UNIVERSITY OF PITEȘTI
FACULTY OF ELECTRONICS, COMMUNICATIONS & COMPUTERS
&
POLITEHNICA UNIVERSITY OF BUCHAREST
FACULTY OF ELECTRONICS, TELECOMMUNICATIONS AND INFORMATION TECHNOLOGY
CENTER FOR TECHNOLOGICAL ELECTRONICS AND INTERCONNECTION TECHNIQUES

INTERCONNECTION TECHNIQUES IN ELECTRONICS

THE SPRING CONVENTION OF ELECTRONIC PACKAGING COMMUNITY

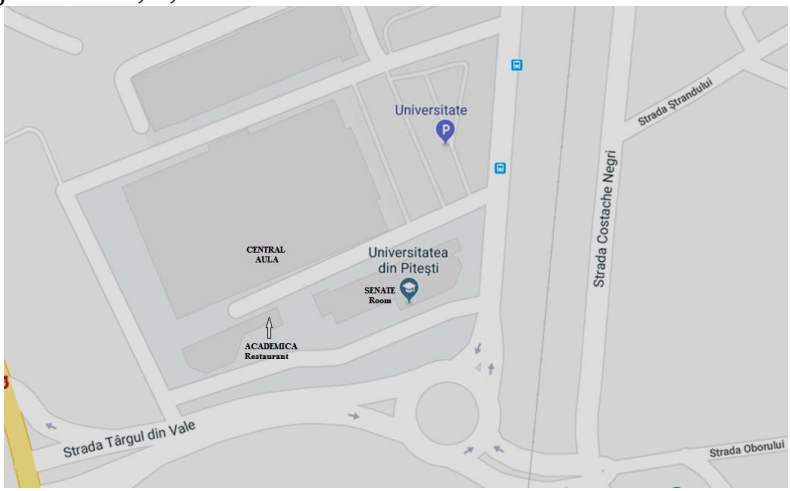
The 27th Edition, Pitești, România, April 18-21, 2018

Promoted by:

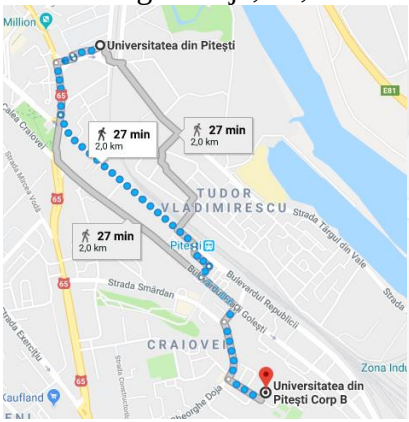
IEEE Electronic Packaging Society HU&RO Joint Chapter

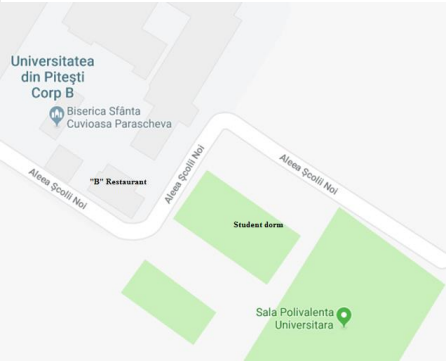
Association for Promoting Electronics Technology

Event location:
University of Pitesti
Targu din Vale, 1, Pitesti



Students accomodation:
Student dorm
Str. Gheorghe Doja, 41, Pitesti





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Prof. D.H.C. mult. Paul SVASTA, Ph.D.
Lecturer Cristina MARGHESCU, Ph.D.
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DTP: Bogdan ANTON

A WAY to turn your HOBBY into PROFESSION

The Spring Convention of Electronic Packaging Community

www.tie.ro

The 27th Edition, Piteşti, April 18–21, 2018

Organized by:

University of Piteşti
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Faculty of Electronics, Communications and Computers

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TIE Event Program

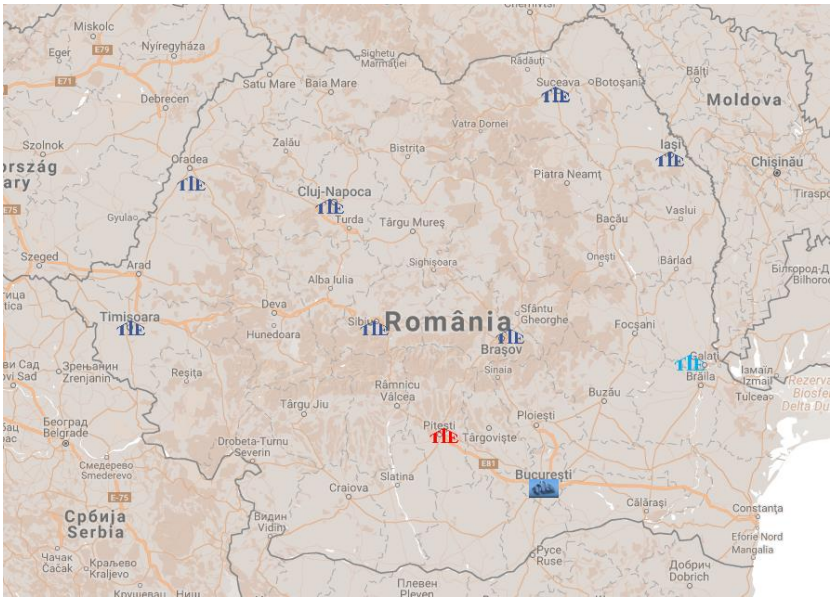
An invitation for TIE 2019

TIE 2019 - New steps, same attitude

Prof. Viorel NICOLAU, Ph.D., „Dunărea de Jos" University of Galați, Electronics and Telecommunication Department

TIE 2019 Chair

TIE Past, Present and Future Editions



1992-2002	Politehnica University of Bucharest
2003	Politehnica University of Timişoara
2004	Technical University of Cluj-Napoca
2005	Gh. Asachi Technical University of Iaşi
2006	Politehnica University of Bucharest
2007	Ştefan cel Mare University of Suceava
2008	University of Piteşti
2009	Dunărea de Jos University of Galaţi
2010	Technical University of Cluj-Napoca
2011	Politehnica University of Bucharest
2012	Lucian Blaga University of Sibiu
2013	Transilvania University of Braşov
2014	Politehnica University of Timişoara
2015	University of Oradea
2016	Ştefan cel Mare University of Suceava
2017	Gh. Asachi Technical University of Iaşi
2018	**University of Piteşti**
2019	Dunărea de Jos University of Galaţi
2020	Politehnica University of Bucharest

Welcome to TIE 2018,
the spring convention of the electronic packaging community

It is a great pleasure for me to have the opportunity to welcome, in Pitești, the participants to the TIE event. Looking back to the almost three decades of TIE history, we have to be very proud regarding the PCB design education and training achievements obtained during this long period. Today, TIE has becomes, for the electronic packaging community in Romania a strong event, bringing together players directly involved in the electronics industry development from this part of Europe. Electronic Industry representatives, academic staff (responsible for education and training of the future electronics engineers), high school representatives (directly involved in shaping the future candidates for the universities, round in the whole country), support companies and NGOs have come to the TIE Spring Convention. They are trying to identify proper solutions for creating adequate human resources, necessary for a prosperous business environment.

The numerous joint events present at the actual edition, like the Technical Workshop (dedicated to virtual prototyping topics) and the Human Resource Workshop (focused on electronics industry and education environments partnership) together with the TIE and TIE Plus student contest, represent facts which come to confirm the excellent collaboration between the stakeholders directly involved in the electronics industry evolvement. Actually, TIE and TIE Plus represents certifying processes, by the industry, of students' knowledge in PCB design.

The high quality of the event could not be achieved without the efficient involvement of the local organizing committee. I want to thank very much to the members from Faculty of Electronics, Communications and Computers, University of Pitești, for all what they have done in order to create a friendly atmosphere for this technical and scientific event.

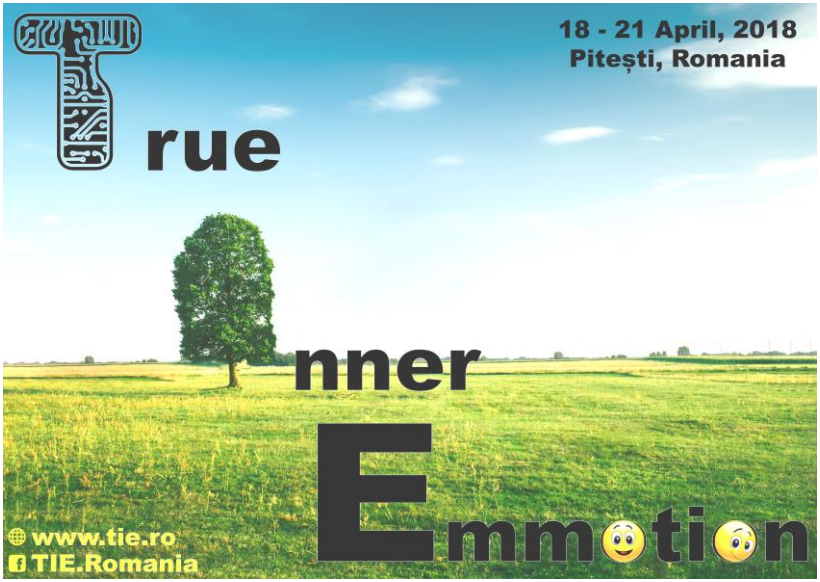
Many thanks also to TIE committees for their direct and competent involvement in the TIE 2018 event organization.

Finally, I wish to all the participants a pleasant stay in Pitești, in these days, the beautiful city of the tulips.

Bucharest, March 29, 2018

Prof. D.h.c.mult. Paul SVASTA, Ph.D.
TIE Initiator
Head of UPB-CETTI; Profesor at Faculty of Electronics, Telecommunications and Information Technology, Politehnica University of Bucharest;
President of Association for Promoting Electronics Technology-APTE

Previous TIE Winners



Year	Name	University
2017	Cojocariu Gheorghe	Ștefan cel Mare University of Suceava
2016	Voina Radu	Technical University of Cluj Napoca
2015	Luchian Teodor	Ștefan cel Mare University of Suceava
2014	Grigoraș Eduard	Ștefan cel Mare University of Suceava
2013	Bostan Adrian	Politehnica University of Bucharest
2012	Aldea Alin	University of Pitești
2011	Precup Călin	Politehnica University of Timișoara
2010	Dungă Tudor Dan	Politehnica University of Timișoara
2009	Răducanu Bogdan	Politehnica University of Bucharest
2008	Oșan Adrian	Politehnica University of Timișoara
2007	Tamaș Cosmin Andrei	Politehnica University of Bucharest
2006	Moscalu Dragoș	Gh.Asachi Technical University of Iași
2005	Andreiciuc Adrian	Politehnica University of Timișoara
2004	Berceanu Cristian	Politehnica University of Timișoara
2003	Munteanu George	Politehnica University of Bucharest
2002	Rangu Marius	Politehnica University of Timișoara
2001	Toma Corneliu	Politehnica University of Bucharest
2000	Vlad Andrei	Politehnica University of Bucharest
1999	Savu Mihai	Politehnica University of Bucharest
1998	Alexandrescu Dan	Politehnica University of Bucharest
1997	Gavrilaș Cristian	Politehnica University of Bucharest
1996	Vintilă Mihai	Politehnica University of Bucharest
1995	Ștefan Marius Sorin	Politehnica University of Bucharest
1994	Bucioc Mihai	Politehnica University of Bucharest
1993	Teodorescu Tudor	Politehnica University of Bucharest
1992	Teodorescu Tudor	Politehnica University of Bucharest

Welcome to TIE 2018

This year, 2018, University of Pitesti hosts the 27th edition of the TIE contest, a contest which characterizes the constant and traditional concerns of participants from a number of 10 to 15 universities in the country and abroad in order to demonstrate that the profession of electronics engineer is a top profession both nationally but also internationally.

