

## May Sales Up +41.5% But Are the Bookings Real?

### Regional Performance:

Worldwide year-to-date sales increased +30.7%.

At +39.0% YTD, Europe is exhibiting the highest growth. Japan trails the industry at +21.3%. All regions have double-digit growth YTD. Comparisons to prior year are quite easy in the first half of 2021.

Europe had the highest YOY regional increase in sales for May at +64.4%. Europe again achieved triple digit YOY growth in bookings at +134.5%

### 2021 Currency Impact:

The dollar starts the year significantly weaker against the euro, the yen, and the yuan. The industry grew at +24.6% YOY in May in local currencies versus +30.7% in USD. Connector sales are 6.1 percentage points lower when expressed in local currencies.

### Industry Outlook - 2021:

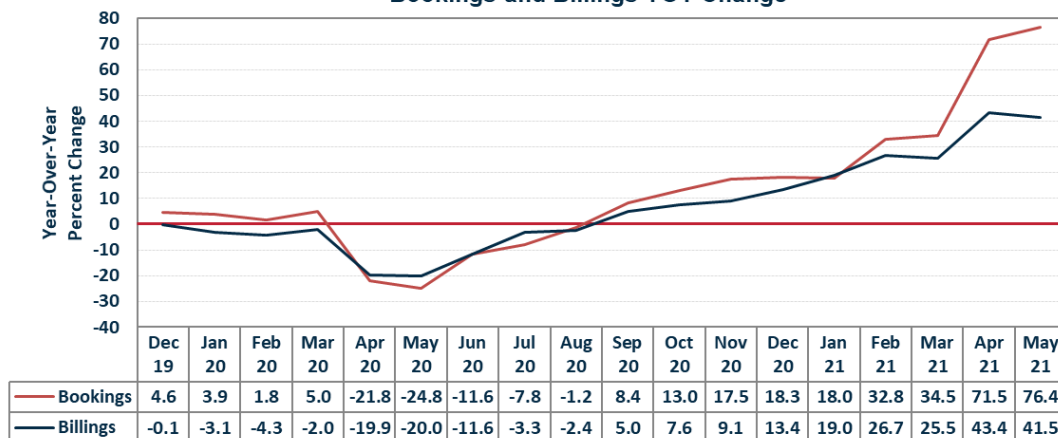
Connector industry demand is soaring. A book-to-bill ratio of 1.18, however, may be overstated due to hedging.

### Merger and Acquisition Services Buy & Sell-Side

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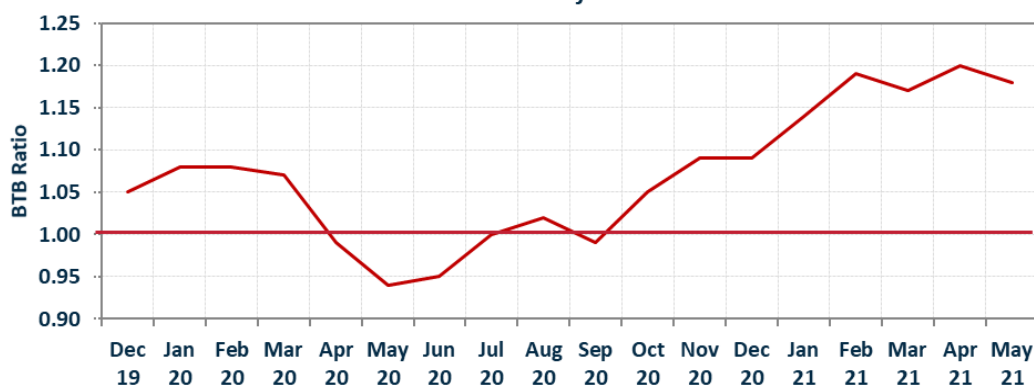
May bookings were up +76.4% from 2020. Sales for the month were up +41.5% YOY. Sequentially, bookings and billings were up from April. Year-to-date sales are up 30.7%.

Bookings and Billings YOY Change



The book-to-bill ratio in May was 1.18 as orders continued to strengthen. YTD, the book-to-bill ratio is 1.18. The strong order growth may indicate some double bookings.

Connector Industry Book-to-Bill

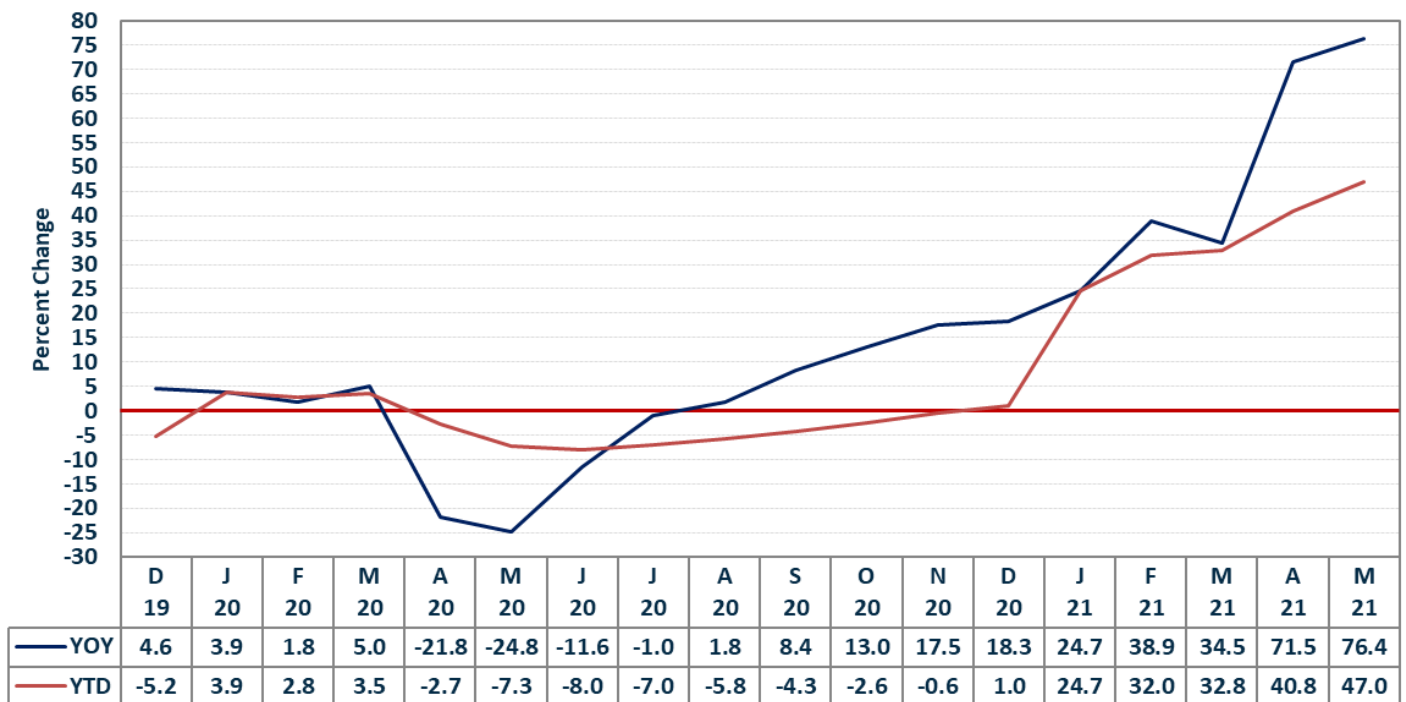


## Booking Highlights and Conclusions

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

Month	Sequential			Year-Over-Year			Year-To-Date		
	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%	-2.8%	-8.8%	-21.8%	71.5%	-6.4%	-2.7%	40.8%
May	6.9%	2.9%	5.5%	-7.0%	-24.8%	76.4%	-6.5%	-7.3%	47.0%
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%	

