

Orders Down -17.4% Sales Flat & Backlog Shrinks

Regional Performance:

World sales declined -1.1% YTD in February, with Europe achieving the highest growth at +7.0%.

Worldwide, orders were down -18.8% YTD. China and Japan had the worst performance at -25.9% each.

2023 Historical Outlook:

With uncertain economic conditions continuing to prevail, Bishop's 2023 sales forecast remains at \$85,700 million, up +1.9% over 2022 sales.

Using a historical analysis of industry sales, the full year forecast could range from \$89,961 million with 7.0% growth to \$84,091 million with -0.7% growth.

Industry Backlog:

February's backlog was \$21,422 million.

2022 Currency Impact:

The industry declined -1.1% YTD in February in USD and -4.5% in local currencies.

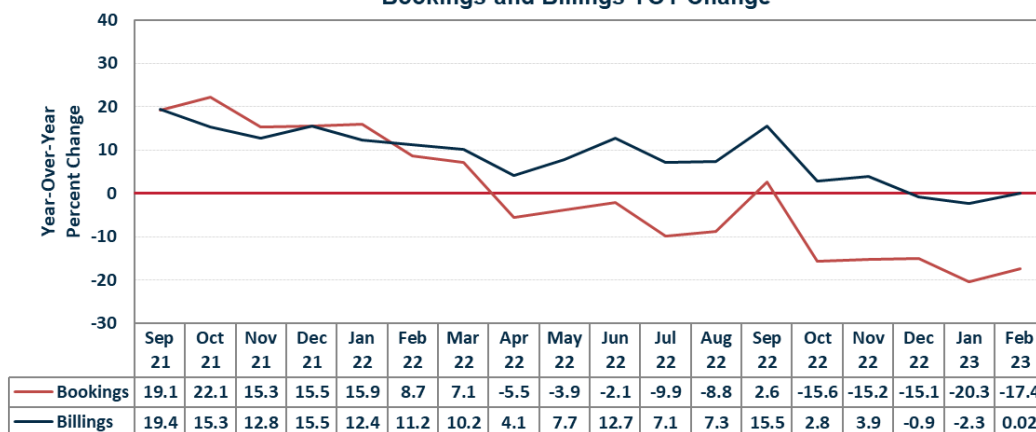
Merger and Acquisition Services

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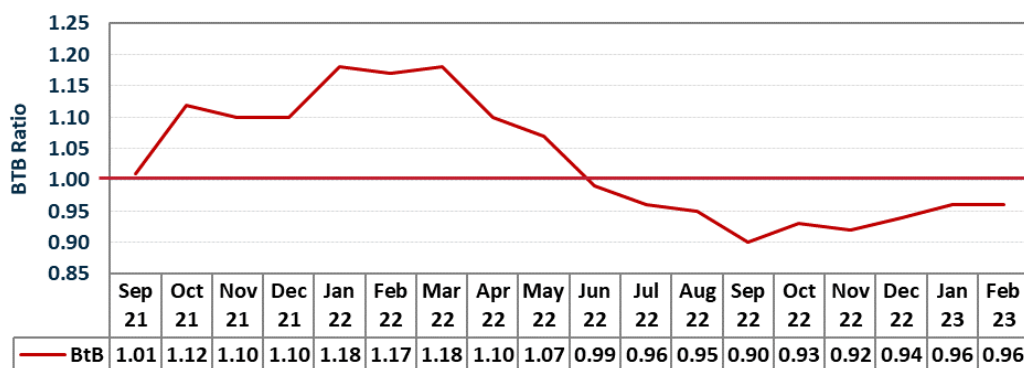
February bookings were down -17.4%, the fifth consecutive month of double-digit decline. Billings grew +0.02%. The backlog in February contracted to \$21,422 million or 12.6 weeks.

Bookings and Billings YOY Change



The book-to-bill ratio in February and YTD was 0.96.

Connector Industry Book-to-Bill

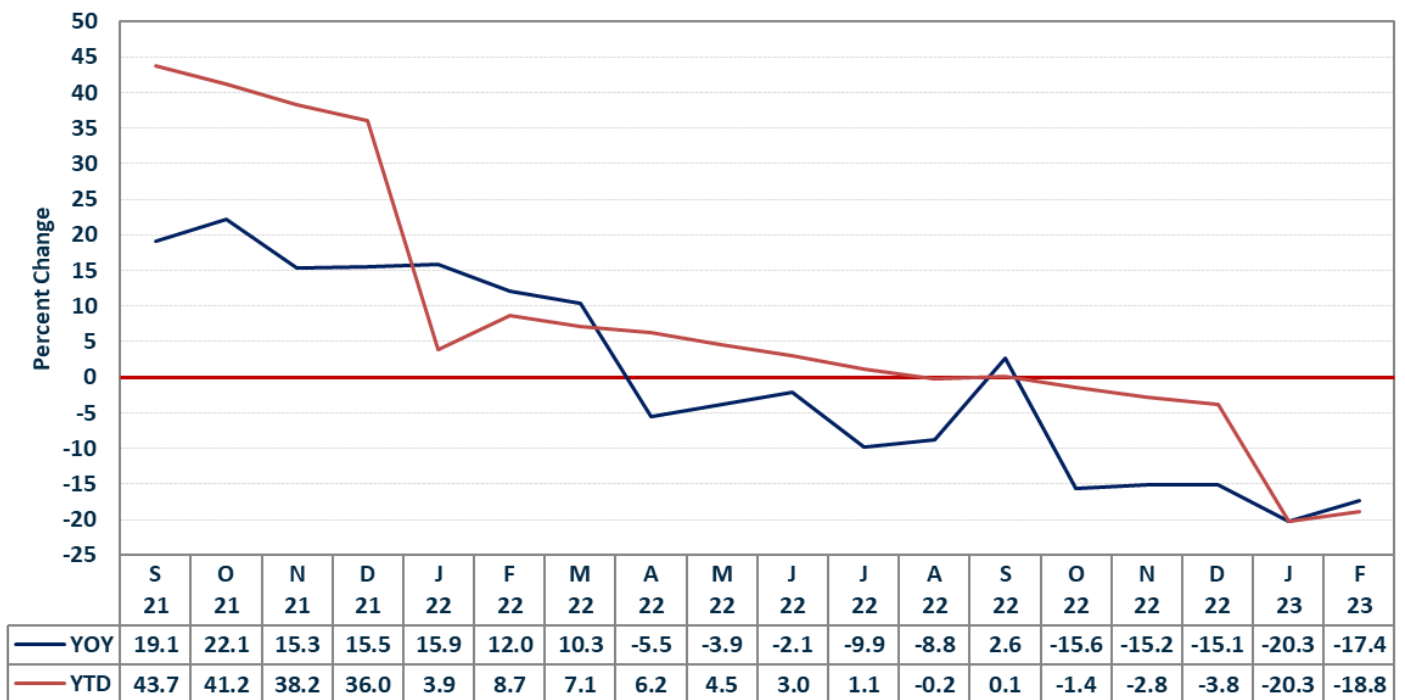


Booking Highlights and Conclusions

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

Month	Sequential			Year-Over-Year			Year-To-Date		
	2021	2022	2023	2021	2022	2023	2021	2022	2023
Jan	2.3%	2.6%	-3.7%	24.7%	15.9%	-20.3%	24.7%	15.9%	-20.3%
Feb	17.7%	10.4%	14.3%	38.9%	8.7%	-17.4%	32.0%	12.0%	-18.8%
Mar	-3.5%	-5.3%		34.5%	7.1%		32.8%	10.3%	
Apr	3.2%	-8.5%		81.9%	-5.5%		42.9%	6.2%	
May	5.1%	7.0%		86.4%	-3.9%		50.5%	4.5%	
Jun	-8.3%	-6.7%		59.7%	-2.1%		51.9%	3.0%	
Jul	-1.9%	-9.6%		36.4%	-9.9%		49.6%	1.1%	
Aug	6.6%	8.0%		32.5%	-8.8%		47.1%	-0.2%	
Sep	-11.9%	-1.0%		19.1%	2.6%		43.7%	0.1%	
Oct	6.8%	-12.1%		22.1%	-15.6%		41.2%	-1.4%	
Nov	9.3%	9.8%		15.3%	-15.2%		38.2%	-2.8%	
Dec	-7.0%	-6.8%		15.5%	-15.1%		36.0%	-3.8%	