The buildings of the University of Pitesti will host all contest activities, and attendees will be able to tour and experience the university's state-of-the-art facilities. New facilities in labs and all classrooms were the latest in educational technology, and this is the standard for all buildings in the new campus, too.

The contest aims to serve as an international forum for effective exchange of practical knowledge and experience among students because is designed to raise the interest of a wide range of students by sharing the newest innovative solutions in various fields of Interconnection Techniques in Electronics. The TIE contest is already a success, attracting a large number of students, which reflects the high interest for the exciting fields of TIE contest. The TIE contest also means a great opportunity for the international engineering community to share their cutting-edge research solutions and promote the engineering advancements to academia.

The project started 27 years ago and has had among others the following objectives:

- to substantiate the concept of interconnections in electronics;
- to develop designing skills for printed circuit boards;
- to identify new competitive ways of collaboration within professional communities;
- to get to know the academic community resources;
- to ensure equal opportunities for occupying jobs on the labor market.

We are together within a community that equally needs the best teachers, researchers, but also the best students with whom, together, we will create the favorable development of this branch of engineering through a transmission and reception of the mysteries held by the electronic technology science. Of course, the

achievements were as beautiful as the efforts involved. For the teaching staff we can notice an expanding collaboration with the business and research environment and also an increase in rewarding the deserving students for their good results.

Over 27 years there have been many difficulties that have posed difficulties in the mission of this contest but there was no choice but to persevere because this project was seen as a challenge. The theme of this contest is an extremely accurate and substantiated one that involves the collaboration between specialists working to generate up-to-date subjects for the competing students. This thing has generated the time endurance of the competition as well as highly qualified students who took part to it.

Finally, I would like to thank all volunteers for their valuable efforts in organizing this important professional contest in Romania, and wish all the attendees an enjoyable program during TIE 2018. Special thanks must be also addressed to sponsors for organizing this event. They understood the long-term usefulness and effectiveness of the competition in the trilateral mechanism, learning-research-production. Let's not forget to thank the hosts of all editions of the competition. Not lastly we should thank Mr. Prof. Dr. Eng. DHC. Paul Svasta, the initiator of this competition, for the force with which he contributed to the continuous development of this contest.

Prof. Mihai OPROESCU, Ph.D.
Dean of Faculty of Electronics,
Telecommunication and Computer Science,
University of Pitești

A new thought about TIE

TIE is already established as a competition in which students, future electronics engineers, aim at obtaining laurels by developing a project to design a PCB module. The contest has become increasingly challenging from a professional point of view due to the effective involvement of the representatives of the companies activating in this domain.

Even though I have been involved with this event for over 20 years, with each new edition I discover TIE's new valences. Thus, I found that the real topic of this year's competition is not the development of an actual electronics project, but is in fact related to the development of a real life project. Students must first identify their affinity with the technical subject assigned to them. Then they need to develop their specific engineering knowledge and practical skills which best cover the technical themes. This stage is, in my opinion, the real challenge, considering that most of the overall preparations and training are performed outside of the university curriculum. The next are the filtering phases, meaning the local stages and this final stage of the competition in which every student has the chance to learn a new life lesson. Being the first is not the most important, having the recognition and acceptance of the specialists in the field is. In this final stage, every student has the chance to learn that besides technical knowledge and skills, technical and human communication is equally important. Of equal importance is the actual capitalization of the performances achieved throughout the engineering profession that will outlive the project.

This year, spread among the leaves of the laurels waiting for the competitors are the fresh colors of the tulips joined in this spring symphony that has been taking place in Pitesti for 40 years.

I wish all participants plenty of success!

Cluj-Napoca, the 30 March 2018

Prof. Dan PITICĂ, Ph.D.
General Academic Co-Chair
Technical University of Cluj-Napoca

Strategic Partnership for Education

I see the 27th edition of TIE as a sustainable movement in electronics with a growing degree of professionalism, advanced study and a display of skill. Furthermore, I am glad to see TIE from the HR perspective as the elite of young "electronic" generation is coming forward with their ambition, knowledge, research and talent.

TIE has brought us together and has consolidated our partnership into a fruitful dialogue with a clear mission: changing the mentality of how we educate our children, pupils and students into real professionals in electronics

I am very pleased to see our strategic partnership growing, as well as witnessing how industry and academia work together in order to achieve common objectives. This collaboration is critical as higher performance expectations and demands are being placed on graduates, raising questions about how to adapt the content of academic programs and pedagogical methods to best match the future needs.

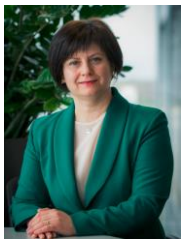
It is the challenge to join efforts throughout academia, industry and politics representative and work together as partners. All the involved parties agreed that the future of electronics can be ensured only by defining a common mission and building a partnership to support its achievement. This strategic partnership is key to building incremental trust and proficiency through a variety of projects and exchanges.

I know that significant changes are not obstacle free roads. I know that our day by day duties leave little space for projects with no immediate concrete results. I know we have to remain connected to our projects, to spend time and energy to accomplish our mission. But the future starts today. And we can make it happen the way we imagine it.

For this reason we have created three working groups at national level and here, at TIE, we are making a new step towards turning ideas into action.

I am looking forward to that and I am convinced this is just the beginning of our journey as strategic partners.

Brașov, 04.04.2018



Aurelia FLOREA
HR Director Miele
Miele Tehnica

DRÄXLMAIER Group sustains and appreciates TIE winners

First of all, I would like to thank Prof. Alin Mazare for his priceless commitment and dedication in organizing and promoting TIE Contest.

The opportunity he has given me to share my thoughts in the TIE 2018 brochure is highly appreciated.

For me, as Recruitment professional, this is the first contact with TIE contest, but DRÄXLMAIER Group has already gathered a rich experience with it. Our company has been a proud supporter of TIE from the very beginning. I especially want to thank my colleague Mugurel Malusanu – Head of Test Engineering Hardware and Software Development Pitesti, for his involvement, reliability and professionalism.

Some of the best candidates we have interviewed for the open positions in our Electronics Department are the winners of different editions of TIE contests. It is clear that this competition is a milestone in their professional development, that sets the base for their high performance in the future. TIE offers participants the opportunity to gain substantial experience, showcase skills, evaluate outcomes and uncover personal aptitude and encourages students to embrace innovative techniques and foster their ideas and skills.

DRÄXLMAIER Group is offering several carrier opportunities to all passionate professionals in the automotive industry. We are always excited to share the expertise and know – how of our colleagues with the students whom we welcome every year in our company, either through our internship programs or Open Doors events.

The initiative and effort of the organizers is highly valued and we are very proud to be a part of this partnership.

Good luck to all TIE 2018 participants!
Pitesti, 26.02.2018

Gabriela TARNA,
Head of Recruitment Romania,
DRÄXLMAIER Group
Application-Romania@draexlmaier.com

TIE – an excellent link between students and industry

I was also a student some years ago. At that time the might and magic of google was not as strong as today. I had to walk to the university library to even have access to internet and be able to read a simple transistor's datasheet. There was no PC in my room in the student's campus, no Ethernet network and of course no smartphone in my pocket. There were a lot of roomers I could hear whispered around the corners of the University about the big companies that were already established in the city or starting to grow. I was very often wondering what is going on in this companies, what are they really doing there, and most of all how could I ever translate the thick electronic books I was reading in the library to the reality of the technical challenges going on in all those companies.

At that time, for me, TIE was just a poster on the laboratory door of Marius Rangu. I knew he's inside, I knew he's passionately teaching the foundation of PCB design and electronic packaging and I knew he's one of the best teachers that the University "Politehnica" of Timisoara ever had. Still I did not had the courage to open that door and sign in for the TIE contest.

A couple of years later I got a job in one of the greatest companies in Timisoara. I had the chance to work on some of the most interesting products in the automotive market, I got the chance to watch the cars driving on the street and be able to say "my display is in that car", or watch the TV show *Top Gear* and be proud that I was part of the development team of some products which are present in the fastest car in the world, or in the car that did the fastest lap on Nürburgring track. The gap between theoretical aspects I learned during studies at the University and the challenges of the real world projects in the company was now closed, I was well aware what it means to design a PCB with the budget and time constraints of a real project, to the highest quality standards required by the industry.

With TIE, this gap can be closed now much earlier by students. The TIE subjects are now defined directly by the industry out of real world technical challenges, students get the task during the contest to solve these topics, to come up with technical solutions that can be implemented in real projects. Also during the contest the students can get in direct contact with industry representatives, they can meet each other, exchange thought and ideas and get a better understanding about each other just in case they will meet again in an interview later on. The TIE contest for sure brings the students in the

view of the companies and gives them a better chance for a job opportunity as soon as they finish their studies.

I was for the first time involved in the organization of TIE in 2014, as a member of the technical industrial committee, I realized then that there is a huge effort behind organizing TIE, many professors from the entire country spend a great effort in organizing the event and most of all training the students. Thank you all for this, you are really building the foundation of the next generation of engineers in this country.

I will not think about the past, I will not regret not participating in the TIE contest as a competing student, I will rather look at the future and focus on the contribution I can still bring to this event, and most of all I want to encourage students to participate, work hard and study, prepare well for the contest and just go for it! There are some prizes at TIE, some of the students will win those prizes and they will be called the winners, but there are no losers at TIE, just participating is already a great achievement for any student and the knowledge and the excitement of the event will stay with you forever. If there would only be more contests like this in Romania!

Sabin BINDIU
HW&MD Manager
Continental Automotive Romania, Timisoara

TIE – A key for The Industry Entry

TIE contest, already at its 27th edition, is now a mature event, a real phenomenon in the Romanian electronic packaging community. It provides the right occasion to acknowledge certain teaching principles, like conscious and active participation in the process of learning, turning theory into practice and correlating what is intuitive with what is logical. Also, TIE helps the participating students engage certain aspects of their future profession, from a multitude of challenges that the industry has to offer. Additionally, the best participants receive a Certificate of Competence in PCB design, recognized by the electronics industry, which will facilitate their startup in this branch of the economy.

The participation of Electronics industry representatives and their cooperation with the academic environment have brought more value to our spring convention, by having innovative new workshops, exchange of ideas, synergy between researchers and design engineers, between junior and senior engineers.

In 2019, we are delighted to host this event in Galați, the city on the Danube and a crossroad between the historical regions of Moldavia, Muntenia and Dobruja.

I wish the participant good luck, reminding them that now is the time to prove their value and skills and enjoy reaching their full potential.

Lect. Mihaela ANDREI, Ph.D.
Dunărea de Jos University of Galați

TIE – the career boost contest

TIE is the contest that gave a purpose to my tumultuous activity in the 2nd year of the engineering degree at „Ștefan cel Mare" University of Suceava. It allowed me to practice what I have learned in the courses and seminars and was the one thing that made my passion for science and technology grew considerably stronger.

My success in winning TIE 2017 is due to several factors:

The perseverance I had to read, observe, study and practice the PCB designing process using every opportunity to improve my knowledge

A dedicated training coach with success stories willing to write some more history

Study of other subjects related to PCB design (electromagnetic emissions, signal integrity, thermal management, hardware design)

Participating to two previous editions helped me with the emotions and stress management which interfere during the contest

The important achievement is that preparing for this contest every year for 4-5 months I have learned what engineering is about: you don't just draw lines, you don't just place components and connect them together so it looks nice - you analyze a situation and build a solution. The true fulfillment is when you understand how electronics work and if you are looking to improve that, the TIE contest gives you the perfect opportunity.

Involvement of the industry in this specific contest has the objective to train students to work as layout designers right after they finish their studies: I have achieved this goal and now I have the chance to work on the electronics devices that will be in the cars we will drive in a few years.