### Bookings - YOY and YTD



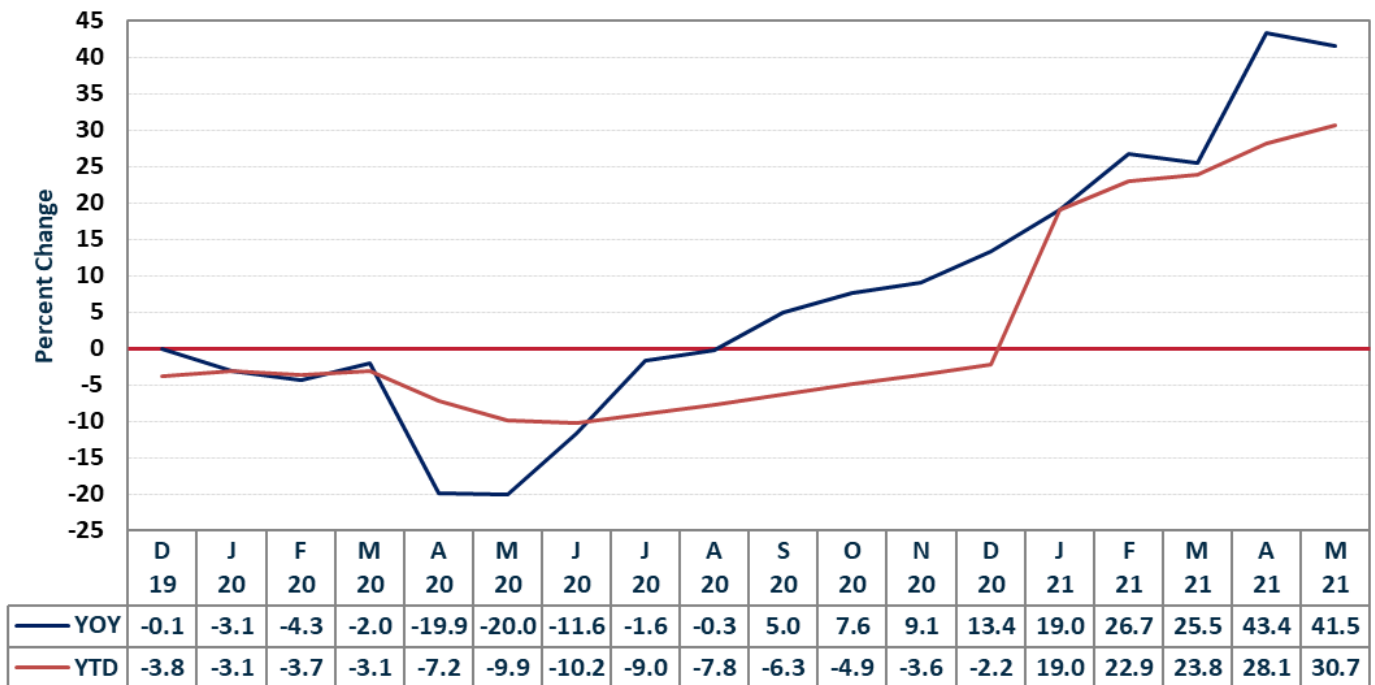
- May bookings rose +76.4% year-over-year.
- Orders increased +5.5% sequentially.
- The book-to-bill ratio for May was 1.18 and 1.18 YTD. With a book-to-bill ratio this high, there is some concern that there may be some customers that are double ordering.

## Billing Highlights and Conclusions

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

Month	Sequential			Year-Over-Year			Year-To-Date		
	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%	-5.2%	-5.4%	-19.9%	43.4%	-2.8%	-7.2%	28.1%
May	9.0%	8.8%	8.6%	-4.3%	-20.0%	41.5%	-3.1%	-9.9%	30.7%
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

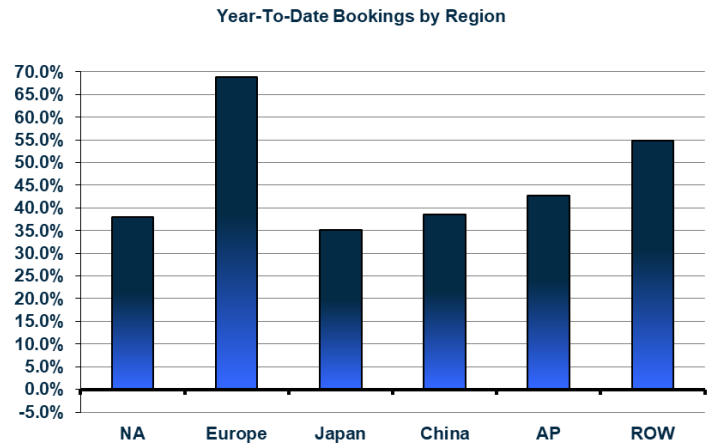


- May billings grew +41.5% YOY.
- Billings are up +30.7% for the year.
- Sequentially billings increased +8.6%.

## Regional Performance

### May 2021 Bookings

Region	Sequential	YOY	YTD
NA	-1.1%	57.8%	38.1%
Europe	10.3%	134.5%	68.8%
Japan	1.2%	66.1%	35.2%
China	5.9%	52.7%	38.6%
AP	7.2%	67.7%	42.7%
ROW	16.5%	96.4%	54.8%
Total	5.5%	76.4%	47.0%

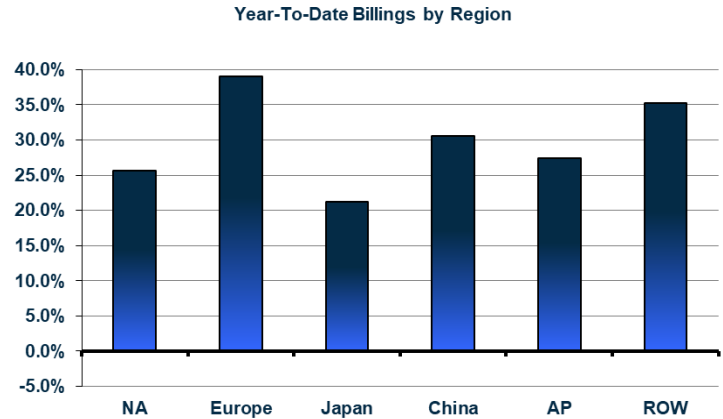


- May bookings increased +47.0% YTD. The strong bookings performance in May should lead to a very healthy 2Q21.
- Year-over-year, all regions experienced double-digit (or triple-digit) growth, with Europe outpacing ROW and Asia Pacific. Many YOY growth numbers reflect new record highs!
- Year-over-year comparisons are easy because COVID-19 started having a negative impact on demand in early 2020.

