped significantly. The consumer market follows the computers & peripherals market and is a result of weaker home starts, higher interest rates, and inflation, leaving consumers with a reduced amount to direct towards discretionary spending.

### Industry Sales Performance by Market Sector
### 2022 and 2023 with Percent Change

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

$ Millions

As previously mentioned, connector industry sales are anticipated to grow 4.2% in 2024. The chart below shows how this growth breaks out across the market sectors.

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

| Market | 2023 Actual | 2024 Forecast | Percent Change |
|---|---|---|---|
| Computers & Peripherals | $9,979.5 | $10,226.4 | 2.5% |
| Business/Office Equipment | $875.4 | $893.7 | 2.1% |
| Instrumentation | $2,364.8 | $2,439.0 | 3.1% |
| Medical | $2,659.7 | $2,750.4 | 3.4% |
| Industrial | $10,742.3 | $11,158.8 | 3.9% |
| Automotive | $18,502.7 | $19,357.5 | 4.6% |
| Transportation | $5,857.4 | $6,087.6 | 3.9% |
| Military/Aerospace | $5,092.7 | $5,381.6 | 5.7% |
| Telecom/Datacom | $18,991.4 | $20,025.8 | 5.4% |
| Consumer | $3,744.4 | $3,862.9 | 3.2% |
| Other Equipment | $3,043.8 | $3,135.5 | 3.0% |
| **Total World** | **$81,854.1** | **$85,319.2** | **4.2%** |

$ Millions

From 2023 to 2024, the military/aerospace market is anticipated to see the greatest growth, increasing by 5.7%. This growth will be heavily weight by sales in North America, Europe, and China. Together these three regions account for over 86% of total connector sales in 2024. The military/aerospace market will be followed by the telecom/datacom market with growth of 5.4% and the automotive market with growth of 4.6%. The smallest growth will be seen in the business/office equipment market sector, where sales will only grow 2.1% and the computer & computer peripherals market where sales are anticipated to grow 2.5%.

## Significant Events

### Jan 2024 News

**Worldwide PC Shipments Declined 2.7% Year Over Year in the Fourth Quarter of 2023 but Visions of Growth Lie Ahead**
Global shipments of traditional PCs marginally surpassed expectations in the fourth quarter of 2023 (4Q23) with nearly 67.1 million PCs shipped, down 2.7% from the prior year, according to preliminary results from the International Data Corporation (IDC) Worldwide Quarterly Personal Computing Device Tracker. The silver lining in all of this is that the market contractions appear to have bottomed out and growth is expected in 2024.

Despite the improved results, 4Q23 was the eighth consecutive quarter of year-over-year shipment volume contraction. The holiday quarter shipments also marked the lowest fourth quarter volume since 4Q06, underscoring a market recovering slowly amidst weak demand and reliance on substantial promotions.

On an annual basis, the market has experienced unprecedented consecutive declines, marking a stark departure from historical trends tracked since 1995. In 2022, shipment volume plummeted 16.5% compared to the previous year, and preliminary results suggest an additional 13.9% contraction in 2023 compared to 2022. This downturn, unparalleled in the industry's recorded history, reflects the aftermath of the significant surge in PC purchases driven by the COVID-19 pandemic.

**North American PCB Industry Shipments Down 18.3 Percent in December**
IPC announced the December 2023 findings from its North American Printed Circuit Board (PCB) Statistical Program. The book-to-bill ratio stands at 0.90. Total North American PCB shipments in December 2023 were down 18.3 percent compared to the same month last year. Compared to the preceding month, December shipments were up 1.0 percent. PCB bookings in December were down 28.7 percent compared to the same month last year. December bookings were down 14.1 percent compared to the preceding month.

**North American EMS Industry Up 1.3 Percent in December**
IPC announced today the December 2023 findings from its North American Electronics Manufacturing Services (EMS) Statistical Program. The book-to-bill ratio stands at 1.20. Total North American EMS shipments in December 2023 were up 1.3 percent compared to the same month last year. Compared to the preceding month, December shipments increased 6.2 percent. EMS bookings in December decreased 7.0 percent year-over-year and increased 2.3 percent from the previous month.

“The EMS Book-to-Bill held steady to close out 2023,” said Shawn DuBravac, IPC’s chief economist. “Despite a down year for orders, shipments remained positive as manufacturers trimmed backlogs.”

**Samsung Electronics’ Semiconductor Business Reports Record Annual Loss**
Samsung Electronics on Wednesday posted a 34.57% drop in operating profit in the fourth quarter from a year ago, in line with its guidance issued earlier this month.

Samsung’s fourth-quarter results versus estimates:

- *Revenue*: 67.78 trillion Korean won (about $51 billion), vs. 69.27 trillion Korean won expected by LSEG analysts
- *Operating profit*: 2.82 trillion Korean won, vs. 3.43 trillion Korean won expected by LSEG analysts.

Samsung's revenue for the quarter ending December fell 3.8% from a year ago, while operating profit dropped 34.57% in the same period.

For the full year of 2023, its semiconductor business fell into a record loss of 14.88 trillion Korean won, from a 23.82 trillion Korean won profit a year earlier on the back of weak global demand, according to LSEG data.

