The Bishop Report
Performance and Forecast of the World Connector Industry

Issue No. 341	2nd Quarter 2021	April 2021

March Sales Up +25.5%
1Q21 Achieves Sales Record of $19.1 Billion

Regional Performance: Worldwide year-to-date sales increased +23.8% in the first quarter of 2021.

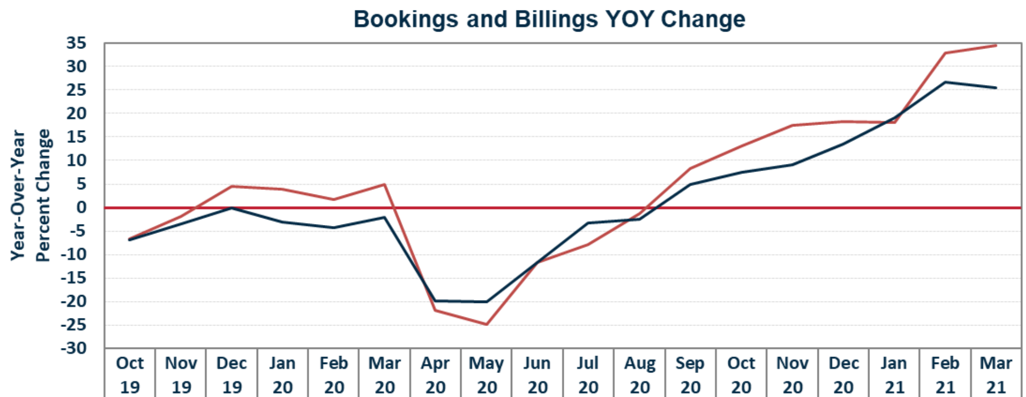
China had the greatest growth at +32.1% YTD. North America trailed the industry at +15.2%. Comparisons to prior year are quite easy in the first half of the year.

2021 Currency Impact: The dollar starts the year significantly weaker against the euro, the yen, and the yuan. The industry grew at +18.2% YOY in March in local currencies versus +23.8% in USD. Connector sales are -5.6 percentage points lower when expressed in local currencies.

1Q21 Results: The industry results for the quarter were $19.1 billion, up +23.8% YOY.

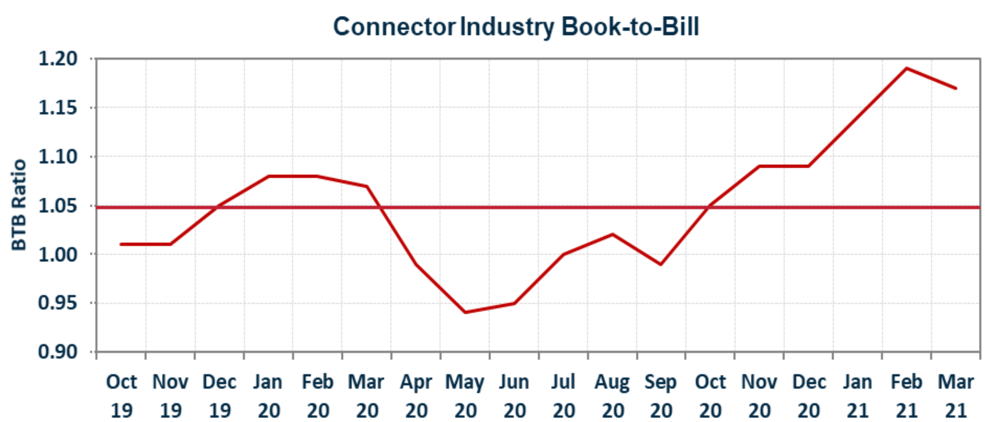
Industry Outlook: On the average over the last 13 years, first quarter results have represented 24.15% of the annual sales. This would produce growth of +21.7% in 2021, on the average.

March bookings were up +34.5% from 2020. Sales for the month were up +25.5% YOY. Sequentially, bookings and billings were down slightly from February. Year-to-date sales are up 23.8%.



	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21
Bookings	-6.6	-1.9	4.6	3.9	1.8	5.0	-21.8	-24.8	-11.6	-7.8	-1.2	8.4	13.0	17.5	18.3	18.0	32.8	34.5
Billings	-6.9	-3.4	-0.1	-3.1	-4.3	-2.0	-19.9	-20.0	-11.6	-3.3	-2.4	5.0	7.6	9.1	13.4	19.0	26.7	25.5

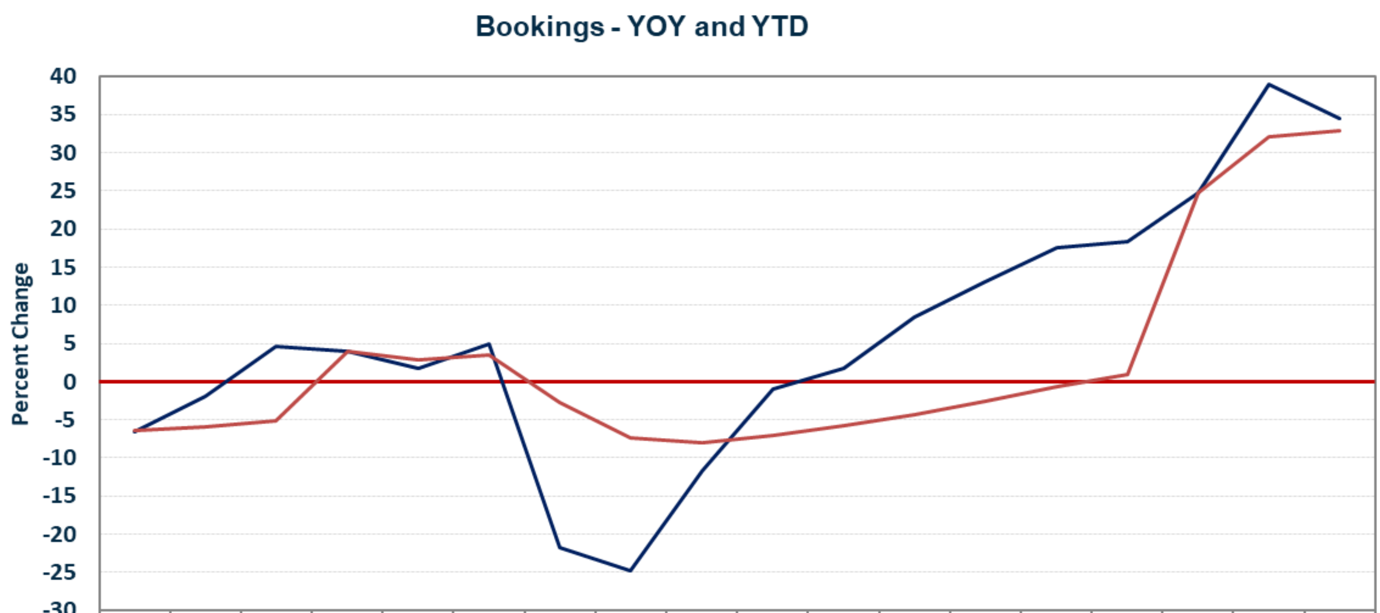
The book-to-bill ratio in March rose to 1.17 as orders continued to strengthen. YTD, the book-to-bill ratio is 1.17. The strong order growth guarantees an outstanding first half for 2021.