Bookings - YOY and YTD



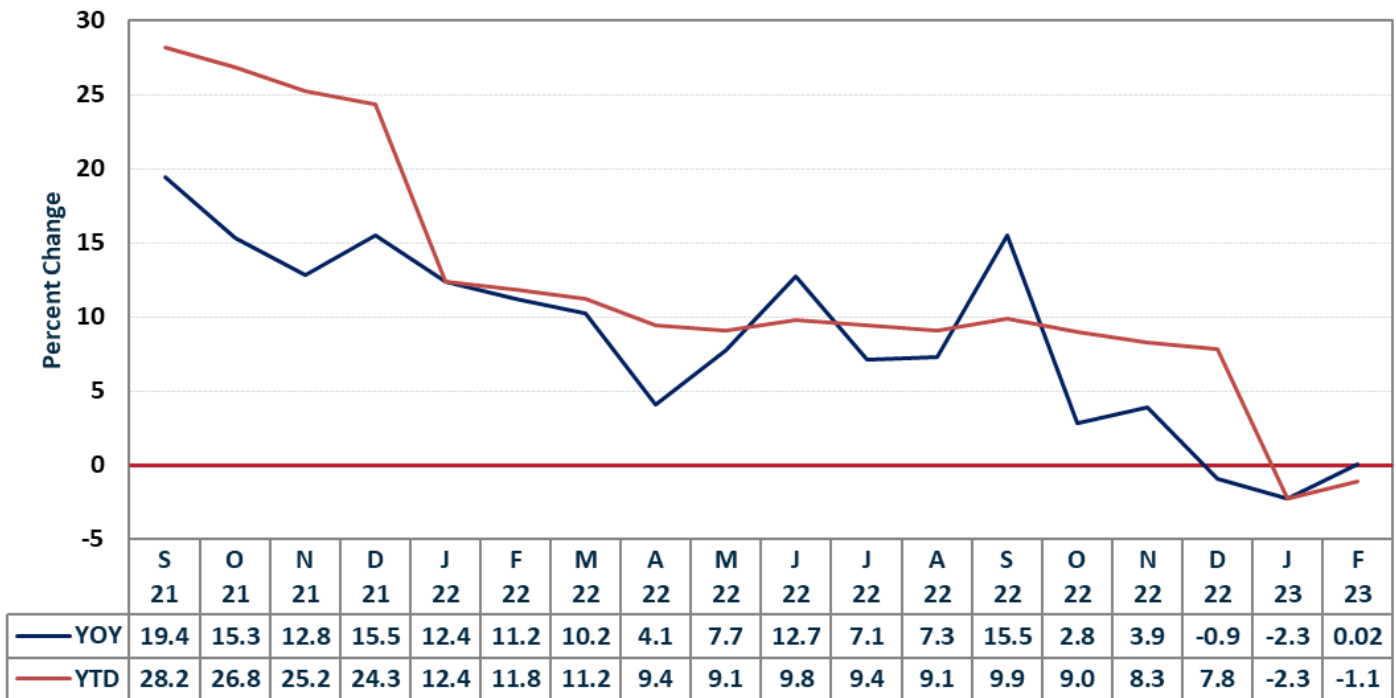
- February bookings decreased -17.4% YOY and -18.8% YTD.
- Orders increased +14.3% sequentially.
- The book-to-bill ratio for February and YTD was 0.96.

Billing Highlights and Conclusions

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

Month	Sequential			Year-Over-Year			Year-To-Date		
	2021	2022	2023	2021	2022	2023	2021	2022	2023
Jan	-1.6%	-4.3%	-5.6%	19.0%	12.4%	-2.3%	19.0%	12.4%	-2.3%
Feb	12.6%	11.4%	14.0%	26.7%	11.2%	0.02%	22.9%	11.8%	-1.1%
Mar	-1.1%	-2.0%		25.5%	10.2%		23.8%	11.2%	
Apr	-1.2%	-6.6%		49.5%	4.1%		29.4%	9.4%	
May	7.0%	10.7%		47.1%	7.7%		32.8%	9.1%	
Jun	-3.8%	0.7%		33.5%	12.7%		33.0%	9.8%	
Jul	-2.0%	-7.1%		20.6%	7.1%		31.0%	9.4%	
Aug	8.7%	8.9%		21.5%	7.3%		29.7%	9.1%	
Sep	-2.3%	5.1%		19.4%	15.5%		28.2%	9.9%	
Oct	-3.4%	-14.0%		15.3%	2.8%		26.8%	9.1%	
Nov	9.4%	10.6%		12.8%	3.9%		25.2%	8.6%	
Dec	-5.6%	-10.0%		15.5%	-0.9%		24.3%	7.8%	

Billings - YOY and YTD

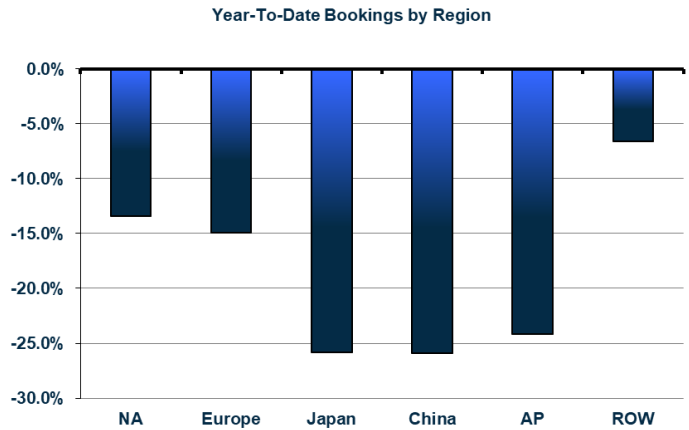


- February billings increased +0.02% YOY and -1.1% YTD.
- Sequentially, billings increased +14.0% in February.

Regional Performance: BOOKINGS

February 2023 Bookings

Region	Sequential	YOY	YTD
NA	14.8%	-9.3%	-13.4%
Europe	11.1%	-21.1%	-14.9%
Japan	14.4%	-24.3%	-25.9%
China	20.4%	-18.0%	-25.9%
AP	9.3%	-22.7%	-24.2%
ROW	15.3%	-9.1%	-6.6%
Total	14.3%	-17.4%	-18.8%

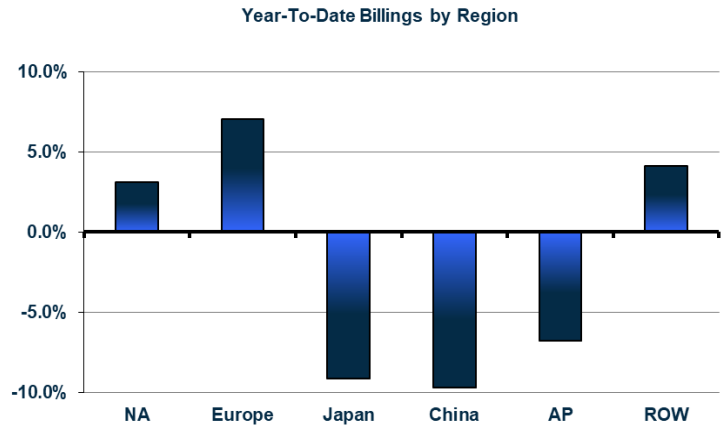


- February bookings decreased -17.4% YOY.
- Orders declined in all regions YOY.
- Japan's YOY bookings decreased the most at -24.3%.
- Sequentially, all regions showed positive growth.
- The book-to-bill ratio was 0.96, the ninth consecutive month below 1.00.

Regional Performance: BILLINGS

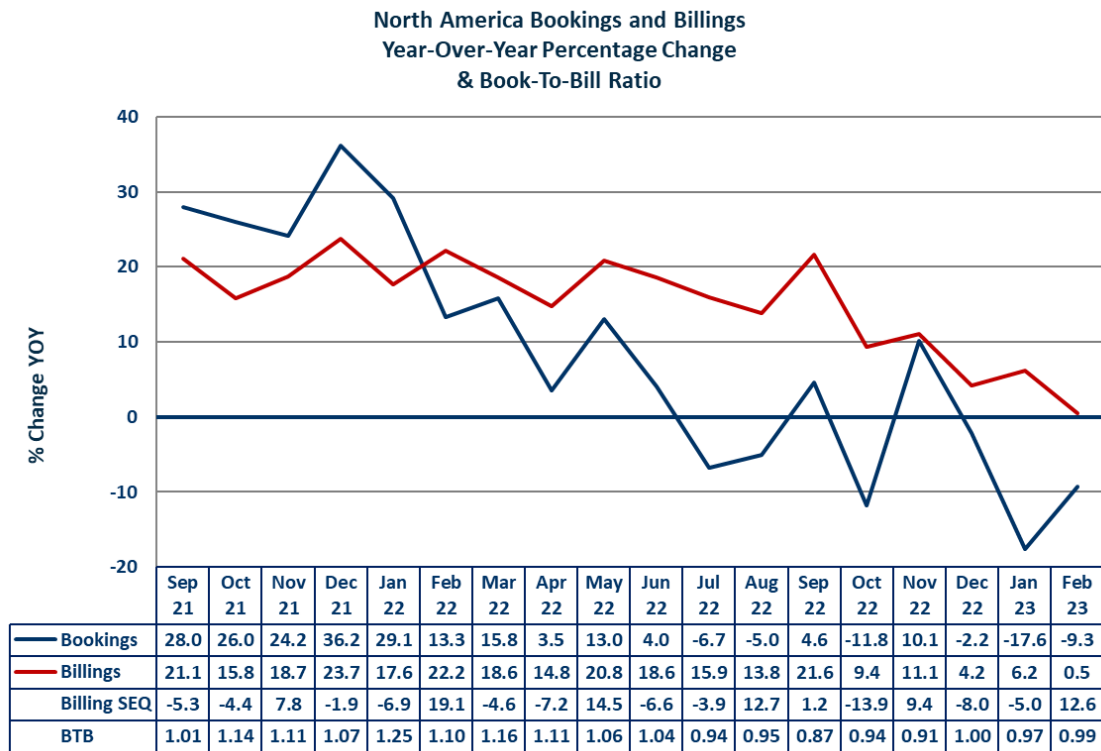
February 2023 Billings

Region	Sequential	YOY	YTD
NA	12.6%	0.5%	3.1%
Europe	14.3%	4.0%	7.0%
Japan	12.6%	-10.1%	-9.1%
China	16.4%	-0.9%	-9.7%
AP	11.4%	-4.2%	-6.8%
ROW	16.2%	3.2%	4.1%
Total	14.0%	0.02%	-1.1%



- February connector sales increased +0.02% YOY.
- All regions grew sequentially.
- Three regions grew YOY (North America, Europe and ROW).
- Industry growth is -1.1% year-to-date in US dollars and -4.5% in local currencies (see page 16).