## Regional Performance

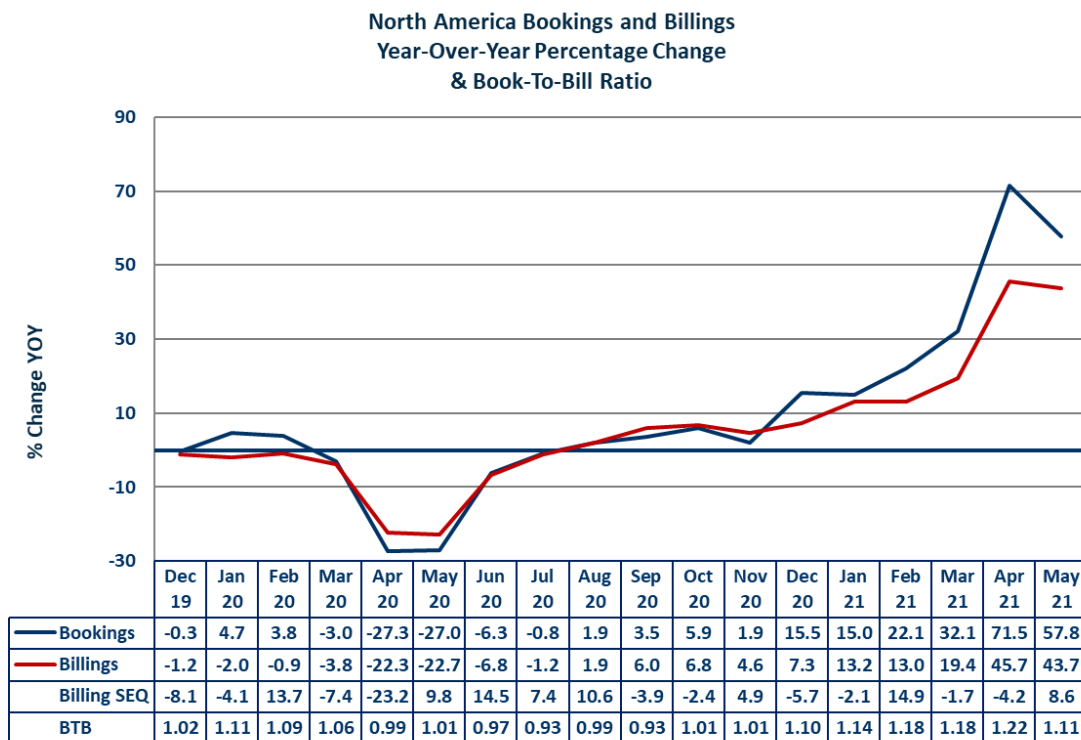
### May 2021 Billings

Region	Sequential	YOY	YTD
NA	8.6%	43.7%	25.6%
Europe	10.6%	64.4%	39.0%
Japan	0.3%	25.2%	21.3%
China	4.4%	26.7%	30.6%
AP	6.0%	33.9%	27.4%
ROW	13.0%	45.1%	35.2%
Total	7.3%	41.5%	30.7%



- May connector sales growth increased +41.5% YOY as demand for electronic products and automobiles accelerated.
- Year-over-year, all regions experienced double-digit growth, with Europe growing the most of any region at +64.4%, followed by ROW.
- Sequentially, sales increased in all regions.
- While 2021 should see strong sales growth, head-winds still prevail in the second quarter, especially in the automotive and telecom markets where semiconductor shortages will put downward pressure on connector sales growth.
- The second quarter, however, has very easy comparisons because sales were down significantly in each corresponding month in 2020.

**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.



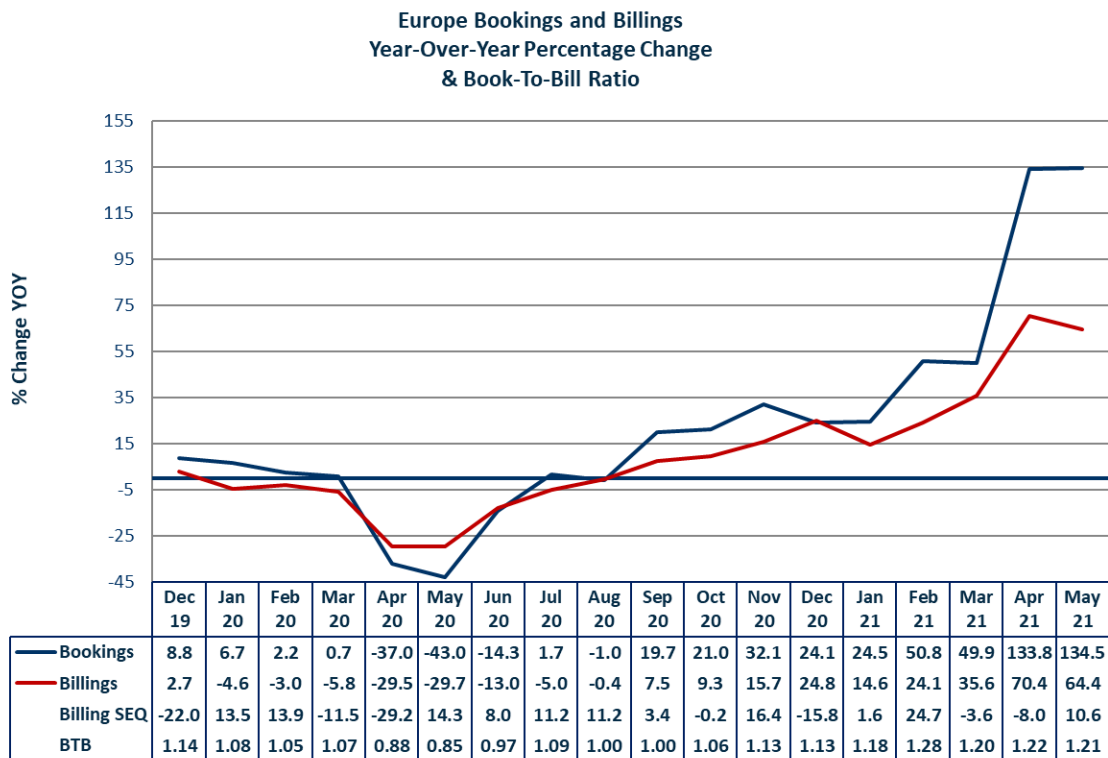
## North America Performance

- Sales grew +43.7% and orders were up +57.8% YOY in May. North American billings were up sequentially +8.6%. The book-to-bill remained strong at 1.11.
- Industrial production increased 16.3% YOY in May.
- Manufacturing PMI was 62.1 in May, setting a new record high for the index.
- US unemployment decreased to 5.8% in May, the lowest since March 2020.
- Retail sales in the US increased 28.1% in May YOY.
- The annual inflation rate in the US in May increased 5.0%, the highest reading in nearly 13 years.
- US automotive sales in May were down 9.5% from April.

## Conclusions

The US economy is running strong, but the inflation bug is waking up with the annual rate in May hitting 5.0%, well above the predicted 4.7%. Everything from gas prices to food prices to home prices (all consumer goods) are going up dramatically. Initially, this will be good for the economy and the connector industry. Eventually, these higher prices will cause the Federal Reserve Board to cool off the economy with higher rates to the banks which will negatively impact the economy, the stock market, and the connector industry. On June 16, the Federal Reserve officials announced an intention to start increasing their rate in late 2023 and the DOW dropped 0.8%.