Samsung is the world's largest maker of dynamic random-access memory chips which are found in consumer devices such as smartphones and computers.

In its earnings guidance earlier this month, Samsung said it expected operating profit for the October-December quarter to be 2.8 trillion South Korean won ($2.13 billion), down 35% from the same period a year ago when the firm reported an operating profit of 4.31 trillion won.

Samsung said its fourth-quarter revenue and operating profit improved from the third quarter due to a recovery in memory chip prices and "continued strength" in sales of premium display products.

**EV Industry Shifts Gears: GM Layoffs Reflect Broader Slowdown**
General Motors Co.'s mid-December 2023 announcement of layoffs is the latest evidence of the slowing down of the race for electrification in the auto industry. In a significant move, GM is indefinitely laying off 1,314 workers across two Michigan plants.

With Bolt EV and EUV production ending on Dec. 18, 945 workers are facing layoffs starting Jan. 1. The Detroit News reports that the Lake Orion assembly plant, initially gearing up for electric trucks on GM's Ultium EV platform, is now facing a delay, pushing the launch to late 2025. The focus has shifted to launching Chevrolet Silverado and GMC Sierra EVs at Factory Zero.

*Ford's adjustments and Rivian's challenges*

GM's competitor, Ford Motor Co., is also feeling the effects of the slowdown. In mid-December, Ford announced a 50% cut in production for the F-150 Lightning pickup, reducing the weekly output from around 3,200 to approximately 1,600 trucks. This strategic adjustment is a response to declining consumer demand for electric vehicles (EVs), in line with Ford's third-quarter earnings report.

Rivian Automotive Inc. also faced challenges in early December, reportedly laying off around 20 employees, including key members of its long-range battery cell development team, such as Victor Prajapati, Senior Director of Cell Engineering. Battery industry headwinds

EV battery makers are not immune to the broader slowdown. In late November, Our Next Energy (ONE), a Michigan-based EV battery startup, announced a significant reduction in its workforce, letting go of approximately 25% of its employees—128 individuals. The decision reflects ONE's efforts to navigate high borrowing costs and an uncertain economic landscape.

The EV slowdown isn't a one-size-fits-all issue. It's a puzzle with pieces like concerns about infrastructure, range anxiety, and overall ownership costs. Despite the growing environmental awareness, convincing a broader consumer base to switch gears from traditional internal combustion engines remains a road less traveled. The auto industry is navigating curves in the electric road, adapting to consumer speed preferences, and finding the right balance for the journey ahead.

**5G Use Grew Worldwide in 2023 Despite Dismal Smartphone Market**
In 2023 the global economic outlook was uncertain the technology industry is mostly in a downturn with AI representing the only industry not undergoing a downturn. Despite the pervasively gloomy outlook, the number of 5G users continued to grow against the trend. 5G's growth surpassed previous expectations.

David Chou, GM of Ericsson Taiwan, stated that the growth in global 5G users in 2023 was primarily driven by users' strong demand for high-performance mobile networks. Among them, India stands out as the region with the most significant growth.

According to the latest Ericsson Mobile Trend Report, the number of new 5G users in 2023 was around 610 million, a significant growth of 63% compared to 2022 and exceeding initial expectations by approximately 100 million. The total 5G user count worldwide is set to surpass 1.6 billion. By the end of 2029, North America, and Gulf Cooperation Council (GCC) countries are projected to achieve a 92% 5G penetration rate. This is the highest globally, followed by Western Europe.

The 5G penetration rate in the Northeast Asia market, including Taiwan, is expected to reach nearly 80%. The region would therefore sit in the upper echelon of 5G penetration globally.

Regarding mobile network data, Chou pointed out that while data volume continued to rise in 2023, the growth rate is slowing down due to the already high base. 5G accounted for 25% of mobile data traffic in 2023.

Notably, the average monthly data usage in 2023 was 21GB globally. However, India, whose 5G commercialization only started in October 2022, saw its average monthly data usage reach 31GB with estimations reaching 75GB for 2029.

Chou explained that the three driving factors for mobile network usage are smartphones, network quality, and content. If all three are present, it will accelerate the development of mobile communication, with India serving as a prime example.

**Google Slashes Over 1,000 Jobs to Focus on AI Amid Competition with Microsoft, OpenAI**
Alphabet's Google is laying off hundreds of people working on its digital assistant, hardware, and engineering teams as part of a continued effort to lower costs and focus on artificial intelligence (AI).

The affected employees included those working on the voice-based Google Assistant and the augmented reality hardware team. The central engineering organization was also hit by cuts, the company said. The reductions come as Google's core internet search business feels the heat from the AI offerings of rivals Microsoft and ChatGPT-creator OpenAI. On calls with investors in recent months, Google executives pledged to scrutinize their operations to identify places where they can make cuts, and free up resources to invest in their biggest priorities.

The cuts struck both rank-and-file employees and executives. Disclosures filed by Google with the state of California show that 630 workers in the state have been let go this week, including four vice-presidents and 25 directors. Employees at those levels often earn millions of dollars per year in compensation, according to a person with knowledge of the matter.

