The Bishop Report

Performance and Forecast of the World Connector Industry

Issue No. 370 | 3rd Quarter 2023 | August 2023

July Orders Down -1.3% YOY
The Best Order Performance in 10 Months

Regional Performance:
World sales declined -1.8% YTD in July but Europe achieved growth of +3.7%.

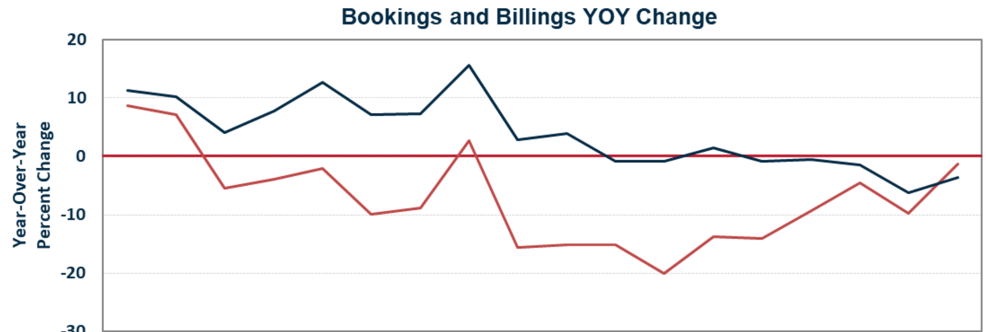
Worldwide, orders were down -11.2% YTD. Japan had the worst performance at -8.5%.

2023 Outlook:
World sales through July are $47,565 million, down -1.8% YTD. As a result of the weak market demand, we are now forecasting 2023 to be $83,616 million, down -0.6%.

Industry Backlog:
July's backlog was $21,974 million (13.9 weeks).

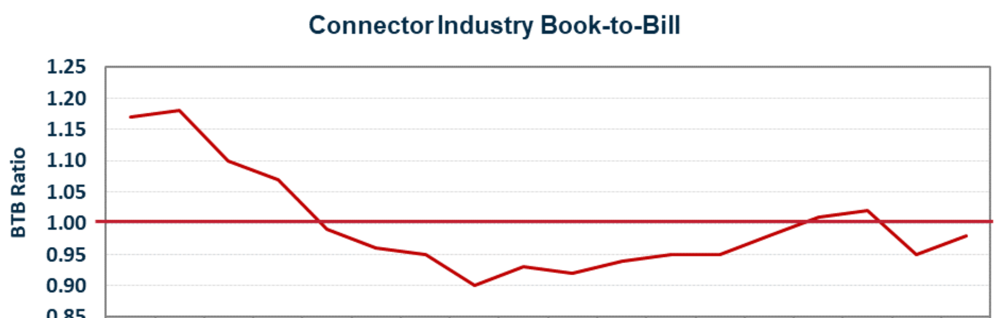
2023 Currency Impact:
The industry declined -1.8% YTD in July in USD and in local currencies.

July bookings were down -1.3% YOY, the lowest decline since September 2022. Billings were down -3.7% YOY. The backlog in July decreased to $21,974 million or 13.9 weeks.



	Feb 22	Mar 22	Apr 22	May 22	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
Bookings	8.7	7.1	-5.5	-3.9	-2.1	-9.9	-8.8	2.6	-15.6	-15.2	-15.1	-20.1	-13.8	-14.0	-9.3	-4.6	-9.8	-1.3
Billings	11.2	10.2	4.1	7.7	12.7	7.1	7.3	15.5	2.8	3.9	-0.9	-0.8	1.40	-0.9	-0.6	-1.4	-6.2	-3.7

The book-to-bill ratio in July and YTD was 0.98.



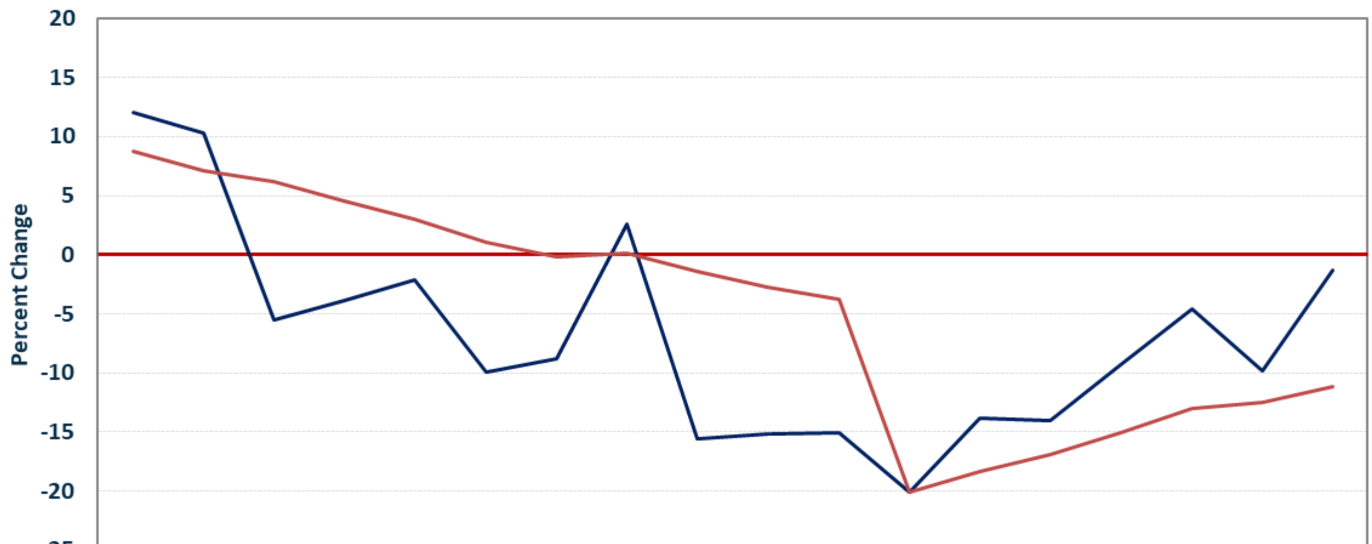
	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23
BtB	1.17	1.18	1.10	1.07	0.99	0.96	0.95	0.90	0.93	0.92	0.94	0.95	0.95	0.98	1.01	1.02	0.95	0.98

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%	-1.2%	36.4%	-9.9%	-1.3%	49.6%	1.1%	-11.2%
Aug	6.6%	8.0%		32.5%	-8.8%		47.1%	-0.2%	
Sep	-11.9%	-1.0%		19.1%	2.6%		43.7%	0.1%	
Oct	6.8%	-12.1%		22.1%	-15.6%		41.2%	-1.4%	
Nov	9.3%	9.8%		15.3%	-15.2%		38.2%	-2.8%	
Dec	-7.0%	-6.8%		15.5%	-15.1%		36.0%	-3.8%	

