



Information and Opinions about the Electronics Market

ELETRONICA

Markets | Companies | Innovation

MEETING WITH

Pandemic result:
a different point of view

RANKINGS

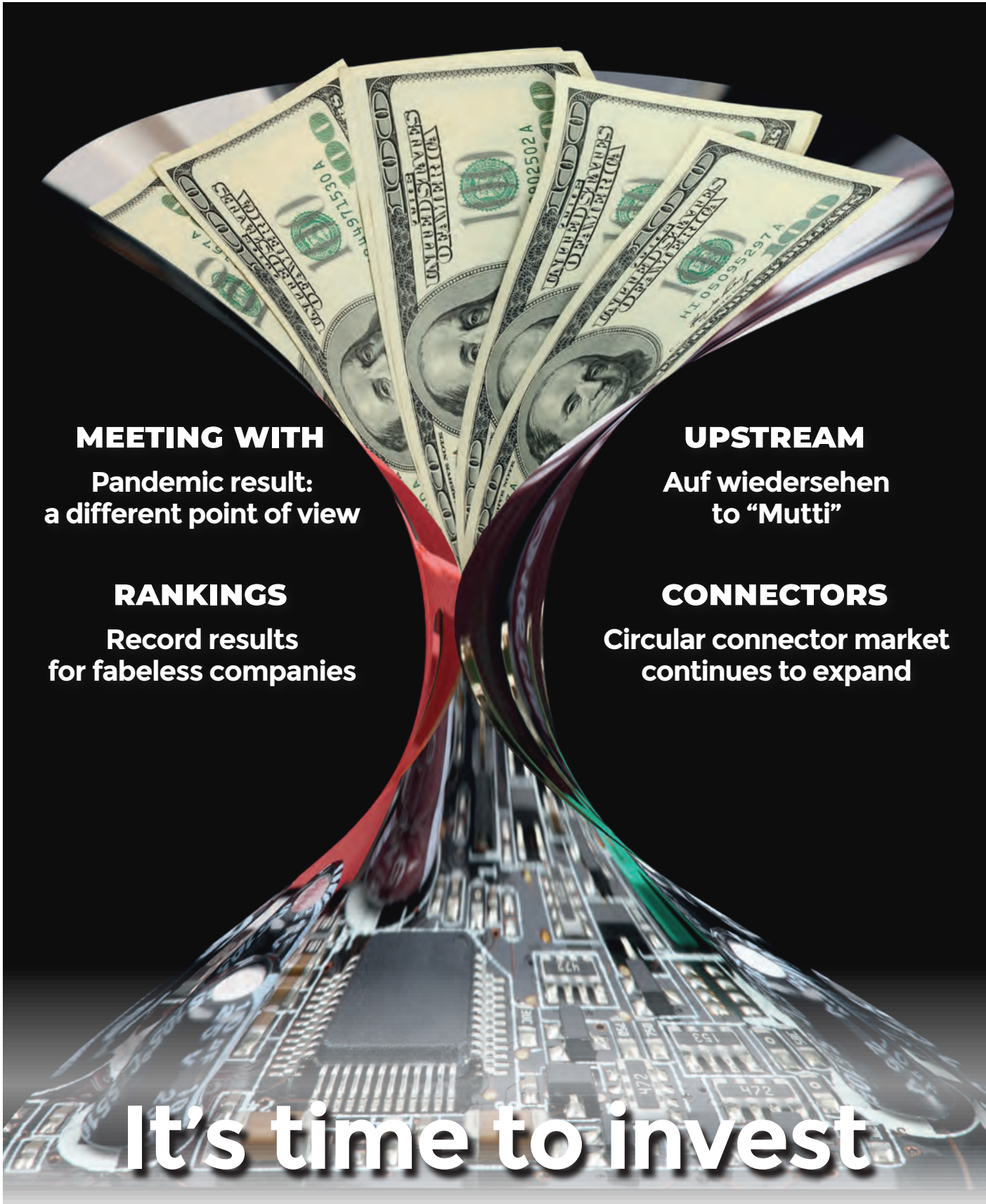
Record results
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UPSTREAM

Auf wiedersehen
to "Mutti"

CONNECTORS

Circular connector market
continues to expand



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English Abstract Edition



TO GAIN INTERNATIONAL VISIBILITY, ELETTRONICA AV HAS BEEN ENRICHED WITH A SPECIAL “**ENGLISH ABSTRACT EDITION**”, PUBLISHED AND DISTRIBUTED IN DIGITAL FORMAT. CONTENTS ARE CAREFULLY SELECTED ACCORDINGLY TO THE MAIN TOPIC-AREAS: ELECTRONICS MARKETS, COMPANIES AND INNOVATION.

ELETTRONICA AV “**ENGLISH ABSTRACT EDITION**” IS AIMED AT EUROPEAN INTERNATIONAL CORPORATE MANAGERS, MARKETING AND SALES, BUYERS, CONSULTANTS AND ELECTRONICS PROFESSIONALS.



8 *Angela Merkel saved the euro, saved Europe and muddled through the awful autumn of 2011 leading up to the Cannes G-20 in November 2011. She did what she believed was correct for Germany and for Europe, even if that meant imposing years of austerity on Southern Europe.*

E se il futuro non fosse più solo un sogno ma qualcosa che possiamo creare?

Noi di Analog Devices crediamo che rimanere "ahead of what's possible", significhi abbracciare nuove opportunità per rendere la nostra azienda più forte. Ora che Maxim Integrated entra a far parte di Analog Devices, la nostra esperienza collettiva nel power management, nel rilevamento avanzato e nella connettività farà in modo che ogni se diventi realtà. Scopri What if: analog.com/Maxim



Where what if becomes what is.



NOW PART OF



by Fritz Walter

“The Wolf of Wall Street”

Let us be honest: nobody expected a different result from the Municipal elections that recently took place in Rome, Milan, and Turin and, more in general, from the 2021 Italian by-election held last October which enabled our hero Enrico Letta to gloat and talk about ‘triumphant victory.’ We had already understood it in the first round with Mr Sala being re-elected for second term as Milan mayor and in Rome with an electoral fusion due to the centre-right having difficult time sourcing right candidates together with votes from a fragmented coalition made up of Gualtieri-Calenda-Raggi team: 30.1% compared to 65% and more for all the parties which were not close to Berlusconi and his friends. We must admit we were in the capital city, but even Michetti did not believe in such a miracle.

There are some points to think about. On top, less people likely to cast ballots (it should be noted that 43.9% of voters for the second round). Half of Italians did not vote, it has been the record number ever. Even the EU Covid certificate was not mandatory! Then we complain about things not working correctly.

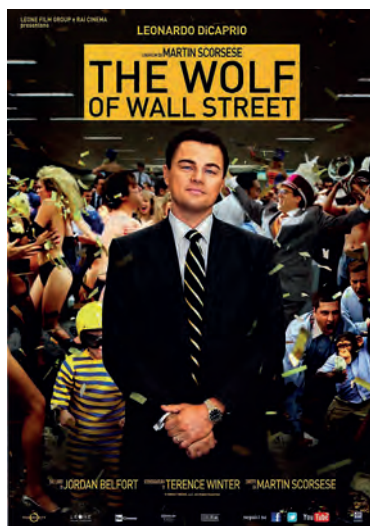
Then, the already mentioned inability of the centre-right to identify credible figures on time, even those who are less known, and to create a real and not ostensible cohesion. Nowadays on paper Berlusconi, Meloni, and Salvini (rigorously alphabetically mentioned) could gain the best result based on a 47-49% of the most recent polls, but in the reality, there are increasing tensions between Lega and Fratelli di Italia. We find that conflict resolution often helps achieve the result expected like it happened in Calabria, where the centre right gained

54.5% and rounded the split competitors by reaching the number of 14 ruled regions.

Finally, we witnessed the total debacle of Movimento-5Stelle’s party, which (badly) lost Rome and Turin municipal elections, those that were flagships in the previous electoral round headed by Di Maio and others, together with the important success in the city of Parma, the starting point of a revolution whose proclaimed effects and benefits no one has seen. The unfulfilled campaign promises of Grillo Boys (Tav, Tap, Ilva, Atlantia, the rule of two mandates, the F35s, the vote of confidence, and the Whirlpool’s issue) resulted in a heavy loss of votes which makes the party headed by the former Prime Minister Mr Conte the fourth national party and suggests the possibility it can be absorbed during

the next election by the PD’s party with a team featured by a different pedigree. This could lead to a bipolar system typical of the ’90s, a leap backwards of almost thirty years!

The 20 billion euro issued through the Citizenship Income are clearly not enough to gain votes. This project with the employment centres of Anpal, Navigator and the concerning relocation, was a failure also according to the Confindustria’s president, Mr Bonomi: 423 employed people against an allocation of more than 516 billion euro, included the Citizenship Income! Professor Mimmo Parisi is currently the only person who is still pleased by, in charge to start the cultural revolution of the M5S’s party regarding the employment or better unemployment politics. That is Italy and, here, whoever lies best, wins, like the character of Jordan performed by Di Caprio in the movie of Scorsese. They win but in the brief time. Might the problem be a matter of name?



