Assembly programmer's model of a computer

(All registers and memory locations are 4 bytes wide)

	Register bank			Stack			Data memory	ī
R0	0x0006	A1	0x1074	caller-Ir		0x007C		
R1		A2	0x1070	caller-r4				
R2		A3	0x106C	0x0006				
R3	0xffffffa.	A4	0x1068		· · · · · · · · · · · · · · · · · · ·			
R4	caller-r4	V1 -	0x1064					
R5		V2	0x1060					
R6		V3	0x105C					
R7		V4/WR						
R8		V5		: : ;				
R9		V6/SB		: : ;				
R10		V7/SL		: : :				
R11		V8/FP						
R12		IP		: : :				
R13	0x1068	SP						
R14	0x0015	LR						
R15	0x0008	PC		: : :				
CSPR]						
JOPK								
		$\overline{}$:						
0	0 0	0 :						
N	Z C	V						
				: : :				
				: : : }				
IR]						
** -		J				0x000C		
MAR]	0x1000			0x0008		$\ $
'		- 1				0x0004		
MDR						0x0000	0x0006	

Processor core

Memory hierarchy

COMMENTS:

!----NOTE: The value stored in the program counter is one higher than the current instruction due to it being incremented in the fetch cycle, the instruction stored at address 0x0008 has not taken effect.