Bookings - YOY and YTD



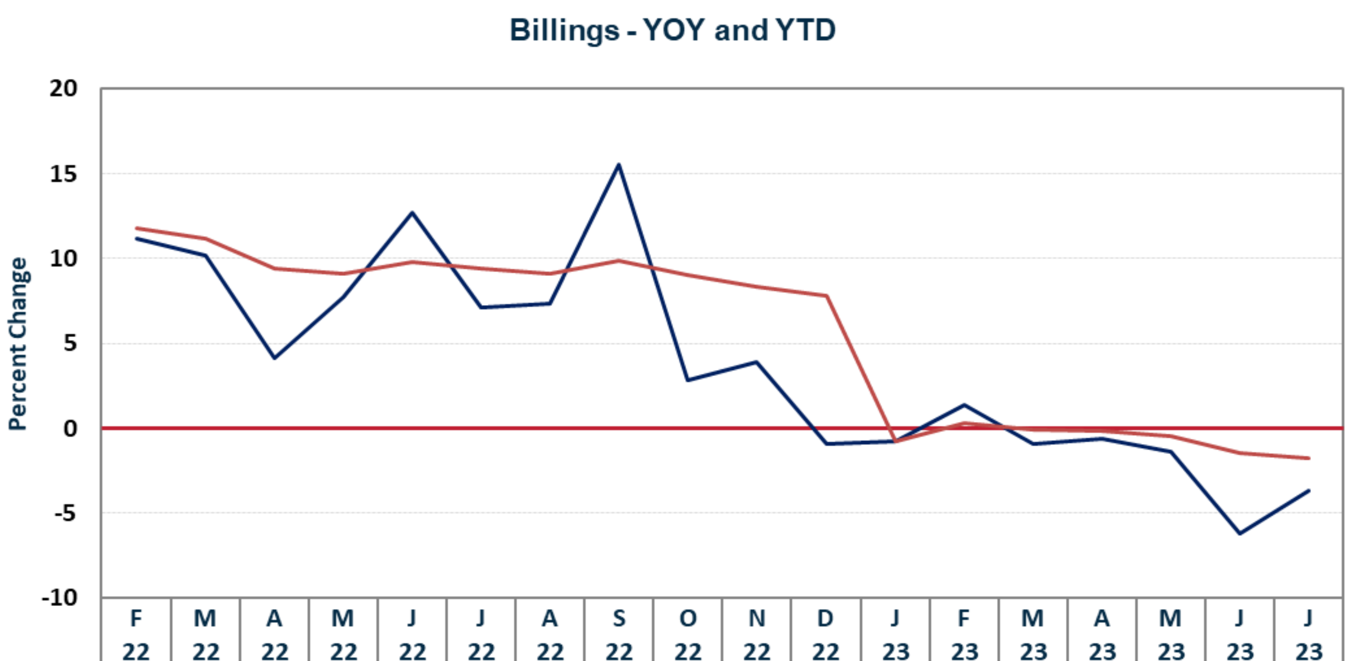
	F 22	M 22	A 22	M 22	J 22	J 22	A 22	S 22	O 22	N 22	D 22	J 23	F 23	M 23	A 23	M 23	J 23	J 23
YOY	12.0	10.3	-5.5	-3.9	-2.1	-9.9	-8.8	2.6	-15.6	-15.2	-15.1	-20.1	-13.8	-14.0	-9.3	-4.6	-9.8	-1.3
YTD	8.7	7.1	6.2	4.5	3.0	1.1	-0.2	0.1	-1.4	-2.8	-3.8	-20.1	-18.4	-16.9	-15.1	-13.0	-12.5	-11.2

- July bookings decreased -1.3% YOY and were down -11.2% YTD.
- Orders decreased -1.2% sequentially.
- The book-to-bill ratio for July was 0.98. The YTD book-to-bill ratio remained at 0.98.

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%	-4.6%	20.6%	7.1%	-3.7%	31.0%	9.4%	-1.8%
Aug	8.7%	8.9%		21.5%	7.3%		29.7%	9.1%	
Sep	-2.3%	5.1%		19.4%	15.5%		28.2%	9.9%	
Oct	-3.4%	-14.0%		15.3%	2.8%		26.8%	9.1%	
Nov	9.4%	10.6%		12.8%	3.9%		25.2%	8.6%	
Dec	-5.6%	-10.0%		15.5%	-0.9%		24.3%	7.8%	



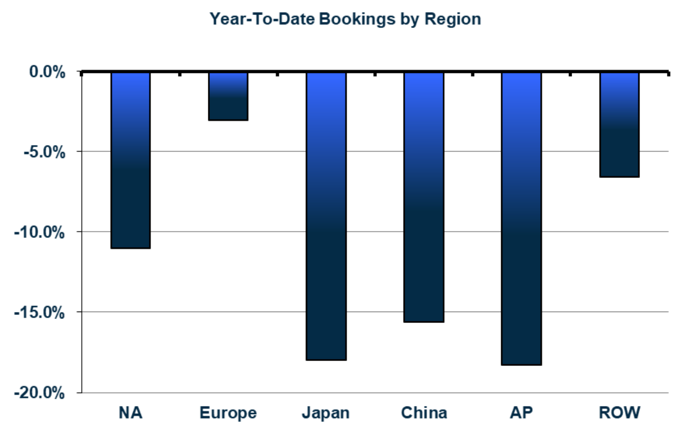
	F 22	M 22	A 22	M 22	J 22	J 22	A 22	S 22	O 22	N 22	D 22	J 23	F 23	M 23	A 23	M 23	J 23	J 23
YOY	11.2	10.2	4.1	7.7	12.7	7.1	7.3	15.5	2.8	3.9	-0.9	-0.8	1.40	-0.9	-0.6	-1.4	-6.2	-3.7
YTD	11.8	11.2	9.4	9.1	9.8	9.4	9.1	9.9	9.0	8.3	7.8	-0.8	0.3	-0.1	-0.2	-0.5	-1.5	-1.8

- July billings decreased -3.7% YOY and -1.8% YTD.
- Sequentially, billings decreased -4.6% in July.

Regional Performance: BOOKINGS

July 2023 Bookings

Region	Sequential	YOY	YTD
NA	3.6%	-1.4%	-11.0%
Europe	-6.9%	2.7%	-3.0%
Japan	-2.4%	-6.1%	-18.0%
China	4.1%	0.7%	-15.6%
AP	-12.5%	-11.5%	-18.3%
ROW	10.5%	-6.4%	-6.6%
Total	-1.2%	-1.3%	-11.2%



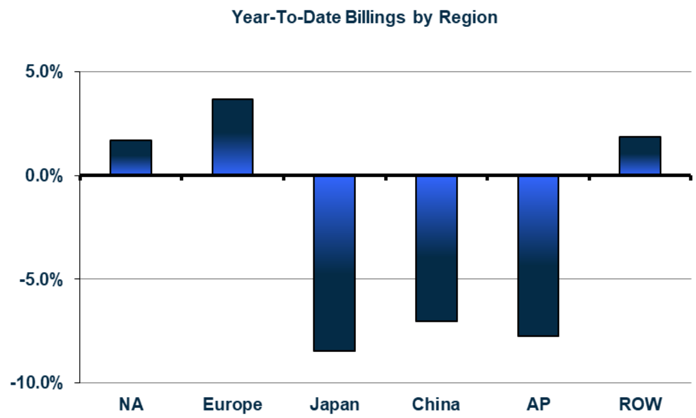
- July bookings decreased -1.3% YOY, the lowest reate of decline in 10 months.
- YOY orders declined in four regions.
- All regions have negative YTD results.
- Asia Pacific's YOY bookings decreased the most at -11.5%.
- Only three regions have negative sequential declines.
- The book-to-bill ratio was 0.98.

Note, orders have declined in 15 of the past 16 months, clear evidence of very soft demand for electronics.