MOVIE DIRECTED AND PRODUCED BY MARTIN SCORSESE, IS THE FILM ADAPTATION OF JORDAN BELFORT’S AUTOBIOGRAPHY, A NEW YORK-BASED UNSCRUPULOUS BROKER WHO LIVES A LIFE OF EXCESSES THAT WILL LEAD HIM TO AN EPIC FAIL

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by Alan Friedman

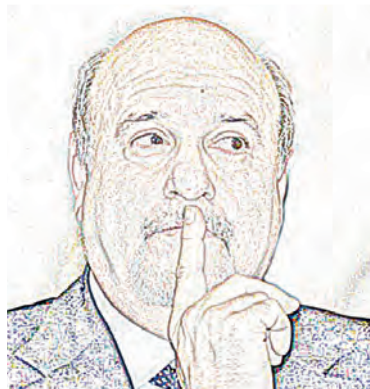
Moderation towards extremism

Italy is enjoying a strong economic recovery and it appears likely to achieve 6 percent GDP growth in 2021, with Prime Minister Mario Draghi pushing ahead with the reforms and investment plans needed to help ensure a sustainable recovery path for the next few years.

Yet, as I have written before, the economic recovery in Italy, as elsewhere, depends upon continuing progress in vaccinations, as much as it depends on the firm hand of Draghi on the helm of the economy. The first condition means ensuring that the contagion curve continues its downward trend, and that the remaining no-mask and no-vax and no-green pass people do not pose a threat to public health by their anti-social behavior. The second condition is about competence and political stability.

Given the foregoing, it is worth taking a moment to consider the recent neo-fascist and no-vax violence that occurred in recent weeks, and it is worth asking the question whether such events can damage the economy and our general wellbeing. The short answer was given to me recently during a talk I had for La Stampa newspaper with EU Commissioner for Economic Affairs Paolo Gentiloni. He is not worried about local quarrels in Italy. He told me that whatever electoral politics and polemics might occur from time to time, what counts most for Italy are the results, concrete results, and he said the Draghi government is moving steadily ahead and achieving results in terms of both investment plans under the Pnrr program and in terms of crucial reforms.

As far as the violent riots of October 8th, which to some may have conjured images of the insurrection that occurred in Washington last January 6th, Paolo Gentiloni said that despite this ugly moment: *«The 'sovereign wave' is retreating in Europe. It is from this low tide that gang violence emerges as in Rome. It doesn't mean we have to underestimate them: zero tolerance towards those who attack the union and the police. But the challenges that can reveal the fragility of our democracies go beyond the squads of Saturday night»*.



Alan Friedman
is journalist, writer
and economics expert

That was somewhat comforting to hear, but it did not fully reassure me. Any political movement that inhibits the vaccination program is a bad thing, even if Italy is well ahead of my own country, the United States.

As of mid-October 2021 nearly 80% of Italians have received two doses of vaccine, compared to less than 60% in the United States.

The Far Right politicians in America, including neo-fascists, conspiracy theorists and Trumpian Republicans, tend to associate with and agree with the no-

vax and no-mask crowd.

The same is true for Far Right parties and nationalist populists in Europe. So depending on how political trends go, so will vaccination trends go, and so will the economic recovery.

Let us hope therefore that moderates continue to prevail over extremists, and that those who believe in science will continue to outnumber the ignorant victims of fake news. Both the progress of the economy, and the future of European liberal democracy, depend on it.



Pandemic result: a different point of view

Talking with **Sergio Noto** - professor of History of Economics at University of Verona- about the features of the current historic period.

by Fulvio Marcandelli*

Last summer I had the opportunity to talk with Sergio Noto, professor of History of Economics at Sciences of Economics Department at University of Verona, columnist for Corriere Veneto and blogger for Fatto Quotidiano. Our talk has led to an interview which offers a different point of view of the economic period we are going through. We know the current electronics sector well: a shortage of raw materials, high prices, products allocation by the suppliers, a rise in demand, regulatory actions to support the companies in the financial reports drafting, supporting actions from central banks etc. Are we sure to correctly interpret the events we are

experiencing? Should we ride the wave or stop for a moment and think about the future and interpret it by considering what happened in the past? I tried to explore this world by facing some topics with the support of a neutral character and this is the result.

The global economies have been affected by the pandemic consequences, which are still difficult to be interpreted, and are experiencing an unusual and unpredictable condition characterised by the raw materials shortage in all the sectors, which is causing supply problems to many companies. What is your opinion about? Are these the effects of a globa-

lization we are not controlling anymore? Are there historical precedents like the current situation?

This is an incredibly challenging question to which it is not easy to reply by giving a general answer. Unfortunately, we are experiencing the result of the previous economic crisis and the pandemic. According to many experts, to overcome this situation and re-establish the increasing trend, it is necessary to completely change the economic behaviours we have been keeping until now. These behavioural models must be changed if we want to restart after this crisis and those who will not be able to adjust, will lose ground. Regarding the globalization, we can say that it has actually never been “under control” and what is happening now to the raw materials is the result of a comprehensive turnaround in the distribution modes like the disorganization in the economics that occurred in the 1500 with the arrival of the gold from America to the European markets.

The supply costs are increased due to the supply shortage (also the transports play their role). Should we expect inflation to rise? What will be the bank behaviour? Will be there any anti-inflation measures?

Of course, prices will rise up and our central banks will adjust to ensure that inflation stabilises. However, a “medium” inflation under 5% could be also useful, from my point of view, because it could help clear the market from those non/less profitable activities, which exploited the low interest rates to rise without adding any value contents.

How will the Italian companies, full of creativity but with poor capitals, be affected by the technologies concerning the “electrical motors”? Will they fall prey to foreign unscrupulous investors? And then, what will be the consequences?

The problem is serious: our companies invest too little in Research & Development and this will lead us out of the market by making Italian companies prey to unscrupulous investors. We are late and we have to make a qualitative leap forward. Unfortunately, there are too few people who are ready to risk. Let's hope that the expected extra fundings people are talking so much, can support this situation in addition to

the collaboration of banks and politics, who need to be forward-looking and fund research and technology.

What should be the role of the public companies according to your opinion?

Our public companies could have a significant role if they show both virtuous management and high efficiency standards better than those our private companies could offer. Nowadays we see how the research about vaccines has been funded with public money (for example in the UK and USA) with excellent results. Also, in Italy there have been virtuous examples that can be repeated if there is a quality management.

How do you judge the preparation level of the system towards the “Digital Transformation”?

Sometimes people want to slow down development by supporting backwardness. The creation of an ultra-fast wired network in Italy is an example with arguments about it between Tim and Cassa Depositi e Prestiti what seems like the determination to ‘slow down’ any innovative projects. A profound change is mandatory and we hope this new Ministry can ease these processes. We will see it.

What risks are Italian companies and Italy society exposed with the on-going “robotization” and “remotization” linked to the 5G technological development, even from an ethical point of view and the Cyber defence?

A great awareness of the management and control of new instruments is of course necessary. Like with the Artificial Intelligence, it is important to have a defined regulatory plan and dedicated investments in order to protect business and private's world with technologies able to advance the control. The past “Echelon” case must push us thinking about the fact we are not facing a new phenomenon, but the problem is serious and severe. Directness and ethical awareness are essential in the development processes with accurate rules and regulations to increase the security of the “Big Data” management, above all in the field of Artificial Intelligence and scientific knowledges. E

* **Fulvio Marcandelli** is Senior Credit Manager at Avnet EC



Auf Wiedersehen to “Mutti”

The legacy that, for better or worse, former Chancellor **Angela Merkel** leaves to **Germany, Europe** and the whole world.

by Alan Friedman

Back in the last century, more than 25 years ago when she was the protégé of Helmut Kohl, the Chancellor used to call her “The Girl”. Today, many Germans still call her “Mutti”, reflecting her protecting and maternal power as the leader of Europe’s biggest economy.

Angela Merkel leaves the stage after sixteen years in power, and the biographies are being raced to bookstores everywhere, documentaries are being broadcast and television talking heads are scratching their heads and trying to articulate the true and accurate description of her legacy. The problem with contemporary history is that often it is written before the ink has dried on the plot twists and unexpected developments which can follow the history being made. To wit: Angela Merkel has utterly botched any succession plan she may have had as chancellor or as leader of the CDU, and has ended up leaving office with not only the worst slump in votes in a generation for her party, but the wreckage of her own successor floundering about as the Social Democrats and Liberals and Greens pick up the slack.

