
8086 Board Design Project

CMPE 310
Sabbir Ahmed

April 2, 2017



This document provides detailed instructions to develop an 8086 microprocessor board using Cadence® OrCAD® Capture software. Included are the schematics of individual IC components and their description. Details of the ICs include decoding, programming specifications, and descriptions of IC pin outs.

Contents

1	Introduction	2
1.1	Purpose	2
1.2	Scope and Organization of Document	2
2	8086 Microprocessor	3
2.1	Description	3
2.2	Address and Data Buses	3
2.3	Control Bus	3
3	Decoding	4
3.1	Programming Logic Device - 16L8	4
3.2	Programming the PLD	4
4	Clock Generator - 8284	5
4.1	Description	5
5	Memory Architecture	6
5.1	Static Random Access Memory - CY7C199	6
5.2	Interfacing Memory Banks with the Microprocessor	6
5.3	Addressing	6
5.4	CMOS Flash Memory - 28F010	6
5.5	Flash Memory Implementation	6
5.6	Addressing Flash Memory	6

1 Introduction

The 8086 microprocessor is an enhanced version of the 8085 microprocessor developed by Intel in 1978. It is a 16-bit microprocessor, with 20 address lines and 16 data lines to provide up to 1 MB of physical memory.

1.1 Purpose

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

1.2 Scope and Organization of Document

2 8086 Microprocessor

2.1 Description

2.2 Address and Data Buses

2.3 Control Bus

3 Decoding

3.1 Programming Logic Device - 16L8

3.2 Programming the PLD

4 Clock Generator - 8284

4.1 Description

5 Memory Architecture

5.1 Static Random Access Memory - CY7C199

5.2 Interfacing Memory Banks with the Microprocessor

5.3 Addressing

5.4 CMOS Flash Memory - 28F010

5.5 Flash Memory Implementation

5.6 Addressing Flash Memory