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%		-8.8%	-21.8%		-6.4%	-2.7%	
May	6.9%	2.9%		-7.0%	-24.8%		-6.5%	-7.3%	
Jun	-8.9%	7.0%		-9.0%	-11.6%		-6.9%	-8.0%	
Jul	2.8%	15.2%		-8.4%	-1.0%		-6.9%	-7.0%	
Aug	7.8%	10.7%		-5.2%	1.8%		-6.6%	-5.8%	
Sep	-7.1%	-0.9%		-4.3%	8.4%		-6.4%	-4.3%	
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%	



	O 19	N 19	D 19	J 20	F 20	M 20	A 20	M 20	J 20	J 20	A 20	S 20	O 20	N 20	D 20	J 21	F 21	M 21
YOY	-6.6	-1.9	4.6	3.9	1.8	5.0	-21.8	-24.8	-11.6	-1.0	1.8	8.4	13.0	17.5	18.3	24.7	38.9	34.5
YTD	-6.4	-6.0	-5.2	3.9	2.8	3.5	-2.7	-7.3	-8.0	-7.0	-5.8	-4.3	-2.6	-0.6	1.0	24.7	32.0	32.8

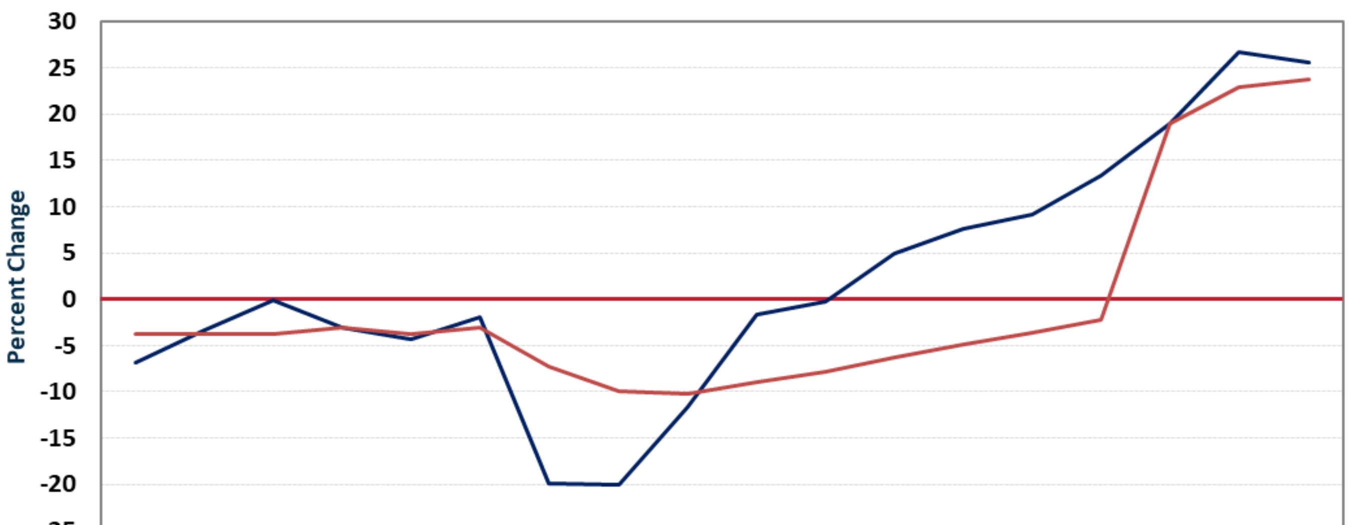
- March bookings rose +34.5% year-over-year.
- Orders decreased -1.4% sequentially.
- The book-to-bill ratio for March rose to 1.17 and 1.17 YTD.

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%		-5.4%	-19.9%		-2.8%	-7.2%	
May	9.0%	8.8%		-4.3%	-20.0%		-3.1%	-9.9%	
Jun	-4.2%	5.8%		-4.2%	-11.6%		-3.3%	-10.2%	
Jul	-2.0%	9.0%		-3.1%	-1.6%		-3.3%	-9.0%	
Aug	7.0%	9.0%		-4.9%	-0.3%		-3.5%	-7.8%	
Sep	-2.9%	1.7%		-3.7%	5.0%		-3.4%	-6.3%	
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



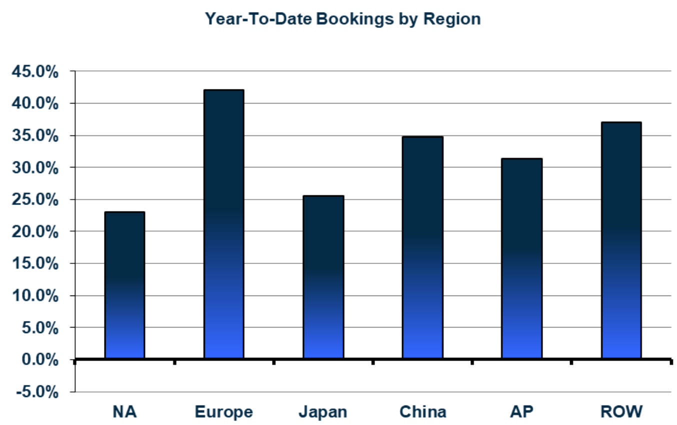
	O 19	N 19	D 19	J 20	F 20	M 20	A 20	M 20	J 20	J 20	A 20	S 20	O 20	N 20	D 20	J 21	F 21	M 21
YOY	-6.9	-3.4	-0.1	-3.1	-4.3	-2.0	-19.9	-20.0	-11.6	-1.6	-0.3	5.0	7.6	9.1	13.4	19.0	26.7	25.5
YTD	-3.7	-3.7	-3.8	-3.1	-3.7	-3.1	-7.2	-9.9	-10.2	-9.0	-7.8	-6.3	-4.9	-3.6	-2.2	19.0	22.9	23.8

- March billings grew +25.5% YOY.
- Billings are up +23.8% for the year (and first quarter).
- Sequentially billings decreased -1.1%.

Regional Performance

March 2021 Bookings

Region	Sequential	YOY	YTD
NA	-2.3%	32.1%	23.0%
Europe	-10.1%	49.9%	42.1%
Japan	-7.8%	20.1%	25.5%
China	1.9%	24.5%	34.8%
AP	6.7%	32.8%	31.3%
ROW	-12.6%	47.1%	37.0%
Total	-3.5%	34.5%	32.8%

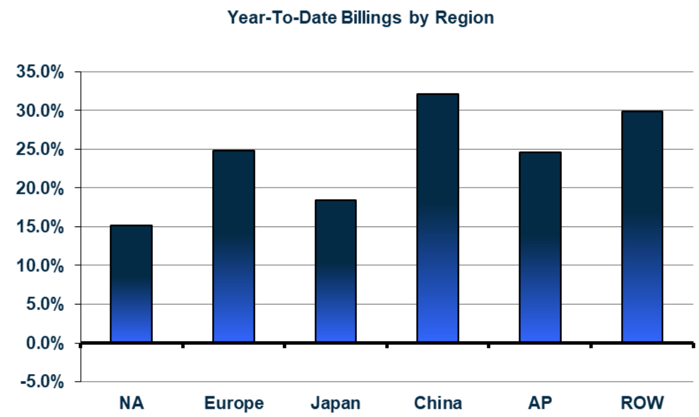


- March bookings increased +32.8% YTD. The strong bookings performance in March indicates a healthy 2Q21.
- Year-over-year, all regions experienced double-digit growth, with Europe outpacing China.
- Year-over-year comparisons are easy because COVID-19 started having a negative imapct on demand in early March 2020.
- The second quarter of 2020 experienced booking declines of -21.8%, -24.8%, and -11.6% in April, May and June ,respectively. Assuming the absense of a black swan, 2Q21 will proably set industry records for growth in new orders.