What she achieved

Yet for history these are details. What counts is what she achieved in 16 years, and what this means for Europe and the wider world. In recent years many diplomats have seen her as the de facto “leader of the free world”, especially during the Trump years when authoritarian populists were on the march in both Europe and the United States. There is no doubt that during the darkest moments in transatlantic relations, while Trump kowtowed to Vladimir Putin and attacked NATO and the European Union, Angela Merkel was the bulwark. She was the voice for European values, for human rights, for liberal democracy, at a time when it came under fire from all of the national populists, including Orban, Trump, Salvini, LePen, Meloni, Wilders, Vox and the neo-Nazis at Alternatif fuer Deutschland. Merkel was Europe’s voice against the “Casa Pound” Far Right populist mentality that has been sweeping the Old World. Angela Merkel is considered boring and unimaginative by her critics. She is said to lack vision, and to be more of a manager than a planner. Her biographer says that in diplomacy she loves

to talk and talk and talk, whether she is with Putin or Trump or even Giuseppe Conte. Her patience and ability to wait out her rivals is one of her signature traits. A trained quantum chemist raised behind the Iron Curtain, Merkel has made some policy shifts, but they usually reflected the wishes of large German majorities - among them phasing out nuclear power after the 2011 Fukushima disaster. She has navigated through three of Europe's biggest crises this century: the 2008-2011 financial and euro crises, the 2015 Syrian refugee crisis and the 2020 Covid pandemic.

A positive report

What school mark can we give Merkel for these crises? Together with **Mario Draghi**, then serving as President of the European Central Bank, Angela Merkel saved the euro, saved Europe, and muddled through the awful autumn of 2011 leading up to the Cannes G-20 in November 2011. She did what she believed was correct for Germany and for Europe, even if that meant imposing years of austerity on Southern Europe, a decision which in retrospect was wrong and damaging, especially for Italy. In the refugee crisis of 2015 she showed bold vision and courage, opening Germany's borders to more than one million Syrian refugees. This was the noble and generous gesture of a benevolent leader, an enlightened leader. It was destined to cost her votes, to damage her political standing, and to help fuel the rise of populism, and yet Merkel was steadfast and stoic in her determination to defend European values and human rights, and human lives. And then came Covid. My view is that Angela Merkel deserves huge credit for opening the

THE MERKEL'S LEGACY

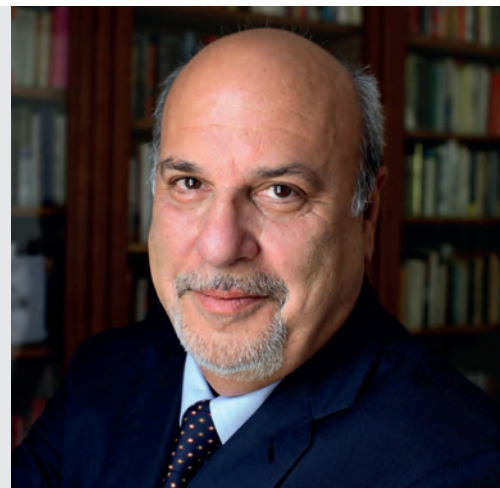
What is **Angela Merkel's** legacy? Here is my recap:

- 1** | She has been a rock of stability for the European Union for 16 years.
- 2** | She was a dedicated defender of liberal democracy as it came under simultaneous attack in recent years from both Putin and Trump.
- 3** | She showed Europe's most noble and humanistic face in opening her borders to Syrian refugees in 2015, but paid a huge political price for it, and then cut a brutally cynical deal with Erdogan to pay him billions of euros to staunch the influx.
- 4** | She made a terrible mistake in forcing austerity policies on Southern Europe a decade ago and thus she accidentally helped fuel the rise of anti-EU populism.
- 5** | To her credit, her opening up to debt mutualisation in 2020 and to the issuance of EU bonds to fund Next Generation programs is an historic achievement and the post-Covid EU is looking like a Europe with far more solidarity.
- 6** | On balance, I would say that Angela Merkel, at least in recent years, has been the greatest statesperson in the West, the leader who has most vigorously defended Western values.
- 7** | Her biggest mistake was austerity.

door to the historic and unprecedented approval of debt mutualization, of a shared Eurobond to finance NextGeneration EU programmes. By 2020 Merkel had learned the lessons of austerity; now it was time to suspend the Fiscal Pact, to show solidarity with €750 bn of NextGenerationEU recovery funds. Here, Merkel was a positive influence on an historic moment in the European project. **E**

Who is Alan Friedman

Alan Friedman is a journalist, writer, television host and economist. Correspondent for the *International Herald Tribune*, global economy columnist for the *Wall Street Journal*, he worked for the *Financial Times* in London from 1979 to 1993: in this period he was awarded with the *British Press Award* four times. He also had a professional experience as Presidential Management Intern in the administration of President Jimmy Carter. The scoop regarding the Iraqgate scandal in 1991 was one of his most famous.





MARKETS

DISTRIBUTION

Looking at 2022 with concern

A 2021 **third quarter** stabler than the previous one and increased compared to the third quarter of 2020, despite the general shortage situation and some concerns about a possible rebound in demand on the next year.

These are the market data presented by **Assodel** at the end of October.

by Laura Reggiani

How is the Italian electronics market behaving? How does 2021 end and what will be 2022 perspectives considering the recent data regarding the third quarter of the finishing year?

These are the questions to which the meeting organized by **Assodel** at the end of last October at the presentation of the data analysis collected by the association and regarding the Italian component's distribution.

First it was analysed the situation in Europe, where, according to the forecast data of **Dmass**, electronics components distribution market would close the year by recording a +17% growth rather than the previous year, not able yet to compensate for the decrease during the pandemic period and to bring the turnover at the great levels of 2018. The recovery will occur only in 2022, when thanks to a forecast turnover of 10 billion euro, there will be a new sales record.

Concerning the Italian situation, Assodel forecasts an end of the year of 1,108 million euro with a possible growth of 18%, maybe better than the European one.

Considering the numbers of the 2021 third quarter, the field of semiconductors closes the year with a turnover of 216 million euro and a decrease of 6.3%; on the contrary the passive and electromechanical components field has a turnover of 135 million euro and records a growth of 12.6% rather than the previous quarter. The connectors with 46 million euro gain +6.4%.

Overall, there is a stability for the electronics components market with 398 million euro than the previous quarter (395 million euro). To be mentioned, it is the still positive Book to Bill: after a value of 2.13 of the first quarter and 2.02 of the second quarter, it stops at 1.83 for the semiconductors, 1.50 for Pemco, and 1.37 for the connectors with orders placed up to 2023 in some cases. Even with a slight decrease, Book to Bill number shows an increasing order condition which raises some concerns about re-scheduling or cancellations during the next year, as highlighted by the meeting participants.

The European dilemma and the power growth

The speech of **Georg Steinberger**, **Dmass** and **Idea** (past) President, has aroused the interest by analysing the current situation of the semiconductors market, which are now identified as the “new oil”. Chips are going to record an extraordinary increase and follow experiencing a high demand and an all-time shortage, which will last for the entire 2022 and, perhaps, it will slow down in 2023. The challenging question according to Steinberger

is “*How can Europe be competitive in the global scenario?*” **His concern is motivated by the on-going impoverishment of skills and the lack of intellectual properties in Europe, allowing us to keep up with the future.**

According to Steinberger, since we do not have European strategic productions or platforms, we must work towards the innovation and create new competences and engineers able to develop all the innovations necessary to support the green economy and the digital transformation. Steinberger has also analysed the reasons which will lead the semiconductors industry to a quick change: the protectionism and the current commercial wars, the physical limits of technology and the new productive challenges, the critical factors linked to the relationship between costs and profitability, the lack of raw materials, the supply chain disruption, the necessity to be sustainable and to design the recycling. On this last topic he went deeper by noticing that the innovation must support the climate protection, the reduction of harmful emissions, and the decrease in planet’s resources consumption. The speech of **Milan Rosina**, analyst of Yole Développement, was focused on the power electronics, about which he provided with the global data of the power market and analysed the main application trends. Rosina highlighted the great increase of the applications like the automation, the consumer, the renewable energies, and the cars electrification, which work in synergy, and he underlined the technological complexity of the power components, which take in consideration the silicon carbide and the gallium nitride, even though the main current technology is still represented by the silicon. **E**



Circular connector market continues to expand

Circular connectors, which represent a \$ 4.3 billion market, or approximately 6.9% of total connector sales in 2020, fell by just 1.4% last year. Important average growth is expected for the **next five years**.

by Ron Bishop

Led by strong growth in the military/aerospace and commercial/industrial markets, circular connectors see continued strength even amid the disruptions of the pandemic. While some industries suffered huge declines last year due to the COVID-19 pandemic, the connector industry briefly slowed and then recovered with unexpected strength, declining only -2.2%, resulting in 2020 worldwide sales of \$62.7 billion. Circular connectors, representing \$4.3 billion or approximately 6.9% of total connector sales in 2020, declined a mere 1.4%. Although sales of cable assemblies using circular

connectors did decline in 2020, anticipated growth in 2021 means this product will represent over 9% of the worldwide cable assembly market, ranking behind application-specific and I/O rectangular assemblies. Examining the circular connector market from a commercial/industrial perspective versus MIL-spec/COTS type, in 2020 sales of commercial/industrial circular type connectors exceeded military/COTS-equivalent types by over 30%. This was primarily driven by the transportation and telecom/datacom markets, which experienced higher than normal connector demand. It is important to note that there is considerable cross-o-