Regional Performance: BILLINGS

July 2023 Billings

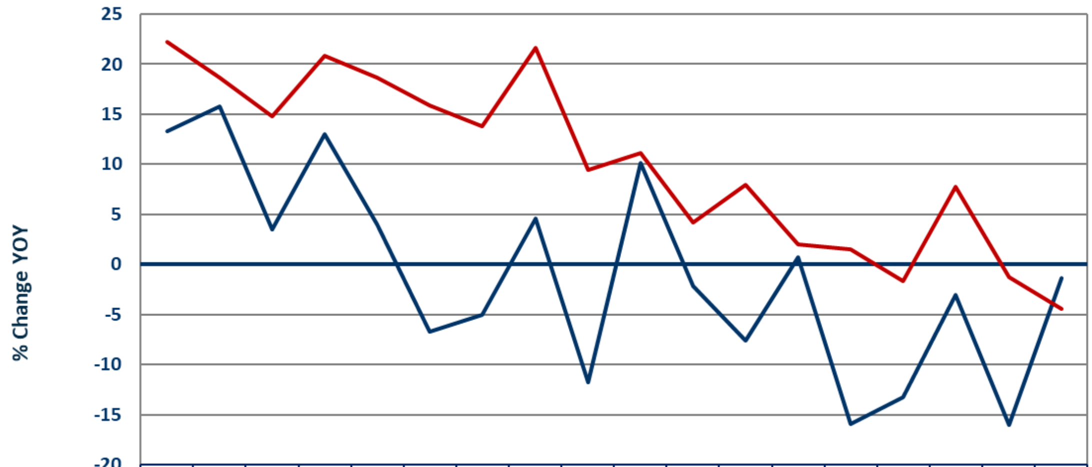
Region	Sequential	YOY	YTD
NA	-6.9%	-4.4%	1.7%
Europe	-5.8%	6.5%	3.7%
Japan	-3.3%	-5.7%	-8.4%
China	-2.3%	-11.1%	-7.0%
AP	-2.9%	-7.2%	-7.7%
ROW	-1.7%	1.2%	1.8%
Total	-4.6%	-3.7%	-1.8%



- July connector sales decreased -3.7% YOY.
- No regions grew sequentially.
- All regions contracted YOY except Europe and ROW.
- YTD, North America, Europe, and ROW remain positive.
- Industry growth is down -1.8% year-to-date in US dollars and in local currencies (see page 17).

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



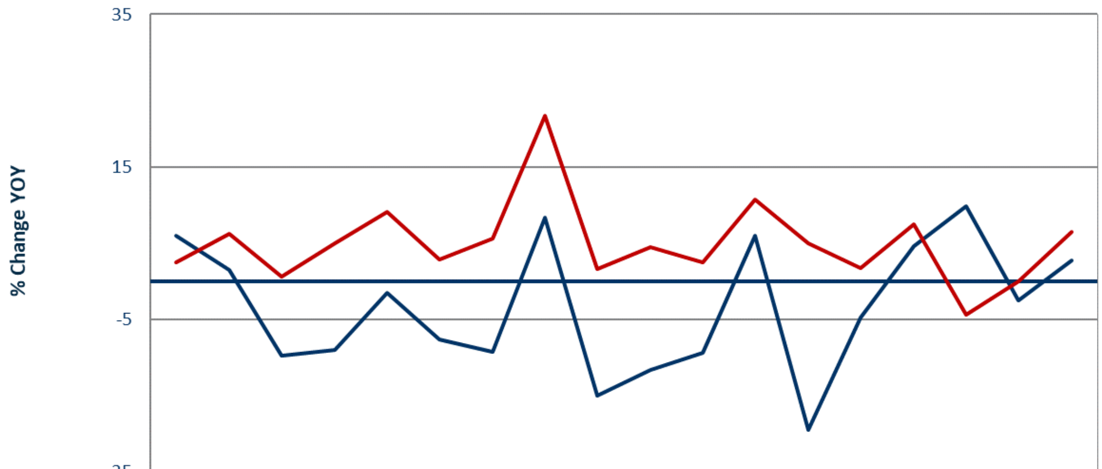
	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23
Bookings	13.3	15.8	3.5	13.0	4.0	-6.7	-5.0	4.6	-11.8	10.1	-2.2	-7.6	0.7	-15.9	-13.2	-3.0	-16.0	-1.4
Billings	22.2	18.6	14.8	20.8	18.6	15.9	13.8	21.6	9.4	11.1	4.2	8.0	2.0	1.5	-1.7	7.8	-1.3	-4.4
Billing SEQ	19.1	-4.6	-7.2	14.5	-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	-6.9
BTB	1.10	1.16	1.11	1.06	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	0.97

North America Performance

- Sales contracted -4.4% and orders were down -1.4% YOY in July. North American billings were down sequentially -6.9%. The book-to-bill was 0.97.
- US inflation ticked up slightly to 3.2% in July. Core inflation decreased to 4.7%.
- Industrial production contracted -0.2% YOY in July.
- Manufacturing PMI increased to 49.0 in July after only two months of factory growth out of the last 10.
- US unemployment decreased to 3.5% in July.
- Retail sales were up 3.2% YOY in July.
- Housing starts increased 3.9% sequentially in July.
- US vehicle sales in July increased 14.7% YOY according to MarkLines.
- Consumer confidence decreased to 71.2 in August from 72.6 in July.
- The trade deficit decreased to $65.5 billion in June from $68.2 billion in May.
- US consumer credit card balances exceeded $1.0 trillion in 2Q23 for the first time ever.

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

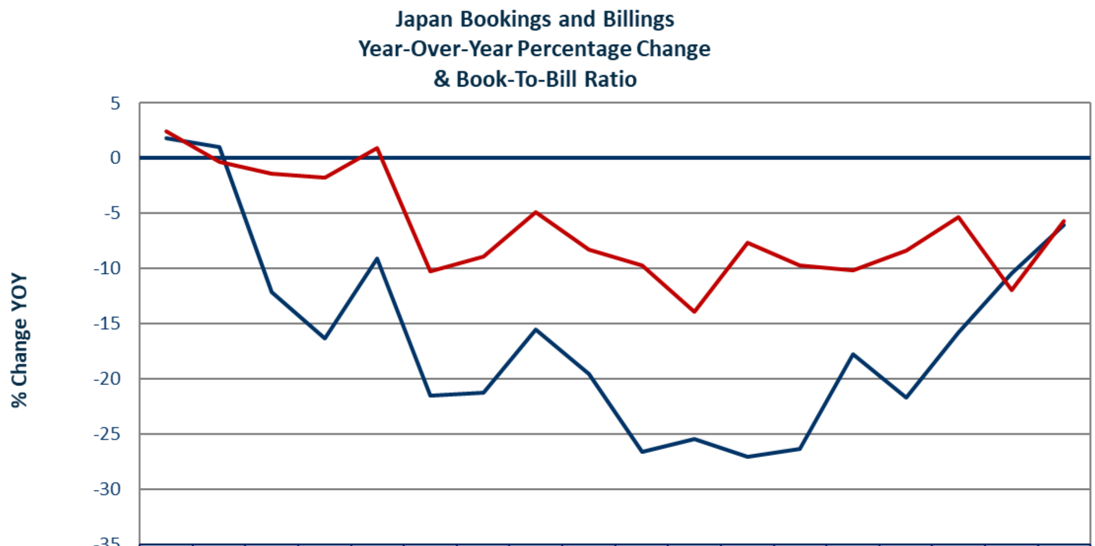


	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23
Bookings	6.0	1.5	-9.8	-9.0	-1.5	-7.7	-9.3	8.3	-15.0	-11.7	-9.4	6.0	-19.6	-4.8	4.6	9.8	-2.5	2.7
Billings	2.4	6.2	0.6	5.0	9.1	2.8	5.6	21.7	1.6	4.5	2.4	10.7	5.0	1.7	7.4	-4.4	-0.1	6.5
Billing SEQ	21.7	-4.5	-13.1	15.9	-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	-5.8
BTB	1.27	1.14	1.10	1.06	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	0.98

Europe Performance

- YOY bookings were up +2.7% and billings were up +6.5%. The book-to-bill ratio was 0.98. Sequentially, sales were down -5.8%.
- 2Q23 GDP grew 0.6% YOY and 0.3% sequentially.
- Euro Area industrial production decreased 1.2% YOY in June, contracting for the fourth consecutive month.
- The manufacturing PMI was 42.7 in July and represented the 13th consecutive month of declining factory activity.
- Retail sales decreased 1.4% YOY in June, the ninth straight month of declining sales.
- The inflation rate decreased to 5.3% in July from 5.5% in June. Core inflation, which excludes energy and food, remained at 5.5% in July.
- The unemployment rate remained at 6.4% in June.
- Consumer confidence was -15.1 in July. The index ranges from -100, which is extreme lack of confidence to +100 which is extreme confidence. Zero indicates a neutral status.

