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## Getting Started with FPGAs: an Expert Panel Discussion

Watch On-Demand

**When**  
22 Jul 2021 11:00 AM to 12:00 PM Central Time (US & Canada)

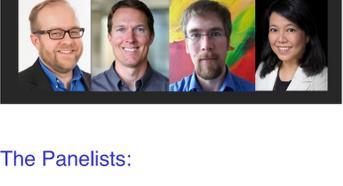
**Where**  
On24

In this panel discussion of industry experts from top suppliers, we will dive into benefits of FPGA technology, how to begin the journey as an FPGA developer/engineer, identifying the training resources available to learn about FPGA product design, and when FPGA technology needs to be considered in new product designs.

The panel discussion will conclude with an overview and tips on FPGA development environments, programming, design tools, and the development process. There will be an audience Q&A at the end of the panel discussion.

Questions the Expert Panel Will Discuss:

- New Users**
  - How did you (the panelist) get started with FPGAs?
  - How did your FPGA journey begin?
  - How are FPGA suppliers enabling new users?
  - What's the best way to begin developing with FPGAs?
- Resources**
  - What kinds of training resources are available for new users?
  - What resources do you have for expert level users or product developers or designers?
  - Using FPGAs Why do you think that FPGA technology needs to be considered in new product designs?
  - When do you need to build hardware based on an FPGA and when not to?
  - When should you select an FPGA instead of an ASIC, MPU or GPU?
- Programming FPGAs**
  - What are the different ways to program an FPGA or FPGA-based SoC?
  - What's the best way to begin?
  - Does a new FPGA engineer need to master a HDL or is there an easier way?
- Design Tools**
  - What changes in development tools do you think is helping to enable new users?



### The Panelists:



**Jayson Bethurem, Product Line Manager at Xilinx**

Jayson is the Product Line Manager for Xilinx's Cost-Optimized Portfolio, which includes Spartan, Artix, and Zynq-7000 devices. With over 20 years of Xilinx design, technical support, training, and marketing experience, Jayson leads the design of multiple evaluation boards, such as the Spartan-6LX9 Microboard, Zedboard, and MicroZed.



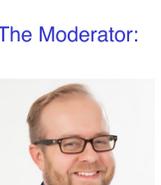
**Martin Kellermann, Business Development Manager for FPGA at Microchip**

Martin joined Microchip as Business Development Manager for FPGA covering EMEA. In this role Martin uses his deep FPGA experience to enable clients building optimized systems and achieve their requirements using Microchip FPGAs and SoCs. He has previous experience at Xilinx, where several application-notes were created and patents were filed and granted.



**Eleena Ong, Senior Director WW Applications Engineering at Lattice Semiconductor**

Eleena Ong is the Senior Director of Worldwide Applications and Customer Engineering at Lattice Semiconductor. Eleena joined Lattice with a 20+ year heritage in the semiconductor industry leading both engineering and marketing organizations, most of that in the FPGA space. Prior to Lattice, Eleena was Vice President of Marketing at Funible, a startup developing processors for the datacenter market. She also spent many years at Intel leading the product planning of Intel Programmable Solutions Group's high-end portfolio and developing board solutions for datacenters and 5G wireless applications. Eleena holds a Master of Science degree in Solid State Physics and a Bachelor of Engineering in Electronics and Telecommunications from University Science of Malaysia.



**Kevin Keryk, Marketing Manager at Avnet**

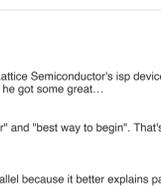
Kevin Keryk is a computer engineer by degree, a technical marketing manager by day, and embedded software programming addict from an impressionable age which has turned into a mostly healthy fascination with FPGAs, Programmable Logic, and other hardware craft over the past 10 years at Avnet. He now leads a small but agile group of Machine Learning Engineers who specialize in AI at the Edge applications across a wide range of advanced devices

Logos for AMD and Microchip.

### The Moderator:



**Eleena Ong, Senior Director WW Applications Engineering at Lattice Semiconductor**



**Kevin Keryk, Marketing Manager at Avnet**

Tags: microchip, xilinx webinar, xilinx, fpga, fpga\_webinar, lattice semiconductor, recording\_available, avnet\_webinar, programmable logic, summer of fpga

Comment by tahmad78: Leave a comment... 38 comments, 2 members are here

### Top Comments

**14rb** over 4 years ago +12  
In the late 90's I self taught myself about Microchip's PIC and Lattice Semiconductor's isp devices (with my time combined with my boss's support on providing hardware). Boss was happy as he got some great...