**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 Performance

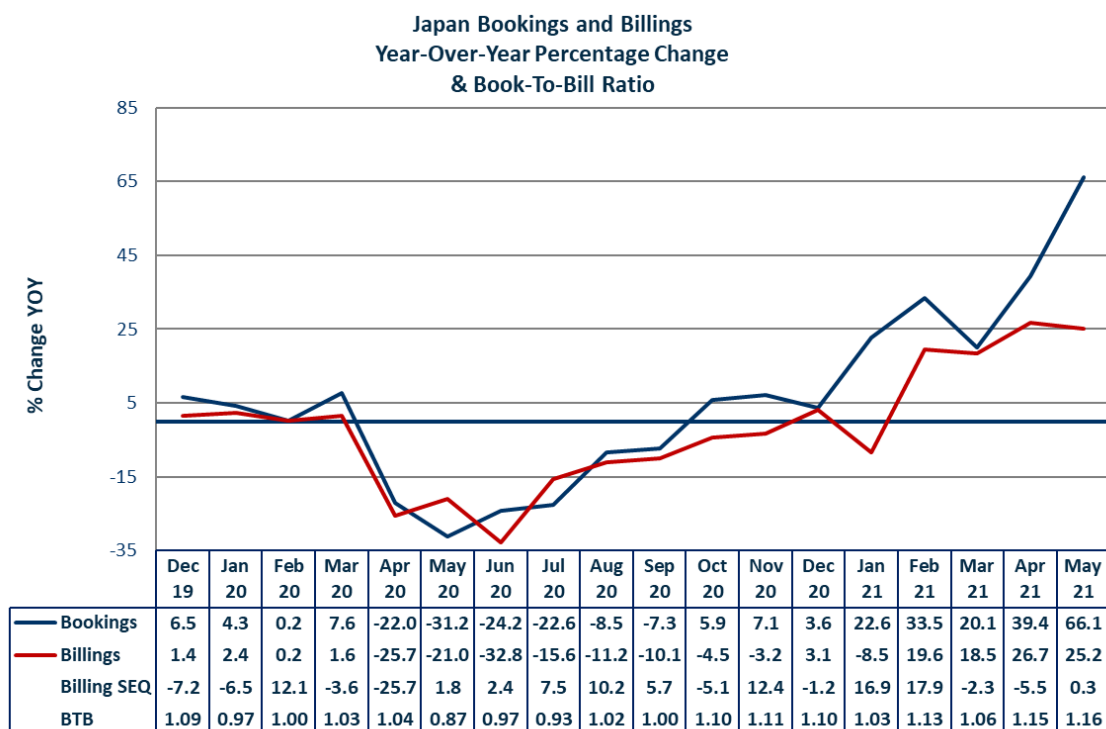
- YOY billings grew +64.4%, the ninth consecutive positive reading. Orders were up +134.5%, and the book-to-bill ratio was to 1.21. Sequentially, sales were up +10.6%.
- Euro area industrial production increased 39.3% in April YOY, beating market expectations.
- The May manufacturing PMI was revised up upward to 63.1 from a preliminary read of 62.8.
- April retail sales increased 23.9% YOY and decreased 3.1% sequentially.
- Euro area new car registrations were up 70% YOY in May.
- Business confidence rose to 1.5 in May from 1.13 in April.

## Conclusions

The European countries are continuing to have COVID resurgences which is putting a damper on their economies, but industrial production in April was up over 39% YOY and up 0.8% sequentially. This has helped their connector industry as can be seen in their booking and billings, and their book-to-bill ratio. The connector industry appears to be running stronger than their 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, had strong sales again in May.



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



## Japan Performance

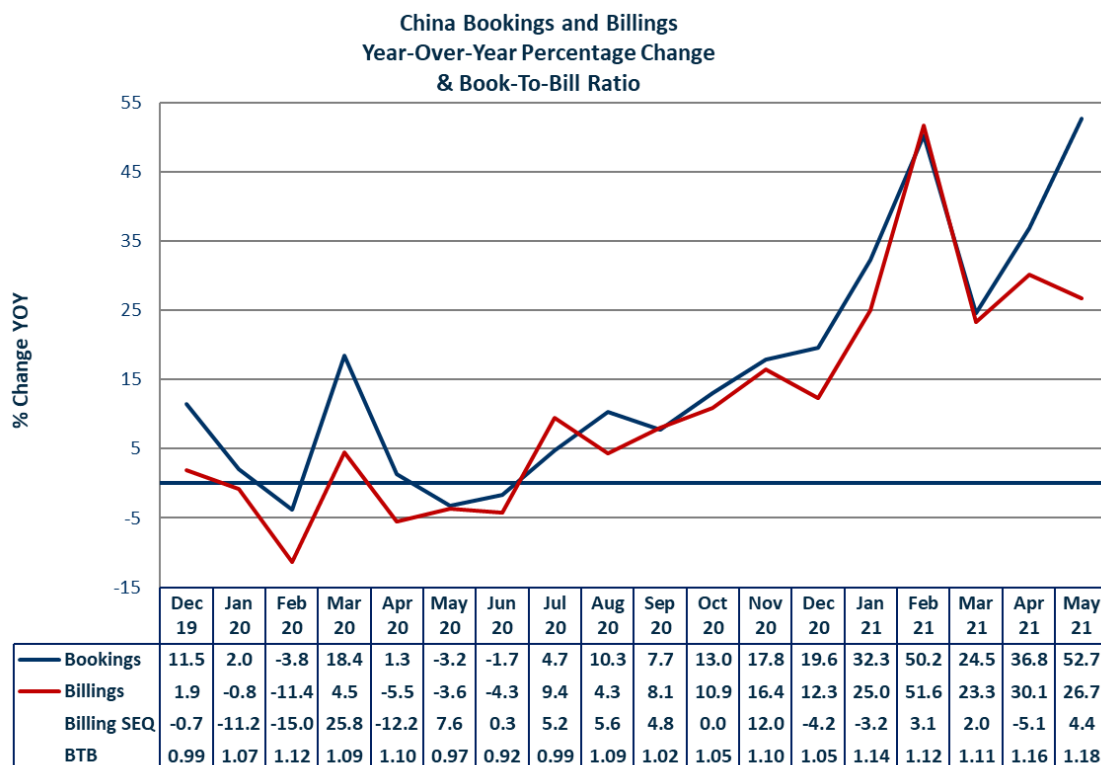
- Bookings were up +66.1% in May. Sales increased +25.2%. Sequentially, sales were up +0.3%. Japan's book-to-bill ratio rose to 1.16.
- 1Q21 GDP contracted 1.6% YOY, making for six consecutive quarters of contraction.
- Industrial production increased 15.8% YOY in April, only the second month of growth since mid-2019.
- April retail sales were up 12.0% YOY.
- The unemployment rate increased to 2.8% in April.
- Exports jumped 49.6% YOY in May. Exports to the US rose 87.9%. Exports of machinery was up 40.4%.
- The May manufacturing PMI decreased to 53.0 from 53.6 in April.

## Conclusions

Japan's economy contracted for six consecutive quarters on a YOY basis through 1Q21. This ongoing weak performance will weigh down their connector industry results. Their booking and sales performance, in the last four 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.