The Alphabet Workers Union, which represents some Google employees, said more than 1,000 workers have been let go so far in total.

The co-founders of Fitbit, James Park and Eric Friedman, are also leaving Google as part of the reorganization, a company spokesperson confirmed. Google acquired the smartwatch company in 2019 for US$2.1 billion.

**Apple Crushes Samsung as iPhone Outships Galaxy Phones for the First Time in 2023**
A change of strategy at Samsung headquarters made Apple and its iPhone the top-selling smartphone of 2023. At least, this is what research firm Canalys believes after revealing the preliminary numbers of smartphone shipments in Q4 2023.

According to the study, worldwide smartphone shipments grew 8% yearly in the fourth quarter of 2023, reaching 320 million units. With the first growth in seven consecutive quarters, Apple led the market with a 24% share of shipments thanks to the new iPhone 15 series.

On the other hand, Samsung took second place with 17%, followed by Xiaomi with over 20% growth, and Transsion in fourth place, benefiting from emerging market recovery. Canalys Research explained that Samsung's new focus on the mid-end to high-end market paid a price, as it won profitability but lost share in the low-end segment.

**Gartner Says Worldwide Semiconductor Revenue Declined 11% in 2023**
Worldwide semiconductor revenue in 2023 totaled $533 billion, a decrease of 11.1% from 2022, according to preliminary results by Gartner, Inc.

"While the cyclicality in the semiconductor industry was present again in 2023, the market suffered a difficult year with memory revenue recording one of its worst declines in history," said Alan Priestley, VP Analyst at Gartner. "The underperforming market also negatively impacted several semiconductor vendors. Only 9 of the top 25 semiconductor vendors posted revenue growth in 2023, with 10 experiencing double-digit declines."

The combined semiconductor revenue of the top 25 semiconductor vendors declined 14.1% in 2023, accounting for 74.4% of the market, down from 77.2% in 2022.

- Intel reclaimed the No.1 spot from Samsung, after two years in the No. 2 position. Intel's 2023 revenue totaled $48.7 billion while Samsung's revenue reached $39.9 billion.

- Nvidia's 2023 semiconductor revenue grew 56.4% to total $24 billion, propelling the company into the top five for the first time ever. This is due to its leading position in the artificial intelligence (AI) silicon market.

- STMicroelectronics moved up three slots to secure the No. 8 spot – the same position it held in 2019. Its revenue increased 7.7% in 2023, largely driven by a strong position in the automotive segment.

**Electronics Spare Parts & Repair Markets are Booming**
Unlike milk and bread, there's no expiration date advertised for our electronics. That doesn't mean they don't have them. Some components, especially batteries, lose performance over time, and internet-connected devices remain tied to their makers after we buy them. And when the makers stop providing services and software updates, they die.

The tide has turned, and consumers are adopting a more sustainable approach, opting to repair and extend the lifespan of their electronic devices, especially smartphones, tablets, and smartwatches.

A growing number of manufacturers and brands are extending software support. Apple updates iPhones for about six years and Macs for six to eight years, depending on the model. For its new Pixel 8 phones, Google extended support to seven years. Now, the company provides updates to Chromebooks for up to a decade.

Furthermore, consumers are becoming more educated and cost-conscious about the lack of need to replace electronic devices, especially smartphones, continuously. In most cases, a three-year-old smartphone can continue to work adequately; it only needs a new battery. The sticker shock of new electronic devices and the realization that older models could still perform adequately with a simple repair made it an attractive option. A 2020 Consumer Technology Association survey showed that only 2 percent of consumers “report throwing their old mobile device in the trash, while more than ten times as many reported either trading in their old mobile device, selling it, giving it away, or recycling it.”

The global consumer electronics repair and maintenance market is expected to grow from $8.43 billion in 2022 to $9.64 billion in 2027 at a CAGR of 2.5 percent. Recently, a new wave of regulations is forcing manufacturers to extend the lifespan of electronic consumer devices, continue providing software updates, facilitate the means for repair and replacement of critical components, and keep spare parts available for several years.

**Foxconn Establishes New Electric Vehicle Company**

The Foxconn Technology Group establishes a new electric vehicle company in Zhengzhou, the capital of China’s Henan province and home to the world’s largest Apple iPhone manufacturing plant, as the Taiwanese electronics contract manufacturer accelerates its EV plans amid a global decline in smartphone manufacturing contracts.

The new company, named Foxconn New Energy Automobile Industry Development (Henan), was registered on Jan. 4 with a stated capital of RMB500 million ($70.4 million), according to Chinese public records. Its business activities include motor production, vehicle component manufacturing and development, and New Energy Vehicle (NEV) sales, among other areas stated on the registry filing reviewed by WardsAuto.

The Foxconn Technology Group says the new company operates under the auspices of the Foxconn Innovation Industry Development Group and aims to sharpen its focus on the EV industry. The establishment of Foxconn New Energy Automobile Industry Development follows Foxconn’s 2022 purchase of a former General Motors plant from Lordstown Motors for $230 million. That plant is located in Ohio in the midwestern U.S.

The world’s largest electronics contract manufacturer has been heavily involved in the development of EVs through its Foxtron brand. It was created to showcase Foxconn’s EV development and manufacturing expertise.