Each participant has the chance to obtain an interview at a leading company and start a career in Electronics Engineering or improve their performance for the next editions, therefore the outcome of all our efforts defines the footprint we leave in the technological progress.

Timișoara, 02.03.2018
Dipl. Eng. Gheorghe COJOCARIU
TIE 2017 Winner
Continental Engineering Services Timișoara

TIE – An insight into today's industry

TIE contest offers passionate students a unique opportunity to prove their technical skills and put their knowledge into practice by creating a complex design using cutting-edge technology. The training period also provides the students with a chance to hone their skills regarding printed circuit board design, face the latest challenges in the field, and develop a creative mindset that is essential in today's hastily developing world.

During the contest, they will meet some of the best engineers with hands-on experience in the printed circuit design field, and possibly start new friendships, professional relationships, or even kickstart their career in an electronics company.

In order to solve the subject properly and within the narrow timeframe, the student should keep in mind the following design flow:

- Read very carefully the subject and highlight the most important requirements;
- Create the missing schematic components and footprints; assign the correct package for every component;
- Draw the schematic and import the components to PCB;
- Define the board shape and setup the PCB design rules, layer stackup, grid and units;
- Place and arrange the components, manually route all connections and run a design rule check;
- Add all the mechanical and manufacturing notes;
- Generate the manufacturing files.

TIE offers students a chance to have contact with professionals working in the industry, compete and start friendships with other passionate students and tackle the latest challenges the industry is facing, all in well-thought, carefully organized event. Best of luck to all participants!

Cluj-Napoca, 06.03.2018

Octavian COCA
Second place, ex aequo at TIE 2017 Contest
Technical University of Cluj-Napoca

TIE- The jump to the reality of the profession

First, with this opportunity I would like to thank the organizers because they created this contest and people like me can participate to prove their skills.

When I found in the first year of college that this contest exists, something in my brain clicked; I knew that I had to participate. For me to have the opportunity to show what a can do so early was incredible.

On my first try I didn't qualify for the finals but became more exited and more motivated to get there, I gained experience, met people with same interest, great teachers plus I made my point that I am more capable than people think.

Next year, same room, new and old contestants and I one of them. After two hours of contest and a lot of emotions I made it, I was qualified for the national phase! The next two weeks I was excited and in the same time afraid. What if I goof? What if I will be last one? One thing was sure, I had to try my best.

The sensation there was different, a lot of people with same interest interacting, presentations, incredible! The day spent there I learned a lot of things about the industry and the latest technology. The next day, the contest day, I did my best, goofed a little but what was done, was done. The four hours of the contest felt like nothing compared to the time of judging. Everyone was there to see what the others did, how many points they made and what they can learn new.

After six or eight hours the awarding session was next, after the speeches from the organizers and partners the awarding came. Before they started they announced that because the scores were so close between the first 4 contestants (between 1 and 4 points), they decided to give one first place and three second places. Something like this never happened in 25 editions, and I was the right under the first one! I didn't believe I will get so close to the first place.

Now, after I shared my experience it's time to summarize my thoughts.

TIE is a great contest made with passion for the passionate, an opportunity to learn and get influenced from great teachers and specialists from various companies. You get the chance to prove your skills and show them to the industry. The sensation to be surrounded with people with the same interest as you at TIE gives you positive energy and desire to push even more forward.

To use the motto of TIE, this contest literally transformed my hobby and passion in profession!

Bucharest, 19.03.2018
HORBULI Mihnea-Gheorghe
Second place, ex aequo at TIE 2017 Contest
Politehnica University of Bucharest

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Cătălin NEGREA, Ph.D., Continental Automotive, Timişoara
Matthias TROSCHER, Ph. D., Business Development Manager, CST, Germany

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Octavian ENACHI, MSc., Gheorghe Asachi University of Iasi
Romulus Andrei GHINCU, BSc., University of Oradea
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TIE 2018 Program

<table>
<tr><td colspan="4">Wednesday, April 18</td></tr>
<tr><td></td><td>“Students” Track</td><td>“Technical & Industrial Committees” Track</td><td>“Steering Committee” Track</td></tr>
<tr><td>13:00-15:00</td><td colspan="3">Opening of Onsite Registrations for TIE & TIE^{Plus} – Main entrance @ UPIT, Pitesti</td></tr>
<tr><td>15:00-15:30</td><td rowspan="3">TIE’s first edition Boot camp: “Layout Engineering - Sharpen your skills, fast”
&
TIE^{Plus} preparations
Room T213 @ UPIT, Pitesti</td><td colspan="2">Transport with organizer bus to Draexlmaier Departure from University parking</td></tr>
<tr><td>15:30-17:30</td><td colspan="2">Industry - academia experience exchange – Draexlmaier R&D and Manufacturing visit</td></tr>
<tr><td>17:30-18:00</td><td colspan="2">Transport with organizer bus to University Departure from Draexlmaier parking</td></tr>
<tr><td>18:00-19:30</td><td>TIE^{Plus} Technical meeting
Room T211 @ UPIT, Pitesti</td><td>Steering, Industrial and Technical Committees meeting
Senate Room @ UPIT, Pitesti</td></tr>
<tr><td>19:30-21:30</td><td colspan="3">Welcome Dinner</td></tr>
</table>

Note: Items in the program marked with **bold** type represent **compulsory activities** for the given track.

Thursday, April 19			
	"Students" Track	***"Technical & Industrial Committees" Track***	***"Steering Committee" Track***
07:15-07:45	**Breakfast** Cafeteria B building		
07:45-08:00	**Registration of the participants** Main entrance @ UPIT, Pitesti		
08:00-08:15	**Welcome speech** Senate Room @ UPIT, Pitesti		
08:15-09:45	**TIE^{Plus} CONTEST - 1st part** Senate Room @ UPIT, Pitesti		
09:45-10:00	**Coffee Break**		
10:00-12:00	**TIE^{Plus} CONTEST 2nd part** Senate Room @ UPIT, Pitesti		
12:00-13:00	**TIE^{Plus}** Networking and Show-room Central Aula @ UPIT, Pitesti	**TIE^{Plus} Technical meeting** Room T211 @ UPIT, Pitesti	**TIE^{Plus}** Networking and Show-room visit
13:00-14:00	**Lunch Academica**		
14:00-14:30	**TIE^{Plus} – AWARDING CEREMONY** Senate Room @ UPIT, Pitesti		
14:30-16:15	**Technical Workshop:** **"Virtual Prototyping, Design, Validation and Manufacturing of High-End Products"** **- First Session -** Senate Room @ UPIT, Pitesti		
16:15-16:45	**Coffee Break**		

Thursday, April 19		
16:45-18:30	**Technical Workshop** **"Virtual Prototyping, Design, Validation and Manufacturing of High-End Products"** **- Second Session -** Senate Room @ UPIT, Pitesti	
18:30-19:30	**Dinner Academica**	
20:00-21:30	**TIE contest technical preparation** Central Aula @ UPIT, Pitesti	**Steering committee meeting** Senate Room @ UPIT, Pitesti

Friday, April 20			
	"Students" Track	***"Technical & Industrial Committees" Track***	***"Steering Committee" Track***
06:30-07:15	**Breakfast** Cafeteria B building		
07:20-7:45	Transport to TIE contest		
07:45-08:15	**TIE contest preliminary activities**		
08:15-12:15	**TIE CONTEST** Central Aula @ UPIT, Pitesti	**Technical session** Room T211 @ UPIT, Pitesti	**WORKSHOP for: "Strategic partnership for education"** Senate Room @ UPIT, Pitesti
12:30-13:30	**Lunch Academica**		
13:30-17:30	**Assessment of the projects; litigations** Central Aula @ UPIT, Pitesti		**WORKSHOP "Strategic partnership for education" (includes assessment participation)** Senate Room @ UPIT, Pitesti
17:30-18:30	Networking and Show-room visit	**TIE 2018 Result Evaluation** Room T211 @ UPIT, Pitesti	
18:30-20:30	**TIE - AWARDING CEREMONY** – Senate Room @ UPIT, Pitesti		
20:30-22:30	**Gala dinner TIE 2018 - Academica**		

Agenda HR Workshop April 20, - TIE 2018
Strategic Partnership for Education

Senate Room @ UPIT, Pitesti

08:45 -09:00 **Registration**

09:00-09:30 **Strategic Partnership for Education - Workshop opening**

Dumitru CHIRLESAN, Rector, University of Pitesti
Paul SVASTA, Profesor at Electronics, Telecommunications and Information Technology Faculty, Bucharest; President of APTE Bucharest
Alexander KLEIN, General Manager, Miele Brasov
Aurelia FLOREA, Human Resources Manager, HR Workshop Coordinator

9:30-10:00 **Brief summary regarding the activities of the Strategic Partnership for Education group**

Aurelia FLOREA, Human resource Manager Miele

10:00-12:00 **First session: The relationship between the Academic environment and the Industrial environment– Definite actions**

Session chair: Dan PITICĂ, Vice-rector Technical University of Cluj-Napoca
Session co-chair: Cosmin MOISA, Head of Product Development Center – Continental Automotive Romania srl

Cristian NEGRESCU, Dean of Electronics, Telecommunications and Information Technology Faculty Bucharest **–** The importance of the academia-industry partnership– Best Practices actions that contribute to competence development
Anton HADAR - ALMA MATER President- Alma Mater's support in promoting the strategic partnership between the academic environment and the industrial environment

Gabriel VLADUT, President of ARIES Oltenia - STEM and CS4all-Romanians – ,,How the STEM method can be applied to the existing educational system?
Eugen COCA – Department Director at University of Suceava - A way to improve students' training in physics

12:00-12:15 **Q&A**

12.30-13.30 **Lunch break Academica**

13:40-15:00 **Second session:** Educational environment – Best practices
Session chair: Paul SVASTA, Profesor at Electronics, Telecommunications and Information Technology Faculty, Bucharest; President of APTE Bucharest
Session co-chair: Alin MAZARE, University of Pitesti
Doru URSUTIU, University Transilvania of Brasov – Fondul Stiintescu in Schools
Camelia VADUVA, Department Chief Staffing and Career Management Renault Romania

15:00-15:10 **Q&A**

15:10-16:00 **How the government can contribute to adapting the educational system to electronic industry demands**

Roxana MANZATU, Deputy PSD Brasov
Aurelia FLOREA, Human resource Manager Miele – Pilot project launched in Brasov

16:00-16:10 **Q&A**

16:10-16:30 **Summary and future action plan, Closing**

April 18, 2018

TIE's First Edition Boot Camp:
"Layout Engineering: Sharpen Your Skills, Fast"

13:00-15:00 ***Registration***

15:00-19:30 ***Session Chairs:***
Cristian GORDAN, Continental Automotive, Timişoara
Csaba TARCEAN, Continental Engineering Services, Timisoara

Trainers:
Teodor LUCHIAN, PCB Designer, Continental Automotive, Timişoara
Mihai BURGHEAUA, PCB Designer, Continental Automotive, Iasi
Aurelian BOTAU, Thermal Designer, Continental Automotive, Timisoara
Marcel MANOFU, HSD Designer, Continental Automotive, Timisoara
Alexandru AMARIEI, Continental Engineering Services, Timisoara,

15:00-16:30 **"PCB Technologies"**

16:30-17:00 **"Design Flow"**

17:00-17:30 ***Coffee Break***

17:30-19:30 **"Design Guidelines"**

Technical Workshop

April 19, 2018

"Virtual Prototyping, Design, Validation and Manufacturing of High-End Products"

07:45-13:00 ***Registration***

14:30-16:15 ***First Session, Chairs:***
Prof. Dan PITICĂ, Ph.D., Technical University of Cluj Napoca, Romania
Cosmin MOISĂ, Continental Automotive, Timişoara

