The Bishop Report
Performance and Forecast of the World Connector Industry

Issue No. 347	4th Quarter 2021	October 2021

September Sales Up +19.4%
Third Quarter Sales Up +20.7%, Setting New Record!

Regional Performance:
Worldwide year-to-date sales increased +28.2%.

At +35.0% YTD, ROW is exhibiting the highest sales growth.

North America has the highest YOY grow in bookings at +28.0% in September.

Industry Outlook:
Industry sales totaled $58,211 million through September. If we continue to grow at these historical averages, sales will be $78,041 million for the year, up +24.4%.

Q3 Industry Results:
Q3 was the highest sales number ever recorded at $20.15 billion with YOY growth of +20.7%.

2021 Currency Impact:
The industry grew at +29.6% YTD in September in local currencies versus +28.2% in USD, a 1.4-point difference

Merger and Acquisition Services
Buy & Sell-Side

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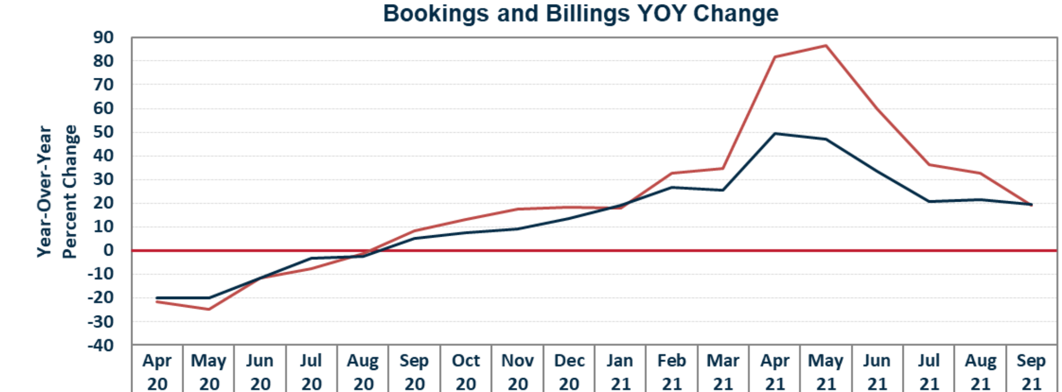
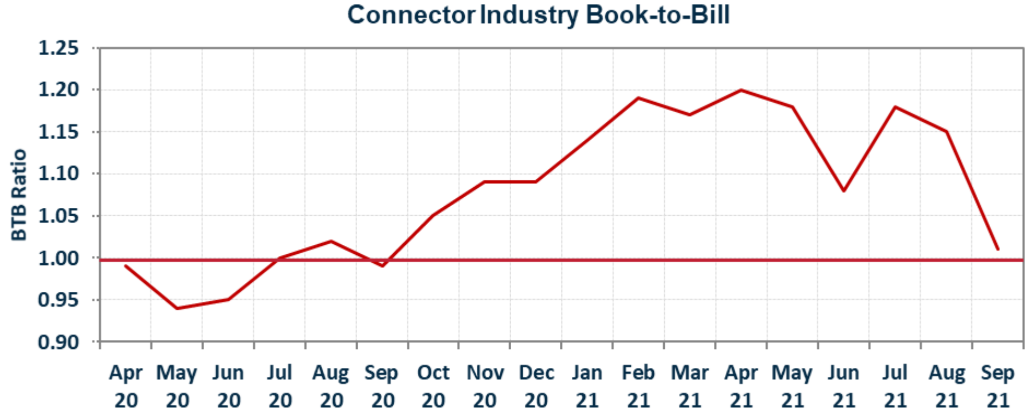
September bookings were up +19.1% from 2020. Sales for the month were up +19.4% YOY. Sequentially, bookings and billings declined from August. Year-to-date sales are up +28.2%.



	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21
Bookings	-21.8	-24.8	-11.6	-7.8	-1.2	8.4	13.0	17.5	18.3	18.0	32.8	34.5	81.9	86.4	59.7	36.4	32.5	19.1
Billings	-19.9	-20.0	-11.6	-3.3	-2.4	5.0	7.6	9.1	13.4	19.0	26.7	25.5	49.5	47.1	33.5	20.6	21.5	19.4

The book-to-bill ratio in September was 1.01 as orders and billings began to normalize a bit, with harder comparisons. YTD, the book-to-bill ratio is 1.15.

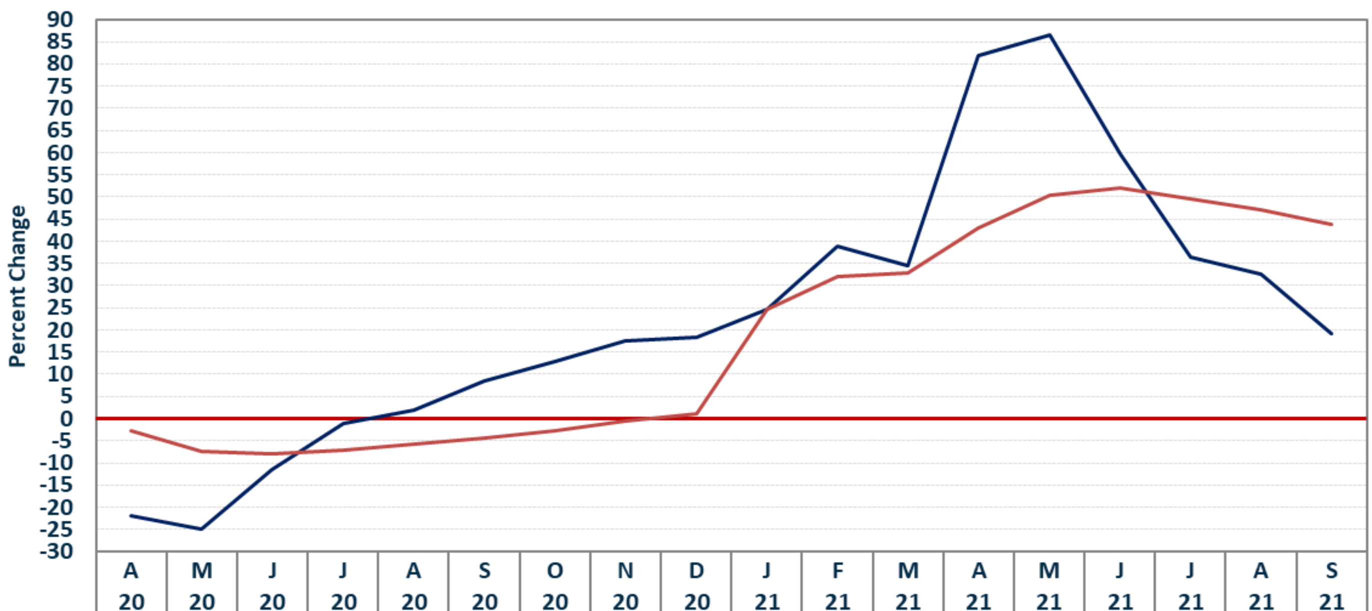


Booking Highlights and Conclusions

Sequential, Year-Over-Year, and Year-To-Date Bookings Percentage Change – 2019/2020/2021

	Sequential			Year-Over-Year			Year-To-Date		
Month	2019	2020	2021	2019	2020	2021	2019	2020	2021
Jan	1.0%	0.2%	2.3%	-3.7%	3.9%	24.7%	-3.7%	3.9%	24.7%
Feb	7.7%	5.5%	17.7%	-6.2%	1.8%	38.9%	-5.0%	2.8%	32.0%
Mar	-4.5%	-1.4%	-3.5%	-6.8%	5.0%	34.5%	-5.6%	3.5%	32.8%
Apr	-2.2%	-27.2%	3.2%	-8.8%	-21.8%	81.9%	-6.4%	-2.7%	42.9%
May	6.9%	2.9%	5.1%	-7.0%	-24.8%	86.4%	-6.5%	-7.3%	50.5%
Jun	-8.9%	7.0%	-8.3%	-8.3%	-11.6%	59.7%	-6.9%	-8.0%	51.9%
Jul	2.8%	15.2%	-1.9%	-8.4%	-1.0%	36.4%	-6.9%	-7.0%	49.6%
Aug	7.8%	10.7%	6.6%	-5.2%	1.8%	32.5%	-6.6%	-5.8%	47.1%
Sep	-7.1%	-0.9%	-11.9%	-4.3%	8.4%	19.1%	-6.4%	-4.3%	43.7%
Oct	0.6%	4.7%		-6.6%	13.0%		-6.4%	-2.6%	
Nov	10.8%	15.2%		-1.9%	17.5%		-6.0%	-0.6%	
Dec	-7.8%	-7.2%		4.6%	18.3%		-5.2%	1.0%	