MARKETS

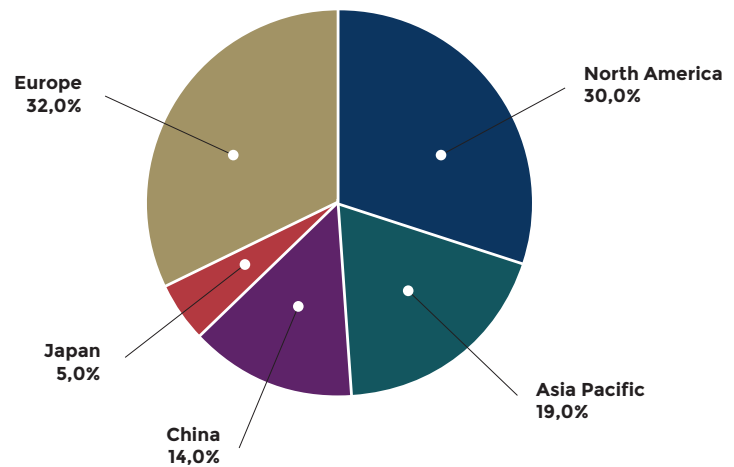
CONNECTORS

ver between mil/aero and commercial/industrial for end-use applications. In fact, many standard MIL-spec circulars are used in industrial applications such as commercial lighting and machine controls, while commercial circulars such as push-pull types and breakaways are used in military wearables involving sensors and communications. MIL-spec circulars are even used to power many of the mini-UAV applications used in the commercial sector. MIL-DTL-55116 connectors are popular for portable commercial radio and intercom systems.

Good for European companies

Over 300 connector companies participate in the manufacturing of circular connectors, and close to 200 of these have annual sales greater or equal to \$5 million. Because all types of circular connectors are used worldwide, manufacturing locations are widespread, allowing for both local and export sales. It is not surprising to see that, when you examine the company based on base of origin, Europe accounts for the most manufacturers of circular connectors, followed by North America. The largest percentage are headquartered in Germany.

Examining the top 10 manufacturers of circular connectors, we see that Amphenol is the largest manufacturer of standard MIL-spec/COTS equivalent and commercial/industrial circular connectors, with a market share of close to 35%. This market share is almost five times that of the next largest manufacturer, **TE Connectivity**, which has over 7% of the circular connector market. Although **Amphenol** excels in both the MIL-spec/COTS equivalent and commercial/industrial categories,



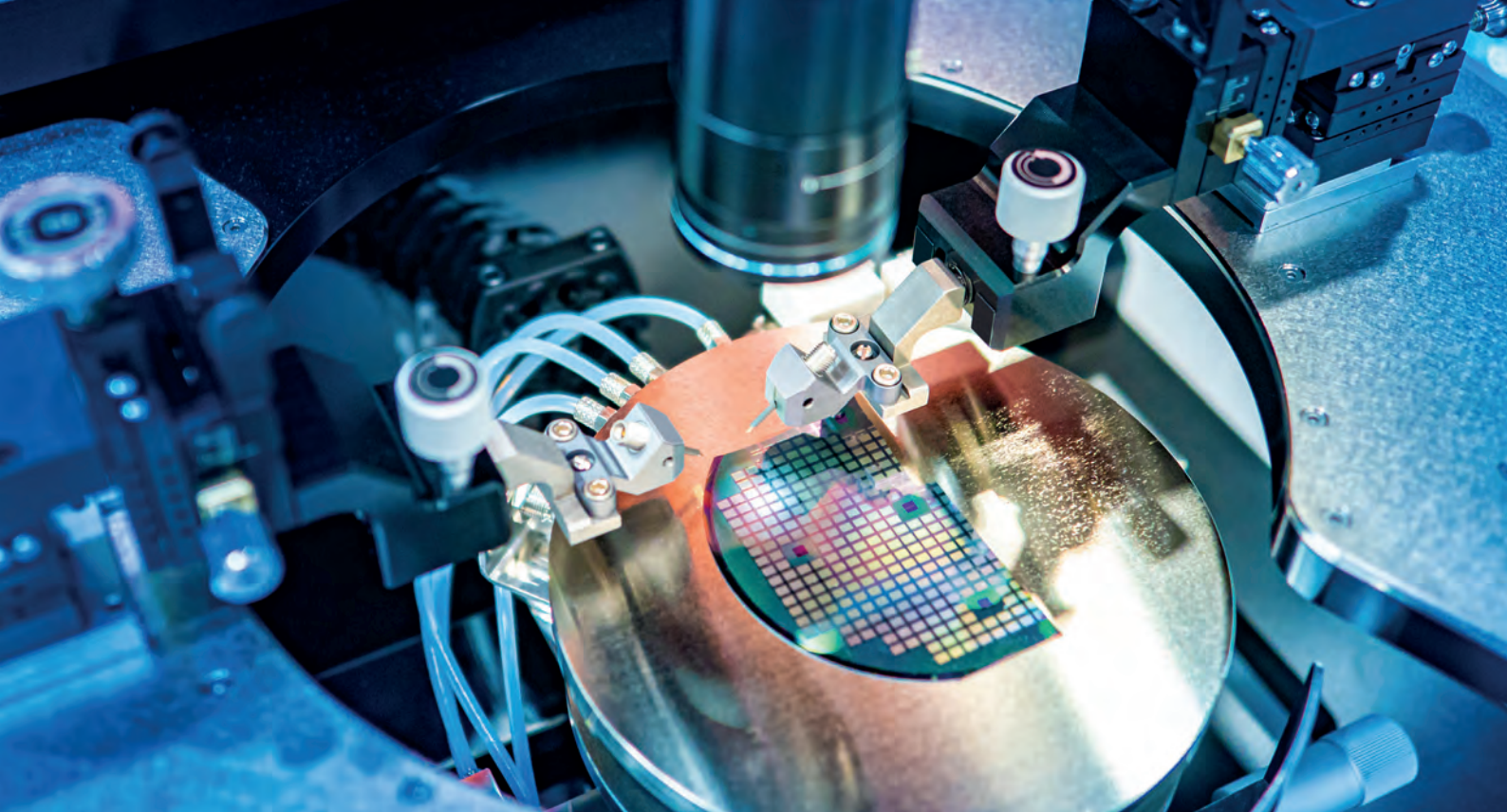
Distribution of circular connector for manufacturers region (source Bishop & Associates)

they hold more MIL-spec qualifications than any other connector company. Amphenol and TE Connectivity are followed by **LEMO**, which has over 6% of the circular connector market. It is interesting to note that TE Connectivity, although always a participant in the commercial/industrial circular connector market, did not truly participate in the MIL-spec/COTS-equivalent circular connector market until the company's 2012 acquisition of Deutsch Group SAS. In 2011, Deutsch had connector sales of approximately \$670 million, of which over 35% were in the military/aerospace market sector and was ranked the 13th connector supplier in the world. In 2020, LEMO was the 36th largest connector maker although the company only manufactures circular connectors. Although 15% of the company's business is with the military/aerospace sector, LEMO holds no formal military approvals. **E**

Who is Ron Bishop

Ronald E. Bishop is a world's leading connection expert. In 1985 he founded **Bishop & Associates**, a market research firm that specializes in the world electronic connector industry. The firm publishes "**The Bishop Report**", a monthly research newsletter and several weekly publications by connectorsupplier.com. A staff of 20 researchers produces reports centered on geographic regions, end-use equipment markets, connector products and interconnect technologies. The US headquarters is located in St. Charles, Ill., Chicago. The firm also has offices in Brussels, Sidney and Hong Kong.





Record results for fabless companies

Companies that design (but do not manufacture) integrated circuits grew by an average of 60% in the second quarter of 2021. **AMD, MediaTek and Novatek** are approaching 100% growth.

by Cleopatra Gatti

In view of the ongoing production capacity shortage in the semiconductor industry and the resultant price hike of chips, revenue of the top 10 IC design companies for 2Q21 reached US\$29.8 billion, a 60.8% YoY increase, according to TrendForce's latest investigations. In particular, Taiwanese companies put up remarkable performances during this period, with both **MediaTek** and **Novatek** posting YoY growths of more than 95%. **AMD**, on the other hand, experienced a nearly 100% YoY revenue growth, the highest among the top 10. **TrendForce** indicates that the ranking of the top five companies for 2Q21 remained unchanged from the previous quarter, although there were major changes in the 6th to 10th spots. More specifically, after finalizing its acquisition of **Inphi**, **Marvell** experienced a major revenue growth and leapfrogged **Xilinx** and **Realtek** in the rankings from 9th place in 1Q21 to 7th place in 2Q21.