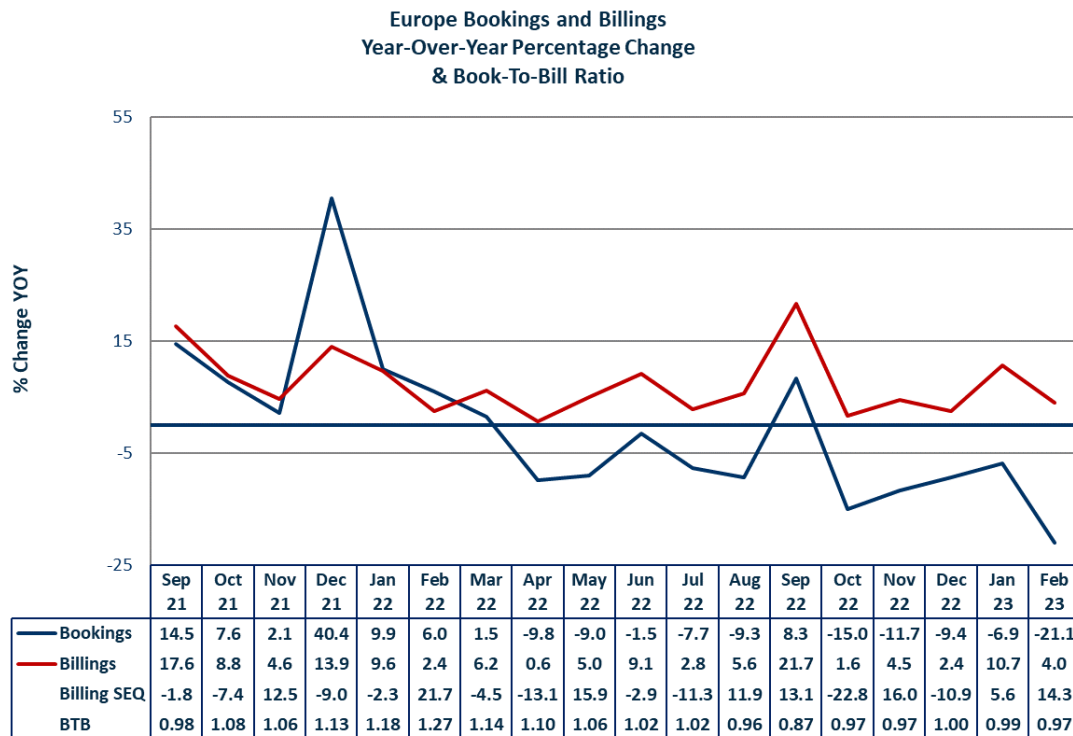
North America: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill (BTB) ratio is also displayed.



North America Performance

- Sales grew +0.5% and orders contracted -9.3% YOY in February. North American billings were up sequentially +12.6%. The book-to-bill was 0.99.
- US inflation slowed to 6.0% in February, the lowest since September 2021. The overall inflation rate has been above 5% for 21 months. Core inflation decreased to 5.3%.
- Industrial production decreased 0.25% YOY in February, the first decline since February 2021.
- Manufacturing PMI went up to 47.3 in February but was the fourth consecutive month of factory activity below 50.0.
- US unemployment was up to 3.6% in February from a 50-year low of 3.4% in January.
- Retail sales were up 5.4% YOY in February.
- Housing starts were up 9.8% sequentially in February, the highest in five months.
- US automotive sales in February increased 9.1% YOY according to MarkLines.
- Consumer confidence dropped from 67.0 in February to 53.4 in March (just prior to the SVB failure).
- US household debt increased by \$394 billion in the fourth quarter of 2022 to a record \$16.9 trillion, the sharpest increase in two decades.

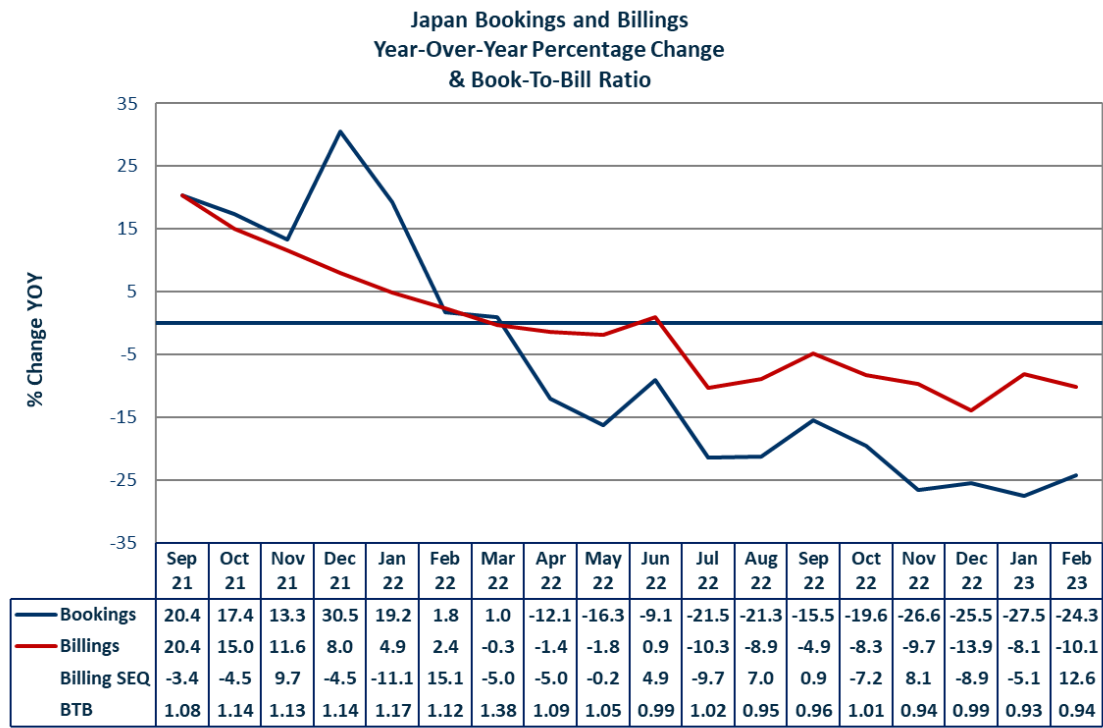
Europe: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.



Europe Performance

- YOY billings were up +4.0% and orders were down -21.1%. The book-to-bill ratio was 0.97. Sequentially, sales were up +14.3%.
- Euro Area industrial production increased 2.1% YOY in January.
- The manufacturing PMI declined slightly to 48.5 in February and represented the eighth consecutive month of declining factory activity.
- Retail sales decreased 2.3% YOY in January, the fourth straight month of declining sales.
- The inflation rate declined to 8.5% in February from 8.6% in January. Core inflation, which excludes energy and food, increased to a record high of 5.6% in February.
- New car registrations grew 12.0% in February according to Bloomberg. Shortages of semiconductors is becoming less of an issue. Sales of cars has now increased for the last seven consecutive months.
- The unemployment rate remained at 6.7% in January.
- Consumer confidence was -19.0 in February, the highest since February 2022.

