We store two values inside two memory words, one in 196 with a value of 510 and one in 128 with a value of 254 this word is the word written by the last STR instruction
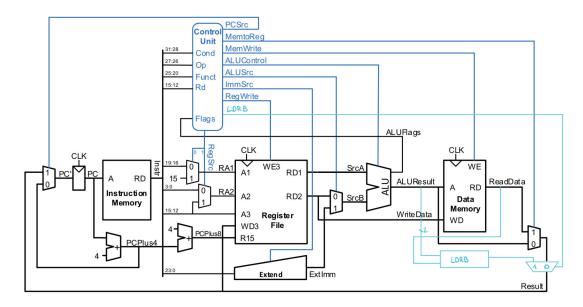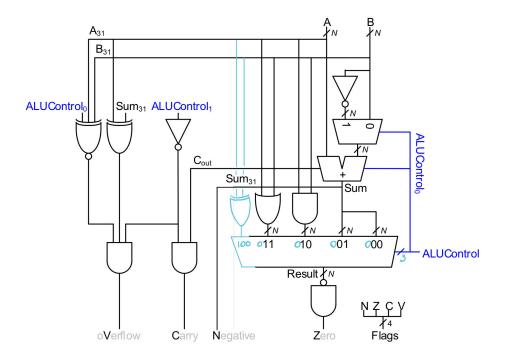
Figure 2. Single-cycle ARM processor

Figure 3. ARM ALU

Table 2. Extended functionality: Main Decoder

Funct2	Op	Funct5	Funct0	Type	Branch	MemtoReg	MemW	ALUSrc	ImmSrc	RegW	RegSrc	ALUOp	LRDB
X	00	0	X	DP Reg	0	0	0	0	XX	1	00	1	0
X	00	1	X	DP Imm	0	0	0	1	00	1	X0	1	0
X	01	X	0	STR	0	X	1	1	01	0	10	0	0
0	01	X	1	LDR	0	1	0	1	01	1	X0	0	0
X	10	X	X	B	1	0	0	1	10	0	X1	0	0
1	01	0	1	LDRB	0	1	0	1	01	1	X0	0	1

Table 3. Extended functionality: ALU Decoder

ALUOp	Funct$_{4:1}$ (cmd)	Funct$_0$ (S)	Notes	ALUControl$_{1:0}$	FlagW$_{1:0}$
0	X	X	Not DP	00	00
1	0100	0	ADD	00	00
		1			11
	0010	0	SUB	01	00
		1			11
	0000	0	AND	10	00
		1			10
	1100	0	ORR	11	00
		1			10
	0001	0	EOR	100	00
		1			10