

Wireless Circuitry Based CPU (WCBCPU)

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Abstract— This is the study of the CPU that is having very different kind of circuitry from the traditional ones i.e. of wired. This one has the circuitry that is of wireless one, which in simple words based on interconnectivity of the components of a CPU viz. ALU, CU and registers set, can communicate with each other wirelessly. As we know that according to the Morgan's Law that "the size of the CPU gets decreasing and its transistors gets increasing exponentially". In such a scenario it (CPU) becomes more complex and also important to think about a circuitry that interconnects these components wirelessly so that more powerful CPU comes into existence.

Index Terms— ALU, CPU, CU, PTR, Bus, Memory and WCBCPU.

1 INTRODUCTION

The manufacturing of the CPU having components (ALU, CU & register set) interconnected wirelessly is having very high complexity. Because the interconnectivity for communication in real life is possible in broad view i.e. in computer peripherals like Bluetooth based mouse, keyboard, printer etc. While in the case of making a CPU's internal circuit is of highly complex as well as of tedious one. Here we are discussing a possibility of creating the WCCPU (Wireless Circuitry based CPU).

2 LITERATURE SERVEY

The traditional CPU is composed of three major components (Control Unit, Arithmetic Logic Unit, Register Set). All the functional components of ALU like adder, subtractor, multiplier, etc. are connected with all the registers with the help of multiplexers, decoders & internal buses. Registers are also interconnected with control units. It is observed that the internal circuitry of CPU becomes very complex due to the internal line connectivity among different components of CPU.

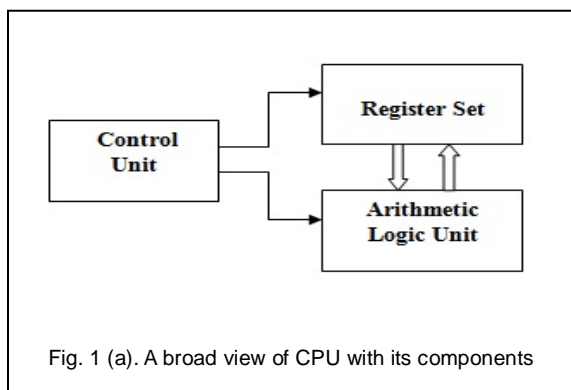


Fig. 1 (a). A broad view of CPU with its components

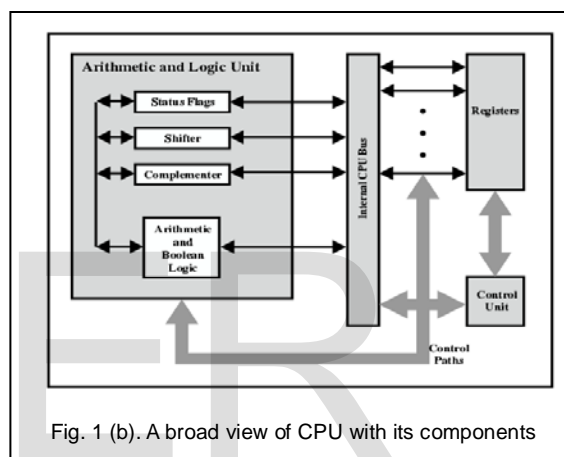


Fig. 1 (b). A broad view of CPU with its components

The 8-registers of CPU are connected with ALU with the help of two multiplexers. The inputs of multiplexer are 8-registers and the output is selected by SELA & SELB lines. The output is transferred to ALU through Bus A & Bus B. After performing the specified operation selected by OPR lines the final result is transfer to one of the register selected by SELD lines.

In this figure we can see the complexity of connections between 8-registers & ALU. This complexity will become more complex if number of registers increases.

3 LIMITATION OF EXISTING SYSTEM

The communication in existing CPUs are done with line communication system. The data is transferd in the form of electric current from registers to ALU or vice versa. The complexity of connections is the main problem with existing system. There is also limitations on increasing the internal memory of CPU because of complexity issues. If the number of registers are increased in CPU it will increase the circuit complexity. The CPU will get heat up as a result of increased complexity.

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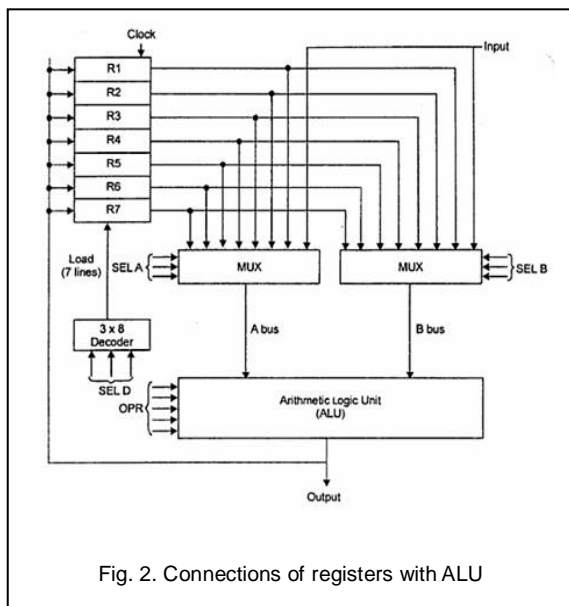


Fig. 2. Connections of registers with ALU

4 PROPOSED SYSTEM

In this research paper we are proposing a new system with name WIRELESS CIRCUITRY BASED CPU(WCBCPU). The main concepts is that all the registers will communicate with ALU without any line circuitry. The study is based on the fact of particle physics, where we can use photons as communication units. Each component i.e. ALU, CU and register set is having a photonic transceiver (PTR), and thus enable to communicate wirelessly internally. This kind of CPU thus becomes more powerful and less complex in circuit.

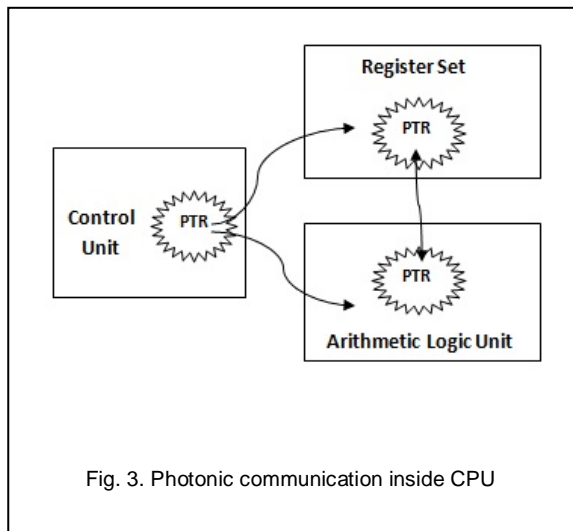


Fig. 3. Photonic communication inside CPU

4 CONCLUSION

After the implementation of wireless based CPU, we may be free from the limitations of registers inside the CPU. The manufacturer will be able to increase the number of registers because now it will not increase the complexity of connections between registers & the components of ALU. The implementation of wireless circuitry based CPU will remove all the limitations while making a CPU. It will become fast & less power consuming CPU due to the photonic transmission in place of electric current transmission. The manufacturing of this kind of CPU i.e. WBCPU will be very complex to be implement but not impossible.

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