Founded in 2020, Foxtron has revealed its proprietary EV platform called Mobility in Harmony. It also has developed six EV concepts, including the Model E, Model C, Model T, Model B, Model B and Model N, in partnership with Italian design company Pininfarina and U.S. semiconductor company NVIDIA. In October 2023, Foxconn announced two models – Model N, an electric cargo van, and Model B, a midsize hatchback – were earmarked for production.

The Foxconn Technology Group’s chief strategy officer, Jun Seki, said the company also was in talks with 14 potential customers on EV manufacturing contracts.

The Taiwanese company last week reported $198.9 billion in preliminary revenue for 2023, a decrease of 7% from 2022, citing slow market demand for its consumer electronics business in the fourth quarter, while guiding an expected continued decline in contracts during the first quarter of 2024.

**Global Smartphone Market Grows 8% in 4Q23, with Apple Being Top Vendor for the First Time**
According to Canalys' latest research, worldwide smartphone shipments grew 8% year-on-year in the fourth quarter of 2023, reaching 320 million units. This ended seven consecutive quarters of decline. Apple led the market in the fourth quarter with a 24% share of shipments, thanks to new iPhone launches.

Samsung took second place with 17%. Xiaomi was third, with over 20% year-on-year growth in the fourth quarter of 2023. Transsion rose to fourth place for the first time, benefiting from emerging market recovery. With a 7% market share, Vivo completed the top five. For 2023, global smartphone shipments reached 1.1 billion units, a 4% decrease from the previous year. For the first time, Apple pipped Samsung to become the year's top vendor in shipments, though both rounded to 20% shares. Xiaomi, Oppo, and Transsion held 13%, 9% and 8% shares, respectively.

**Lenovo Bets its Motorola Smartphone Brand Will Be the Third Biggest Globally in 3 Years**
Motorola will likely be the third-biggest smartphone player in the world in three years, according to a top executive at Chinese tech firm Lenovo, the owner of the brand. Lenovo, the world's largest personal computer maker, bought Motorola from Google in 2014. In recent years, the company has sought to boost the brand and position it as a higher-end smartphone player to compete with the likes of Samsung and Apple.

In 2020, Lenovo rebooted the iconic Motorola Razr as a foldable smartphone. Matthew Zielinski, president of international markets at Lenovo, told CNBC at the World Economic Forum in Davos, Switzerland, that the company has turned around the Motorola business and "hyper-prioritized" it and that is now paying off.

Apple and Samsung are the two biggest players in the global smartphone market commanding around a combined 40% share.

Motorola and Lenovo combined had around a 4% market share in the third quarter 2023, making it the eighth-largest player globally, according to Counterpoint Research. However, it has found success in certain markets. In the U.S., Motorola is the third biggest smartphone vendor by market share. In Latin America, Motorola is the second-largest player.

Zielinski said the company will be targeted in how it grows its market share geographically. The executive said Motorola is looking to grow "stably" in the markets it is in until it reaches 10% market share in those places which will uplift its market share globally.

Part of the growth strategy revolves around the premium segment of the market, in which Apple and Samsung dominate.

Foldable devices, like the Razr, are part of this category given their high price tag. Zielinski described Motorola's launch of the Razr foldable as "taking a stab at the premium market." Zielinski said most of the users for the Razr smartphone have converted from using a device that is "not Android based." Android is Google's mobile operating system. The only other major mobile operating system around is Apple's iOS.

**Mark Zuckerberg Indicates Meta is Spending Billions of Dollars on Nvidia AI Chips**
Mark Zuckerberg said on Thursday that by the end of 2024, the company's computing infrastructure will include 350,000 H100 graphics cards.

That suggests the company is spending billions of dollars on Nvidia's leading chips that can cost over $40,000 on eBay due to heavy demand.

Zuckerberg said in October that "AI will be our biggest investment area in 2024, both in engineering and computer resources." Meta is spending billions of dollars on Nvidia's popular computer chips, which are at the heart of artificial intelligence research and projects. In an Instagram Reels post on Thursday, Zuckerberg said the company's "future roadmap" for AI requires it to build a "massive compute infrastructure." By the end of 2024, Zuckerberg said that infrastructure will include 350,000 H100 graphics cards from Nvidia. Zuckerberg didn't say how many of the graphics processing units (GPUs) the company has already purchased, but the H100 didn't hit the market until late 2022, and that was in limited supply. Analysts at Raymond James estimate Nvidia is selling the H100 for $25,000 to $30,000, and on eBay they can cost over $40,000. If Meta were paying at the low end of the price range, that would amount to close to $9 billion in expenditures.

Additionally, Zuckerberg said Meta's compute infrastructure will contain "almost 600k H100 equivalents of compute if you include other GPUs." In December, tech companies like Meta, OpenAI and Microsoft said they would use the new Instinct MI300X AI computer chips from AMD.

Meta needs these heavy-duty computer chips as it pursues research in artificial general intelligence (AGI), which Zuckerberg said is a "long term vision" for the company. OpenAI and Google's DeepMind unit are also researching AGI, a futuristic form of AI that's comparable to human-level intelligence.