Regional Performance

March 2021 Billings

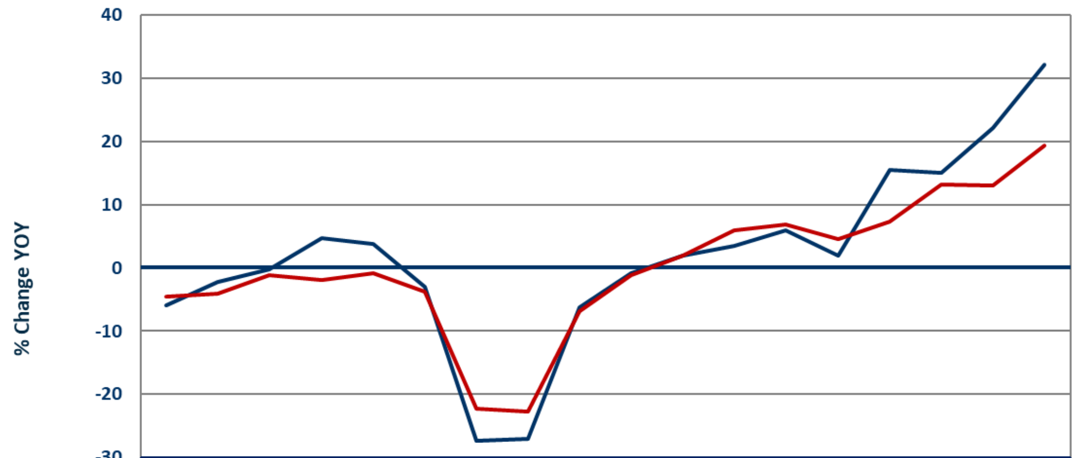
Region	Sequential	YOY	YTD
NA	-1.7%	19.4%	15.2%
Europe	-3.6%	35.6%	24.8%
Japan	-2.3%	18.5%	18.4%
China	2.0%	23.3%	32.1%
AP	0.7%	23.2%	24.6%
ROW	-2.4%	32.3%	29.9%
Total	-1.1%	25.5%	23.8%



- March connector sales growth increased +25.5% YOY as demand for electronic products accelerated.
- Year-over-year, all regions experienced double-digit growth with Europe growing the most of any region followed by ROW.
- Sequentially, sales decreased in four regions.
- While 2021 should see strong sales growth, head-winds prevail in the second quarter, especially in the automotive and telecom markets where semiconductor shortages will put downward pressure on connector sales growth.
- However, the second quarter has very easy comparisons because sales were down -19.9%, -20.0% and -11.6% in April, May and June 2020.
- Note, the worst performing region in March was Japan, with sales up +18.5%. Let that sink in, *the worst performing region had sales growth of +18.5%.*

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



	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21
Bookings	-5.9	-2.3	-0.3	4.7	3.8	-3.0	-27.3	-27.0	-6.3	-0.8	1.9	3.5	5.9	1.9	15.5	15.0	22.1	32.1
Billings	-4.6	-4.1	-1.2	-2.0	-0.9	-3.8	-22.3	-22.7	-6.8	-1.2	1.9	6.0	6.8	4.6	7.3	13.2	13.0	19.4
Seq Book	-3.1	7.1	-8.1	-4.1	13.7	-7.4	-23.2	9.8	14.5	7.4	10.6	-3.9	-2.4	4.9	-5.7	-2.1	14.5	-1.7
BTB	1.01	1.00	1.02	1.11	1.09	1.06	0.99	1.01	0.97	0.93	0.99	0.93	1.01	1.01	1.10	1.14	1.18	1.18

North America Performance

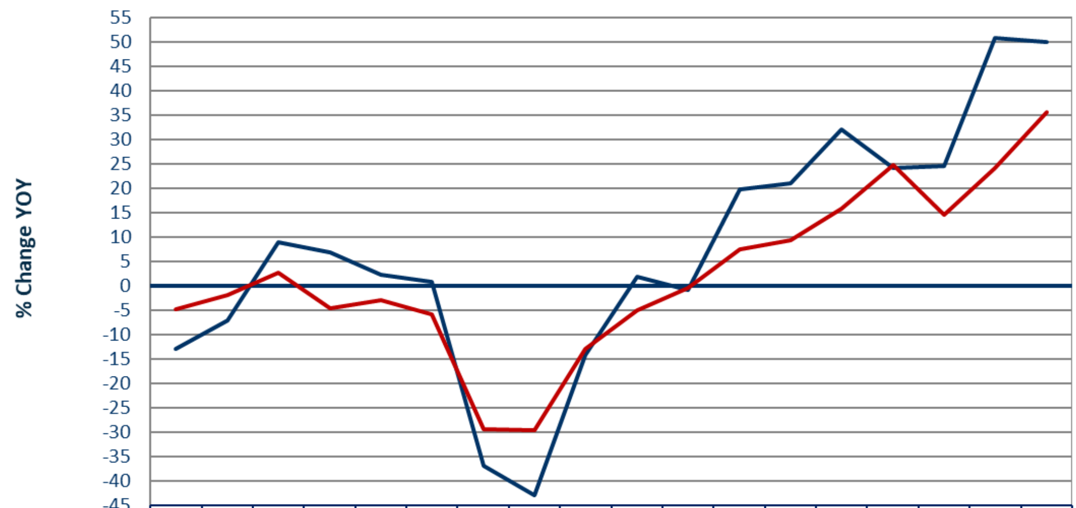
- Sales grew +19.4% and orders were up +32.1% YOY in March. North American billings were down sequentially -1.7%. Book-to-bill was strong at 1.18.
- 1Q21 US GDP grew at an annualized rate of 6.4%.
- Industrial production increased 1.0% YOY in March (the first annual increase since August 2019).
- March Manufacturing PMI was 60.6.
- US home price index in February rose 11.9% YOY, the largest jump since March 2014.
- US unemployment fell to 6.0% in March.
- Retail sales in the US increased 27.7% in March YOY.
- The annual inflation rate in the US in March increased 2.6%, the highest reading since August 2018.
- First quarter US automotive sales were up 11% YOY on strong March sales.

Conclusions

Right now, the US economy is running strong. However, the staggering amount of spending proposed by Congress and the uptick of consumer demand as people come out of the pandemic lockdown is driving inflation up (and the housing market is on fire). Initially, this will be good for the economy and the connector industry. Long-term, this debt will drag down the growth of the US economy, and the connector industry, if the funds are ill-spent.

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



	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21
Bookings	-13.	-7.2	8.8	6.7	2.2	0.7	-37.	-43.	-14.	1.7	-1.0	19.7	21.0	32.1	24.1	24.5	50.8	49.9
Billings	-4.8	-1.9	2.7	-4.6	-3.0	-5.8	-29.	-29.	-13.	-5.0	-0.4	7.5	9.3	15.7	24.8	14.6	24.1	35.6
Billins SEQ	-1.9	9.9	-22.	13.5	13.9	-11.	-29.	14.3	8.0	11.2	11.2	3.4	-0.2	16.4	-15.	1.6	24.4	-3.6
BTB	0.96	0.99	1.14	1.08	1.05	1.07	0.88	0.85	0.97	1.09	1.00	1.00	1.06	1.13	1.13	1.18	1.28	1.20