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.



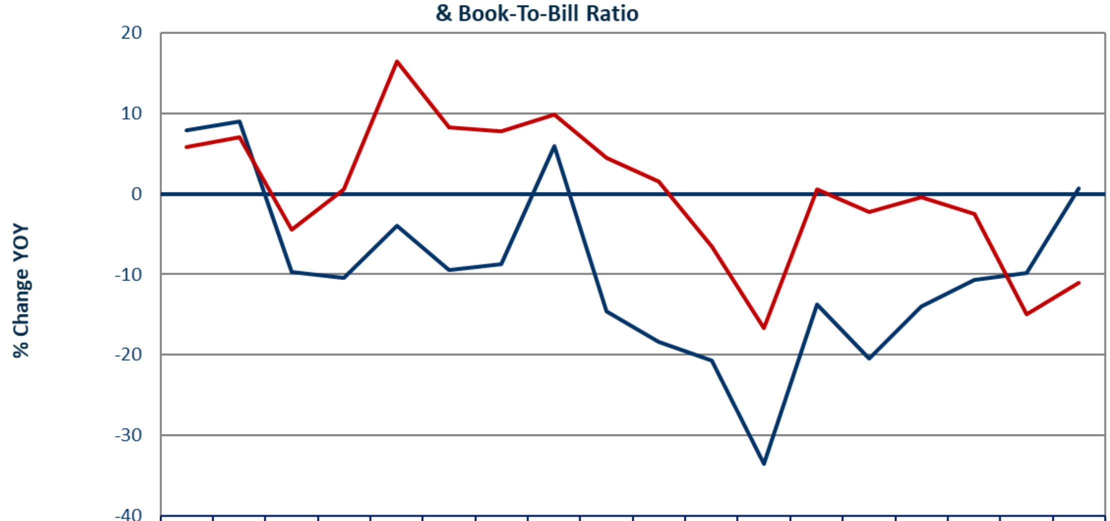
	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	Apr 23	May 23	Jun 23	Jul 23
Bookings	1.8	1.0	-12.1	-16.3	-9.1	-21.5	-21.3	-15.5	-19.6	-26.6	-25.5	-27.1	-26.4	-17.8	-21.7	-15.8	-10.4	-6.1
Billings	2.4	-0.3	-1.4	-1.8	0.9	-10.3	-8.9	-4.9	-8.3	-9.7	-13.9	-7.7	-9.7	-10.2	-8.4	-5.3	-12.0	-5.7
Billing SEQ	15.1	-5.0	-5.0	-0.2	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	-3.3
BTB	1.12	1.38	1.09	1.05	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	1.02

Japan Performance

- Bookings were down -6.1% in July. Sales declined -5.7% YOY, and sequentially were down -3.3%. Japan's book-to-bill ratio was 1.02.
- 2Q23 GDP grew 2.0% YOY and 1.5% sequentially.
- The inflation rate in July increased to 3.3%.
- YTD, Japan's currency devalued 3.6% against the US dollar in July.
- The industrial production rate was flat (0% change) in June.
- June retail sales grew 5.6% YOY.
- Exports were down 0.2% sequentially and down 0.3% YOY in July.
- The July manufacturing PMI was 49.6, leaving their factory activity in contraction in six out of seven months this year.
- Housing starts were down 4.8% YOY in June.
- Consumer confidence was up to 37.1 in July, the highest reading since January 2022.
- The unemployment rate was 2.5% in June.

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

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



	Feb 22	Mar 22	Apr 22	May 22	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
Bookings	7.9	9.0	-9.7	-10.4	-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	0.7
Billings	5.8	7.0	-4.4	0.6	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	-11.1
Billing SEQ	-3.9	3.2	-15.4	10.3	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	-2.3
BTB	1.14	1.22	1.12	1.07	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	1.06

China Performance

- China's sales decreased -11.1% YOY and orders increased +0.7% YOY. The BTB was 1.06. Sequentially, sales decreased -2.3% in July.
- Industrial production grew 3.7% YOY in July.
- China's manufacturing PMI decreased to 49.2 in July.
- Retail sales rose 2.5% YOY in July.
- Exports from China decreased 14.5% YOY and decreased 1.2% sequentially.
- China's total vehicle sales increased 4.8% YOY in June and was up 9.8% YTD.
- The inflation rate in June was -0.3% (deflation). Core inflation was at 0.8%.
- The unemployment rate was 5.3% in July.
- China's fertility rate dropped to 1.09 in 2022 from 1.30 in 2020 according to a study by a unit of the National Health Commission. To maintain a stable population, a fertility rate of 2.1 is needed.

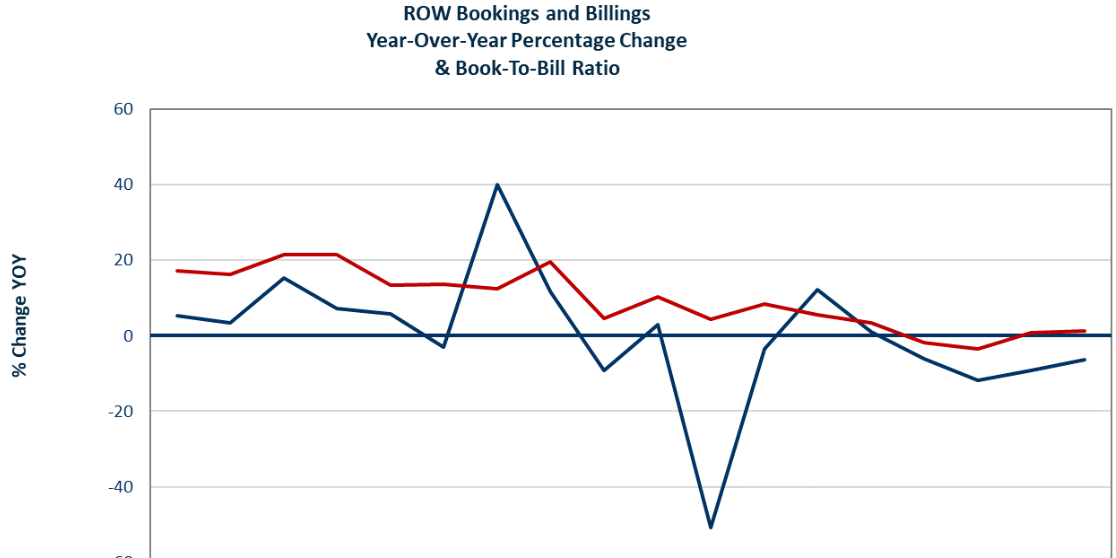
Asia Pacific: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.

	Feb 22	Mar 22	Apr 22	May 22	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
Bookings	12.9	3.4	-5.9	-6.7	-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	-11.5
Billings	14.5	14.7	8.1	9.4	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	-7.2
Billing SEQ	5.2	0.9	-5.0	7.3	-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	-2.9
BTB	1.15	1.21	1.07	1.06	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

Asia Pacific Performance

- Orders were down -11.5% in July and sales were down -7.2% YOY. The book-to-bill ratio was 0.82. Sequentially, sales decreased -2.9%.
- India's industrial production grew 3.7% YOY in June. Exports decreased 16.0% YOY in July to $32.3 billion. Electrical and electronic equipment only represents 4.8% of total exports. The manufacturing PMI dropped to 57.7 in July. There have been 25 straight months of factory expansion. Inflation in July increased to 7.4%.
- South Korea's industrial production contracted 5.6% YOY in June for the ninth straight month of declines. Exports decreased 7.2% sequentially in July. Electrical and electronic equipment comprise 31% of their exports. The manufacturing PMI was 49.4 in July for the 13th consecutive month of contracting factory activity. Inflation decreased to 2.3% 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.