## China Performance

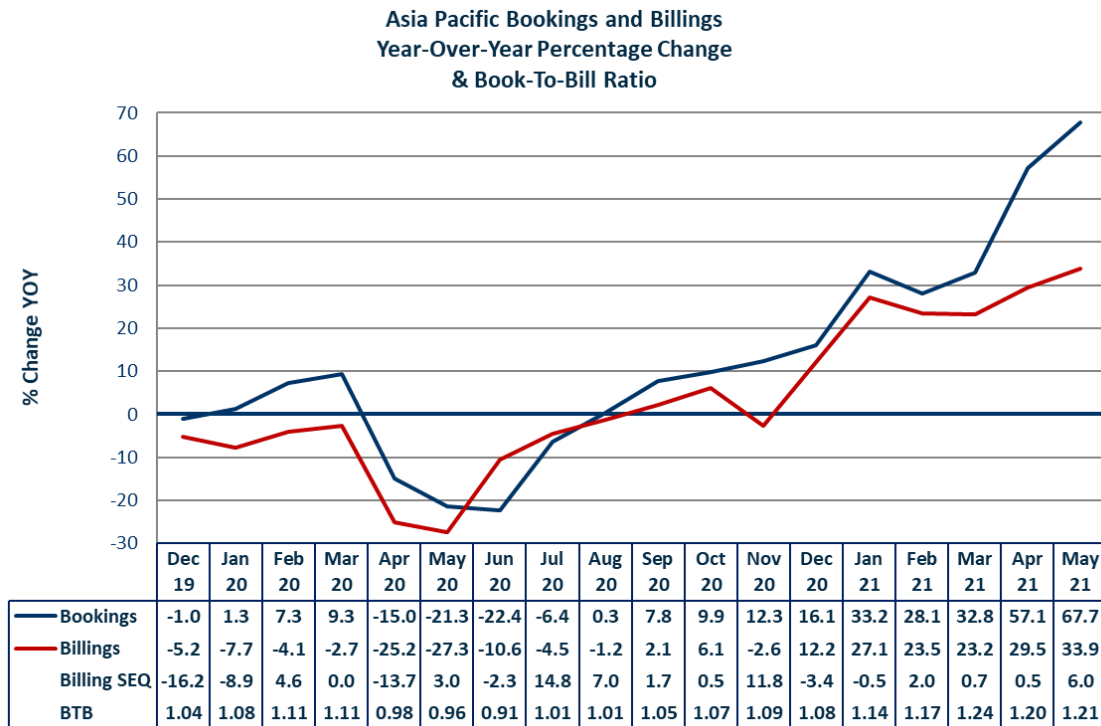
- Sales and orders, year-over-year, increased +26.7% and +52.7%, respectively. The BTB was 1.18. Sequentially, sales increased +4.4%.
- Industrial production increased 8.8% YOY in May. This is the lowest rate in five months as exports soften, commodity prices and factory costs rise, and virus resurgence in the south disrupts port services.
- China's manufacturing PMI rose to 52.0 in May from 51.9 in April.
- Retail sales slowed to 12.4% YOY in May compared to 17.7% in April.
- China's auto sales were up 14.5% in May YOY.
- Exports from China were up 27.9% YOY in May. Exports to the US were up 20.6%.

## Conclusions

China's industrial production and retail sales continue to grow but at a slower pace into their home markets. This is still good for their connector sales. Their economy, though still growing YOY, is starting to slow on a quarter-to-quarter basis.

For the last eight 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.



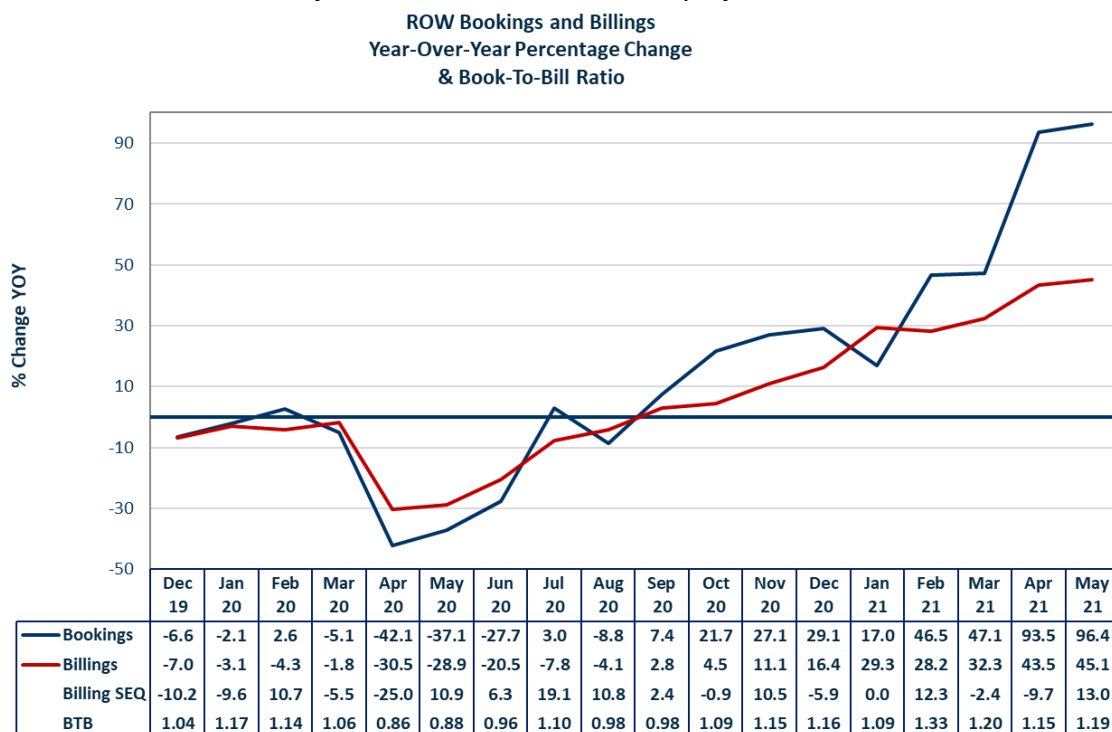
## Asia Pacific Performance

- Orders were up +67.7% in May and sales rose +33.9% YOY. The book-to-bill ratio was 1.21. Sequential sales increased +6.0%.
- India's 1Q21 GDP grew 1.6% YOY and 7.9% sequentially. Industrial production grew 134.4% YOY in April due to easy comparison to 2020. Exports surged to 69.4% YOY in May. India is current experiencing the largest surge in COVID-19 cases recorded by them during this pandemic.
- South Korea's industrial production grew 12.4% YOY in April and declined 1.6% sequentially. Exports increased 45.6% YOY in May. Exports to the US and the EU were both up 62.8%, and were up 22.7% to China. Exports of chips rose 24.5%.

## Conclusions

India is doing better than expected with industrial production and exports given their current surge of COVID-19, which should help their connector sales. South Korea's GDP grew 1.8% in Q1. Their connector sales also 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.



## Rest of World Performance

- Orders and sales increased +96.4% and +45.1% YOY, respectively, in May. Sequentially, sales in the region grew +13.0%. The book-to-bill ratio rose to 1.19.
- Brazil's 1Q21 GDP grew 1.0% YOY and grew 1.2% sequentially. Industrial production increased 34.7% YOY in April, the highest YOY change since June 2010. The inflation rate rose to 8.06% in May, the fastest rate of inflation since September 2016. The manufacturing PMI increased to 53.7 in May.
- Russia's industrial production increased 7.2% YOY in April. Exports increased 3.2% sequentially in April. The inflation rate increased to 6.0% YOY in May. The unemployment rate declined to 5.2% in April from 5.4% the previous month.

## 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.

The ROW connector industry sales have grown in double digits for the last seven months primarily from easy comparison to 2020.

