The Anitra Project
How simple can a basic computer be designed?
by Eirik Bakke

Goal
Although hypothetical minimalist computers have long been an interesting study in Computer Science, there exists very few actual hardware implementations of such computers, and the goal of this investigation was to design one from scratch using the standard integrated logic circuits of digital electronics.

The Investigation
I started my investigation by defining the exact requirements for my computer. Then, as I was aiming to keep its design as simple as possible, I tried to logically deduce what components would unquestionably be required parts of it. Using only components presumed to be essential, I could put together a structure that should be capable of fetching and executing instructions in memory. From this, I went on by designing the necessary control logic and defining the circuits in detail on paper.

Conclusions
Given the initial requirement to restrict its design to standard circuits, it seems possible to devise a computer of ultimate simplification. Even so, it does not cover in detail the computer's control circuits.

The Anitra Computer

“A computer is a machine that, given enough time and memory, can perform any computational operation on a set of data. A minimalist computer is a computer that satisfies this requirement with only a minimum level of architectural complexity.”