Growth on every side

Thanks to strong demand for major smartphone brands' flagship and high-end 5G handsets, revenue leader Qualcomm's processor and RF front-end businesses underwent remarkable growths, while its IoT business also benefitted from WFH and distance learning demands generated by the Covid-19 pandemic. Qualcomm's revenue from its IoT business reached nearly US\$1.4 billion, making IoT one of the major growth drivers for the company. For 2Q21, Qualcomm's revenue reached US\$6.47 billion, a 70.0% YoY increase. On the other hand, Nvidia's revenues from gaming graphics cards and data center solutions each grew by 91.1% YoY and 46% YoY, respectively, in 2Q21. Strong demand from cryptocurrency miners for **Nvidia's** high-end gaming graphics cards, along with the data center segment's demand for

MARKETS

RANKINGS

Rank	Company	Q2 21 Revenue	Q2 20 Revenue	YoY Growth
1	Qualcomm	6,472	3,807	70%
2	Nvidia	5,843	3,461	68%
3	Broadcom	4,954	4,155	19%
4	MediaTek	4,489	2,259	98%
5	AMD	3,850	1,932	99%
6	Novatek	1,219	622	96%
7	Marvell	995	716	38%
8	Xilinx	879	727	20%
9	Realtek	834	579	44%
10	Dialog	318	302	5%
Top Ten Total		29,852	18,560	60%

Revenue ranking of Top Ten IC Design Companies

(revenue in million dollars, source TrendForce)

Nvidia's HPC products, propelled the company's revenue for 2Q21 to US\$5.84 billion, a 68.8% YoY growth, and secured the second place for Nvidia on the top 10 list.

Broadcom, which took third place on the top 10, attributed most of its revenue to wired connectivity and wireless products. Regarding wired connectivity products, the continued build-out of 5G base stations worldwide resulted in increasing demand for Broadcom's high-speed Ethernet controller ICs, whereas for wireless products, the release of certain high-end 5G smartphones also created high demand for Broadcom's Wi-Fi 6E chips. Similarly, Broadcom's broadband and industrial solutions businesses both underwent double-digit growths in 2Q21, thereby driving the company's revenue for 2Q21 to US\$4.95 billion, a 19.2% YoY growth. Turning to AMD, the company's revenue for 2Q21 reached US\$3.85 billion, a staggering 99.3% YoY increase, owing to the following: first, the bullish gaming console market; second, massive earnings growths from enterprise, embedded, and semi-custom solutions; third, increased client adoption of AMD's server CPUs (it should be noted that AMD's server processor business grew by 183% YoY in 2Q21). AMD took fifth place in the top 10 list for 2Q21. Regarding Taiwanese companies, MediaTek was able to sustain the momentum it gained in 1Q21 throughout 2Q21. MediaTek's smartphone chip business, which generated the bulk of the

company's revenue, registered a 143% growth in 2Q21. At the same time, its revenues from other businesses also saw an overall double-digit growth. Hence, MediaTek posted a revenue of US\$4.49 billion for 2Q21, a 98.8% YoY growth, and reached fourth place on the list. Finally, Novatek's SoCs and display driver ICs both performed well in the market primarily due to its close partnerships with major foundries, including TSMC, UMC and VIS. Revenue from display driver ICs, which had traditionally been Novatek's primary revenue source, grew by 81% YoY in 2Q21.

Certain rumors in the end-devices markets indicate that demand will likely undergo a slowdown in 3Q21 and lead to decreased orders for certain components. However, given that foundries' newly installed wafer capacities have yet to kick off mass production, the ongoing chip shortage is expected to persist for now. In addition, as some IC design companies' client orders still remain unfulfilled, these companies' revenues will likely experience further growths in 2H21, albeit to a relatively limited extent. It should also be pointed out that Marvell is expected to benefit from Inphi's earnings for the next two quarters and increase its own revenue by more than 50% YoY in 2H21. Even so, Novatek's sixth-place ranking is unlikely to be threatened by Marvell in the short run since Novatek will continue to benefit from the ongoing chip shortage and price hikes for the time being. **E**



An Italian success in the PCB market

At the base of over 30 years of experience in a market like that of **printed circuits** is, there is a production strategy which considers the Far East without casting out the key role of the Italian hi-tech production plant. **Fabio Puccia Modica**, Chief Commercial Officer of **Alba Pcb Group** explains it.

by Laura Reggiani

At Mogliano Veneto, outside of Treviso, there is the headquarter of a high qualified group of companies which work together to offer a unique and complete service for the printed circuit supply. This group is **Alba Pcb Group**, an international group headed by Alba Elettronica, a company founded in 1989 by **Alberto** and **Luca Bacchin**. This group has grown during the years up to reach 90 employees and a strong presence also in the international market thanks to both a customer-oriented business model that aims to satisfy every client's need of product, service, and saving, and a strategy able to combine the production in Italy and in the Far East. **Fabio Puccia Modica** is head of Sales Departments who is expert of the dynamics, the features, and the needs of a particular and ever-changing market. He joined the Group in 2019 bringing his twenty years' experience about printed circuits, a field where he has been managing the business strategies planning since ever.

The printed circuit is often a poorly considered product. Can you give us an overview of the PCB market? What are its characteristics?

Printed circuit is a strategic product because it is at the base of every electronic item from cars to home

appliances. However, during the years it has been undervalued, and today it is considered as a commodity. On the contrary, it is the ultimate custom product, and it offers each and every features of a tailor-made product because of its variation of performances, colours, thicknesses, and volumes. Printed circuit board is a technologically stressed product, subjected to the miniaturisation logic and to which it is required more and more. Nowadays the focus has moved from its technology to its price. We can talk about paradoxes more than characteristics.

In Italy, the number of active players in the production of PCB has been reducing during the last years. What are the problems the field must still face to?

The greatest problem the field has been facing during the last twenty years is the Asian competition, which has drastically reduced the number of the active PCB manufacturers from 220 in the '90s to less than 50 today; and they are even fewer if we think about those that are able to be at the state-of-the-art technology, to support themselves and to allocate budgets to necessary investments. This market experienced in years a transition from the production to the sales. Many players took the opportunity and started some "trading organization" so to cause a depletion of the

Italian production to benefit the Chinese one, which was intermediated by traders. According to my opinion, one of the most serious concern in our field is a lack of skills and knowledges. Our clients need to be supported through production cycles, technologies, and innovative processes appreciating recommendations to the best choices and solutions and technical and service supports, too. It comes out that in a market ruled by best price only, clients go on by sending their requests to Chinese companies without protecting and keeping our local, European/Italian systems, our knowledges and competences will be lost soon and nobody will be able to solve clients' requirements and offer them necessary support. Fortunately, there are still smart clients in Italy who understood the non-sense of this, in particular when it comes to consider medium-low production volumes where high transport costs and long logistics play a big role.

What is your current business model? What are your strengths and what makes you different from others?

Our business model and approach to the market are based on several points. On top, our technology and our know-how: our ability to offer every kind of PCB covering any fields of application, from the mono-layer to the multi-layer, and not to forget our ability to support our client with technical expert advice to better design the circuit, to optimize the cost, and obtain the best quality and duration. Another key point is our working speed: we create samplings in 24 hours, we have a fast delivery service for those who need prototypes in a very short time and we can offer a fast production also for great volumes thanks to our Italian manufacturing plant. This is very significant for unpredictable necessities and urgences, impossible to manage otherwise with production times from abroad. Our international presence is essential: we operate in Europe through Q-Print, offering our services in a very hi-tech market like the German one is, and we can also meet requirements with other companies in our Group from those clients who prefer to directly buy from the Far East. The total control of the supply chain and the logistics allow us to guarantee in all the situations, even in the most critical ones, a productive backup, to ensure an on-going supply and to keep control of the whole logistics process. Finally, the support offered by the e-commerce channel, which is an advantage for the design offices who need to be independent and fast to buy the prototypes, and

the guarantee of a high-quality product thanks to our processes, materials, and techniques knowledge, enabling us to create an affordable product. What makes us different from the competitors is our ability to provide with a solution to all the requests of the companies, of their technicians and buyers by giving them assistance and support in every situation.

In conclusion, can you offer us your long-term opinion about this industry? What pillars and contributions could be useful for the PCB companies to be more competitive?

As we said at the beginning, PCB has never been well considered and valued. Only in the last years people have understood its importance in the electronics. In my opinion, great to make both Italian and European institutions aware of the strategic role of the PCB, a product that should be protected as the Chinese government did by understanding the importance of it and offering support to the local companies. We do not ask to apply duties on the imports like the American government is doing with the "China Tariff", but at least to show a kind of interest in the market dynamics and in the importance of this industry in order to help encourage our European companies in manufacturing PCBs locally and supporting the entrepreneurs in the unequal struggle with the Chinese competitors who take advantages from a great gap of manpower and infrastructures, processes, and green costs. E



**Fabio Puccia Modica, Chief Commercial Officer
at Alba Pcb Group**

From supplier to supply platform

Conrad sourcing platform allows B2B clients to perform an easy and quick access to one million of products and several customised services, among which there are a direct support for orders and offers management, technical consultation, and e-procurement solutions.

We talk about it with **Maria José Massaro** and **Filippo Mattioli** of Conrad Italia.

by Laura Reggiani

Synonymous with technology since 1923, when it was founded by Max Conrad in Berlin, Conrad is a family business guided by the grandson of the founder Werner Conrad.