Bookings - YOY and YTD



	A 20	M 20	J 20	J 20	A 20	S 20	O 20	N 20	D 20	J 21	F 21	M 21	A 21	M 21	J 21	J 21	A 21	S 21
YOY	-21.8	-24.8	-11.6	-1.0	1.8	8.4	13.0	17.5	18.3	24.7	38.9	34.5	81.9	86.4	59.7	36.4	32.5	19.1
YTD	-2.7	-7.3	-8.0	-7.0	-5.8	-4.3	-2.6	-0.6	1.0	24.7	32.0	32.8	42.9	50.5	51.9	49.6	47.1	43.7

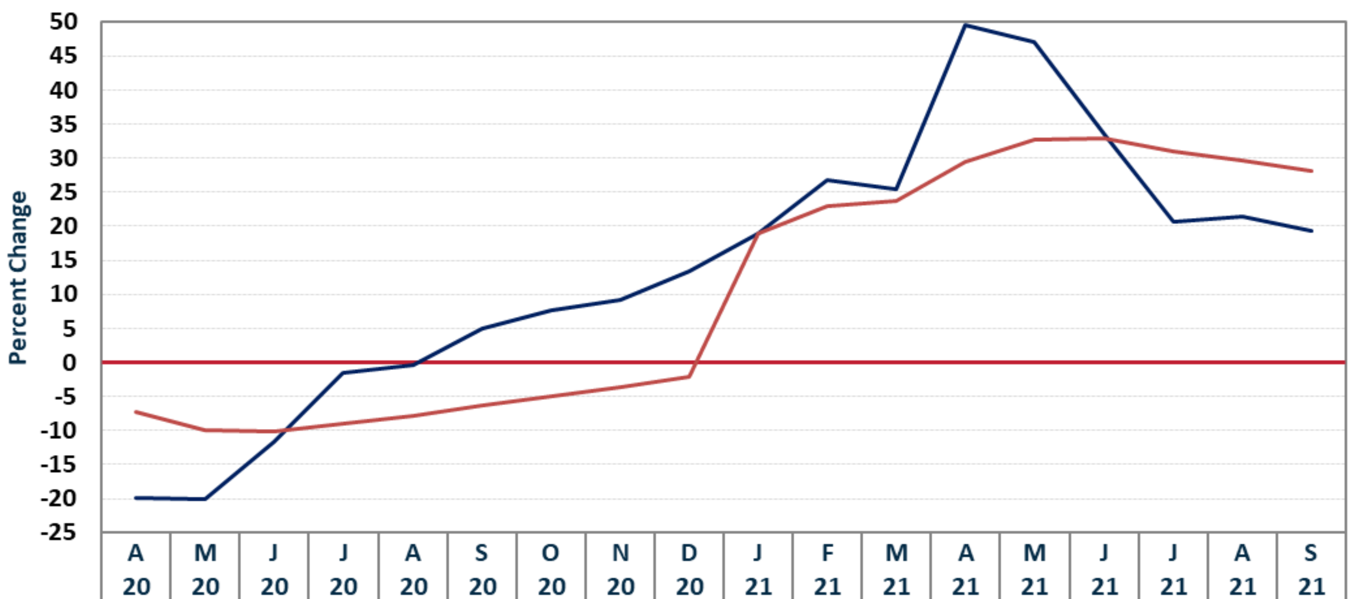
- September bookings rose +19.1% year-over-year.
- Orders decreased -11.9% sequentially.
- The book-to-bill ratio for September was 1.01 and 1.15 YTD.

Billing Highlights and Conclusions

Sequential, Year-Over-Year, and Year-To-Date Billings Percentage Change – 2019/2020/2021

	Sequential			Year-Over-Year			Year-To-Date		
Month	**2019**	**2020**	**2021**	**2019**	**2020**	**2021**	**2019**	**2020**	**2021**
Jan	0.3%	-2.8%	-1.6%	-1.0%	-3.1%	19.0%	-1.0%	-3.1%	19.0%
Feb	6.8%	5.5%	12.6%	-2.5%	-4.3%	26.7%	-1.8%	-3.7%	22.9%
Mar	-3.2%	-0.9%	-1.1%	-2.4%	-2.0%	25.5%	-2.0%	-3.1%	23.8%
Apr	-3.7%	-21.2%	-1.2%	-5.4%	-19.9%	49.5%	-2.8%	-7.2%	29.4%
May	9.0%	8.8%	7.0%	-4.3%	-20.0%	47.1%	-3.1%	-9.9%	32.8%
Jun	-4.2%	5.8%	-3.8%	-4.2%	-11.6%	33.5%	-3.3%	-10.2%	33.0%
Jul	-2.0%	9.0%	-2.0%	-3.1%	-1.6%	20.6%	-3.3%	-9.0%	31.0%
Aug	7.0%	9.0%	8.7%	-4.9%	-0.3%	21.5%	-3.5%	-7.8%	29.7%
Sep	-2.9%	1.7%	-2.3%	-3.7%	5.0%	19.4%	-3.4%	-6.3%	28.2%
Oct	-4.1%	-1.0%		-6.9%	7.6%		-3.7%	-4.9%	
Nov	9.8%	11.4%		-3.4%	9.1%		-3.7%	-3.6%	
Dec	-11.2%	-7.7%		-0.1%	13.4%		-3.8%	-2.2%	

Billings - YOY and YTD



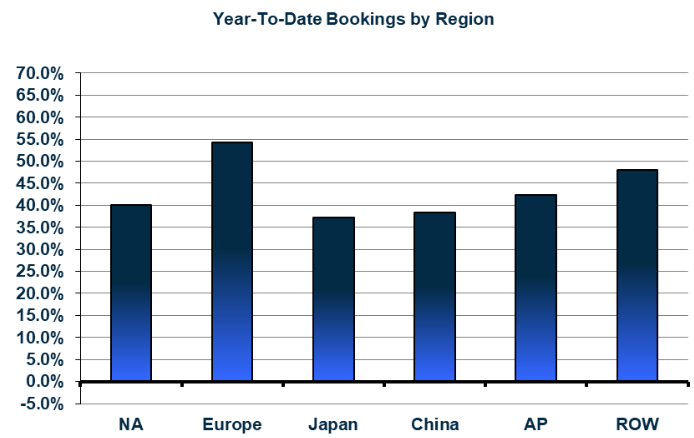
	A 20	M 20	J 20	J 20	A 20	S 20	O 20	N 20	D 20	J 21	F 21	M 21	A 21	M 21	J 21	J 21	A 21	S 21
YOY	-19.9	-20.0	-11.6	-1.6	-0.3	5.0	7.6	9.1	13.4	19.0	26.7	25.5	49.5	47.1	33.5	20.6	21.5	19.4
YTD	-7.2	-9.9	-10.2	-9.0	-7.8	-6.3	-4.9	-3.6	-2.2	19.0	22.9	23.8	29.4	32.8	33.0	31.0	29.7	28.2

- September billings grew +19.4% YOY.
- Billings are up +28.2% for the year.
- Sequentially billings decreased -2.3%.
- 3Q21 sales were up +20.0% YOY.