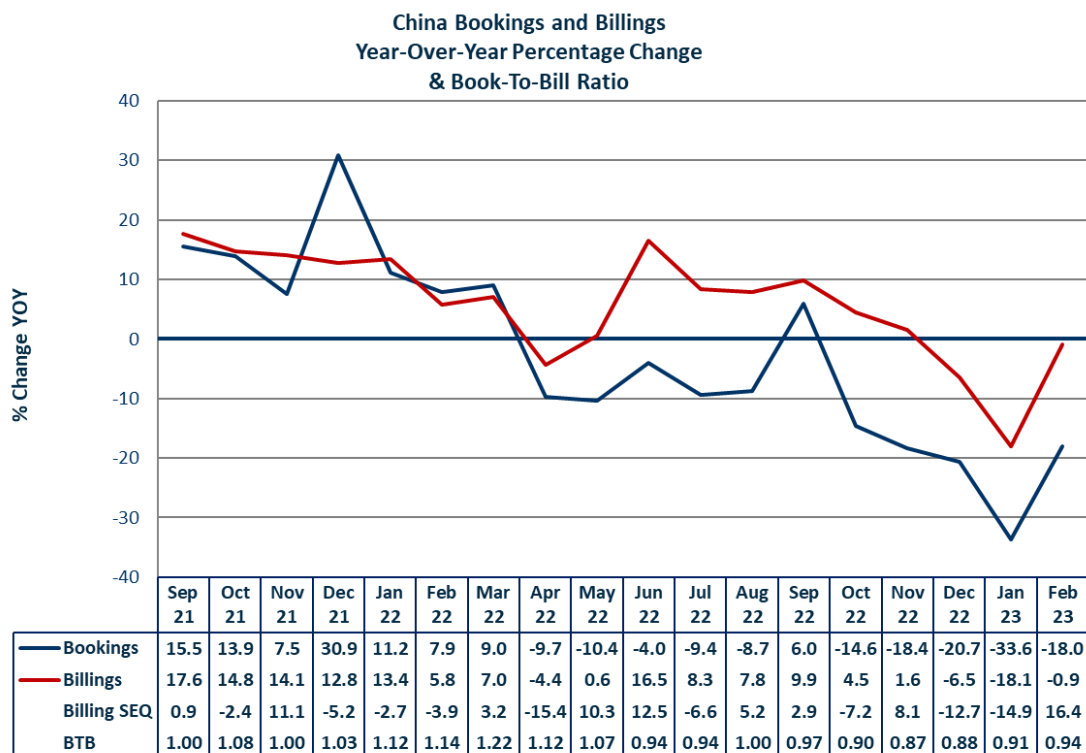
Japan: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.



Japan Performance

- Bookings were down -24.3% in February. Sales declined -10.1% YOY, and sequentially were up +12.6%. Japan's book-to-bill ratio was 0.94.
- The inflation rate in January increased to 4.3%, the highest since December 1981.
- Japan's currency devalued 15.4% against the US dollar in February YTD.
- The industrial production rate decreased 3.1% YOY in January. This is three consecutive months of decline.
- January's retail sales grew 6.3% YOY. This is the 11th straight month of growth.
- Exports were up 16.9% sequentially in February.
- The January manufacturing PMI was 47.7. This was the fourth consecutive month of contraction.
- Housing starts were up 6.6% YOY in January.
- Consumer confidence was 31.1 in February, the highest reading since August 2022.

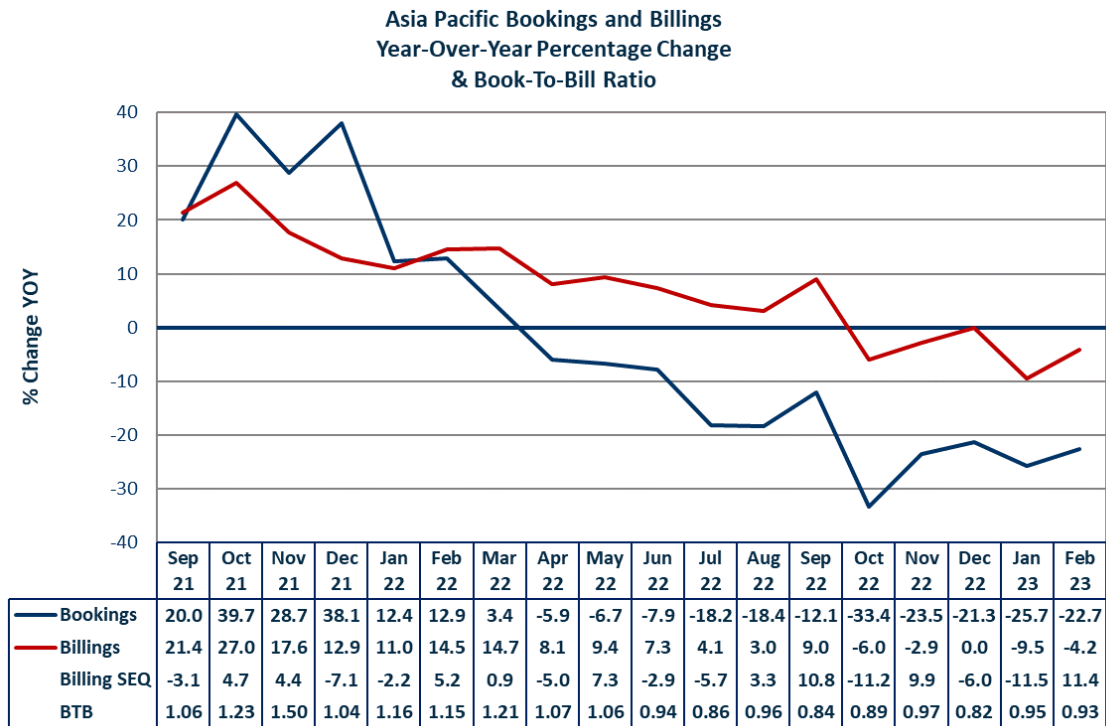
China: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.



China Performance

- China's sales decreased -0.9% YOY and orders decreased -18.0% YOY. The BTB was 0.94. Sequentially, sales increased +16.4% in February.
- Industrial production grew 2.4% YOY in February.
- China's manufacturing PMI increased to 51.6 in February, the first increase in factory activity since July 2022.
- Retail sales rose 3.5% YOY in the January/February time period.
- Exports from China decreased 6.8% YOY in the January/February time period. This was the fourth consecutive period of decline and was attributed to weak foreign demand.
- China's total vehicle sales increased 13.5% YOY in February, the first increase in four months. The increase was primarily due to aggressive price discounting on vehicles.
- The inflation rate decreased to 1.0% in February. Food inflation was at it lowest in nine months. Core inflation was at 0.6%.
- The unemployment rate was 5.6% in February.
- China's population fell by 850,000 people in 2022 to 1,411 million, the first decline since 1961. There were 9.56 million births for a record low birth rate of 6.77 births per 1,000 people as people have been less willing to have children and there was a drop in the number of women of child-bearing age.

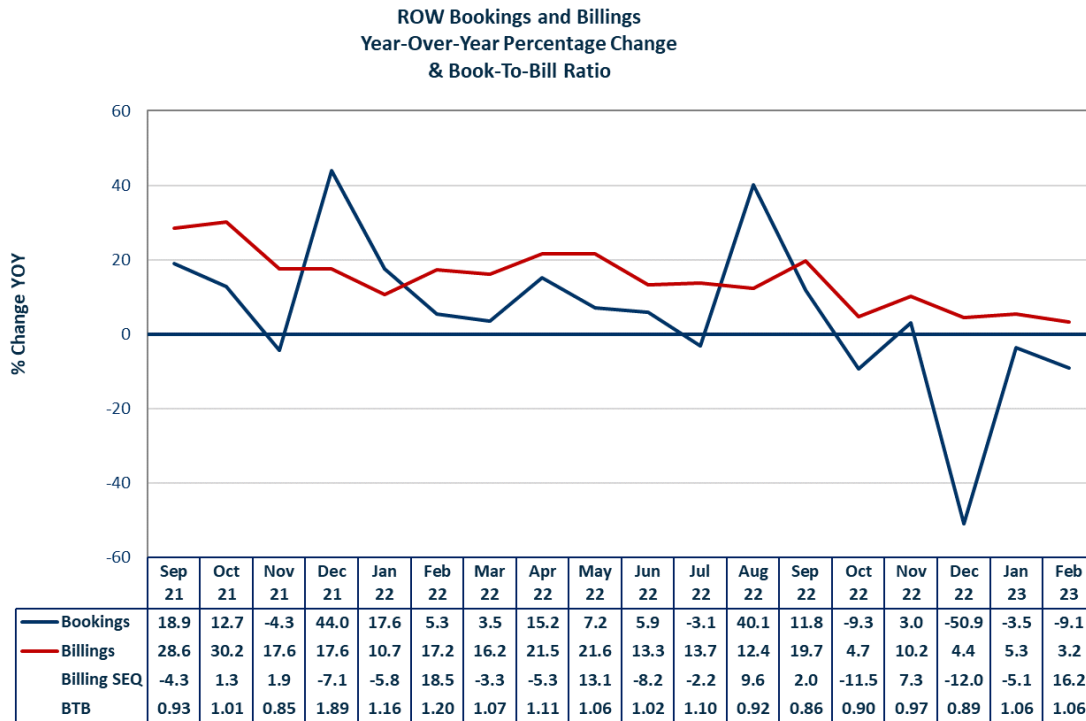
Asia Pacific: The following chart displays the year-over-year percentage change in bookings and billings for the last 18 months. The monthly book-to-bill ratio is also displayed.