## **Industry Outlook – 2021**

Connector demand remains strong with bookings up +47.0% and billings up +30.7% through May 2021. These incredibly good numbers are a function of:

- Rebounding of the world economy from COVID-19 pandemic.
- Easy comparisons to the first half of 2020 when the billings were down -10.2%.

We believe it is possible that some of the current demand is also the result of hedging by companies that are concerned about potential shortages, increasing lead times, and a possible rise in connector prices.

The following table clearly shows that bookings have far exceeded billings each month in 2021.

**Bookings Versus Billings  
2021 YTD**

Month	Actual		BTB Ratio
	Book	Bill	
Jan	\$6,528	\$5,881	1.11
Feb	\$7,346	\$6,633	1.11
March	\$7,660	\$6,547	1.17
April	\$7,099	\$5,908	1.20
May	\$7,480	\$6,339	1.18
<b>YTD</b>	<b>\$36,113</b>	<b>\$31,308</b>	<b>1.18</b>

**\$ Millions**

As shown above, the industry has booked \$4,805 million more than the industry has billed through May 2021. Ideally, billings will catch up and exceed bookings in the months ahead and the book-to-bill ratio will drop below 1.0. If this happens, it will signal that manufacturing has caught up and was able to actually make and ship the backlog of orders. Conversely, if billings do not exceed bookings in the future months, it may signal that companies were hedging by over ordering. If this is the situation, connector customers will begin to cancel some of the backlog that is on order.

## **Bishop 2021 Forecast**

May 2021 was an exceptional month. Sales were up +41.5% resulting in \$6,339 million sales worldwide. Year-to-date 2021 sales are \$31,308 million, up +30.7%. The following table breaks this down by month compared to 2020 results.

### **World Connector Sales By Month 2020 Versus 2021**

Month	Actual		% Change
	2020	2021	
Jan	\$4,942	\$5,881	19.0%
Feb	\$5,235	\$6,633	26.7%
March	\$5,220	\$6,547	25.4%
April	\$4,120	\$5,908	43.4%
May	\$4,480	\$6,339	41.5%
<b>YTD</b>	<b>\$23,997</b>	<b>\$31,308</b>	<b>30.7%</b>

*\$ Millions*

Over the past 13 years (2008-2020), the first five months of the year on average have accounted for 40.57% of the full year connector sales. Assuming the historical average, 2021 world connector sales will be \$77,170 million, an increase of +23.0% over 2020 sales of \$62,727 million.

YTD May Sales	\$31,308
Historical % of Sales	40.57%
Full Yr 2021 Sales	\$77,170
Full Yr 2020 Sales	\$62,727
Sales Increase	\$14,443
% Change	23.0%

*\$ Millions*

As we noted in the May Bishop Report, the second half of 2020 was much improved over the first half which presents the industry with more difficult comparisons. As a result, the industry will probably not achieve a +23.0% growth. We believe it is more likely the industry will grow in the +15% to +18% range.

We will continue to watch this closely and report our findings.

## **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 May 2020 versus May 2021 and shows results for these three currencies.

### **Local Currency to One USD May 2020 versus May 2021**

<b>Currency</b>	<b>2020</b>	<b>2021</b>	<b>% Change</b>
Euro	0.9106	0.8297	9.8%
Yen	108.2767	107.3047	0.9%
Yuan	7.0224	6.4820	8.3%

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

### **Industry Sales Performance May 2021 USD-vs-Local Currencies**

<b>Region</b>	<b>U.S.\$</b>	<b>Local Currency</b>
North America	25.5%	25.5%
Europe	38.9%	26.5%
Japan	21.2%	20.2%
China	30.6%	20.5%
Asia Pacific	27.4%	27.4%
ROW	35.2%	35.2%
<b>World</b>	<b>30.7%</b>	<b>24.6%</b>

World connector sales are 6.1 percentage points lower when stated in local currencies rather than in US dollars, putting industry performance at +24.6% in May. (versus +30.7% in US dollars). This is the result of the continued weakening of the US dollar compared to these currencies.

## How's Business? OEM

Bishop & Associates tracks sales and profits of 13 market sectors and more than 120 companies. The objectives are to determine how selected electronic markets have performed, identify sales and profit trends for forecasting purposes, and monitor company performance within market sectors.

The following tables provide the 2019/2020 percent change in revenues, and first quarter 2020 versus first quarter 2021 sales and percent change in sales by market sector.

Market Sector	2019/2020 % Change	First Quarter 2020	First Quarter 2021	Percent Change
Telecom/Datacom	1.9%	\$84,295.3	\$114,010.0	35.3%
Automotive	-10.1%	\$369,235.9	\$430,424.0	16.6%
Industrial	-19.3%	\$81,890.4	\$81,962.0	0.1%
Mil/Aero	-5.4%	\$79,651.3	\$80,634.2	1.2%
Computers	2.9%	\$82,780.4	\$104,206.5	25.9%
Peripherals	-4.1%	\$16,643.3	\$18,075.5	8.6%
Consumer	0.5%	\$78,244.4	\$96,646.2	23.5%
Transportation	-6.2%	\$67,015.8	\$70,162.6	4.7%
Medical	2.3%	\$22,818.4	\$29,564.0	29.6%
Instrumentation	17.2%	\$11,187.9	\$15,584.0	39.3%
Semiconductors	10.4%	\$70,878.5	\$81,984.5	15.7%
CEMs	-3.8%	\$16,502.3	\$18,317.9	11.0%
Distribution	5.1%	\$15,044.5	\$19,615.6	30.4%
<b>Total Market Sectors</b>	<b>-2.7%</b>	<b>\$996,188.5</b>	<b>\$1,161,187.0</b>	<b>16.6%</b>

\$ Millions

All 13 market sectors Bishop tracks had quarter-over-quarter positive sales results in 2021.

The strongest OEM markets in Q1 2021 were instrumentation, telecom/datacom, and distribution each with quarter-over-quarter sales over 30%. Bishop monitors the semiconductor industry closely as a key market directly impacting demand for interconnects. The Semiconductor Industry Association has reported monthly year-over-year sales growth since February 2020. The increased demand for semiconductors has had a positive spill-over effect on the instrumentation market.

Other end markets outperforming were medical, up 29.6%, computers, up 25.9%, and consumer, up 23.5%. Each of these industries benefited from the demand shifts created by the COVID crisis, and the extraordinary concerted fiscal and monetary efforts by the world's leading economies. The Energy distribution market within the Industrial sector has been negatively impacting the overall industrial sector, thus resulting in only 0.1% increase Quarter-over-Quarter.

The average increase for 1Q 2021 vs 1Q 2020 was 16.6%. Due to base effects created by supply disruptions in 2020 these tracked industries will likely see unusual and explosive growth. It is something to bear in mind when evaluating future demand for interconnect products.



## **Industry News**

### **Molex to Expand Availability of Industrial Portfolio with WESCO | Anixter Distribution Agreement**

Molex has signed a distribution agreement with WESCO | Anixter, a leading provider of business-to-business distribution, logistics services and supply chain solutions. The agreement enables Molex to broaden the availability of its industrial products and solutions in North America and Europe with a world-class design, logistics and distribution partner.

Molex will offer its industrial electrical, communication and connectivity product lines, and industrial automation products through Anixter's North American and European distribution networks. Through this collaboration, Molex will drive progress in the development of fourth-generation manufacturing by delivering high-value solutions to machine builders, robot manufacturers and electrical infrastructure engineers on the front lines of the Industry 4.0 revolution.