14:30-15:00 **"ANSYS Solution for simulation of Chip/Package/System scenarios for SI/PI and EMI/EMC applications"**
Markus LAUDIEN, Lead Application Engineer - ANSYS Germany GmbH

15:00-15:05 **Q&A**

15:05-15:35 **"What Every Scope User Needs to Know About Transmission Lines"**
Francesco RAIMONDI, Teledyne LeCroy via ARC Brasov

15:35-15:40 **Q&A**

15:40-16:10 **"Design Space Exploration for Signal Integrity"**
Nicolae BĂDULESCU, Application Engineer, TENSOR – ANSYS Channel Partner

16:10-16:15 **Q&A**

16:15-16:45 ***Coffee & Networking Break***

16:45-18:30 ***Second Session, Chairs****:*
Prof. Norocel CODREANU, Ph.D., Politehnica University of Bucharest
Bogdan POPESCU, MICROCHIP Technology, Bucureşti

16:45-17:25 **"Simulation for Innovation – Connecting the Dots"**
Ralf KAKEROW, Advanced Architecture and Systems - TE Connectivity Germany GmbH

17:25-17:30 **Q&A**

17:30-17:50 **"Pushing the limits of copper interconnects How far can we go?"**
Cătălin NEGREA, Ph.D., Continental Automotive Romania

17:50-17:55 **Q&A**

17:55-18:25 **"IPC Designer Certification Programs"**
Augustin STAN, Master IPC Trainer - L&G Advice Serv SRL, Bucharest

18:25-18:30 **Q&A**

TIE contest technical preparation
Central Aula @ UPIT, Pitesti

April 19, 2018
20:00-21:30

Session Chairs:

Prof. Norocel CODREANU, Ph.D., Politehnica University of Bucharest

Assoc.Prof. Alin Gheorghiță MAZĂRE, Ph.D., University of Piteşti

- Introduction / Technical preparations for the final
- TIE 2017 subject solution - Gheorghe COJOCARIU, TIE 2017 Winner
- Set-up / checking of contest computers & CAD design tools

TIE 2018

DESIGN OF ELECTRONIC MODULES AND ASSEMBLIES

Student Professional Contest

Awarding Ceremony

April 20, 2018 - Senate Room @ UPIT, Pitesti

18:15-18:30 ***Registration***

18:30-18:40 ***Opening Ceremony Speeches:***
Prof. Mihai OPROESCU, Ph.D., Dean of Faculty of Electronics, Communications and Computers, University of Pitesti, ***TIE 2018 Chair***
Prof. Dr.h.c.mult.Paul SVASTA, Ph.D., Politehnica University of Bucharest, ***TIE General Chair***

18:40-19:15 ***Keynote speaker***
"Innovation management H2020"
Cristian ORMINDEAN, Romanian Centre for Small and Medium Sized Enterprises Foundation, member of Enterprise Europe Network

19:15-19:25 ***State of the art TIE 2018***
Prof. Norocel CODREANU, Ph.D., Politehnica University of Bucharest, ***TIE Technical Committee Chair***

19:25-20:00 ***TIE 2018 Awarding***
Prof. Dr.h.c.mult.Paul SVASTA, Ph.D., Politehnica University of Bucharest, ***TIE General Chair***
Prof. Dan PITICĂ, Ph.D., Technical University of Cluj Napoca,
TIE General Academic Co-Chair

20:00-20:20 ***PCB Designer Certification recommended by TIE Industrial Committee***
Dipl. Eng. Cosmin MOISĂ, Continental Automotive Timişoara,
TIE General Industrial Co-Chair
Dipl. Eng. Augustin STAN, L&G ADVICE SERV
Master IPC Trainer

20:20-20:30 ***Looking Forward TIE 2019***
Prof. Viorel NICOLAU, Ph.D, Dunărea de Jos University of Galați, Electronics and Telecommunication Department
TIE 2019 Chair

TIE 2018 Gala Dinner (Academica)

Innovation management H2020

Abstract: The presentation will cover EU current financial support opportunities for innovation and business development through internationalization as provided by Horizon 2020 and COSME programs in a non-technical and jargon free manner, clarifying some widely use but slightly misunderstood concepts, such as innovation and innovation management.

We will present actual business development opportunities but we will also look into the future of the EU innovation support, currently under planning, during 2021-2027.

Keyword: innovation management, Horizon 2020, SME Instrument, COSME, Enterprise Europe Network, SME internationalization

Innovation and innovation management, European Union (EU) support for innovation management development, business development through internationalization are key concepts for understanding the policies and support instruments available for all SMEs and entrepreneurs within the Single Market.

Even if some of these concepts might sound familiar to entrepreneurs, SMEs managers or research organizations staff, there are still fundamental misunderstandings or misconceptions about EU innovation policies conceptual framework, all these undermining the attempts to make full use of the available opportunities.

The presentation will provide actionable knowledge about the above mentioned topics in a non-technical and jargon free manner attempting at clarifying some of the most popular misunderstandings.

We will briefly explain the EU development planning and implementation approach and the current state of affairs as defined for 2014-2020 financial framework highlighting innovation as one of the top 5 priorities.

We will clarify the meaning of innovation for EU planners and businesses, starting with CEN TS 16555 family of standards and its effects on SMEs competitiveness.

We will present the current implementation of EU innovation support, especially through EU H2020 and COSME programs.

We will provide an in-depth look to the opportunities provided to Romanian entrepreneurs, SMEs and large companies by these programs as well as how to quickly and conveniently access all these opportunities, how to deal with the vast quantity of information and its many uses, from getting financial support to better understanding the markets and supporting business foresight and planning exercises.

This will be a live presentation of the on-line H2020 access facilitates provided by EU using, as much as possible, the attendance interests domains.

Finally, we will take a look into the future by presenting some European Commission planning information about innovation support during 2021-2027 and understand how we may obtain and use this information for our business planning and development.

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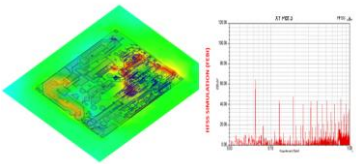
ANSYS Solution for simulation of Chip/Package/System scenarios for SI/PI and EMI/EMC applications

Abstract:
In simulation of todays electronic systems the interaction between printed circuit board, package and also the IC often needs to be taken into account in order to accurately simulate electromagnetic effects of Signal and Power Integrity as well as the EMC properties. In this presentation an overview about advanced simulation approaches will be given like a data-channel on a PCB with package and models of a chip.

Keyword: Electromagnetic Simulation, Signal/Power Integrity, EMC simulation

Design engineers who want to simulate Power Integrity or EMC effects of electronic circuits are faced with the situation that besides the geometric ECAD data of the board and package also the circuit setup and a representation of the transient signals are required.
It is critical in the design process of high performance electronics systems that these parts are combined well within a simulation setup to form a realistic overall simulation model. In the first part of this presentation the different simulation levels will be described and how to combine them together to form a valid simulation model. Different approaches to address power Integrity and EMC will be described.



Simulated surface currents and emissions from a PCB

During the second part of this presentation some examples will be shown how in a PCB the power delivery network will be analyzed and how the reduction of the target impedance within a given bandwidth affects the level of electromagnetic interference radiated from high speed PCB.

A focus will be put on the effect how the impedance of the internal power delivery network (PDN) of a chip can be included within the simulation model as this strongly influences the accuracy of the overall simulated results.

During the presentation some recent functionalities within the ANSYS EM simulation tools will be explained that address the needs for efficient engineering process of EMC characterization.

April 19, 2018

Markus LAUDIEN
Lead Application Engineer
ANSYS Germany GmbH
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What Every Scope User Needs to Know About Transmission Lines

Abstract: The instrument we use and the way we connect to the Device Under Test become an integral part of our design and needs to be treated with the same care of the design of our project.

Keyword: Transmission Lines, Rise Time, Reflections, Thevenin

The design and implementation of any project needs to be validated by correct measurements. The instrument and the way we connect to the test points of our DUT require an understanding of multiple aspect of our competence like: Rise Time and Bandwidth correlation, Time Domain and Frequency domain, Impedance and Transmission line, Thevenin equivalent circuit...

With a very simple use case we can see how all those above aspects needs to be carefully considered to have a correct measurement in line with what are the expected results.

Expected results is something we need to carefully know in advance because this will allow us to understand better our design and also correct frequent errors we incur in doing a measurement.

One aspect we need always to consider is that the signal we see are dynamic and signal propagates from one point to another and thus the connections have to be treated as transmission lines with propagating waves. Having all this in mind the measurement practice become reliable and the results are consistent with the expected results.

Pitesti, April 18 – 20 2018

Sales Manager, Francesco RAIMONDI
Teledyne LeCroy
Email: Francesco.raimondi@teledyne.com

Design Space Exploration for Signal Integrity

Abstract: The fast development of electronics nowadays requires more efficient and powerful designing and analysis tools to determine accurately the electromagnetic behavior of components. Signal and power integrity of chips, packages and PCBs present a huge emphasis in the functionality of such devices. Electronic systems can count thousands of different components, hence the need for design exploration and optimization has emerged as a huge 'must do' in the past years. ANSYS provides unified platform for Signal Integrity Design Space Exploration, which covers pre-layout, post-layout simulation and manufacture tolerance study. The presentation aims to introduce the concept of Design Space Exploration (DSE) and present the workflow. ANSYS DesignXplorer Software can be used as an effective tool for the exploration, understanding and optimization of designs.

Keywords: PCBs, Optimization, DSE, EM simulations, SI

In solving the increasing complexity of electronics, numerical simulations are a required step during the design stage. Prior to implementation, engineers need to explore design alternatives to ensure that the best solution is reached. Given the high number of components, operating modes and connections, a thorough system analysis for different design points (Design Space Exploration) is needed while considering the parameters of interest and system constraints (time, cost, resouces, etc). The first section will focus on introducing ANSYS DesignXplorer platform for SI solution exploration at very top level.

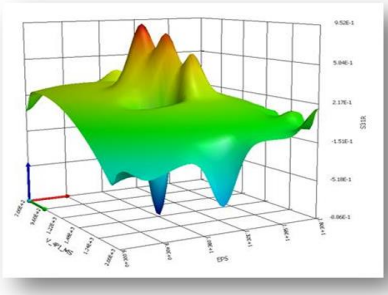

Fig. 1. Response plot of a design space

The second part will illustrate several application examples in which DSE has been succesfully achieved with DesignXplorer. First, a pre-layout 'what-if' analysis has been implemented for a differential stripline. The scope was to reach the optimization goals (impedance, minimize insertion loss and maximize the return loss) by varying the design parameters. Then, a hierarchy investigation has been applied to observe the effect of the parameters of the PCIe components over the Eye Diagram and to determine the Scattering Parameters. Third, a tolerance study (6σ – six sigma) has been deploited in order to observe the response of the manufacturing variables over the relative sensitivity curve.

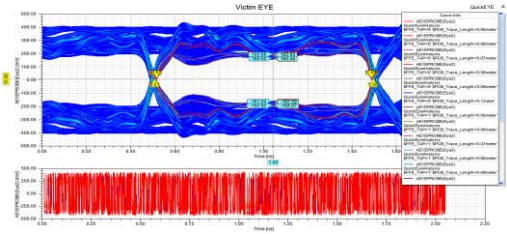

Fig. 2. Eye diagram with variables

About the presenter: Nicolae Bădulescu received his M.Sc. in Electrical Power Systems & HV Engineering from Aalbog Universiy, Denmark in September 2016. Since February 2018 he is working as an Application Engineer for Electromagnetics at TENSOR. His main focus is numerical simulation by using FEM for both low and high frequency applications.