	Feb 22	Mar 22	Apr 22	May 22	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
Bookings	5.3	3.5	15.2	7.2	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	-6.4
Billings	17.2	16.2	21.5	21.6	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	1.2
Billing SEQ	18.5	-3.3	-5.3	13.1	-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	-1.7
BTB	1.20	1.07	1.11	1.06	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	1.02

Rest of World Performance

- Orders decreased -6.4% and sales increased +1.2% YOY in July. Sequentially, sales in the region decreased -1.7%. The book-to-bill ratio was 1.02.
- Brazil's industrial production grew 0.3% YOY in June. The inflation rate increased to 4% in July. The manufacturing PMI was 47.8 in July, the ninth consecutive month of factory contraction. The unemployment rate decreased to 8.0% in June. Exports decreased by 3.0% sequentially in July to $30 billion. Retail sales grew 1.3% YOY in June.
- Russia's economic data is still questionable but here are a few data points. Their 2Q23 GDP grew 4.9% YOY. Retail sales increased 10% YOY in June, the third increase in the last year. Russia's ruble slumped to a 16-month low of 100 against the dollar, having lost around 25% of its value this year.

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	2.6% Slowing	0.6% Slowing	2.0% Flat	6.3% Slowing	N/A	N/A
Industrial Production Growth	-0.2% Down	-1.2% Down	0% Down	3.7% Up	N/A	N/A
Manufacturing PMI*	49.0 Up	42.7 Down	49.6 Down	49.2 Down	N/A	N/A
Inflation Rate	3.2% Slowing	5.3% Slowing	3.3% Steady	-0.3% Slowing	N/A	N/A
Unemployment Rate	3.5% Steady	6.4% Steady	2.5% Steady	5.3% Steady	N/A	N/A
Retail Sale Growth YOY	3.2% Up	-1.4% Down	5.6% Steady	2.5% Up	N/A	N/A
YTD Connector Sales Performance	1.7% Down	3.7% Improving	-8.4% Down	-7.0% Down	-7.7% Down	1.8% Down
YTD Connector Orders Performance	-11.0% Down	-3.0% Up Slightly	-18.0% Down	-15.6% Down	-18.3% Down	-6.6% Down

* Purchasing Manager Index - Below 50 is contracting factory activity

Industry Backlog Is 13.9 Weeks

The industry has been shipping $1,586 million on average per week since January of 2023. The July ending balance is $21,974 million which equates to 13.9 weeks of backlog.

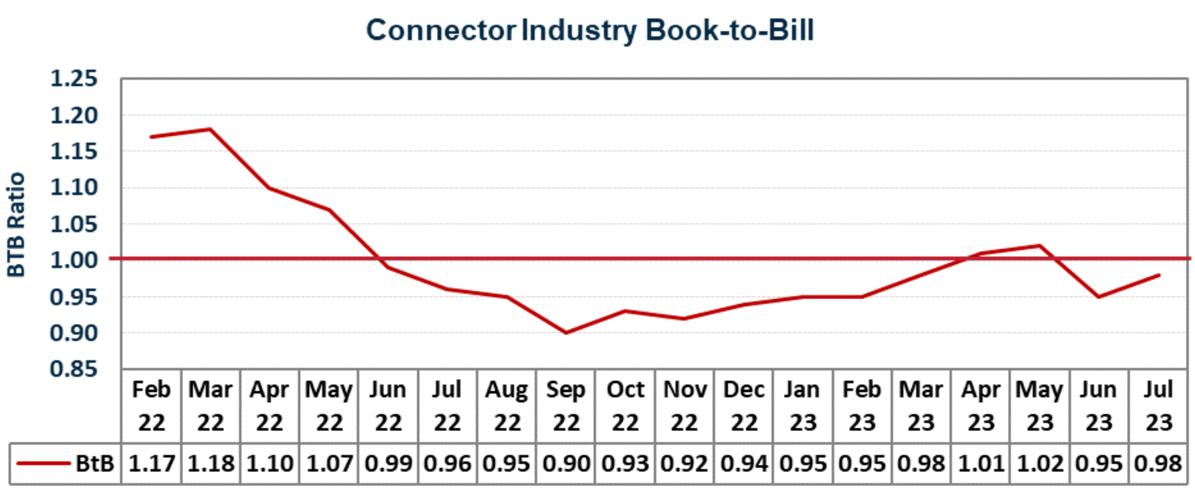
The following table compares 2022 industry backlog to the current backlog.

Industry Backlog

	2022	YTD July 2023
BtB Ratio	1.01	0.98
Beginning Backlog	$21,499	$22,983
Bookings	$85,575	$46,556
Billings	$84,091	$47,565
Ending Backlog	$22,983	$21,974
Backlog in Weeks	14.2	13.9

$ Millions

The book-to-bill ratio has been below 1.00 in 12 of the past 14 months. This is shown in the following graph.



As previously noted, the July 2023 book-to-bill ratio is 0.98. However, you will note in the following table, the backlog has remained in the $21 to $22 billion level since November 2022.

The following table shows the declining backlog.

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	0.98

$ Millions

We shipped $47,565 million year-to-date in 2023. This equates to $1,586 million in sales per week.

2023 & 2024 Forecast

Connector industry sales are down -1.8% through July 2023 and orders are down -11.2%. Amphenol Corporation forecasts third quarter to be down -6.8% and TE Connectivity projects a sales decline of -8.2% in the same period.

Semiconductor industry sales are down -18.3% in the first half of 2023. This is further evidence of a very soft electronics market.

The following table shows our outlook for the third and fourth quarters of 2023.

2023 Forecast by Quarter

Quarter	2021 Actual	2022 Actual	YOY Change	2023 Forecast	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%	$20,752	-6.4%
4Q	$19,780	$20,171	2.0%	$21,700	7.6%
Total	$77,991	$84,091	7.8%	$83,616	-0.6%

$ Million, Bishop ©2023, Forecast in Red

You will note that we are projecting third-quarter sales to be down -6.4%. This is a function of tough comparisons to the third quarter of 2022 and not a projection of a further decline in connector demand. Quite the opposite. In fact, we believe demand will improve in the fourth quarter and result in growth of +7.6%. Also, comparisons to 4Q22 are much easier.

Our 2024 forecast by region is below.

2023 & 2024 Forecast

	2023 Forecast	Change	2024 Forecast	Change
North America	$19,104	1.1%	$20,227	5.9%
Europe	$17,859	3.1%	$18,752	5.0%
Japan	$4,868	-5.9%	$5,020	3.1%
China	$25,847	-2.4%	$27,726	7.3%
Asia Pacific	$11,832	-3.0%	$12,506	5.7%
ROW	$4,106	2.3%	$4,355	6.1%
Total	$83,616	-0.6%	$88,586	5.9%

$ Million, Bishop ©2023

We are more optimistic about 2024, forecasting modest growth of +5.9%. There are several reasons for this forecast.

- Growth of 5 to 6% is the historical norm for the connector industry.
- Demand historically rebounds after a down year.
- GDP growth in North America is generally slightly higher in an election year.
- The job market is still strong in many parts of the world. Although layoffs have occured, particularly in the tech and media industries, people are finding new opportunities quickly.
- The rate of inflation has slowed but raw materials and labor costs have remained high. As a result, connector prices will probably increase in 2024 which will add to the top line.
- We have experienced 16 months in which order have declined. The historic record is 17 months of year-over-year declines in orders. We do not believe the economic environment is so bad as to set records for down months in orders.