### **Winchester Acquired Ulti-Mate**

Winchester Interconnect has acquired Ulti-Mate Connector. The acquisition expands Winchester's manufacturing capabilities and enhances their growing portfolio of custom interconnect solutions for mission-critical applications.

Ulti-Mate specializes in the design and development of microminiature connectors, nano connectors, and customized cable assemblies. Headquartered in Orange, CA the acquisition complements Winchester's existing product offerings in the Medical and Military end markets and adds a new microminiature capability to Winchester's portfolio of products which includes RF & Microwave, Hermetics, Cable Manufacturing, and Cable Assemblies.

### **PC Component Shortage to Persist**

Major PC vendors expect a shortage of key components to last another 12 months until the second quarter of next year, when PC demand wanes after two years of robust expansion according to UBS analysts. Concern has risen among investors that PC demand could weaken as the US and European economies reopen from COVID-19 lockdowns and gradually return to in-person business activities. At the annual Taiwan Conference that began on Monday, UBS analysts said they had similar discussions with companies in PC supply chains, and the feedback from major PC vendors indicated that demand remained quite strong on the back of slim inventories of two to three weeks, compared with the normal six to eight weeks. For the full year, global PC shipments are forecast to grow between 10 and 20 percent annually, Chen said, adding that growth would be slower next year.

### **Hon Hai Records Best-ever Sales for the Month of May**

Hon Hai Precision Industry Co., the world's largest contract electronics maker, has reported the highest consolidated revenue for May in its history even though it was down from the previous month. The company's sales for last month fell 9.08 percent month-on-month but jumped 17.59 percent year-on-year in May to NT\$455 billion (US\$16.50 billion), the highest ever for the month of May, according to a Hon Hai statement. In the first five months of the year, Hon Hai had consolidated sales of NT\$2.299 trillion, up 35.42 percent from the same period last year and also the highest ever for the period. In May, Hon Hai's four core product categories -- consumer electronics, computers and related devices, cloud technology-based devices, and electronic components -- all posted increases in sales from the previous year. Consumer electronics products posted the highest growth of the four categories in May largely because of booming sales of mobile phones, wearable devices, and game consoles. Similarly, all four core product lines posted

year-on-year growth in the first five months of 2021, with the consumer products group the best performer, followed by components, cloud technology-based devices, and computers.

Despite the tight supply of raw materials amid worsening COVID-19 outbreaks in Taiwan and Southeast Asia, Hon Hai's operations have gone largely unaffected because of its production capacity in other countries and regions, and the company expects revenue in the second quarter to end up even with or slightly higher than its revenue in the first quarter.

## **Tablets and Chromebooks Expected to See Continued Growth in 2021 While the Long-Term Outlook Presents Challenges**

The COVID-19 pandemic had a positive impact on the tablet market in 2020 as consumers, businesses, and schools sought tablets to stay connected, entertained, or productive. According to a new forecast from the International Data Corporation, shipments of tablets are expected to grow 1.8% in 2021 following the stellar double-digit growth in 2020. Global tablet volume is expected to reach 166.5 million units over the course of this year as consumer demand remains high. Meanwhile, Chromebooks, which often compete at similar price points, are expected to grow 33.5% during 2021 with volumes reaching 43.4 million. Sales for tablets and Chromebooks greatly expanded in 2020 due to an unprecedented demand for remote working and learning solutions. This year the need for budget friendly yet versatile devices for hybrid working and learning solutions will be paramount and this will continue to drive demand for these devices according to IDC. Beyond 2021 both categories will continue to struggle as consumer and education demand is expected to slow. With the relaxation of lockdown restrictions, consumers will begin to increase spend on travel and other modes of entertainment, which in turn will impact growth in these devices.

## **Hon Hai Expects Lighthouse Factories to Grow to 20 in 2021**

Hon Hai Precision Industry Co., the world's largest contract consumer electronics manufacturer, expects the number of its "lighthouse" factories to grow to 20 worldwide in 2021. In the virtual Forum on Tech Supply Chain Partnership, Hon Hai Vice Chairman Jay Lee said the lighthouse factories will apply smart know-how to help the company develop sustainably and strengthen its manufacturing capabilities. While Lee did not mention how many lighthouse factories Hon Hai, known as Foxconn internationally, runs currently, local media said it had 10 of them as of the end of last year. In 2018, the World Economic Forum and consulting firm McKinsey recognized nine manufacturing facilities from a survey of more than 1,000 as "lighthouse" factories for their digital transformation. The term refers to production plants that have adopted what are being described as "fourth industrial revolution" or "Industry 4.0" technologies such as artificial intelligence (AI) and the Internet of Things (IoT) in their daily operations. A lighthouse, Lee said, can help Hon Hai cut its labor force by 92 percent, raise productivity by 30 percent and lower inventory cycles by 15 percent.

## **Microsoft Reaches a \$2 Trillion Market Cap**

Microsoft has officially entered the most elite of clubs: corporations with a market value exceeding \$2 trillion. The tech giant is only the second publicly traded American company, behind Apple to reach such a valuation. Oil company Saudi Aramco, which went public in 2019, has also previously passed that mark. The company reached the \$2 trillion milestone just over two years after it first passed the \$1 trillion market cap mark. Covid-19 helped get it there. The pandemic meant people were spending more time on their devices, boosting demand for Microsoft's computers, gaming systems and cloud computing platform. And a stock market rally — along with the success of tech companies in particular — lifted its shares. Microsoft's stock has gained 64% since March 2020, when pandemic lockdowns began going into effect in the United States.

## **Ahead of Apple's iPhone 13 Launch, Supplier Foxconn Woos Workers with Record-high Cash Bonuses**

The world's largest iPhone factory, located in the central Chinese city of Zhengzhou, is offering record-high cash rewards for workers, especially experienced hands, to sign on as Foxconn Technology Group ramps up its production capacity in a fresh sign of China's central role in Apple's global supply chain. As part of its "biggest raise in the past five years", Foxconn said the unit that produces mechanical parts for the iPhone – called innovative Product Enclosure Business Group (iPEBG) – is offering up to 8,000 yuan (US\$1,237) as signing bonus to former workers willing to return to the Zhengzhou production line for the peak season, a jump from 5,500 yuan a month ago and 5,000 yuan in 2020, according to recruitment posts published on Monday by the Taiwan-based company, the world's largest electronics contract manufacturer. This year's bonus range for returning workers is the highest since the factory started operations in 2010.

## **Chip, Automotive Industries to Collaborate on Forecasting**

There are multiple reasons for the "perfect-storm" chip deficit of 2021 – Covid-19, capacity constraints, low inventories and uncertainty leading to flawed forecasts. What it boils down to, said Bettina Weiss, who heads up the Smart Mobility initiative for SEMI, is a lack of transparency between car makers and the original component makers (OCMs) that supply them. The situation demonstrated the need for constructive dialogue and collaboration along the entire supply chain to better understand industry cycles and inform inventory planning. Carmakers were seeking better supply-chain visibility even before the pandemic upended global supply lines. SEMI and the Center for Automotive Research (CAR) have since signed a memorandum of understanding to advance collaboration between the semiconductor and automotive industries. This could mitigate the effects of a sudden shift in chip demand. The chip deficit is expected to cost the global automotive industry \$110 billion in revenue in 2021, according to consulting firm AlixPartners. To be fair, all business forecasts in 2020 carried a Covid disclaimer and automotive was no different. *Per EETimes*

## **Google Claims it is Using AI to Design Chips Faster Than Humans**

Google said in a paper in the journal Nature on Wednesday that a chip that would take humans months to design can be dreamed up by its new AI in less than six hours. The AI has already been used to develop the latest iteration of Google's tensor processing unit chips. The tech giant's engineers noted in the paper that the breakthrough could have "major implications" for the semiconductor sector.