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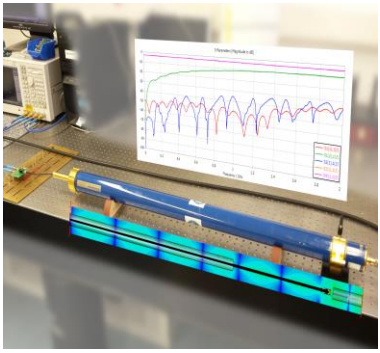
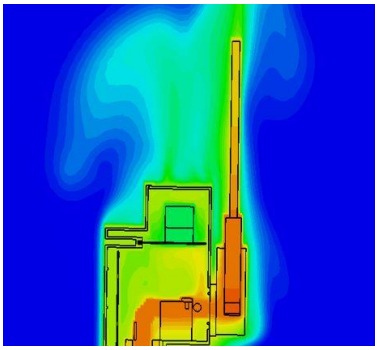
Simulation for Innovation – Connecting the Dots

With the trend towards assisted driving, driverless cars and electromobility the automotive industry is in the middle of a radical transformation. Autonomous driving requires an immense amount of almost latency-free real-time data. High bandwidth access to the infrastructure is an enabler for cloud-hosted intelligence and increases safety and passenger convenience. At the same time, electric powertrains are calling for new ways of handling high electrical energy.

The consequences of growing functional integration in a car are increased interdependencies between the different function blocks. Modern features depend upon the interaction of diverse control units. Thus, the design methodologies need to support the system aspect in addition to the traditional component based development.





This presentation highlights some of the most challenging connectivity subjects related to future cars. The workflow for high-speed connector design considering the whole signal channel is shown, as well as an appropriate modeling approach for EMC assessment. The same tool chain is used to support the development of antennas and high current/high voltage systems, with the additional challenge of thermal modeling.

Ralf KAKEROW
ralf.kakerow@te.com
Contributors: B.Bergner, C.Mandel, C.Rusch, P.Thimm
TE Connectivity
Transportation Solutions – Advanced Engineering

Pushing the limits of copper interconnects
How far can we go?

Abstract: High Speed Serial Links exceeding 8 Gbps are now becoming commonplace for many applications. With PCIe Gen4 being the current state of art, a basic question arises: how far can we go with "conventional" PCB fabrication technology before we have to switch to optical interconnects?

Keyword: signal integrity, serial link, electro-magnetic simulation

The frequency content of digital signals is constantly increasing and the type of material losses that were previously consider second order or negligible are now becoming dominant.

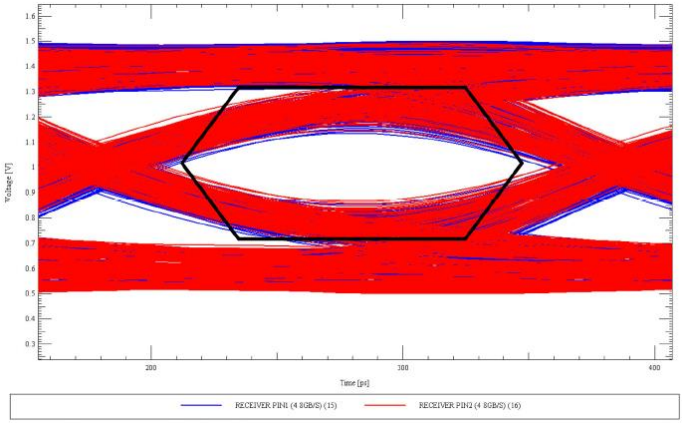


Fig. 1. Eye diagram of a serial link at 4.8Gbps
*Lee Ritchey, "Getting to 32Gbps", DesignCon 2018

Figure 1 presents an eye diagram for the differential channel of a SerDes link. Due to the losses and reflections present in the channel, the eye mask area is violated leading to data transfer errors. At just 4.8GHz the impact of PCB materials such as glass weave pattern and copper roughness becomes visible. During this year's DesignCon

Conference one of the hot topics was the design of interconnects for the next generation of PCIe and Ethernet which present a new set of the challenges associated with these extreme data rates.

With this third edition of TIEplus, hosted at the “University of Pitesti", we are also ramping up the data rates to 5 Gb/s following the industry trend towards high speed Serial Link solutions.

This workshop session will briefly cover the trends and challenges in maximizing data transfer rates on copper and highlight some of the research presented at DesignCon.

About the presenter: Catalin Negrea is the initiator and coordinator of a virtual prototyping team within Continental Automotive, focused on the development of high-end design solutions for interior HMI and driver monitoring. In 2013 he was nominated as a company level expert in the field of signal and power integrity. He obtained a Ph. D. degree from the Politehnica University of Bucharest in 2013, with a thesis focused on multidisciplinary modeling and electro-thermal simulation of active devices. Catalin is the author of 12 scientific papers in the fields of thermal management and signal integrity.

Timisoara, 04.04.2018

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IPC Designer Certification Programs

Abstract: *These professional development programs provide objective evaluations of core competencies in PCB design, based on the well-known IPC industrial standards. Courses enhance and assess the important technical knowledge regarding the competence and skills to transform an electrical circuit description into a PCB design that can be manufactured, assembled and tested.*

Keyword: IPC, CID, CID+, PCB Designer, Certification

Design is the heart of the electronics industry product development process. Starting with the vision of a final product defined by an end user, the designer transforms that vision in reality, with the support of the manufacturers. The design phase is where the reality of that product vision begins to take shape. It is also the stage where the true costs of the product, its reliability and performance characteristics are defined and established.

IPC PCB Designer Certifications, CID and CID+, offer the most direct value to individuals with at least one year of hands-on design experience. It is also beneficial for other industrial specialists with interest in design: engineers, sales managers, purchasing, manufacturing, and quality staff.

Throughout this presentation, references to the IPC standards will be offered, being shown with the relevant subsection noted. At the end, a listing of the cited standards will also be provided.

These standards are today used by PCB designers, electrical and mechanical engineers, fabricators, assemblers, schedulers, and test engineers to produce printed circuit boards. Figure 1 presents a general view for the team functions of the cooperative complex activity of bringing a design into physical form, the electronic module/system.

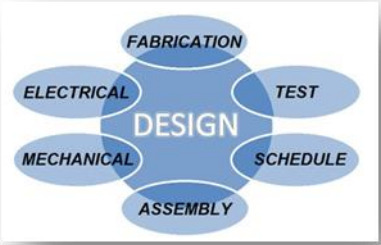

Fig. 1. Team functions

The course is an overview of the board design process. The intent is to provide factual knowledge that will help to produce cost effective, reliable designs that:

1) can be consistently manufactured in the designated supply chain;
2) can be manufactured with the minimum number of defects;
3) can operate properly, according to their initial concept/vision.

Augustin Stan is a Master IPC Trainer for the IPC-A-610, IPC-7711/7721, IPC J-STD-001, IPC/WHMA-A-620 and IPC-A-600 certification programs. He is also a qualified instructor in CID (Basic) and CID+ (Advance) certification programs. He has received, in 1979, the M.Sc. degree in Semiconductor Electronics Manufacturing from the POLITEHNICA University of Bucharest, Romania. Augustin Stan worked, after graduation, twenty-one years in BĂNEASA S.A. (the most important Romanian Semiconductors Manufacturer). Nowadays he is the owner of a private company, L&G ADVICE SERV S.R.L, located in Bucharest, Romania, an official IPC license training center for all the programs listed above.

Bucharest, April 2018

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WORKSHOP
“Strategic partnership for education”

- Speakers abstracts -

A way to improve students' training in physics

Abstract: Due to the importance of Physics in acquiring technical knowledge, a programme meant to improve education in this field was initiated at Suceava, which has attracted the companies' involvement, and focussed mainly on experimental activities

Keyword: training in physics, practical activities

In a world which is becoming more and more technical, we believe that technology, no matter which kind, no matter at what level (engineering, craft, research), can be understood, used, and mastered only with some knowledge of physics.

Highschool physics offers a good basis for technical training in all domains, at all levels, from civil engineering, painting and plumbing, to electronics and aerospace engineering. There is, however, a big problem: physics is not easy to learn.

A good solution may be to make it more attractive. One way of making learning physics easier and more pleasurable is to use experiments, especially those that render practical, tangible results obtained by the students themselves.

To be precise, practical knowledge means understanding and knowing how to do a variety of activities, from those technical to those pertaining to natural sciences, history and linguistics, etc. Practical activity doesn't mean just "knowing how to use a hammer" (although that wouldn't be a bad idea!); it means knowing how to organize and lead a trip, to formulate a request addressed to the manager, to install a tap, to make an electrical or electronic fitting work, etc. In parentheses: in mathematics, solving problems is a practical activity, and we all know that only by solving problems does one learn mathematics!

For the last about 30 years we have been witnessing if not participating in a technical-scientific revolution. Sciences and technologies, almost all of them, have been changing at an ever-increasing speed. As a consequence, mankind's body of knowledge has increased and is increasing.. Can students still amass the same percentage of the stock of human knowledge today as they could 50 years ago? The obvious answer is NO – but is this obvious for everybody? Too often, the answer coming from the organisers of the educational system is either to increase the volume of knowledge taught well over the learning and understanding capacities or to eliminate some information which is very useful in life. This is, we believe, the case of physics.

Technical knowledge – as said before, from painting to flying, can be infinitely better stored and used if the youth have a minimum knowledge of physics at high school level. We believe that the actions undertaken by our

colleagues Professor Adrian Graur (eng.) and Associate Professor Eugen Coca (eng.) from "Stefan cel Mare" University in Suceava, represent a good way to improve the students' training in physics, with an emphasis on electronics.

Our colleagues from Suceava's activities have developed in several directions:

(1) Emphasis on raising the awareness of high school management of the importance of physics in all real-life activities.

(2) Support for the establishment and/or endowment of physics labs, especially for electronics experiments, by attracting sponsorship from companies.

(3) Support given to Physics teachers through the organisation of activities in the university labs: using equipment, carrying out measurements, making small experiments.

(4) Keeping in touch with interested teachers and students.

The results of these actions have not appeared immediately, but only after 2 or 3 years of activity, but one can say that now this is a success story.

1. The students' interest in physics has increased, as seen from the feedback received from them, as well as from teachers and parents.
2. The number of candidates for the electronics faculty has increased – remarkably, although not spectacularly.

To sum up, here are a few conclusions:

1. The activities carried out have required a lot of effort: countless meetings, discussions and trips.
2. The youth have understood that software is not everything! One cannot build a relatively big country like Romania just on computer programs. One needs computers with an entire infrastructure around them.
3. Without the support of companies not much can be done: some money is needed (not much!), but a lot of interest and permanent contact are necessary.
4. Companies need to be explained that this activity is to a large extent in their interest: they can find highly qualified workers more easily, and such workers need less training to become efficient.

To conclude, we would like to emphasize that the TIE contest is exactly what our colleagues from Suceava proposed for high school level, only translated to the tertiary level of education, and we believe that this also explains why TIE has been so successful so far.

Pitesti, 18th-21st April 2018

Associate Professor Eugen COCA, PhD
Stefan cel Mare University of Suceava
Faculty of Electrical Engineering and Computer Science

Professor Vlad CEHAN, PhD
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STEM and CS4all-Romanians

Abstract: The aim of the project is development of students' applicative capacities in IT field, in partnership Romania – USA representatives. The support of Auburn University, Microsoft, long term collaborations with Carnegie Mellon Alice and MIT App Inventor research teams, and a jury of American experts in STEM and IT, is the guarantee of achieving sustainable practical outcomes for young Romanian students attending courses.

Keyword: STEM, IT, COMPUTER SCIENCE, COMPUTATIONAL THINKING

Science, Technology, Engineering and Mathematics - STEM, is a term used to group together these academic disciplines. This term is typically used when addressing education policy and curriculum choices in schools to improve competitiveness in STEM education.