Europe Performance

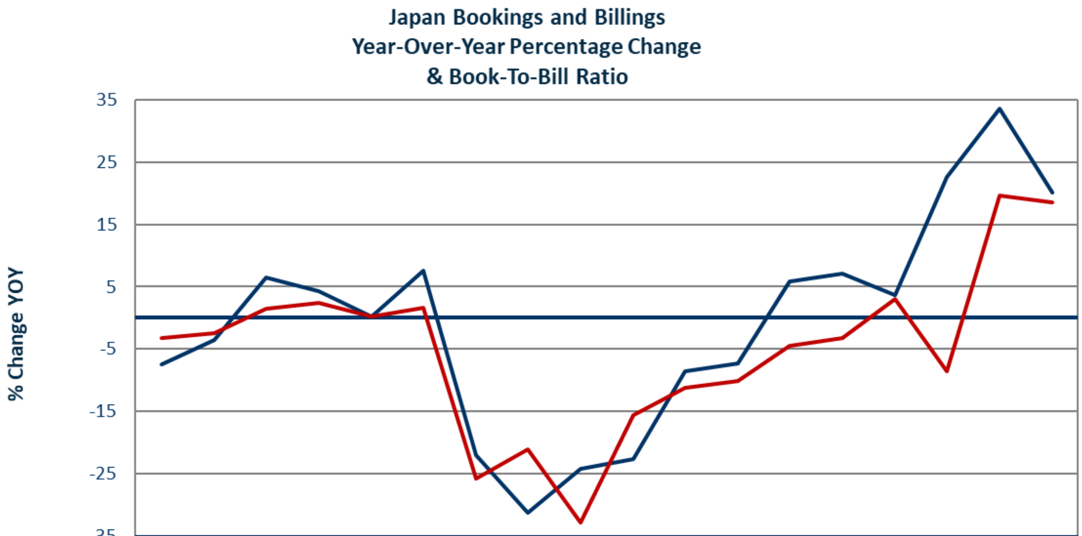
- YOY billings grew +35.6%, the seventh consecutive positive reading. Orders were up +49.9%, and the book-to-bill ratio strengthened to 1.20. Sequentially, sales were down -3.6%.
- Euro area industrial production decreased 1.6% in February YOY and is down 1% sequentially.
- At 63.3 in April, the Euro Area Manufacturing PMI set a new record.
- February retail sales decreased 2.9% YOY and increased 3% sequentially.
- Euro area new car registrations surged 87% YOY in March erasing the February decline.
- Business confidence rose to 0.3 in March, better than the -0.14 recorded the prior month.

Conclusions

The European countries are continuing to have COVID resurgences which is putting a damper on their economies. The combined GDPs contracted 6.6% in 2020. The Euro Area is the second largest economy of the world. The first quarter is expected to contract about 5% with growth in the remaining quarters of 2021. The return to growth bodes well for the connector industry.

The connector industry appears to be running stronger than the economies. Europe has had strong connector bookings and billings for the last six months due to easier comparisons. The automotive industry, Europe's largest connector market, rebounded strongly in March which is good for the connector industry.

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.



	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21
Bookings	-7.4	-3.6	6.5	4.3	0.2	7.6	-22.0	-31.2	-24.2	-22.6	-8.5	-7.3	5.9	7.1	3.6	22.6	33.5	20.1
Billings	-3.3	-2.4	1.4	2.4	0.2	1.6	-25.7	-21.0	-32.8	-15.6	-11.2	-10.1	-4.5	-3.2	3.1	-8.5	19.6	18.5
Billings SEQ	-10.7	10.8	-7.2	-6.5	12.1	-3.6	-25.7	1.8	2.4	7.5	10.2	5.7	-5.1	12.4	-1.2	16.9	17.8	-2.3
BTB	0.99	1.00	1.09	0.97	1.00	1.03	1.04	0.87	0.97	0.93	1.02	1.00	1.10	1.11	1.10	1.03	1.13	1.06

Japan Performance

- Bookings were a strong +20.1% in March. Sales increased +18.5%. Sequentially, Japan's sales were down -2.3%. Japan's book-to-bill ratio rose to 1.06.
- Industrial production decreased 1.3% from last month and declined 2% year-over-year in February.
- February retail sales fell 1.5% YOY and increased 3.1% sequentially.
- The unemployment rate remained at 2.9% in February.
- Exports jumped 16.1% YOY in March. Exports to China rose 37.2%.
- Japan's April manufacturing PMI rose to 53.3, the strongest improvement since April 2018.

Conclusions

Japan's economy is projected to contract 1% in Q1 of 2021, then grow 8.5%, 4%, and 2.6% in the remaining three quarters. This growth will boost their connector industry results.

Japan's connector industry has shown growth in booking for the last six months. Billing have grown in the last two months.

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.

	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21
Bookings	-0.2	5.8	11.5	2.0	-3.8	18.4	1.3	-3.2	-1.7	4.7	10.3	7.7	13.0	17.8	19.6	32.3	50.2	24.5
Billings	-8.9	-8.4	1.9	-0.8	-11.4	4.5	-5.5	-3.6	-4.3	9.4	4.3	8.1	10.9	16.4	12.3	25.0	51.6	23.3
Billings SEQ	-2.6	6.8	-0.7	-11.2	-15.0	25.8	-12.2	7.6	0.3	5.2	5.6	4.8	0.0	12.0	-4.2	-3.2	3.0	2.0
BTB	1.03	1.08	0.99	1.07	1.12	1.09	1.10	0.97	0.92	0.99	1.09	1.02	1.05	1.10	1.05	1.14	1.12	1.11

China Performance

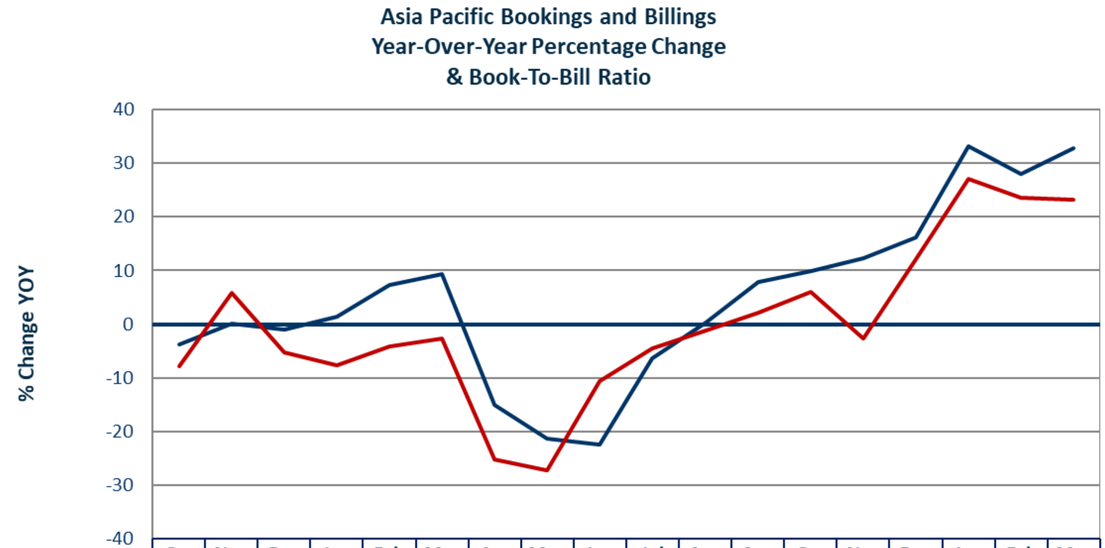
- Sales and orders, year-over-year, increased +23.3% and +24.5% respectively. The BTB was 1.11. Sequentially, sales rose +2.0%.
- GDP for 1Q21 was 18.3% due to the easy comparisons.
- Industrial production increased 14.1% YOY in March. Production growth was up double digits YOY across all major industries.
- China’s manufacturing PMI dropped to 50.6 in March, the lowest reading since April 2020.
- Retail sales grew 34.2% YOY in March, due to easy comparisons.
- China's auto sales jumped 75% in March YOY, the 12th straight monthly gain.
- Exports from China were up 30.6% YOY in March, missing market estimates of 35.5%.

Conclusions

China’s industrial production and retail sales into their home market continues to grow. This bodes well for connector sales into their home market.

For the last six months, China has posted double-digit year-over-year growth in both connectors sales and orders. China has continued to take connector market share from the 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.