Regional Performance: BOOKINGS

September 2021 Bookings

Region	Sequential	YOY	YTD
NA	-15.1%	28.0%	40.1%
Europe	-13.9%	14.5%	54.3%
Japan	-4.9%	20.4%	37.2%
China	-13.8%	15.5%	38.4%
AP	-5.3%	20.0%	42.3%
ROW	19.8%	18.9%	48.0%
Total	-11.9%	19.1%	43.7%

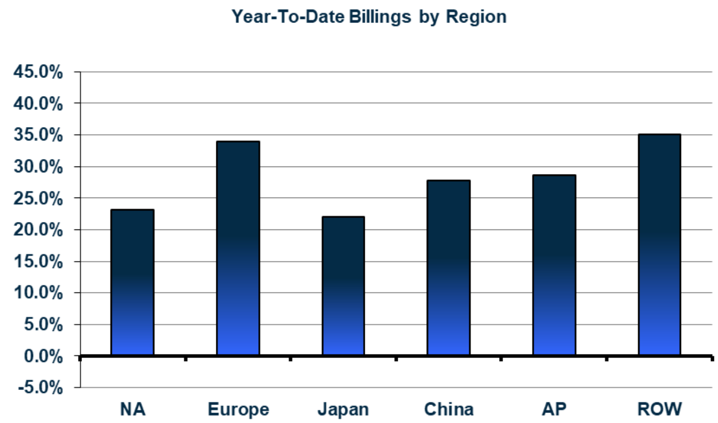


- September bookings increased +19.1% YOY and increased +43.7% YTD.
- Year-over-year, all regions experienced double-digit growth.
- Year-over-year comparisons through September have been relatively easy because COVID-19 was still impacting orders at this time last year. Bookings will continue to grow, but the rate of growth will slow significantly in the fourth quarter.

Regional Performance: BILLINGS

September 2021 Billings

Region	Sequential	YOY	YTD
NA	-5.3%	21.1%	23.2%
Europe	-1.8%	17.6%	34.0%
Japan	-3.4%	20.4%	22.0%
China	0.9%	17.6%	27.8%
AP	-3.1%	21.4%	28.7%
ROW	-4.3%	28.6%	35.0%
Total	-2.3%	19.4%	28.2%



- September connector sales growth was +19.4% YOY as demand for electronic products remains strong.
- Year-over-year, all regions experienced double-digit growth, with ROW growing at the quickest pace of any region at +28.6%, followed by Asia Pacific.
- Sequentially, sales decreased in all regions except China.
- The fourth quarters sales will face the challenge of harder comparisons as the connector industry rebounded strongly in the fourth quarter of 2020. We are already seeing this impact.

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.

	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21
Bookings	-27.3	-27.0	-6.3	-0.8	1.9	3.5	5.9	1.9	15.5	15.0	22.1	32.1	89.5	67.0	50.5	42.4	35.5	28.0
Billings	-22.3	-22.7	-6.8	-1.2	1.9	6.0	6.8	4.6	7.3	13.2	13.0	19.4	52.7	50.1	27.2	13.4	18.2	21.1
Billing SEQ	-23.2	9.8	14.5	7.4	10.6	-3.9	-2.4	4.9	-5.7	-2.1	14.9	-1.7	0.4	8.2	23.7	-1.2	14.9	-5.3
BTB	0.99	1.01	0.97	0.93	0.99	0.93	1.01	1.01	1.10	1.14	1.18	1.18	1.23	1.13	1.18	1.16	1.13	1.01

North America Performance

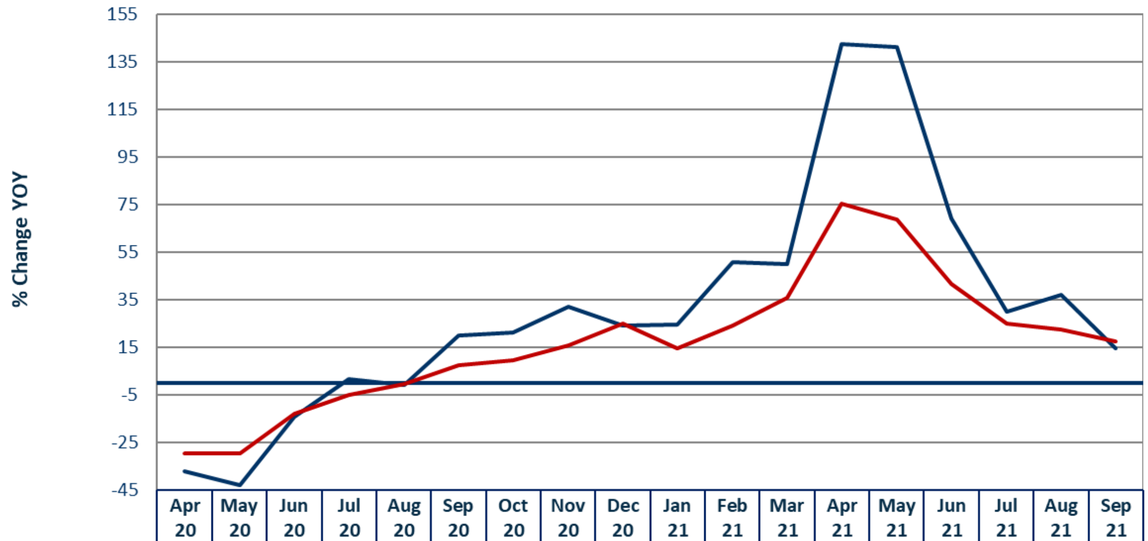
- Sales grew +21.1% and orders were up +28.0% YOY in September. North American billings were down sequentially -5.3%. The book-to-bill remained strong at 1.01.
- 3Q21 GDP expanded 2% from Q2, well below market estimates of 2.7% and slowing significantly from Q2 which grew 6.7%. GDP grew 4.9% YOY.
- Industrial production decreased 4.6% YOY in September.
- Manufacturing PMI fell to 59.2 in October from 60.7 in September.
- US unemployment fell to 4.8% in September, the lowest rate since March 2020.
- Retail sales were up 13.9% YOY in September.
- New home sales grew 14% in September to a six-month high.
- The annual inflation rate in the US in September edged up slightly to 5.4%, a 13 year high. According to the CPI data, the price increases occurred mainly for the cost of shelter, food, new vehicles, and energy.
- US automotive sales in September were down 6.3% from August and down 24.9% YOY.

Conclusions

The US economy slowed in Q3. Higher prices, supply chain issues, and resurging COVID-19 are part of the headwinds. The market for new vehicles slowed due to the lack of semiconductors required to manufacture them. These issues will negatively impact the connector industry in Q4.

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



	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21
Bookings	-37.0	-43.0	-14.3	1.7	-1.0	19.7	21.0	32.1	24.1	24.5	50.8	49.9	142.2	141.2	69.2	29.9	36.8	14.5
Billings	-29.5	-29.7	-13.0	-5.0	-0.4	7.5	9.3	15.7	24.8	14.6	24.1	35.6	75.4	68.7	41.4	25.0	22.5	17.6
Billing SEQ	-29.2	14.3	8.0	11.2	11.2	3.4	-0.2	16.4	-15.8	1.6	24.7	-3.6	-5.3	10.3	45.7	-5.5	8.6	-1.8
BTB	0.88	0.85	0.97	1.09	1.00	1.00	1.06	1.13	1.13	1.18	1.28	1.20	1.23	1.22	1.13	1.14	1.12	0.98