In Meta's third-quarter earnings report, the company said that total expenses for 2024 will be in the range of $94 billion to $99 billion, driven in part by computing expansion.

## 2023 Connector Industry Acquisitions

**Smiths Interconnect Acquires Plastronics**
Smiths Interconnect, a division of Smiths Group plc, acquired Plastronics Sockets & Connectors, a leading supplier of burn-in test sockets and patented spring probe contacts for the semiconductor test market segment, as well as custom connectors for industrial applications. Plastronics' technology, products, and capabilities complement and strengthen Smiths Interconnect's existing portfolio of products and support the company's ambition to be the partner of choice for semiconductor test customers around the world.

**ITT Inc. Acquires Micro-Mode Products**
ITT Inc. acquired privately held Micro-Mode Products Inc. Micro-Mode is a specialty designer and manufacturer of high-bandwidth radio frequency (RF) connectors for harsh environment defense and space applications. Micro-Mode has been qualified on numerous U.S. space and defense programs for more than 30 years. Micro-Mode's differentiated miniature and high-frequency design capabilities will enhance ITT's product portfolio and customer base, specifically for long-term defense programs. Micro-Mode holds leading positions in the defense and space connector industries and its high-reliability connectors are the product of choice for many mission-critical applications. The acquisition of Micro-Mode grows ITT's existing North America connectors platform, which is part of its Connect & Control Technologies (CCT) segment. Micro-Mode also provides ITT further access to attractive segments and applications in space and defense, with a total addressable market of more than $4 billion. With its proven engineering and quality capabilities, the company maintains a highly defensible niche with sole source positions on attractive U.S. defense programs.

**Bulgin Acquired by Infinite Electronics**
Infinite Electronics Inc., a global portfolio of connectivity solution brands, acquired Bulgin Ltd, a UK-based developer and manufacturer of connectors and related components for harsh-environment applications. Bulgin was previously owned by Equistone Partners Europe, a leading European mid-market private equity firm.

**Amphenol Acquires EBY Electro**
Amphenol acquired EBY Electro, a leading manufacturer of terminal blocks and connectors for applications such as industrial, commercial, and residential. Products include EB4862, EB530, and EB4885, and services such as RoHS, REACH, and Conflict Minerals compliance complement EBY's easy wiring, installation, samples, and supply chain solutions.

**Amphenol Corporation Acquires Connor Manufacturing Services Inc.**
Amphenol Corporation acquired Connor Manufacturing Services Inc., a global manufacturer of power interconnect products including high voltage busbars for the automotive and industrial markets with annual sales of approximately $100 million. Connor will be included in Amphenol's Interconnect and Sensor Systems Segment.

**Amphenol Acquires XMA Corporation**
Amphenol Corporation acquired New Hampshire-based XMA Corporation, a provider of radio frequency components for the military and IT datacom markets with annual sales of approximately $15 million. XMA will be included in Amphenol's Harsh Environment Solutions Segment.

**Trexon Acquires C.E. Precision Assemblies**
Trexon, a portfolio company of Audax Private Equity and a leading provider of specialty connectivity solutions for mission-critical applications, acquired C.E. Precision Assemblies Inc. (CEPA), an industry-recognized value-added manufacturer of RF/microwave build-to-print flexible and semi-rigid cable assemblies, as well as molded, and braided wire harnesses. This acquisition represents Trexon's ongoing commitment to expanding its presence in the military and aerospace markets. "The addition of C.E. Precision brings a wealth of experience and expertise in cable assembly and wire harness solutions that support our strategic vision of delivering high quality, mission-critical assemblies," said Mark Twaalfhoven, president and CEO of Trexon.

**KYOCERA AVX Acquires Bliley Technologies**
KYOCERA AVX, a leading global manufacturer of advanced electronic components engineered to accelerate technological innovation, acquired Bliley Technologies, a worldwide leader in the design and development of innovative, low-noise frequency control products with more than 65 years of space heritage in low Earth orbit (LEO) and geostationary equatorial orbit (GEO) applications.

"We are very pleased to welcome members from the Bliley Technologies team to KYOCERA AVX and are very excited to further expand our crystal devices portfolio with the disruptive technologies they've developed, which will allow us to better serve sophisticated customers in the demanding military, aerospace, and defense markets," said Kio Ariumi, senior VP, operational integrations, KYOCERA AVX. "The asset transfer acquisition provides more than 20 patents for key positioning, navigating, and timing technologies as well as an accomplished staff and an advanced manufacturing facility with several crucial certifications and qualifications, all of which will further strengthen our presence in these essential markets."

Bliley Technologies manufactures innovative low-noise crystal and oscillator products in Erie, Pennsylvania, and is one of the only U.S.-based companies to manufacture both — from front end to final finishing —

within the same facility. Close collaboration between Bliley's crystal oscillator and mechanical engineers and its production team has resulted in the development of some of the most successful solutions available in the global frequency control industry, including its low-power oven-controlled crystal oscillator (OXCO) technology, which offers superior holdover performance compared to micro electromechanical systems (MEMS) and temperature-compensated crystal oscillators (TXCO) at a fraction of the power budget.