**kmikemoo** over 4 years ago +10  
Oh yeah! Super excited about this. I see phrases like "new user" and "best way to begin". That's my speed. Thank you for doing this on a Thursday. Minimal conflicts.

**misaz** over 4 years ago in reply to wolfgangfriedrich +7  
I think more illustrative "Hello world" is blinking two LEDs in parallel because it better explains parallelization benefits of FPGAs.

**14rb** over 4 years ago  
In the late 90's I self taught myself about Microchip's PIC and Lattice Semiconductor's isp devices (with my time combined with my boss's support on providing hardware). Boss was happy as he got some great project designs that coupled the two together while the fast logic was undertaken in the Lattice devices and the slower user interface (buttons, switches and LCD display) and controlling logic came from the Microchip PIC. The PIC was easy to get into using the PICStart Plus bundle. I later branched out to other devices using the EEPROM versions for development and the Once-Time\_Programmable (OTP) for production runs. And then flash based devices came along so I no longer needed to erase devices under UV. The Lattice semiconductor FPGA was also via a Farnell starter kit and unfortunately I side-stepped embracing HDL instead opting to use schematic capture into OrCAD, had I learnt Verilog or VHDL at that point I'd be so much more confident with it now. Device operation was instantaneous on power up and could be re-flashed quickly. I opted for the PLCC and often used adapters or zero insertion sockets during development.

Away from work I have also used some of these products over the years. Microchip has always been a favourite for microcontroller projects as their software is always easy to use, free of charge and there is a huge range of devices. Unfortunately I was unable to carry on with Lattice in my own time as the dongle was node-locked along with OrCAD. I think the same was true in the late 90's etc for Xilinx development tools - as in I could not afford them for myself. There was a discussion on E14 a few months ago [Re: My Brief Thoughts on Roadtesting](#) that touched on whether development software should be free of charge. If it is and not too limited then that is great to allow hobbyists and students to learn, and if they start a business or employment then that may be their go-to manufacturer. I note that Microchip's XC compilers are restricted in that they don't optimise the code whereas a paid optimiser can be obtained. This is a great approach allowing those on limited budget and occasional users to effectively just pay product for a larger device if RAM/program space is limited. Whereas a manufacturer who wants to save a few cents on extra/contra-\$ cost when making thousands would be better optimising the code. For the record - wearing a hobbyist hat, I don't like time limited software and prefer a less capable IDE. This is where Vivado is so great: you can try out most things for free unless you want the latest IP cores (in which case either pay or hunt around www for an open-source Verilog design).

Fast forwarding on to today such functionality can be achieved in Xilinx using Microblaze IP and in Lattice's devices using MicroB/16/32 softcores and for Microchip the CoreRISCv. We also have dedicated Programmable Systems on the FPGA silicon (SoC). Needless to say it is confusing me at times and therefore this should be a great presentation to help developers like me make the right choices of device for a certain application. It would also be great to hear what future aspirations these manufacturers have 😊. There is still a lot of merit in providing a low-cost starter 'pack' of hardware board and software, something that works easily with Windows or Linux or Mac and which has plenty of examples. I underline the easy part as there are many products I have looked at that have a long list of steps to getting the computer setup with drivers, permissions and IP or where last minute revisions of board stop the examples from working. Whilst someone with a bit of knowledge can often overcome those such issues spell disaster to the beginner/novice.

Having said all that, I now hope I don't miss the webinar .

**kevinkeryk** over 4 years ago in reply to 14rb  
Hi Rod,

Thanks for sharing your story, I have a strikingly similar background to yours.

In 1994, I was just 14 years old and one day my dad attended an engineering conference and that evening brought home a PIC16C84 development kit which came with stacks of literature (the printed device datasheet and assembly language programmers guide). Not sure if there were too many types of those kits available back then, so it is likely the same one that you are referring to. I had an old 386 PC that was fished out of the dumpster and restored to life with a new power supply and I was able to install the PICASM tools to build my assembly language application to code that could be downloaded to that EEPROM version you referred to, using the programmer attached to the PC with a DB9 serial cable. It was a lot of fun for me to learn about back then, who knew it would be so accessible and easy to get started with these platforms today.

For Xilinx, my first exposure was in 1996 doing PCB design and layout with these devices using Protel tools. Luckily the symbol definitions and landing patterns for these parts came with the tools, so there wasn't a whole lot that I needed to do to create a PCB with these parts on them. Later on I would get to do VHDL work using the Spartan-2 devices that were used to create an AMBA bus expander and glue logic for a bunch of peripherals and that experience is what helped me get my first job at Avnet where I get paid to play with all of the latest and greatest tools from amazing chip suppliers like Lattice, Microchip, and Xilinx.

