

DAILY ASSESSMENT FORMAT

Date:	01/06/2020	Name:	Lavanya B
Course:	Digital system design using HDL	USN:	4a117ec043
Topic:	FPGA business fundamentals FPGA basics	Semester & Section:	6th A
Github Repository:	Lavanya-B		

FORENOON SESSION DETAILS

Image of session

Different Hardware Are Like Signs...

ASIC	ASSP	FPGA
Application Specific Integrated Circuit	Application Specific Standard Product	Field Programmable Gate Array
<p>CUSTOM LOGO</p> 	<p>OFF-THE-SHELF SIGN</p> <div style="border: 2px solid red; padding: 5px; display: inline-block;"> <p>HELP WANTED</p> </div>	<p>WHITEBOARD</p> 
<ul style="list-style-type: none"> ➤ Specific to one company ➤ High upfront cost ➤ Large volume 	<ul style="list-style-type: none"> ➤ Specific function ➤ General enough that anyone can purchase/use it 	<ul style="list-style-type: none"> ➤ Flexible and customizable ➤ IP is like a magnetic letter you can stick on the board

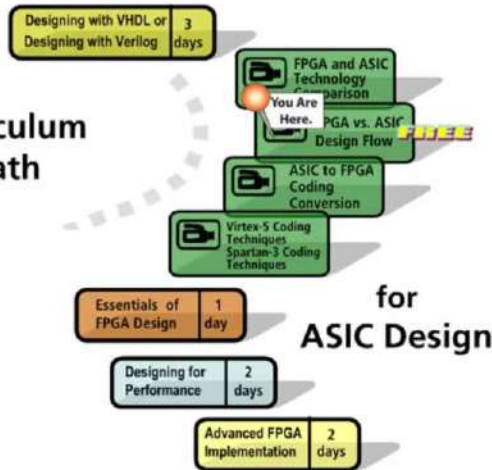
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ASIC/ASSP Advantages & Disadvantages

PROS	CONS
<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="background-color: #92d050; padding: 5px; margin-right: 10px;">\$</div> <div>Low cost per unit (high-volume mass production)</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="background-color: #92d050; padding: 5px; margin-right: 10px;">⚡</div> <div>Low power consumption</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="background-color: #92d050; padding: 5px; margin-right: 10px;">⚙️</div> <div>High performance/ clock speed</div> </div> <div style="display: flex; align-items: center;"> <div style="background-color: #92d050; padding: 5px; margin-right: 10px;">📏</div> <div>Small unit size</div> </div>	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="background-color: #ffcc00; padding: 5px; margin-right: 10px;">\$\$\$</div> <div>High non-recurring engineering (NRE) cost</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="background-color: #ffcc00; padding: 5px; margin-right: 10px;">🔑</div> <div>Not flexible – cannot be upgraded once hardened</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="background-color: #ffcc00; padding: 5px; margin-right: 10px;">🧩</div> <div>Complex design flow</div> </div> <div style="display: flex; align-items: center;"> <div style="background-color: #ffcc00; padding: 5px; margin-right: 10px;">⏳</div> <div>Long time to market</div> </div>

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Curriculum Path



Report

Digital system design using HDL

How Intel IPN's Liable - the Industrial IoT

FPGA technology powers the industrial infrastructure at the heart of the smart grid providing critical real-time substation control with minimum response times.

It also enables low latency high performance synchronous applications such as real-time power grid state estimation volt, phase and angle and frequency monitoring efficient management of two-way electricity flow from renewable energy sources. FPGA technology to allow grid feed inverter's with minimal harmonic distortion & hardware encryption enables secure & safe smart grids.

FPGA Building Fundamentals

ASIC - Application specific integrated circuit

ASIP - Application Specific Integrated Product

FPGA - Field programmable gate array

FPGA

- Reprogrammable & flexible
- Proven longevity
- Reduced time to market
- Market size optimized

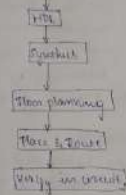
FSHA or ASIC Design Flow

ASIC & FPGA design & implementation
 allows FPGAs provide for reduced design time and lower
 bug fixes

- No design for test logic is required
- Deep sub-micron verification is done
- No waiting for prototypes
- coding style
 - For high-performance design, FPGAs may require some pipelining
 - the code usually requires optimisation

ASIC Design flow

Functional spec



FPGA Basics - A Look under the Hood

Altera

Xilinx

The four algorithm attributes are:

1. Parallel processing
2. High data-to-clock-rate-ratio
3. Large quantities of deterministic I/O
4. Signal processing

Core components of FPGA

LUT (Look-up Table)

FF (flip-flop)

Block memory

Multiplexer or DSP blocks

I/O

Advanced components

Hard cores - these are embedded into the FPGA silicon

This could include functions such as high-speed comp, low speed adc converter.