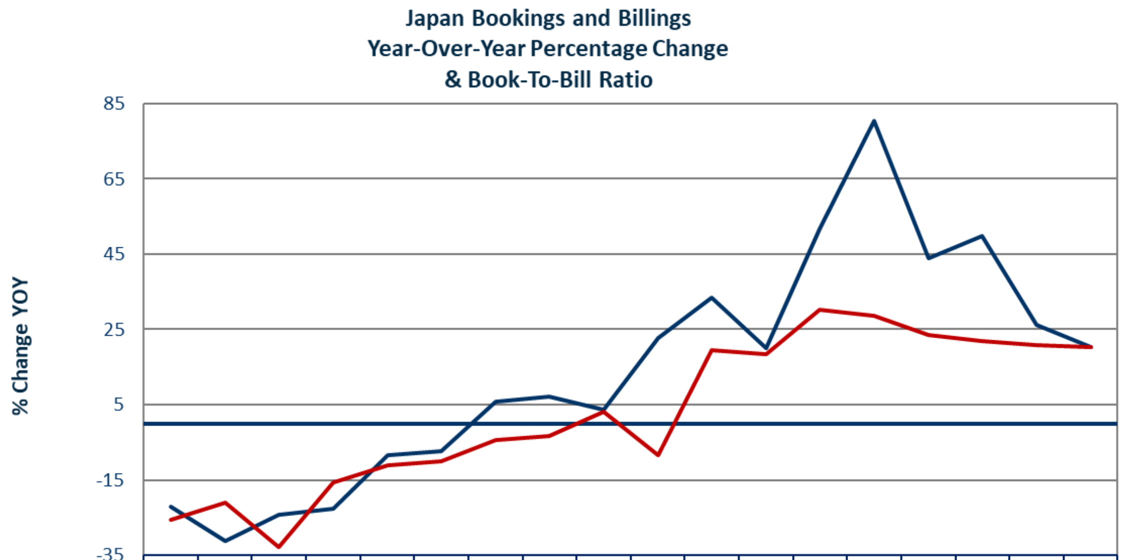
Europe Performance

- YOY billings grew +17.6%, the 13th consecutive positive reading. Orders were up +14.5%, and the book-to-bill ratio was to 0.98. Sequentially, sales were down -1.8%.
- Euro area industrial production increased 5.1% YOY in August.
- The October manufacturing PMI decreased to 58.5 from 58.6 in September.
- August retail sales increased 3.1% YOY and increased 0.3% sequentially.
- Euro area new car registrations were down 25.2% in September YOY.
- Business confidence fell to 1.72 in September from 1.74 in August.

Conclusions

European new car registrations were down significantly again in September as a result of the semiconductor shortages. Automotive is the largest connector market in Europe. The connector industry appears to be performing better than the overall economies, but the ongoing shortages will likely mute results in Q4.

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.



	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21
Bookings	-22.0	-31.2	-24.2	-22.6	-8.5	-7.3	5.9	7.1	3.6	22.6	33.5	20.1	51.6	80.4	43.9	49.7	26.3	20.4
Billings	-25.7	-21.0	-32.8	-15.6	-11.2	-10.1	-4.5	-3.2	3.1	-8.5	19.6	18.5	30.3	28.7	23.6	21.8	20.8	20.4
Billing SEQ	-25.7	1.8	2.4	7.5	10.2	5.7	-5.1	12.4	-1.2	16.9	17.9	-4.3	-2.8	0.3	28.6	1.0	5.4	-3.4
BTB	1.04	0.87	0.97	0.93	1.02	1.00	1.10	1.11	1.10	1.03	1.13	1.06	1.22	1.23	1.10	1.17	1.10	1.08

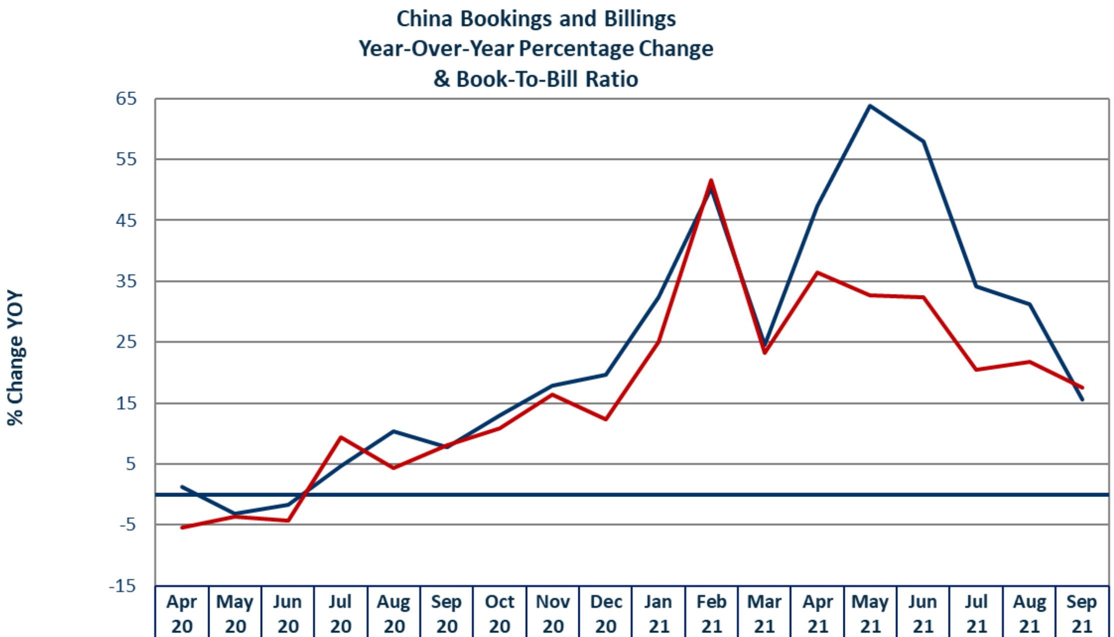
Japan Performance

- Bookings were up +20.4% in September. Sales also increased +20.4%. Sequentially, sales declined -3.4%. Japan's book-to-bill ratio was 1.08.
- Industrial production increased 8.8% YOY in August.
- August retail sales were down 3.2% YOY.
- The unemployment rate remained at 2.8% in August.
- Exports increased 13.0% YOY in September. Exports to the US rose shrank 3.3%. Exports of semiconductor machinery was up 26.2%.
- The October manufacturing PMI increased to 53.0 from 51.5 in September.

Conclusions

The ongoing weakness of Japan's economy will weigh down their connector industry results. The lack of semiconductors is holding back growth in their automotive industry sales. Their booking and sales performance, in the last eight months, primarily reflects easy comparisons to the poor results in 2020.

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.



	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21
Bookings	1.3	-3.2	-1.7	4.7	10.3	7.7	13.0	17.8	19.6	32.3	50.2	24.5	47.3	63.8	58.0	34.2	31.1	15.5
Billings	-5.5	-3.6	-4.3	9.4	4.3	8.1	10.9	16.4	12.3	25.0	51.6	23.3	36.5	32.7	32.3	20.4	21.7	17.6
Billing SEQ	-12.2	7.6	0.3	5.2	5.6	4.8	0.0	12.0	-4.2	-3.2	3.1	2.0	-0.4	4.2	28.6	0.3	5.6	0.9
BTB	1.10	0.97	0.92	0.99	1.09	1.02	1.05	1.10	1.05	1.14	1.12	1.11	1.19	1.21	1.14	1.12	1.18	1.00

China Performance

- Sales and orders, year-over-year, increased +17.6% and +15.5%, respectively. The BTB was 1.00. Sequentially, sales increased +0.9%.
- 3Q21 GDP grew 4.9% YOY and 0.2% sequentially. Growth was hampered by electric power shortages, supply chain bottlenecks, concerns over the property sector, and COVID-19 outbreaks.
- Industrial production increased 3.1% YOY in September, the seventh consecutive month of slowing down.
- China's manufacturing PMI rose to 50.0 in September from 49.2 in August.
- Retail sales rose to 4.4% YOY in September.
- China's auto sales were down 20.0% YOY in September for the fifth consecutive month of declines.
- Exports from China were up 28.1% YOY in September to a record $305.7 billion.

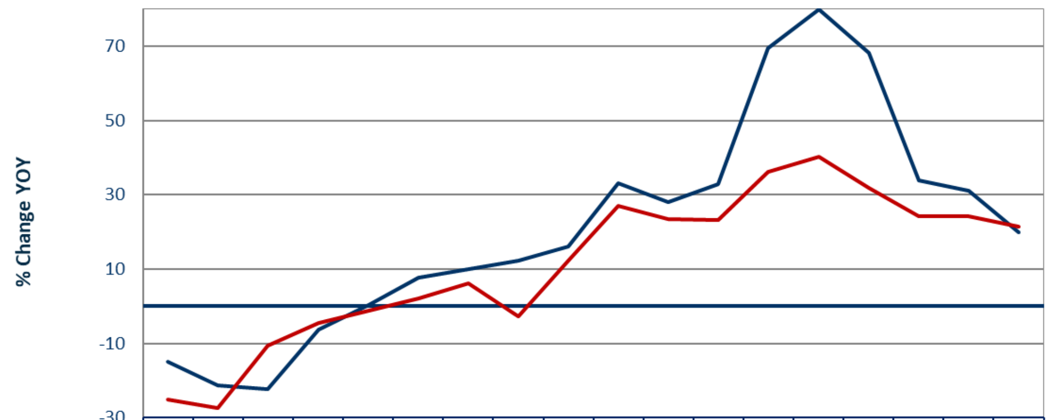
Conclusions

China's industrial production and retail sales continue to slow. Their economy, though still growing YOY, is slowing on a quarter-to-quarter basis.