Third Month in a Row - Currency Flucuations Do Not Change 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 July 2022 versus July 2023 and shows results for these three currencies.

Local Currency to One USD
July 2022 versus July 2023

Currency	2022	2023	% Change
Euro	0.9801	0.9045	-7.7%
Yuan	6.7308	7.2042	7.0%
Yen	136.4631	141.3858	3.6%

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 July YTD sales performance by region in US dollars and local currencies.

Industry Sales Performance
YTD July 2023
USD-vs-Local Currencies

Region	U.S.$	Local Currency
North America	1.7%	1.7%
Europe	3.7%	-4.2%
Japan	-8.4%	-2.5%
China	-7.0%	-1.3%
Asia Pacific	-7.7%	-7.7%
ROW	1.8%	1.8%
World	**-1.8%**	**-1.8%**

Connector sales are the same when stated in local currencies or US dollars, leaving the industry performance at -1.8% contraction in July. This is the third month in a row. Although it may seem unusual that the results are the same by a matter of chance, one can see in the tables that the individual region's rates vary significantly.

Significant News

Amphenol Corporation Acquires Eby Electro Inc.
Amphenol Corporation acquired Eby Electro Inc. EBY Electro Inc. has annual sales of approximately $15 million. The Amphenol Corporation acquisition of Eby Electro Inc. was completed in July 2023.

FIT Acquired Prettl SWH GmbH in July 2023
FIT (Foxconn Interconnect Technology) Hon Teng Limited announced that it has successfully completed the acquisition of Prettl SWH GmbH and its subsidiaries (the "SWH Group"), one of the leading developers and manufacturers of sensor, connectivity and electrification solutions, which will become acore pillar of FIT's mobility division. The new company name FIT Voltaira Group GmbH ("FIT Voltaira") fully aligns with FIT's strategic development direction in the EV mobility business and is expected to create new growth engines for the Group.

As a result of the acquisition, the new company will become a subsidiary of FIT under the name FIT Voltaira, maintaining its operational independence while preserving its forward-looking and innovative mindset. Ulrich Eichler will remain as CEO of FIT Voltaira. FIT Voltaira is positioned to grow and benefit from strategic drivers transforming the mobility industry and will continue to operate in the market with its three business segments, Sense, Connect and Electrify, delivering its technology solutions in these key areas to third party customers. Its vision for the future is to enable creative mobility solutions for a connected world. FIT Voltaira will spearhead FIT's activities in Mobility applications and will closely collaborate with FIT and its customers to create operational synergies and sustainable value for the benefit of all stakeholders and in the best interest of the company.

PC Market Shows Signs of Recovery as Intel-Dominated CPU Shipments Jump 17%
It appears that the PC market is finally showing signs of recovery. According to new data from John Peddie Research (JPR), the total number of client CPU shipments in Q2 was up by 17% compared to the previous quarter. Intel dominated the three months with a massive 23% increase in its market share, while AMD's share was down 5.3%.

JPR's latest report shows that global client CPU shipments reached 53.6 million units in the second quarter of 2023. That's up from the 46 million units shipped in Q1. The figure is still down compared to the same period last year: desktop CPU shipments declined 23% YoY while notebooks were down 22%.

Notebooks CPUs were responsible for the vast majority of processors shipments, making up 72% of total units compared to 28% for desktop CPUs.

Tablet Shipments Decline Sharply in Q2 2023 While Chromebook Shipments Show Some Resilience
Worldwide tablet shipments posted a decline of 29.9% year over year in the second quarter of 2023 (2Q23), totaling 28.3 million units, according to preliminary data from the International Data Corporation. Demand for tablets continued to be weak in the quarter and most of the top vendors recorded double-digit declines as consumer confidence and purchasing power remained low. Elevated levels of channel inventory also acted as headwinds for new tablet shipments though the issue is expected to ease further in the coming months. Chromebook shipments also contracted in 2Q23 with shipments totaling 5.8 million units for a year-over-year decline of 1.8%. Their decline was minimal, as there were pull-in orders from H2 2023 due to the expected increase in the Chrome OS licensing cost in the second half of the year.

Apple once again led the tablet market with shipments of 10.5 million units, but still recorded a year-over-year decline of 16.8%. Despite the decline, Apple is arguably better positioned than its competitors as the company typically caters to a more affluent userbase that is perhaps less impacted by the economic downturn.

Samsung shipped 5.8 million units in the quarter and ranked second overall. The company posted a decline of 18.3% year over year due to weakness in demand. However, Samsung aims to increase demand in the high-end segment, including premium and large screen products, in the second half of 2023.

Lenovo moved up in rank to the third position this quarter with shipment volume of 2.1 million units. The company posted a decline of 38.8% year over year but grew 12.9% quarter over quarter as it was the start of its fiscal year and Lenovo increased marketing efforts in several promotional events.

Chinese vendors Huawei and Xiaomi finished the quarter in the fourth and fifth positions respectively. Huawei shipped 1.7 million units and posted a decline of 22.9% year over year. China's consumer demand has been weak. The recent shopping festival in China performed below expectations resulting in excess inventory again, leaving vendors like Huawei and Honor wondering how they can increase the consumer spend. Xiaomi marked its debut in the top 5 this quarter with shipments of 1.0 million units, a substantial increase of 41.6% year over year, owing to the company's strategic model launches (with early bird discounts and exchange offers) and a well-established channel presence in the Asian market. The company has built a good reputation in the market with its flagship models, and with better allocation of their shipments they were able to boost sales in the quarter.

Japan's Economy Grew More Than Expected in the April-June Quarter

GDP increased by 1.5% compared with the previous three months, the fastest expansion in three years and nearly twice the predicted rate of 0.8%. Growth was driven by a boom in exports and tourism, which were helped by a weaker yen. Domestic demand, however, remains weak. Private consumption fell by 0.5%.

Russia's Ruble Slumped

Russia's ruble slumped to a 16-month low of 100 against the dollar, having lost around 25% of its value this year. Deteriorating foreign trade conditions and an escalation in military spending have accelerated its fall in recent weeks. The currency was already suffering from western sanctions and European countries' diversification away from Russian energy supplies.

US Android Phone Shipments Plummet 38% in Q2 as iPhone Only Sinks 6%

The latest Counterpoint Research study shows that US Android phone shipments plummeted 38% in Q2 while Apple's iPhones fell 6%. Even though smartphone shipments declined 24% YoY, Apple has a larger share comparing Q2 2022 (45%) to Q2 2023 (55%). This is the third consecutive quarter of YoY declines; Counterpoint Research analyst Matthew Orf said, "Consumer demand for smartphones was tepid in Q2 2023, with the summer slump in sales coming early. Despite inflation numbers falling through the quarter and ongoing strength in the job market, consumers hesitated to upgrade their devices amid market uncertainty. We expect this trend to continue through Q3 2023, but the expectations from the upcoming iPhone 15 remain bullish."

Apple Sees Sales Slump Continuing

Apple forecast that a sales slump would continue into the current quarter, sending shares down despite beating Wall Street sales and profit targets in the fiscal third quarter. Apple shares dropped about 2% after the company predicted what could be the fourth quarter in a row of declining sales. For the just-ended period, strength in services drove the profit beat, but weaker than expected sales of Apple's most famous device, the iPhone, underwhelmed investors. Executives said iPhone sales would improve in the fourth quarter but did not say how much.

Apple Chief Financial Officer Luca Maestri said the company expects a year-over-year revenue performance in the company's fiscal fourth quarter ending in September similar to the drop the company reported. That sales forecast is below analyst expectations of roughly flat fiscal fourth-quarter sales of $90.19 billion, according to Refinitiv data.