Soft cores - these are laid out with soft core logic resources. This could include anything from DSP memory interfaces to FFT cores to FIR filters to microprocessors to co-processors.

Verilog code for NAND gate using gate-level modelling

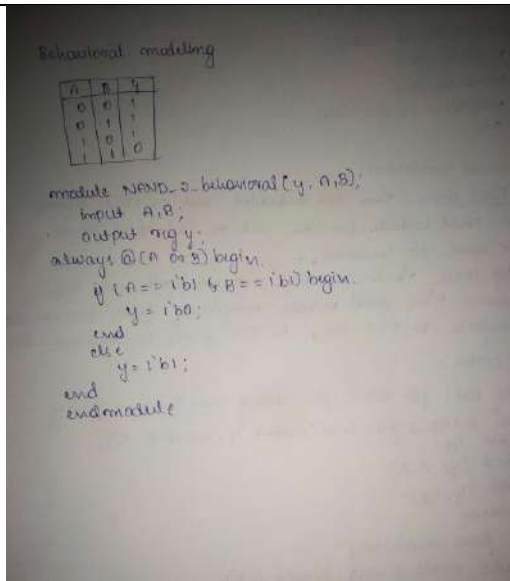
```

module NAND2_gate_level(output y, input A, B);
  wire yA;
  and (yA, A, B);
  not (y, yA);
endmodule
  
```

Data flow modelling

```

module NAND2_data_flow(y, A, B);
  output y;
  input A, B;
  assign y = ~(A & B);
endmodule
  
```



Date: 01/06/2020

Course: Python

Topic: Webscraping with python beautiful
soup

Name: Lavanya B

USN: 4a17ec043

Semester 6th A

& Section:

AFTERNOON SESSION DETAILS

Image of session

The screenshot shows a web browser window with a URL bar displaying `github.com/.../.../.../.../...`. The main content area is divided into two sections. The top section, titled "Lectures", contains three black boxes with white text. The first box is labeled "London" and contains the text "London is the capital of England and it's been a British settlement since 2000 years ago". The second box is labeled "Paris" and contains the text "Paris is the capital city of France. It was declared capital since 798". The third box is labeled "Tokyo" and contains the text "Tokyo is the capital". A text overlay on the right side of the "Tokyo" box reads: "So naturally you'll start thinking about iterating through these boxes which are". The bottom section, titled "More", contains a list of lectures. Each lecture entry includes a number, a title, a status icon (a green checkmark), a video icon, a duration, and a download icon. The lectures are: 222 "More Visualization Examples with Bokeh" (Video - 04:21 mins), 223 "Plotting Time Intervals of the Motion Detector" (Video - 14:05 mins - Resources (1)), 224 "Hover Tool Implementation" (Video - 09:57 mins), Section 28 "Web scraping with Python BeautifulSoup", 225 "Section Introduction" (Video - 01:57 mins), 226 "The Concept Behind Web scraping" (Video - 04:30 mins), 227 "Request Headers" (Article), and 228 "Web scraping Example" (Video - 16:22 mins). The lecture 228 is highlighted with a light blue background.

Lectures More

222 More Visualization Examples with Bokeh Video - 04:21 mins

223 Plotting Time Intervals of the Motion Detector Video - 14:05 mins - Resources (1)

224 Hover Tool Implementation Video - 09:57 mins

Section 28 - Web scraping with Python BeautifulSoup

225 Section Introduction Video - 01:57 mins

226 The Concept Behind Web scraping Video - 04:30 mins

227 Request Headers Article

228 Web scraping Example Video - 16:22 mins

Report

Webscraping with python beautiful soup

Automated web scraping can be a solution to speed up the data collection process.

Webscraping

Web scraping is used to collect large information from websites.

- **Price Comparison:** Services such as ParseHub use web scraping to collect data from online shopping websites and use it to compare the prices of products.
- **Email address gathering:** Many companies that use email as a medium for marketing, use web scraping to collect email ID and then send bulk emails.
- **Social Media Scraping:** Web scraping is used to collect data from Social Media websites such as Twitter to find out what's trending.
- **Research and Development:** Web scraping is used to collect a large set of data (Statistics, General Information, Temperature, etc.) from websites, which are analyzed and used to carry out Surveys or for R&D.
- **Job listings:** Details regarding job openings, interviews are collected from different websites and then listed in one place so that it is easily accessible to the user.

Challenge

1. Variety
2. Durability

APIs

Application Programming Interfaces (APIs) that allow you to access their data in a predefined manner. With APIs, you can avoid parsing HTML and instead access the data directly using formats like JSON and XML. HTML is primarily a way to visually present content to users.

Extract data using webscraping

1. Find the URL that you want to scrape
2. Inspecting the Page
3. Find the data you want to extract
4. Write the code
5. Run the code and extract the data
6. Store the data in the required format

Guvi certificate