For the last 12 months, China has posted double-digit year-over-year growth in both connectors sales and orders. This growth has allowed China to continue to take connector market share from other regions of the world.

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

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



	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21
Bookings	-15.0	-21.3	-22.4	-6.4	0.3	7.8	9.9	12.3	16.1	33.2	28.1	32.8	69.4	80.0	68.3	33.9	31.1	20.0
Billings	-25.2	-27.3	-10.6	-4.5	-1.2	2.1	6.1	-2.6	12.2	27.1	23.5	23.2	36.1	40.3	31.8	24.3	24.3	21.4
Billing SEQ	-13.7	3.0	-2.3	14.8	7.0	1.7	0.5	11.8	-3.4	-0.5	2.0	0.7	5.6	5.7	40.6	-2.6	4.4	-3.1
BTB	0.98	0.96	0.91	1.01	1.01	1.05	1.07	1.09	1.08	1.14	1.17	1.24	1.23	1.24	1.09	1.09	1.09	1.06

Asia Pacific Performance

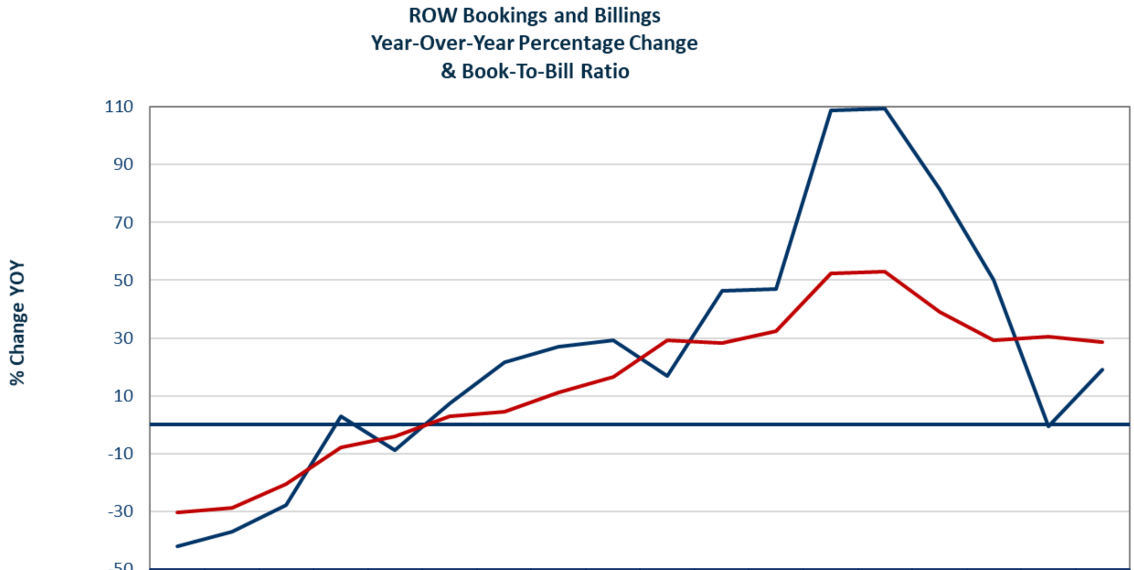
- Orders were up +20.0% in September and sales rose +21.4% YOY. The book-to-bill ratio was 1.06. Sequentially, sales decreased +3.1%.
- India's industrial production grew 11.9% YOY in August. Exports were up 22.6% YOY in September. The manufacturing PMI rose to 53.7 in September from 52.3 in August. Inflation in September was 4.4%.
- South Korea's 3Q21 GDP grew 4% YOY and 0.3% sequentially. Industrial production grew 9.6% YOY in August. Exports increased 16.7% YOY in September. Exports to the US and China were up 14.5% and 16.3%, respectively. Exports of chips rose 28.2%.

Conclusions

In spite of a recent surge in COVID-19 cases, industrial production and exports in India continue to increase. South Korea's GDP continues to grow sequentially. Their connector sales also have a positive outlook with a strong economy.

From the Wall Street Journal, "The recent surge in Covid-19 cases in Southeast Asia has throttled ports and locked down plantations and processors, sparking extended disruptions of raw materials such as palm oil, coffee, and tin."

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.



	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21	Jul 21	Aug 21	Sep 21
Bookings	-42.1	-37.1	-27.7	3.0	-8.8	7.4	21.7	27.1	29.1	17.0	46.5	47.1	108.7	109.6	81.6	50.2	-0.6	18.9
Billings	-30.5	-28.9	-20.5	-7.8	-4.1	2.8	4.5	11.1	16.4	29.3	28.2	32.3	52.5	53.1	38.9	29.1	30.6	28.6
Billing SEQ	-25.0	10.9	6.3	19.1	10.8	2.4	-0.9	10.5	-5.9	0.0	12.3	-2.4	-4.0	12.2	41.5	-0.5	10.9	-4.3
BTB	0.86	0.88	0.96	1.10	0.98	0.98	1.09	1.15	1.16	1.09	1.33	1.20	1.17	1.20	1.23	1.29	0.74	0.93

Rest of World Performance

- Orders and sales increased +18.9% and +28.6% YOY, respectively, in September. Sequentially, sales in the region decreased -4.3%. The book-to-bill ratio was 0.93.
- Brazil's industrial production decreased 0.7% YOY in August. The inflation rate rose to 10.25% in September accelerating for the 16th consecutive month. The manufacturing PMI increased to 54.4 in September from 53.6 in the prior month.
- Russia's industrial production increased 4.7% YOY in August. Exports decreased 9.2% sequentially in August. The inflation rate increased to 7.4% YOY in September. The unemployment rate declined to 4.4% in August from 4.5% in July.

Conclusions

Both Brazil and Russia continue to have growth in their connector industries, which are outperforming their national economies. Both countries will achieve connector industry growth in 2021.

Through August, ROW connector industry sales have shown double-digit growth. After a negative August, it appears they are back on course.

Industry Outlook – 2021

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

- We are in the middle of a global pandemic.
- Inflation is increasing.
- World GDPs are slowing, particularly in the two largest economies (China and the US).
- We have a semiconductor shortage that is predicted to last through most of 2022.
- We have a global supply chain backlog.
- There is a shortage of oil and gas in the US.
- China has launched a supersonic missile and is threatening Taiwan.
- North Korea is once again launching missiles.
- Iran is ramping up its nuclear program.
- Afganistan is being led by the Taliban, an organization that is notorious for cruelty and aggression.

Into this environment, connector sales are up +28.2% through September 2021 and we are projecting fourth quarter sales growth of +13.4%. As a result, we forecast full year sales of $77,841 million, up +24.1%. An astonishing achievement for the industry!

However, using historical sales data, year-to-date September has averaged 74.59% of full year sales (average of 13 years between 2008 and 2020). With this data, 2021 sales could be projected at $78,041 million, up +24.4%.

YTD September Sales	$58,211
Historical % of Sales	74.6%
2021 Sales Forecast	$78,041
2020 Actual Sales	$62,727
Sales Increase	$15,314
% Change	24.4%

$ Millions

Our forecast is +24.1% and the historical average is +24.4%. It is encouraging that these numbers are close!

3Q21 Connector Industry Results

Industry sales increased +20.7% YOY in 3Q21 to $20,150 million. This is a record sales amount for the industry in a single quarter.

The following table shows industry sales by quarter for 2019, 2020, and 2021, actual and forecast. Our full year 2021 forecast is $77,841 million, up +24.1% from prior year. Considering current demand, this forecast is more in line with the results we have seen in the first three quarters.