With a headquarter in Hirschau, Bavaria, offices in 16 countries and an international presence, **Conrad** works through one of the most important supply platforms of technological products and services. In Italy at the head of the company, which is a multichannel supplier for an easy 'one-stop shopping,' is **Maria José Massaro** since last March, CEO and General Manager, supported by **Filippo Mattioli**, Marketing and Sales Manager and a constantly expanding team of twenty people.

Multichannel supplier for an easy 'one-stop shopping'. What does it mean? What is your business model?

• **Maria José Massaro** | A 'one-stop shopping' purchase experience to create the 4.0 industry. Business is changing and it is clear that's becoming more complex and faster. Technology influence is growing up. To keep up with an ever-changing environment and to stay ahead of the competition, the essential requisite for the electronical distribution is represented by the investments in digital technologies able to simplify the clients' experience in the whole supply

chain. In Conrad we are introducing on-going changes concerning the way the B2B traditional distribution clients are supplied and the goods are ordered and delivered. In Conrad, product makes way for the service, the core and driver of every activity. Personal service and sale process are automated. 'One-stop shopping' is not only a marketing slogan, but the real expression of what we are and want to achieve in the future: a purchase platform which can combine product catalogue and services and can link industrial manufacturers with clients by exploiting the power of technology and the Conrad's digital visibility.

Conrad is a German family business. What are the advantages and the disadvantages of that? What has changed comparing to your previous experience?

• **Maria José Massaro** | I started my career in the electronics field by working for one of the greatest American multinational semiconductor companies, but my most relevant experience is represented by 18 years spent in Farnell Italia, where I began my managerial path which allowed me to reach the CEO role of Conrad Italia. Conrad is an inspiring company and the main advantage is the 'owner' mood instead of a 'shareholder' environment which enables to work in a wider and more satisfying way. The strate-

gy to become the greatest supply chain player like Marketplace is the aspect that impressed me most. I am honoured to guide Conrad Italia and an amazing team which can really contribute to the Italian subsidiary's growth.

The digitalisation has changed the purchase behaviour of consumers and companies. What services does Conrad sourcing platform offer?

• **Maria José Massaro** | Today in a global emergency due to the pandemic we see a need of support and a reliable partner. The proactiveness of the Italian subsidiary and the consolidated relationships with the suppliers have been useful also during the pandemic. Machinery should not interrupt flow due to wasting period because of material availability or employees in remote working. Digitalisation does not mean reducing paper-based processes but totally changing procedures. Nowadays assistance and maintenance, modernisation and enlargement of the systems are essential for a remote control of the whole production. Maximum automation level and greatest availability combined with minimum work for machinery repair and maintenance are keys for a flawless process in the current industrial models. I think that the dramatic moment is creating opportunities and we at Conrad want to play as a facilitator who is essential for the success also regarding how and where to find the latest technologies. The access to smart purchase systems, Conrad Smart Procure for example, allows clients to save their money and time while offering a 24-hour a day available electronic catalogues of products and services and also providing with levels of flexibility, independence and simplification of supply processes, previously not available. Our Conrad e-procurement solutions guarantee the smart purchase system with a customised access solutions to the users by meeting all the different needs from a Purchasing dept, a R&D and Repair/Maintenance service.

You have integrated the Education team to support the digitalisation in the education. What does the team do and with what purpose?

• **Filippo Mattioli** | Our Education team is part of Conrad's world since ever. At the German



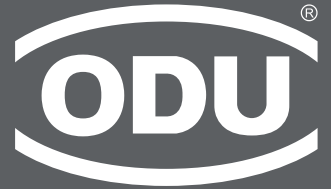
Maria José Massaro, CEO and General Manager at Conrad Italia

company headquarter, a department dedicated to the education's needs has been working for more than twenty years. We have also been able to create our products range, MakerFactory, which meets the needs of electronics learning. Here in Italy, our sales team can count on an expert who is specifically dedicated. Mainly we work on the portal of Public Administration (MePA) by making our education catalogue available to all the main Italian schools and universities. Unfortunately, the purchase process of the Italian Public Administration is not digital and smart yet and it would be necessary a fast leap forward to better meet the needs of teachers and students. We are always available to offer an in-depth product analysis to those who need it. Our educational activity includes the selection of suitable and safe products with dedicated features and the assistance to make them available on the main Italian purchase systems. We strongly believe in our education activity because today they are students, tomorrow they will be engineers and designers in various industrial fields.

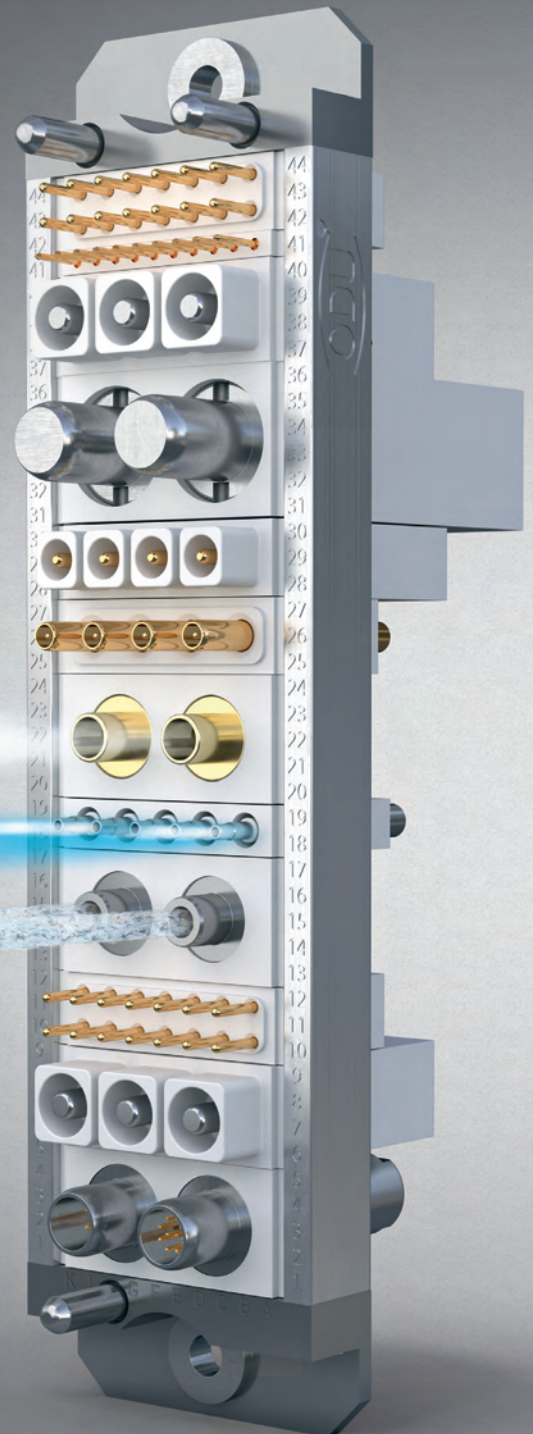
At the beginning of last September your European roadshow started. What are the goals of this travelling event? Which topics does it deal with and what does it show?

• **Filippo Mattioli** | It is an important project

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incl. cable assembly



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which shows how Conrad wants to strengthen its image in Europe. The main topic is the Conrad Sourcing Platform and its services. By gathering our best partners, our roadshow aims to be room to preview our new online purchase solutions and collect the direct feedback from users. At our Conrad's truck, you can also see our IoT solutions, an interesting product portfolio and practises on how to improve the air quality in the working environments. This is a need originated during the pandemic, when the attention to the air and to what we breathe has become more important then ever before.

How are you organised to support our Italian market? What is the importance of the local presence in the era of 'digital'?

• **Maria José Massaro** | In spite of all the current and future technological improvements in the digital, our competitive advantage is offered by an extremely professional staff with a deep knowledge of the distribution system. The forward-thinking distributors have well understood that the investments in skilled human resources are essential to inspire the improvement of the supply chains service. Smart systems to go hand-in-hand with professional staff can offer great benefits to every organisation that works in the distribution industry and when these two elements are combined, then good results are achieved and can gain a competitive advantage in the marketplace compared to competitors. In Conrad Italia we strongly believe that qualified people can really make all the difference. For this reason, our structure is continuing to expand in the coming years: the last hiring in the Inside Sales team plays a good example that enhances our support to local industries.

What are your development and growth strategies for our Italian market? What is the process through which you expect results?

• **Maria José Massaro** | We are experiencing a period of profound changes in business landscape and, as a company, we must seize the challenges to transform them into opportunities to offer our clients. In Germany, where we have our headquarter, Conrad has already consolidated since many years; in Italy, the 2020 growth is +40% than the previous year. In the next years we will



Filippo Mattioli, Marketing and Sales Manager at Conrad Italia

integrate the Sourcing Platform at EMEA level, and the crucial step will be represented by the transition from distributor to supply platform for an easy, quick and complete experience by aligning more our goal to B2B. An exciting and engaging challenge, a vision and also a mission I shared from the very beginning in my new role.