## **Chipmaker TSM Battles COVID and Drought**

Taiwan — which accounts for more than half of the world's output of chips — has been grappling for months with its worst drought in more than 50 years, an event experts say could become more frequent due to the effects of climate change. Manufacturers around the world have already had trouble securing supplies of semiconductors, delaying the production and delivery of goods. If Taiwan is hit hard, the situation could become much worse, given the island's importance in contributing to global chips supply. The environmental disaster has already been a challenge for the island's chipmakers, including industry leader Taiwan Semiconductor Manufacturing Company ([TSM](#)). TSM has said it uses 156,000 tons of water per day to produce its chips, the equivalent of about 60 Olympic-size swimming pools. TSM has already tried to address the shortage by trucking in water and by boosting recycling rates. The company told CNN Business that production has so far not been affected.

## **White House Releases US Critical Supply Chain Review**

On February 24, President Biden signed an executive order directing his advisors to survey U.S. supply chain vulnerabilities for 100 days. Now, the administration says, the results of that research—which covered semiconductor manufacturing, large capacity batteries, critical minerals and materials, and active pharmaceutical ingredients—are in, and the Executive Branch is planning its next steps, according to a fact sheet on the report published by the White House. The Department of Energy will take the lead when it comes to advanced battery technology supply chains by using \$17 billion from the Advanced Technology Vehicles Manufacturing Loan Program to finance loans to electric-vehicle battery manufacturers for expanding or establishing battery plants in the U.S. The Department will also host a Battery Roundtable later this month with representatives from different segments of the battery supply chain. The White House also directed federal agencies to examine U.S. capacity for producing the rare-earth minerals necessary for making batteries, including lithium and graphite. The Department of the Interior is being directed to work with the USDA and EPA to improve mining standards and identify places in the U.S. where critical minerals can be produced in the United States sustainably.

The Biden administration also appears interested in the potential for using recycled lithium in battery supply chains, as previously reported by Reuters: The Department of Energy's Loan Projects Office has more than \$3 billion in loan guarantees available to support "end-use energy technology," including mining as well as recovery and recycling, the White House says.

On the issue of semiconductor supply chains, the report notes the Department of Commerce has already supported \$75 billion in direct investments from the private sector in domestic semiconductor manufacturing and R&D, and it appropriates \$50 billion.

Lastly, in pharmaceuticals, the order calls for the Department of Health and Human Services to use the Defense Production Act to establish a public-private "consortium" for onshoring drugs and ingredients, starting with between 50 to 100 of the FDA's "essential medicines." The Department will also use \$60 million to develop novel platform technologies in order to increase domestic manufacturing for active ingredients.

## **Gartner Says Worldwide Smartphone Sales Grew 26% in First Quarter of 2021**

After a steep decline in 2020, global smartphone sales to end users grew 26% in the first quarter of 2021, according to Gartner, Inc. Overall worldwide mobile phone sales to end users grew 22% year over year. "The improvement in consumer outlook, sustained learning and working from home, along with pent-up demand from 2020 boosted sales of smartphones in the first quarter. Consumers started spending on discretionary items as the pandemic situation improved in many parts of the world and markets opened up," said Anshul Gupta, senior research director at Gartner. "However, one cannot ignore that the base for comparison is also lower in 2020, than it was in 2019. This explains the double-digit growth." The top three global smartphone vendors maintained their respective positions in the first quarter of 2021. The launch of mid-priced smartphones, such as phones priced under \$150, boosted Samsung's unit sales globally. The early shipping of its flagship 5G smartphones added to the company's smartphone sales growth.

# Computer Server Market Trends and Connector Use 2020-2030

Bishop & Associates Inc. has just released their newest report, *Computer Server Market Trends and Connector Use 2020-2030*. This six-chapter, 112-page research report provides detailed information on the server industry, server manufacturers, and connector usage in the server market.



Server connectors are precision-engineered, macro and miniature pin, pad, or spring contact connectors that are designed to provide secure connections: microprocessors, memory, network, storage, power connections on printed circuits, chassis, IO cables, and in 40G-100G-400G Ethernet. They are used in multiple server designs from one to 8U and attached to local and long-haul telecom networks which will eventually carry Zettabytes of data. [1 billion TBs]. Injection-molded connectors are used in HVM server applications, but there are also metal-housed connectors, including those that house 40G and above IO ports, including fiber optics. Mating cycles range from 10-100 for production server connectors and sockets and 100,000+ for test and burn-in sockets for DRAM, Flash and CPUs.

Server connectors run the gamut from Processor and DRAM Memory Sockets to HDD/SSD card edge to PCIe, power and various IO connectors. IO Connectors include RJ45, USB 3.0, VGA, LC and MPO Fiber. The motherboard may include a variety of these.

The server industry is undergoing another paradigm shift from the more predictable OEM-dominated market to one where multiple-players are vying for control, including formidable Chinese suppliers and Taiwan ODMs. The related PC market was expected to continue sub-par results but rebounded with double digits in late 2020 as a direct result of COVID. Server manufacturing is up for grabs between OEMs, ODMs, and Data Centers: DAAS providers [Data-As-A-Service, e.g., Amazon Web Services]:

**Table 2.6 Huawei Revenues & Units Shipped [est.] (Ux1000)**

Sources: IDC, Gartner, and Bishop

Year	2018	2019	2020	2025E	5-Yr CAGR 2020-2025	7-Yr CAGR 2018-2025
Huawei \$	\$7,079.0	\$5,658.0	\$5,092.0	\$X,XXX.X	Y.Y%	Y.Y%
Total Units	X,XXX	X,XXX	X,XXX	X,XXX	Y.Y%	Y.Y%
DIMM Sockets	X,XXX	X,XXX	X,XXX	X,XXX	Y.Y%	Y.Y%
LGA/PGA Sockets	X,XXX	X,XXX	X,XXX	X,XXX	Y.Y%	Y.Y%
PCIe	X,XXX	X,XXX	X,XXX	X,XXX	Y.Y%	Y.Y%
SAS/SATA/PCIe/SSF	X,XXX	X,XXX	X,XXX	X,XXX	Y.Y%	Y.Y%
RJ45/Optics*	X,XXX	X,XXX	X,XXX	X,XXX	Y.Y%	Y.Y%
Other	X,XXX	X,XXX	X,XXX	X,XXX	Y.Y%	Y.Y%
Total Connectors	XX,XXX	XX,XXX	XX,XXX	XX,XXX	Y.Y%	Y.Y%

\$ in Billions

Does not include Switches, Routers, Cabling



# Computer Server Market Trends and Connector Use 2020 - 2030

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## To Order Computer Server Market Trends and Connector Use 2020-2030



Research Report P-410-21, *Computer Server Market Trends and Connector Use 2020-2030* is available for \$3,250. 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 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 2020) NEW**
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- ❑ **Report M-1601-20**      **Top 50 Medical Interconnect Solutions Companies (December 2020)**
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- ❑ **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)**

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