

Artix FPGA Device Architecture Reading List

All documents from www.xilinx.com

1. General Overview of series 7 (Artix) FPGAs

https://www.xilinx.com/support/documentation/data_sheets/ds180_7Series_Overview.pdf

Pages 1-6: Understand there are different families of FPGAs, and in each family there are different die sizes, and for each die size there are different package options. You don't need to memorize anything, but know there are choices, and why you might make a certain choice.

Pages 7-10: General overview of the major blocks available in FPGA – you should have a conversational knowledge of the major blocks inside an FPGA and their general function/use.

2. CLB architectures and capabilities

https://www.xilinx.com/support/documentation/user_guides/ug474_7Series_CLB.pdf

Pages 9 – 10: General introduction and overview of CLB features.

Pages 16 - 25: CLBs are the main programmable resource. You should be generally familiar with their capabilities and internal architectures. I won't ask about X vs. Y, or SliceM vs. SliceL differences, or internal details of the diagrams on pages 19 and 20. But I am looking for general awareness of what's in a CLB.

Page 43: General awareness that a dedicated carry chain exists.

3. I/O Resources

https://www.xilinx.com/support/documentation/user_guides/ug471_7Series_SelectIO.pdf

Pages 13-20: General overview of I/O pins and their capabilities. I/O pins are “banked”, each bank can have its own voltage supply, there are many terminations available, pull-ups or pull-downs, etc.

Pages 105-109: General awareness of I/O logic resources. There are flip-flops at the pins, three-state drivers, delay cells, etc.

4. Block RAM (Memory) Resources

https://www.xilinx.com/support/documentation/user_guides/ug473_7Series_Memory_Resources.pdf

Pages 11-19: Overview of block RAM resources.

5. Clocking Resources

https://www.xilinx.com/support/documentation/user_guides/ug472_7Series_Clocking.pdf

Pages 13-15: Overview of clocking strategy

Pages 65-69: Overview of Clock Management Tile

6. DSP Slices

https://www.xilinx.com/support/documentation/user_guides/ug479_7Series_DSP48E1.pdf

Pages 9-10: Overview of DSP slice

Pages 13-18: More detail about DPS Slice

7. ZYNQ overview and Resources

https://www.xilinx.com/support/documentation/data_sheets/ds190-Zynq-7000-Overview.pdf

Pages 1-2: ZYNQ overview

Pages 5-17: General ZYNQ features