We are experiencing tough times from the supply chain's point of view. When we will return back to a balance?

• **Maria José Massaro** | Our habit of taking initiative together with the consolidated relationships with our suppliers were vital attributes especially during the past lockdown months, when the e-commerce showed monthly substantial peak demands. We are deploying the same abilities in the current condition of global shortage of raw materials and components. From our point of view, the present situation will last until the first semester this 2022. For this reason, we strongly believe that it is crucial to continue working as a team made up of partners and not just as simple clients VS suppliers.

The greatest openness and quick communication always make all the difference in the management of the shortage problems we are living through. This is our commitment towards B2B clients.

E



Product compliance after Brexit

Electronic product compliance post **Brexit**, the new **UKCA** branding and everything else you need to know.

by Avnet Abacus

As a result of the UK leaving the EU, manufacturers on both sides of the English Channel will need to adapt the way they comply with conformity legislation. Broadly speaking, from the end of 2021, the CE mark will no longer be recognised in the UK, although there are some exceptions. For example, manufacturers in Northern Ireland must use the new UKCA mark when shipping products into Great Britain (England, Scotland or Wales), but products that carry the CE mark can continue to be sold in Northern Ireland. Any goods that require mandatory third-party testing must also carry the UK(NI) mark if placed on the Northern Ireland market, but must not display it if they are being sold into an EU market. Any products that were fully manufactured before December 31st, 2020, can still be sold into UK and EU markets if they carry the CE mark, allowing manufacturers to exhaust existing supplies without incurring additional conformance testing. However, products manufactured after this date are subject to a transition period. From January 1st, 2022, products that only bear the CE mark will no longer be allowed to be put into service in markets in England, Scotland or Wales. This transition period gives all manufacturers time to prepare for these changes.

There will be various dispensations in place during 2021, and manufacturers will need to check those that apply specifically to them, if any. The new sign of compliance will be the UKCA mark (UK Conformity Assessment), which will simply replace the CE mark in most cases, although additional testing and certification may be necessary. Not all products will be treated the same. For example, the bullet points and timeline below describe how power supplies must use and display the UKCA mark

Power supply example

Not all products will be treated the same:

- **UKCA will recognise and follow/copy the EU directives for power supplies in general**
- **PSUs are seen as a system component**
- **Placing a UKCA mark on the product is voluntary until February 1st, 2022**
- **Products with CE mark on the label can be used until January 1st, 2023**
- **From January 1st, 2022, the outer transport package and the suppliers' datasheet must carry the UKCA marking**
- **From January 1st, 2023, it will be mandatory to place the UKCA mark on the power supply label.**

Some sectors that are covered by the UKCA mark have been given extra time to comply. Specifically, that includes manufacturers of medical devices but, as the Fire Industry Association has highlighted, it excludes manufacturers of fire and security products. Although it will be felt by manufacturers outside the UK, this will clearly have an impact on the UK's manufacturing sector, whether they are selling into the EU or not. All products – even those that are developed, manufactured and only put into service in the UK – will need to comply with new legislation. The situation is still developing, and some guidance has been issued by the UK government, but more is needed. Many of the notified bodies affected have also issued their own advice, but questions remain unanswered.

What we know so far

The UKCA mark is not currently recognised by the EU, which means any products manufactured in Great Britain but put into service in a market within the EU will still need to carry the CE mark. Also, manufacturers will need to have the same level of proof that their products are compliant, in the form of a technical file. As with CE marking, this may mean testing is required. It also means that UK manufacturers' technical files will need to now list the relevant UK legislation (not EU legislation) and UK designated standards, rather than standards in the Official Journal of the European Union. What also seems apparent is that notified bodies for third party assessment within Great Britain are no longer allowed by the EU to issue tests that demonstrate compliance to CE standards. Similarly, no test houses outside of Great Britain are expected to be authorised to provide UKCA testing. This appears to mean that products may need to be tested twice. Initially, the requirements for the two standards are aligned, but it is possible – and probable – that they will diverge in the future. Manufacturers outside the UK will now need to apply the UKCA mark to any products they or their agents intend to put into service within the UK. This may provide some additional business for UK based test houses. It appears that some test bodies are now offering to issue UKCA test certificates for existing products they have already certified to CE standards without any additional testing, although not necessarily without additional cost.

How this affects electronic products

As stated above, there is a good chance that electronic products entering the UK and EU markets will need to be tested by two notified bodies, one that is recognised and authorised to test under UKCA legislation and one that provides testing for CE marking. As the two test houses cannot physically be located in both the UK and EU, and a UK test house will no longer be a notified body for CE testing, that could mean manufacturers must engage the services of two notified bodies for one product. They may choose to use a provider that has laboratories in both the UK and an EU state, however not all providers will offer that level of coverage, so manufacturers may need to pay for conformance testing twice. In the future, if the standard supporting the two marks do diverge, manufacturers will be presented with another choice. Do they develop two products that are optimised for each end market, allowing them to meet different standards if necessary, or choose to develop a sub-optimal solution that meets the requirements of both markets but at the cost of optimisation? The good news is that manufacturers may still self-declare their products as compliant under UKCA legislation. However, while there may be no substantial changes to the way products must comply now, the potential for divergence in the future may still mean testing is advised in the future.

Designing for compliance

It is impossible to say how the standards for UKCA and CE compliance may diverge after 2022, or if they will, but it is clearly a possibility. Part of the reason for moving away from the CE mark is to distance the UK from EU legislation, but that also offers the UK the option of expanding, constricting or simply changing the requirements placed on manufacturers. The vast majority of OEMs producing electrical equipment will now need to apply the UKCA mark, and it is unlikely to expect any products to now be exempt that were subject to CE marking before the end of 2020. The CE mark and its requirements may no longer apply in the UK, but the statutory instruments used to put those requirements into UK law do; and will continue to do so for some time. For now, the advice seems to be to continue working within the requirements of the CE mark but prepare to re-test for UKCA marking E

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Powell Agricultural Solutions - IBBC connector



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Connectors that know how to stay on the “field”

Connectors by **Powell Agricultural Solutions** guarantee the reliability, robustness and performance required for **agricultural applications** that are now more than ever sensitive to innovation.

by Ryan Milligan*

The modern precision agricultural equipment is strongly driven by technical innovation through electrification and cross brand digitalization. Critical advancements in agricultural equipment have made it possible for farms to track crop production with great precision. Integrated equipment is used to optimize crop potential by ensuring that the correct amount of water, seed, pesticide, and fertilizer are applied to the crops electronically via GPS data logging. This new way of farming is accomplished with the help of monitors, sensors, and cross brand computerized systems sharing big data, machine to machine and into the FMIS. The connector innovation also continues at **Powell Electronics** with new products from **Powell Agricultural Solutions**. Powell is a global leader in industrial interconnect products; and can design, manufacture, and supply high-performance interconnect systems for a broad range of industrial applications, including motion control and heavy equipment vehicle integration. Developing proven ISOBUS connector products and more since 2004, Powell Electronics utilizes over 75 years of connector

manufacturing experience and knowledge allowing its customers cost effective solutions for the modern agricultural machinery needs.

Performance for agricultural applications

The **PAS Connector Series** from Powell Agricultural Solutions for example is now used on four continents and has endured millions of field hours. Powell Agricultural Solutions has curated a connector solution that provides the reliability, ruggedness, and performance needed for agricultural applications. The PAS Connector Series easily fulfills today's agricultural applications' requirements. The components are available in a wide variety of hybrid insert arrangements and utilize both the standard and specialized contacts. This makes the PAS Connector Series product line a cost-efficient option for a wide variety of machinery use cases.

Plastic Series - This Powell PAS Connector Series features high-temperature silicone inserts to act as a barrier from hydraulic fluids, fossil fuels, and lubrica-



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DS70005483A, MEC2401A-UK-11-21

ting oils. Powell Agricultural Solutions offers an OEM accepted, IP69K plastic connector series used in ISO 11783-2 and more. The product is also compatible with shell size 18 and 24 industry-standard designs, exhibits high strength and impact-resistance. These circular connectors are available in lightweight, easy to assemble and durable thermoplastic housings with a variety of inserts to achieve the IP69K seal.

Metal Series - Powell offers an OEM accepted, zinc-alloy metal connector series exhibiting high strength impact resistance and IP69k when in mated condition. These can be used in ISO 11783-2 and more. The sizes are compatible with shell sizes 18 and 24 on industry standard designs.

Powell's **IBBC** connector (*ISO Bus Breakaway Connector*) is the standardized connector receptacle for ISO 11783-2. IBBC incorporates integrated electronics along with a patented breakaway latching system. It now includes improved PCB sealing and over molding to IP69K level of protection. The new lid and closing mechanism achieve a more reliable seal when unmated and the rear connector has increased to 3 latches to improve contacts seating. This system is fully intermateable & interchangeable with the previous products on the market. In coordination with the improved latching on the IBBC connector the new IBRC-3L connector (ISOBUS Rear Connector, 3 latch) has 3 latches to maximize the contact alignment. Also upgraded was the interfacial seal that now features a 2 dimensional sealing with a light green position indicator showing the proper sealing and contact alignment has been achieved. This connector comes as a preassembled poke and pull solution that greatly reduces assembly time and labor costs. The enlarged mating contact length has improved power transfer, increased signal integrity and lowers the heat build-up.