	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21
Bookings	-3.8	0.1	-1.0	1.3	7.3	9.3	-15.0	-21.3	-22.4	-6.4	0.3	7.8	9.9	12.3	16.1	33.2	28.1	32.8
Billings	-7.8	5.9	-5.2	-7.7	-4.1	-2.7	-25.2	-27.3	-10.6	-4.5	-1.2	2.1	6.1	-2.6	12.2	27.1	23.5	23.2
Billings SEQ	-3.3	21.8	-16.2	-8.9	4.6	0.0	-13.7	3.0	-2.3	14.8	7.0	1.7	0.5	11.8	-3.4	-0.5	2.0	0.7
BTB	1.03	0.95	1.04	1.08	1.11	1.11	0.98	0.96	0.91	1.01	1.01	1.05	1.07	1.09	1.08	1.14	1.17	1.24

Asia Pacific Performance

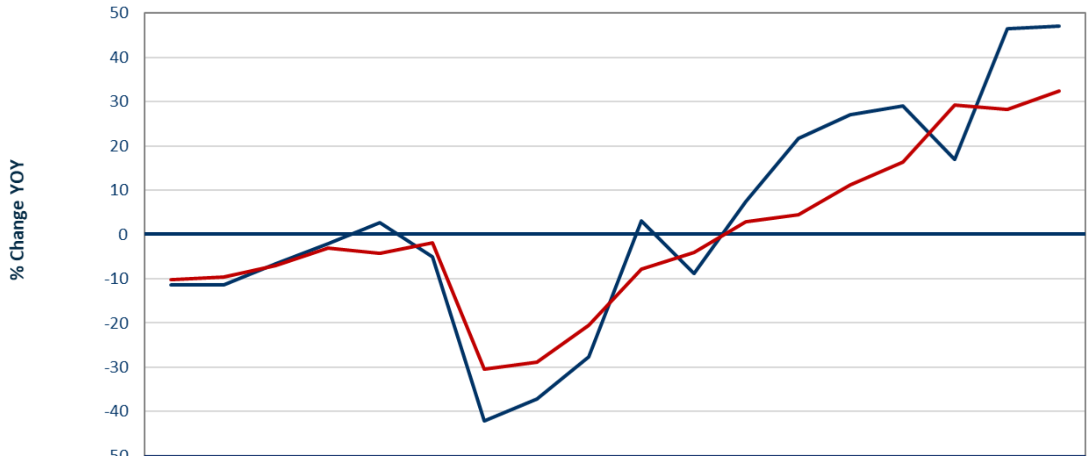
- Orders were up +32.8% in March and sales rose +23.2% YOY. The book-to-bill ratio rose to 1.24. Sequential sales increased +0.7%.
- India's industrial production contracted 3.6% YOY in February, and contracted 5% sequentially. Exports rose 60.3% YOY in March to their highest level ever. India is current experiencing the largest surge in COVID-19 recorded during this pandemic.
- South Korea's industrial production grew 0.9% YOY in March and grew 4.3% sequentially. Exports in South Korea increased 16.6% in March YOY. Exports to the EU were up 36.6%. Exports of chips rose 8.6%.

Conclusions

India, the larger of the two economies, is not fairing well in dealing with the pandemic's economic effects, while South Korea had a much smaller contraction. India is projected to grow their GDP by 2.5% in Q1, and 15%, 8.5%, and 5.5% over the remaining three quarters (although these projections may be in doubt, due to the current surge of COVID-19. South Korea's GDP grew 1.8% in Q1 and is projected to grow 3.1%, 2.5%, and 3% for the remainder of 2021. South Korea's connector sales have a positive outlook.

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

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



	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21
Bookings	-11.4	-11.4	-6.6	-2.1	2.6	-5.1	-42.1	-37.1	-27.7	3.0	-8.8	7.4	21.7	27.1	29.1	17.0	46.5	47.1
Billings	-10.3	-9.7	-7.0	-3.1	-4.3	-1.8	-30.5	-28.9	-20.5	-7.8	-4.1	2.8	4.5	11.1	16.4	29.3	28.2	32.3
Billing SEQ	-4.5	6.1	-10.2	-9.6	10.7	-5.5	-25.0	10.9	6.3	19.1	10.8	2.4	-0.9	10.5	-5.9	0.0	11.9	-2.4
BTB	0.95	1.00	1.04	1.17	1.14	1.06	0.86	0.88	0.96	1.10	0.98	0.98	1.09	1.15	1.16	1.09	1.33	1.20

Rest of World Performance

- Orders and sales increased +47.1% and +32.3% YOY, respectively, in March. Sequentially, sales in the region contracted -2.4%. The book-to-bill ratio rose to 1.20.
- Brazil's industrial production increased 0.4% YOY in February and decreased 0.7% sequentially. The inflation rate rose to 6.1% in March, the highest rate since December 2016. The manufacturing PMI decreased to 52.8 in March.
- Russia's industrial production increased 1.1% YOY and 12.2% sequentially in March. Sequentially, exports increased 9.1% in February. The inflation rate increased to 5.8% YOY in March, the highest rate since November 2016. The unemployment rate declined to 5.4% in March from 5.7% the previous month.

Conclusions

Both Brazil and Russia continue to witness economic expansion as commodity prices for copper and oil continue to rise, providing much needed revenue. Brazil is forecast to have GDP growth of 0.6% in Q1 2021, followed by 5%, 3.5%, and 3.2% in the remaining quarters of the year. Russia is forecast to have GDP contraction of 1% in Q1 2021, followed by growth of 7.5%, 3.6%, and 3.0% in the remaining quarters of the year. Given their starting points, both countries will show connector industry growth in 2021.

The ROW connector industry has been growing for the last seven months (and in double digits for the last five months).

1Q21 Connector Industry Results

Industry sales increased +23.8% YOY in 1Q21 to $19,061 million. This is a record sales amount, on a quarterly basis, for the industry.

The following table shows industry sales by quarter for 2019, 2020, and 2021, actual and forecast. Our full year 2021 forecast is $67,122 million, up +7.0% from prior year. Considering current demand, this forecast is very conservative. More about this on page 14.

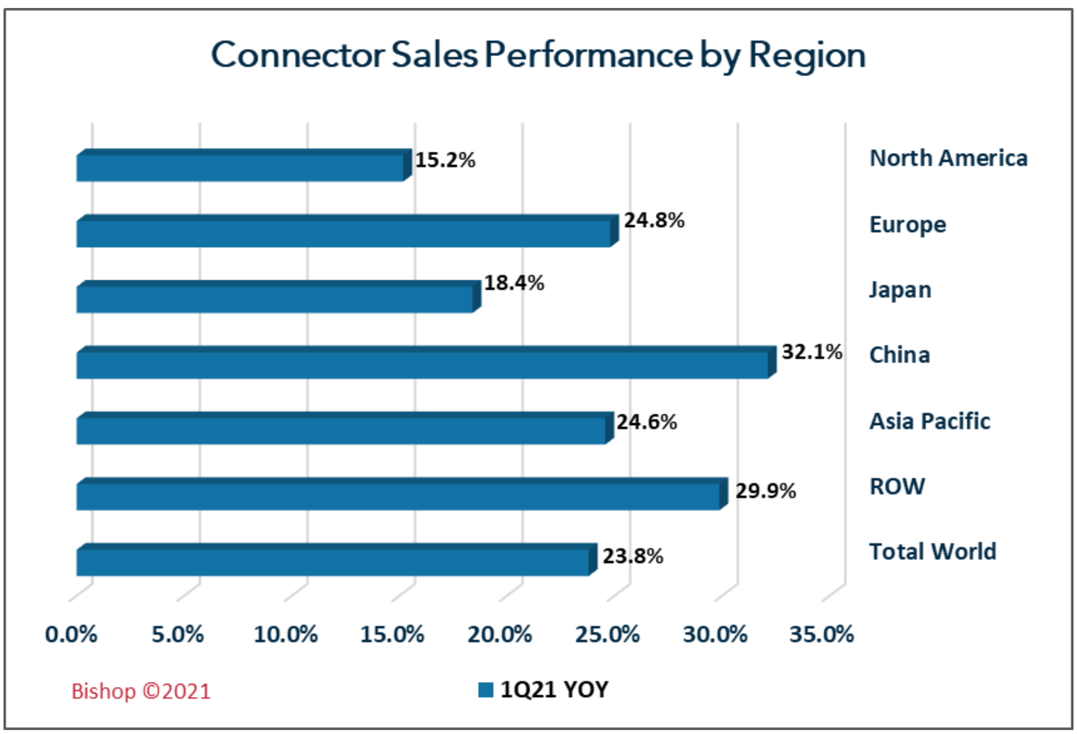
Connector Industry Quarterly Sales Results/Forecast