**Amphenol Corporation acquired PCTEL Inc**

Amphenol Corporation acquired PCTEL Inc., a leading global provider of wireless technology solutions. PCTEL was incorporated in 1994 and is headquartered in Bloomingdale, Illinois. The company provides industrial Internet of Things devices, antenna systems, and Test & Measurement solutions. The company's antenna portfolio includes Wi-Fi, Bluetooth, land mobile radio, tetra, global navigation satellite systems, cellular, industrial, scientific, medical, long range, and combination antenna solutions for use in public safety and military communications, utilities and energy, precision agriculture, smart traffic management, and electric vehicle charging.


Bishop & Associates has just released the 2023 ***Connector Industry Forecast*** update. This eight-chapter report provides an in-depth, and detailed forecast of the worldwide connector industry. In addition to the detailed forecasts for each region of the world (North America, Europe, Japan, China, Asia Pacific, and ROW), an industry overview is included which provides current market trends, currency fluctuation effects, and industry sales performance, as well as an outlook narrative.

Worldwide and each regional forecast includes:

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

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

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

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

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

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

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

**Military/Aerospace**

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

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

## 2023 – A Year of Worldwide Conflict and Declining Connector Sales!

After a year of strong double-digit growth, no one expected the connector industry to perform as well as it did in 2022. Although not in the double-digit range, growth in 2022 was a solid 7.8%. Entering 2022 with a robust backlog allowed for all regions, except for Japan, and market sectors to show growth, albeit at different levels.

A year marked by challenges, changes, and opportunities, 2022 was for many a year that showed us just how resilient we could be. We climbed our way out of one of the worst health pandemics ever faced. We were faced with flooding in all parts of the world and the worst drought in over 40 years in other parts. Wildfires that burned for weeks and heatwaves, earthquakes, and hurricanes that killed thousands and caused billions of dollars in damages. Yet, after each incident we picked ourselves up, kept a positive attitude, and tended to business! Just like the way the connector industry responded after a devasting 2020.

### Industry Sales Performance by Region

As would be expected, growth and decline were not equal across all regions in 2022 nor will they be in 2023. The North American region saw the greatest growth in 2022, growing 14.6%. With growth of 11.7%, the ROW region followed North America. This region includes Central and South America, Brazil, and South Africa. Asia Pacific, which includes Taiwan, South Korea, India, and Singapore as well as a list of others, followed ROW with growth of 7.1%, followed by Europe with growth of 6.5%. China, the largest region for electronic connector sales increased 6.1%. Japan, who continues to struggle to bring sales back to their high of $6.4 billion in 2012, showed the least growth in 2022, with sales declining -2.0%.

**2021 and 2022 Connector Sales by Region**
**With Percent Change**

| Region | 2022 | 2023F | Percent Change |
|---|---|---|---|
| North America | $18,889.0 | $XX,XXX.X | Y.Y% |
| Europe | $17,328.5 | $XX,XXX.X | Y.Y% |
| Japan | $5,172.8 | $XX,XXX.X | Y.Y% |
| China | $26,494.3 | $XX,XXX.X | Y.Y% |
| Asia-Pacific | $12,194.7 | $XX,XXX.X | Y.Y% |
| ROW | $4,011.7 | $XX,XXX.X | Y.Y% |
| **Total World** | **$84,091.0** | **$XX,XXX.X** | **Y.Y%** |

$ Millions

Like 2022, where the region with the greatest percentage increase in sales was the same region that exhibited the greatest increase in total dollars, in 2023, Europe will also represent the region with the greatest overall growth in sales dollars. Europe will see sales dollars increase $XXX million, followed by North America, where sales dollars will increase $XXX million, and

ROW where sales dollars will increase $XX.X million. All other regions will see a decrease in sales dollars. Although not the greatest decrease in sales from a percentage standpoint, China will have the greatest decrease in sales from a US dollars point, declining $XXX million. For Japan this will be the second consecutive year of sales decline.

In addition to connector sales results varying by region in 2023, electronic connector sales will also vary remarkably by market sector. As the table below and on the following page show, in 2022, the telecom/datacom market, which encompasses a variety of equipment types including carrier network, enterprise network, wireless infrastructure, subscriber equipment (cell phones), and cable equipment saw the greatest percentage growth, at 9.4%. Naturally this growth was driven by the increase in internet activity and the continuing drive towards 5G. In 2023, although nowhere near the growth in 2022, the telecom/datacom market will once again show the greatest growth, expanding by 0.8%. In 2022, the telecom/datacom market was followed by the automotive, transportation, industrial and military/aerospace market, all growing 8.1%. It is important to note that although the percentage increase for all four market sectors is the same, because the value of each market is so different, the change in sales dollars varied tremendously. In 2023, the telecom/datacom market will be followed by the military/aerospace market, with growth of 0.6%. It has not been since 2019, that the military/aerospace market out preformed key markets like automotive and industrial, but unfortunately worldwide turmoil has put military/aerospace expenditures in the spotlight.