Asia Pacific Performance

- Orders were down -22.7% in February and sales were down -4.2% YOY. The book-to-bill ratio was 0.93. Sequentially, sales increased +11.4%.
- India's 4Q22 GDP expanded 4.4% YOY. Industrial production grew 5.2% YOY in January. Exports decreased 8.8% YOY in February. Electrical and electronic equipment only represents 4.8% of total exports. The manufacturing PMI decreased slightly to 55.3 in February, a four month low. There have been, however, 20 straight months of expansion. Inflation in February decreased to 6.44%.
- South Korea's 4Q22 GDP grew 1.3% YOY but contracted 0.4% sequentially. Industrial production fell 12.7% YOY in January for the fourth straight month of declines. Exports decreased 7.5% YOY in February after a 16.6% drop in the prior month. Electrical and electronic equipment comprise 31% of their exports. The manufacturing PMI was 48.5 in February for the seventh consecutive month of contracting factory activity. Inflation decreased to 4.8% in February.

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 decreased -9.1% and sales increased +3.2% YOY in February. Sequentially, sales in the region increased +16.2%. The book-to-bill ratio was 1.06.
- Brazil's 4Q22 GDP grew 1.9%YOY and contracted 0.2% sequentially. Industrial production declined 1.3% YOY in December and the inflation rate decreased to 5.6% in February. The manufacturing PMI rose to 49.2 in February but remains below numbers posted prior to November 2022. The unemployment rate rose to 8.4% in the three months to January, the lowest rate for this period since 2015. Exports fell 7.7% YOY in February. Retail sales grew a mere 0.4% YOY in December.
- Russia's economic data is still questionable but here are a few data points. 2Q22 GDP contracted 4.1% YOY and 3Q22 GDP contracted 3.7% YOY. The GDP for 2022 is reported at a contraction of 2.1%. Their industrial production has shown no growth for the last 10 months. Their retail sales have shown decreasing sales for the last 10 months.

Industry Backlog Shrinks to 12.6 Weeks

The industry averaged \$340 million in daily shipments in January and February 2023. This equals \$1,700 million sales per week. The ending backlog is down to \$21,422 million or 12.6-weeks supply.

We ended 2022 with 14.2 weeks of backlog. The decline to 12.6 weeks is a function of lower demand.

The following table compares 2022 industry backlog to the February 2023 ending backlog.

Industry Backlog

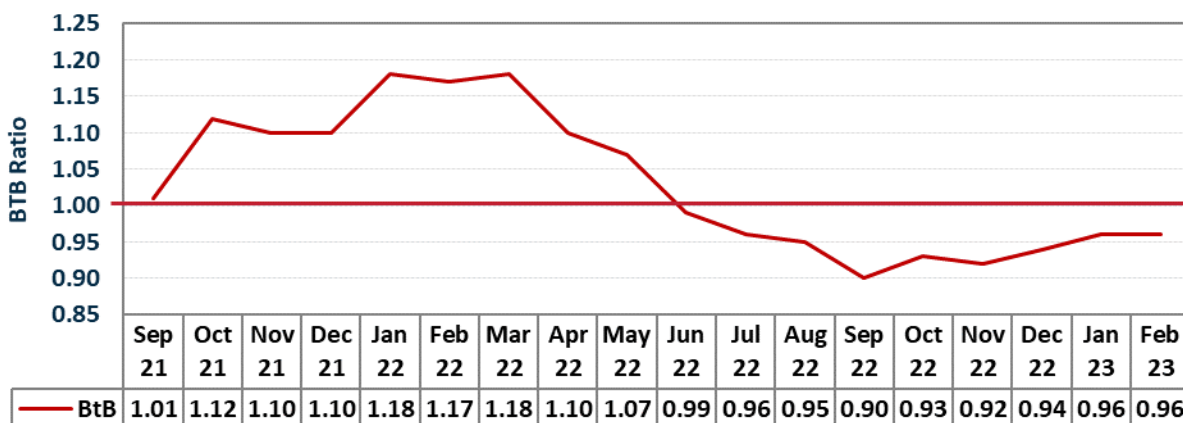
	2022	YTD Feb 2023
BtB Ratio	1.01	0.964
Beginning Backlog	\$21,499	\$22,983
Bookings	\$85,575	\$12,383
Billings	\$84,091	\$13,944
Ending Backlog	\$22,983	\$21,422
Backlog in Weeks	14.2	12.6

\$ Millions

You will note that in two months, the backlog has declined by \$1,561 million.

The industry has reported nine consecutive months of below 1.00 book-to-bill ratios. This is shown in the following graph. February's BTB ratio is 0.96 to 1.00.

Connector Industry Book-to-Bill



The book-to-bill ratio has been below 1.00 for nine consecutive months beginning in June 2022.

Ending Backlog Since May 2022

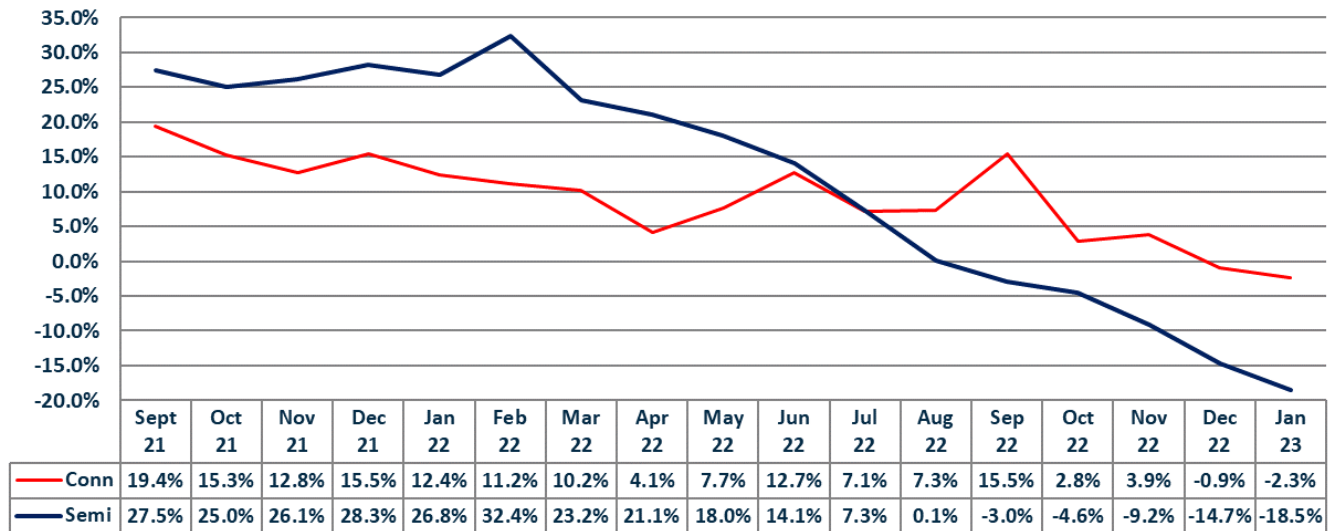
Month	Ending Backlog	BTB Ratio
May	\$26,373	1.07
June	\$26,302	0.99
July	\$26,036	0.96
August	\$25,673	0.95
September	\$24,846	0.90
October	\$24,396	0.93
November	\$21,828	0.92
December	\$22,983	0.94
January	\$22,725	0.96
February	\$21,422	0.96

\$ Millions

It is evident that demand is slowing:

- Orders were down -20.3% and -17.4% respectively in January and February 2023.
- The book-to-bill ratio has been below 1.0 for nine consecutive months (see above chart).
- The two largest connector companies both forecast a small decline in the first calendar quarter of 2023.
- The semiconductor industry has reported five consecutive months of year-over-year sales declines which is never a good sign for electronics globally. (see the following chart)

Semiconductor and Connectors Monthly Year-Over-Year Sales Performance



Connector sales growth was higher than semiconductors for the sixth month in a row. Semis sales growth has been negative for five consecutive months.

2023 Outlook: A Historical Perspective

One method of forecasting is analyzing what has happened in the past and using that analysis to project future results. This section uses past sales results to estimate the range of possible sales outcomes for 2023.

Previously, we used 15 years of past sales results which included the period of 2008 – 2022. This period included the housing and financial meltdown. To eliminate anomalies such as this, we elected to use sales results from the past five years (2018 – 2022).

Over the past five years, January and February averaged 16.2% of full year sales. Year-to-date February, we have shipped \$13,944 million. Should the average repeat for 2023, we will ship \$86,074 million which is a sales increase of +2.4%.

The following table presents a high, average, and low range of sales outcomes for 2023.

2023 Forecast Range

	Five Year Historical Range		
	High	Low	Average
Feb YTD Hist Sales %	15.5%	16.7%	16.2%
Feb Actual Sales	\$13,944	\$13,944	\$13,944
Full Year Forecast	\$89,961	\$83,497	\$86,074
2022 Actual Sales	\$84,091	\$84,091	\$84,091
% Increase/Decrease	7.0%	-0.7%	2.4%

\$ Millions

The following table summarizes the analysis including the Bishop forecast for 2023.

