

lecture1Intro.pdf - Foxit Reader - [lecture1Intro.pdf]

File Edit View Comments Forms Tools Help

Do more with your PDFs

Looking at a system as a chip designer: HW versus SW

The diagram illustrates three computer architectures from a chip designer's perspective, comparing hardware (HW) and software (SW) implementations. Each architecture is shown in a box with a light orange background, divided into a Controller and a Datapath.

- General-purpose ("software")**: The Controller contains a "Control logic and State register" block, which is connected to an "IR" and a "PC" block. The Datapath contains a "Register file" and a "General ALU" block. Both the Controller and Datapath are connected to "Program memory" (containing assembly code for a loop) and "Data memory".
- Application-specific**: The Controller contains a "Control logic and State register" block, which is connected to an "IR" and a "PC" block. The Datapath contains a "Registers" block and a "Custom ALU" block. Both the Controller and Datapath are connected to "Program memory" (containing assembly code for a loop) and "Data memory".
- Single-purpose ("hardware")**: The Controller contains a "Control logic" block and a "State register" block. The Datapath contains an "index" block, a "total" block, and an addition block (+). Both the Controller and Datapath are connected to "Data memory".

Ready 5 / 61 82% Size: [11.00 * 8.50 in]