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

| Equipment Sector | 2022 | 2023F | YOY Change |
|---|---|---|---|
| Computers & Peripherals | $10,758.2 | XX,XXX | Y.Y% |
| Business/Office Equipment | $922.3 | X,XXX | Y.Y% |
| Instrumentation | $2,424.8 | X,XXX | Y.Y% |
| Medical | $2,690.7 | X,XXX | Y.Y% |
| Industrial | $10,788.1 | XX,XXX | Y.Y% |
| Automotive | $18,435.4 | XX,XXX | Y.Y% |
| Transportation | $5,873.4 | X,XXX | Y.Y% |
| Military/Aerospace | $5,050.0 | X,XXX | Y.Y% |
| Telecom/Datacom | $20,022.8 | XX,XXX | Y.Y% |
| Consumer | $3,967.0 | X,XXX | Y.Y% |
| Other Equipment | $3,158.3 | X,XXX | Y.Y% |
| **Total World** | **$84,091.0** | **XX,XXX** | **Y.Y** |

$ Millions

## 2023 and 2024 Outlook

With industry backlog declining steadily, Bishop is forecasting 2023 sales to decline -Y.Y% to $XX,X16 million. We anticipate the greatest percentage decrease will occur in Japan, where sales will decrease -Y.Y%, followed by the China region where sales are anticipated to decline -X.X%. When looking at growth in US dollars, although not the greatest decline percentage

wise, the smallest growth will be seen in the Chinese region, where connector sales will decrease by $XXX.X million. The Chinese region will be followed by the Asia Pacific region, where sales in US dollars will decline $XXX million.

**2023F and 2024F Sales by Region**
**With Percent Change**

| Region | 2023F | 2024F | Percent Change |
|---|---|---|---|
| North America | $1X,9XX.8 | $XX,XXX.X | Y.Y% |
| Europe | $1X,X68.1 | $XX,XXX.X | Y.Y% |
| Japan | $4,728.7 | $XX,XXX.X | Y.Y% |
| China | $2X,756.1 | $XX,XXX.X | Y.Y% |
| Asia-Pacific | $X1,4X4.X | $XX,XXX.X | Y.Y% |
| ROW | $XX,XXX.X | $XX,XXX.X | Y.Y% |
| **Total World** | **$81,XXX.3** | **$XX,XXX.X** | **Y.Y%** |

$ Millions

**2023F and 2024F Sales by Market Sector**
**With Percent Change**

| Equipment Sector | 2023F | 2024F | Percent Change |
|---|---|---|---|
| Computers & Peripherals | $X,96X.X | $XX,XXX.X | Y.Y% |
| Business/Office Equipment | $873.7 | $895.2 | Y.Y% |
| Instrumentation | $X,XXX.5 | $X,441.X | Y.Y% |
| Medical | $2,641.3 | $X,73X.X | Y.Y% |
| Industrial | $X0,68X.X | $X1,19X.X | Y.Y% |
| Automotive | $1X,XXX.X | $XX,XXX.X | Y.Y% |
| Transportation | $X,XXX.X | $X,XXX.X | Y.Y% |
| Military/Aerospace | $X,120.X | $X,X81.X | Y.Y% |
| Telecom/Datacom | $XX,XXX.X | $2X,XXX.X | Y.Y% |
| Consumer | $X,726.X | $X,84X.X | Y.Y% |
| Other Equipment | $3,X45.X | $3,XXX.X | Y.Y% |
| **Total World** | **$81,XXX.3** | **$XX,XXX.X** | **Y.Y%** |

$ Millions

## Forecast Assumptions

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

- Economic markets are still unstable. Although the Federal Reserve announced in early November that they would hold rates steady as they evaluate progress on taming inflation, they did leave the door open to future increases. This contrasts with their announcement in September that one more increase in rates was likely to occur in 2023 to keep inflation at bay. This is important because US interest rates tend to drive global rates and strengthen the US dollar, which causes many other currencies to depreciate.

- World GDPs are slowing in all economies. According to The Conference Board, "global real GDP is forecasted to grow by 2.9% in 2023, down from 3.3% in 2022", with a further decline to 2.5% in 2024. "Growth forecasts for 2024 are generally strongest in emerging Asian economies and weakest in Europe and the US."

- Although global supply chain issues have improved drastically, with ocean and truck freight capacities improving, we still are faced with several obstacles driven by issues such as labor shortages and global conflicts. In the latest CNBC Supply Chain Survey, conducted in October among logistics executives from companies like DHL Global Forwarding Americas, ITS Logistics, SEKO Logistics, C.H. Robinson, and Kuehne + Nagel, it was determined that the freight market will remain stagnant through the balance of 2023, and that "little to no growth will occur during the first half of 2024".

- Continued fluctuation in petroleum prices. Although at the present time, prices seem to have dropped about $0.30 per gallon when compared to this time last year, there is no guarantee how long these prices will remain in effect. The fact that Saudia Arabia the world's second-largest oil supplier, decided to slash production by one million barrels a day since July, means less oil available and in turn potentially higher prices. The fact we are now entering the time of year where demand drops for gasoline is good for the consumer, but demand for diesel by farmers and truckers, as well as jet fuel for the rebounding travel industry, will add to the price of goods.