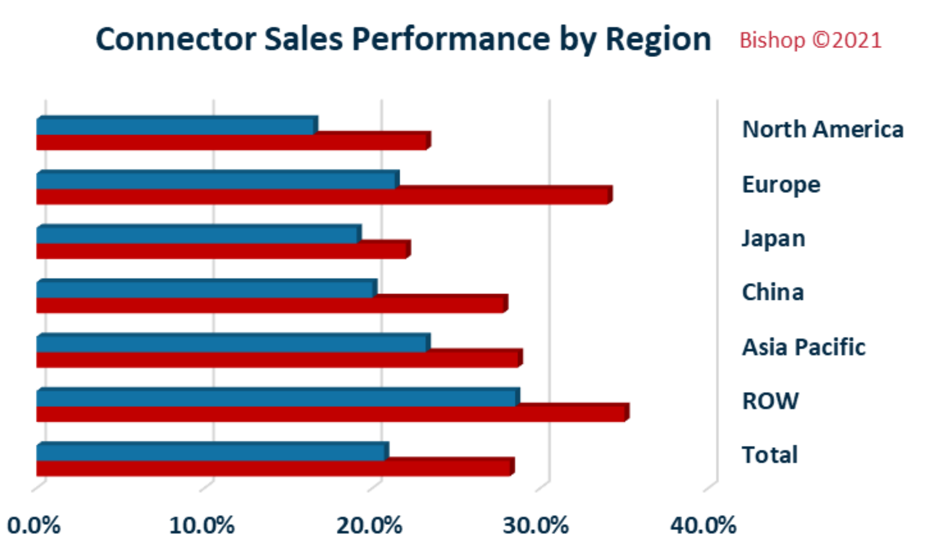
Connector Industry Quarterly Sales Results/Forecast

2019, 2020, and 2021

Quarter	2019 Actual	2020 Actual	YOY Change	2021 Forecast	YOY Change
1Q	$15,890	$15,397	-3.1%	$19,061	23.8%
2Q	$16,097	$13,333	-17.2%	$19,000	42.5%
3Q	$16,475	$16,689	1.3%	$20,150	20.7%
4Q	$15,707	$17,308	10.2%	$19,630	13.4%
Total	$64,169	$62,727	-2.2%	$77,841	24.1%

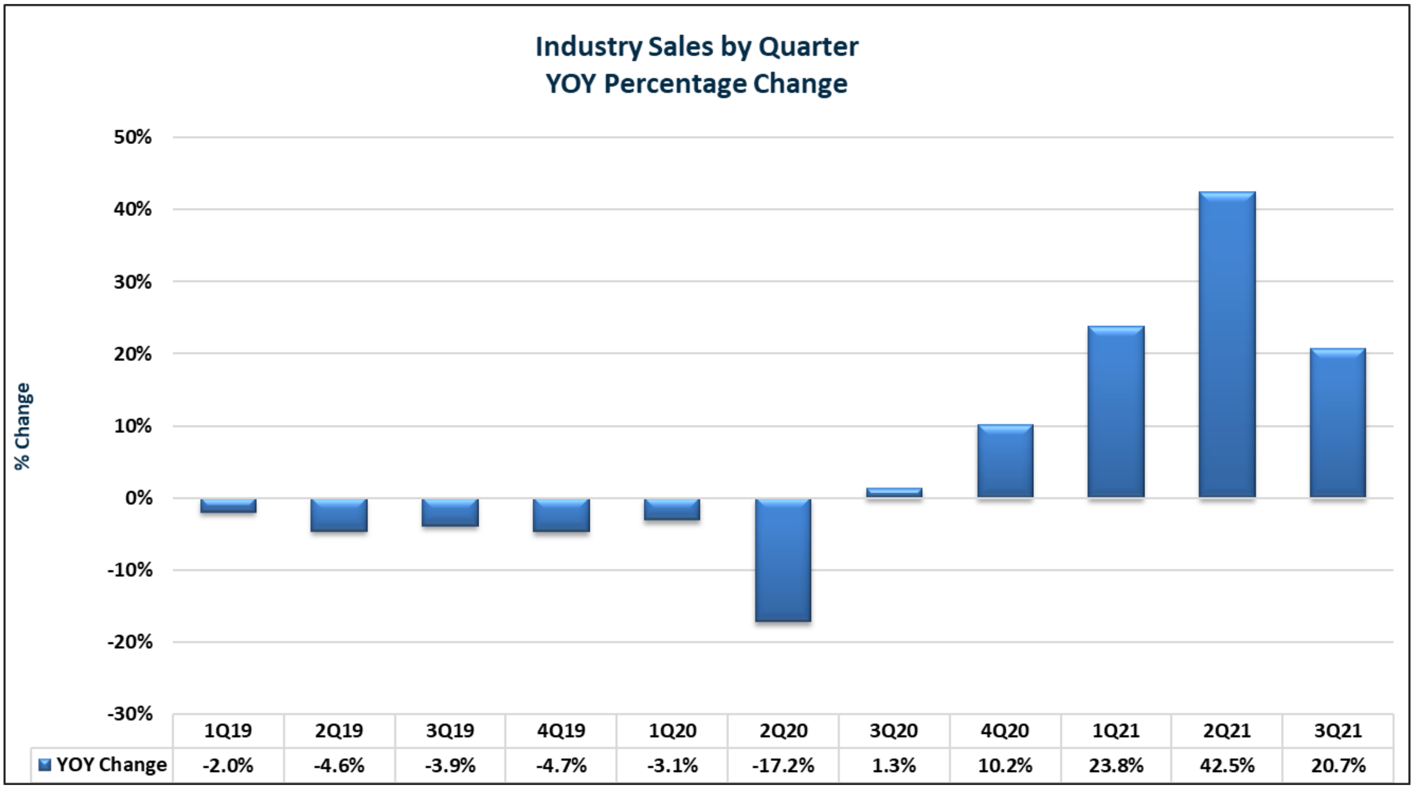
$ Million, Bishop ©2021 Red=Forecast

Sales growth by region in the first three quarters and YTD of 2021 can be seen in the following chart.



	Total	ROW	Asia Pacific	China	Japan	Europe	North America
3Q21 YOY	20.7%	28.5%	23.2%	20.0%	19.1%	21.3%	16.5%
YTD	28.2%	35.0%	28.7%	27.8%	22.0%	34.0%	23.2%

Connector industry sales growth can be seen in the following chart by quarter. In this last contraction, the industry contracted for seven consecutive quarters. Prior to that, the industry achieved eleven consecutive quarters of growth. We have now achieved five consequtive quarters of growth.



2021 YTD Currency Impact on Regional Industry Growth

The dollar has been weakening against the euro, the yen, and the yuan. The following table measures the impact for September 2020 versus September 2021 and shows results for these three currencies.

Local Currency to One USD
September 2020 versus September 2021

Currency	2020	2021	% Change
Euro	0.8479	0.8490	0.1%
Yuan	6.8159	6.4578	-5.3%
Yen	105.6332	110.1140	4.2%

Europe, China, and Japan account for approximately 60% of world connector sales. Currency fluctuation to the US dollar can have a significant impact on our reporting of sales performance in US dollars.

The following table shows September year-over-year sales performance by region in US dollars and local currencies.

Industry Sales Performance
September 2021
USD-vs-Local Currencies

Region	U.S.$	Local Currency
North America	23.2%	23.2%
Europe	34.0%	33.9%
Japan	22.0%	16.9%
China	27.8%	34.6%
Asia Pacific	28.7%	28.7%
ROW	35.0%	35.0%
World	**28.2%**	**29.6%**

World connector sales are 1.4 percentage points higher when stated in local currencies rather than in US dollars, putting industry performance at +29.6% in September. (versus +28.2% in US dollars). This is the result of the continued weakness of the US dollar compared to these currencies.

Significant Events

PEI Genesis Celebrates 75 Years in Business

PEI-Genesis is celebrating 75 years in business. The business started with two best friends, Murray Fisher and Bernie Bernbaum, repairing radios by buying surplus vacuum tubes and test equipment from the U.S. Army after WWII. At its beginning, the company stored inventory in rented garages in Philadelphia. Today it's a global leader in the design and assembly of custom interconnect solutions, supplying harsh environment sectors such as military, medical, aerospace, transportation, and industrial. With over $80m in inventory, PEI-Genesis boasts one of the largest component inventories of connectors in the world, and over 70% of the company's connectors are assembled to order.