Category	2023 Forecast	% Growth
5 Year High	\$89,961	7.0%
5 Year Average	\$86,074	2.4%
Bishop Forecast	\$85,700	1.9%
5 Year Low	\$83,497	-0.7%

\$ Millions

Using the historical method, the industry will achieve sales growth in the range of +7.0% to -0.7%. The Bishop forecast is for growth of +1.9%.

Strong U.S. Dollar Reduces Growth from -1.1% in USD to -4.5% in Local Currencies

The dollar has been strengthening against the euro, the yen, and the yuan. The following table measures the impact for February 2022 versus February 2023 and shows results for these three currencies.

Local Currency to One USD February 2022 versus February 2023

Currency	2022	2023	% Change
Euro	0.9083	0.9336	2.8%
Yuan	6.3449	6.8357	7.7%
Yen	115.2679	132.9753	15.4%

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

The following table shows February YTD sales performance by region in US dollars and local currencies.

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

Region	U.S.\$	Local Currency
North America	3.1%	3.1%
Europe	7.0%	4.0%
Japan	-9.1%	-23.1%
China	-9.7%	-16.6%
Asia Pacific	-6.8%	-6.8%
ROW	4.1%	4.1%
World	-1.1%	-4.5%

Connector sales are 3.4 percentage points lower when stated in local currencies rather than in US dollars, putting industry performance at -4.5% growth in February (versus -1.1% in US dollars). This is the result of a stronger US dollar, on average, compared to the three primary currencies. This potentially shows no real growth in Europe, China, and Japan in unit volume.

Significant Events

Global Smartphone Shipments Expected to Decline 1.1% in 2023 as Recovery Is Pushed Forward into 2024 Amidst Weak Demand

International Data Corporation has revised its worldwide smartphone forecast due to a slower market recovery than previously expected. According to the latest Worldwide Quarterly Mobile Phone Tracker forecast, shipments of smartphones will decline 1.1% in 2023 to 1.19 billion units, down from the 2.8% growth in the prior forecast as market continues to suffer from weak demand and ongoing macroeconomic challenges. Real market recovery is not expected to occur until 2024, when IDC expects 5.9% year-over-year growth followed by low single-digit growth leading to a five-year compound annual growth rate (CAGR) of 2.6%.

5G continues to grow and will account for 62% of smartphones shipped worldwide in 2023, rising to 83% by 2027. Market momentum also continues to build around foldable phones as the segment is expected to grow to nearly 22 million units this year – a 50% increase while the overall market contracts. This segment will continue to grow as costs decrease and more OEMs launch this form factor, as we have seen this week with multiple Android foldable launches at Mobile World Congress. Finally, smartphone average selling price (ASP) that saw rapid growth over the last few years (from \$334 in 2019 to \$415 in 2022) will begin to decline starting in 2023 and is expected to reach \$376 by end of the forecast period.

After a Record Year, PC Workstation Shipments to Slow in 2023 but Future Outlook Remains Solid

The global desktop and mobile workstation market began 2022 with strong momentum but ultimately faced saturation and economic realities near the year's end. Unit shipments in the fourth quarter of 2022 (22Q4) shrank 22.2% compared to a year ago as IT device spending slowed amidst economic concerns and fulfillment of backlogged orders, according to the International Data Corporation.

For the entire year, the market still managed to achieve a shipment record of nearly 7.7 million units, growing 2.1% and surpassing the previous record of 7.5 million set in 2021. Unlike the year prior, which saw unprecedented mobile workstation adoption due to work from home, the gains in 2022 came from the return to office momentum that sparked a desktop workstation recovery while the mobile side was flat. Nonetheless, one permanent change wrought by COVID-19 is that IDC expects the mobile form factor to be the dominant device going forward in markets where hybrid work has taken root.

Dell remained in the top spot, wrapping up 2022 as the only vendor with share gains. The vendor's measured approach to inventory management helped it weather the sector downturn better than others. At number two, HP Inc. continued its focus on mobile form factors but was hurt by earlier aggressive channel shipments. Third place vendor Lenovo saw its share dip for the year due to slowing demand for its premium and value-tier models. ASUS maintained its niche in the desktop workstation space and overtook NEC in 2022 for the fourth spot.

IDC expects global shipments to decline 4.2% year over year in 2023 as the market cools and the focus shifts to inventory clearing and budget discipline. Beyond 2023, expanding workload requirements should stimulate shipments to help drive solid recoveries in 2024 and 2025.

PC and Tablet Shipments to be Down 11% in '23 on Low Demand

PC and tablet shipments will decline by 11.2% in 2023, IDC said in a revised forecast, noting “the tide had been building for a market slowdown for some time.”

IDC said consumers are no longer bound by Covid restrictions and commercial backorders have already been completed for PCs. “The second half of 2022 sent a strong signal that endpoint devices are no longer the

focal point and that 2023 will be a time for inventory clearing and shifting priorities,” the analyst firm said in a statement.

IDC analyst Jitesh Ubrani said sunseting of Windows 10 should drive PC refreshes in 2024 and 2025 for the commercial sector. Deployments in schools have permanently increased the size of the total addressable market.

Apple has shown steady and slow commercial growth sales in recent quarters but is expected to fall behind performance of Microsoft and Google tablets and PCs over the next two years. In 2024, Google and Microsoft year-to-year growth will reach 4%, compared to 2% for growth for Apple that year. Apple macOS and iOS, however, should tie with year-to-year growth of Chrome+Android and Windows in 2026, all at about 1.5% growth.

IDC said global shipments in 2023 of PCs and tablets will reach 403 million units, down from 429.5 million forecast in December.

Various chipmakers have cited the reduced demand for both smartphones and personal computers citing surplus inventory and declining demand amid a tough macroeconomic climate. A growth mode is expected in 2024 and 2025.

PC Workstation Shipments Grew by 2.1% in 2022, But 2023 Will be a Tough Year

The latest numbers provided by International Data Corporation are depicting a bittersweet snapshot of the PC workstation market. The sector grew in 2022, experiencing "strong momentum" at the beginning of the year while concluding the last quarter facing saturation and a harsher economic reality.

For the entire year, IDC said, the market experienced 2.1 percent growth with nearly 7.7 million units shipped – a record-breaking result compared to the 7.5 million units shipped in 2021. Unlike the previous year, when remote and home working pushed for an unprecedented mobile workstation adoption amid the Covid-19 pandemic, the 2022 gains came from a "desktop workstation recovery" (due to employees coming back to the office) while the mobile side of the business fell flat.

IDC also provided data for the five largest companies in the workstation market, with Dell keeping the top spot and a 41.4 percent market share. At the end of 2022, the Texas-based corporation grew by 6.4 percent, shipping around 3.1 million workstations thanks to a "measured approach" to inventory management. HP Inc. was number two (+1.2 percent year-over-year) with a continued focus on mobile form factors, while third-place vendor Lenovo experienced negative growth (-3.2 percent) due to the slowing demand for its premium and value-tier models.

IDC is forecasting a global shipment decline of 4.2 percent for 2023. Shipments should, however, return to a solid recovery in 2024 and 2025.

Worldwide Hardcopy Peripheral Shipments Increased 11.6% in the Fourth Quarter

The worldwide hardcopy peripherals market saw overall shipments grow 11.6% year over year to nearly 25.0 million units in the fourth quarter of 2022 (4Q22). Shipment value during the quarter increased 14.8% to \$11.1 billion, according to the International Data.

The strong gains during 4Q22 weren't enough to fuel shipment growth for the full year – the overall market declined 1.4% year over year for 2022. However, market value improved 0.7% year over year to approximately \$39.9 billion for all of 2022.

Notable highlights from the quarter include:

- The top 3 regional markets all recorded year-over-year growth during 4Q22 with China (PRC) leading the way with 31.7% growth, followed by Western Europe at 13.1% and the United States at 7.2%. Contributing to these gains were improved microchip/component supplies and adequate inventory to meet consumer and business demands. Despite the gains in 4Q22, Western Europe and the U.S. both saw a year-over-year decline in shipments for the full year 2022, down 4.1% and 6.2%, respectively. China ended the year with shipment growth of 8.2% for 2022.
- The top 5 vendors all saw year-over-year growth in 4Q22. Key drivers for this growth include improved supplies, increased consumer demand, robust consumer promotions, and enhanced channel incentives.

Singapore PC Market Fell 11% in 2022 Due to Global Uncertainties and Changing Demand Patterns

Singapore's PC market declined 11% in 2022, totaling 1M units shipped to the country, according to IDC. This decrease can be attributed to weakening demand across different segments. Following a two-year sales boom during the COVID-19 pandemic when demand was fueled by work from home, online learning, and gaming, PC sales in Singapore finally slowed as post pandemic life returned to normal and spending habits shifted back to leisure activities such as travelling. Inflation is a headwind in the market now, and a lot of demand was fulfilled during the pandemic, making PC purchases no longer a priority.