- Low unemployment rates, driven by the ongoing labor shortage, with studies still showing that by 2030, we will be an estimated 85 million workers short globally! Continued low unemployment rates worldwide, driving a continued and prolonged shortage of workers in key areas like transportation and service industries. Through September 2023, unemployment in the US stood at 3.8% and in China at 5.0%. In the Euro area through August, it was 6.4%.

- Increasing political tensions: Israeli-Palestinian conflict over land and who controls it, a war between Russia and Ukraine that has gone on for over a year, with no end in sight, deepening friction between China and Taiwan with the US trying to maintain dominance in Asia Pacific, possible repeated confrontation between Armenia and Azerbaijan, stalled nuclear talks with Iran, political gridlock and rampant gang violence in Haiti, with cholera spreading and governmental services collapsing. China's continued military buildup, which includes rapid development of its nuclear, space and cyberspace capabilities. According to Defense.gov, "DOD officials estimate that the Chinese had more than 500 operational nuclear warheads as of May 2023." "China has also focused on expanding its naval capabilities to project power by sea. It has the largest navy in the world, in terms of number of ships and submarines, with a total battle force of 370 ships and submarines. That includes 140 major surface combatants, according to the report."

- A global housing shortage is causing home prices and rents to climb substantially, drastically affecting the percentage of income devoted to housing. In some countries like Germany, this has reached disastrous proportions. Earlier in 2023, a study by the Eduard Pestel Research Institute "found there to be a shortage of more than 700,000 apartments in Germany, especially in the affordable segment". Germany is not the only country where rentals are a scare commodity, many other European countries are facing the same dilemma, and even those that have found housing, in many countries like the United Kingdom, this housing is substandard, with many in a state of dangerous disrepair. The United States is also facing a housing shortage, due to rising material costs, labor shortages, and supply chain issues. Although this problem existed long before COVID, rising interest rates have caused buyers to watch their purchasing power plummet, as well as their ability to own a home.

There are also some interesting projections as to why we will see connector growth in 2024 and beyond and what that growth will be. See the markets where Bishop anticipates growth and which subsectors will drive that growth. Look at projections over the next five years. Will we continue to grow, or will some years not be as strong as others? All this and more revealed in the December 2023 *Connector Industry Forecast*.

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

## Table of Contents

***Chapter 1 – 2023 – A Year of Worldwide Conflict and Declining Connector Sales! (continued)***



***Chapter 1 – 2023 – A Year of Worldwide Conflict and Declining Connector Sales! (continued)***



***Chapter 2 – World Connector Forecast***

*Chapter 2 – World Connector Forecast (continued)*



*Chapter 3 – North American Connector Forecast*



*Chapter 3 – North American Connector Forecast (continued)*



**Chapters 4 Thru 8 Provide the Same Detail Level as Chapter 3**
**Chapter 4 – European Connector Forecast**
**Chapter 5 – Japanese Connector Forecast**
**Chapter 6 – Chinese Connector Forecast**
**Chapter 7 – Asia Pacific Connector Forecast**
**Chapter 8 – ROW Connector Forecast**

## To Order *Connector Industry Forecast*

Research Report F-2023-02, ***Connector Industry Forecast*** is available for $5,285. If you would like additional information about this report, or would like to place an order, please complete the following information, and e-mail, or mail it to Bishop & Associates, Inc. To place your order on our website: **http://store.bishopinc.com/**.

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1209 Fox Glen Drive - St. Charles, IL 60174
Phone: 630.443.2702
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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://store.bishopinc.com**.

- ☐ **Report F-2023-02** **Connector Industry Forecast (December 2023) NEW**
- ☐ **Report P-606-23** **Connector Types and Technologies Poised for Growth (October 2023) NEW**
- ☐ **Report M-121-23** **2023 Top 100 Connector Manufacturers (August 2023) NEW**
- ☐ **Report M-720-23** **European Connector Market 2021, 2022, 2023F and 2028F (June 2023) NEW**
- ☐ **Report C-122-23** **2023 Connector Industry Yearbook (June 2023) NEW**
- ☐ **Report P-430-23** **World Circular Connector Market 2023 (May 2023) NEW**
- ☐ **Report M-700-23** **World Connector Market Handbook (March 2023) NEW**
- ☐ **Report P-780-23** **World RF Coax Connector Market (January 2023)**
- ☐ **Report M-1200-22** **Military Ground Vehicle Market for Connectors (October 2022)**
- ☐ **Report P-799-22** **World Cable Assembly Market (September 2022)**
- ☐ **Report P-675-22** **Copper and Fiber Connectivity in the Data Center (July 2022)**
- ☐ **Report T-800-22** **2022 North American Cable Assembly Manufacturers (May 2022)**
- ☐ **Report M-1010-22** **World Automotive Connector Market (April 2022)**
- ☐ **Report P-420-22** **IC Sockets – Systems & Connector Forecast 2020-2030 (January 2022)**
- ☐ **Report P-520-21** **The World I/O Rectangular Connector Market 2021 (October 2021)**
- ☐ **Report M-310-21** **Instrumentation Market for Connectors (June 2021)**
- ☐ **Report P-410-21** **Computer Server Market Trends and Connector Use 2020 – 2030 (May 2021)**

THE BISHOP REPORT - CONNECTOR INDUSTRY YEARBOOK

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