I have done some work with the Microsemi Smart Fusion 2 for a bit and I am happy to see them back as part of the Microchip family.

Hopefully someday we can do something amazing with Lattice folks since they have a lot of innovative stuff as well!

Looking forward to this panelist session, it should be really great to hear from each of these folks!

-Kevin

**14rb** over 4 years ago in reply to kevinkeryk  
Hi Kevin,

Thank you also for sharing your story about FPGA and microcontrollers, it was very interesting for me to read. Whilst my starter kit was selected from browsing one of the Farnell catalogues (I think they had two volumes at that time vs their main UK competitor who had about 5, albeit smaller volumes) I wasn't really aware of others also developing given the lack of internet/forums/like minded colleagues. Your Dad did well bringing you home that kit IMO 😊

As you say, should be a good session and I'll look out for any questions you ask.

**dang74** over 4 years ago in reply to kevinkeryk  
The beginning of your post painted a vivid picture of what it was like back in the 90s. Sometimes I forget how much things have changed since then.

**dkibbey** over 4 years ago in reply to 14rb  
Hi Rod,

It will be available On demand after the live webinar if you miss it!

**14rb** over 4 years ago in reply to dkibbey  
Technology worked for me and my phone showed the E14 email reminder. Great webinar as well, so thank you to everyone who arranged it and to the panelists 😊

**kmikemoo** over 4 years ago  
Oh yeah! Super excited about this. I see phrases like "new user" and "best way to begin". That's my speed. Thank you for doing this on a Thursday. Minimal conflicts.

**Jomoengineer** over 4 years ago  
This looks very interesting.

Its a good Management representation from some of the major FPGA companies.

**wolfgangfriedrich** over 4 years ago  
The 'Hello World' of FPGAs is a blinking LED.

If you recognize how much you have to slow down the FPGA to make the blinking visible, you are probably hooked.

**misaz** over 4 years ago in reply to wolfgangfriedrich  
I think more illustrative "Hello world" is blinking two LEDs in parallel because it better explains parallelization benefits of FPGAs.

**wolfgangfriedrich** over 4 years ago in reply to misaz  
That is very true and I am going to use this example in the future.

**14rb** over 4 years ago in reply to wolfgangfriedrich  
...you are probably hooked.

I think the real fun in the past (which got me hooked) used to be the detective work reading through the product sheets, finding which registers controlled the desired functionality and flipping the bits accordingly. As devices became more complex and it took longer and longer to debug which register was not set correctly, and then using the available IDE tools (such as MCC for PIC) became invaluable and a lifesaver...but at the same time took away part of the magic/fun. In a similar way I used to really enjoy building a microcontroller project directly from assembly language and using a few tricks to keep the code as small as possible. However even counting above 255 on an 8-bit microcontroller isn't the simplest task whereas moving onto the C-compiler makes it a breeze 😊...but again there was real fun in writing assembly. The fun for FPGA was that the fabrication shop made my PCB whilst I still worked up the actual logic - luckily that approach hasn't changed much and with the increased availability of pre-built IP blocks, perhaps even more fun to stitch functionality together.

ps: I like to then make a "Hello World 2" where I change the timing to confirm control of that LED :-)

**shabaz** over 4 years ago in reply to 14rb  
And occasionally swing the development board in the air to see if it really is blinking rapidly, for the times when the LED appears steady, when the delay or timer setting is miscalculated : )

**Andrew J** over 4 years ago  
This discussion makes me look forward to these events more and more. It's a shame there are no Ultra96 boards available in the UK until it's all over but at least the info will be available for when there is.

**zedhed** over 4 years ago in reply to Andrew J  
Hey Andrew, I just wanted to point out that Farnell UK currently has a stock of 46 Ultra96-V2 boards as of today: [AES-ULTRA96-V2-G Avnet\\_Ultra96-V2\\_Zynq\\_UltraScale+ ZUSEQG Single Board Computer\\_Temperature range of 0°C to 80°C | Farnell](#)

Just in time to get prepared for the workshops coming up on **Aug 4, 11, 18 & 25** over here: [Xilinx Vivado and Vitis Workshop with the Avnet Ultra96-V2](#)

-Kevin

**Andrew J** over 4 years ago in reply to zedhed  
Hi Kevin,

thanks - I actually got hold of one a week or so ago. I think Bryan arranged for a shipment from the US and I managed to spot it on the website.