2019, 2020, and 2021

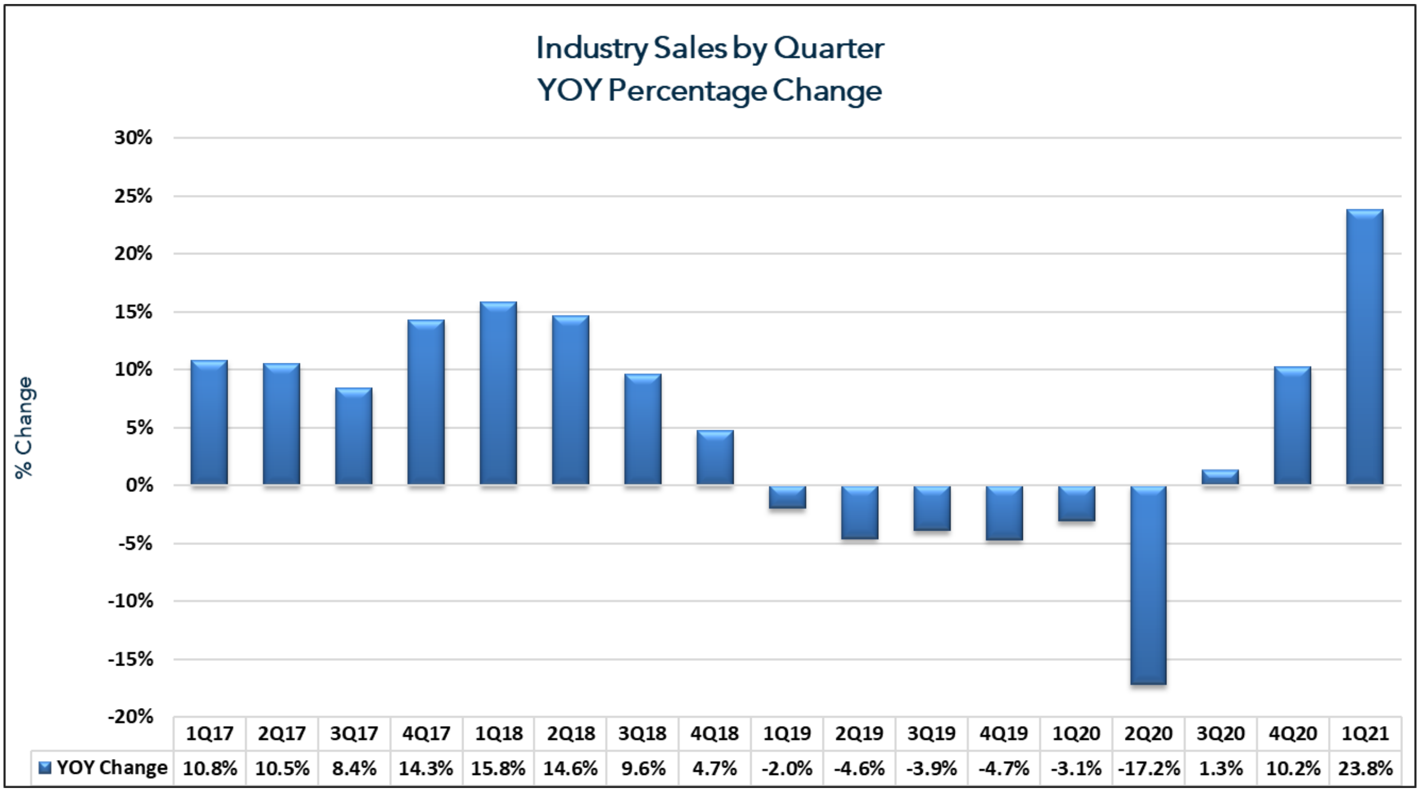
Quarter	2019 Actual	2020 Actual	YOY Change	2021 Forecast	YOY Change
1Q	$15,890	$15,397	-3.1%	$19,061	23.8%
2Q	$16,097	$13,333	-17.2%	$17,333	30.0%
3Q	$16,475	$16,689	1.3%	$15,571	-6.7%
4Q	$15,707	$17,308	10.2%	$15,157	-12.4%
Total	$64,169	$62,727	-2.2%	$67,122	7.0%

$ Million, Bishop ©2021 Red=Forecast

Sales growth by region in the first quarter of 2021 can be seen in the following chart.



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.



Industry Outlook

Connector demand is incredibly strong. Sales are up +23.8% through March and the book to bill ratio is 1.17. These two performance measurements, sales and orders, make it highly likely we will have a very good 2021.

Using the first quarter as an indicator, we examined first quarter connector sales from 2008 to 2020 (13 years).

Average 13 Years (2008-2020)

	% Annual Sales
January	7.54%
February	8.40%
March	8.21%
1st Quarter Average	24.15%

Over the past 13 years, the first quarter, on average, makes up 24.153% of the full year sales. Using this metric, the connector industry will achieve worldwide sales of $76,348 million or sales growth of +21.7%. March YTD sales of $19,061 divided by 24.153% equals $76,348 million.

There are tailwinds currently driving the industry growth.

- The industry had record sales in 1Q21 of $19.1 billion, up +23.8%. This was driven by many of the world economies coming out of their self-imposed shutdowns.
- Both Amphenol and TE are projecting strong growth in calendar 2Q21 at +23.5% and +45%, respectively.

There are, however, some headwinds that we believe will prevent the industry from achieving the +21.7% growth.

- The semiconductor shortage will reduce auto and telecom sales. These are the two largest connector markets.
- We had a very good 4Q20 with sales up +10.2% thus losing the easy comparison that existed in 1Q21.
- COVID-19 continues to be of concern worldwide with India being the current example of what can still happen.
- Geopolitical headwinds include China/Taiwan; Iran/Israel; and Russia/Ukraine.

We believe a more likely outcome is growth to be approximately +15% for 2021 as shown in the table on the next page.

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%	$17,333	30.0%
3Q	$16,475	$16,689	1.3%	$18,335	9.9%
4Q	$15,707	$17,308	10.2%	$17,407	0.6%
Total	$64,169	$62,727	-2.2%	$72,136	15.0%

$ Million, Bishop ©2021 Red=Forecast

We will have frequent, monthly updates on this issue. With all the uncertainties, for now, we will leave our official forecast at +7.0% growth for 2021.

2021 YTD Currency Impact on Regional Industry Growth

The dollar began the year weaker against the euro, the yen, and the yuan in March 2021. The following table measures the impact for March 2020 versus March 2021 and shows results for these three currencies.