Apple pegged the gross profit margin in the September quarter at 44% to 45%, above analyst expectations of 43.4%, according to Refinitiv data. While Apple expects growth in its service segment that contains Apple TV+, iPad and Mac sales will fall by double digits. Apple's research and development spending also hit $22.61 billion for the fiscal year so far, about $3.12 billion higher than at this point in the previous year.

Apple Chief Executive Officer Tim Cook told Reuters in an interview that the increased R&D spending was in part driven by work on generative artificial intelligence, the same field that is driving spending at other big technology companies.

In the meantime, Apple appeared to outperform what has been the weakest smartphone market in China in almost a decade. Overall smartphone sales declined 8% in China in the calendar second quarter to their lowest levels since 2014, according to Counterpoint Research. By contrast, Cook told Reuters that Apple's iPhone sales in China grew by "double digits" and that sales were also high in other segments in China. That helped Apple push sales in its greater China region to $15.76 billion, from $14.60 billion in last year's same quarter.

Apple said iPhone sales were $39.67 billion, below analyst expectations of $39.91 billion, according to Refinitiv data. Cook said the installed base of iPhones hit a new high but gave no numbers.

Apple's services segment, which includes its Apple TV+ service which has announced a deal to carry Major League Soccer, had $21.21 billion in revenue, compared with analyst estimates of $20.76 billion, according to Refinitiv data. Cook said Apple now has 1 billion subscribers on its platform, which includes both Apple services and third-party apps, up from 975 million a quarter ago.

The company's wearables business, which includes the Apple Watch and AirPods, had revenue of $8.28 billion, compared with analyst estimates of $8.39 billion, according to Refinitiv data. Mac and iPad sales were $6.84 billion and $5.79 billion, respectively, compared with analyst estimates of $6.62 billion and $6.41 billion, according to Refinitiv data.

Mexico's Exports to U.S. up 54% from 2016

Mexico has moved to the forefront of global sourcing conversations since the Trump administration began implementing tariffs on China and Covid-19 disrupted global trade. There has been considerable press coverage and announcements by companies such as HP outlining their plans to use Mexico as an incremental or alternate source to China. How far has Mexico come as a U.S. trading partner?

Supply chain solutions provider Descartes recently analyzed the top 10 two-digit (HS-2 digits) commodity categories across industries such as furniture, electronic machinery, vehicles, and apparel and the top 10 countries of origin (CoOs) between 2016–2022 to understand how Chinese imports into Mexico are supporting Mexico's growth. Mexico exports to the U.S. grew 54 percent over the last seven years; however, Chinese exports to Mexico increased by 134 percent in the same period while the Mexican economy only grew 3.4 percent. Mexico ranks as one of the top three CoOs in six goods categories (including electronics, furniture, machinery and automotive), gaining significant market share.

Most of Mexico's U.S. export growth occurred in 2021 and 2022 – which can also be attributed to pandemic-related demand and inflation, especially in 2022. For HS-85 goods (electric machinery, sound equipment, TVs, etc.), Mexico was the third largest provider (18 percent) in 2022 in terms of value to the United States. Over a seven-year horizon (2016–2022), the total value of these goods from Mexico increased 28 percent and the greatest percentage growth was in 2021 and 2022 (combined 30 percent), Descartes found.

The value of U.S. maritime imports, however, increased 35 percent in the same seven-year period. This would imply that Mexico lost import market share over the last seven years. Chinese exports for HS-85 grew 171 percent in the same period.

In 2022, Mexico was the largest provider (38 percent) of HS-87 (vehicles, except railway or tramway, and parts) goods in terms of value to the United States, Descartes reported. Over a seven-year horizon (2016–2022), the total value of these goods from Mexico increased 49 percent and the greatest percentage growth was in 2022 (23 percent YoY).

The value of U.S. maritime imports increased 30 percent in the same seven-year period. This would imply that Mexico gained import market share over the last seven years.

Descartes pointed to one important note: $74 billion of the $111 billion in U.S. vehicle imports from Mexico is from goods (i.e., parts, subassemblies, etc.) that were shipped from the U.S. to Mexico and used in the final assembly of automobiles in Mexico, which were then shipped back to the United States.

The Descartes analysis shows that Mexico's position as one of the top countries of origin for U.S. imports continues to grow and that it accelerated in the last two years as a result of U.S. tariffs on Chinese goods and the Covid pandemic. In a number of major commodity groups, Mexico is either the top source for the U.S. or a strong alternative. Additionally, Mexico imports of goods from China are accelerating at an even faster rate and taking a strong position in supporting Mexico's export growth to the United States.

Electronic Component Sales Trends Improve in July

Electronic component sales trends, similar to the U.S. manufacturing index, saw improvement in July. Although both indexes are still in contraction territory, the ECIA's sales trend index (ECST) rose by 6.7 points in July to reach a level of 83. The outlook for August points to a recovery of overall sentiment to 94.7, the highest level since July 2022. Any reading above 100 indicates sales growth.

The Institute for Supply Management's (ISM) July PMI grew by 0.4 percent to reach 46.4. Manufacturers continued to adjust their production and employment levels to align with demand, which remained soft for the 11th consecutive month. Any PMI reading above 50 indicates the sector is growing.

It's possible that the current manufacturing slump has bottomed out, said Tim Fiore, chair of the ISM's manufacturing survey committee. Manufacturers have been adjusting their businesses to align with demand, he added. It's still unclear just when demand will bounce back.

All electronic component categories improved in July. Electro-mechanical components and connectors are expected to rise by 17.5 points in August, passing the threshold of 100. Semiconductors have the weakest outlook for August. If the market can sustain recent improvements, it is possible that sales sentiment for all categories could top 100 in Q4 which would signal a return to broad-based growth, said Ford. This maintains the expectation of a turnaround in year-over-year growth coming at the end of 2023 at the earliest.

The ECIA noted that market expectations among component manufacturers, distributors and manufacturers reps have been divergent. Manufacturers have been more optimistic than distributors, for example. In its Q2 earnings conference, Arrow Electronics Inc. CEO Sean Kerins noted the distribution channel is undergoing an inventory correction that may last for at least another quarter. Direct customers of electronic component makers may have burned off some of their inventory, Ford noted, which accounts for the difference.

Sales at semiconductor and passive component makers that have announced Q2 earnings so far have generally been flat to down.

The overall end-market index has been essentially stable between 77.1 and 79.5 between May and July, according to the ECIA. The overall market index jumps by 15.2 points in the August outlook. This optimism is seen across all end markets with every market reporting an improving sales sentiment looking toward August with the exception of avionics/military/space which already scores well above 100.

China Automobile Exports Expected to Surpass 5 million in 2023

Car exports from China are on track to grow as the country shipped out the most automobiles worldwide in the first half of 2023. Cui Dongshu, secretary-general for the China Passenger Car Association (CPCA), said China is expected to see the exports exceed 5 million this year. The European market will likely be the largest driving force.

Cui said China's car exports have been increasing significantly in the past two years thanks to the surging shipment of new energy vehicles (NEV). The average price of an exported vehicle has also grown.

According to Chinese customs data, the country exported 2.34 million cars in the first six months of 2023, dethroning Japan for the first time in the half-year record. Data from the Japan Automobile Manufacturers Association shows that Japan shipped out 2.02 million vehicles in the first half of the year.

Cui said China's car exports should be able to surpass 5 million this year, with the European market offering the country a great opportunity. He said Europe demands a more significant number of cars as many of its resources remain tight. The continent also supports NEVs with several policies, which can benefit China's exports profoundly.

According to Cui, China's annual automobile exports stayed around 1 million for several years. The numbers reached 2.19 million in 2021 due to the production hit in other parts of the world caused by COVID-19 and Tesla ramping up manufacturing in Shanghai.

China saw its automobile exports increase by 73% year-over-year in the first half of 2023. Cui said China-made vehicles have been more competitive. Moreover, Chinese brands have replaced many international automakers in the Russian market. The two factors primarily drove the export growth.