Lenovo remained the market leader in 2022, while HP Inc. dropped to third place as public sector shipments subsided. This allowed Dell Technologies to climb to the second spot, as the company capitalized on growth in the very large business segment.

While demand from the very large business segment continued to be strong, small, and medium-sized businesses purchased PCs on a much smaller scale, and with the macroeconomic situation becoming more and more unstable globally, many companies cut down on spending.

Putting all the factors together, the PC market in Singapore is expected to remain soft in 2023, falling 17% because of inventory corrections, dwindling private sector demand, and a drop in public-sector projects.

North American EMS Industry Up 10.1 Percent in January

IPC announced the January 2023 findings from its North American Electronics Manufacturing Services (EMS) Statistical Program. The book-to-bill ratio stands at 1.35. Total North American EMS shipments in January 2023 were up 10.1 percent compared to the same month last year. Compared to the preceding month, January shipments decreased 3.7 percent.

EMS bookings in January decreased 4.8 percent year-over-year and increased 1.0 percent from the previous month.

Apple Supplier Foxconn Expects Decline in Consumer Electronics Demand

Major Apple supplier Foxconn reported a 10% year-over-year decline in profit for 2022 and anticipated a decline in consumer electronics demand for the full year ahead, the company said in its earnings report.

The negative sentiment reflected Apple's muted expectations for consumer sales. When Apple reported first-quarter 2023 results, Chief Financial Officer Luca Maestri said the company anticipated double-digit declines for Mac and iPad sales for the coming March quarter compared with the prior year. The company added that iPhone sales will decline less in the March quarter compared with the December quarter.

Foxconn will continue to expand its presence beyond mainland China and said the exploration of new markets was a key priority for the company in 2023. Earlier this year, Foxconn committed to a major expansion of its presence in India.

Foxconn beat analysts' top-line estimates, recording 511.85 billion Chinese yuan (\$74.14 billion) for the full year, versus a consensus estimate of CNY493.95 billion, according to FactSet, but it missed on the bottom line with a net income of CNY20.07 billion.

Taiwan-based Foxconn is a major manufacturer for consumer technology firms, but it is best known for its relationship with Apple, which relies on Foxconn to produce and assemble its iPhone, among other products.

Hon Hai Posts Lowest Revenue in 16 Months Due to Lackluster Performance

Hon Hai Precision Industry reported a month-on-month revenue decrease of 39.12 percent to NT\$402.04 billion (US\$13.13 billion) last month, the lowest in 16 months. On an annual basis, the company posted a 11.65 percent revenue decline.

February's revenue was the lowest since August 2021, when the firm reported NT\$400.05 billion in revenue. However, it was also the second-best February performance in the company's history, the iPhone assembler said in a statement.

February last year ranked the highest for the same period, with NT\$455.03 billion in revenue, it said. The world's biggest contract electronics maker attributed last month's revenue decrease to a lackluster performance across its four major business groups: smart consumer electronics, cloud and networking technology, computing products, and components and other products. Smart consumer electronics, cloud and networking technology, and computing products all posted lower sales last month due to slowing pull-in orders from customers, and a relatively high comparison base last year, while sales of components and other products posted a relatively flat performance.

Hon Hai's consolidated revenue in the first two months of 2023 was NT\$1.06 trillion, up 17.94 percent from NT\$900.78 billion a year earlier, which is the highest January-to-February figure in the company's history.

South Korea to Build World's Largest Chip Center with \$230 Billion Investment from Samsung

South Korea says it will build an enormous facility to make computer chips in the greater Seoul area, with about \$230 billion in investment from memory chip giant Samsung Electronics. The plans were announced by President Yoon Suk Yeol and confirmed by the electronics giant.

iPhone supplier Foxconn will Build a Factory in India, Moving Away from China

Foxconn, one of Apple's largest suppliers and a major manufacturer of iPhone components, will invest about \$700 million to build a new plant in India's Karnataka state, Bloomberg reported. The report comes as US companies continue to reevaluate their reliance on China in the wake of mounting tension between the US and the Chinese government.

Bloomberg said Foxconn will build an iPhone parts plant on a 300-acre site near Bengaluru's Kempegowda International Airport. Bengaluru, also known as Bangalore, is the capital of Karnataka state, which lies on the southwestern coast of India and has one of the highest per-capita GDP levels of any Indian state. Government officials confirmed Bloomberg's reporting, writing that the new plant would create 100,000 jobs. The effort will be one of the largest investments by Foxconn in India. Bengaluru is considered one of the leading engineering and technology hubs in India.

Foxconn and technology suppliers more broadly have looked to diversify beyond China, which has been a traditional hub for manufacturing, in the wake of devastating Covid lockdowns and manufacturing slowdowns. India and Vietnam have emerged as top contenders to supplant China's dominance in the manufacturing and supply space. CNBC has previously reported on comments from Indian government officials which claimed

that Apple sought to ramp up production in India to account for 25% of their total output. Foxconn already maintains a presence in India through a Chennai-proximate factory in eastern India.

Tech Companies Bank on Autos to Offset Dismal Electronics Demand

Tech manufacturers from chipmakers to product assemblers are turning to the electric vehicle market to offset a lingering slowdown in consumer electronics.

But while the shift into cars promises higher margins and new markets for some companies, analysts warn that EVs alone may not be enough to counter sluggish demand for smartphones and other devices.

Foxconn, the world's largest contract electronics manufacturer and a bellwether for the tech industry, is cautious about the overall economic outlook but positive on the EV industry. The iPhone assembler has been shifting aggressively into the auto sector as its mainstay business segments face slowing growth. Foxconn is betting on the EV business to boost its gross margin to 10% by 2025, from just over 6% in 2021.

Margins tend to be higher in automotive than in consumer electronics, although exact levels vary depending on the component or service. The profit margin for assembling electronic devices, for example, is around 5% or less. The margin for making automotive electronics components is easily above 10%.

Pegatron, a smaller iPhone assembler, and Compal Electronics, which makes Dell computers, both said their automotive businesses will be growth drivers this year. Foxconn, Pegatron and Compal are all increasing their presence in Mexico to meet growing demand for automotive electronics for the North American market.

The electrification of vehicles gives the tech supply chain a unique opportunity to penetrate the auto supply chain because EVs need far more semiconductors, electronics systems, and power management systems than traditional cars.

Taiwan Semiconductor Manufacturing Co revenue from automotive chips increased 74% on the year, accounting for 5% of the chipmaker's record revenue of 2.26 trillion New Taiwan dollars (\$75.88 billion) last year. Automotive chips contributed 4% of TSMC's total revenue in 2021.

Samsung Targets Satellite-Enabled Smartphone Chips After Surprise iPhone 14 Feature

Samsung has said it has developed a system that will allow smartphone users to send data via satellite, intensifying the race among tech companies to connect phones to non-terrestrial networks.

New modem technology from the South Korean consumer electronics giant will enable two-way messaging, as well as the sharing of images and videos. The data is sent to low-Earth orbit satellites in space and sent back to Earth-based stations before reaching end users.

Samsung hasn't yet launched its satellite capabilities. However, the firm said it plans to include the technology in its Exynos mobile processors, hinting at a move to bring the system to its Galaxy smartphones.

The move comes not long after Apple announced the launch of its iPhone 14 with a feature that lets users alert the emergency services by pointing their phones at a satellite in space and choosing from a range of issues they are facing.

Satellite phones are not yet a commercially mainstream technology. However, device makers are betting on the untapped opportunity of putting satellite phones in the hands of people in remote areas that fall outside the reach of terrestrial telecoms infrastructure.

India's Tablet Momentum Continues Despite Weak Global Demand

Despite macroeconomic headwinds that face the world, India's tablet market saw huge growth amid speeding roll-out and rising 5G services, with the momentum expected to continue over the next quarters. According to CMR's market tracker, India's 5G tablet shipments grew 170% year-on-year in 2022, with overall tablet shipments increasing 6% annually.

Lenovo continued leading the market by a 29% share despite a 33% annual shipment decline. Other major brands, such as Apple, Samsung, Lava, and Realme, saw double-digit growth for the past year.

In contrast, the global tablet market is still challenged by weak demand. DIGITIMES Research analyst Nancy Hsu estimates that following the 2% fall in tablet shipments in 2022, global tablet shipments are expected to fall 17% quarter-on-quarter in the first quarter of 2023.

Mexican President Says Tesla will Build a New Plant in Mexico

Tesla will build a new plant in Monterrey, Mexico, and adhere to a series of commitments to address water scarcity, the nation's president announced at a press conference Tuesday. President Andrés Manuel López Obrador said Tesla agreed to use recycled water at the plant throughout the entire vehicle manufacturing process, even down to the cars' paint.

Obrador said the plant will be a considerable investment, and that it will result in "many, many jobs."

Monterrey is an industrial city near the US-Mexico border, and it has long been considered a frontrunner for investment from Tesla. The company currently has two other car plants outside of the US located in China and Germany.