Local Currency to One USD
March 2020 versus March 2021

Currency	2020	2021	% Change
Euro	0.9065	0.8293	9.3%
Yuan	109.0155	105.9349	2.9%
Yen	6.9798	6.4834	7.7%

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 March year-over-year sales performance by region in US dollars and local currencies.

Industry Sales Performance
March 2021
USD-vs-Local Currencies

Region	U.S.$	Local Currency
North America	15.2%	15.2%
Europe	24.8%	14.2%
Japan	18.4%	15.1%
China	32.1%	22.7%
Asia Pacific	24.6%	24.6%
ROW	29.9%	29.9%
World	**23.8%**	**18.2%**

World connector sales are 5.6 percentage points lower when stated in local currencies rather than in US dollars, putting industry performance at +18.2% in March. (versus +23.8% in US dollars). This is the result of the continued weakening of the US dollar compared to these currencies.

Significant Events

Genstar Capital Announces Acquisition of Infinite RF Holdings, Inc.

Genstar Capital, a leading middle-market private equity firm focused on investments in targeted segments of the industrial technology, software, healthcare, and financial services industries, today announced the acquisition of Infinite RF Holdings, Inc. (IRF), a market leading supplier of engineering grade radio frequency (RF) technology components.

Based in Irvine, CA, Infinite RF offers a broad range of connectivity components and assemblies serving the aerospace/defense, industrial, government, consumer electronics, instrumentation, education/medical, and telecommunications markets. Operating under the Pasternack and Fairview brand names, IRF serves a global engineering customer base with deep technical expertise and one of the broadest inventories of RF products available for immediate shipment.

Rob Rutledge, Managing Director at Genstar, said, “The IRF management team, led by CEO Terry Jarnigan, has done an excellent job building a strong reputation and a loyal customer base through intense customer focus and flawless execution. The Company will continue to benefit from increased R&D in the RF space including from secular trends in automation and internet of things. The IRF acquisition builds upon Genstar’s continued commitment to the industrial technology sector. We believe through our partnership with the management team, IRF will accelerate growth both organically and through strategic acquisitions.”

Terry Jarnigan, President and Chief Executive Officer of IRF, said, “The global RF market is highly attractive and IRF’s products address a wide selection of applications. IRF leads the industry in terms of new product introductions which has led to proven and stable growth and we continue to see tremendous potential for adjacent product lines to serve existing customers and fulfill product needs of new customers. Genstar has extensive expertise investing in the industrial technology sector and we look forward to working with them to accelerate the growth of the company.”

Foxconn Posts 45% Revenue Surge in 1Q21

Foxconn Electronics (Hon Hai) has reported consolidated revenues climbed 44.5% on year to NT$1.34 trillion (US$47 billion) in the first quarter of 2021, which came within the company’s guidance range. Foxconn registered consolidated revenues of NT$441.22 billion for March, up 9.78% on month and 26.91% on year.

Compared to February, Foxconn’s revenues from PC product had the strongest growth in March, followed by those from cloud computing devices, components, and consumer electronics. On a yearly basis, revenues from consumer electronics had the best performance, followed by PC products, cloud computing devices and components.

Foxconn chairman Young-Way Liu previously expressed optimism about the company’s financial results for first-quarter 2021 with the company expecting a sequential decline of more than 15% but an on-year increase of over 15% in the quarter’s revenues.

Global Smartphone Shipments Jump 24% in Q1 to 340 Million Units

Strategy Analytics said chip shortages and supply side constraints over the past year did not have a major impact in Q1 among the top five phone brands but noted that it was an issue for smaller vendors and will likely continue over the next few quarters.

The global smartphone industry has rebounded from last year's downturn. According to the latest data from research firm Strategy Analytics, global smartphone shipments reached 340 million units in the first quarter of 2021. That is an increase of 24 percent year over year and represents the highest growth since 2015.

Strategy Analytics credited heavy demand from consumers with aging devices looking to upgrade to the latest and greatest handsets and the 5G push from Chinese vendors as two key drivers of growth during the quarter.

China saw smartphone shipments increase 35 percent compared to the same period a year ago, totaling 94 million units in Q1.

The top five brands all retained their same position in relation to each other. Samsung again led the way with shipments of 77 million units, followed by Apple with 57 million iPhones moved. Xiaomi, Oppo and Vivo rounded out the top five with shipments of 49 million units, 38 million units and 37 million units, respectively, during Q1 2021.

Foxconn, Wisconsin Reach Deal on Scaled-back Plant

Foxconn Technology Group reached a new deal with reduced tax breaks for its scaled-back manufacturing facility in southeast Wisconsin, Governor Tony Evers and the company announced on Monday. The new deal would reduce the potential tax breaks by billions of dollars, but still offer potential tax breaks of more than US$10 million to the company.

The original contract with nearly US$4 billion in state and local tax incentives was struck in 2017 by then-Wisconsin governor Scott Walker. It was based on the Taiwanese company's promise to build a massive US$10 billion facility for manufacturing flat panel displays that would employ up to 13,000 people. The Foxconn facility employed 281 people in 2019, Wisconsin Economic Development Corp said.

Foxconn chairman Young Liu said that the company is considering making electric vehicles at the facility.

PC Shipments Strong in 1Q21 Despite Component Shortages and Logistics Issues

Global shipments of traditional PCs, including desktops, notebooks, and workstations, grew 55.2% on year during the first quarter of 2021, according to IDC. PC shipments reached 84 million worldwide in the first quarter of 2021, a modest 8% decline from the fourth quarter of 2020. While sequential declines are typical for the first quarter, a decline this small has not been seen since the first quarter of 2012 when the PC market declined 7.5% sequentially.

"Unfulfilled demand from the past year has carried forward into the first quarter and additional demand brought on by the pandemic has also continued to drive volumes," said Jitesh Ubrani, research manager for IDC's Mobile Device Trackers. "However, the market continues to struggle with setbacks including component shortages and logistics issues, each of which has contributed to an increase in average selling prices (ASP)."

The continued resurgence in the PC market as well as increases in ASPs have primarily been driven by growth in gaming, the need for higher performance notebooks in the enterprise, and an increase in demand for touchscreens within the education segment.

Electronics Adds to U.S. Manufacturing Surge

The electronics sector helped drive U.S. manufacturing activity to a 37-year high in March as pent-up demand emptied customers' shelves and firmed up expectations for a widespread economic recovery. There are no signs demand will abate, according to the Institute for Supply Management, although factories will face supply and labor constraints at least through the third quarter.

"Extended lead times, wide-scale shortages of critical basic materials, rising commodities prices and difficulties in transporting products are affecting all segments of the manufacturing economy," said Tim Fiore, chair of the ISM's manufacturing survey committee.

South Korea's LG Withdraws from Smartphone Market

Korea's LG Electronics Inc will wind down its loss-making mobile division after failing to find a buyer, a move that is set to make it the first major smartphone brand to completely withdraw from the market. Its decision to pull out will leave its 10% share in North America, where it is the No. 3 brand, to be gobbled up by Samsung Electronics and Apple Inc with its domestic rival expected to have the edge. LG's smartphone division has logged nearly six years of losses totaling around $4.5 billion. Dropping out of the fiercely competitive sector would allow LG to focus on growth areas such as electric vehicle components, connected devices and smart homes, it said in a statement.

Pegatron Expects Stable Consumer Electronics Demand

Pegatron Corp expects increased demand for consumer electronics products will continue throughout 2021, after the company posted a five-year high earnings per share for last year. However, Pegatron is cautious about component shortages, Liao said.

Pegatron has long invested in automotive electronic control system products, which Liao predicted would become a major source of revenue, in addition to electric bicycles, electric scooters and distance medical care. The company said that it started supplying to Tesla Inc in January and has established relations with other global automakers.

The company posted earnings per share of NT$7.73 for last year, up from NT$7.40 in 2019.