How the World Went from a Semiconductor Shortage to a Major Glut

The semiconductor shortage that affected everything from cars to games consoles during the height of the Covid-19 pandemic has turned into a chip glut — and some of the world's biggest chipmakers are taking a hit.

The Covid-19 pandemic caused huge disruption in the supply chains and production of chips, as consumers stuck at home went mad for products like PCs and smartphones.

It led to a widespread shortage of products such as games consoles and even components for washing machines, which continued through the first half of 2022. There was also a lack of semiconductors that go into cars, leading to a drop in the production of vehicles from major automakers.

While the supply and demand dynamics for some chips have since become more balanced, in other areas, the chip shortage has turned into a glut.

Two types of chips are in oversupply right now: NAND and DRAM memory. These go into devices like laptops and also servers in data centers.

The glut came after companies began to stockpile chips amid the shortage to build up inventories.

But then the economy slowed down.

Demand for products like smartphones and laptops has dropped off in a big way — particularly as many people bought them during the pandemic.

Not all types of semiconductors are in oversupply, however, with demand for chips from the auto sector remaining strong.

Samsung said operating profit for the second quarter plunged 95% year-on-year. Meanwhile, SK Hynix swung to a loss in the second quarter versus a profit in the same period last year.
Taiwan Semiconductor Manufacturing Company, the world's largest chipmaker, said that net income for the second quarter fell 23.3% from a year ago. It was its first quarterly profit decline in 4 years.

Looking ahead, the PC market appears weak, which is likely to impact Samsung, SK Hynix and Micron.

For TSMC, the global smartphone market — a major revenue driver — is also under pressure.

China Starts Restricting Exports of Germanium and Gallium for Tech Product Manufacturing
China recently announced new export restrictions on germanium and gallium – two fundamental elements for chip manufacturing. As of Tuesday, Chinese companies interested in doing business abroad need to secure a proper export license from Beijing authorities. "Pure" germanium and gallium export, as well as export of any product which includes the two elements, are affected by the new restrictions. The Ministry of Commerce said that as long as exporting companies comply with national security protocols and other local regulations, export operations will continue as usual.

The timing of the new restrictions suggests they are in retaliation against the US for tightening export restrictions on "AI chips" in July, and they could have remarkable consequences on chip manufacturers all over the world. China controls more than 90% and around 60% of the global production of gallium and germanium, respectively. The announcement of the proposed restrictions caused a 20 percent price hike for gallium in the US and Europe in July.

China's dominance in exporting these metals has heavily relied on their ability to refine them cheaply. The materials have become part of Beijing's effort to assert its economic position in the geopolitical clash with the US and other Western nations. The export restrictions should not seriously impact the production of silicon components like CPUs and GPUs. However, the compounds gallium nitride and gallium arsenide, used in manufacturing LEDs, radio amplifiers, and other essential technology components, might feel a more significant sting.

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

2022 – Better than Anyone Expected!

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 indicated by the chart below, 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	2021	2022	Percent Change
North America	$16,484.0	$18,889.0	14.6%
Europe	$16,278.4	$17,328.5	6.5%
Japan	$5,275.7	$5,172.8	-2.0%
China	$24,978.3	$26,494.3	6.1%
Asia-Pacific	$11,383.9	$12,194.7	7.1%
ROW	$3,590.3	$4,011.7	11.7%
Total World	**$77,990.6**	**$84,091.0**	**7.8%**

$ 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.

Please note currently we still are classifying economic information coming out of Russia as unreliable.

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 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 Asia Pacific 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 million. The Chinese region will be followed by the Asia Pacific region, where sales in US dollars will decline $XXX million.

2022 and 2023F 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

Forecast Assumptions

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

- We have still not totally come out of a global pandemic. On May 5th, the World Health Organization (WHO) announcement that COVID-19 is no longer an international public health emergency and on May 11, 2023, in the US, President Biden declared the public health emergency and the national state of emergency for COVID-19 were over. This means the WHO and officials in the US will now transition to making recommendations for the long-term management of the pandemic, acknowledging that risks remain high and that there are uncertainties for its evolution. Unfortunately, this indicates life is not back to the way it was prior to the pandemic. There are continued outbreaks of both old and new variants of COVID, as well as greater attention being given to other diseases including Monkey Pox, VEXAS Syndrome, Khosta-2, and RSV (Respiratory Syncytial Virus). And, not just in the US, but worldwide.

- Uncertainties in the financial markets. Even though since borrowing costs have tightened, officials at 20 of the world's largest economies have raised their interest rates an average of 3.5% points, inflation is still on the rise. This increase not only leaves consumers with less discretionary income for non-necessary items, especially things like recreational vehicles, second homes, and personal watercraft, it also dampens their ability to afford the everyday expenses like food, rent, and utilities.

- World GDPs are slowing in all economies. According to The Conference Board, "global real GDP is forecasted to grow by 2.6% in 2023, down from 3.3% in 2022. Most of the weakness is concentrated in Europe, Latin America, and the US."

- We still have a semiconductor shortage. Even though shipments have improved, we are still experiencing shortages. Many regions have pledged to start manufacturing their own chips to avoid something like this happening in the future, but it takes time to build a factory and get it up and producing. We also still have a shortage of employees. According to a study by the German Economic Institute in 2022, "in occupations key to the chip industry, there's a current shortage of 62,000 skilled workers."

- We still have a global supply chain backlog, with shipping containers gridlocked, a global shortage of truck and crane operators, and rising transportation costs (fuel and maintenance) that are not expected to end, until well into 2024. This supply chain backlog is causing extended lead times and material shortages.

- Continued high petroleum prices, sparking shortages and record high prices (although down significantly from last year (2022), diesel on average is still significantly higher than it was in 2020 and 2019). Continued high raw material and labor costs, indicative of a probable increase in connector prices in 2024. Supply chain issues created from labor disputes and a shortage of materials, including many of the raw materials needed to manufacture connectors. Areas affected by these shortages in addition to connectors include construction materials, such as circuit breakers, wiring devices and wall plates, fuses, wire and cable, gas regulators and pipe, and PE fittings, line stopers and tap tees, ground rods, and automation products controls.

- An ongoing labor shortage, with studies 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 June 2023, unemployment in the US stood at 3.6%. In the Euro area through May, it was 5.9% and 5.2% in China.

- Increasing political tensions: Continued war in Ukraine, deepening friction between China and Taiwan, possible repeated confrontation between Armenia and Azerbaijan, stalled nuclear talks with Iran, political gridlock and rampant gang violence in Haiti, and China's announcement that they have equipped on their six nuclear-powered submarines, JL-3 intercontinental ballistic missiles capable of hitting the continental US.

- Although the Department of Homeland Security (DHS) announced that the secretary of Homeland Security designated Afghanistan Temporary Protected Status (TPS) for 18 months, effective May 20, 2022, through November 20, 2023, they are still being led by the Taliban, an organization that is notorious for cruelty and aggression.

- Drop in new and existing home sales. According to the National Association of Realtors (NAR) "The Pending Home Sales Index (PHSI)* – a forward-looking indicator of home sales based on contract signings – dropped 2.7% to 76.5 in May. Year-over-year, pending transactions fell by 22.2%. An index of 100 is equal to the level of contract activity in 2001." On the positive side, according to a joint report by the US department of Housing and Urban Development and the US Census Bureau, sales of new single-family houses in the US jumped 12.1% month-over-month to a seasonally adjusted annualized rate of 763,000 in May of 2023, the highest level since February of 2022 and 12.2% above the forecasted number.

There are also some interesting projections as to why we will see connector growth in 2024 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 July 2023 Connector Industry Forecast.

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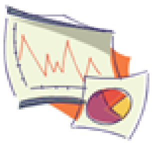

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