PEI-Genesis to sell FilConn to Hermetic Solutions GroupPEI-Genesis announces that the company has signed a definitive agreement to sell FilConn based in Chandler, Arizona to Hermetic Solutions Group (HSG). PEI-Genesis first acquired FilConn back in 2016 with the aim to better serve customers' needs for low volume, quick turn, custom connectors. With the sale of FilConn, PEI-Genesis will focus on its value-added assembly capabilities. HSG is a provider of highly engineered performance and protection solutions for mission-critical microelectronics.

HEICO Acquires 80.1% of RH Laboratories Inc.

HEICO Corporation's Electronic Technologies Group acquired 80.1% of the stock of Nashua, New Hampshire-based RH Laboratories Inc. (RH). RH, now in its 20th year in business, is a designer and manufacturer of state-of-the-art RF and microwave integrated assemblies, sub-assemblies, and components used in harsh environment defense applications, including space. Its products, which include multifunction assemblies, solid state control components, and receiver products, are most frequently found on electronic warfare, radar, and missile systems. RH's customers include major defense prime contractors, the U.S. government, and other defense customers. RH employs 45 people at its 21,000 square foot Nashua engineering and production facility. HEICO Corporation is engaged primarily in the design, production, servicing, and distribution of products and services to segments of the aviation, defense, space, medical, telecommunications, and electronics industries through its Hollywood, Florida-based Flight Support Group and its Miami, Florida-based Electronic Technologies Group. HEICO's customers include most of the world's airlines and overhaul shops, as well as numerous defense and space contractors and military agencies worldwide.

ECIA Reports Stabilization of Growth

ECIA released its Industry Sentiment Update for September. The latest results from the Electronic Component Sales Trend (ECST) surveys for September and Q3 2021 point to an apparent stabilization of growth in recent months following wide swings in growth expectations over the past 20 months. The index average for growth expectations for overall components ranged between 120.0 and 127.0 between September and the October outlook. Similarly, expectations for overall end-market growth fell within a range of 111.4 and 115.4 in the same period. By comparison, the overall component index fell from 157.7 to 127.0 between March and August 2021 with the end-market index following a similar profile.

ISA Recognizes Jack Nehlig, President of Phoenix Contact USA

The International Society of Automation (ISA) recognized Jack Nehlig, president of Phoenix Contact USA, with its 2021 "Excellence in Leadership" award for his significant contributions to advancing automation. Nehlig was nominated for the award by Brad S. Carlberg, president of the ISA Richland Section in Richland, Washington. After Phoenix Contact donated PLCnext Technology software and hardware to Washington State University, his alma mater, Carlberg learned more about this open industrial automation platform. In his nomination, Carlberg praised Nehlig "for working with the Open Process Automation Forum (OPAF) and driving the development of an open PLC, providing high-performance interfaces to process I/O, and supporting virtually any software development environment and programming language, offering a concrete step on the road to open automation systems and the future of industrial automation."

Southwest Microwave Announced Two Promotions

Southwest Microwave, Inc. announced the appointment of Mr. Don Bradfield as President effective immediately. Based at the company's Tempe, Arizona headquarters, Mr. Bradfield will oversee domestic and international operations of the Security Systems and Microwave Products Divisions, including Southwest Microwave, Ltd., located in Worcestershire, United Kingdom. In his previous role as General Manager of the company's Microwave Products Division, Mr. Bradfield expanded the manufacturing operation, introduced a range of new high-frequency connectors for specialized aerospace and military applications, and oversaw NIST and ITAR compliance initiatives. Mr. Bradfield joined Southwest Microwave in January 2014. He has more than 30 years of design engineering and operations management experience in the RF / microwave / mmWave products industry. His previous positions include Vice President of Operations at L-3 Communications / Narda Microwave West; Director of Technology at Crane Electronics; and Director of Operations, Manufacturing Engineering Manager, and Design Engineer at Herley Industries.

Southwest Microwave, Inc announced the promotion of Mr. Holger Stuehrmann to General Manager. Stuehrmann succeeds Mr. Don Bradfield, who was recently promoted to President of Southwest Microwave, Inc. Mr. Stuehrmann joined the Microwave Products Division in 2014 as Director of Sales, managing worldwide sales and business development activities. He has 30 years of experience in new product development and operational performance improvement in RF / mmWave solutions for defense, space, and commercial sectors. His previous experience includes Director of Business Development and Sales and Business Manager, Microwave Components at STC Microwave Systems, a division of Crane Aerospace and Electronics. He also spent 11 years with Paris-based TEMEX Components, first as Vice President, Sales and Marketing, then as Vice President of Operations, North America.

Car Makers Reap What's Sown During Chip Shortage

Despite optimistic predictions that auto makers have seen the worst of ongoing semiconductor shortages, sources closer to the technology supply chain maintain things will get worse before they get any better. Industry consultant Semiconductor Intelligence downplayed auto industry assertions about the second quarter representing the "trough" of IC supply chain disruptions. Citing a growing list of auto production cutbacks stemming from the chip shortage, the market tracker countered in recent weeks that "the shortage of semiconductors for automotive applications is getting worse." It cited production cuts at Ford, GM, Hyundai, Toyota, the merged Fiat-Chrysler-Peugeot group called Stellantis and Volkswagen. The only bit of good news was a recent forecast by Daimler AG that it expects semiconductor supplies to improve during the fourth quarter. Still, ongoing shortages will slow production next year, with a recovery not expected until 2023. (eetimes.com)

Apple Set to Slash iPhone Production

Apple Inc is likely to slash its projected iPhone 13 production targets for this year by as many as 10 million units as prolonged chip shortages hit its flagship product. The company had expected to produce 90 million new iPhone models in the final three months of this year, but it is now telling manufacturing partners that the total would be lower because Broadcom Inc and Texas Instruments Inc are struggling to deliver enough components. There are signs the chip crunch is getting worse. Lead times in the industry rose for the ninth consecutive month to an average of 21.7 weeks last month, according to Susquehanna Financial Group. Separately, a protracted energy crisis in China could add to Apple's headaches. Apple supplier TPK Holding Co said that its subsidiaries in Fujian Province are modifying their production schedule due to local government power restrictions. (taipeitimes.com)

Global PC Shipment Growth Drops as Supply Fails to Meet Demand

After five quarters of double-digit gains, the PC market grew by just 5% last quarter as vendors struggled to fulfill an order backlog. Global PC shipments scored another gain last quarter, but growth was on the weak side compared with the past several quarters. Research firm Canalys pegged third-quarter shipments at 84.1 million, a gain of just 5% from the same quarter in 2020. That represented a downturn from the 13% growth seen a year ago and a return to single-digit gains following five quarters of healthier results. Shipments of notebooks and mobile workstations took the biggest hit, growing just 3% from a year ago to reach 68.4 million. Shipments of desktops and desktop workstations were in better shape, rising by 12% to 16.6 million. Despite the drop in growth, PC volumes are still at a high level thanks to how well the market did in the third quarter of 2020. The overall industry has seen a healthy two-year compound annual growth rate of 9% from the third quarter of 2019.

Gartner Says Worldwide PC Shipments Grew 1% in Third Quarter of 2021

Worldwide PC shipments totaled 84.1 million units in the third quarter of 2021, an increase of 1% from the third quarter of 2020, according to preliminary results by Gartner, Inc. As COVID-19 vaccines become more widely available, consumer and educational spending began to shift away from PCs to other priorities, slowing momentum in the market. (gartner.com)

Consumer Electronics Industry Growing in India

Fueled by strong policy support, huge investments by public and private stakeholders, and a spike in demand for electronic products, the ESDM sector in India is predicted to reach US$ 220 billion by 2025, expanding at 16.1% CAGR between 2019 and 2025. The high internet penetration rate and India's position as the second-largest smartphone manufacturer worldwide boosted the penetration of electronic products, which in turn is driving the ESDM market. The government intends to incentivize and attract investments to set up semiconductor FABs (fabrication plants) in India. More than 90% of semiconductor companies globally have their R&D centers in India. The government has made electronics production a vital pillar of many initiatives such as 'Make in India', 'Digital India', and 'Start-up India'. The ESDM sector holds a position of crucial importance in the government's goal of generating US$ 1 trillion of economic value from the digital economy by 2025. In India, smartphone shipments reached 150 million units and 5G smartphone shipments crossed 4 million in 2020.