The use of big data, instruction through mobile devices, online learning, and virtual and remote laboratories that emulate live research labs are the technologies that will have the greatest impact on STEM education over the next year. STEM covers the disciplines of science, technology, engineering, mathematics as well as additional skills for applying knowledge of those subjects in the real world.

Self-efficacy and self-concept both play a significant role in STEM career selection and a lack of adequate quantitative and technology competencies will often dissuade students from STEM careers, especially careers focused on quantitative data and evidence-based outcomes. Multiple STEM advisory groups have emphasized the need for developing effective teachers and administrators in STEM, ultimately leading to qualified STEM graduates.

Whereas we are witnessing major demand, around the world, for employees with STEM skills, the number of young people embracing STEM academic majors and careers is rather stagnant. The situation is similar in Romania and, in general, in EU.

ARIES Oltenia subsidiary, in partnership with Auburn University, USA, with the support of a team of IT and electronics and Rotary Club Craiova, organizes the CS4all-Romanians - IT Club project for encouraging students to embrace STEM academic majors and careers. This project is in the second year of successful implementation of its goals.

Depending on age and level of individual development, students are taught the following educational software applications:

- **Microsoft Kodu**: we have Microsoft support that offers needed learning equipment (e.g. X-Box controllers).
- **Alice 2.4 and Alice 3.0**: we have a long time collaboration with Carnegie Mellon Alice team
- **App Inventor**: we have a long time collaboration with the MIT App Inventor team

The teachers' professional development is hierarchical (Romanian teachers are first trained by an US professor, and then they can also train other teachers), followed by classroom teaching (teachers implement curriculum in class).

All participant in the project are member of a closed Facebook CS4ALL-Romanians –IT CLUB group where they can communicate with USA teachers and evaluators, as well as other international STEM educator and researchers (https://www.facebook.com/groups/138196296757577/).

This year we have 17 groups with 296 students, from Gymnasium Schools and National Colleges in Craiova and Slatina. Details at: www.aries-oltenia.ro/ITClub/CS4ALL-RO/

Pitesti, 18th-21st April 2018

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Recognition by the industry of student competences in PCB design


Association for Promoting Electronics Technology

APTE

Serial: AT no: ____/20__
Edition: XXVII

Certificate of Competence
in PCB design
awarded to

is certified in PCB Design, as recognition of CAD knowledge and skills for development of layout of electronic modules/assemblies, according to IPC standards: 2221 - *Generic Standard on Printed Board Design*, 2222 - *Sectional Design Standard for Rigid Organic Printed Boards and 7351 - Generic Requirements for Surface Mount Design and Land Pattern Standard*

The International Student Contest "Interconnection Techniques in Electronics, TIE 2018", 27th edition - Pitești, România

President, Paul Svasta, Ph.D. APTE

General Industrial Co-Chair, Cosmin Moisa Continental Automotive România

Master IPC Trainer Augustin Stan L&G ADVICE SERV S.R.L.

TIE Technical Program Committee Chair, Norocel Codreanu, Ph.D. Politehnica University of Bucharest

TIE 2018 Certificate of Competence

The „PCB Designer" certificate is awarded, after evaluation, by the TIE IC (Industrial Committee) to selected participants as recognition of the high level of knowledge in the field of CAD for development of electronic modules and assemblies. The certificate is offered under the "umbrella" of the Association for Promoting Electronics Technology, APTE.

TIE Industrial Committee
Recommended PCB designers from 2010-2017

Participant Name	University	Year
Cojocariu Gheorghe	Ştefan cel Mare University of Suceava	2017
Horbuli Mihnea	Politehnica University of Bucharest	2017
Coca Octavian	Technical University of Cluj Napoca	2017
Anechiței-Diatcu Gavril-Cristian	Ştefan cel Mare University of Suceava	2017
Atănăsoaiei Marian	Ştefan cel Mare University of Suceava	2017
Condurache Alexandru	University of Piteşti	2017
Igna Gheorghe	Politehnica University of Timişoara	2017
Postariuc Mihai	1 Decembrie 1918 University of Alba Iulia	2017
Goglea Alexandru	University of Piteşti	2017
Ion Andrei	University of Piteşti	2017
Mihalache Bogdan	Gh. Asachi Technical University of Iași	2017
Catrinoiu Constantin	Politehnica University of Timişoara	2017
Dumitrescu Octavian	1 Decembrie 1918 University of Alba Iulia	2017
Damian Brîndușa	Politehnica University of Bucharest	2017
Ghinet Dragos	Technical University of Cluj Napoca	2017
Radu Vadim-Florin	Politehnica University of Bucharest	2017
Zirbo Vlad	Technical University of Cluj Napoca	2017
Voina Radu	Technical University of Cluj-Napoca	2016
Cocan Nicolae	Lucian Blaga University of Sibiu	2016
Gîbu Marius Andrei	Politehnica University of Bucharest	2016
Cojocariu Gheorghe	Ştefan cel Mare University of Suceava	2016
Dumitrache Florin	Transilvania University of Braşov	2016
Paranici Andras	University of Oradea	2016
Anechitei-Diacu Gavril	Ştefan cel Mare University of Suceava	2016
Racheru Alexandru	Politehnica University of Timişoara	2016

Cocan Alexandru	Lucian Blaga University of Sibiu	2016
Goglea Alexandru	University of Piteşti	2016
Onofrei Șerban	Gh. Asachi Technical University of Iaşi	2016
Serghie Andrei	Ştefan cel Mare University of Suceava	2016
Iliescu Mihai	Politehnica University of Bucharest	2016
Căpățînă Mihai	Lucian Blaga University of Sibiu	2016
Teodor Luchian	Ştefan cel Mare University of Suceava	2015
Maranciuc Florin	Ştefan cel Mare University of Suceava	2015
Moise Mădălin	University of Piteşti	2015
Paranici Andras	University Of Oradea	2015
Cojocariu Gheorghe	Ştefan cel Mare University of Suceava	2015
Butaru Traian	Politehnica University of Bucharest	2015
Marin Ionuț	University of Piteşti	2015
Cocan Nicolae	Lucian Blaga University of Sibiu	2015
Burta Andrei	Politehnica University of Timişoara	2015
Dumitrache Florin	Transilvania University of Braşov	2015
Iliescu Mihai	Politehnica University of Bucharest	2015
Voina Radu	Technical University of Cluj-Napoca	2015
Eduard Grigoraş	Ştefan cel Mare University of Suceava	2014
Alexandru Mihai Ilie	Technical University of Cluj-Napoca	2014
Ovidiu Timoficiuc	Ştefan cel Mare University of Suceava	2014
Mădălin Moise	University of Piteşti	2014
Teodor Luchian	Ştefan cel Mare University of Suceava	2014
Robert Dobre	Politehnica University of Bucharest	2014
Radu Ciocovanu	Gh. Asachi Technical University of Iaşi	2014
Daniel Gheorghe	Politehnica University of Timişoara	2014
Traian Butaru	Politehnica University of Bucharest	2014
Bostan Adrian	Politehnica University of Bucharest	2013
Bota Claudiu	Politehnica University of Timişoara	2013
Ilie Mihai	Technical University of Cluj-Napoca	2013
Timoficiuc Ovidiu	Ştefan cel Mare University of Suceava	2013
Olenici Alexandru	Technical University of Cluj-Napoca	2013
Sofîlca Ionuț-Bogdan	1 Decembrie 1918 University of Alba Iulia	2013
Grigoraş Eduard	Ştefan cel Mare University of Suceava	2013
Chitic Mihail	Transilvania University of Braşov	2013

Petric Cristian	Politehnica University of Timişoara	2013
Cervis Alexandru	Maritime University of Constanţa	2013
Moise Mădălin	University of Piteşti	2013
Lăcătuş Daniel	Politehnica University of Bucharest	2013
Aldea Alin	University of Piteşti	2012
Turdean Mihai	Technical University of Cluj-Napoca	2012
Andrieş Lucian	Ştefan cel Mare University of Suceava	2012
Avădanii Alexandru	Politehnica University of Bucharest	2012
Mares Mihai	University of Piteşti	2012
Marin Marian	University of Piteşti	2012
Burgheaua Mihai	Ştefan cel Mare University of Suceava	2012
Tănase Mihai	Politehnica University of Bucharest	2012
Boţilă Alexandru	Politehnica University of Timişoara	2012
Ţibuleac Cătălin	Politehnica University of Bucharest	2012
Gordan Cristian	Politehnica University of Timişoara	2012
Antonovici Dorin	Ştefan cel Mare University of Suceava	2012
Ardelean Mihaela	Politehnica University of Timişoara	2012
Ştefan Andrei	Politehnica University of Bucharest	2012
Precup Călin	Politehnica University of Timişoara	2011
Antonovici Dorin	Ştefan cel Mare University of Suceava	2011
Mareş Mihai	University of Piteşti	2011
Gordan Cristian	Politehnica University of Timişoara	2011
Burghea Mihai	Ştefan cel Mare University of Suceava	2011
Crăciun Gabriel	Politehnica University of Timişoara	2011
Ţibuleac Cătălin	Politehnica University of Bucharest	2011
Bostan Adrian	Politehnica University of Bucharest	2011
Fiastru Bogdan	Technical University of Cluj-Napoca	2011
Aldea Alin	University of Piteşti	2011
Andrieş Lucian	Ştefan cel Mare University of Suceava	2011
Caracaţeanu Cătălin	Dunărea de Jos University of Galaţi	2011
Dungă Tudor Dan	Politehnica University of Timişoara	2010
Pică Zamfir	Technical University of Cluj-Napoca	2010
Gross Péter	BME Budapest	2010
Antonovici Dorin	Ştefan cel Mare University of Suceava	2010
Condrea Daniel	Ştefan cel Mare University of Suceava	2010

Lupuţ Cătălin	Politehnica University of Timişoara	2010
Banciu Alexandru	Politehnica University of Bucharest	2010
Fülöp Krisztián	BME Budapest	2010
Tudose Mihai Liviu	Politehnica University of Bucharest	2010
Burgheaua Mihai	Ştefan cel Mare University of Suceava	2010
Knizel Alexandru	Politehnica University of Timişoara	2010
Pandelică Ovidiu	University of Piteşti	2010
Caracaţeanu Cătălin	Dunărea de Jos University of Galaţi	2010
Ţibuleac Cătălin	Politehnica University of Bucharest	2010
Blănaru Andrei	Transilvania University of Braşov	2010
Malinetescu Adrian	North University of Baia Mare	2010
Ungureanu Vlad	Transilvania University of Braşov	2010

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Sponsored by:

ARC Brasov

Generating Revenue for Our Business Partners. Growing Your Competitiveness Through the Best ROI. Healthy Stability.

Built and developed the ARC Brasov company from scratch, since 1990. This longevity means good stability for our clients and suppliers, in a world where prestigious reports are showing a decreasing average lifespan pointing to 15 years.

As a distribution company for test and measurement equipment, ARC Brasov represents more than 30 leading brand names, all front-runners in their domain. Meaning that:

- Our suppliers enjoy brand awareness, market share, recognition, and of course sales.
- Our clients enjoy the very best equipment, gaining competitive advantages through the highest ROI and the lowest TCO.

Built and nurtured as a lifelong learning organization, ARC Brasov deploys the best trained professional force in the industry. Thirty people on the permanent move, sharing good knowledge with their clients, advocating our partners' brands, connecting and building valuable mutual relationships. It is all about adding meaning and significance, about enriching experiences for all of us: our clients, our suppliers, our ARC Brasov team.

At ARC Brasov, we develop.

- Starting with the already traditional for us energetic and electrical sectors, we expanded to 8 distinct segments, including food, medical, telecom.
- Starting with the test and measurement distribution, we developed to Metrology (the best-equipped laboratory in the country), reliable Service, and high-quality Training (e.g. the coveted Level One Infrared Thermography Certification)
- Starting with the freestanding equipment, we developed to high-tech, unique customized solutions.