Huge Growth Seen for 5G Mobile Devices

The number of 5G-capable mobile devices announced and commercially available has passed the 600 mark this month, according to the Global Suppliers Association (GSA). The organization puts the number that have been announced at 628, an increase of 21% over the last three months. The number that are believed to be commercially available now stands at 404, an increase of 33% over the same period, and now represents two-thirds of all announced devices.

Mobile phones are clearly the most common 5G form factor coming on the scene, but are by no means the only growth area, note the GSA researchers. Indeed, the technology has identified 21 available form factors.

Market research group Moor Insights suggests that a huge majority of smartphone vendors believe 5G devices are driving much of their growth and profitability, and also notes that the prices of most devices are coming down from last year.

Foxconn and Vietnam's Vingroup Could Team Up on Electric Vehicles

Foxconn, the world's largest contract assembler of consumer electronics, has begun discussions with Vingroup, the largest conglomerate in Vietnam, about working together in the fast-growing field of electric vehicles. A spokesman for Hanoi-based Vingroup confirmed that the company had "received proposals" from Foxconn but said that "nothing is concrete yet." Any partnership would focus on developing electric vehicle batteries and other parts, he adds. "No decision on working together to produce EVs has been made yet," he says.

The global electric vehicle market stood at an estimated $140 billion in 2019 and should reach $700 billion by 2026, research firm Facts & Factors says in a report released in January.

Billionaire Terry Gou founded Foxconn, also known as Hon Hai Precision, 47 years ago and the company now sees $172.8 billion in annual sales. The company best known as an Apple contractor has tried over the past decade to diversify product lines. Foxconn has set a goal of taking 10% of the global EV market between 2025 and 2027.

World Industrial Market for Connectors

Bishop & Associates new six-chapter, 297-page research report provides a detailed analysis of the world industrial market for connectors. This report focuses on three key segments:

Factory Automation and Machinery, covering
- Smart Factories (Industry 4.0 & 5.0)
- Automation & Networking
- Industrial Robotics

Construction and Civil Engineering, covering
- Smart Cities
- Smart Buildings
- Construction Equipment

Energy Markets, covering
- Smart Grid & Digitization
- Renewable Energy
- Energy Storage

World Industrial Market for Connectors provides a detailed analysis of these above three segments, including equipment and connector products found within each of the segments. Connectors sales numbers are provided for each of these key segments, by region, and product type for the years 2019, 2020, 2021F, and 2026F.

The industrial market for connectors proved to be very resilient during the COVID-19 pandemic. As this report is published the pandemic is still very much a part of our lives and we do not know yet exactly what the long-term effects will be. When we assess the full year 2020 compared to 2019, it turns out the global connector market, after a sharp decline early in the year, made a remarkable recovery the second half of 2020. So much so, that the industrial market for connectors only declined by 2.3% versus 2019. The global connector market did slightly better, resulting in a 2.2% contraction versus 2019.

While assessing the performance of the industrial market for connectors it is important to consider some important megatrends that were visible even before the pandemic hit. These trends affected the manufacturing and energy sectors and include:

- Digital Transformation of the manufacturing industry, implementation of IoT and Industry 4.0/5.0.

- Focus on Energy Consumption, Storage, and a shift to cleaner, reusable, energy sources.

- Re-shoring of manufacturing and/or restructuring supply chains to get closer to the customer and make supply chains more robust.

If the pandemic did anything to the manufacturing industry apart from disrupting it in the immediate short term, it is probably the accelerating of the above-mentioned megatrends. This means that developments that support these megatrends may subsequently also accelerate and drive the market:

- Extensive use of Robotics / Industrial Robots and more recently Co-Bots
- Machine-to-Machine communication (M2M) and Machine Learning

- Implementation of Cyber Physical Systems (CPS)
- Inclusion of Additive Manufacturing in production processes
- Inclusion of Augmented Reality (AR) in manufacturing and assembly
- Continuing increase of the share of renewable energy sources (wind, solar, hydro, H2, etc.)
- Growing market for (innovative) energy storage solutions
- Innovations to reduce energy consumption and curb CO2/methane emissions
- Further roll-out of smart grids and 'self-sustaining' microgrids
- Development of Smart City concepts and strategies around the globe
- Guidelines for Smart Buildings in which automation, energy consumption/generation and general well-being (social distancing options for example!) are central
- Development of concepts and strategies for smart mobility, smart water supplies and smart waste treatment

Factory Automation and Machinery
2019, 2020, and 2026F with Percent Change and 6-Year CAGR

Region	2019	2020	% Growth 2020/2019	2026F	6-year CAGR %
North America	$XXX.X	$XXX.X	Y.Y%	$XXX.X	Y.Y%
Europe	$XXX.X	$XXX.X	Y.Y%	$XXX.X	Y.Y%
Japan	$XXX.X	$XXX.X	Y.Y%	$XXX.X	Y.Y%
China	$XXX.X	$XXX.X	Y.Y%	$XXX.X	Y.Y%
Asia Pacific	$XXX.X	$XXX.X	Y.Y%	$XXX.X	Y.Y%
ROW	$XXX.X	$XXX.X	Y.Y%	$XXX.X	Y.Y%
World	**$XXX.X**	**$XXX.X**	**Y.Y%**	**$XXX.X**	**Y.Y%**

$ Million

North American Industrial Connector Market
By Industrial Segment – 2026F

2026F North America	Energy Markets	Factory Automation and	Construction and Civil Engineering	Other Industrial Equipment	Total
PCB	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
Rectangular I/O	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
IC Sockets	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
RF Coax	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
Circular	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
Telephone/Telecom	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
Fiber Optic	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
Terminal Blocks	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
Heavy Duty	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
Power/High Voltage	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
Application Specific	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
Other Connectors	$XXX.X	$XXX.X	$XXX.X	$XXX.X	$XXX.X
Total	**$XXX.X**	**$XXX.X**	**$XXX.X**	**$XXX.X**	**$XXX.X**

$ Million

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

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Chapter 2 – Industrial Automation and Industry 4.0 (continued)

Chapter 2 – Industrial Automation and Industry 4.0 (continued)

Chapter 3 – Energy Markets and Energy Transition

Chapter 4 – Technology Trends in Construction and Civil Engineering

Chapter 5 – Company Profiles Industrial Top 10

Chapter 6 – Market Statistics

Chapter 6 – Market Statistics (continued)

To Order World Industrial Market for Connectors 2021

Research Report M-607-21, ***World Industrial Market for Connectors 2021*** is available for $3,950. Additional print copies of this report are available for $395. If you would like additional information about this report, or would like to place an order, please complete the following information and e-mail, fax or mail it to Bishop & Associates, Inc. To place your order on our website: **https://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 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 2020) NEW**
- ☐ **Report M-510-21** **World Telecom Connector Market 2020-2025 (January 2021) NEW**
- ☐ **Report M-1601-20** **Top 50 Medical Interconnect Solutions Companies (December 2020) NEW**
- ☐ **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-121-20** **2020 Top 100 Connector Manufacturers (August 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 C-122-20** **2020 Connector Industry Yearbook (June 2020)**
- ☐ **Report M-799-20** **2020 World Cable Assembly Market (May 2020)**
- ☐ **Report M-4100-20** **Non-Automotive Transportation Market for Connectors (February 2020)**
- ☐ **Report P-606-19** **Connector Types and Technologies Poised for Growth (October 2019)**
- ☐ **Report M-1010-19** **World Automotive Connector Market (August 2019)**

THE BISHOP REPORT - CONNECTOR INDUSTRY YEARBOOK

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An **annual Corporate Subscription is available for $2,950**, which includes an unlimited number of subscribers and one PDF version of the ***Connector Industry Yearbook***.

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

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