Assembly programmer's model of a computer

(All registers and memory locations are 4 bytes wide)

	Register bank			Stack		Data memory
R0	0x0000.	A1	0x1074	caller-lr	0x007C	
R1		A2		caller-r4	·	
R2	0xffffffa.	A3	0x106C	0x0006	· ·	
R3	0x0000	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	0x1070	SP		: : : :		
R14	0x0015	LR				
R15	0x001B	PC				
				: :		
CSPR]		: : :		
0	0 0	0 :				
L		.,				
N	Z C	V				
				: :	:-::	
				: : :		
IR] :				
					0x000C	
MAR			0x1000		0x0008	
MDD		1 :			0x0004	Overest -
MDR]			0x0000	0xffffffa.

Processor core

Memory hierarchy

!----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 0x001B has not taken effect.