GM Sets to Double Revenue and Lead US in Electric Vehicle Sales

General Motors plans to cash in as the world switches from combustion engines to battery power, promising to double its annual revenue by 2030 with an array of new electric vehicles, profitable gas-powered cars and trucks, and services such as an electronic driving system that can handle most tasks on the road. The Detroit automaker plans to have more than half of its North American and China factories be capable of making electric vehicles by 2030. GM also pledged to increase its investment in EV charging networks by nearly $750 million through 2025. GM's average annual revenue over the past five years is $140 billion, so doubling that would be about $280 billion. The company also pledged to raise pretax profit margins from the current 8% to at least 12%. By the end of the decade, GM expects $90 billion in additional annual revenue from electric vehicles, and $80 billion from connected vehicles, new businesses, autonomous ride hailing, software and subscription services, and commercial electric vehicles. Annual revenue could be as high as $315 billion, the company said.

New Car Sales Plunge in Third Quarter

New car sales plunged over the last three months in the United States despite strong demand, as the shortage of computer chips and other supply chain issues caused shutdowns at auto factories and choked off the supply of vehicles. General Motors reported sales fell a third from a year-ago last quarter, and they were off 40% from the same quarter of 2019 before the pandemic roiled the car market. Sales at Stellantis, the company formed by the merger of Fiat Chrysler and France's PSA Group, fell 19% from a year ago, and 27% from the pre-pandemic period. At Toyota Motor, which includes Toyota and Lexus, third quarter sales edged up 1.4% compared to a year ago. But that three-month total includes a 22% plunge in September sales. While Toyota has reported fewer supply chain disruptions than other major automakers it, too, has had to cut back production at some factories more recently.

Hon Hai Unveiled Three Electric Vehicle Models

Hon Hai Precision Industry Co debuted three electric vehicle (EV) prototypes at its Tech Day event at the Taipei Nangang Exhibition Center October 19. The prototypes of sports utility vehicle Model C, luxury sedan Model E and electric bus Model T were developed by Foxtron Vehicles Technologies Co, a joint venture between Hon Hai and Yulon Motor Co. The Model C and Model E are to be initially sold under the Yulon-affiliated Luxgen Motor Co and China Motor Corp brands when they hit the market, Hon Hai chairman Young Liu said. The three vehicles were built on Hon Hai’s EV open platform known as MIH. The “MIH alliance” is an open standard founded by Hon Hai with the aim of allowing Taiwanese EV component makers to cooperate with each other with the ambition to become “the Android of EVs.” It was spun off as an independent entity in July.

Bishop & Associates has just released a new three-chapter research report providing a detailed analysis of the I/O rectangular connectors market. This new report furnishes detailed statistics by region and by I/O rectangular connector type for the years 2019, 2020, 2021F, and 2026F.

Total World I/O Rectangular Connector Sales by Region 2020-2021F with Percent Change

	North America			Europe		
	2020	2021	% Chg.	2020	2021	% Chg.
D-Subminiature Connectors						
PC Board Mounted Types						
Includes Plastic and Shielded Standard and High Density Types	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Crimp Contact Types						
Includes Standard and High Density Types	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
IDC Contact Types						
Includes Plastic and Shielded Types	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Mil-DTL-24308 Types						
Includes Standard and High Density Layouts, Fixed and Crimp Contact Types	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Fixed Contact						
Includes 2-Piece Nylon and Mono-Block Insulator Types	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Filtered D-Subs	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Accessories	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Combination Layouts	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Contacts and Custom Layouts						
Includes Power, Coax, and Fiber Optic Contacts.	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Total D-Subminiature	**$XX.X**	**$XX.X**	**Y.Y%**	**$XX.X**	**$XX.X**	**Y.Y%**

$ Millions

The world I/O rectangular connector market is complex and diverse. While products developed several years ago (D-subs, ribbon connectors) are experiencing steady or rapid decline several more recently developed products are growing extremely fast. The third largest product family, connector types falling under the I/O rectangular connector banner include D-subminiatures, SFP (small form-factor pluggable) connectors, blade and tab contact connectors, rectangular power connectors including RAST type and rack and panel connectors. I/O rectangular product types also includes one of the fastest growing connectors presently offered on the market, a product type now used in every single market sector, the USB connector.

Total World Circular Connector Sales by Region and Key Product Type 2021F and 2026F with 5-Year CAGR

	Asia/Pac			ROW			TOTAL		
	2021F	2026F	5-Year CAGR	2021F	2026F	5-Year CAGR	2021F	2026F	5-Year CAGR
D-Subminiature Connectors	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Ribbon I/O, SCSI, and VHDCI Connectors	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Personal Computer and Peripheral I/O's	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Small Form-Factor Pluggable (SFP) Connectors	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
I/O Connectors With Blade or Tab Contacts	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Rectangular Industrial (Valve Connectors, ect)	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Power Connectors	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Micro and Nano Connectors	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
LIF/ZIF Rectangular I/O Connectors	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Rack & Panel	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
All Other I/O Connectors	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%	$XX.X	$XX.X	Y.Y%
Total Rectangular I/O	**$X,XXX,X**	**$X,XXX,X**	**Y.Y%**	**$X,XXX,X**	**$X,XXX,X**	**Y.Y%**	**$X,XXX,X**	**$X,XXX,X**	**Y.Y%**

$ Millions

Providing a brief description of each product type, future trends, and key manufacturers, this report provides a look at the I/O rectangular connector market from a detailed product perspective. Be prepared for future growth in this key product area, order your copy of the I/O Rectangular Connector Market.

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

Table of Contents

To Order The I/O Rectangular Connector Market 2021

Research Report P-520-21, ***The I/O Rectangular Connector Market 2021*** is available for $5,135. If you would like additional information about this report, or would like to place an order, please complete the following form, and email or mail it to Bishop & Associates, Inc. To place your order on our website: **http://store.bishopinc.com/**.

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What's New ?

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

- ☐ **Report P-520-21** **The I/O Rectangular Connector Market 2021 (October 2021) NEW**
- ☐ **Report P-430-21** **World Circular Connector Market 2021 (September 2021) NEW**
- ☐ **Report M-121-21** **2021 Top 100 Connector Manufacturers (August 2021) NEW**
- ☐ **Report C-122-21** **2021 Connector Industry Yearbook (July 2021) NEW**
- ☐ **Report M-310-21** **Instrumentation Market for Connectors (June 2021) NEW**
- ☐ **Report P-799-21** **World Cable Assembly Market (May 2021) NEW**
- ☐ **Report P-410-21** **Computer Server Market Trends and Connector Use 2020 – 2030 (May 2021) NEW**
- ☐ **Report M-607-21** **World Industrial Market for Connectors (April 2021) NEW**
- ☐ **Report M-700-21** **World Connector Market Handbook (April 2021) NEW**
- ☐ **Report F-2021-01** **Connector Industry Forecast (March 2021)**
- ☐ **Report M-510-21** **World Telecom Connector Market 2020-2025 (January 2021)**
- ☐ **Report M-1601-20** **Top 50 Medical Interconnect Solutions Companies (December 2020)**
- ☐ **Report P-675-20** **High-Speed Copper & Fiber Optic Connectors (November 2020)**
- ☐ **Report M-980-20** **5G Infrastructure – How 5G is Impacting Infrastructure Hardware and Connector Buying Trends (September 2020)**
- ☐ **Report M-1501-20** **Medical Electronics Market for Interconnect Solutions (July 2020)**
- ☐ **Report P-780-20** **World RF Coax Connector Market 2020 (June 2020)**
- ☐ **Report M-4100-20** **Non-Automotive Transportation Market for Connectors (February 2020)**

THE BISHOP REPORT AND CONNECTOR INDUSTRY YEARBOOK

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

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

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