

FPGA Design – the Making of an Intel 8086 Microprocessor with Modern Technology

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The Intel 8086 microprocessor was first introduced in 1978. Since then the semiconductor industry has changed vastly from the old chip manufacturing techniques of the time. Today we can fit thousands of Intel 8086 microprocessors in the same size package with use of modern semiconductor techniques such as the ability to design with 22nm feature size and better yield from improved wafer quality. This paper examines how we can still learn from preceding technology with a more modern twist. By utilizing field programmable gate arrays, we can easily implement the same technology from the past and learn about architectures that are still relevant in today's modern processors.



Completed project: Intel 8086 based microprocessor on an Altera DE0 FPGA Development Board running MS-DOS 6.22 an x86-16bit compatible operating system