At ARC Brasov, we grow:

- Our suppliers' turnover,
- Our clients' competitiveness,
- Our people' knowledge and expertise.

Come to where the growth is. Come to ARC Brasov!

Automatizarea proceselor de afaceri cu Canon Romania

See the bigger picture

Canon este unul dintre principalii inovatori şi furnizori de soluții de imagistică şi tehnologia informației pentru companii şi utilizatori finali.

Canon combină cunoştințele avansate din domeniu cu expertiza tehnică, pentru a ajuta companiile să facă față provocărilor crescânde din industria în care activează, sprijinindu-le inițiativele de afaceri în era digitală şi ajutându-le să se dezvolte. De peste 20 de ani, Canon se află în topul primelor trei companii din lume cu cele mai multe brevete depuse.

Automatizarea proceselor de afaceri

Conform celui mai recent raport Canon Office Insights 2018, ideea automatizării documentelor a fost foarte bine primită în comunitatea de business CEE. Cu toții sunt de acord că automatizarea documentației de business este un proces inevitabil, deoarece astfel se va economisi timp prețios şi se va reduce numărul de erori legate de documente. Aproximativ 68% din firmele din zona CEE au automatizat deja procesarea pentru cel puțin un tip de document comercial, cele mai des întâlnite fiind facturile (45%), corespondența (28%), contractele sau documentele juridice (25%) şi notificările adesate clienților (23%).

Experiența Canon în ceea ce priveşte nevoile principale de comunicare, de gestionare a proceselor, de imprimare şi de capturare a informațiilor, întâlnite atât în mediul de business cât şi în mediul educațional pre-universitar şi universitar, ne permite să oferim sprijinul necesar în acest proces de transformare digitală. Soluțiile noastre de gestionare şi captare a documentelor simplifică procesul de captare a datelor, reduc erorile şi permit un acces controlat rapid şi eficient din punct de vedere al costurilor la informații digitale şi imprimate.

Continental. The Future in Motion.

As one of the leading global automotive manufacturer we have hundreds of projects going on simultaneously, these are just a few of them:

› **AllCharge** is a superfast wireless and cable charger that can charge your car as fast as vehicles with internal combustion engines. In addition, AllCharge enables you to connect any electronic device to your car to charge it, even an entire house in a power outage situation.

› **Speakerless Audio System** replaces conventional speakers with actuators, which create a high-quality 3D audio experience by vibrating certain surfaces inside the vehicle.

› **Wireless Key PASE system**, which allows drivers to open the doors without the need for keys. All they need to do is to approach the vehicle with a smartphone or a wearable device, such as a smart watch or ring, and the car will be opened by a virtual key.

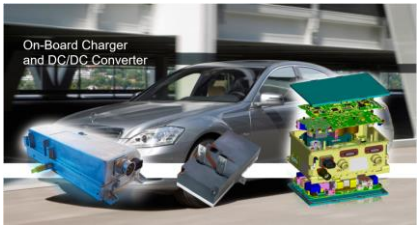
› **Artificial intelligence** used by Continental turns the entire vehicle into a digital companion that remembers and interprets the user's behavior, adapts navigation or infotainment offers and even anticipates the wishes of the driver. To enable a natural conversation between the driver and the vehicle, Amazon's cloud-based voice service, Alexa, has been linked to several vehicles.

For more details and how to join our team,
visit www.romania.careers-continental.com
or give us a follow on www.facebook.com/RomaniaContinental.

Delta Electronics Group (founded 1971) is the world's largest provider of switching power supplies and DC brushless fans, as well as a major source for power management solutions, components, visual displays, industrial automation, networking products, and renewable energy solutions. Delta Group has sales offices worldwide and manufacturing plants in Taiwan, China, Thailand, Mexico, India and Europe.

As a global leader in power electronics, Delta is committed to environment protection and has implemented green, lead-free production and recycling and waste management programs for many years.

In Romania the company is present since 2004 and has as main activity research and development of both high efficiency and innovative dcdc converters for automotive industry. We are a stable group of passionate engineers into the domains of mechanical, hw, layout, sw and application qualification. Our office is located in the heart of Bucharest with best working conditions and equipment.



Delta is devoted to innovation and systematically developing new products and technologies, particularly those that are high-efficiency and energy-saving. Aiming to reduce global warming and ensure mankind's sustainable future with better value and performance, Delta is continuously enhancing our engineering capabilities and is committed to developing innovative technologies and solutions for a better tomorrow.

Delta invests 6% to 7% of the group's annual sales revenue in R&D and has worldwide R&D facilities in Taiwan, China, Thailand, Japan, India, Singapore, the U.S.A., and Europe. In 2016, Delta has over 9,000 R&D engineers throughout the world with R&D activities coordinated on a global scale.

Mission & Culture
As a global leader in power electronics, Delta's mission is,
"To provide innovative, clean, and energy-efficient solutions for a better tomorrow."
Corporate Culture
Strive for change, and pursue sustainability

The DRÄXLMAIER Group supplies premium automobile manufacturers worldwide with complex wiring harness systems, electrical and electronic components, exclusive interiors, and battery systems. DRÄXLMAIER develops pioneering wiring harness technology as well as electrical and electronic components, all directly in-house. DRÄXLMAIER is working on the future of emission-free mobility with its solutions for low-voltage and high-voltage battery systems.

Customers of the Top 100 Automotive Supplier include Audi, BMW, Jaguar, Land Rover, Maserati, Mercedes-Benz, MINI, Porsche and VW.

On the Romanian market, DRÄXLMAIER Group is present since 1993 and is one of the largest employers in the country. At the moment, the Group has here five production centers which are also development centers - Satu Mare, Pitesti, Timisoara, Hunedoara and Brasov.

Address: Nicolae Bălcescu St. No.186, 110101 Pitești, Romania
E-mail: cariere.pitesti@draexlmaier.de
www.draexlmaier.ro/cariere (search for job title)

ELECTRO OPTIC COMPONENTS is specialized in the development and manufacture of optoelectronic systems for various applications. Some of the company achievements are:

- warning systems against laser and radar illumination;
- optoelectronic sensors and interfaces for their integration into complex systems;
- oem laser rangefinders with λ=1.06 μm and λ=1.54 μm;
- laser rangefinders subassemblies for integration in other optical systems (binoculars, optical aiming devices);
- aiming pointers and intelligent pointers, equipped with laser diodes in the visible and infrared spectrum;
- ruggedized PC computers with framegrabbers for image processing of different video sources such as CCD and night vision cameras, which can be integrated in complex surveillance systems;
- DC/DC and AC/DC convertors;
- various types of microcontroller boards for automation;
- PC and microcontroller software development.

ELECTRO OPTIC COMPONENTS is ISO 9001:2008 certified and has the technical ability to develop complex electronic and optoelectronic systems for different applications.

Str. Atomistilor nr. 171A
Magurele – ILFOV
Postal code 077125
ROMANIA
Tel/Fax: 0214574592
www.electro-optic.ro

Fineline QPI BV, Netherlands

E info-qpi@fineline-global.com

T +40 (0)726 245 244

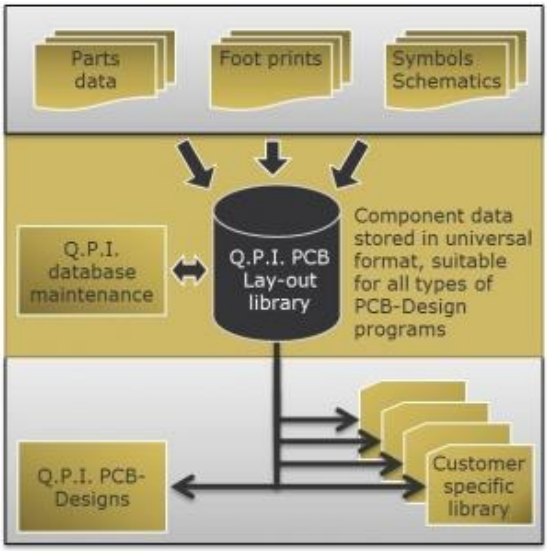
QPI is a 1988 founded company and since then grown into an expert in the field of printed circuit board technology and PCB design. Today, as Fineline QPI, we are member of the FineLine Global Group and have representatives in among others Romania.

PCB Technology

Fineline QPI has a PCB laboratory in the Netherlands, which support the development process and carry out quality research. Fineline QPI has a large number of production facilities in Europe and Asia where PCBs are manufactured. Each of the production facilities has its own specific strengths and by allocating the production line at this early stage every product is always manufactured on the most appropriate production line with the highest quality.

PCB-Design

Fineline QPI offers customised PCB design solutions. In total 8 professional PCB design packages including Mentor Graphics, Cadence, Zuken and Altium are used. One other unique feature is the use of extensive component libraries. The IPC-7351 compliant component libraries are developed by Fineline QPI and based on a centralised Fineline QPI parts management system These component libraries are also available to third parties.



KÖBER LTD DUMBRAVA ROSIE Vaduri head office, producer of MOTAN wall hung gas boilers is a Romanian company, part of KÖBER group, a very powerful industrial group, with good quoted trading values.

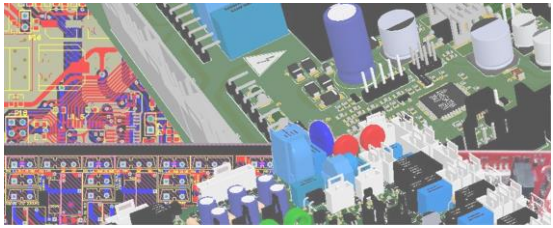
Köber Group aims at coming closer to customers understanding their needs and finding the proper solution for them. Knowing our clients needs, we are investing heavily in research and development to assure a large product portfolio of high quality. Köber Group has a large range of combination boilers, made with the best materials and in accordance with the highest standards in the industry. Boilers can be either condensing or conventional.

Delivering heat and hot water to many customers across world, Köber Group works with every part of the supply chain- wholesalers, installers, specifiers, utility companies and the end-user customer in their homes and businesses.

The activity of the group is held under European management and quality standards. Our activities in the Software and Electronic Industry area focus on providing complete and perfectly tailored software solutions for our clients. Our expertise and competence span across a vast area in software development and custom solution integration like communication, databases, recognition and analysis, automation and production.
Our capabilities are:

- **Hardware**: prototyping, series production, industrial automation, signal and data acquisition,
- **Software**: developing and programming embedded systems, developing software for control, testing and monitor for industrial equipment, programming PC applications (Windows and Linux), data analysis
- **Automation**: research and develop on customer request, implementing automation systems
- **Production**: component mounting an wave soldering, prototyping

KOBER LTD
Dumbrava Rosie, VADURI
office.vaduri@kober.ro
Phone: 0233/241945
Fax: 0233/241929
www.motan.ro



Founded 1991 with origins in the aviation industry, INAS maintains its position of major provider for best-in-class CAD/CAM/CAE/PLM/IoT software solutions, training, technical support and consulting services. The company is being recognized on the Romanian and international market as a leading technical consulting center for a wide spectrum of industrial applications from automotive, aerospace and heavy equipment to nuclear and defense.

WHY US?

If you need to design and test your products faster and better with lower costs. If you need the best-in-class CAD/CAM/CAE/PLM/IoT software or technical expertise. If you need better support and training.

Implementing our solutions and know-how in your product development process leads to shorter design, optimization, testing and manufacturing cycles, with important implications in time and cost reduction.

