ICS Homework Week 2

September 17, 2019

1 Number Conversion

Fill the table below:

Binary	Decimal	Hexadecimal
	2019	
		0xAA64
110111001100101		

2 Binary Operations

2.1 Basic Operations

Give two 8-bits wide numbers A=0x57 and B=0x62. Calculate the values of the following expressions.

1. A & B
3. A | B
5. A ^ B
6. (A & B) | (A ^ B)

2.2 Endianness Conversion

In computing, endianness refers to the order of bytes within a binary representation of a number. A **big-endian** ordering places the most significant byte first and the least significant byte last, while a **little-endian** ordering does the opposite. For example, a 32-bits unsigned number 0x12345678 would be [0x12, 0x34, 0x56, 0x78] in a **big-endian** ordering but [0x78, 0x56, 0x34, 0x12] in a **little-endian** ordering.

You are required to design a macro **DATA_LE32(data)**, which can convert a 32-bit big-endian number (e.g., 0x12345678) into a 32-bit little-endian number (e.g., 0x78563412).