Ford Wants to be Able to Shut Down Your Air Conditioner and Radio if You Miss a Car Payment

Ford Motor Co. has filed for a patent on technology that could remotely shut down your radio or air conditioning, lock you out of your vehicle, or prompt it to ceaselessly beep if you miss car payments. Ford said it has no plans to use the technology, contained in just one of the many patents filed by the auto-making giant.

Still, it emerges at a troubling time for car owners. Loan delinquencies have been steadily ticking back up from their pandemic lull. Cox Automotive data showed severely delinquent auto loans in January hitting their highest point since 2006. The use of technology to aid repossessions isn't new, but the patent application is wide-ranging, even proposing the idea that an autonomous vehicle could drive itself to a "more convenient" location to be collected by a tow truck.

According to the Ford patent application for repossession-linked technology, cruise control and automated windows could be disabled if a consumer doesn't acknowledge a notice of an overdue car payment. Ford could also shut down key fobs, door locks — even the accelerator or the engine itself.

"Disabling such components may cause an additional level of discomfort to a driver and occupants of the vehicle," the patent application states.

Wes Sherwood, a spokesman for the Dearborn, Michigan-based automaker, said Ford has "no plan to deploy this." Ford was granted more than 1,300 patents in 2022 as part of "encouraging a culture of innovation," the automaker said in an email.

Microsoft is Bringing ChatGPT Technology to Word, Excel, and Outlook

Microsoft has outlined its plans to bring artificial intelligence to its productivity tools, including Outlook, PowerPoint, Excel, and Word, with the promise of changing how millions do their work every day.

The company announced that Microsoft 365 users will soon be able to use what the company is calling an AI “Co-pilot,” which will help edit, summarize, create and compare documents. With the new features, users will be able to transcribe meeting notes during a Skype call, summarize long email threads to quickly draft suggested replies, request to create a specific chart in Excel, and turn a Word document into a PowerPoint presentation in seconds.

Microsoft is also introducing a concept called Business Chat, an agent that essentially rides along with the user as they work and tries to understand and make sense of their Microsoft 365 data. The agent will know what’s in a user’s email and on their calendar for the day as well as the documents they’ve been working on, the presentations they’ve been making, the people they’re meeting with, and the chats happening on their Teams platform, according to the company. Users can then ask Business Chat to do tasks such as write a status report by summarizing all the documents across platforms on a certain project, and then draft an email that could be sent to their team with an update.

Microsoft’s announcement comes a month after it brought similar AI-powered features to Bing and amid a renewed arms race in the tech industry to develop and deploy AI tools that can change how people work, shop, and create.

Rival Google announced it is also bringing AI to its productivity tools, including Gmail, Sheets, and Docs.

World Connector Market Handbook

WORLD CONNECTOR STATISTICS REGIONS – PRODUCTS – MARKET SECTORS 2013 – 2023F and 2028 FORECAST



World Connector Market Handbook - 2023

Bishop & Associates has just released the 2023 edition of the World Connector Market Handbook. This comprehensive seven-chapter, 229-page report analyzes all aspects of the world electronic connector market. This report provides detailed connector statistics by equipment sector and product category for North America, Europe, Japan, China, Asia Pacific, and the ROW region. Included is a complete chapter on worldwide connector industry results by region, equipment sector, and product category. Data is provided for the years 2013 – 2022, and projections for 2023 and 2028 (including five-year CAGRs).

ANALYSIS OF THE WORLD ELECTRONIC CONNECTOR MARKET

Increasing \$6.1 billion in US dollars, connector industry sales increased +7.8% from 2021 to 2022. All regions except Japan recorded an increase with North America showing the greatest increase in sales, growing +14.6% followed by the ROW region with growth of +11.7%. Japan, the only region showing a decline in sales, saw sales decrease -2.0% or \$102.9 million. In US dollars, North American sales increased \$2,405 million, followed by China, where sales increased \$1,516 million.

World Connector Market by Region 2021 to 2022 with Percent Change

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

\$ Millions

World Connector Market Handbook

Regional Summary

As the tables below indicate, the continued growth in 2022, provided an increase in the five-year, 10-year, and 20-year compound annual growth rates in North America and Europe. Japan's double-digit growth from 2020 to 2021, allowed the 5-year CAGR to turn positive, but previous low growth, prevented the 10-year CAGR from turning positive. China, who has seen percentage growth decrease over the last 20 years, saw CAGR decline from 11.4% for the period 2002 through 2022, to 6.8% for the period 2017 through 2022.

Regional Growth Rates 2022 – 2023F

Region	2022	2023F	% Change	Past 5 Year CAGR	Past 10 Year CAGR	Past 20 Year CAGR
North America	\$18,889.0	\$XX,XXX.X	X.X%	X.X%	Y.Y%	Z.Z%
Europe	\$17,328.5	\$XX,XXX.X	X.X%	X.X%	Y.Y%	Z.Z%
Japan	\$5,172.8	\$X,XXX.X	X.X%	X.X%	Y.Y%	Z.Z%
China	\$26,494.3	\$XX,XXX.X	X.X%	X.X%	Y.Y%	ZZ.Z%
Asia-Pacific	\$12,194.7	\$XX,XXX.X	X.X%	X.X%	Y.Y%	Z.Z%
ROW	\$4,011.7	\$4,102.5	2.3%	X.X%	Y.Y%	Z.Z%
Total	\$84,091.0	\$XX,XXX.X	X.X%	X.X%	Y.Y%	Z.Z%

\$ Millions

Regional Growth Rates 2021 – 2022

Region	2021	2022	% Change	Past 5 Year CAGR	Past 10 Year CAGR	Past 20 Year CAGR
North America	\$16,484.0	\$18,889.0	14.6%	8.8%	6.4%	3.7%
Europe	\$16,278.4	\$17,328.5	6.5%	7.1%	5.3%	5.0%
Japan	\$5,275.7	\$5,172.8	-2.0%	1.1%	-2.1%	1.6%
China	\$24,978.3	\$26,494.3	6.1%	6.8%	7.7%	11.4%
Asia-Pacific	\$11,383.9	\$12,194.7	7.1%	6.9%	4.9%	7.2%
ROW	\$3,590.3	\$4,011.7	11.7%	8.0%	3.9%	5.2%
Total	\$77,990.6	\$84,091.0	7.8%	6.9%	5.4%	5.8%

\$ Millions

World Connector Market Handbook

End-Use Equipment Sectors

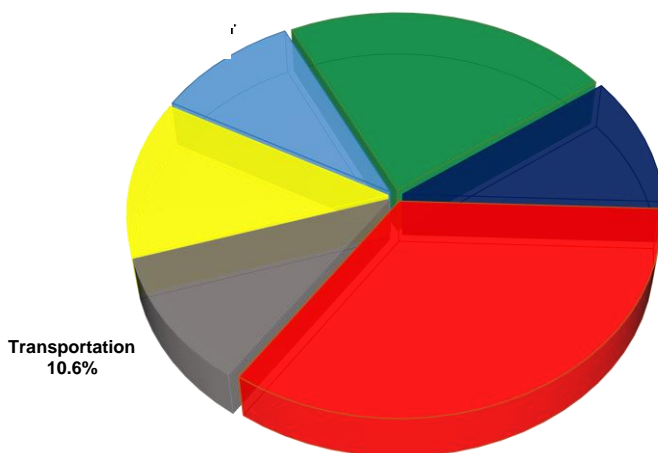
Telecom/datacom was the largest end-use equipment sector for electronic connector products with 2022 shipments of \$XX,X22.8 million. Telecom/datacom was followed by automotive, where 2022 sales grew Y.1% to \$XX,X88.1 million. It is anticipated in 2023, that telecom/datacom will remain the largest end-use equipment sector, once again followed by automotive. Showing the smallest growth in 2022 was business/office equipment, where sales grew to \$XX.3 million, an increase of Y.9% over 2021.

World Connector Market by Equipment Sector

Sector	2022	2023F	Percent Change
Computers & Peripherals	\$X,XXX.X	\$X,XXX.X	Y.Y%
Business/Office Equipment	\$922.3	\$X,XXX.X	Y.Y%
Instrumentation	\$X,XX6.8	\$X,XXX.X	Y.Y%
Medical Equipment	\$X,XXX.X	\$X,XXX.X	Y.Y%
Industrial	\$X,XXX.X	\$X,XXX.X	Y.Y%
Automotive	\$XX,435.X	\$XX,XXX.X	Y.Y%
Transportation (non-auto)	\$X,XXX.X	\$X,XXX.X	Y.Y%
Military/Aerospace	\$X,XXX.X	\$X,XXX.X	Y.Y%
Telecom/Datacom	\$X,XXX.X	\$XX,XXX.X	Y.Y%
Consumer	\$3,967.0	\$X,XXX.X	Y.Y%
Other	\$3,158.3	\$3,187.6	0.9%
Total	\$84,091.0	\$XX,XXX.X	Y.Y%

\$ Millions

World Connector Market - Top Five Equipment Sectors – 2022



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