SOLUTIONS

- **ANSYS**: Structural Mechanics, Explicit Dynamics (including crash), CFD, Electromagnetics (LF & HF) and Multiphysics
- PTC: **Creo** (CAD/CAM), **Mathcad** (mathematical calculation), **Windchill** (PLM), **Arbortext** (technical illustrator), **ThingWorx** (IoT)
- **Moldex3D** (plastic injection simulation)
- **Vericut** (CNC machine simulation)
- **NCGCAM** (CAM for HSM)
- **Magmasoft** (casting simulation)
- **Bentley** (solutions for infrastructure)
- **Genesis** (optimization)
- **Total Materia** (material database: metals, plastic, polymer, composite)

SERVICES

- Consulting (FEA/CFD, CAD/CAM, Injection Molding Simulation, Casting Simulation)
- Research, Technical Support, Training

MARQUARDT SCHALTSYSTEME ROMANIA

↗ With over 10.000 employees in 19 locations, the Marquardt Group is a global leader in electro-mechanical and electronic systems for automotive, electric power tools and home appliance industries.

↗ Since 2006, Marquardt Sibiu sustains the business with 5 production areas – Electronics, Plastic Molding, Assembly, Painting & Laser, Microswitches, an R&D Center, and the efforts and talents of almost 3000 employees.

↗ After more than 10 years in Romania, we remain committed to create and manufacture quality products and processes for some of the most renowned companies in their industry.

How do we stay committed? Well, that is where come in.
Develop your career with us and become part of the Marquardt family!
Send your application to: jobs@marquardt-ro.com

Corporate Fact Sheet

Overview

Microchip Technology Inc. is a leading provider of microcontroller, mixed-signal, analog and Flash-IP solutions, providing low-risk product development, lower total system cost and faster time to market for thousands of diverse customer applications worldwide. Headquartered in Chandler, Arizona, Microchip offers outstanding technical support along with dependable delivery and quality. For more information, visit the Microchip website at http://www.microchip.com.

- Founded in 1989
- Publicly held (NASDAQ: MCHP) and listed on the Standard & Poor's 500 financial index
- $3.408 billion in net sales for fiscal year 2017 (ending March 31, 2017)
- Approximately 13,500 employees worldwide
- 63 sales offices worldwide
- Manufacturing facilities: Tempe, AZ; Gresham, OR; Colorado Springs, CO; Bangkok, Thailand; Laguna, Philippines
- Development centers: Bangalore, India; Lausanne, Switzerland; Santa Clara & Los Angeles, CA; Chandler, AZ; Bucharest, Romania; Manila, Philippines; Budapest, Hungary; Norristown, PA; Shanghai, China; Hsinchu, Taiwan; Austin, TX; Karlsruhe, Germany; Gothenburg, Sweden; Hauppauge, NY; Chennai, India; Irvine, CA; Hong Kong, China; Vietnam; Nantes, France; Rousset, France; Heilbronn, Germany; Whiteley, UK; Trondheim, Norway
- The Company's quality systems are ISO/TS-16949:2009 certified
- 106 consecutive quarters (more than 26 years) of profitability, as of March 2017
- Has shipped more than 19 billion microcontrollers
- #1 in worldwide 8-bit microcontroller revenue and #3 in worldwide microcontroller revenue according to Gartner

Applications

Microchip serves over 115,000 customers in more than 65 countries who are designing high volume embedded control applications in the consumer, automotive, industrial, communications, defense and aerospace and computing industries.
Microchip opened in 2006 its Romanian Development Center close to the "Politehnica" University of Bucharest. Currently there are more than 250 specialists with expertise in digital and analog IC design, applications and tools development and customer support activities.

Miele Tehnica Brașov is a subsidiary of Miele & Cie. KG, Germany. It was established in 2009 as a second electronics factory in the group, after the plant in Gütersloh.

The Miele plant in Braşov currently has 300 employees and produces electronic components for a wide range of Miele appliances, such as washing machines, tumble dryers, vacuum cleaners, ovens and others. The products Miele offers to its customers set the standards for durability, performance, ease of use, energy efficiency, design and service products.

In august 2015, in Brașov, a software development division was created. Within this new division the software for a wide variety of Miele appliances is developed.

The facility in Brașov is equipped with state-of-the-art technology and all quality requirements are respected according to the Miele Group's standards. This fact is acknowledged by all the certifications currently in place: ISO 9001, ISO 14001, ISO 50001, OHSAS 18001 and SA 8000.

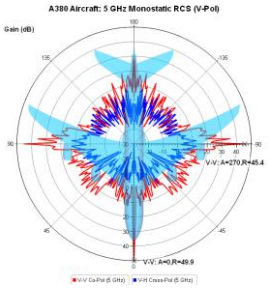
Address: No.1 Carl Miele Street, 507065 Feldioara, Braşov, Romania
Phone: 0040-372-217800, Fax: 0040-372-217810
Email: office@ro.miele.com, recrutare@ro.miele.com

TENSOR
... passion 4 engineering

ANSYS®

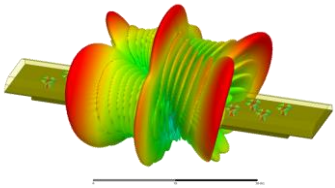
ANSYS HFSS - High Frequency Structure Simulator

Premier 3D Electromagnetic design tool that solves any arbitrary 3D structure



Available Solvers in ANSYS HFSS

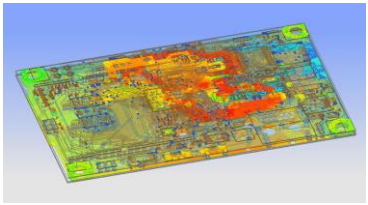
- Full Wave Finite Element Method (FEM)
- Integral Equation technique (MoM)
- SBR+ (Shooting Bouncing Ray)
- Transient Solver (DGTD)



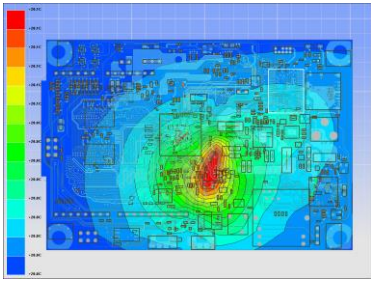
Applications

- Antennas
- EMI/EMC
- Satellite equipment
- Integrated circuit packages
- Connectors
- Radar equipment
- Routers
- Wireless communication gear

ANSYS SIwave



- High accuracy electromagnetic hybrid solver
- Fast setup and simulation in TD & FD
- Automatic Port setup
- Automatic export of Touchstone file for System Level Analysis
- Various types of simulation: Impedance scan, Crosstalk Analysis, Time Reflectometry, Signal Integrity Analysis,Power Integrity Analysis & Compute Rezonant Modes



ANSYS Software
Professional **Training**
Customer Support
provided by **TENSOR** in Romania

www.tensor.ro office@tensor.ro

Interreg

EUROPEAN UNION

Danube Transnational Programme

DA-SPACE

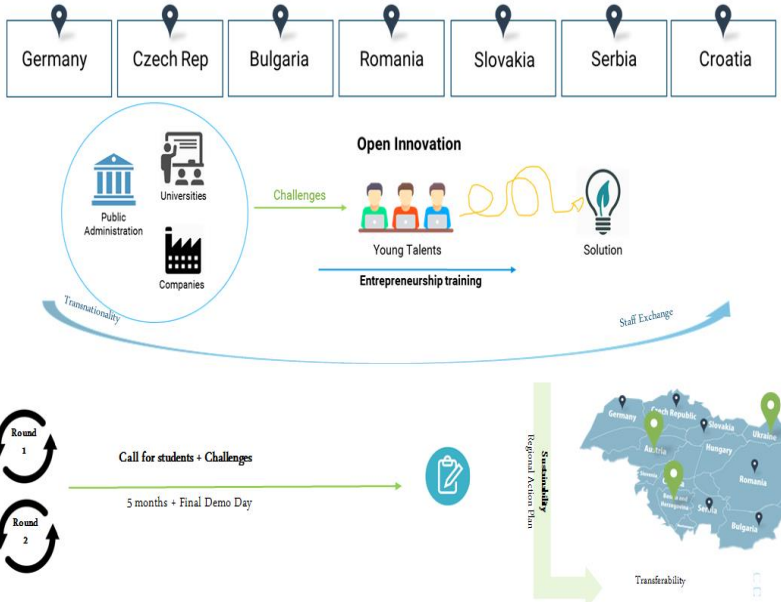
The Danube region is still very fragmented and presents great disparities in prosperity, jobs opportunities and innovation capacities. DA-SPACE addresses these challenges by piloting a model of open innovation lab in which companies, public authorities, universities and the civil society can create fundaments for innovation together with young talents. The DA-SPACE labs promote a cross-disciplinary and transnational cooperation among different stakeholders able to generate new solutions and nurture the entrepreneurial skills of all the actors involved.

The exchange among these actors in the DA-SPACE labs will profit both sides:

- young talents will work on real business cases and will be able to test and prototype their ideas in a safe environment, acquiring entrepreneurial skills;
- seekers (e.g. small and medium-sized enterprises, public authorities etc.) will test co-creation and open innovation methods and will benefit from the exchange with young innovators. Besides, their employees – involved as mentors in the lab - will improve their business competences responding to market requirements and developing skills for future job needs.

Learn more about DA-SPACE Project at www.interreg-danube.eu.

Visit APTE web page at apte.org.ro.



TIE 2019
New steps, same attitude

TIE event, sustained and hosted by universities and with large support of industry by well-known companies, has grown every year with new and challenging topics in the field of electronic packaging. It became an important link between academia and electronics industry, through the students and for the students.

Year after year, new companies became interested and joined this major event, being deeply involved in its organization. The topics of student contests are now proposed by industrial partners. In addition, the best student competitors, based on their training in PCB design skills on powerful CAD environments, are certified by the industry, as PCB designers.

Over time, as the complexity of electronics has increased, more needs for advanced and optimized PCBs have been appeared. Facing these challenges, the TIE event has developed steadily, reaching a high-profile well-known manifestation.

At present, it contains the TIE "classic" contest of PCB layout design and TIEplus, with more sophisticated design issues, such as high frequencies, electromagnetic compatibility and thermal dissipation. But TIE event is more than a student contest, including industrial presentations, and two workshops on PCB design and human resources development.

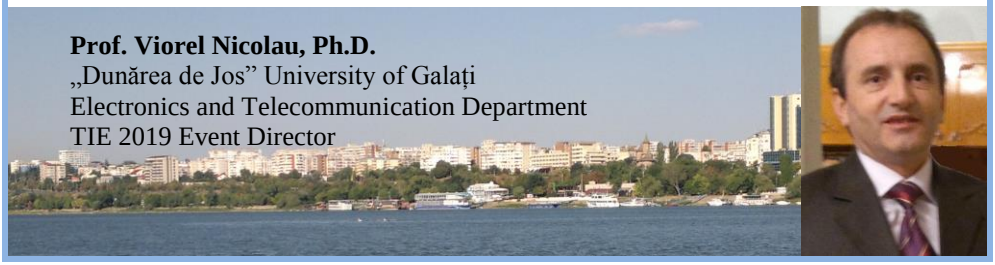
Next TIE event will took place in Galati, returning after 10 years under the auspices of "Dunarea de Jos" University of Galati.

On behalf of the local organizing committee, I am delighted and honored to address you all a warm invitation to Galati city, for the 28th edition of TIE competition.

Galati city is located in the eastern part of the country, on the left side of the Danube river. Although it is dominated for many years by heavy industries, the city is also an important academic center. "Dunarea de Jos" University of Galati was founded in 1948, and it is the biggest university in the region. At present, "Dunarea de Jos" University of Galati has 14 faculties and more than 12000 students.

We are looking forward to welcome you at TIE 2019 and to continue together the TIE story. Last but not least, we hope that you will enjoy your stay in Galati.

Galati, March 14th, 2018



Prof. Viorel Nicolau, Ph.D.
„Dunărea de Jos" University of Galați
Electronics and Telecommunication Department
TIE 2019 Event Director

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