Powell's newest design is a game changer

The **IBIC connector** (*ISO BUS Implement Connector*) is Powell's latest innovative design. It is the perfect solution for connecting implements to the tractor in the ISO 11783-2 protocol for the electrical connection of agricultural vehicles. The IBIC connector should be used for any application that requires power and CAN Bus communication. Made from the best noncorrosive materials, the unique design ensures survival in the harshest environments. Operating at IP69K when mated with IBBC. This best in

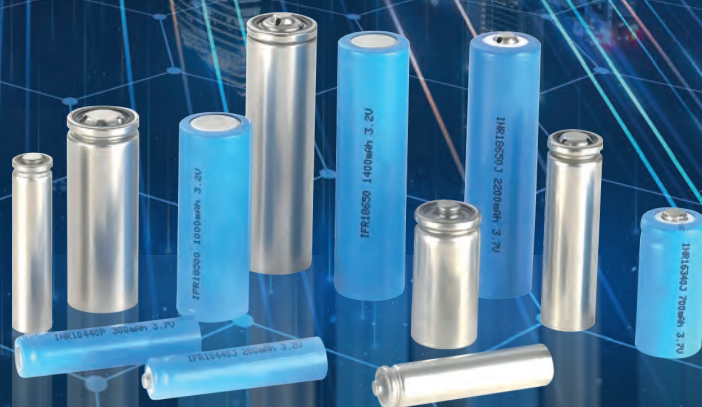
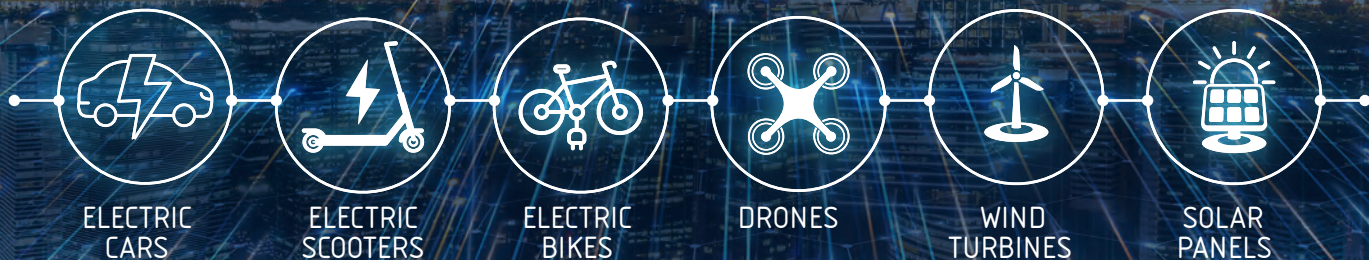
class connector offers fast and easy assembly, and it is field repairable. The outstanding strain relief with integrated cable clamp means no more wear and tear on your hands from the screws and tabs that the old style connectors use. Mated with the IBBC, it will survive many disconnects and with previous designs it will break-away correctly. If there is any damage to the bayonet due to the old design, spares will be available. These rings are extremely easy to replace which can even be done in the field by the tractor operator with basic tooling. The IBIC breakaway connector is extremely easy to populate with standard crimp tooling and saves labor time compared to the old design. This connector rates IP67. It can be used in combination with a protective cap, will not egg when dropped and also has an improved grip position marker. The **IBIC-RBSL** (*Twisted Pair Physical Layer for ISO-11783-2 Cost Optimized Physical Layer*) has been developed as a cost effective alternative for the IBBC receptacle. It is IP69K sealed and can be used for applications not requiring an IBBC with breakaway function. Supplied in an innovative modular design it comes in three versions: as a box mount, bulk head or free hanging in line receptacle. Each version is available with a back shell and self-closing IP69K lid. The IBIC-RBSL is ISO-11783-2 compatible and mates with Powell's IBIC connector as well as many other ISOBUS implement plugs on the market. The IBIC-9624-CAP is a waterproof cap made from the same durable polymers as the IBIC connector. It can be applied by direct connection to the IBIC connector with a strong lanyard or in a panel bracket. Grommet seals protect the IBIC wire and cable from sharp metal edges with flexible grommet seals. These seals are designed to handle both UL Spec Wires (orange) as well as SAE Spec Wires (blue). Through a combination of improvements to existing ISOBUS connectors and new product developments, Powell Electronics offers the perfect connectivity solution for ISO-11783-2 and SAE J1939 applications including all the related products such as, sensors, switches, connectors, dual-beam radar, lighting, circuit breakers, solenoids & value-added assemblies. Providing both high-performance and harsh environment components as well as design support required to build next generation systems that give modern agricultural machines a competitive edge is one of Powell's biggest competitive advantages. **E**

* **Ryan Milligan**, Business Development Manager
at Powell Electronics

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Intelligent technologies from **onsemi** power every node in **Ramaxel's** Next Generation Servers.

by Cleopatra Gatti

Ramaxel, a leading supplier of server, storage and design service solutions, has selected intelligent cloud power technologies from onsemi for its upcoming Intel-based VR13.HC servers. Power requirements are increasing in each successive processor generation. With their broad portfolio of high-performance, high-reliability cloud power solutions, onsemi is well positioned to deliver on such requirements.

A strategic partnership

“As an emerging leader in the fast-growing cloud market, we must have confidence in our suppliers. onsemi has become a strategic partner for us due to their superior quality, innovation, efficiency, technical support and supply capabilities that enabled us to streamline our development process and prepare for high volume production”, commented AB Wang, Ramaxel senior vice president of the Server Business Unit and Storage/Flash Development. Ramaxel’s latest family of servers will be powered by the recently released FD3501 digital multiphase controller featuring superior transient response, programmability and ease of use. This controller, in combination with smart power stages, point-of-load regulators and e-Fuse technologies from onsemi, delivers industry-leading energy efficiency, performance and reliability. “onsemi has over 20 years of experience in the design and high-volume production of multiphase controllers”, said Robert Tong, vice president of the Mobile, Computing and Cloud Division at onsemi. “The release of the FD3501 digital multiphase controller extends our portfolio to the latest

generation of cloud server systems based on Intel’s VR13.HC platform and solidifies the company as a total solution supplier”. Ding Wang, Ramaxel vice president of Server Development and Corporate R&D further stated, “onsemi fully enabled our VR13.HC platform development and we are confident they will provide Ramaxel with best-in-class technologies for our next generation VR14 server platform development”.

In addition to the FD3501, onsemi will soon release 8-phase and 12-phase digital multiphase controllers to support Intel’s VR14 server platform. The company’s innovation continues to drive the evolution of cloud computing by delivering intelligent, high efficiency technologies to power the entire cloud to edge infrastructure. **E**



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For a precise spectrum analysis

Yokogawa releases AQ6380 Optical Spectrum Analyzer
industry-leading performance in dispersive spectroscopy
achieves 5 pm wavelength resolution.

by Cleopatra Gatti

Yokogawa Test & Measurement Corporation announces that it has developed the AQ6380 optical spectrum analyzer. The new model is designed for researchers and developers who undertake optical spectrum measurements with high wavelength resolution and a wide dynamic range in optical communication wavelength bands between 1,200 nanometer (nm) and 1,650 nm. The AQ6380 benchtop analyzer uses dispersion spectroscopy*1 and is the first instrument of its type in the industry*2 to achieve a wavelength resolution of 5 picometers (pm).

Industry-leading wavelength resolution and accuracy

An optical spectrum analyzer is a measuring instrument that analyzes the optical wavelength components of optical devices such as semiconductor lasers and fiber lasers in order to evaluate wavelength characteristics. The AQ6380 will contribute to the research and development of devices and systems to meet the growing demand for high-capacity, high-speed optical communication networks.

Wavelength division multiplexing (WDM) technology is now widely used throughout high-capacity, high-speed optical communications networks, from backbones to access points, to meet the growing demand for such networks that is being driven by the expansion of communication services such as IoT, cloud computing,

and 5G. In order to evaluate the characteristics and quality of the optical devices and optical components used in these networks, high-performance measuring instruments are essential. In particular, next-generation optical transceivers and dense wavelength division multiplexing (DWDM) technology require even higher resolution and wider dynamic range.

The newly developed AQ6380 is a highly reliable optical spectrum analyzer that offers the performance to efficiently and effectively measure devices and systems used in the most demanding photonics applications. The product is based on the dispersion spectroscopy optical design technology and extensive experience in the optical measurement industry that Yokogawa Test & Measurement has cultivated since it entered the optical spectrum analyzer market in 1980. **E**



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IN-DEPTH

The expected extra fundings people are talking so much should support recovery in addition to the collaboration of banks and politics, who need to be forward-looking and fund research and technology.

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